National Institute for Health and Care Excellence

Draft for consultation

Rehabilitation after traumatic injury

C.3 Specific programmes and packages in spinal cord injury for people with complex rehabilitation needs after traumatic injury

NICE guideline <number>

Evidence review underpinning recommendations 1.15.1 to 1.15.8, 1.15.10, 1.15.11, 1.15.13 to 1.15.16, 1.15.18 to 1.15.25, 1.15.27 to 1.15.32 and research recommendations in the NICE guideline

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Draft for Consultation

These evidence reviews were developed by the National Guideline Alliance which is a part of the Royal College of Obstetricians and Gynaecologists

Disclaimer

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or service users. The recommendations in this guideline are not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

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Summary of review questions covered in this report

This evidence report contains information on 2 reviews:

- C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?
- C.3b For children and young people with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Specific programmes and packages in spinal cord injury for people with complex rehabilitation needs after traumatic injury

Review question

This evidence report contains information on 2 reviews relating to specific rehabilitation programmes and packages for chest injury:

C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

C.3b For children and young people with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Introduction

Trauma caused by road traffic accidents and falls is the commonest cause of spinal cord injury (SCI) in the UK. People with SCI may suffer from a range of problems caused by damage to the nerve supply to the limbs and trunk, depending on the how high up the spinal cord the injury occurs. Breathing, bladder, bowel and sexual functions may also be affected, and injuries are often life-changing and life-long. Additionally, the SCI may be complete or incomplete, giving rise to different patterns of recovery potential and disability.

Twenty-five percent of people admitted to the 9 SCI specialist centres in England and Wales have other major injuries (polytrauma) which also require management. All people with traumatic SCI should be referred to their regional specialist SCI unit within 4 hours of injury. However, many people do not access these specialist centres and receive their care in trauma centres, general hospitals and local rehabilitation centres. Significant, sometimes life-threatening complications can occur if people with SCI do not receive appropriate support for their body functions such as bowel and bladder management, care of their skin and pressure areas, maximising their mobility and joint range of movement, and disorders of low and high blood pressure.

People with polytrauma often require SCI management in parallel with treatment of their other major injuries. NICE guidelines for early, in-hospital management of SCI do not include rehabilitation. Clinical guidance, for example from MASCIP (Multidisciplinary Association for Spinal Cord Injury Professionals) are available but are often not applied out-with specialist services. The role of more advanced rehabilitation processes for this group in the acute hospital system is not clear.

Summary of the protocol

Please see Table 1 and Table 2 for a summary of the Population, Intervention, Comparison and Outcome (PICO) characteristics of this review in the adult and children and young peoples populations, respectively.

Table 1: Summary of the adult protocol (PICO table)

Population	Adults (aged 18 years and above) with complex rehabilitation needs resulting from traumatic injury that involves spinal cord injury and requires admission to hospital
Intervention	Standard care consisting of at least 2 of the following: Early referral to spinal cord unit, physiotherapy [range of movement exercises, respiratory management, exercises to maintain muscle function, mobilisation and training with mobilisation aids such as crutches or frame or wheelchairs], orthotics and splinting, pressure care management of skin, occupational therapy assessment, identification and support of activities of daily living through training or aids, and acute pain management; in addition to at least one of the following spinal cord injury interventions: • Autonomic dysreflexia (e.g. sudden surge in blood pressure, constipation, spasiticity) management • Early prophylactic bladder and bowel management (using one or more of the following strategies: ○ Bowel: ▪ Suppositories ▪ Enema/transanal irrigation ▪ Laxatives ▪ Digital removal of faeces (i.e. finger) ▪ Valsalva maneuver ▪ Rectal/sacral stimulation/innervation ▪ Colostomy ▪ Manometry ▪ Dietary fiber ▪ Massage ▪ Neural prostheses ▪ Self-help devices ▪ Anal plug (for severe diarrhoea) ○ Bladder: ▪ Bladder retraining/training strategies ▪ Anti spasmodics (e.g. Botulinum toxin/onabotulinumtoxin A or oxybutynin) ▪ Catheterization (in-dwelling or urethral) ▪ Self-catheterisation or intermittent self catheterisation (ISC) ▪ Suprapubic catheterisation ▪ Clamping off ▪ Flip flo ▪ Regular monitoring of upper renal tract function • Functional electrical stimulation (FES) • Neuromuscular electrical stimulation (NMES) • Length of bed-rest and early mobilisation (i.e., sitting) • Low blood pressure management (postural hypotension) • Spasticity management of spinal cord (i.e., pharmacological management e.g. intrathecal or oral baclofen, tizanidine, botulism toxin, dantrolene, gabapentin, phenol; positioning and seating systems; splinting) • Early access to spinal cord services including outreach (early defined as “after the surgery management required has been done at the main trauma unit”). • Access to specialist equipment which include wheelchairs, assistive technology and environmental control (e.g. single access systems, specialist seating and alternative keyboards)

	• Specialist equipment such as FES in bike or orthotics, standing frames, body weight supported gait training, exoskeleton or robotic orthotics, tilt table • Psychological therapies for adjustment and engagement (Compassionate mind therapy, Acceptance and commitment therapy, Mindfulness, Visualisation or 'mentalisation' to support physical rehab, Relaxation [progressive, or breathing based, or other], Mirror therapy, Cognitive behavioural therapy)
Comparison	1) Standard rehabilitation care (as defined above) 2) Studies that employ the same intervention program as listed under 'interventions' but vary it in terms of any of the following: • Frequency • Intensity • Timing
Outcome	Critical: • Overall quality of life (EURO-QoL 5D 3L, SF-36, SF-12, SF-6D) • Acute length of staying in main trauma unit • Patient acceptability (any direct measure) Important: • Hospital readmission • Return to work or education • Changes in mood [Depression measures – BDI, DAS, HADS, PH-Q9) • Changes in activity of daily living (Barthel ADL index, EADL-Test, Katz, OARS, PAT, PSMS, SCIM)

ADL: Activities of daily living; BDI: Beck depression inventory; DAS: Disability assessment schedule; EADL-Test: Erlangen Activities of Daily Living test; EURO-QoL 5D 3L: EuroQol 5 dimensions and 3 levels; HADS: Hospital anxiety and depression scale; OARS: Older Americans resources and services; PAT: Performance ADL test; PH-Q9: Patient health questionnaire with 9 questions; PSMS: Physical self-maintenance scale; SCIM: Spinal cord independence measure; SF-12: 12 item short-form survey; SF-36: 36 item short-form survey; SF-6D: 6-dimension short-form

Table 2: Summary of the children and young people protocol (PICO table)

Population	Children and young people (aged below 18 years) with complex rehabilitation needs resulting from traumatic injury that involves spinal cord injury and requires admission to hospital
Intervention	Standard care consisting of at least 2 of the following: Early referral to spinal cord unit, physiotherapy [range of movement exercises, respiratory management, exercises to maintain muscle function, mobilisation and training with mobilisation aids such as crutches or frame or wheelchairs], orthotics and splinting, pressure care management of skin, occupational therapy assessment, identification and support of activities of daily living through training or aids, and acute pain management; in addition to at least one of the following: • Early prophylactic bowel management (using one or more of the following strategies: ○ Toilet training ○ Suppositories ○ Enema/transanal irrigation ○ Laxatives ○ Digital removal of faeces (i.e. finger) ○ Valsalva manoeuver ○ Rectal/sacral stimulation/innervation ○ Colostomy ○ Manometry

	○ Dietary fibre ○ Massage ○ Neural prostheses ○ Self-help devices ○ Anal plug (for severe diarrhoea)) • Early prophylactic bladder management (using one or more of the following strategies: ○ Bladder retraining/training strategies ○ Anti spasmodics (e.g. Botulinum toxin/onabotulinumtoxin A or oxybutynin) ○ Catheterization (in-dwelling or urethral ○ Self-catheterisation or intermittent self-catheterisation (ISC) ○ Suprapubic catheterisation ○ Clamping off ○ Flip flo ○ Regular monitoring of upper renal tract function) • Functional electrical stimulation (FES) • Neuromuscular electrical stimulation (NMES) • Autonomic dysreflexia (e.g. sudden surge in blood pressure, constipation, spasiticity) management • Length of bed-rest and early mobilisation (i.e., sitting) • Low blood pressure management (postural hypotension) • Spasticity management of spinal cord (i.e., pharmacological management e.g. intrathecal or oral baclofen, tizanidine, botulism toxin, dantrolene, gabapentin, phenol; positioning and seating systems; splinting) • Early access to spinal cord services including outreach (early defined as “after the surgery management required has been done at the main trauma unit”) • Access to specialist equipment which include wheelchairs, assistive technology and environmental control (e.g. single access systems, specialist seating and alternative keyboards) • Specialist equipment e.g., FES in bike or orthotics, standing frames, body weight supported gait training, exoskeleton or robotic orthotics, tilt table • Psychological therapies for adjustment and engagement (e.g., compassionate mind therapy, Acceptance and commitment therapy, Mindfulness, Visualisation or ‘mentalisation’ to support physical rehab, Relaxation [progressive, or breathing based, or other], Mirror therapy, Cognitive behavioural therapy) • Early specialist play therapy • School-based educational interventions (ergonomics)
Comparison	1) Standard rehabilitation care (as defined above) 2) Studies that employ the same intervention program as listed under ‘interventions’ but vary it in terms of any of the following: • Frequency • Intensity • Timing
Outcomes	Critical: • Overall quality of life (EURO-QoL 5D 3L, SF-36, SF-12, SF-6D) • Acute length of staying in main trauma unit • Patient acceptability (any direct measure)

	Important: • Hospital readmission • Return to work or education • Changes in mood (Depression measures – BDI, DAS, HADS, PH-Q9) • Changes in activity of daily living (Barthel ADL index, EADL-Test, Katz, OARS, PAT, PSMS, SCIM)

ADL: Activities of daily living; BDI: Beck depression inventory; DAS: Disability assessment schedule; EADL-Test: Erlangen Activities of Daily Living test; EURO-QoL 5D 3L: EuroQol 5 dimensions and 3 levels; FES: Functional electrical stimulation; HADS: Hospital anxiety and depression scale; ISC: Intermittent self-catheterisation; NMES: Neuromuscular electrical stimulation; OARS: Older Americans resources and services; PAT: Performance ADL test; PH-Q9: Patient health questionnaire with 9 questions; PSMS: Physical self-maintenance scale; SCIM: Spinal cord independence measure; SF-12: 12 item short-form survey; SF-36: 36 item short-form survey; SF-6D: 6-dimension short-form

For further details see the review protocol in appendix A.

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A and in the methods chapter (Supplement 1).

Declarations of interest were recorded according to NICE's 2018 conflicts of interest policy.

Clinical evidence: Adults

Included studies

Twenty-two randomised controlled trials (RCTs) were included in this review (Alexeeva 2011, Burke 2019, Coker 2019, Dallolio 2008, Dorstyn 2012, Duchnick 2009, Galea 2017, Harvey 2010, Harvey 2011, Harvey 2016, Heutink 2012, Hitzig 2013, Latimer 2006, Midik 2020, Migliorini 2016, Phillips 2001, Popovic 2011, Rahimi 2020, Shin 2014, Shuai 2016, Wirz 2017 and Yan 2018).

Four were from the USA (Alexeeva 2011, Coker 2019, Duchnick 2009 and Phillips 2001); 4 were from Australia (Dorstyn 2012, Harvey 2010, Harvey 2016 and Migliorini 2016); 3 were from Canada (Hitzig 2013, Latimer 2006 and Popovic 2011); 2 were from China (Shuai 2016 and Yan 2018); 1 was from Ireland (Burke 2019); 1 was from the Netherlands (Heutink 2012); 1 was from Korea (Shin 2014); 1 was from Iran (Midik 2020); and 1 was from Turkey (Rahimi 2020). The remaining 4 studies were multi-national trials (Dallolio 2008 [Belgium, Italy and UK], Galea 2017 [Australia and New Zealand], Harvey 2011 [Australia and India] and Wirz 2017 [Germany, Spain, Switzerland and UK]).

These included studies examined the following comparisons:

Functional electrical stimulation (FES)

One RCT compared the effectiveness of a repetitive grasping exercise using a neuromuscular prosthesis plus standard care with standard care alone (Popovic 2011). Another RCT compared the effectiveness of weight-bearing exercises plus FES with weight bearing exercises only (Rahimi 2020).

Neuromuscular electrical stimulation (NMES)

One RCT compared the effectiveness of NMES and progressive resistance strength training of a single leg with standard care alone (Harvey 2010).

Length of bed-rest and early mobilisation

One RCT compared the effectiveness of unsupported sitting training plus standard in-patient rehabilitation with standard in-patient rehabilitation alone (Harvey 2011).

Spasticity management of spinal cord

One RCT was a 3-arm trial that compared the effectiveness of either Baclofen plus standard care or Botulinum toxin type A plus standard care with standard care only (Yan 2018).

Access to specialist equipment

Two studies investigated access to assistive technology in SCI rehabilitation. One RCT was an international 3-centre trial that compared the effectiveness of a telemedicine rehabilitation intervention with standard care (Dallolio 2008). The other study was a 3-arm trial that compared the effectiveness of either telephone-based or video-based follow-up rehabilitation with standard care follow-up rehabilitation (Phillips 2001).

Specialist equipment

Eight studies investigated the use of specialist equipment for therapy for SCI. One RCT was a 3-arm trial that compared the effectiveness of either body weight supported gait training (BWSGT) on a fixed track or BWSGT on a treadmill with standard care (including physiotherapy) (Alexeeva 2011). One RCT compared the effectiveness of BWSGT plus FES with standard care plus aerobic training (Hitzig 2013). One RCT compared the effectiveness of FES and functional training with standard in-patient rehabilitation care (Harvey 2016). Another RCT compared the effectiveness of robotic-assisted gait training plus standard physiotherapy with conventional over-ground therapy plus standard physiotherapy (Shin 2014). One RCT compared the effectiveness of FES-assisted cycling with passive cycling (Galea 2017). One RCT compared the effectiveness of individually designed paraplegic gait orthoses plus functional training with standard care alone (Shuai 2016). One RCT compared the effectiveness of enhanced robotic-assisted gait training with reduced robotic-assisted gait training (Wirz 2017). Finally, 1 study compared the effectiveness of robot-assisted gait training plus conventional therapy with conventional therapy alone (Rahimi 2020).

Psychosocial therapies for adjustment or engagement

Overall, 7 RCTs investigated psychosocial therapies for adjustment or engagement in individuals with SCI. One RCT compared the effectiveness of an individualised telephone-based counselling therapy intervention with standard care (Dorstyn 2012). Three studies investigated online-based therapy interventions. One RCT compared the effectiveness of online-based cognitive behavioural therapy (CBT) pain management with standard care (Burke 2019). Another RCT compared the effectiveness of an online-based CBT schedule with a waitlist control (Migliorini 2016). Finally, 1 RCT compared the effectiveness of a CBT-based multi-disciplinary programme (including education, cognitive and behavioural components) with a

waitlist control group (Heutink 2012). The remaining 3 studies looked at self-effectiveness and coping interventions. One RCT compared the effectiveness of an educationally-based group therapy programme with a waitlist control (Coker 2019); 1 RCT compared the effectiveness of coping effectiveness training with a supportive group therapy (Duchnick 2009); and 1 RCT compared the effectiveness of a motivational implementation intention intervention with no treatment (Latimer 2006).

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review with reasons for their exclusions are provided in appendix K.

Summary of clinical studies included in the evidence review

A summary of the studies that were included in this review are presented in Table 3.

Table 3: Summary of included studies

Study	Population	Intervention[a]	Control[a]	Outcomes
Alexeeva 2011 RCT USA	N=35 Age in years (range): • BWSGT on fixed track: 21-61 • BWSGT on treadmill: 19-63 • Standard care: 22-63 Time since injury in years (range): • BWSGT on fixed track: 1-37 • BWSGT on treadmill: 1-12 • Standard care: 1.2-25 Type of SCI (complete/incomplete): Not reported	• Body weight supported gait training on a fixed track • Body weight supported gait training on a treadmill	Standard care (including physiotherapy)	• Critical ○ Overall quality of life (at 13 weeks; 17 weeks) ○ Patient acceptability (at 13 weeks; 17 weeks) • Important ○ None
Burke 2019 RCT Ireland	N=69 Age in years [Mean (SD)]: • CBT: 50 (12.3) • Standard care: 52 (13.8) Time since injury in years [Mean (SD)]: • CBT: 16 (11.8) • Standard care: 16 (12.6)	On-line based cognitive behavioural therapy (CBT) pain management programme	Standard care (including standard chronic pain management)	• Critical ○ Overall quality of life (at 8 weeks; 6 months) ○ Patient acceptability (at 8 weeks; 6 months) • Important ○ None

Study	Population	Intervention[a]	Control[a]	Outcomes
	Type of SCI (complete/incomplete/not reported - N): • CBT: 9/22/4 • Standard care: 9/22/3			
Coker 2019 RCT USA	N=81 Age in years [Mean (SD)]: • Group therapy: 48.0 (12.8) • Waitlist control: 52.0 (15.3) Time since injury: Not reported Type of SCI (complete/incomplete - N): • Group therapy (n): 19/22 • Waitlist control (n): 16/24	Educationally-based group therapeutic programme	Waitlist control	• Critical ○ None • Important ○ Changes in mood (at 6 weeks; 24 weeks)
Dallolio 2008 RCT Belgium, Italy and UK	N=137 Age* in years [Mean (SD)]: • Italy: 37.34 (13.64); • Belgium (Brussels): 37.88 (15.41); • UK: 43.90 (15.75) Time since injury: Not reported Type of SCI (complete/incomplete): Not reported *Reported by site rather than by treatment received.	Telemedicine-rehabilitation	Standard care (including standard home, nursing, or unspecialized hospital care normally delivered to SCI patients after discharge from the spinal cord unit)	• Critical ○ None • Important ○ Changes in activity of daily living (at 6 months)
Dorstyn 2012 RCT Australia	N=39 Age in years [Mean (SD)]: • Telephone counselling: 53.8 (16.3) • Standard care: 53.1 (20.0) Time since injury: Not	Individualised counselling intervention delivered by telephone	Standard care (including routine individual medical follow-up and physical therapies, plus a face-to-face consultation with a	• Critical ○ Patient acceptability (at 3 months) • Important ○ Changes in mood (at 3 months; 6 months)

Study	Population	Intervention[a]	Control[a]	Outcomes
	reported Type of SCI (motor complete/incomplete - N): • Telephone counselling: 11/9 • Standard care: 3/16		psychologist)	
Duchnick 2009 RCT USA	N=41 Age in years [Mean (SD)]: • Coping effectiveness training: 50.8 (16.9) • Supportive group therapy: 54.6 (9.8) Time since injury in days [Mean (SD)]: • Coping effectiveness training: 46.7 (42.5) • Supportive group therapy: 59.6 (50.5) Type of SCI [AIS category (% A/B/C/D or N/A)]: • Coping effectiveness training: 30/30/5/35 • Supportive group therapy: 20/20/20/40	Coping effectiveness training	Supportive group therapy	• Critical ○ None • Important ○ Changes in mood (at 3 months)
Galea 2017 RCT Australia and New Zealand	N=24 Age in years [Mean (SD)]: • FES-assisted cycling: 38.6 (15.1) • Passive cycling: 38.2 (16.1) Time since injury in days [Median (IQR)]: • FES-assisted cycling: 14.5 (13-18) • Passive cycling: 16.5 (12-19) Type of SCI (complete/incomplete - N): • FES-assisted cycling (n): 8/4 • Passive cycling (n): 10/2	Functional electrical stimulation-assisted cycling	Passive cycling	• Critical ○ Overall quality of life (at 12 weeks) • Important ○ Changes in mood (at 12 weeks)

Study	Population	Intervention[a]	Control[a]	Outcomes
Harvey 2010 RCT Australia	N=20 Age in years [Median (IQR)]: • NRES + resistance training: 40 (28–49) • Standard care: 39 (29–49) Time since injury in months [Median (IQR)]: • NRES + resistance training: 3(2-8) • Standard care: 4(2-7) Type of SCI: • All participants had incomplete SCI	Neurological electrical stimulation plus progressive resistance training for leg strength	Standard care (including general fitness or mobility programs)	• Critical ○ Patient acceptability (at 8 weeks) • Important ○ None
Harvey 2011 RCT Australia and India	N=32 Age in years [Median (IQR)]: • Sitting training + standard in-patient rehabilitation: 26 (24 to 31) • Standard in-paitent rehabilitation: 27 (24 to 31) Time since injury in weeks [Median (IQR)]: • Sitting training + standard in-patient rehabilitation: 11 (9 to 17) • Standard in-paitent rehabilitation: 10 (8 to 14) Type of SCI (complete/incomplete): Not reported	Unsupported sitting training plus standard in-patient rehabilitation	Standard in-patient therapy (standard physiotherapy and occupational therapy which included training for transfers, wheelchair skills, dressing and showering)	• Critical ○ Patient acceptability (at 6 weeks) • Important ○ None
Harvey 2016 RCT Australia	N=70 Age in years [Median (IQR)]: • FES + intensive training: 29 (23-45) • Standard care: 29 (22-53) Time since injury in days (Median [IQR]): • FES + intensive	Functional electrical stimulation plus functional intensive training (including instrumented exercise workstation, and computer game)	Standard care (including conventional inpatient rehabilitation consisting of physiotherapy, vocational, recreational and occupational therapy)	• Critical ○ Overall quality of life (at 11 months; 26 months) • Important ○ Changes in activity of daily living (at 11 months; 26

Study	Population	Intervention[a]	Control[a]	Outcomes
	training: 81 (45-110) • Standard care: 62 (47-87) Type of SCI (complete/incomplete): Not reported			months)
Heutink 2012 RCT The Netherlands	N=61 Age in years [Mean (SD)]: • Total study: 58.8 (11.4) Time since injury in years [Median (IQR)]: • Total study: 5.4 (1.4-23.7) Type of SCI (complete/incomplete - N): • CBT: 15/16 • Waitlist control: 24/6	Cognitive behavioural therapy based multi-disciplinary programme (including educational, cognitive and behavioural components)	Waitlist control	• Critical ○ None • Important ○ Changes in mood (at 3 months; 6 months) ○ Changes in activity of daily living (at 3 months; 6 months)
Hitzig 2013 RCT Canada	N=34 Age in years [Mean (SD)]: • BWSGT + FES: 56.6 (14.0) • Standard care: 54.1 (16.5) Time since injury in years [Mean (SD)]: • BWSGT + FES: 8.75 (9.7) • Standard care: 10.3 (11.1) Type of SCI: • All participants had incomplete SCI	Body weight supported gait training on a treadmill plus functional electrical stimulation	Standard care (resistance [using hand weight, cables, and upper tone] plus aerobic training [arm cycling, leg cycling, and walking with parallel bars or on a treadmill])	• Critical ○ Patient acceptability (at 4 months; 6 months; 12 months) • Important ○ Changes in activity of daily living (at 4 months; 6 months; 12 months)
Latimer 2006 RCT Canada	N=54 Age in years [Mean (SD)]: • Intention intervention: 27.30 (26.79) • No treatment: 16.80 (17.23) Time since injury: Not reported	Implementation intention (motivational) intervention	No treatment (including moderate to heavy intensity physical activity, without the motivational intervention)	• Critical ○ Patient acceptability (at 8 weeks) • Important ○ None

Study	Population	Intervention[a]	Control[a]	Outcomes
	Type of SCI (complete/incomplete - N): • Intention intervention: 8/10 • No treatment: 12/6			
Midik 2020 RCT Iran	N= 30 Age in years [Mean (SD)]: • RAGT + standard rehabilitation = 35.4 (12.1) • Standard rehabilitation = 37.9 (10.0) Time since injury in months [Median (IQR)]: • RAGT + standard rehabilitation = 5 (4-30) • Standard rehabilitation = 24 (17-44) Type of SCI (AIS C/AIS D): • Robot-assisted gait training + standard rehabilitation (n) = 6/9 • Standard rehabilitation (n) = 10/5	Robot-assisted gait training plus standard rehabilitation	Standard rehabilitation only	• Critical ○ None • Important ○ Changes in acitivity of daily living (at 5 weeks; 3 months)
Migliorini 2016 RCT Austrailia	N=59 Age in years [Mean (SD)]: • Online CBT: 47.5 (12.2) • Waitlist control: 52.8 (12.9) Time since injury in months (Mean [SD]): • Online CBT: 11.4 (11.9) • Waitlist control: 19.8 (14.0) Type of SCI (complete/incomplete): Not reported	On-line based Cognitive Behavioural Therapy	Waitlist control	• Critical ○ None • Important ○ Changes in mood (at 10-12 weeks)
Phillips 2001	N=111 Age in years [Mean	• Telephone-based follow-up	Standard follow-up rehabilitation	• Critical ○ Overall quality of life

Study	Population	Intervention[a]	Control[a]	Outcomes
RCT USA	(SD)]: • Telephone: 37 (13.1) • Video: 35 (10.8) • Control: 33 (11.2) Time since injury: Not reported Type of SCI (complete/incomplete): Not reported	rehabilitation • Video-based follow-up rehabilitation		(at 12 months) ○ Acute length of staying in main trauma unit (at 12 months) • Important ○ Changes in mood (at 12 months)
Popovic 2011 RCT Canada	N=24 Age in years [Mean (SEM)]: • FES + standard care: 43.2 (5.45) • Standard care: 44.75 (4.72) Time since injury in days [Mean (SEM)]: • FES + standard care: 69.9 (14.11) • Standard care: 58.33 (6.55) Type of SCI: • All participants had incomplete SCI	Functional electrical stimulation (repetitive grasping exercises using a neuro-prosthesis) plus standard care	Standard care (including conventional physiotherapy and occupational therapy)	• Critical ○ None • Important ○ Changes in activity of daily living (at 8 weeks)
Rahimi 2020 RCT Turkey	N= 10 Age in years [Mean (SD)]: • Weight-bearing exercise + FES = 35 (5.7) • Weight-bearing exercise only = 37 (4.5) Time since injury in years [Mean (SD)]: • Weight-bearing exercise + FES = 14 (7.0) • Weight-bearing exercise only = 13 (5.7) Type of SCI: • Intervention =all AIS A • Control = all AIS A	Advanced weight-bearing mat exercises with FES.	Advanced weight-bearing mat exercises without FES.	• Critical ○ None • Important ○ Changes in activity of daily living (at 24 weeks)

Study	Population	Intervention[a]	Control[a]	Outcomes
Shin 2014 RCT Korea	N=53 Age in years [Mean (SD)]: • RAGT + standard physiotherapy: 43.2 (14.4) • Conventional gait training + standard physiotherapy: 48.2 (11.5) Time since injury in months (Mean): • RAGT + standard physiotherapy: 3.33 • Conventional gait training + standard physiotherapy: 2.73 Type of SCI: • All participants had incomplete SCI	Robotic-assisted gait training plus standard physiotherapy	Conventional over-ground gait training plus standard physiotherapy	• Critical ○ None • Important ○ Changes in activity of daily living (at 8 weeks)
Shuai 2016 RCT China	N=36 Age in years [Mean (SD)]: • Orthosis + functional training: 33.9 (11.1) • Standard care: 37.3 (10.2) Time since injury in days [mean (SD)]: • Orthosis + functional training: 25.00 (4.52) • Standard care: 23.00 (6.29) Type of SCI (complete/incomplete): Not reported	Paraplegic gait orthosis plus functional training (according to the various spinal cord injury levels and muscle strength based on comprehensive systematic rehabilitation training)	Standard care (including maintenance of joint range of motion, residual muscle strength training, standing training, balance training, and functional electrical stimulation)	• Critical ○ None • Important ○ Changes in activity of daily living (at 3 months)
Wirz 2017 RCT Germany, Spain, Switzerland and the UK	N=21 Age in years [Mean (SD)]: • Enhanced RAGT: 35.6 (13.8) • Reduced RAGT: 34.3 (16.0) Time since injury: Not reported Type of SCI:	Enhanced robotic-assisted gait training	Reduced robotic-assisted gait training	• Critical ○ None • Important ○ Changes in activity of daily living (at 8 weeks)

Study	Population	Intervention[a]	Control[a]	Outcomes
	• All participants had acute incomplete SCI			
Yan 2018 RCT China	N=336 Age in years [Mean (SD)]: • Baclofen: 36.55 (3.42) • Botulinum toxin type A: 36.95 (7.12) • Standard care: 35.47 (2.21) Time since injury in days [Mean (SD)]: • Baclofen: 211.45 (25.47) • Botulinum toxin type A: 207.45 (20.49) • Standard care: 205.98 (16.45) Type of SCI (complete/incomplete): Not reported	• Baclofen plus standard care • Botulinum toxin type A plus standard care	Standard care (including conventional physiotherapy)	• Critical ○ None • Important ○ Changes in activity of daily living (at 6 weeks)

AIS; American Spinal Injury Association Impairment Scale; BWSGT: Body weight supported gait training; CBT: Cognitive behavioural therapy; FES: Functional electrical stimulation; IQR: Interquartile range; N: Number; NRES: Neurological electrical stimulation; N/A: Not applicable; RAGT: Robot-assisted gait training; RCT: randomised controlled trial; SCI: Spinal cord injury; SD: Standard deviation; SEM: Standard error of the mean
(a) For full details about the intervention/comparison, please see the evidence tables in Appendix D

See the full evidence tables in appendix D and the forest plots in appendix E.

Results and quality assessment of clinical outcomes included in the evidence review

Summary of the evidence

No meta-analyses were performed as the interventions or outcomes were either not sufficiently similar to allow them to be combined or they were not reported by more than one study.

Results were reported for 5 of the pre-defined outcomes: overall quality of life; acute length of stay; patient acceptability; changes in mood; and changes in activity of daily living. Across all studies, no evidence was found for readmission into hospital or return to work/education.

No evidence was found regarding the following pre-defined interventions:

- Bowel management strategies
- Early access to spinal cord services including
- Early prophylactic bladder management strategies
- Low blood pressure management (postural hypotension)

Functional electrical stimulation

One RCT (Popovic 2011) found that changes in activity of daily living were statistically significantly and clinically importantly higher (better) in the 'FES (repetitive grasping exercises using a neuro-prosthesis) plus standard care' group at 8 weeks follow-up (from intervention completion) compared to the 'Standard care' group (including conventional physiotherapy and occupational therapy) (very low quality).

No clinically important differences were found between people receiving 'Advanced weight-beaing mat exercises with FES' and people receiving 'Advanced weight-bearing without FES' in changes in activity of daily living (as measured using SCIM3) at 24 weeks follow-up (from intervention completion) (very low quality evidence) (Rahimi 2020).

Neurological electrical stimulation

One RCT (Harvey 2010) did not find a clinically important difference in patient acceptability between people with SCI receiving 'NMES plus progressive resistance training for leg strength' when compared to 'Standard care (including general fitness or mobility programs)' after intervention completion (very low quality evidence).

Length of bed-rest and early mobilisation

One RCT (Harvey 2011) did not find a clinically important difference in patient acceptability between people with SCI receiving 'Unsupported sitting training plus standard in-patient rehabilitation' or 'Standard in-patient therapy (standard physiotherapy and occupational therapy which included training for transfers, wheelchair skills, dressing and showering)' at 6 weeks follow-up after intervention completion (very low quality evidence).

Spasticity management of spinal cord

One RCT (Yan 2018) found statistically significantly and clinically importantly higher (better) levels of changes of activities in daily living (as measured by the Barthel Index) in people receiving 'Baclofen plus standard care (including conventional physical therapies)' compared to those receiving 'Standard care (including conventional physiotherapy' at 6 weeks follow-up from baseline (low quality evidence).

One RCT (Yan 2018) found statistically significantly and clinically important higher (better) levels of changes in activities of daily living (as measured by the Barthel Index) between people receiving 'Botulinum toxin type A plus standard care' compared to those receiving 'Standard care (including conventional physiotherapy)' at 6 weeks follow-up from baseline (low quality evidence).

Access to specialist equipment

One RCT (Phillips 2001) found that overall quality of life was statistically significantly and clinically importantly higher (better) in the 'Telephone-based follow-up rehabilitation' group at 12 months follow-up (unclear whether is end-of-intervention or from baseline) compared to the 'Standard follow-up rehabilitation' group (low quality evidence), with no significant differences between the groups in acute length of staying in main trauma unit (very low quality evidence) or changes in mood (very low quality evidence).

One RCT (Phillips 2001) found that changes in mood (measured using depression) was statistically significantly and clinically importantly higher (worse) in the 'Standard follow-up rehabilitation' group at 12 months follow-up (unclear whether is end-of-intervention or from baseline) compared to the 'Video-based follow-up rehabilitation' group (very low quality evidence), with no significant differences between the groups in quality of life (low quality evidence) and acute length of staying in main trauma unit (very low quality evidence).

One RCT (Dallolio 2008) did not find any differences in changes in activity of daily living (measured using SCIM) between people with SCI receiving 'Telemedicine-rehabilitation' when compared to those receiving 'Standard care (including standard home, nursing, or unspecialized hospital care normally delivered to SCI patients after discharge from the spinal cord unit)' at 6 months follow-up after intervention completion (very low quality evidence).

Specialist equipment

One RCT (Alexeeva 2011) found no differences in patient acceptability or quality of life (as measured using SF-36 General health perception score, SF-36 Energy score, SF-36 Mental health perception score, and SF-36 Fatigue score) between people who received 'BWSGT on a fixed track' and those that received 'Standard care (including physiotherapy)' at weeks 13 and 17 from baseline, with the exception of the quality of life energy score (all very low quality evidence). This measure was statistically significantly and clinically significantly higher in the body weight supported gait training group.

One RCT (Alexeeva 2011) did not find any differences in quality of life or patient acceptability between people receiving 'BWSGT on a treadmill' and those that received 'Standard care (including physiotherapy) after intervention completion and at 4 weeks follow-up after intervention completion (all very low quality evidence).

One RCT (Hitzig 2013) did not find any differences in patient acceptability and activities of daily living (as measured by the SCIM, and Lawton Instrument Activities of Daily Living Scale) between people receiving 'BWSGT on a treadmill plus FES' and those receiving 'Standard care (resistance plus aerobic training)' at 4, 6, and 12 months follow-up (all very low quality evidence).

One RCT (Harvey 2016) did not find any difference in overall quality of life or activities of daily living (as measured by the SCIM) between people receiving 'FES plus functional training (including instrumented exercise workstation, and computer game)' and those receiving 'Standard care (including conventional inpatient rehabilitation consisting of physiotherapy, vocational, recreational and occupational therapy)' at 11 months follow-up from baseline (after intervention completion) (low quality evidence) or at 26 months follow-up from baseline (low quality evidence for quality of life and very low quality for changes in ADL).

One RCT (Galea 2017) did not find any differences in quality of life, anxiety or depression in people receiving 'FES–assisted cycling' when compared to those receiving 'Passive cycling' at 12 weeks from baseline (1 week after intervention completion) (all low quality evidence).

One RCT (Shuai 2016) found that activities of of daily living were statistically significantly and clinically importantly higher (better) in people receiving 'Paraplegic gait orthosis plus functional training (according to the various spinal cord injury levels and muscle strength based on comprehensive systematic rehabilitation training)' compared to those receiving 'Standard care (including maintenance of joint range of motion, residual muscle strength training, standing training, balance training, and

functional electrical stimulation)' at 3 months follow-up (after intervention completion) (moderate quality evidence).

One RCT (Shin 2014) have analysed the results using medians with relative interquartile ranges and reported as measure of variability for intergroup comparison only a p-value. There were not significant differences in changes in activity of daily living between people receiving 'Robotic-assisted gait training plus standard physiotherapy' when compared to those receiving 'Conventional over-ground training plus standard physiotherapy' after intervention completion (very low quality evidence). Clinical importance could not be ascertained.

One RCT (Wirz 2017) have analysed the results using medians with relative interquartile ranges and reported as measure of variability for intergroup comparison only a p-value. They reported statistically significantly higher levels of activities of daily living in people receiving 'Enhanced robotic-assisted gait training' when compared to 'Reduced robotic-assisted gait training' after intervention completion (at 8 weeks from baseline) (very low quality evidence). Clinical importance could not be ascertained.

One RCT (Midik 2020) found no significant difference between people receiving 'Robot-assisted gait training plus standard rehabilitation' and those receiving 'Standard rehabilitation only' in changes in activity of daily living (as measured using SCIM3) at 5 weeks follow-up (after intervention completion). At 3 months follow-up, there was a statistically, but not clinically, significantly importantly higher (better) SCIM3 score in the intervention group compared to the standard rehabilitation group (very low qualiy evidence).

Psychological therapies for adjustment or engagement

One RCT (Burke 2019) showed conflicting evidence about the effectiveness of 'On-line based CBT pain management programme' when compared to 'Standard care (including standard chronic pain management)' on overall quality of life in people with SCI, both motor complete and incomplete. This RCT found a statistically significantly and clinically importantly higher (improved) levels of quality of life (measured using WHOQOL, psychological domain) in people receiving 'On-line CBT pain management programme' versus 'Standard care' at 6 months follow-up after intervention completion (moderate quality evidence). However, there were no differences between groups in quality of life (measured using WHOQOL, psychological domain) after intervention completion (low quality evidence). Quality of life (as measured by the WHOQOL, environmental domain) was also statistically significantly, but not clinically importantly, higher (better) at 6 months after intervention completion in the ' On-line CBT pain management programme' group (low quality evidence). However, no differences were found between groups prior to that, at 8 weeks after baseline (low quality evidence). Quality of life (as measured by the ISCI physical domain scale) was statistically significantly, but not clinically importantly, higher at 8 weeks after baseline in the ' On-line CBT pain management programme' group (low quality evidence), but not at 6 months after intervention completion (low quality evidence). Quality of life (as measured by the ISCI psychological domain scale) was statistically significantly, but not clinically importantly, higher at both time points after 'On-line CBT pain management programme' compared to 'Standard care' (low quality evidence)). This RCT did not find any differences in patient acceptability or quality of life (measured using WHOQOL physical and social domains and the ISCI wellbeing QoL domains) between the intervention groups after intervention completion and at 6 months follow-up after intervention completion (all low quality evidence). Patient acceptability (as measured by the CPAG engagement domain) was statistically significantly, but not

clinically importantly, higher at both 8 weeks after baseline and 6 months after intervention completion in the 'On-line CBT pain management programme' group (low quality evidence). However, patient acceptability (as measured by the CPAG willingness scale) did not differ between the groups (low quality evidence).

One RCT (Migliorini 2016) did not find any differences in levels of anxiety or depression between people receiving 'On-line based CBT' and 'Waitlist controls' at intervention completion (10-12 weeks from baseline) (very low quality evidence).

One RCT (Heutink 2012) found no differences in anxiety at 3 and 6 months after baseline between people who received a 'Cognitive behavioural therapy based multi-disciplinary programme (including educational, cognitive and behavioural components' and 'Waitlist controls' (very low quality evidence). Activity of daily living (as measured by the Utrecht Activities Scale) was statistically significantly and clinically importantly higher in people receiving 'Cognitive behavioural therapy based multi-disciplinary programme (including educational, cognitive and behavioural components)' compared to the control group at 6 months, but not 3 months from baseline (both very low quality evidence).

One RCT (Dorstyn 2012) did not find any differences in mood (measured using levels of anxiety, depression, and stress), or patient acceptability between people with SCI receiving 'Individualised counselling intervention delivered by telephone' and those receiving 'Standard care (including routine individual medical follow-up and physical therapies, plus a face-to-face consultation with a psychologist)' after intervention completion and at 3 months follow-up after intervention completion (all very low quality evidence). The exception was anxiety measured at 6 months from baseline, which was statistically significantly and clinically importantly lower (better) in the 'Individualised counselling intervention delivered by telephone' group compared to the standard care group (very low quality evidence).

One RCT (Coker 2019) did not find any differences in mood (measured using the Patient Health Questionnaire) between people receiving an 'Educationally-based group therapeutic programme' and 'Waitlist controls' after intervention completion and at 24 weeks follow-up after intervention completion (both very low quality evidence).

One RCT (Duchnick 2009) did not find any differences in depression or anxiety between people with SCI receiving 'Coping effectiveness training' when compared to those receiving 'Supportive group therapy' after intervention completion and at 3 months follow-up after intervention completion (all very low quality evidence).

One RCT (Latimer 2006) found no differences in patient acceptability (measured using 'intentions' 'perceived behavioural control' and 'scheduling self-efficacy') between people receiving 'Implementation intention (motivational) intervention' and those receiving 'No treatment (including moderate to heavy intensity physical activity, without the motivational intervention)' after intervention completion (at 8 weeks from baseline) (very low quality evidence). However patient acceptability in terms of 'barrier self-efficacy' was statistically significantly and clinically importantly higher in the 'Implementation intention (motivational) intervention' group at this time point (very low quality evidence).

The quality of the evidence was assessed using GRADE. See the evidence profiles in appendix F.

Clinical evidence: Children and young people

Included studies

A systematic review of the clinical literature was conducted but no studies were identified which were applicable to this review question.

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review with reasons for their exclusions are provided in appendix K.

Summary of clinical studies included in the evidence review

No studies were identified which were applicable to this review question (and so there are no evidence tables in Appendix D). No meta-analysis was undertaken for this review (and so there are no forest plots in Appendix E).

Results and quality assessment of clinical outcomes included in the evidence review

No studies were identified which were applicable to this review question.

Economic evidence: Adults and children and young people

Included studies

A systematic review of the economic literature was conducted but no economic studies were identified which were applicable to these review questions. A single economic search was undertaken for adult, and children and young people reviews. Please see the study selection flow chart in appendix G.

Excluded studies

No studies were identified which were applicable to this review question.

Summary of studies included in the economic evidence review

No economic evidence was identified which was applicable to these review questions.

Economic model

No economic modelling was undertaken for these reviews because the committee agreed that other topics were higher priorities for economic evaluation.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

When selecting the critical and important outcomes, the committee agreed that the outcomes needed to be sufficiently generalisable to adequately capture patient-important outcomes for the whole population which they recognised is quite large and very heterogeneous.

Overall quality of life, acute length of stay in the main trauma unit and patient acceptability were deemed to be the most important outcomes to individuals with SCI and were categorised as critical. The committee dicussed that maintaining quality of life is a common concern of people following traumatic SCI, as they tend to assume their physical disabilities will lead to a large decline. Length of stay in the main trauma unit should be minimised, allowing people to move to longer-term rehabilitation units where they can concentrate achieving independence before being discharged back into the community. Patient acceptability was also included as a critical outcome as how acceptable a patient finds the rehabilitation intervention is likely to have a large impact on their engagement with rehabilitation. Hospital readmission, return to work or education, changes in mood (including depression, anxiety and stress) and changes in activity of daily living were considered as important outcomes. Hospital readmission was chosen as it is an indicator of the longer term effectiveness of SCI rehabilitation, as people with less well-managed SCI will have a higher rate of medical complications and therefore hospital readmission. The committee also selected return to work or education and changes in activity of daily living as important outcomes as these measure the level of functional independence of the patient after traumatic SCI. Changes in mood was also considered to be important because of the increased risk of mood disorders in people after traumatic SCI, and this outcome reflect the psychological wellbeing.

The quality of the evidence

Twenty-two RCTs were included as evidence for spinal cord injury rehabilitation interventions.

The overall quality of the evidence was assessed using GRADE and ranged from very low to moderate quality, with the majority being very low or low quality. The main reasons for downgrading the evidence were concerns over the risk of bias in study designs (commonly due to lack of information on randomisation processes and lack of blinding) and imprecision of the effect size.

No evidence was identified for specific SCI rehabilitation packages in children and young people.

The committee therefore made the recommendations based on a combination of the evidence and their experience and expertise.

Benefits and harms

In the context of traumatic injury, spinal cord damage often results in life-changing disabling injuries, which require specialist long-term rehabilitation in spinal cord injury centres. However, people with such injuries may spend time in non-specialist environments early in their rehabilitation (usually for a number of weeks awaiting a specialist bed) where the same level of expertise and resources as specialist SCI centres are not available. This impacts on rehabilitation outcomes of people as

rehabilitation interventions must start very early after SCI to maintain function and prevent complications. Therefore, these recommendations focus on the early rehabilitation and supportive needs of people with spinal cord injury in a non-specialist hospital setting (for example trauma units and general hospitals). Further guidance can also be found in the NICE guideline on assessment and initial management of spinal injury.

The protocol for this evidence review excluded emergency departments and critical care, so no evidence was included for the very early stages of SCI. The committee agreed on the importance of establishing an early partnership of care with regional specialist SCI services and recommended that healthcare professionals contact the regional specialist SCI centre within the first 4 hours after trauma as per current NICE recommendations on communication with tertiary services in the NICE guideline on spinal injury. Any person presenting to general emergency departments in England NHS Trusts need to be referred to these specialist SCI centres through the National Spinal Cord Injuries Database within 24 hours of traumatic injury. This referral includes information on initial assessment, allowing healthcare professionals from these SCI centres to determine a timeline for transfer. In the committee's experience, these early vital steps often get overlooked in non-specialist clinical areas as clinical teams might not have training in SCI care. This can result in a high rate of complications, especially if the patient has other complex trauma. The committee also recommended for healthcare professionals in non-specialist settings to maintain their contact with specialist SCI centres throughout people's inpatient stays, via the SCI centre outreach team. This team is available to offer spinal cord injury education to patients and relatives, and support healthcare staff treating acute SCI patients, and this contact will therefore help to support the person's rehabilitation.

The committee used their experience and expertise to recommended completing an American Spinal Cord Injury (ASIA) chart as soon as possible because this is the current gold standard of assessing neurological impairment. They discussed that a similar recommendation appears in the recommendations on recording information in hospital settings in the NICE guideline on spinal injury, but there only as a one-off assessment in A&E. The committee discussed that this initial assessment is often completed quickly (or not at all, due to the competing clinical interests in the emergency department), and should at least be repeated by an appropriately trained member of the rehabilitation team to verify baseline function as soon as possible. The committee highlighted that this assessment should be repeated as clinically indicated as there can be subtle changes in the level of spinal injury in the early stages of trauma which can be missed if there is no repetition. This will impact both early and subsequent SCI rehabilitation.

Although no evidence was found regarding the effectiveness of early specialist play therapy or school-based educational interventions during SCI rehabilitation, the committee made 2 recommendations using their experience and expertise. The experience of committee members is that play therapy is very valuable in helping children and young people in both their mental and physical rehabilitation after trauma and so they recommended referring children and young people with a SCI to specialist play services. Additionally, due to the chronic nature of SCI, education is often affected. The committee agreed the importance of recommending a referral to education services in order to both lessen the initial impact on a child's education and to develop plans to support their long-term educational progress. Furthermore, discharge planning meetings should be scheduled early in rehabilitation, in order to allow enough time for additional needs and potential accommodations to be discussed with all involved parties (which will include local education authorities and/or specialist play services for children and young people) and implemented.

Monitoring of growth and nutrition is important for children and young people following SCI. The committee discussed that this is a balance because, beyond the acute phase of SCI, movement ability and calorie expenditure is often limited. Due to this, there is an increased risk of children and young people becoming overweight, which can cause additional barriers to completing rehabilitation and maintaining activities of daily living. Examples include increasing difficulty when transferring using upper limbs (for example, to and from a wheelchair), as well as complications with respiratory function and pressure care. The committee felt that continued monitoring of growth and nutrition would allow better paediatric weight management, which will have a large impact on the course of rehabilitation.

The committee discussed the evidence presented for use of specialist equiptment after SCI. Evidence was identified for technology-assisted follow-up after SCI. Very low quality evidence was found for increased levels of depression in patients undergoing telephone-based rehabilitation follow-up. The committee argued that this finding conflicted with other evidence presented by the same study (see below), as well as their own experience and expertise. Due to this and the very low quality of the evidence, the committee decided not to use this finding to develop their recommendations. Additional low quality evidence was found regarding a clinically important beneficial impact of telephone-based and video-based follow-up for quality of life in people with SCI undergoing rehabilitation. The committee agreed that rehabilitation teams following up people after traumatic SCI can help to foster a better relationship. In their experience, continuing communication after transfer from inpatient settings means people with SCI feel better supported by rehabilitation services and shows that they have not been forgotten about after discharge. This is best provided as part of a structured review of progress, in order to ensure that follow-up is consistent and well-documented. However, routine follow-up appointments can be disruptive to people's lives after they are discharged back into the community, which may decrease their attendance levels. The committee used the evidence to recommend telephone and video link to help to facilitate this follow-up for both clinician and patient. However, due to the strength of the evidence, they were listed as examples to consider and are not the only possibilities. No further evidence was found for access to specialist equitment. The committee therefore used their experience and expertise to recommend early assessment for possible use of assistive technology (for example, environment control systems) and referral to special services if needed. Assistive technology can be useful in promoting independence even within an inpatient setting (rather than to simply aid follow-up), which can greatly benefit high cervical SCI rehabilitation after trauma.

The committee discussed the importance of proactively assessing and managing bladder and bowel function in individuals with SCI. Although this review looked for evidence on early prophylactic bladder and bowel management, no studies were found. However, the committee agreed that this was an important area to standardise as they are aware that practice differs between NHS Trusts and the consequences of undetected bladder and bowel malfunction can be severe for patients. These can range from damage to upper renal tracts, bowel perforation, aspiration of bowel contents and overflow diarrhoea. Additionally, bowel malfunction can lead to severe constipation with colonic distension, causing respiratory distress. As SCI patients with paralysis of chest muscles are reliant on their diaphragms to be able to take deep breaths, respiratory failure is also a possibility. All of these will impact on the ability of a person to start or continue with their rehabilitation programme, which can lead to poorer outcomes. Bladder and bowel malfunction can be present as a long-term issue after SCI, even with a full return to mobility and physical functioning. The committee discussed that this can cause distress and people can feel embarrassed about raising the subject with healthcare professionals. Thereofore, proactively

assessing for and managing these issues early is important for future function and quality of life. The committee decided to include recommendations based on their expertise and experience, as well as NICE guidelines on acute kidney injury and urinary incontinence in neurological disease. As respiratory function can be compromised as a result of SCI, leading to respiratory failure, the committee recommended that respiratory function is proactively assessed and managed in all individuals with SCI. The committee recommended that vital capacity is measured as per the NICE guideline on spinal injury, as SCI may directly impact chest muscles. In turn, this will affect the person's ability to maintain respiratory function. The committee also used their experience to recommend several techniques and devices to maintain respiratory function (for example, active cycle breathing, incentive spirometry and cough assist techniques) that could be used if indicated. Due to the range of possibilities and the fact that no evidence was identified for this recommendation, the committee recommended considering these examples but are aware that it might not be suitable for some people aftter traumatic injury. There is an additional consideration when assessing and managing bladder and bowel function in younger children. The committee recommended asking parents and carers about their child's continence abilities before the accident, because the management for children who are not yet continent is different from those who are. No age has been specified beyond younger children as continence skills evolve at different paces for individuals.

In people with SCI, there is also an increased risk of aspiration pneumonia due to neurogenic bowel stasis and dysphagia as a result of SCI. The committee made a recommendation on keeping a patient nil by mouth until their swallowing capabilities and bowel function have been assessed. Both of these can lead to serious clinical complications in early rehabilitation stages. The committee discussed the benefits of keeping a patient nil by mouth and the nutritional risks of limiting hydration and calories. Therefore, they highlighted that unnecessary delays (for example, referral to services without weekend staffing) in assessing bowel function should be limited to prevent the harms outweighing potential benefits.

The committee discussed the importance of preventing complications during early SCI management, in order to allow rehabilitation to start and proceed without delays. The committee discussed that individuals with high level SCI may have an increased need for respiratory care and recommended the consideration of critical care management for these individuals.

The committee also discussed their experiences regarding skin and pressure management care in non-specialist settings, a particular area of concern for individuals with SCI. Unless a person who is paralysed is regularly and intensively checked (for example, for folds in sheets, catheter tubes, sitting in a chair for too long), deep pressure sores can develop very quickly and take months to heal, which will cause large delays in either starting or continuing rehabilitation. This routine skin assessment is often neglected in acute hospitals, so the committee recommended a proactive approach to managing skin and pressure care in order to decrease morbidity and potential delays in rehabilitation. Healthcare professionals should also educate people with SCI so that they have the knowledge to maintain their own skin safety in the long term, even if this is by them reminding carers that they need to be checked.

The committee discussed two major concerns over blood pressure management in individuals with SCI. Autonomic dysreflexia is a life-threatening complication of any high level SCI (T6 and above). Potential stimuli such as bladder issues, bowel issues

and pressure sores can cause severe hypertension, which can in turn cause strokes, encephalopathy, brain haemorrhages or heart attacks if not treated. Conversely, the majority of people with SCI develop orthostatic hypotension. This is defined as low blood pressure when changing from lying to sitting or sitting to standing and can interfere with patient engagement in rehabilitation. Participation in rehabilitation will be affected while blood pressure is stabilised, as people will not be able to perform certain exercises (for example, those that require changes in position). The committee therefore recommended the use of interventions to treat both high and low blood pressure.

The committee discussed the importance of the relationship between mobility and maintaining range of motion in individuals with SCI. In their experience and expertise, early use of splints and orthoses can lead to better rehabilitation outcomes after traumatic injury. However, no evidence was identified for this recommendation. Additionally, the committee discussed the wide range of needs within the traumatic SCI population. Due to these reasons, the committee recommended considering the early use of splints and orthoses but highlight that this needs to be examined on a case-by-case basis. The committee discussed the benefits and harms of using spinal orthoses in people with SCI. While they agree that spinal orthoses can be beneficial in certain SCI populations, they can cause skin and tissue breakdown through rubbing and direct pressure on the skin. Due to the spinal cord sensory damage, individuals with SCI often have sensory deficits which will affect their ability to feel areas of irritation and monitor their own pressure sores. The committee recommended regularly checking spinal immobilisation orthoses for complications. If spinal orthoses begin to have adverse effects or affect participation in rehabilitation exercises, the rehabilitation team should contact surgical teams to discuss available surgical treatment options that could be useful. Another area of complexity is upper limb splinting in individuals with incomplete mid-spinal injury which represents a special situation, because maintenance of full range of motion in the upper limb is not always advisable. In this population, their fingers will naturally curl up over time. In other types of SCI, splinting would be used to correct this but this would be at the expense of shortened tendons. People with mid-spinal incomplete SCI use these shortened tendons to their advantage later on in rehabilitation, to develop a tenodesis grasp (opening and closing hands by using wrist movements). This expands the amount of activities of daily living they can perform (for example, holding objects or operating self-propelled wheelchairs). However, this could be lost if their hands were splinted early in their recovery. Therefore, the committee decided to recommend maintaining joint range of motion but would leave the details on how to do it to the supervising healthcare professionals. Specialist advice may be needed to ensure individual complexity and preferences are understood, especially in complex cases described above, and supervising healthcare professionals should ensure that this advice is sought when needed.

Evidence was searched for how length of bed-rest and the use of early mobilisation strategies can affect rehabilitation outcomes in people with traumatic SCI. One study reported no clinically important differences in patient acceptability between participants receiving ‘unsupported sitting training plus standard in-patient rehabilitation’ when compared to ‘Standard in-patient therapy’. This evidence was judged to be of very low quality and so the committee did not use it in their development of recommendations. The committee collectively agreed on the importance of early mobilisation in preventing other complications such as pressure sores or respiratory illness. They used their experience and expertise to recommend using interventions to aid early mobilisation. No evidence was identified for specific interventions, and so the committee recommended that healthcare professionals consider using examples such as progressive sitting or tilt tables, but did not specify

further. This should be started as soon as a person is able to after SCI, in order to prevent complications caused by long periods of immobility such as pneumonia or pressure sores. The length of bedrest is a particular area of variation in practice, with bedrest ranging from 0 weeks to 6 weeks after trauma. The committee discussed how this was an area where future research would assist practice greatly and therefore made a research recommendation.

Although evidence was found that showed benefits of additional techniques and specialised equipment (for example, NMES or FES) for quality of life and activities of daily living in patients with SCI, the quality was low or very low and the clinical importance of effect estimates varied between time points. The committee agreed that in their clinical experience additional techniques and specialised equipment can be of benefit to patients. However, they discussed that these specialist equipment are expensive and any recommendation would have a resource impact. Additionally, they noted the the low quality of evidence and the fact that clinical important benefits are not sustained. Therefore, they recommended their use only be considered in order to promote mobility, upper limb function and independent walking. They used their experience and expertise to recommend several examples, but did not specify further. The committee discussed the evidence of clinically important, sustained, increased levels of activites of daily living reported in people receiving enhanced robotic training versus those receiving minimised robotic training and whether this warranted a stronger, individual recommendation. However, the quality was very low and, again, it it was decided that the resource impact of recommending this specific specialised equipment would be too large to be justified by the very low quality evidence.

The committee agreed that it is important to treat spasticity to prevent losing range of joint movement and contractures. Although only low quality evidence was found for the use of Baclofen and botulinum toxin A in treating spasticity, the study reported a clinically important increase in activities of daily living for individuals with SCI. This was in accordance with the experience of the committee, many of whom find both beneficial in treating spasticity. The combination of evidence and experience led the committee to recommend oral antispasmodic agents (of which Baclofen is an example) and botulinum toxin A for spasticity management. However, as this is not suitable in all clinical circumstances, the committee caveated that this should be considered rather than mandatory. As with adults, the committee agreed the importance of treating spasticity in children and young people in order to prevent losing range of joint movement and contractures. As there is already a NICE guideline covering this condition, the committee directed readers to the NICE guideline on management of spasticity in under 19s for further guidance.

Unlike most adults, children and young people are still growing at the time of their accident. Particularly, their spine should lengthen and grow in a straight vertical line (albeit with some natural curvature of the neck and lower back). Children and young people with SCI can have their normal spinal growth patterns affected, causing kyphoscoliosis (which can present as an exaggeration of back to front curves, curves affecting the thoracic area or abnormal posture). In turn, this can cause problems with cardiorespiratory function or impact on internal organs. This can be prevented if picked up early and treated with surgery. Monitoring is important to make sure skeletal growth trajectories are maintained as this cannot be rectified once bone growth stops.

Although the risk of low mood and psychological trauma is applicable to many people following complex traumatic injury, it can be a particular issue following SCI. This is due to the possibility of permanent decreased motor function or complete paralysis below the level of injury, which requires a large (and sometimes permanent) change

in individual and family lives. Healthcare staff need to be aware of this increased risk and how it may impact participation in physical and psychological rehabilitation. The committee discussed the use of psychological interventions in individuals with SCI. Moderate and low quality evidence was found regarding a beneficial impact of online CBT, reporting a clinically important increase on overall quality of life. However, as this evidence was found in a population of individuals with both SCI and chronic pain (which requires specialised treatment) and recommending CBT for individuals with SCI would have a resource impact, the committee decided not to make a specific recommendation. The committee's experience is that not everyone will require psychological interventions and they discussed the need to target resources and assessment to be most beneficial for patients. Therefore, they recommended considering psychological support after SCI but highlighted that the rehabilitation team should have access to a psychologist trained in physical trauma and rehabilitation, who can offer psychological support if indicated. After trauma, people can develop long-term psychological impact from changes to their body image. Healthcare professionals should be aware of this. Children and young people undergo many transitions as they grow (for example, puberty or moving schools) which may cause emotional and psychological difficulties. However, in children and young people with traumatic SCI, these additional concerns should be actively monitored (for example, around relationships with others).

Cost effectiveness and resource use

There was no existing economic evidence for this review.

The timeliness for discussion with the regional specialist cord injury centre is established by existing guidance and standards. These are implemented across the health service and would not incur additional resources.

The completion of the ASIA chart and recommendations about the management of bladder function, bowel function, respiratory function, skin, and pressure care reflect standard practice and are not expected to incur additional health service resources.

The committee explained that the use of splints and orthoses to maintain range of motion are also standard practice and are not expected to incur additional resources. There may be modest resource implications associated with seeking specialist advice for the use of hand splints in people with higher-level cervical spinal injury. Although, this is justifiable as this is deemed essential in ensuring the success of rehabilitation.

The committee explained that orthoses, functional electrical stimulation, bodyweight gait training are commonly used techniques. The robotic devices are least commonly used and are associated with high acquisition costs. However, the committee made only a consider recommendation in this area, and the recommendation is not expected to result in a resource impact.

The committee highlighted that botulinum toxin A has a higher acquisition cost when compared with oral antispasmodic agents. However, the committee could not draw any firm conclusions about the effectiveness of method of treating spasticity from the limited clinical evidence. The committee explained that for some people oral medications, e.g. baclofen, have a general effect and might fail to reduce spasticity significantly / achieve the required control or have unacceptable side effects affecting function. In people where a highly specific site control is required botulinum toxin A may be more suitable. Therefore, the committee recommended both treatments.

The committee explained that, generally, psychological support is available to people with spinal injuries. The committee has recommended that services should have

access to a psychologist. It does not imply that services will have to recruit new psychologists, i.e. services will be able to draw on broader expertise within, for example, their trauma network. This recommendation is not expected to have a resource impact.

The committee explained that ongoing contact between the rehabilitation team by telephone or video link is standard practice in most centres. Also, greater utilisation of such practices is likely to represent cost savings to the health service.

Recommendations supported by this evidence review

This evidence review supports recommendations 1.15.1, 1.15.2, 1.15.3, 1.15.4, 1.15.5, 1.15.6, 1.15.7, 1.15.8, 1.15.10, 1.15.11, 1.15.13, 1.15.14, 1.15.15, 1.15.16, 1.15.18, 1.15.19, 1.15.20, 1.15.21, 1.15.22, 1.15.23, 1.15.24, 1.15.25, 1.15.27, 1.15.28, 1.15.29, 1.15.30, 1.15.31 and 1.15.32 in the NICE guideline.

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Evidence for children and young people

A systematic review of the literature was conducted, but no studies were identified which were applicable to this review question.

Appendices

Appendix A – Review protocols

Review protocol for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Table 4: Review protocol for specific programmes and packages in spinal cord injury for adults

Field	Content
PROSPERO registration number	CRD42019145978
Review title	Specific programmes and packages in spinal cord injury for adults
Review question	For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?
Objective	To examine the effectiveness of specific rehabilitation programmes and packages among adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury
Searches	The following databases will be searched: • Cochrane Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE Searches will be restricted by: • Date: 1995 onwards as there has been significant change in practice since then • English language • Human studies See appendix B for the full search strategies.
Condition or domain being studied	Complex rehabilitation needs resulting from traumatic injury 'Complex rehab needs' refers to 'multiple needs, and will always involve coordinated multidisciplinary input from 2 or more allied health professional disciplines, and also include the following:

Field	Content
	• Vocational or educational social support for the person to return to their previous functional level, including return to work, school or college • Emotional, psychological and psychosocial support • Equipment or adaptations • Ongoing recovery from injury that may change the person's rehabilitation needs (for example, restrictions of weight bearing, cast immobilisation in feature clinic) • Further surgery and readmissions to hospital Traumatic injury is defined as 'traumatic injury as injury that requires admission to hospital at the time of injury.
Population	Inclusion: • Adults (aged 18 years and above) with complex rehabilitation needs resulting from traumatic injury that involves spinal cord injury and requires admission to hospital Exclusion: • Adults with complex rehabilitation needs resulting from traumatic brain injury (including anoxic brain injury, for example, drowning and strangulation) • Adults with traumatic injuries who do not have complex rehabilitation needs and/or do not require admission to hospital • Adults with complex rehabilitation needs resulting from traumatic injury that involves spinal cord injury who are admitted to the ICU
Intervention	Standard care consisting of at least 2 of the following: Early referral to spinal cord unit, physiotherapy [range of movement exercises, respiratory management, exercises to maintain muscle function, mobilisation and training with mobilisation aids such as crutches or frame or wheelchairs], orthotics and splinting, pressure care management of skin, occupational therapy assessment, identification and support of activities of daily living through training or aids, and acute pain management; in addition to at least one of the following Spinal cord injury interventions: • Autonomic dysreflexia (e.g. sudden surge in blood pressure, constipation, spasiticity) management • Early prophylactic bladder and bowel management (using one or more of the following strategies: o Bowel: - Suppositories - Enema/transanal irrigation - Laxatives

Field	Content
	- Digital removal of faeces (i.e. finger) - Valsalva maneuver - Rectal/sacral stimulation/innervation - Colostomy - Manometry - Dietary fiber - Massage - Neural prostheses - Self-help devices - Anal plug (for severe diarrhoea) ○ Bladder: - Bladder retraining/training strategies - Anti spasmodics (e.g. Botulinum toxin/onabotulinumtoxin A or oxybutynin) - Catheterization (in-dwelling or urethral - Self-catheterisation or intermittent self catheterisation - Suprapubic catheterisation - Clamping off - Flip flo - Regular monitoring of upper renal tract function • Functional electrical stimulation (FES) • Neuromuscular electrical stimulation (NMES) • Length of bed-rest and early mobilisation (i.e., sitting) • Low blood pressure management (postural hypotension) • Spasticity management of spinal cord (i.e., pharmacological management e.g. intrathecal or oral baclofen, tizanidine, botulism toxin, dantrolene, gabapentin, phenol; positioning and seating systems; splinting) • Early access to spinal cord services including outreach (early defined as “after the surgery management required has been done at the main trauma unit”). • Access to specialist equipment which include wheelchairs, assistive technology and environmental control (e.g. single access systems, specialist seating and alternative keyboards)

Field	Content
	• Specialist equipment such as FES in bike or orthotics, standing frames, body weight supported gait training, exoskeleton or robotic orthotics, tilt table • Psychological therapies for adjustment and engagement (Compassionate mind therapy, Acceptance and commitment therapy, Mindfulness, Visualisation or 'mentalisation' to support physical rehab, Relaxation [progressive, or breathing based, or other], Mirror therapy, Cognitive behavioural therapy)
Comparator/Reference standard/Confounding factors	1) Standard care consisting of at least 2 of the following: Early referral to spinal cord unit, physiotherapy [range of movement exercises, respiratory management, exercises to maintain muscle function, mobilisation and training with mobilisation aids such as crutches or frame or wheelchairs], orthotics and splinting, pressure care management of skin, occupational therapy assessment, identification and support of activities of daily living through training or aids, and acute pain management. 2) Studies that employ the same intervention program as listed under 'interventions' but vary it in terms of any of the following: • Frequency • Intensity • Timing
Types of study to be included	• Systematic review of RCTs • Randomised controlled trials If no RCT data are available for an intervention, evidence from the followings will be considered in order • Cluster-randomised trial • Systematic review of non-randomised studies • Comparative prospective cohort studies with N≥100 per treatment arm • Comparative retrospective cohort studies with N≥100 per treatment arm
Other exclusion criteria	Study design: • Cross-over design • Case-controls • Cross-sectional • Case series and case reports • Audits Language:

Field	Content
	• Non-English • Publication status: • Abstract only
Context	Settings - Inclusion: • All inpatient, outpatient and community settings in which rehabilitation services following traumatic injury are provided Settings - Exclusion: • Accident and emergency departments • Critical care units • Prisons
Primary outcomes (critical outcomes)	• Overall quality of life (EURO-QoL 5D 3L, SF-36, SF-12, SF-6D) • Acute length of staying in main trauma unit • Patient acceptability (any direct measure) Timeframe for the follow-up will be 0-18 months. This will be grouped into short-term (0-6 months) and long-term (more than 6 months).
Secondary outcomes (important outcomes)	• Hospital readmission • Return to work or education • Changes in mood (Depression measures – BDI, DAS, HADS, PH-Q9) • Changes in activity of daily living (Barthel ADL index, EADL-Test, Katz, OARS, PAT, PSMS, SCIM) Timeframe for the follow-up will be 0-18 months. This will be grouped into short-term (0-6 months) and long-term (more than 6 months).
Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into STAR and de-duplicated. The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised form will be used to extract data from studies (see Developing NICE guidelines: the manual section 6.4. Study investigators may be contacted for missing data where time and resources allow.
Risk of bias (quality) assessment	Risk of bias will be assessed using the appropriate checklist as described in Developing NICE guidelines: the manual.
Strategy for data synthesis	NGA STAR software will be used for generating bibliographies/citations, study sifting and data extraction. Pairwise meta-analyses, if possible, will be performed using Cochrane Review Manager (RevMan5). For details please

Field	Content
	see the methods chapter of the full guideline 'GRADEpro' will be used to assess the quality of evidence for each outcome.
Analysis of sub-groups	The following subgroups will be considered: • Complete versus incomplete injury No further subgroups were specified for this question for data stratification, but if there is unexplained heterogeneity, we will look at the following subgroups to try to identify the source of it: • People with pre-existing physical and/or mental health conditions (including substance misuse), physical and learning disability, or frailty versus no pre-existing condition • People who require safeguarding versus no safeguarding
Type and method of review	Intervention
Language	English
Country	England
Anticipated or actual start date	18/07/2019
Anticipated completion date	24/11/2020
Stage of review at time of this submission	Review stage / Started / Completed Preliminary searches ☑ ☑ Piloting of the study selection process ☑ ☑ Formal screening of search results against eligibility criteria ☑ ☑ Data extraction ☑ ☑ Risk of bias (quality) assessment ☑ ☑ Data analysis ☑ ☑

Field	Content
Named contact	National Guideline Alliance
Review team members	National Guideline Alliance
Funding sources/sponsor	This systematic review is being completed by the National Guideline Alliance which receives funding from NICE.
Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.
Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: https://www.nice.org.uk/guidance/indevelopment/gid-ng10105
Other registration details	
Reference/URL for published protocol	https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=145978
Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: notifying registered stakeholders of publication, publicising the guideline through NICE's newsletter and alerts, issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.
Keywords	
Details of existing review of same topic by same authors	
Current review status	
Additional information	
Details of final publication	www.nice.org.uk

ADL: Activities of daily living; BDI: Beck depression inventory; CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; DAS: Disability assessment schedule; EADL-Test: Erlangen Activities of Daily Living test; EURO-QoL 5D 3L: EuroQol 5 dimensions and 3 levels; FES: functional electrical stimulation; HADS: Hospital anxiety and depression scale; ICU: intensive care unit; N: number; NICE: National Institute for Clinical Excellence; NMES: neuromuscular electrical

stimulation; OARS: Older Americans resources and services; PAT: Performance ADL test; PH-Q9: Patient health questionnaire with 9 questions; PROSPERO: International prospective register of systematic reviews; PSMS: Physical self-maintenance scale; RCT: randomised controlled trial; SCIM: spinal cord independence measure; SF-12: 12 item short-form survey; SF-36: 36 item short-form survey; SF-6D: 6-dimension short-form

Review protocol for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Table 5: Review protocol for specific programmes and packages in spinal cord injury for children and young people

Field	Content
PROSPERO registration number	CRD42019145984
Review title	Specific programmes and packages in spinal cord injury for children and young people
Review question	For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?
Objective	To evaluate the effectiveness of specific rehabilitation programmes and packages among children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury
Searches	The following databases will be searched: Cochrane Central Register of Controlled Trials (CENTRAL) Cochrane Database of Systematic Reviews (CDSR) Embase MEDLINE Searches will be restricted by: Date: 1995 onwards as there has been significant change in practice since then English language Human studies See appendix B for full search strategies.
Condition or domain being studied	Complex rehabilitation needs resulting from traumatic injury 'Complex rehab needs' refers to 'multiple needs, and will always involve coordinated multidisciplinary input from 2 or more allied health professional disciplines, and could also include the following: Vocational or educational social support for the person to return to their previous functional level, including return to

Field	Content
	work, school or college Emotional, psychological and psychosocial support Equipment or adaptations Ongoing recovery from injury that may change the person's rehabilitation needs (for example, restrictions of weight bearing, cast immobilisation in feature clinic) Further surgery and readmissions to hospital Traumatic injury is defined as 'traumatic injury as injury that requires admission to hospital at the time of injury.'
Population	Inclusion: Children and young people (aged below 18 years) with complex rehabilitation needs resulting from traumatic injury that results in spinal cord injury and requires admission to hospital Exclusion: Children and young people with complex rehabilitation needs resulting from traumatic brain injury (including anoxic brain injury, for example, drowning and strangulation) Children and young people with traumatic injuries who do not have complex rehabilitation needs and/or do not require admission to hospital Children and young people with complex rehabilitation needs resulting from traumatic injury that results in limb reconstruction, limb loss or amputation who are currently admitted to the PICU
Intervention	Standard care consisting of at least 2 of the following: Early referral to spinal cord unit, physiotherapy [range of movement exercises, respiratory management, exercises to maintain muscle function, mobilisation and training with mobilisation aids such as crutches or frame or wheelchairs], orthotics and splinting, pressure care management of skin, occupational therapy assessment, identification and support of activities of daily living through training or aids, and acute pain management; in addition to at least one of the following: Bowel management (using one or more of the following strategies: Toilet training Suppositories Enema/transanal irrigation Laxatives Digital removal of faeces (i.e. finger) Valsalva manoeuver

Field	Content
	Rectal/sacral stimulation/innervation Colostomy Manometry Dietary fibre Massage Neural prostheses Self-help devices Anal plug (for severe diarrhoea)) Early prophylactic bladder management (using one or more of the following strategies: Bladder retraining/training strategies Anti spasmodics (e.g. Botulinum toxin/onabotulinumtoxin A or oxybutynin) Catheterization (in-dwelling or urethral Self-catheterisation or intermittent self-catheterisation (ISC) Suprapubic catheterisation Clamping off Flip flo Regular monitoring of upper renal tract function) Functional electrical stimulation (FES) Neuromuscular electrical stimulation (NMES) Autonomic dysreflexia (e.g. sudden surge in blood pressure, constipation, spasticity) management Length of bed-rest and early mobilisation (i.e., sitting) Low blood pressure management (postural hypotension) Spasticity management of spinal cord (i.e., pharmacological management e.g. intrathecal or oral baclofen, tizanidine, botulism toxin, dantrolene, gabapentin, phenol; positioning and seating systems; splinting) Early access to spinal cord services including outreach (early defined as “after the surgery management required has been done at the main trauma unit”). Access to specialist equipment which include wheelchairs, assistive technology and environmental control (e.g. single access systems, specialist seating and alternative keyboards) Specialist equipment such as FES in bike or orthotics, standing frames, body weight supported gait training, exoskeleton or robotic orthotics, tilt table

Field	Content
	Psychological therapies for adjustment and engagement (Compassionate mind therapy, Acceptance and commitment therapy, Mindfulness, Visualisation or 'mentalisation' to support physical rehab, Relaxation [progressive, or breathing based, or other], Mirror therapy, Cognitive behavioural therapy) Early specialist play therapy School-based educational interventions (ergonomics) Exclusion: Rehabilitation packages and programmes relating to traumatic brain injury, sight loss and hearing loss Social care interventions (for example, home care or personal assistance) Long-term care and rehabilitation packages for people with long-term care needs Specific pain management interventions
Comparator/Reference standard/Confounding factors	1) Standard care consisting of at least 2 of the following: Early referral to spinal cord unit, physiotherapy [range of movement exercises, respiratory management, exercises to maintain muscle function, mobilisation and training with mobilisation aids such as crutches or frame or wheelchairs], orthotics and splinting, pressure care management of skin, occupational therapy assessment, identification and support of activities of daily living through training or aids, and acute pain management. 2) Studies that employ the same intervention program as listed under 'interventions' but vary it in terms of any of the following: Frequency Intensity Timing
Types of study to be included	Randomised controlled trials (RCTs) Systematic review of RCTs If no RCT data are available for an intervention, evidence from the followings will be considered in order Cluster-randomised trial Systematic review of non-randomised studies Comparative prospective cohort studies with N≥100 per treatment arm Comparative retrospective cohort studies with N≥100 per treatment arm
Other exclusion criteria	Study design:

Field	Content
	Cross-over design Case-controls Cross-sectional Case series and case reports Audits Language: Non-English Publication status: Abstract only
Context	Settings - Inclusion: All inpatient, outpatient and community settings in which rehabilitation services following traumatic injury are provided Settings - Exclusion: Accident and emergency departments Critical care units Prisons.
Primary outcomes (critical outcomes)	Critical: Overall quality of life including quality of sleep [CHQ-CF80, CHQ-PF-50, PEDS-QL, EURO-QoL 5D-Y, SF-36, SF-12, SF-6D, TARN, SCIM] Acute length of stay in main trauma unit Patient and families and carers' acceptability (any direct measure; if not reported, but patient satisfaction is, this will be reported instead) Timeframe for the follow-up will be 0-5 years. This will be grouped into short-term (0-6 months) and long-term (more than 6 months).
Secondary outcomes	Important:

Field	Content
(important outcomes)	Hospital readmission Return to education or work Changes in mood [Any measure, PEDS-QL, Depression measures – HADS, PHQ-9, BDI, DASS] Changes in activity of daily living (COPM, Barthel ADL Index, Katz, PSMS, OARS, PAT, E-ADL-Test) Timeframe for the follow-up will be 0-5 years. This will be grouped into short-term (0-6 months) and long-term (more than 6 months).
Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into STAR and de-duplicated. The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised form will be used to extract data from studies (see Developing NICE guidelines: the manual section 6.4.
Risk of bias (quality) assessment	Risk of bias will be assessed using the appropriate checklist as described in Developing NICE guidelines: the manual.
Strategy for data synthesis	NGA STAR software will be used for generating bibliographies/citations, study sifting and data extraction. If pairwise meta-analyses are undertaken, they will be performed using Cochrane Review Manager (RevMan). 'GRADEpro' will be used to assess the quality of evidence for each outcome.
Analysis of sub-groups	The following subgroups will be considered: Complete versus incomplete injury. No further subgroups were specified for this question for data stratification, but if there is unexplained heterogeneity, we will look at the following subgroups to try to identify the source of it: Children and young people with pre-existing physical and/or mental health conditions (including substance misuse), physical and learning disability, or prematurity versus no pre-existing conditions Children and young people who are suspected of sustaining non-accidental injuries versus accidental injuries Children and young people whose parents are very involved in their rehabilitation/recovery (e.g., by staying overnight in hospital) versus not involved Age (0-3 versus 4-7 versus 8-12 versus 13-17).
Type and method of review	Intervention
Language	English
Country	England
Anticipated or actual start date	17th July 2019
Anticipated completion date	24th November 2020

Field	Content
Stage of review at time of this submission	**Review stage** / **Started** / **Completed** Preliminary searches ☑ ☑ Piloting of the study selection process ☑ ☑ Formal screening of search results against eligibility criteria ☑ ☑ Data extraction ☑ ☑ Risk of bias (quality) assessment ☑ ☑ Data analysis ☑ ☑
Named contact	National Guideline Alliance
Review team members	National Guideline Alliance
Funding sources/sponsor	This systematic review is being completed by the National Guideline Alliance which receives funding from NICE.
Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert wi declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevan changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential co will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person fro meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declaratio be published with the final guideline.
Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: https://www.nice.org.uk/guidance/indevelopment/gid-ng10105
Other registration details	-
Reference/URL for published	https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=145984

Field	Content
protocol	
Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: notifying registered stakeholders of publication publicising the guideline through NICE's newsletter and alerts, issuing a press release or briefing as appropriate posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.
Keywords	
Details of existing review of same topic by same authors	New review
Current review status	
Additional information	
Details of final publication	www.nice.org.uk

ADL: Activities of daily living; BDI: Beck's Depression Inventory; CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; CHQ-CF80: Child (12-18 years old) Health Questionnaire (80 items); CHQ-PF-50: Parent-reported Child (aged 5-18 years old) Health Questionnaire (50 items); COPM: Canadian Occupational Performance Measure; DASS: Depression Anxiety Stress Scale; E-ADL-Test: Erlangen Activities of Daily Living test; EURO-QoL 5D-Y: EuroQol 5 dimensions and 3 levels (Youth); FES: Functional electrical stimulation; FIM: Functional independence measure; GRADE: Grading of Recommendations Assessment, Development and Evaluation; HADS: Hospital Anxiety and Depression Scale; ISC: Intermittent self-catheterisation; N: Number; NGA: National Guideline Alliance; NHS: National Health Service; NICE: National Institute for Health and Care Excellence; NMES: Neuromuscular electrical stimulation; OARS: Older Americans Resources and Services; PAT: Performance ADL test; PEDS-QL: Pediatric Quality of Life Inventory; PHQ-9: Patient Health Questionnaire (9 items); PICU: Paediatric intensive care unit; PSMS: Physical Self-Maintenance Scale; RCT: randomised controlled trial; SCIM: spinal cord independence measure; SF-12: Short-form survey (12 items); SF-36: Short-form survey (36 items); SF-6D: Short-form survey 6-dimension; TARN: Trauma Audit and Research Network.

Appendix B – Literature search strategies

Literature search strategies for review questions:

C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

A combined search was conducted for both review questions.

Note the searches for this review were re-run on 13/11/2020 but with a randomized controlled trial search filter added. This was in order to capture any high level evidence published since the original search was run on 31/05/2019.

Review question search strategies

Databases: Medline; Medline EPub Ahead of Print; and Medline In-Process & Other Non-Indexed Citations

Date of last search: 31/05/2019

#	Searches
1	SPINAL CORD INJURIES/
2	CENTRAL CORD SYNDROME/
3	SPINAL CORD COMPRESSION/
4	exp SPINAL CORD/in [Injuries]
5	((spinal$ or spine?) adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
6	(central adj3 cord? adj3 syndrome?).ti,ab.
7	((spinal$ or spine?) adj3 cord? adj3 compress$).ti,ab.
8	(myelopath$ adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
9	or/1-8
10	FECAL INCONTINENCE/th [Therapy]
11	FECAL INCONTINENCE/rh [Rehabilitation]
12	FECAL INCONTINENCE/pc [Prevention & Control]
13	FECAL INCONTINENCE/dt [Drug Therapy]
14	FECAL INCONTINENCE/dh [Diet Therapy]
15	FECAL IMPACTION/th [Therapy]
16	FECAL IMPACTION/pc [Prevention & Control]
17	FECAL IMPACTION/dt [Drug Therapy]
18	FECAL IMPACTION/dh [Diet Therapy]
19	CONSTIPATION/th [Therapy]
20	CONSTIPATION/rh [Rehabilitation]
21	CONSTIPATION/pc [Prevention & Control]
22	CONSTIPATION/dt [Drug Therapy]
23	CONSTIPATION/dh [Diet Therapy]
24	NEUROGENIC BOWEL/th [Therapy]
25	NEUROGENIC BOWEL/rh [Rehabilitation]
26	NEUROGENIC BOWEL/dt [Drug Therapy]
27	NEUROGENIC BOWEL/dh [Diet Therapy]

#	Searches
28	MEGACOLON/th [Therapy]
29	MEGACOLON/pc [Prevention & Control]
30	MEGACOLON/dt [Drug Therapy]
31	MEGACOLON/dh [Diet Therapy]
32	TOILET TRAINING/
33	SUPPOSITORIES/
34	ENEMA/
35	THERAPEUTIC IRRIGATION/
36	LAXATIVES/
37	VALSALVA MANEUVER/
38	RECTUM/ir [Innervation]
39	SACRUM/ir [Innervation]
40	COLOSTOMY/
41	MANOMETRY/
42	DIETARY FIBER/
43	MASSAGE/
44	DEFECATION/
45	NEURAL PROSTHESES/
46	SELF-HELP DEVICES/
47	(bowel$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
48	((colorectal$ or colon$) adj3 dysfunction$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
49	(f?ecal$ adj3 (incontinen$ or continen$ or impact$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
50	(constipat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
51	((disorder$ or dyssynergic) adj3 defecat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
52	(megacolon$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
53	((toilet$ or potty or potties) adj3 (train$ or retrain$)).ti,ab.
54	suppositor$.ti,ab.
55	enema?.ti,ab.
56	wash-out?.ti,ab.
57	((Transanal$ or anal$ or colon$) adj3 irrigat$).ti,ab.
58	laxative?.ti,ab.
59	(digit$ adj3 (f?eces or intervention? or stimulat$)).ti,ab.
60	(manual$ adj3 evacuat$).ti,ab.
61	(Valsalva adj3 (manoeuvre or maneuver)).ti,ab.
62	((rectal$ or rectum? or anorectal$ or sacral$ or sacrum?) adj3 (stimulat$ or innervat$)).ti,ab.
63	colostom$.ti,ab.
64	manometr$.ti,ab.
65	((optimi$ or improv$ or chang$ or adapt$) adj3 (diet? or fluid?)).ti,ab.
66	(diet$ adj3 (fibre or fiber)).ti,ab.
67	((abdom$ or tumm$) adj3 massag$).ti,ab.
68	(regular$ adj3 (bowel? or defecat$)).ti,ab.
69	(f?ecal$ adj3 continen$).ti,ab.
70	(neur$ adj3 prosthe$).ti,ab.
71	((bowel? or incontinen$ or constipat$) adj3 (assist$ or self help or selfhelp or adapt$) adj3 (device? or technolog$ or aid?)).ti,ab.
72	(anal$ adj3 plug$).ti,ab.
73	or/10-72
74	URINARY INCONTINENCE/th [Therapy]
75	URINARY INCONTINENCE/rh [Rehabilitation]
76	URINARY INCONTINENCE/pc [Prevention & Control]
77	URINARY INCONTINENCE/dt [Drug Therapy]

#	Searches
78	URINARY BLADDER, NEUROGENIC/th [Therapy]
79	URINARY BLADDER, NEUROGENIC/rh [Rehabilitation]
80	URINARY BLADDER, NEUROGENIC/pc [Prevention & Control]
81	URINARY BLADDER, NEUROGENIC/dt [Drug Therapy]
82	(URINARY INCONTINENCE/ or URINARY BLADDER, NEUROGENIC/) and (exp BOTULINUM TOXINS/ or PHENYLPROPANOLAMINE/ or TOLTERODINE TARTRATE/ or CAPSAICIN/ or MORPHINE/)
83	URINARY CATHETERIZATION/
84	INTERMITTENT URETHRAL CATHETERIZATION/
85	(bladder$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
86	(urological$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
87	(urin$ adj3 (incontinen$ or continen$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
88	((urin$ or bladder$) adj5 (antispasmodic? or anti-spasmodic? botulinum toxin? or onabotulinumtoxin? or phenylpropanolamine or tolterodine or oxybutynin or capsaicin or morphine)).ti,ab.
89	((urin$ or bladder$) adj3 catheter$).ti,ab.
90	((intermittent$ or indwell$ or urethral$ or suprapubic$ or supra pubic$) adj3 catheter$).ti,ab.
91	(self adj3 catheter$).ti,ab.
92	(clamp$ adj3 off).ti,ab.
93	flip flo.ti,ab.
94	(monitor$ adj3 (renal$ or urin$) adj3 tract?).ti,ab.
95	or/74-94
96	AUTONOMIC DYSREFLEXIA/
97	(autonomic adj3 (dysreflexi$ or hyperreflexi$)).ti,ab.
98	or/96-97
99	BED REST/
100	(bed? adj3 rest$).ti,ab.
101	EARLY AMBULATION/
102	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 mobili$).ti,ab.
103	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 ambulation).ti,ab.
104	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 (sit or sits or sitting or stand? or standing or walk? or walking)).ti,ab.
105	IMMOBILIZATION/ae [Adverse Effects]
106	or/99-105
107	HYPOTENSION, ORTHOSTATIC/
108	((orthostatic or postur$) adj5 hypotensi$).ti,ab.
109	((manag$ or treat$ or therap$) adj5 hypotensi$).ti,ab.
110	((manag$ or treat$ or therap$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
111	((sit$ or tilt$ or position$) adj5 hypotensi$).ti,ab.
112	((sit$ or tilt$ or position$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
113	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 hypotensi$).ti,ab.
114	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
115	or/107-114
116	MUSCLE SPASTICITY/rh [Rehabilitation]

#	Searches
117	MUSCLE SPASTICITY/th [Therapy]
118	MUSCLE SPASTICITY/ and (PATIENT POSITIONING/ or POSTURE/ or WHEELCHAIRS/ or SPLINTS/)
119	MUSCLE SPASTICITY/ and MUSCLE STRETCHING EXERCISES/
120	MUSCLE SPASTICITY/dt [Drug Therapy]
121	MUSCLE SPASTICITY/ and (BACLOFEN/ or BOTULINUM TOXINS/ or DANTROLENE/ or GABAPENTIN/ or PHENOL/)
122	(Spastic$ adj5 (manag$ or therap$)).ti,ab.
123	(spastic$ adj5 (position$ or seat$ or wheelchair? or splint$)).ti,ab.
124	(Spastic$ adj5 (stretch$ or exercis$ or ranging)).ti,ab.
125	(Spastic$ adj5 range? adj3 mov$).ti,ab.
126	(spastic$ and (antispasmodic? or anti-spasmodic? or baclofen or tizanidine or botulinum toxin? or dantrolene or gabapentin or phenol)).ti,ab.
127	or/116-126
128	HEALTH SERVICES ACCESSIBILITY/
129	(PATIENT ADMISSION/ or PATIENT READMISSION/ or PATIENT TRANSFER/ or "REFERRAL AND CONSULTATION"/) and TIME FACTORS/
130	((earl$ or prompt$ or immediat$ or initiat$ or start$ or date? or time$ or timing) adj10 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj10 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
131	((week? or day? or hour?) adj5 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj5 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
132	or/128-131
133	exp SELF-HELP DEVICES/ and ("HEALTH SERVICES NEEDS AND DEMANDS"/ or NEEDS ASSESSMENT/ or "DELIVERY OF HEALTH CARE"/ or "DELIVERY OF HEALTH CARE, INTEGRATED"/)
134	exp SELF-HELP DEVICES/sd [Supply & Distribution]
135	("EQUIPMENT AND SUPPLIES"/ or EQUIPMENT DESIGN/ or ENVIRONMENT DESIGN/ or "ACTIVITIES OF DAILY LIVING"/) and ("HEALTH SERVICES NEEDS AND DEMANDS"/ or NEEDS ASSESSMENT/ or "DELIVERY OF HEALTH CARE"/ or "DELIVERY OF HEALTH CARE, INTEGRATED"/)
136	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 equipment).ti,ab.
137	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (assist$ or self help or selfhelp) adj3 (device? or technolog$ or aid?)).ti,ab.
138	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 environment$ adj3 control$).ti,ab.
139	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 ECS).ti,ab.
140	((access$ or provision$ or provid$ or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti,ab.
141	(use? adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti.
142	((access$ or provision$ or provide or provided or providing or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$) adj5 (brace? or collar or seat? or chair? or special$ bed? or sleep$ system? or single access system? or communication board? or communication aid? or bell? or intercom? or alarm? or pager? or telephone? or phone? or smartphone? or app? or tablet? or television? or TV or TVs or stereo? or radio? or light$ or lamp? or fan? or (door? adj3 (releas$ or open$)) or (curtain? adj3 open$) or (window? adj3 open$) or (page? adj3 turn$) or telecare equipment or computer? or keyboard? or mouse or joystick? or roller ball? or eye gaze or software or ((wash$ or dress$) adj3 aid?) or special$ grip? or handle?)).ti,ab.
143	or/133-142
144	*ELECTRIC STIMULATION THERAPY/
145	((neuro$ or function$) adj3 electrical$ adj3 stimulat$).ti,ab.
146	NMES.ti,ab.

#	Searches
147	FES.ti,ab.
148	or/144-147
149	(special$ adj3 equipment?).ti,ab.
150	ELECTRIC STIMULATION THERAPY/ and (BICYCLING/ or exp ORTHOTIC DEVICES/)
151	(function$ adj3 electr$ adj3 stimulat$ adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
152	(FES adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
153	((stand? or standing) adj3 (frame? or apparatus or equipment or technolog$ or aid? or device? or box or boxes)).ti,ab.
154	BODY WEIGHT/ and GAIT/
155	(body adj3 weight? adj3 support$ adj5 train$).ti,ab.
156	(bodyweight? adj3 support$ adj5 train$).ti,ab.
157	EXOSKELETON DEVICE/
158	exoskeleton?.ti,ab.
159	ROBOTICS/ and exp ORTHOTIC DEVICES/
160	(robot$ adj5 (orthotic? or orthos?s)).ti,ab.
161	(robot$ adj3 (device? or rehab$ or train$)).ti,ab.
162	(tilt$ adj3 table?).ti,ab.
163	or/149-162
164	(Mirror? adj3 (therap$ or train$ or feedback or treat$ or device? or box)).ti,ab.
165	(Compassion$ adj3 mind$ adj3 (therap$ or train$)).ti,ab.
166	"ACCEPTANCE AND COMMITMENT THERAPY"/
167	(Accept$ adj3 commit$ adj3 (therap$ or train$)).ti,ab.
168	MINDFULNESS/
169	Mindfulness.ti,ab.
170	(Visuali?ation adj3 (therap$ or train$)).ti,ab.
171	mentali?ation.ti,ab.
172	RELAXATION THERAPY/
173	BREATHING EXERCISES/
174	((Relax$ or progressive$ or breath$) adj3 (therap$ or train$ or exercis$)).ti,ab.
175	COGNITIVE THERAPY/
176	(Cognit$ adj3 behav$ adj3 (therap$ or train$)).ti,ab.
177	CBT.ti,ab.
178	or/165-177
179	9 and 73
180	9 and 95
181	9 and 98
182	9 and 106
183	9 and 115
184	9 and 127
185	9 and 132
186	9 and 143
187	9 and 148
188	9 and 163
189	9 and 164
190	9 and 178
191	or/179-190
192	limit 191 to english language
193	limit 192 to yr="1995 -Current"
194	LETTER/
195	EDITORIAL/
196	NEWS/
197	exp HISTORICAL ARTICLE/
198	ANECDOTES AS TOPIC/
199	COMMENT/
200	CASE REPORT/
201	(letter or comment*).ti.

#	Searches
202	or/194-201
203	RANDOMIZED CONTROLLED TRIAL/ or random*.ti,ab.
204	202 not 203
205	ANIMALS/ not HUMANS/
206	exp ANIMALS, LABORATORY/
207	exp ANIMAL EXPERIMENTATION/
208	exp MODELS, ANIMAL/
209	exp RODENTIA/
210	(rat or rats or mouse or mice).ti.
211	or/204-210
212	193 not 211

Date last searched: 10/05/2019

#	Searches
1	ADOLESCENT/ or MINORS/
2	(adolescen$ or teen$ or youth$ or young or juvenile? or minors or highschool$).ti,ab,jw,nw.
3	exp CHILD/
4	(child$ or schoolchild$ or "school age" or "school aged" or preschool$ or toddler$ or kid? or kindergar$ or boy? or girl?).ti,ab,jw,nw.
5	exp INFANT/
6	(infan$ or neonat$ or newborn$ or baby or babies).ti,ab,jw,nw.
7	exp PEDIATRICS/ or exp PUBERTY/
8	(p?ediatric$ or pubert$ or prepubert$ or pubescen$ or prepubescen$).ti,ab,jw,nw.
9	or/1-8
10	SPINAL CORD INJURIES/
11	CENTRAL CORD SYNDROME/
12	SPINAL CORD COMPRESSION/
13	exp SPINAL CORD/in [Injuries]
14	((spinal$ or spine?) adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
15	(central adj3 cord? adj3 syndrome?).ti,ab.
16	((spinal$ or spine?) adj3 cord? adj3 compress$).ti,ab.
17	(myelopath$ adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
18	or/10-17
19	FECAL INCONTINENCE/th [Therapy]
20	FECAL INCONTINENCE/rh [Rehabilitation]
21	FECAL IMPACTION/th [Therapy]
22	CONSTIPATION/th [Therapy]
23	CONSTIPATION/rh [Rehabilitation]
24	NEUROGENIC BOWEL/th [Therapy]
25	NEUROGENIC BOWEL/rh [Rehabilitation]
26	MEGACOLON/th [Therapy]
27	TOILET TRAINING/
28	SUPPOSITORIES/
29	ENEMA/
30	LAXATIVES/
31	VALSALVA MANEUVER/
32	RECTUM/ir [Innervation]
33	SACRUM/ir [Innervation]
34	COLOSTOMY/
35	MANOMETRY/
36	DIETARY FIBER/
37	MASSAGE/
38	DEFECATION/
39	NEURAL PROSTHESES/
40	SELF-HELP DEVICES/

#	Searches
41	(bowel$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
42	((colorectal$ or colon$) adj5 dysfunction$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
43	(f?ecal$ adj5 (incontinen$ or continen$ or impact$) adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
44	(constipat$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
45	(disordered adj5 defecat$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
46	(megacolon$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
47	((toilet$ or potty or potties) adj5 train$).ti,ab.
48	suppositor$.ti,ab.
49	enema?.ti,ab.
50	wash-out?.ti,ab.
51	((Transanal$ or anal$ or colon$) adj3 irrigat$).ti,ab.
52	laxative?.ti,ab.
53	(digit$ adj5 (f?eces or intervention? or stimulat$)).ti,ab.
54	(manual$ adj3 evacuat$).ti,ab.
55	(Valsalva adj3 (manoeuvre or maneuver)).ti,ab.
56	((rectal$ or rectum? or anorectal$ or sacral$ or sacrum?) adj5 (stimulat$ or innervat$)).ti,ab.
57	colostom$.ti,ab.
58	manometr$.ti,ab.
59	((optimi$ or improv$ or chang$ or adapt$) adj3 (diet? or fluid?)).ti,ab.
60	(diet$ adj3 (fibre or fiber)).ti,ab.
61	((abdom$ or tumm$) adj3 massag$).ti,ab.
62	(regular$ adj3 (bowel? or defecat$)).ti,ab.
63	(f?ecal$ adj3 continen$).ti,ab.
64	(neur$ adj3 prosthe$).ti,ab.
65	((bowel? or incontinen$ or constipat$) adj5 (assist$ or self help or selfhelp or adapt$) adj3 (device? or technolog$ or aid?)).ti,ab.
66	or/19-65
67	PLAY THERAPY/
68	(play$ adj3 therap$).ti,ab.
69	or/67-68
70	(EDUCATION/ or SCHOOLS/) and (ADAPTATION, PHYSIOLOGICAL/ or ACCLIMATIZATION/ or exp ADAPTATION, PSYCHOLOGICAL/ or ERGONOMICS/ or EQUIPMENT DESIGN/ or SELF-HELP DEVICES/)
71	((education$ or school$) adj5 (rehab$ or support$ or adjust$ or adapt$ or chang$ or reintegrat$ or re-integrat$ or facilitat$ or intervention? or equipment or ergonomic$ or assist$ tech$)).ti,ab.
72	(return$ adj5 (education$ or school$)).ti,ab.
73	or/70-72
74	9 and 18 and 66
75	9 and 18 and 69
76	9 and 18 and 73
77	or/74-76
78	limit 77 to english language
79	limit 78 to yr="1995 -Current"
80	LETTER/
81	EDITORIAL/
82	NEWS/
83	exp HISTORICAL ARTICLE/
84	ANECDOTES AS TOPIC/
85	COMMENT/
86	CASE REPORT/

#	Searches
87	(letter or comment*).ti.
88	or/80-87
89	RANDOMIZED CONTROLLED TRIAL/ or random*.ti,ab.
90	88 not 89
91	ANIMALS/ not HUMANS/
92	exp ANIMALS, LABORATORY/
93	exp ANIMAL EXPERIMENTATION/
94	exp MODELS, ANIMAL/
95	exp RODENTIA/
96	(rat or rats or mouse or mice).ti.
97	or/90-96
98	79 not 97

Databases: Embase; and Embase Classic

Date of last search: 31/05/2019

#	Searches
1	SPINAL CORD INJURY/
2	CENTRAL CORD SYNDROME/
3	CERVICAL SPINAL CORD INJURY/
4	SPINAL CORD COMPRESSION/
5	SPINAL CORD TRANSSECTION/
6	SPINAL CORD TRANSVERSE LESION/
7	((spinal$ or spine?) adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
8	(central adj3 cord? adj3 syndrome?).ti,ab.
9	((spinal$ or spine?) adj3 cord? adj3 compress$).ti,ab.
10	(myelopath$ adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
11	or/1-10
12	"BLADDER AND BOWEL MANAGEMENT"/
13	FECES INCONTINENCE/dm [Disease Management]
14	FECES INCONTINENCE/th [Therapy]
15	FECES INCONTINENCE/rh [Rehabilitation]
16	FECES INCONTINENCE/pc [Prevention]
17	FECES INCONTINENCE/dt [Drug Therapy]
18	FECES IMPACTION/dm [Disease Management]
19	FECES IMPACTION/th [Therapy]
20	FECES IMPACTION/rh [Rehabilitation]
21	FECES IMPACTION/pc [Prevention]
22	FECES IMPACTION/dt [Drug Therapy]
23	exp CONSTIPATION/dm [Disease Management]
24	exp CONSTIPATION/th [Therapy]
25	exp CONSTIPATION/rh [Rehabilitation]
26	exp CONSTIPATION/pc [Prevention]
27	exp CONSTIPATION/dt [Drug Therapy]
28	NEUROGENIC BOWEL/dm [Disease Management]
29	NEUROGENIC BOWEL/th [Therapy]
30	NEUROGENIC BOWEL/rh [Rehabilitation]
31	NEUROGENIC BOWEL/pc [Prevention]
32	NEUROGENIC BOWEL/dt [Drug Therapy]
33	MEGACOLON/dm [Disease Management]
34	MEGACOLON/th [Therapy]
35	MEGACOLON/dt [Drug Therapy]
36	TOILET TRAINING/

#	Searches
37	SUPPOSITORY/
38	ENEMA/
39	COLON LAVAGE/
40	LAXATIVE/
41	VALSALVA MANEUVER/
42	RECTUM/ and (STIMULATION/ or INNERVATION/)
43	SACRUM/ and (STIMULATION/ or INNERVATION/)
44	SACRAL NERVE STIMULATION/
45	COLOSTOMY/
46	MANOMETRY/
47	DIETARY FIBER/
48	MASSAGE/
49	DEFECATION/
50	DEFECATION HABIT/
51	NEUROPROSTHESES/
52	SELF-HELP DEVICES/
53	ANAL PLUG/
54	(bowel$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
55	((colorectal$ or colon$) adj3 dysfunction$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
56	(f?ecal$ adj3 (incontinen$ or continen$ or impact$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
57	(constipat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
58	((disorder$ or dyssynergic) adj3 defecat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
59	(megacolon$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
60	((toilet$ or potty or potties) adj3 (train$ or retrain$)).ti,ab.
61	suppositor$.ti,ab.
62	enema?.ti,ab.
63	wash-out?.ti,ab.
64	((Transanal$ or anal$ or colon$) adj3 irrigat$).ti,ab.
65	laxative?.ti,ab.
66	(digit$ adj3 (f?eces or intervention? or stimulat$)).ti,ab.
67	(manual$ adj3 evacuat$).ti,ab.
68	(Valsalva adj3 (manoeuvre or maneuver)).ti,ab.
69	((rectal$ or rectum? or anorectal$ or sacral$ or sacrum?) adj3 (stimulat$ or innervat$)).ti,ab.
70	colostom$.ti,ab.
71	manometr$.ti,ab.
72	((optimi$ or improv$ or chang$ or adapt$) adj3 (diet? or fluid?)).ti,ab.
73	(diet$ adj3 (fibre or fiber)).ti,ab.
74	((abdom$ or tumm$) adj3 massag$).ti,ab.
75	(regular$ adj3 (bowel? or defecat$)).ti,ab.
76	(f?ecal$ adj3 continen$).ti,ab.
77	(neur$ adj3 prosthe$).ti,ab.
78	((bowel? or incontinen$ or constipat$) adj3 (assist$ or self help or selfhelp or adapt$) adj3 (device? or technolog$ or aid?)).ti,ab.
79	(anal$ adj3 plug$).ti,ab.
80	or/12-79
81	URINE INCONTINENCE/dm [Disease Management]
82	URINE INCONTINENCE/th [Therapy]
83	URINE INCONTINENCE/rh [Rehabilitation]
84	URINE INCONTINENCE/pc [Prevention]
85	URINE INCONTINENCE/dt [Drug Therapy]
86	NEUROGENIC BLADDER/dm [Disease Management]

#	Searches
87	NEUROGENIC BLADDER/th [Therapy]
88	NEUROGENIC BLADDER/rh [Rehabilitation]
89	NEUROGENIC BLADDER/pc [Prevention]
90	NEUROGENIC BLADDER/dt [Drug Therapy]
91	(URINE INCONTINENCE/ or NEUROGENIC BLADDER/) and (BOTULINUM TOXIN/ or BOTULINUM TOXIN A/ or PHENYLPROPANOLAMINE/ or TOLTERODINE/ or OXYBUTYNIN/ or CAPSAICIN/ or MORPHINE/)
92	exp BLADDER CATHETERIZATION/
93	INTERMITTENT CATHETERIZATION/
94	(bladder$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
95	(urological$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
96	(urin$ adj3 (incontinen$ or continen$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
97	((urin$ or bladder$) adj5 (antispasmodic? or anti-spasmodic? botulinum toxin? or onabotulinumtoxin? or phenylpropanolamine or tolterodine or oxybutynin or capsaicin or morphine)).ti,ab.
98	((urin$ or bladder$) adj3 catheter$).ti,ab.
99	((intermittent$ or indwell$ or urethral$ or suprapubic$ or supra pubic$) adj3 catheter$).ti,ab.
100	(self adj3 catheter$).ti,ab.
101	(clamp$ adj3 off).ti,ab.
102	flip flo.ti,ab.
103	(monitor$ adj3 (renal$ or urin$) adj3 tract?).ti,ab.
104	or/81-103
105	AUTONOMIC DYSREFLEXIA/
106	(autonomic adj3 (dysreflexi$ or hyperreflexi$)).ti,ab.
107	or/105-106
108	BED REST/
109	(bed? adj3 rest$).ti,ab.
110	MOBILIZATION/
111	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 mobili$).ti,ab.
112	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 ambulation).ti,ab.
113	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 (sit or sits or sitting or stand? or standing or walk? or walking)).ti,ab.
114	or/108-113
115	ORTHOSTATIC HYPOTENSION/
116	((orthostatic or postur$) adj5 hypotensi$).ti,ab.
117	((manag$ or treat$ or therap$) adj5 hypotensi$).ti,ab.
118	((manag$ or treat$ or therap$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
119	((sit$ or tilt$ or position$) adj5 hypotensi$).ti,ab.
120	((sit$ or tilt$ or position$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
121	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 hypotensi$).ti,ab.
122	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
123	or/115-122
124	SPASTICITY/rh [Rehabilitation]
125	SPASTICITY/th [Therapy]

#	Searches
126	SPASTICITY/dm [Disease Management]
127	SPASTICITY/ and (PATIENT POSITIONING/ or BODY POSITION/ or exp WHEELCHAIR/ or exp SPLINT/)
128	SPASTICITY/ and STRETCHING EXERCISE/
129	SPASTICITY/dt [Drug Therapy]
130	SPASTICITY/ and (BACLOFEN/ or TIZANIDINE/ or BOTULINUM TOXIN/ or DANTROLENE/ or GABAPENTIN/ or PHENOL/)
131	(Spastic$ adj5 (manag$ or therap$)).ti,ab.
132	(spastic$ adj5 (position$ or seat$ or wheelchair? or splint$)).ti,ab.
133	(Spastic$ adj5 (stretch$ or exercis$ or ranging)).ti,ab.
134	(Spastic$ adj5 range? adj3 mov$).ti,ab.
135	(spastic$ and (antispasmodic? or anti-spasmodic? or baclofen or tizanidine or botulinum toxin? or dantrolene or gabapentin or phenol)).ti,ab.
136	or/124-135
137	HEALTH CARE ACCESS/
138	(HOSPITAL ADMISSION/ or HOSPITAL READMISSION/ or PATIENT REFERRAL/) and TIME FACTOR/
139	((earl$ or prompt$ or immediat$ or initiat$ or start$ or date? or time$ or timing) adj10 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj10 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
140	((week? or day? or hour?) adj5 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj5 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
141	or/137-140
142	exp REHABILITATION EQUIPMENT/ and (NEEDS ASSESSMENT/ or HEALTH CARE NEED/ or HEALTH CARE DELIVERY/ or HEALTH CARE PLANNING/ or HEALTH CARE DISTRIBUTION/ or INTEGRATED HEALTH CARE SYSTEM/)
143	(exp GENERAL DEVICE/ or EQUIPMENT DESIGN/ or ENVIRONMENTAL PLANNING/ or DAILY LIFE ACTIVITY/) and (NEEDS ASSESSMENT/ or HEALTH CARE NEED/ or HEALTH CARE DELIVERY/ or HEALTH CARE PLANNING/ or HEALTH CARE DISTRIBUTION/ or INTEGRATED HEALTH CARE SYSTEM/)
144	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 equipment).ti,ab.
145	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (assist$ or self help or selfhelp) adj3 (device? or technolog$ or aid?)).ti,ab.
146	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 environment$ adj3 control$).ti,ab.
147	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 ECS).ti,ab.
148	((access$ or provision$ or provid$ or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti,ab.
149	(use? adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti.
150	((access$ or provision$ or provide or provided or providing or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$) adj5 (brace? or collar or seat? or chair? or special$ bed? or sleep$ system? or single access system? or communication board? or communication aid? or bell? or intercom? or alarm? or pager? or telephone? or phone? or smartphone? or app? or tablet? or television? or TV or TVs or stereo? or radio? or light$ or lamp? or fan? or (door? adj3 (releas$ or open$)) or (curtain? adj3 open$) or (window? adj3 open$) or (page? adj3 turn$) or telecare equipment or computer? or keyboard? or mouse or joystick? or roller ball? or eye gaze or software or ((wash$ or dress$) adj3 aid?) or special$ grip? or handle?)).ti,ab.
151	or/142-150
152	ELECTROTHERAPY/
153	*NERVE STIMULATION/
154	NEUROMUSCULAR ELECTRICAL STIMULATION/
155	FUNCTIONAL ELECTRICAL STIMULATION/

#	Searches
156	((neuro$ or function$) adj3 electrical$ adj3 stimulat$).ti,ab.
157	NMES.ti,ab.
158	FES.ti,ab.
159	or/152-158
160	(special$ adj3 equipment?).ti,ab.
161	(ELECTROTHERAPY/ or *NERVE STIMULATION/ or NEUROMUSCULAR ELECTRICAL STIMULATION/ or FUNCTIONAL ELECTRICAL STIMULATION/) and (BICYCLE/ or CYCLING/ or exp ORTHOSIS/)
162	(function$ adj3 electr$ adj3 stimulat$ adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
163	(FES adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
164	((stand? or standing) adj3 (frame? or apparatus or equipment or technolog$ or aid? or device? or box or boxes)).ti,ab.
165	BODY WEIGHT/ and GAIT/
166	(body adj3 weight? adj3 support$ adj5 train$).ti,ab.
167	(bodyweight? adj3 support$ adj5 train$).ti,ab.
168	exp "EXOSKELETON (REHABILITATION)"/
169	exoskeleton?.ti,ab.
170	ROBOTICS/ and exp ORTHOSIS/
171	(robot$ adj5 (orthotic? or orthos?s)).ti,ab.
172	(robot$ adj3 (device? or rehab$ or train$)).ti,ab.
173	(tilt$ adj3 table?).ti,ab.
174	or/160-173
175	(Mirror? adj3 (therap$ or train$ or feedback or treat$ or device? or box)).ti,ab.
176	(Compassion$ adj3 mind$ adj3 (therap$ or train$)).ti,ab.
177	"ACCEPTANCE AND COMMITMENT THERAPY"/
178	(Accept$ adj3 commit$ adj3 (therap$ or train$)).ti,ab.
179	MINDFULNESS/
180	Mindfulness.ti,ab.
181	(Visuali?ation adj3 (therap$ or train$)).ti,ab.
182	mentali?ation.ti,ab.
183	RELAXATION TRAINING/
184	BREATHING EXERCISE/
185	((Relax$ or progressive$ or breath$) adj3 (therap$ or train$ or exercis$)).ti,ab.
186	COGNITIVE BEHAVIORAL THERAPY/
187	(Cognit$ adj3 behav$ adj3 (therap$ or train$)).ti,ab.
188	CBT.ti,ab.
189	or/176-188
190	11 and 80
191	11 and 104
192	11 and 107
193	11 and 114
194	11 and 123
195	11 and 136
196	11 and 141
197	11 and 151
198	11 and 159
199	11 and 174
200	11 and 175
201	11 and 189
202	or/190-201
203	limit 202 to english language
204	limit 203 to yr="1995 -Current"
205	letter.pt. or LETTER/
206	note.pt.
207	editorial.pt.
208	CASE REPORT/ or CASE STUDY/

#	Searches
209	(letter or comment*).ti.
210	or/205-209
211	RANDOMIZED CONTROLLED TRIAL/ or random*.ti,ab.
212	210 not 211
213	ANIMAL/ not HUMAN/
214	NONHUMAN/
215	exp ANIMAL EXPERIMENT/
216	exp EXPERIMENTAL ANIMAL/
217	ANIMAL MODEL/
218	exp RODENT/
219	(rat or rats or mouse or mice).ti.
220	or/212-219
221	204 not 220

Date last searched: 10/05/2019

#	Searches
1	exp ADOLESCENT/
2	(adolescen$ or teen$ or youth$ or young or juvenile? or minors or highschool$).ti,ab,jx.
3	exp CHILD/
4	(child$ or schoolchild$ or "school age" or "school aged" or preschool$ or toddler$ or kid? or kindergar$ or boy? or girl?).ti,ab,jx.
5	exp INFANT/
6	(infan$ or neonat$ or newborn$ or baby or babies).ti,ab,jx.
7	exp PEDIATRICS/ or exp PUBERTY/
8	(p?ediatric$ or pubert$ or prepubert$ or pubescen$ or prepubescen$).ti,ab,jx,ec.
9	or/1-8
10	SPINAL CORD INJURY/
11	CENTRAL CORD SYNDROME/
12	CERVICAL SPINAL CORD INJURY/
13	SPINAL CORD COMPRESSION/
14	SPINAL CORD TRANSSECTION/
15	SPINAL CORD TRANSVERSE LESION/
16	((spinal$ or spine?) adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
17	(central adj3 cord? adj3 syndrome?).ti,ab.
18	((spinal$ or spine?) adj3 cord? adj3 compress$).ti,ab.
19	(myelopath$ adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
20	or/10-19
21	"BLADDER AND BOWEL MANAGEMENT"/
22	FECES INCONTINENCE/dm [Disease Management]
23	FECES INCONTINENCE/th [Therapy]
24	FECES INCONTINENCE/rh [Rehabilitation]
25	FECES IMPACTION/dm [Disease Management]
26	FECES IMPACTION/th [Therapy]
27	FECES IMPACTION/rh [Rehabilitation]
28	exp CONSTIPATION/dm [Disease Management]
29	exp CONSTIPATION/th [Therapy]
30	exp CONSTIPATION/rh [Rehabilitation]
31	NEUROGENIC BOWEL/dm [Disease Management]
32	NEUROGENIC BOWEL/th [Therapy]
33	NEUROGENIC BOWEL/rh [Rehabilitation]
34	MEGACOLON/dm [Disease Management]
35	MEGACOLON/th [Therapy]
36	TOILET TRAINING/
37	SUPPOSITORY/
38	ENEMA/

#	Searches
39	LAXATIVE/
40	VALSALVA MANEUVER/
41	RECTUM/ and (STIMULATION/ or INNERVATION/)
42	SACRUM/ and (STIMULATION/ or INNERVATION/)
43	SACRAL NERVE STIMULATION/
44	COLOSTOMY/
45	MANOMETRY/
46	DIETARY FIBER/
47	MASSAGE/
48	DEFECATION/
49	DEFECATION HABIT/
50	NEUROPROSTHESES/
51	SELF-HELP DEVICES/
52	(bowel$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
53	((colorectal$ or colon$) adj5 dysfunction$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
54	(f?ecal$ adj5 (incontinen$ or continen$ or impact$) adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
55	(constipat$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
56	(disordered adj5 defecat$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
57	(megacolon$ adj5 (manag$ or therap$ or rehab$ or intervention? or train$ or care or program$ or treat$)).ti,ab.
58	((toilet$ or potty or potties) adj5 train$).ti,ab.
59	suppositor$.ti,ab.
60	enema?.ti,ab.
61	wash-out?.ti,ab.
62	((Transanal$ or anal$ or colon$) adj3 irrigat$).ti,ab.
63	laxative?.ti,ab.
64	(digit$ adj5 (f?eces or intervention? or stimulat$)).ti,ab.
65	(manual$ adj3 evacuat$).ti,ab.
66	(Valsalva adj3 (manoeuvre or maneuver)).ti,ab.
67	((rectal$ or rectum? or anorectal$ or sacral$ or sacrum?) adj5 (stimulat$ or innervat$)).ti,ab.
68	colostom$.ti,ab.
69	manometr$.ti,ab.
70	((optimi$ or improv$ or chang$ or adapt$) adj3 (diet? or fluid?)).ti,ab.
71	(diet$ adj3 (fibre or fiber)).ti,ab.
72	((abdom$ or tumm$) adj3 massag$).ti,ab.
73	(regular$ adj3 (bowel? or defecat$)).ti,ab.
74	(f?ecal$ adj3 continen$).ti,ab.
75	(neur$ adj3 prosthe$).ti,ab.
76	((bowel? or incontinen$ or constipat$) adj5 (assist$ or self help or selfhelp or adapt$) adj3 (device? or technolog$ or aid?)).ti,ab.
77	or/21-76
78	PLAY THERAPY/
79	(play$ adj3 therap$).ti,ab.
80	or/78-79
81	(EDUCATION/ or SCHOOL/ or COLLEGE/ or COMMUNITY COLLEGE/ or HIGH SCHOOL/ or KINDERGARTEN/ or MIDDLE SCHOOL/ or NURSERY SCHOOL/ or PRIMARY SCHOOL/) and (ADAPTATION/ or ACCLIMATIZATION/ or exp COPING BEHAVIOR/ or ERGONOMICS/ or EQUIPMENT DESIGN/ or SELF HELP DEVICE/ or ASSISTIVE TECHNOLOGY DEVICE/)
82	((education$ or school$) adj5 (rehab$ or support$ or adjust$ or adapt$ or chang$ or reintegrat$ or re-integrat$ or facilitat$ or intervention? or equipment or ergonomic$)).ti,ab.
83	((education$ or school$) adj5 (assist$ or self help or selfhelp) adj3 (device? or technolog$ or aid?)).ti,ab.

#	Searches
84	(return$ adj5 (education$ or school$)).ti,ab.
85	or/81-84
86	9 and 20 and 77
87	9 and 20 and 80
88	9 and 20 and 85
89	or/86-88
90	limit 89 to english language
91	limit 90 to yr="1995 -Current"
92	letter.pt. or LETTER/
93	note.pt.
94	editorial.pt.
95	CASE REPORT/ or CASE STUDY/
96	(letter or comment*).ti.
97	or/92-96
98	RANDOMIZED CONTROLLED TRIAL/ or random*.ti,ab.
99	97 not 98
100	ANIMAL/ not HUMAN/
101	NONHUMAN/
102	exp ANIMAL EXPERIMENT/
103	exp EXPERIMENTAL ANIMAL/
104	ANIMAL MODEL/
105	exp RODENT/
106	(rat or rats or mouse or mice).ti.
107	or/99-106
108	91 not 107

Databases: Cochrane Central Register of Controlled Trials; Cochrane Database of Systematic Reviews; Database of Abstracts of Reviews of Effects; and Health Technology Assessment

Date of last search: 31/05/2019

#	Searches
#1	[mh ^"SPINAL CORD INJURIES"]
#2	[mh ^"CENTRAL CORD SYNDROME"]
#3	[mh ^"SPINAL CORD COMPRESSION"]
#4	[mh "SPINAL CORD"/IN]
#5	((spinal* or spine*) near/5 (injur* or lacerat* or traum* or transect* or contusion* or lesion* or damag*)):ti,ab
#6	(central near/3 cord* near/3 syndrome*):ti,ab
#7	((spinal* or spine*) near/3 cord* near/3 compress*):ti,ab
#8	(myelopath* near/5 (injur* or lacerat* or traum* or transect* or contusion* or lesion* or damag*)):ti,ab
#9	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8
#10	[mh ^"FECAL INCONTINENCE"/TH]
#11	[mh ^"FECAL INCONTINENCE"/RH]
#12	[mh ^"FECAL INCONTINENCE"/PC]
#13	[mh ^"FECAL INCONTINENCE"/DT]
#14	[mh ^"FECAL INCONTINENCE"/DH]
#15	[mh ^"FECAL IMPACTION"/TH]
#16	[mh ^"FECAL IMPACTION"/PC]
#17	[mh ^"FECAL IMPACTION"/DT]
#18	[mh ^"FECAL IMPACTION"/DH]
#19	[mh ^CONSTIPATION/TH]
#20	[mh ^CONSTIPATION/RH]
#21	[mh ^CONSTIPATION/PC]

#	Searches
#22	[mh ^CONSTIPATION/DT]
#23	[mh ^CONSTIPATION/DH]
#24	[mh ^"NEUROGENIC BOWEL"/TH]
#25	[mh ^"NEUROGENIC BOWEL"/RH]
#26	[mh ^"NEUROGENIC BOWEL"/DT]
#27	[mh ^"NEUROGENIC BOWEL"/DH]
#28	[mh ^MEGACOLON/TH]
#29	[mh ^MEGACOLON/PC]
#30	[mh ^MEGACOLON/DT]
#31	[mh ^MEGACOLON/DH]
#32	[mh ^"TOILET TRAINING"]
#33	[mh ^SUPPOSITORIES]
#34	[mh ^ENEMA]
#35	[mh ^"THERAPEUTIC IRRIGATION"]
#36	[mh ^LAXATIVES]
#37	[mh ^"VALSALVA MANEUVER"]
#38	[mh ^RECTUM/IR]
#39	[mh ^SACRUM/IR]
#40	[mh ^COLOSTOMY]
#41	[mh ^MANOMETRY]
#42	[mh ^"DIETARY FIBER"]
#43	[mh ^MASSAGE]
#44	[mh ^DEFECATION]
#45	[mh ^"NEURAL PROSTHESES"]
#46	[mh ^"SELF-HELP DEVICES"]
#47	(bowel* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#48	((colorectal* or colon*) near/3 dysfunction* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#49	((fecal* or faecal*) near/3 (incontinen* or continen* or impact*) near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#50	(constipat* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#51	((disorder* or dyssynergic) near/3 defecat* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#52	(megacolon* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#53	((toilet* or potty or potties) near/3 (train* or retrain*)):ti,ab
#54	suppositor*:ti,ab
#55	enema*:ti,ab
#56	"wash-out*":ti,ab
#57	((Transanal* or anal* or colon*) near/3 irrigat*):ti,ab
#58	laxative*:ti,ab
#59	(digit* near/3 (feces or faeces or intervention* or stimulat*)):ti,ab
#60	(manual* near/3 evacuat*):ti,ab
#61	(Valsalva near/3 (manoeuvre or maneuver)):ti,ab
#62	((rectal* or rectum* or anorectal* or sacral* or sacrum*) near/3 (stimulat* or innervat*)):ti,ab
#63	colostom*:ti,ab
#64	manometr*:ti,ab
#65	((optimi* or improv* or chang* or adapt*) near/3 (diet* or fluid*)):ti,ab
#66	(diet* near/3 (fibre or fiber)):ti,ab
#67	((abdom* or tumm*) near/3 massag*):ti,ab
#68	(regular* near/3 (bowel* or defecat*)):ti,ab
#69	((fecal* or faecal*) near/3 continen*):ti,ab
#70	(neur* near/3 prosthe*):ti,ab
#71	((bowel* or incontinen* or constipat*) near/3 (assist* or "self help" or selfhelp or adapt*) near/3 (device* or technolog* or aid*)):ti,ab

#	Searches
#72	(anal* near/3 plug*):ti,ab
#73	#10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45 or #46 or #47 or #48 or #49 or #50 or #51 or #52 or #53 or #54 or #55 or #56 or #57 or #58 or #59 or #60 or #61 or #62 or #63 or #64 or #65 or #66 or #67 or #68 or #69 or #70 or #71 or #72
#74	[mh ^"URINARY INCONTINENCE"/TH]
#75	[mh ^"URINARY INCONTINENCE"/RH]
#76	[mh ^"URINARY INCONTINENCE"/PC]
#77	[mh ^"URINARY INCONTINENCE"/DT]
#78	[mh ^"URINARY BLADDER, NEUROGENIC"/TH]
#79	[mh ^"URINARY BLADDER, NEUROGENIC"/RH]
#80	[mh ^"URINARY BLADDER, NEUROGENIC"/PC]
#81	[mh ^"URINARY BLADDER, NEUROGENIC"/DT]
#82	([mh ^"URINARY INCONTINENCE"] or [mh ^"URINARY BLADDER, NEUROGENIC"]) and ([mh "BOTULINUM TOXINS"] or [mh ^PHENYLPROPANOLAMINE] or [mh ^"TOLTERODINE TARTRATE"] or [mh ^CAPSAICIN] or [mh ^MORPHINE])
#83	[mh ^"URINARY CATHETERIZATION"]
#84	[mh ^"INTERMITTENT URETHRAL CATHETERIZATION"]
#85	(bladder* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#86	(urological* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#87	(urin* near/3 (incontinen* or continen*) near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#88	((urin* or bladder*) near/5 (antispasmodic* or "anti-spasmodic*" "botulinum toxin*" or onabotulinumtoxin* or phenylpropanolamine or tolterodine or oxybutynin or capsaicin or morphine)):ti,ab
#89	((urin* or bladder*) near/3 catheter*):ti,ab
#90	((intermittent* or indwell* or urethral* or suprapubic* or "supra pubic*") near/3 catheter*):ti,ab
#91	(self near/3 catheter*):ti,ab
#92	(clamp* near/3 off):ti,ab
#93	"flip flo":ti,ab
#94	(monitor* near/3 (renal* or urin*) near/3 tract*):ti,ab
#95	#74 or #75 or #76 or #77 or #78 or #79 or #80 or #81 or #82 or #83 or #84 or #85 or #86 or #87 or #88 or #89 or #90 or #91 or #92 or #93 or #94
#96	[mh ^"AUTONOMIC DYSREFLEXIA"]
#97	(autonomic near/3 (dysreflexi* or hyperreflexi*)):ti,ab
#98	#96 or #97
#99	[mh ^"BED REST"]
#100	(bed* near/3 rest*):ti,ab
#101	[mh ^"EARLY AMBULATION"]
#102	((Initiat* or Start* or Introduc* or begin* or began* or commenc* or date* or time* or timing or early or earlier or prompt* or progressive*) near/5 mobili*):ti,ab
#103	((Initiat* or Start* or Introduc* or begin* or began* or commenc* or date* or time* or timing or early or earlier or prompt* or progressive*) near/5 ambulation):ti,ab
#104	((Initiat* or Start* or Introduc* or begin* or began* or commenc* or date* or time* or timing or early or earlier or prompt* or progressive*) near/5 (sit or sits or sitting or stand* or standing or walk* or walking)):ti,ab
#105	[mh ^IMMOBILIZATION/AE]
#106	#99 or #100 or #101 or #102 or #103 or #104 or #105
#107	[mh ^"HYPOTENSION, ORTHOSTATIC"]
#108	((orthostatic or postur*) near/5 hypotensi*):ti,ab
#109	((manag* or treat* or therap*) near/5 hypotensi*):ti,ab
#110	((manag* or treat* or therap*) near/5 low* near/3 blood* near/3 press*):ti,ab
#111	((sit* or tilt* or position*) near/5 hypotensi*):ti,ab
#112	((sit* or tilt* or position*) near/5 low* near/3 blood* near/3 press*):ti,ab

#	Searches
#113	((Midodrine or Clonidine or "fludrocortisone acetate" or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or "physical therap*" or "maximal arm ergometer" or "anti-gravity suit*" or stocking* or "abdom* bind*" or corset* or splint* or harness* or "lower-body negative pressure" or LBNP or (electric* near/3 stimulat*) or FES or (tilt* near/3 table*) or exercis* or treadmill*) near/5 hypotensi*):ti,ab
#114	((Midodrine or Clonidine or "fludrocortisone acetate" or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or "physical therap*" or "maximal arm ergometer" or "anti-gravity suit*" or stocking* or "abdom* bind*" or corset* or splint* or harness* or "lower-body negative pressure" or LBNP or (electric* near/3 stimulat*) or FES or (tilt* near/3 table*) or exercis* or treadmill*) near/5 low* near/3 blood* near/3 press*):ti,ab
#115	#107 or #108 or #109 or #110 or #111 or #112 or #113 or #114
#116	[mh ^"MUSCLE SPASTICITY"/RH]
#117	[mh ^"MUSCLE SPASTICITY"/TH]
#118	[mh ^"MUSCLE SPASTICITY"] and ([mh ^"PATIENT POSITIONING"] or [mh ^POSTURE] or [mh ^WHEELCHAIRS] or [mh ^SPLINTS])
#119	[mh ^"MUSCLE SPASTICITY"] and [mh ^"MUSCLE STRETCHING EXERCISES"]
#120	[mh ^"MUSCLE SPASTICITY"/DT]
#121	[mh ^"MUSCLE SPASTICITY"] and ([mh ^BACLOFEN] or [mh ^"BOTULINUM TOXINS"] or [mh ^DANTROLENE] or [mh ^GABAPENTIN] or [mh ^PHENOL])
#122	(Spastic* near/5 (manag* or therap*)):ti,ab
#123	(spastic* near/5 (position* or seat* or wheelchair* or splint*)):ti,ab
#124	(Spastic* near/5 (stretch* or exercis* or ranging)):ti,ab
#125	(Spastic* near/5 range* near/3 mov*):ti,ab
#126	(spastic* and (antispasmodic* or anti-spasmodic* or baclofen or tizanidine or botulinum toxin* or dantrolene or gabapentin or phenol)):ti,ab
#127	#116 or #117 or #118 or #119 or #120 or #121 or #122 or #123 or #124 or #125 or #126
#128	[mh ^"HEALTH SERVICES ACCESSIBILITY"]
#129	([mh ^"PATIENT ADMISSION"] or [mh ^"PATIENT READMISSION"] or [mh ^"PATIENT TRANSFER"] or [mh ^"REFERRAL AND CONSULTATION"]) and [mh ^"TIME FACTORS"]
#130	((earl* or prompt* or immediat* or initiat* or start* or date* or time* or timing) near/10 (access* or admission* or readmission* or admit* or readmit* or transfer* or refer*) near/10 (unit* or department* or hospital* or center* or centre* or care or service* or outreach)):ti,ab
#131	((week* or day* or hour*) near/5 (access* or admission* or readmission* or admit* or readmit* or transfer* or refer*) near/5 (unit* or department* or hospital* or center* or centre* or care or service* or outreach)):ti,ab
#132	#128 or #129 or #130 or #131
#133	[mh "SELF-HELP DEVICES"] and ([mh ^"HEALTH SERVICES NEEDS AND DEMANDS"] or [mh ^"NEEDS ASSESSMENT"] or [mh ^"DELIVERY OF HEALTH CARE"] or [mh ^"DELIVERY OF HEALTH CARE, INTEGRATED"])
#134	[mh "SELF-HELP DEVICES"/SD]
#135	([mh ^"EQUIPMENT AND SUPPLIES"] or [mh ^"EQUIPMENT DESIGN"] or [mh ^"ENVIRONMENT DESIGN"] or [mh ^"ACTIVITIES OF DAILY LIVING"]) and ([mh ^"HEALTH SERVICES NEEDS AND DEMANDS"] or [mh ^"NEEDS ASSESSMENT"] or [mh ^"DELIVERY OF HEALTH CARE"] or [mh ^"DELIVERY OF HEALTH CARE, INTEGRATED"])
#136	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/5 equipment):ti,ab
#137	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/3 (assist* or self help or selfhelp) near/3 (device* or technolog* or aid*)):ti,ab
#138	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/5 environment* near/3 control*):ti,ab
#139	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/5 ECS):ti,ab
#140	((access* or provision* or provid* or need* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/3 ("wheel chair*" or wheelchair* or "power* chair*" or powerchair*)):ti,ab
#141	(use* near/3 ("wheel chair*" or wheelchair* or "power* chair*" or powerchair*)):ti

#	Searches
#142	((access* or provision* or provide or provided or providing or need* or usage or acquir* or acquisit* or availab* or prescri* or referr*) near/5 (brace* or collar or seat* or chair* or "special* bed*" or "sleep* system*" or "single access system*" or "communication board*" or "communication aid*" or bell or bells or intercom* or alarm* or pager* or telephone* or phone* or smartphone* or app or apps or tablet* or television* or TV or TVs or stereo* or radio or radios or light or lights or lamp* or fan* or (door* near/3 (releas* or open*)) or (curtain* near/3 open*) or (window* near/3 open*) or (page* near/3 turn*) or "telecare equipment" or computer* or keyboard* or mouse or joystick* or "roller ball*" or "eye gaze" or software or ((wash* or dress*) near/3 aid*) or "special* grip*" or handle*)):ti,ab
#143	#133 or #134 or #135 or #136 or #137 or #138 or #139 or #140 or #141 or #142
#144	[mh ^"ELECTRIC STIMULATION THERAPY"]
#145	((neuro* or function*) near/3 electrical* near/3 stimulat*):ti,ab
#146	NMES:ti,ab
#147	FES:ti,ab
#148	#144 or #145 or #146 or #147
#149	(special* near/3 equipment*):ti,ab
#150	[mh ^"ELECTRIC STIMULATION THERAPY"] and ([mh ^BICYCLING] or [mh "ORTHOTIC DEVICES"])
#151	(function* near/3 electr* near/3 stimulat* near/5 (bike* or bicycl* or cycl* or orthotic* or orthosis or orthoses)):ti,ab
#152	(FES near/5 (bike* or bicycl* or cycl* or orthotic* or orthosis or orthoses)):ti,ab
#153	((stand* or standing) near/3 (frame* or apparatus or equipment or technolog* or aid* or device* or box or boxes)):ti,ab
#154	[mh ^"BODY WEIGHT"] and [mh ^GAIT]
#155	(body near/3 weight* near/3 support* near/5 train*):ti,ab
#156	(bodyweight* near/3 support* near/5 train*):ti,ab
#157	[mh ^"EXOSKELETON DEVICE"]
#158	exoskeleton*:ti,ab
#159	[mh ^ROBOTICS] and [mh "ORTHOTIC DEVICES"]
#160	(robot* near/5 (orthotic* or orthosis or orthoses)):ti,ab
#161	(robot* near/3 (device* or rehab* or train*)):ti,ab
#162	(tilt* near/3 table*):ti,ab
#163	#149 or #150 or #151 or #152 or #153 or #154 or #155 or #156 or #157 or #158 or #159 or #160 or #161 or #162
#164	(Mirror* near/3 (therap* or train* or feedback or treat* or device* or box)):ti,ab
#165	(Compassion* near/3 mind* near/3 (therap* or train*)):ti,ab
#166	[mh ^"ACCEPTANCE AND COMMITMENT THERAPY"]
#167	(Accept* near/3 commit* near/3 (therap* or train*)):ti,ab
#168	[mh ^MINDFULNESS]
#169	Mindfulness:ti,ab
#170	((Visualisation or visualization) near/3 (therap* or train*)):ti,ab
#171	(mentalisation or mentalization):ti,ab
#172	[mh ^"RELAXATION THERAPY"]
#173	[mh ^"BREATHING EXERCISES"]
#174	((Relax* or progressive* or breath*) near/3 (therap* or train* or exercis*)):ti,ab
#175	[mh ^"COGNITIVE THERAPY"]
#176	(Cognit* near/3 behav* near/3 (therap* or train*)):ti,ab
#177	CBT:ti,ab
#178	#165 or #166 or #167 or #168 or #169 or #170 or #171 or #172 or #173 or #174 or #175 or #176 or #177
#179	#9 and #73
#180	#9 and #95
#181	#9 and #98
#182	#9 and #106
#183	#9 and #115
#184	#9 and #127
#185	#9 and #132
#186	#9 and #143

#	Searches
#187	#9 and #148
#188	#9 and #163
#189	#9 and #164
#190	#9 and #178
#191	#179 or #180 or #181 or #182 or #183 or #184 or #185 or #186 or #187 or #188 or #189 or #190
#192	#179 or #180 or #181 or #182 or #183 or #184 or #185 or #186 or #187 or #188 or #189 or #190 with Publication Year from 1995 to 2019, in Trials
#193	#179 or #180 or #181 or #182 or #183 or #184 or #185 or #186 or #187 or #188 or #189 or #190 with Cochrane Library publication date Between Jan 1995 and May 2019, in Cochrane Reviews

Date last searched: 10/05/2019

#	Searches
#1	[mh ^ADOLESCENT]
#2	[mh ^MINORS]
#3	(adolescen* or teen* or youth* or young or juvenile* or minors or highschool*):ti,ab
#4	[mh CHILD]
#5	(child* or schoolchild* or "school age" or "school aged" or preschool* or toddler* or kid* or kindergar* or boy* or girl*):ti,ab
#6	[mh INFANT]
#7	(infan* or neonat* or newborn* or baby or babies):ti,ab
#8	[mh PEDIATRICS]
#9	[mh PUBERTY]
#10	(pediatric* or paediatric* or prepubert* or pubescen* or prepubescen*):ti,ab
#11	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
#12	[mh ^"SPINAL CORD INJURIES"]
#13	[mh ^"CENTRAL CORD SYNDROME"]
#14	[mh ^"SPINAL CORD COMPRESSION"]
#15	[mh "SPINAL CORD"/IN]
#16	((spinal* or spine*) near/5 (injur* or lacerat* or traum* or transect* or contusion* or lesion* or damag*)):ti,ab
#17	(central near/3 cord* near/3 syndrome*):ti,ab
#18	((spinal* or spine*) near/3 cord* near/3 compress*):ti,ab
#19	(myelopath* near/5 (injur* or lacerat* or traum* or transect* or contusion* or lesion* or damag*)):ti,ab
#20	#12 or #13 or #14 or #15 or #16 or #17 or #18 or #19
#21	[mh ^"FECAL INCONTINENCE"/TH]
#22	[mh ^"FECAL INCONTINENCE"/RH]
#23	[mh ^"FECAL IMPACTION"/TH]
#24	[mh ^CONSTIPATION/TH]
#25	[mh ^CONSTIPATION/RH]
#26	[mh ^"NEUROGENIC BOWEL"/TH]
#27	[mh ^"NEUROGENIC BOWEL"/RH]
#28	[mh ^MEGACOLON/TH]
#29	[mh ^"TOILET TRAINING"]
#30	[mh ^SUPPOSITORIES]
#31	[mh ^ENEMA]
#32	[mh ^LAXATIVES]
#33	[mh ^"VALSALVA MANEUVER"]
#34	[mh ^RECTUM/IR]
#35	[mh ^SACRUM/IR]
#36	[mh ^COLOSTOMY]
#37	[mh ^MANOMETRY]
#38	[mh ^"DIETARY FIBER"]
#39	[mh ^MASSAGE]
#40	[mh ^DEFECATION]

#	Searches
#41	[mh ^"NEURAL PROSTHESES"]
#42	[mh ^"SELF-HELP DEVICES"]
#43	(bowel* near/5 (manag* or therap* or rehab* or intervention* or train* or care or program* or treat*)):ti,ab
#44	((colorectal* or colon*) near/5 dysfunction* near/5 (manag* or therap* or rehab* or intervention* or train* or care or program* or treat*)):ti,ab
#45	((fecal* or faecel*) near/5 (incontinen* or continen* or impact*) near/5 (manag* or therap* or rehab* or intervention* or train* or care or program* or treat*)):ti,ab
#46	(constipat* near/5 (manag* or therap* or rehab* or intervention* or train* or care or program* or treat*)):ti,ab
#47	(disordered near/5 defecat* near/5 (manag* or therap* or rehab* or intervention* or train* or care or program* or treat*)):ti,ab
#48	(megacolon* near/5 (manag* or therap* or rehab* or intervention* or train* or care or program* or treat*)):ti,ab
#49	((toilet* or potty or potties) near/5 train*):ti,ab
#50	suppositor*:ti,ab
#51	enema*:ti,ab
#52	wash-out*:ti,ab
#53	((Transanal* or anal* or colon*) near/3 irrigat*):ti,ab
#54	laxative*:ti,ab
#55	(digit* near/5 (fece* or faece* or intervention* or stimulat*)):ti,ab
#56	(manual* near/3 evacuat*):ti,ab
#57	(Valsalva near/3 (manoeuvre or maneuver)):ti,ab
#58	((rectal* or rectum* or anorectal* or sacral* or sacrum*) near/5 (stimulat* or innervat*)):ti,ab
#59	colostom*:ti,ab
#60	manometr*:ti,ab
#61	((optimi* or improv* or chang* or adapt*) near/3 (diet* or fluid*)):ti,ab
#62	(diet* near/3 (fibre or fiber)):ti,ab
#63	((abdom* or tumm*) near/3 massag*):ti,ab
#64	(regular* near/3 (bowel* or defecat*)):ti,ab
#65	((fecal* or faecal*) near/3 continen*):ti,ab
#66	(neur* near/3 prosthe*):ti,ab
#67	((bowel* or incontinen* or constipat*) near/5 (assist* or "self help" or selfhelp or adapt*) near/3 (device* or technolog* or aid*)):ti,ab
#68	#21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45 or #46 or #47 or #48 or #49 or #50 or #51 or #52 or #53 or #54 or #55 or #56 or #57 or #58 or #59 or #60 or #61 or #62 or #63 or #64 or #65 or #66 or #67
#69	[mh ^"PLAY THERAPY"]
#70	(play* near/3 therap*):ti,ab
#71	#69 or #70
#72	[mh ^EDUCATION]
#73	[mh ^SCHOOLS]
#74	#72 or #73
#75	[mh ^"ADAPTATION, PHYSIOLOGICAL"]
#76	[mh ^ACCLIMATIZATION]
#77	[mh "ADAPTATION, PSYCHOLOGICAL"]
#78	[mh ^ERGONOMICS]
#79	[mh ^"EQUIPMENT DESIGN"]
#80	[mh "SELF-HELP DEVICES"]
#81	#75 or #76 or #77 or #78 or #79 or #80
#82	#74 and #81
#83	((education* or school*) near/5 (rehab* or support* or adjust* or adapt* or chang* or reintegrat* or re-integrat* or facilitat* or intervention* or equipment or ergonomic*)):ti,ab
#84	((education* or school*) near/5 (assist* or "self help" or selfhelp) near/3 (device* or technolog* or aid*)):ti,ab
#85	(return* near/5 (education* or school*)):ti,ab

#	Searches
#86	#82 or #83 or #84 or #85
#87	#11 and #20 and #68
#88	#11 and #20 and #71
#89	#11 and #20 and #86
#90	#87 or #88 or #89 with Cochrane Library publication date Between Jan 1995 and May 2019, in Cochrane Reviews
#91	#87 or #88 or #89 with Publication Year from 1995 to 2019, in Trials

Health economics search strategies

Please note that one search was conducted to answer this health economics question.

Databases: Medline; Medline EPub Ahead of Print; and Medline In-Process & Other Non-Indexed Citations

Date of last search: 14/06/2019

#	Searches
1	ECONOMICS/
2	VALUE OF LIFE/
3	exp "COSTS AND COST ANALYSIS"/
4	exp ECONOMICS, HOSPITAL/
5	exp ECONOMICS, MEDICAL/
6	exp RESOURCE ALLOCATION/
7	ECONOMICS, NURSING/
8	ECONOMICS, PHARMACEUTICAL/
9	exp "FEES AND CHARGES"/
10	exp BUDGETS/
11	budget*.ti,ab.
12	cost*.ti,ab.
13	(economic* or pharmaco?economic*).ti,ab.
14	(price* or pricing*).ti,ab.
15	(financ* or fee or fees or expenditure* or saving*).ti,ab.
16	(value adj2 (money or monetary)).ti,ab.
17	resourc* allocat*.ti,ab.
18	(fund or funds or funding* or funded).ti,ab.
19	(ration or rations or rationing* or rationed).ti,ab.
20	ec.fs.
21	or/1-20
22	SPINAL CORD INJURIES/
23	CENTRAL CORD SYNDROME/
24	SPINAL CORD COMPRESSION/
25	exp SPINAL CORD/in [Injuries]
26	((spinal$ or spine?) adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
27	(central adj3 cord? adj3 syndrome?).ti,ab.
28	((spinal$ or spine?) adj3 cord? adj3 compress$).ti,ab.
29	(myelopath$ adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
30	or/22-29
31	FECAL INCONTINENCE/th [Therapy]
32	FECAL INCONTINENCE/rh [Rehabilitation]
33	FECAL INCONTINENCE/pc [Prevention & Control]
34	FECAL INCONTINENCE/dt [Drug Therapy]
35	FECAL INCONTINENCE/dh [Diet Therapy]
36	FECAL IMPACTION/th [Therapy]

#	Searches
37	FECAL IMPACTION/pc [Prevention & Control]
38	FECAL IMPACTION/dt [Drug Therapy]
39	FECAL IMPACTION/dh [Diet Therapy]
40	CONSTIPATION/th [Therapy]
41	CONSTIPATION/rh [Rehabilitation]
42	CONSTIPATION/pc [Prevention & Control]
43	CONSTIPATION/dt [Drug Therapy]
44	CONSTIPATION/dh [Diet Therapy]
45	NEUROGENIC BOWEL/th [Therapy]
46	NEUROGENIC BOWEL/rh [Rehabilitation]
47	NEUROGENIC BOWEL/dt [Drug Therapy]
48	NEUROGENIC BOWEL/dh [Diet Therapy]
49	MEGACOLON/th [Therapy]
50	MEGACOLON/pc [Prevention & Control]
51	MEGACOLON/dt [Drug Therapy]
52	MEGACOLON/dh [Diet Therapy]
53	TOILET TRAINING/
54	SUPPOSITORIES/
55	ENEMA/
56	THERAPEUTIC IRRIGATION/
57	LAXATIVES/
58	VALSALVA MANEUVER/
59	RECTUM/ir [Innervation]
60	SACRUM/ir [Innervation]
61	COLOSTOMY/
62	MANOMETRY/
63	DIETARY FIBER/
64	MASSAGE/
65	DEFECATION/
66	NEURAL PROSTHESES/
67	SELF-HELP DEVICES/
68	(bowel$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
69	((colorectal$ or colon$) adj3 dysfunction$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
70	(f?ecal$ adj3 (incontinen$ or continen$ or impact$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
71	(constipat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
72	((disorder$ or dyssynergic) adj3 defecat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
73	(megacolon$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
74	((toilet$ or potty or potties) adj3 (train$ or retrain$)).ti,ab.
75	suppositor$.ti,ab.
76	enema?.ti,ab.
77	wash-out?.ti,ab.
78	((Transanal$ or anal$ or colon$) adj3 irrigat$).ti,ab.
79	laxative?.ti,ab.
80	(digit$ adj3 (f?eces or intervention? or stimulat$)).ti,ab.
81	(manual$ adj3 evacuat$).ti,ab.
82	(Valsalva adj3 (manoeuvre or maneuver)).ti,ab.
83	((rectal$ or rectum? or anorectal$ or sacral$ or sacrum?) adj3 (stimulat$ or innervat$)).ti,ab.
84	colostom$.ti,ab.
85	manometr$.ti,ab.
86	((optimi$ or improv$ or chang$ or adapt$) adj3 (diet? or fluid?)).ti,ab.
87	(diet$ adj3 (fibre or fiber)).ti,ab.

#	Searches
88	((abdom$ or tumm$) adj3 massag$).ti,ab.
89	(regular$ adj3 (bowel? or defecat$)).ti,ab.
90	(f?ecal$ adj3 continen$).ti,ab.
91	(neur$ adj3 prosthe$).ti,ab.
92	((bowel? or incontinen$ or constipat$) adj3 (assist$ or self help or selfhelp or adapt$) adj3 (device? or technolog$ or aid?)).ti,ab.
93	(anal$ adj3 plug$).ti,ab.
94	or/31-93
95	URINARY INCONTINENCE/th [Therapy]
96	URINARY INCONTINENCE/rh [Rehabilitation]
97	URINARY INCONTINENCE/pc [Prevention & Control]
98	URINARY INCONTINENCE/dt [Drug Therapy]
99	URINARY BLADDER, NEUROGENIC/th [Therapy]
100	URINARY BLADDER, NEUROGENIC/rh [Rehabilitation]
101	URINARY BLADDER, NEUROGENIC/pc [Prevention & Control]
102	URINARY BLADDER, NEUROGENIC/dt [Drug Therapy]
103	(URINARY INCONTINENCE/ or URINARY BLADDER, NEUROGENIC/) and (exp BOTULINUM TOXINS/ or PHENYLPROPANOLAMINE/ or TOLTERODINE TARTRATE/ or CAPSAICIN/ or MORPHINE/)
104	URINARY CATHETERIZATION/
105	INTERMITTENT URETHRAL CATHETERIZATION/
106	(bladder$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
107	(urological$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
108	(urin$ adj3 (incontinen$ or continen$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
109	((urin$ or bladder$) adj5 (antispasmodic? or anti-spasmodic? botulinum toxin? or onabotulinumtoxin? or phenylpropanolamine or tolterodine or oxybutynin or capsaicin or morphine)).ti,ab.
110	((urin$ or bladder$) adj3 catheter$).ti,ab.
111	((intermittent$ or indwell$ or urethral$ or suprapubic$ or supra pubic$) adj3 catheter$).ti,ab.
112	(self adj3 catheter$).ti,ab.
113	(clamp$ adj3 off).ti,ab.
114	flip flo.ti,ab.
115	(monitor$ adj3 (renal$ or urin$) adj3 tract?).ti,ab.
116	or/95-115
117	AUTONOMIC DYSREFLEXIA/
118	(autonomic adj3 (dysreflexi$ or hyperreflexi$)).ti,ab.
119	or/117-118
120	BED REST/
121	(bed? adj3 rest$).ti,ab.
122	EARLY AMBULATION/
123	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 mobili$).ti,ab.
124	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 ambulation).ti,ab.
125	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 (sit or sits or sitting or stand? or standing or walk? or walking)).ti,ab.
126	IMMOBILIZATION/ae [Adverse Effects]
127	or/120-126
128	HYPOTENSION, ORTHOSTATIC/
129	((orthostatic or postur$) adj5 hypotensi$).ti,ab.
130	((manag$ or treat$ or therap$) adj5 hypotensi$).ti,ab.
131	((manag$ or treat$ or therap$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
132	((sit$ or tilt$ or position$) adj5 hypotensi$).ti,ab.

#	Searches
133	((sit$ or tilt$ or position$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
134	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 hypotensi$).ti,ab.
135	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
136	or/128-135
137	MUSCLE SPASTICITY/rh [Rehabilitation]
138	MUSCLE SPASTICITY/th [Therapy]
139	MUSCLE SPASTICITY/ and (PATIENT POSITIONING/ or POSTURE/ or WHEELCHAIRS/ or SPLINTS/)
140	MUSCLE SPASTICITY/ and MUSCLE STRETCHING EXERCISES/
141	MUSCLE SPASTICITY/dt [Drug Therapy]
142	MUSCLE SPASTICITY/ and (BACLOFEN/ or BOTULINUM TOXINS/ or DANTROLENE/ or GABAPENTIN/ or PHENOL/)
143	(Spastic$ adj5 (manag$ or therap$)).ti,ab.
144	(spastic$ adj5 (position$ or seat$ or wheelchair? or splint$)).ti,ab.
145	(Spastic$ adj5 (stretch$ or exercis$ or ranging)).ti,ab.
146	(Spastic$ adj5 range? adj3 mov$).ti,ab.
147	(spastic$ and (antispasmodic? or anti-spasmodic? or baclofen or tizanidine or botulinum toxin? or dantrolene or gabapentin or phenol)).ti,ab.
148	or/137-147
149	HEALTH SERVICES ACCESSIBILITY/
150	(PATIENT ADMISSION/ or PATIENT READMISSION/ or PATIENT TRANSFER/ or "REFERRAL AND CONSULTATION"/) and TIME FACTORS/
151	((earl$ or prompt$ or immediat$ or initiat$ or start$ or date? or time$ or timing) adj10 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj10 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
152	((week? or day? or hour?) adj5 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj5 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
153	or/149-152
154	exp SELF-HELP DEVICES/ and ("HEALTH SERVICES NEEDS AND DEMANDS"/ or NEEDS ASSESSMENT/ or "DELIVERY OF HEALTH CARE"/ or "DELIVERY OF HEALTH CARE, INTEGRATED"/)
155	exp SELF-HELP DEVICES/sd [Supply & Distribution]
156	("EQUIPMENT AND SUPPLIES"/ or EQUIPMENT DESIGN/ or ENVIRONMENT DESIGN/ or "ACTIVITIES OF DAILY LIVING"/) and ("HEALTH SERVICES NEEDS AND DEMANDS"/ or NEEDS ASSESSMENT/ or "DELIVERY OF HEALTH CARE"/ or "DELIVERY OF HEALTH CARE, INTEGRATED"/)
157	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 equipment).ti,ab.
158	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (assist$ or self help or selfhelp) adj3 (device? or technolog$ or aid?)).ti,ab.
159	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 environment$ adj3 control$).ti,ab.
160	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 ECS).ti,ab.
161	((access$ or provision$ or provid$ or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti,ab.
162	(use? adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti.

#	Searches
163	((access$ or provision$ or provide or provided or providing or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$) adj5 (brace? or collar or seat? or chair? or special$ bed? or sleep$ system? or single access system? or communication board? or communication aid? or bell? or intercom? or alarm? or pager? or telephone? or phone? or smartphone? or app? or tablet? or television? or TV or TVs or stereo? or radio? or light$ or lamp? or fan? or (door? adj3 (releas$ or open$)) or (curtain? adj3 open$) or (window? adj3 open$) or (page? adj3 turn$) or telecare equipment or computer? or keyboard? or mouse or joystick? or roller ball? or eye gaze or software or ((wash$ or dress$) adj3 aid?) or special$ grip? or handle?)).ti,ab.
164	or/154-163
165	*ELECTRIC STIMULATION THERAPY/
166	((neuro$ or function$) adj3 electrical$ adj3 stimulat$).ti,ab.
167	NMES.ti,ab.
168	FES.ti,ab.
169	or/165-168
170	(special$ adj3 equipment?).ti,ab.
171	ELECTRIC STIMULATION THERAPY/ and (BICYCLING/ or exp ORTHOTIC DEVICES/)
172	(function$ adj3 electr$ adj3 stimulat$ adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
173	(FES adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
174	((stand? or standing) adj3 (frame? or apparatus or equipment or technolog$ or aid? or device? or box or boxes)).ti,ab.
175	BODY WEIGHT/ and GAIT/
176	(body adj3 weight? adj3 support$ adj5 train$).ti,ab.
177	(bodyweight? adj3 support$ adj5 train$).ti,ab.
178	EXOSKELETON DEVICE/
179	exoskeleton?.ti,ab.
180	ROBOTICS/ and exp ORTHOTIC DEVICES/
181	(robot$ adj5 (orthotic? or orthos?s)).ti,ab.
182	(robot$ adj3 (device? or rehab$ or train$)).ti,ab.
183	(tilt$ adj3 table?).ti,ab.
184	or/170-183
185	(Mirror? adj3 (therap$ or train$ or feedback or treat$ or device? or box)).ti,ab.
186	(Compassion$ adj3 mind$ adj3 (therap$ or train$)).ti,ab.
187	"ACCEPTANCE AND COMMITMENT THERAPY"/
188	(Accept$ adj3 commit$ adj3 (therap$ or train$)).ti,ab.
189	MINDFULNESS/
190	Mindfulness.ti,ab.
191	(Visuali?ation adj3 (therap$ or train$)).ti,ab.
192	mentali?ation.ti,ab.
193	RELAXATION THERAPY/
194	BREATHING EXERCISES/
195	((Relax$ or progressive$ or breath$) adj3 (therap$ or train$ or exercis$)).ti,ab.
196	COGNITIVE THERAPY/
197	(Cognit$ adj3 behav$ adj3 (therap$ or train$)).ti,ab.
198	CBT.ti,ab.
199	or/186-198
200	PLAY THERAPY/
201	(play$ adj3 therap$).ti,ab.
202	or/200-201
203	(EDUCATION/ or SCHOOLS/) and (ADAPTATION, PHYSIOLOGICAL/ or ACCLIMATIZATION/ or exp ADAPTATION, PSYCHOLOGICAL/ or ERGONOMICS/ or EQUIPMENT DESIGN/ or SELF-HELP DEVICES/)
204	((education$ or school$) adj5 (rehab$ or support$ or adjust$ or adapt$ or chang$ or reintegrat$ or re-integrat$ or facilitat$ or intervention? or equipment or ergonomic$ or assist$ tech$)).ti,ab.
205	(return$ adj5 (education$ or school$)).ti,ab.
206	or/203-205

#	Searches
207	30 and 94
208	30 and 116
209	30 and 119
210	30 and 127
211	30 and 136
212	30 and 148
213	30 and 153
214	30 and 164
215	30 and 169
216	30 and 184
217	30 and 185
218	30 and 199
219	30 and 202
220	30 and 206
221	or/207-220
222	limit 221 to english language
223	limit 222 to yr="1995 -Current"
224	LETTER/
225	EDITORIAL/
226	NEWS/
227	exp HISTORICAL ARTICLE/
228	ANECDOTES AS TOPIC/
229	COMMENT/
230	CASE REPORT/
231	(letter or comment*).ti.
232	or/224-231
233	RANDOMIZED CONTROLLED TRIAL/ or random*.ti,ab.
234	232 not 233
235	ANIMALS/ not HUMANS/
236	exp ANIMALS, LABORATORY/
237	exp ANIMAL EXPERIMENTATION/
238	exp MODELS, ANIMAL/
239	exp RODENTIA/
240	(rat or rats or mouse or mice).ti.
241	or/234-240
242	223 not 241
243	21 and 242

Databases: Embase; and Embase Classic

Date of last search: 14/06/2019

#	Searches
1	HEALTH ECONOMICS/
2	exp ECONOMIC EVALUATION/
3	exp HEALTH CARE COST/
4	exp FEE/
5	BUDGET/
6	FUNDING/
7	RESOURCE ALLOCATION/
8	budget*.ti,ab.
9	cost*.ti,ab.
10	(economic* or pharmaco?economic*).ti,ab.
11	(price* or pricing*).ti,ab.
12	(financ* or fee or fees or expenditure* or saving*).ti,ab.
13	(value adj2 (money or monetary)).ti,ab.
14	resourc* allocat*.ti,ab.
15	(fund or funds or funding* or funded).ti,ab.

#	Searches
16	(ration or rations or rationing* or rationed).ti,ab.
17	or/1-16
18	SPINAL CORD INJURY/
19	CENTRAL CORD SYNDROME/
20	CERVICAL SPINAL CORD INJURY/
21	SPINAL CORD COMPRESSION/
22	SPINAL CORD TRANSSECTION/
23	SPINAL CORD TRANSVERSE LESION/
24	((spinal$ or spine?) adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
25	(central adj3 cord? adj3 syndrome?).ti,ab.
26	((spinal$ or spine?) adj3 cord? adj3 compress$).ti,ab.
27	(myelopath$ adj5 (injur$ or lacerat$ or traum$ or transect$ or contusion? or lesion? or damag$)).ti,ab.
28	or/18-27
29	"BLADDER AND BOWEL MANAGEMENT"/
30	FECES INCONTINENCE/dm [Disease Management]
31	FECES INCONTINENCE/th [Therapy]
32	FECES INCONTINENCE/rh [Rehabilitation]
33	FECES INCONTINENCE/pc [Prevention]
34	FECES INCONTINENCE/dt [Drug Therapy]
35	FECES IMPACTION/dm [Disease Management]
36	FECES IMPACTION/th [Therapy]
37	FECES IMPACTION/rh [Rehabilitation]
38	FECES IMPACTION/pc [Prevention]
39	FECES IMPACTION/dt [Drug Therapy]
40	exp CONSTIPATION/dm [Disease Management]
41	exp CONSTIPATION/th [Therapy]
42	exp CONSTIPATION/rh [Rehabilitation]
43	exp CONSTIPATION/pc [Prevention]
44	exp CONSTIPATION/dt [Drug Therapy]
45	NEUROGENIC BOWEL/dm [Disease Management]
46	NEUROGENIC BOWEL/th [Therapy]
47	NEUROGENIC BOWEL/rh [Rehabilitation]
48	NEUROGENIC BOWEL/pc [Prevention]
49	NEUROGENIC BOWEL/dt [Drug Therapy]
50	MEGACOLON/dm [Disease Management]
51	MEGACOLON/th [Therapy]
52	MEGACOLON/dt [Drug Therapy]
53	TOILET TRAINING/
54	SUPPOSITORY/
55	ENEMA/
56	COLON LAVAGE/
57	LAXATIVE/
58	VALSALVA MANEUVER/
59	RECTUM/ and (STIMULATION/ or INNERVATION/)
60	SACRUM/ and (STIMULATION/ or INNERVATION/)
61	SACRAL NERVE STIMULATION/
62	COLOSTOMY/
63	MANOMETRY/
64	DIETARY FIBER/
65	MASSAGE/
66	DEFECATION/
67	DEFECATION HABIT/
68	NEUROPROSTHESES/
69	SELF-HELP DEVICES/
70	ANAL PLUG/

#	Searches
71	(bowel$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
72	((colorectal$ or colon$) adj3 dysfunction$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
73	(f?ecal$ adj3 (incontinen$ or continen$ or impact$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
74	(constipat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
75	((disorder$ or dyssynergic) adj3 defecat$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
76	(megacolon$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
77	((toilet$ or potty or potties) adj3 (train$ or retrain$)).ti,ab.
78	suppositor$.ti,ab.
79	enema?.ti,ab.
80	wash-out?.ti,ab.
81	((Transanal$ or anal$ or colon$) adj3 irrigat$).ti,ab.
82	laxative?.ti,ab.
83	(digit$ adj3 (f?eces or intervention? or stimulat$)).ti,ab.
84	(manual$ adj3 evacuat$).ti,ab.
85	(Valsalva adj3 (manoeuvre or maneuver)).ti,ab.
86	((rectal$ or rectum? or anorectal$ or sacral$ or sacrum?) adj3 (stimulat$ or innervat$)).ti,ab.
87	colostom$.ti,ab.
88	manometr$.ti,ab.
89	((optimi$ or improv$ or chang$ or adapt$) adj3 (diet? or fluid?)).ti,ab.
90	(diet$ adj3 (fibre or fiber)).ti,ab.
91	((abdom$ or tumm$) adj3 massag$).ti,ab.
92	(regular$ adj3 (bowel? or defecat$)).ti,ab.
93	(f?ecal$ adj3 continen$).ti,ab.
94	(neur$ adj3 prosthe$).ti,ab.
95	((bowel? or incontinen$ or constipat$) adj3 (assist$ or self help or selfhelp or adapt$) adj3 (device? or technolog$ or aid?)).ti,ab.
96	(anal$ adj3 plug$).ti,ab.
97	or/29-96
98	URINE INCONTINENCE/dm [Disease Management]
99	URINE INCONTINENCE/th [Therapy]
100	URINE INCONTINENCE/rh [Rehabilitation]
101	URINE INCONTINENCE/pc [Prevention]
102	URINE INCONTINENCE/dt [Drug Therapy]
103	NEUROGENIC BLADDER/dm [Disease Management]
104	NEUROGENIC BLADDER/th [Therapy]
105	NEUROGENIC BLADDER/rh [Rehabilitation]
106	NEUROGENIC BLADDER/pc [Prevention]
107	NEUROGENIC BLADDER/dt [Drug Therapy]
108	(URINE INCONTINENCE/ or NEUROGENIC BLADDER/) and (BOTULINUM TOXIN/ or BOTULINUM TOXIN A/ or PHENYLPROPANOLAMINE/ or TOLTERODINE/ or OXYBUTYNIN/ or CAPSAICIN/ or MORPHINE/)
109	exp BLADDER CATHETERIZATION/
110	INTERMITTENT CATHETERIZATION/
111	(bladder$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
112	(urological$ adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
113	(urin$ adj3 (incontinen$ or continen$) adj3 (manag$ or therap$ or rehab$ or intervention? or train$ or retrain$ or care or program$ or treat$)).ti,ab.
114	((urin$ or bladder$) adj5 (antispasmodic? or anti-spasmodic? botulinum toxin? or onabotulinumtoxin? or phenylpropanolamine or tolterodine or oxybutynin or capsaicin or morphine)).ti,ab.

#	Searches
115	((urin$ or bladder$) adj3 catheter$).ti,ab.
116	((intermittent$ or indwell$ or urethral$ or suprapubic$ or supra pubic$) adj3 catheter$).ti,ab.
117	(self adj3 catheter$).ti,ab.
118	(clamp$ adj3 off).ti,ab.
119	flip flo.ti,ab.
120	(monitor$ adj3 (renal$ or urin$) adj3 tract?).ti,ab.
121	or/98-120
122	AUTONOMIC DYSREFLEXIA/
123	(autonomic adj3 (dysreflexi$ or hyperreflexi$)).ti,ab.
124	or/122-123
125	BED REST/
126	(bed? adj3 rest$).ti,ab.
127	MOBILIZATION/
128	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 mobili$).ti,ab.
129	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 ambulation).ti,ab.
130	((Initiat$ or Start$ or Introduc$ or begin$ or began$ or commenc$ or date? or time? or timing or early or earlier or prompt$ or progressive$) adj5 (sit or sits or sitting or stand? or standing or walk? or walking)).ti,ab.
131	or/125-130
132	ORTHOSTATIC HYPOTENSION/
133	((orthostatic or postur$) adj5 hypotensi$).ti,ab.
134	((manag$ or treat$ or therap$) adj5 hypotensi$).ti,ab.
135	((manag$ or treat$ or therap$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
136	((sit$ or tilt$ or position$) adj5 hypotensi$).ti,ab.
137	((sit$ or tilt$ or position$) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
138	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 hypotensi$).ti,ab.
139	((Midodrine or Clonidine or fludrocortisone acetate or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or physical therap$ or maximal arm ergometer or anti-gravity suit? or stocking? or abdom$ bind$ or corset? or splint$ or harness$ or lower-body negative pressure or LBNP or (electric$ adj3 stimulat$) or FES or (tilt$ adj3 table?) or exercis$ or treadmill?) adj5 low$ adj3 blood$ adj3 press$).ti,ab.
140	or/132-139
141	SPASTICITY/rh [Rehabilitation]
142	SPASTICITY/th [Therapy]
143	SPASTICITY/dm [Disease Management]
144	SPASTICITY/ and (PATIENT POSITIONING/ or BODY POSITION/ or exp WHEELCHAIR/ or exp SPLINT/)
145	SPASTICITY/ and STRETCHING EXERCISE/
146	SPASTICITY/dt [Drug Therapy]
147	SPASTICITY/ and (BACLOFEN/ or TIZANIDINE/ or BOTULINUM TOXIN/ or DANTROLENE/ or GABAPENTIN/ or PHENOL/)
148	(Spastic$ adj5 (manag$ or therap$)).ti,ab.
149	(spastic$ adj5 (position$ or seat$ or wheelchair? or splint$)).ti,ab.
150	(Spastic$ adj5 (stretch$ or exercis$ or ranging)).ti,ab.
151	(Spastic$ adj5 range? adj3 mov$).ti,ab.
152	(spastic$ and (antispasmodic? or anti-spasmodic? or baclofen or tizanidine or botulinum toxin? or dantrolene or gabapentin or phenol)).ti,ab.
153	or/141-152
154	HEALTH CARE ACCESS/
155	(HOSPITAL ADMISSION/ or HOSPITAL READMISSION/ or PATIENT REFERRAL/) and TIME FACTOR/
156	((earl$ or prompt$ or immediat$ or initiat$ or start$ or date? or time$ or timing) adj10

#	Searches
	(access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj10 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
157	((week? or day? or hour?) adj5 (access$ or admission? or readmission? or admit$ or readmit$ or transfer$ or refer$) adj5 (unit? or department? or hospital? or center? or centre? or care or service? or outreach)).ti,ab.
158	or/154-157
159	exp REHABILITATION EQUIPMENT/ and (NEEDS ASSESSMENT/ or HEALTH CARE NEED/ or HEALTH CARE DELIVERY/ or HEALTH CARE PLANNING/ or HEALTH CARE DISTRIBUTION/ or INTEGRATED HEALTH CARE SYSTEM/)
160	(exp GENERAL DEVICE/ or EQUIPMENT DESIGN/ or ENVIRONMENTAL PLANNING/ or DAILY LIFE ACTIVITY/) and (NEEDS ASSESSMENT/ or HEALTH CARE NEED/ or HEALTH CARE DELIVERY/ or HEALTH CARE PLANNING/ or HEALTH CARE DISTRIBUTION/ or INTEGRATED HEALTH CARE SYSTEM/)
161	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 equipment).ti,ab.
162	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (assist$ or self help or selfhelp) adj3 (device? or technolog$ or aid?)).ti,ab.
163	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 environment$ adj3 control$).ti,ab.
164	((access$ or provision$ or provid$ or need? or use? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj5 ECS).ti,ab.
165	((access$ or provision$ or provid$ or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$ or order$) adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti,ab.
166	(use? adj3 (wheel chair? or wheelchair? or power$ chair? or powerchair?)).ti.
167	((access$ or provision$ or provide or provided or providing or need? or usage or acquir$ or acquisit$ or availab$ or prescri$ or referr$) adj5 (brace? or collar or seat? or chair? or special$ bed? or sleep$ system? or single access system? or communication board? or communication aid? or bell? or intercom? or alarm? or pager? or telephone? or phone? or smartphone? or app? or tablet? or television? or TV or TVs or stereo? or radio? or light$ or lamp? or fan? or (door? adj3 (releas$ or open$)) or (curtain? adj3 open$) or (window? adj3 open$) or (page? adj3 turn$) or telecare equipment or computer? or keyboard? or mouse or joystick? or roller ball? or eye gaze or software or ((wash$ or dress$) adj3 aid?) or special$ grip? or handle?)).ti,ab.
168	or/159-167
169	ELECTROTHERAPY/
170	*NERVE STIMULATION/
171	NEUROMUSCULAR ELECTRICAL STIMULATION/
172	FUNCTIONAL ELECTRICAL STIMULATION/
173	((neuro$ or function$) adj3 electrical$ adj3 stimulat$).ti,ab.
174	NMES.ti,ab.
175	FES.ti,ab.
176	or/169-175
177	(special$ adj3 equipment?).ti,ab.
178	(ELECTROTHERAPY/ or *NERVE STIMULATION/ or NEUROMUSCULAR ELECTRICAL STIMULATION/ or FUNCTIONAL ELECTRICAL STIMULATION/) and (BICYCLE/ or CYCLING/ or exp ORTHOSIS/)
179	(function$ adj3 electr$ adj3 stimulat$ adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
180	(FES adj5 (bike? or bicycl$ or cycl$ or orthotic? or orthos?s)).ti,ab.
181	((stand? or standing) adj3 (frame? or apparatus or equipment or technolog$ or aid? or device? or box or boxes)).ti,ab.
182	BODY WEIGHT/ and GAIT/
183	(body adj3 weight? adj3 support$ adj5 train$).ti,ab.
184	(bodyweight? adj3 support$ adj5 train$).ti,ab.
185	exp "EXOSKELETON (REHABILITATION)"/

#	Searches
186	exoskeleton?.ti,ab.
187	ROBOTICS/ and exp ORTHOSIS/
188	(robot$ adj5 (orthotic? or orthos?s)).ti,ab.
189	(robot$ adj3 (device? or rehab$ or train$)).ti,ab.
190	(tilt$ adj3 table?).ti,ab.
191	or/177-190
192	(Mirror? adj3 (therap$ or train$ or feedback or treat$ or device? or box)).ti,ab.
193	(Compassion$ adj3 mind$ adj3 (therap$ or train$)).ti,ab.
194	"ACCEPTANCE AND COMMITMENT THERAPY"/
195	(Accept$ adj3 commit$ adj3 (therap$ or train$)).ti,ab.
196	MINDFULNESS/
197	Mindfulness.ti,ab.
198	(Visuali?ation adj3 (therap$ or train$)).ti,ab.
199	mentali?ation.ti,ab.
200	RELAXATION TRAINING/
201	BREATHING EXERCISE/
202	((Relax$ or progressive$ or breath$) adj3 (therap$ or train$ or exercis$)).ti,ab.
203	COGNITIVE BEHAVIORAL THERAPY/
204	(Cognit$ adj3 behav$ adj3 (therap$ or train$)).ti,ab.
205	CBT.ti,ab.
206	or/193-205
207	PLAY THERAPY/
208	(play$ adj3 therap$).ti,ab.
209	or/207-208
210	(EDUCATION/ or SCHOOL/ or COLLEGE/ or COMMUNITY COLLEGE/ or HIGH SCHOOL/ or KINDERGARTEN/ or MIDDLE SCHOOL/ or NURSERY SCHOOL/ or PRIMARY SCHOOL/) and (ADAPTATION/ or ACCLIMATIZATION/ or exp COPING BEHAVIOR/ or ERGONOMICS/ or EQUIPMENT DESIGN/ or SELF HELP DEVICE/ or ASSISTIVE TECHNOLOGY DEVICE/)
211	((education$ or school$) adj5 (rehab$ or support$ or adjust$ or adapt$ or chang$ or reintegrat$ or re-integrat$ or facilitat$ or intervention? or equipment or ergonomic$)).ti,ab.
212	((education$ or school$) adj5 (assist$ or self help or selfhelp) adj3 (device? or technolog$ or aid?)).ti,ab.
213	(return$ adj5 (education$ or school$)).ti,ab.
214	or/210-213
215	28 and 97
216	28 and 121
217	28 and 124
218	28 and 131
219	28 and 140
220	28 and 153
221	28 and 158
222	28 and 168
223	28 and 176
224	28 and 191
225	28 and 192
226	28 and 206
227	28 and 209
228	28 and 214
229	or/215-228
230	limit 229 to english language
231	limit 230 to yr="1995 -Current"
232	letter.pt. or LETTER/
233	note.pt.
234	editorial.pt.
235	CASE REPORT/ or CASE STUDY/
236	(letter or comment*).ti.

#	Searches
237	or/232-236
238	RANDOMIZED CONTROLLED TRIAL/ or random*.ti,ab.
239	237 not 238
240	ANIMAL/ not HUMAN/
241	NONHUMAN/
242	exp ANIMAL EXPERIMENT/
243	exp EXPERIMENTAL ANIMAL/
244	ANIMAL MODEL/
245	exp RODENT/
246	(rat or rats or mouse or mice).ti.
247	or/239-246
248	231 not 247
249	17 and 248

Database: Cochrane Central Register of Controlled Trials

Date of last search: 14/06/2019

#	Searches
#1	MeSH descriptor: [Economics] this term only
#2	MeSH descriptor: [Value of Life] this term only
#3	MeSH descriptor: [Costs and Cost Analysis] explode all trees
#4	MeSH descriptor: [Economics, Hospital] explode all trees
#5	MeSH descriptor: [Economics, Medical] explode all trees
#6	MeSH descriptor: [Resource Allocation] explode all trees
#7	MeSH descriptor: [Economics, Nursing] this term only
#8	MeSH descriptor: [Economics, Pharmaceutical] this term only
#9	MeSH descriptor: [Fees and Charges] explode all trees
#10	MeSH descriptor: [Budgets] explode all trees
#11	budget*:ti,ab
#12	cost*:ti,ab
#13	(economic* or pharmaco?economic*):ti,ab
#14	(price* or pricing*):ti,ab
#15	(financ* or fee or fees or expenditure* or saving*):ti,ab
#16	(value near/2 (money or monetary)):ti,ab
#17	resourc* allocat*:ti,ab
#18	(fund or funds or funding* or funded):ti,ab
#19	(ration or rations or rationing* or rationed) .ti,ab.
#20	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19
#21	[mh ^"SPINAL CORD INJURIES"]
#22	[mh ^"CENTRAL CORD SYNDROME"]
#23	[mh ^"SPINAL CORD COMPRESSION"]
#24	[mh "SPINAL CORD"/IN]
#25	((spinal* or spine*) near/5 (injur* or lacerat* or traum* or transect* or contusion* or lesion* or damag*)):ti,ab
#26	(central near/3 cord* near/3 syndrome*):ti,ab
#27	((spinal* or spine*) near/3 cord* near/3 compress*):ti,ab
#28	(myelopath* near/5 (injur* or lacerat* or traum* or transect* or contusion* or lesion* or damag*)):ti,ab
#29	#21 or #22 or #23 or #24 or #25 or #26 or #27 or #28
#30	[mh ^"FECAL INCONTINENCE"/TH]
#31	[mh ^"FECAL INCONTINENCE"/RH]
#32	[mh ^"FECAL INCONTINENCE"/PC]
#33	[mh ^"FECAL INCONTINENCE"/DT]
#34	[mh ^"FECAL INCONTINENCE"/DH]
#35	[mh ^"FECAL IMPACTION"/TH]
#36	[mh ^"FECAL IMPACTION"/PC]

#	Searches
#37	[mh ^"FECAL IMPACTION"/DT]
#38	[mh ^"FECAL IMPACTION"/DH]
#39	[mh ^CONSTIPATION/TH]
#40	[mh ^CONSTIPATION/RH]
#41	[mh ^CONSTIPATION/PC]
#42	[mh ^CONSTIPATION/DT]
#43	[mh ^CONSTIPATION/DH]
#44	[mh ^"NEUROGENIC BOWEL"/TH]
#45	[mh ^"NEUROGENIC BOWEL"/RH]
#46	[mh ^"NEUROGENIC BOWEL"/DT]
#47	[mh ^"NEUROGENIC BOWEL"/DH]
#48	[mh ^MEGACOLON/TH]
#49	[mh ^MEGACOLON/PC]
#50	[mh ^MEGACOLON/DT]
#51	[mh ^MEGACOLON/DH]
#52	[mh ^"TOILET TRAINING"]
#53	[mh ^SUPPOSITORIES]
#54	[mh ^ENEMA]
#55	[mh ^"THERAPEUTIC IRRIGATION"]
#56	[mh ^LAXATIVES]
#57	[mh ^"VALSALVA MANEUVER"]
#58	[mh ^RECTUM/IR]
#59	[mh ^SACRUM/IR]
#60	[mh ^COLOSTOMY]
#61	[mh ^MANOMETRY]
#62	[mh ^"DIETARY FIBER"]
#63	[mh ^MASSAGE]
#64	[mh ^DEFECATION]
#65	[mh ^"NEURAL PROSTHESES"]
#66	[mh ^"SELF-HELP DEVICES"]
#67	(bowel* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#68	((colorectal* or colon*) near/3 dysfunction* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#69	((fecal* or faecal*) near/3 (incontinen* or continen* or impact*) near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#70	(constipat* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#71	((disorder* or dyssynergic) near/3 defecat* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#72	(megacolon* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#73	((toilet* or potty or potties) near/3 (train* or retrain*)):ti,ab
#74	suppositor*:ti,ab
#75	enema*:ti,ab
#76	"wash-out*":ti,ab
#77	((Transanal* or anal* or colon*) near/3 irrigat*):ti,ab
#78	laxative*:ti,ab
#79	(digit* near/3 (feces or faeces or intervention* or stimulat*)):ti,ab
#80	(manual* near/3 evacuat*):ti,ab
#81	(Valsalva near/3 (manoeuvre or maneuver)):ti,ab
#82	((rectal* or rectum* or anorectal* or sacral* or sacrum*) near/3 (stimulat* or innervat*)):ti,ab
#83	colostom*:ti,ab
#84	manometr*:ti,ab
#85	((optimi* or improv* or chang* or adapt*) near/3 (diet* or fluid*)):ti,ab
#86	(diet* near/3 (fibre or fiber)):ti,ab
#87	((abdom* or tumm*) near/3 massag*):ti,ab

#	Searches
#88	(regular* near/3 (bowel* or defecat*)):ti,ab
#89	((fecal* or faecal*) near/3 continen*):ti,ab
#90	(neur* near/3 prosthe*):ti,ab
#91	((bowel* or incontinen* or constipat*) near/3 (assist* or "self help" or selfhelp or adapt*) near/3 (device* or technolog* or aid*)):ti,ab
#92	(anal* near/3 plug*):ti,ab
#93	#30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 or #38 or #39 or #40 or #41 or #42 or #43 or #44 or #45 or #46 or #47 or #48 or #49 or #50 or #51 or #52 or #53 or #54 or #55 or #56 or #57 or #58 or #59 or #60 or #61 or #62 or #63 or #64 or #65 or #66 or #67 or #68 or #69 or #70 or #71 or #72 or #73 or #74 or #75 or #76 or #77 or #78 or #79 or #80 or #81 or #82 or #83 or #84 or #85 or #86 or #87 or #88 or #89 or #90 or #91 or #92
#94	[mh ^"URINARY INCONTINENCE"/TH]
#95	[mh ^"URINARY INCONTINENCE"/RH]
#96	[mh ^"URINARY INCONTINENCE"/PC]
#97	[mh ^"URINARY INCONTINENCE"/DT]
#98	[mh ^"URINARY BLADDER, NEUROGENIC"/TH]
#99	[mh ^"URINARY BLADDER, NEUROGENIC"/RH]
#100	[mh ^"URINARY BLADDER, NEUROGENIC"/PC]
#101	[mh ^"URINARY BLADDER, NEUROGENIC"/DT]
#102	([mh ^"URINARY INCONTINENCE"] or [mh ^"URINARY BLADDER, NEUROGENIC"]) and ([mh "BOTULINUM TOXINS"] or [mh ^PHENYLPROPANOLAMINE] or [mh ^"TOLTERODINE TARTRATE"] or [mh ^CAPSAICIN] or [mh ^MORPHINE])
#103	[mh ^"URINARY CATHETERIZATION"]
#104	[mh ^"INTERMITTENT URETHRAL CATHETERIZATION"]
#105	(bladder* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#106	(urological* near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#107	(urin* near/3 (incontinen* or continen*) near/3 (manag* or therap* or rehab* or intervention* or train* or retrain* or care or program* or treat*)):ti,ab
#108	((urin* or bladder*) near/5 (antispasmodic* or "anti-spasmodic*" "botulinum toxin*" or onabotulinumtoxin* or phenylpropanolamine or tolterodine or oxybutynin or capsaicin or morphine)):ti,ab
#109	((urin* or bladder*) near/3 catheter*):ti,ab
#110	((intermittent* or indwell* or urethral* or suprapubic* or "supra pubic*") near/3 catheter*):ti,ab
#111	(self near/3 catheter*):ti,ab
#112	(clamp* near/3 off):ti,ab
#113	"flip flo":ti,ab
#114	(monitor* near/3 (renal* or urin*) near/3 tract*):ti,ab
#115	#94 or #95 or #96 or #97 or #98 or #99 or #100 or #101 or #102 or #103 or #104 or #105 or #106 or #107 or #108 or #109 or #110 or #111 or #112 or #113 or #114
#116	[mh ^"AUTONOMIC DYSREFLEXIA"]
#117	(autonomic near/3 (dysreflexi* or hyperreflexi*)):ti,ab
#118	#116 or #117
#119	[mh ^"BED REST"]
#120	(bed* near/3 rest*):ti,ab
#121	[mh ^"EARLY AMBULATION"]
#122	((Initiat* or Start* or Introduc* or begin* or began* or commenc* or date* or time* or timing or early or earlier or prompt* or progressive*) near/5 mobili*):ti,ab
#123	((Initiat* or Start* or Introduc* or begin* or began* or commenc* or date* or time* or timing or early or earlier or prompt* or progressive*) near/5 ambulation):ti,ab
#124	((Initiat* or Start* or Introduc* or begin* or began* or commenc* or date* or time* or timing or early or earlier or prompt* or progressive*) near/5 (sit or sits or sitting or stand* or standing or walk* or walking)):ti,ab
#125	[mh ^IMMOBILIZATION/AE]
#126	#119 or #120 or #121 or #122 or #123 or #124 or #125
#127	[mh ^"HYPOTENSION, ORTHOSTATIC"]

#	Searches
#128	((orthostatic or postur*) near/5 hypotensi*):ti,ab
#129	((manag* or treat* or therap*) near/5 hypotensi*):ti,ab
#130	((manag* or treat* or therap*) near/5 low* near/3 blood* near/3 press*):ti,ab
#131	((sit* or tilt* or position*) near/5 hypotensi*):ti,ab
#132	((sit* or tilt* or position*) near/5 low* near/3 blood* near/3 press*):ti,ab
#133	((Midodrine or Clonidine or "fludrocortisone acetate" or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or "physical therap*" or "maximal arm ergometer" or "anti-gravity suit*" or stocking* or "abdom* bind*" or corset* or splint* or harness* or "lower-body negative pressure" or LBNP or (electric* near/3 stimulat*) or FES or (tilt* near/3 table*) or exercis* or treadmill*) near/5 hypotensi*):ti,ab
#134	((Midodrine or Clonidine or "fludrocortisone acetate" or ephedrine or fludrocortisone or Ergotamine or "L-threo-3,4-dihydroxyphenylserine" or salt or water or "physical therap*" or "maximal arm ergometer" or "anti-gravity suit*" or stocking* or "abdom* bind*" or corset* or splint* or harness* or "lower-body negative pressure" or LBNP or (electric* near/3 stimulat*) or FES or (tilt* near/3 table*) or exercis* or treadmill*) near/5 low* near/3 blood* near/3 press*):ti,ab
#135	#127 or #128 or #129 or #130 or #131 or #132 or #133 or #134
#136	[mh ^"MUSCLE SPASTICITY"/RH]
#137	[mh ^"MUSCLE SPASTICITY"/TH]
#138	[mh ^"MUSCLE SPASTICITY"] and ([mh ^"PATIENT POSITIONING"] or [mh ^POSTURE] or [mh ^WHEELCHAIRS] or [mh ^SPLINTS])
#139	[mh ^"MUSCLE SPASTICITY"] and [mh ^"MUSCLE STRETCHING EXERCISES"]
#140	[mh ^"MUSCLE SPASTICITY"/DT]
#141	[mh ^"MUSCLE SPASTICITY"] and ([mh ^BACLOFEN] or [mh ^"BOTULINUM TOXINS"] or [mh ^DANTROLENE] or [mh ^GABAPENTIN] or [mh ^PHENOL])
#142	(Spastic* near/5 (manag* or therap*)):ti,ab
#143	(spastic* near/5 (position* or seat* or wheelchair* or splint*)):ti,ab
#144	(Spastic* near/5 (stretch* or exercis* or ranging)):ti,ab
#145	(Spastic* near/5 range* near/3 mov*):ti,ab
#146	(spastic* and (antispasmodic* or anti-spasmodic* or baclofen or tizanidine or botulinum toxin* or dantrolene or gabapentin or phenol)):ti,ab
#147	#136 or #137 or #138 or #139 or #140 or #141 or #142 or #143 or #144 or #145 or #146
#148	[mh ^"HEALTH SERVICES ACCESSIBILITY"]
#149	([mh ^"PATIENT ADMISSION"] or [mh ^"PATIENT READMISSION"] or [mh ^"PATIENT TRANSFER"] or [mh ^"REFERRAL AND CONSULTATION"]) and [mh ^"TIME FACTORS"]
#150	((earl* or prompt* or immediat* or initiat* or start* or date* or time* or timing) near/10 (access* or admission* or readmission* or admit* or readmit* or transfer* or refer*) near/10 (unit* or department* or hospital* or center* or centre* or care or service* or outreach)):ti,ab
#151	((week* or day* or hour*) near/5 (access* or admission* or readmission* or admit* or readmit* or transfer* or refer*) near/5 (unit* or department* or hospital* or center* or centre* or care or service* or outreach)):ti,ab
#152	#148 or #149 or #150 or #151
#153	[mh "SELF-HELP DEVICES"] and ([mh ^"HEALTH SERVICES NEEDS AND DEMANDS"] or [mh ^"NEEDS ASSESSMENT"] or [mh ^"DELIVERY OF HEALTH CARE"] or [mh ^"DELIVERY OF HEALTH CARE, INTEGRATED"])
#154	[mh "SELF-HELP DEVICES"/SD]
#155	([mh ^"EQUIPMENT AND SUPPLIES"] or [mh ^"EQUIPMENT DESIGN"] or [mh ^"ENVIRONMENT DESIGN"] or [mh ^"ACTIVITIES OF DAILY LIVING"]) and ([mh ^"HEALTH SERVICES NEEDS AND DEMANDS"] or [mh ^"NEEDS ASSESSMENT"] or [mh ^"DELIVERY OF HEALTH CARE"] or [mh ^"DELIVERY OF HEALTH CARE, INTEGRATED"])
#156	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/5 equipment):ti,ab
#157	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/3 (assist* or self help or selfhelp) near/3 (device* or technolog* or aid*)):ti,ab
#158	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/5 environment* near/3 control*):ti,ab

#	Searches
#159	((access* or provision* or provid* or need* or use* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/5 ECS):ti,ab
#160	((access* or provision* or provid* or need* or usage or acquir* or acquisit* or availab* or prescri* or referr* or order*) near/3 ("wheel chair*" or wheelchair* or "power* chair*" or powerchair*)):ti,ab
#161	(use* near/3 ("wheel chair*" or wheelchair* or "power* chair*" or powerchair*)):ti
#162	((access* or provision* or provide or provided or providing or need* or usage or acquir* or acquisit* or availab* or prescri* or referr*) near/5 (brace* or collar or seat* or chair* or "special* bed*" or "sleep* system*" or "single access system*" or "communication board*" or "communication aid*" or bell or bells or intercom* or alarm* or pager* or telephone* or phone* or smartphone* or app or apps or tablet* or television* or TV or TVs or stereo* or radio or radios or light or lights or lamp* or fan* or (door* near/3 (releas* or open*)) or (curtain* near/3 open*) or (window* near/3 open*) or (page* near/3 turn*) or "telecare equipment" or computer* or keyboard* or mouse or joystick* or "roller ball*" or "eye gaze" or software or ((wash* or dress*) near/3 aid*) or "special* grip*" or handle*)):ti,ab
#163	#153 or #154 or #155 or #156 or #157 or #158 or #159 or #160 or #161 or #162
#164	[mh ^"ELECTRIC STIMULATION THERAPY"]
#165	((neuro* or function*) near/3 electrical* near/3 stimulat*):ti,ab
#166	NMES:ti,ab
#167	FES:ti,ab
#168	#164 or #165 or #166 or #167
#169	(special* near/3 equipment*):ti,ab
#170	[mh ^"ELECTRIC STIMULATION THERAPY"] and ([mh ^BICYCLING] or [mh "ORTHOTIC DEVICES"])
#171	(function* near/3 electr* near/3 stimulat* near/5 (bike* or bicycl* or cycl* or orthotic* or orthosis or orthoses)):ti,ab
#172	(FES near/5 (bike* or bicycl* or cycl* or orthotic* or orthosis or orthoses)):ti,ab
#173	((stand* or standing) near/3 (frame* or apparatus or equipment or technolog* or aid* or device* or box or boxes)):ti,ab
#174	[mh ^"BODY WEIGHT"] and [mh ^GAIT]
#175	(body near/3 weight* near/3 support* near/5 train*):ti,ab
#176	(bodyweight* near/3 support* near/5 train*):ti,ab
#177	[mh ^"EXOSKELETON DEVICE"]
#178	exoskeleton*:ti,ab
#179	[mh ^ROBOTICS] and [mh "ORTHOTIC DEVICES"]
#180	(robot* near/5 (orthotic* or orthosis or orthoses)):ti,ab
#181	(robot* near/3 (device* or rehab* or train*)):ti,ab
#182	(tilt* near/3 table*):ti,ab
#183	#169 or #170 or #171 or #172 or #173 or #174 or #175 or #176 or #177 or #178 or #179 or #180 or #181 or #182
#184	(Mirror* near/3 (therap* or train* or feedback or treat* or device* or box)):ti,ab
#185	(Compassion* near/3 mind* near/3 (therap* or train*)):ti,ab
#186	[mh ^"ACCEPTANCE AND COMMITMENT THERAPY"]
#187	(Accept* near/3 commit* near/3 (therap* or train*)):ti,ab
#188	[mh ^MINDFULNESS]
#189	Mindfulness:ti,ab
#190	((Visualisation or visualization) near/3 (therap* or train*)):ti,ab
#191	(mentalisation or mentalization):ti,ab
#192	[mh ^"RELAXATION THERAPY"]
#193	[mh ^"BREATHING EXERCISES"]
#194	((Relax* or progressive* or breath*) near/3 (therap* or train* or exercis*)):ti,ab
#195	[mh ^"COGNITIVE THERAPY"]
#196	(Cognit* near/3 behav* near/3 (therap* or train*)):ti,ab
#197	CBT:ti,ab
#198	#185 or #186 or #187 or #188 or #189 or #190 or #191 or #192 or #193 or #194 or #195 or #196 or #197
#199	[mh ^"PLAY THERAPY"]
#200	(play* near/3 therap*):ti,ab

#	Searches
#201	#199 or #200
#202	[mh ^EDUCATION]
#203	[mh ^SCHOOLS]
#204	#202 or #203
#205	[mh ^"ADAPTATION, PHYSIOLOGICAL"]
#206	[mh ^ACCLIMATIZATION]
#207	[mh "ADAPTATION, PSYCHOLOGICAL"]
#208	[mh ^ERGONOMICS]
#209	[mh ^"EQUIPMENT DESIGN"]
#210	[mh "SELF-HELP DEVICES"]
#211	#205 or #206 or #207 or #208 or #209 or #210
#212	#204 and #211
#213	((education* or school*) near/5 (rehab* or support* or adjust* or adapt* or chang* or reintegrat* or re-integrat* or facilitat* or intervention* or equipment or ergonomic*)):ti,ab
#214	((education* or school*) near/5 (assist* or "self help" or selfhelp) near/3 (device* or technolog* or aid*)):ti,ab
#215	(return* near/5 (education* or school*)):ti,ab
#216	#212 or #213 or #214 or #215
#217	#29 and #93
#218	#29 and #115
#219	#29 and #118
#220	#29 and #126
#221	#29 and #135
#222	#29 and #147
#223	#29 and #152
#224	#29 and #163
#225	#29 and #168
#226	#29 and #183
#227	#29 and #184
#228	#29 and #198
#229	#29 and #201
#230	#29 and #216
#231	#217 or #218 or #219 or #220 or #221 or #222 or #223 or #224 or #225 or #226 or #227 or #228 or #229
#232	#20 and #231
#233	#20 and #231 with Publication Year from 1995 to 2019, in Trials

Appendix C – Clinical evidence study selection

Clinical study selection for review questions:

- **For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?**

- **For children and young people with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?**

A combined search was conducted for these review questions.

Figure 1: Study selection flow chart: Adults

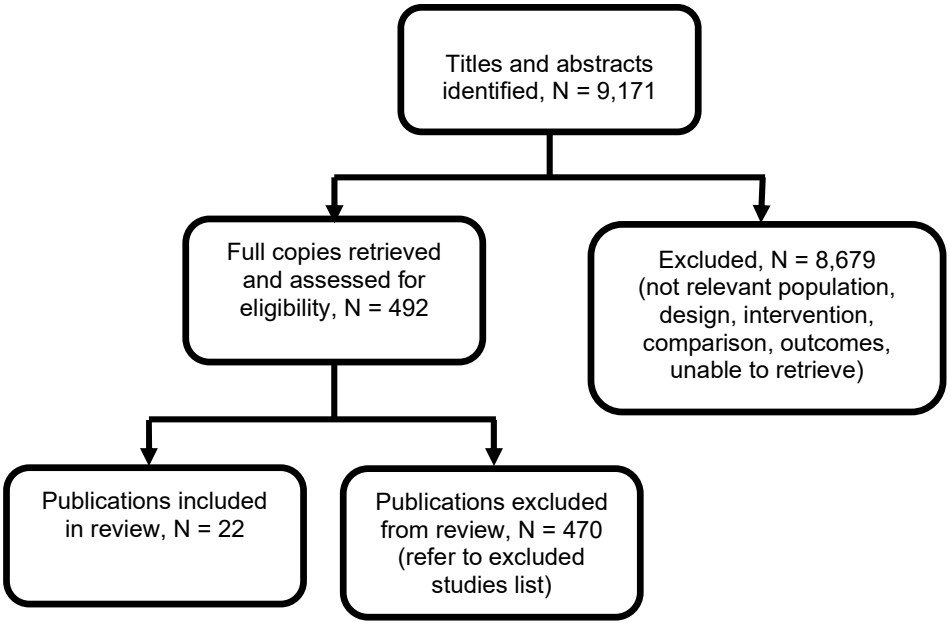
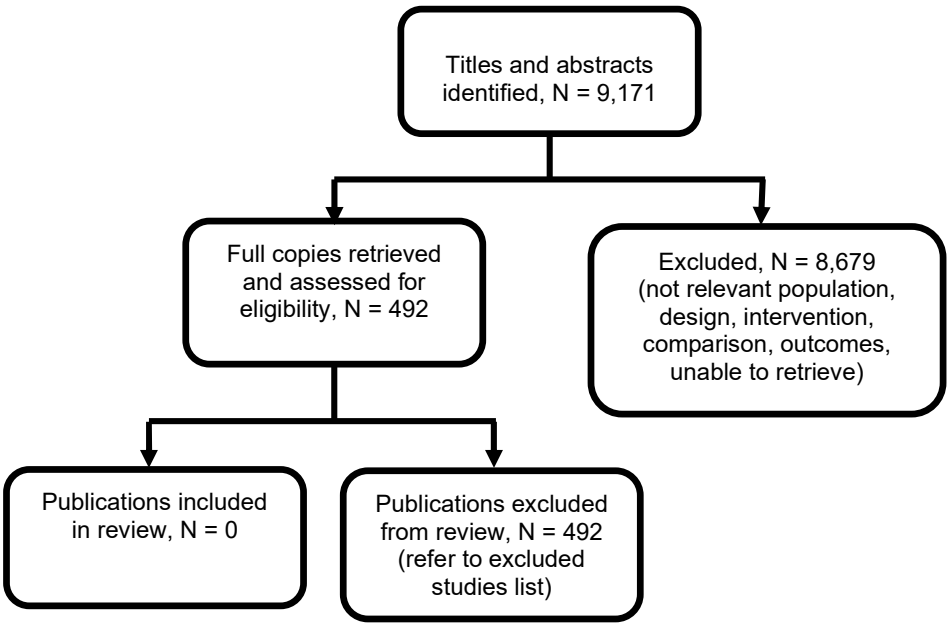


Figure 2: Study selection flow chart: Children and young people



Appendix D – Clinical evidence tables

Clinical evidence tables for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Table 6: Clinical evidence tables

Study details	Participants	Interventions	Outcomes and Results	Comments
Full citation Alexeeva, Natalia, Sames, Carol, Jacobs, Patrick L., Hobday, Lori, Distasio, Marcello M., Mitchell, Sarah A., Calancie, Blair, Comparison of training methods to improve walking in persons with chronic spinal cord injury: a randomized clinical trial, The journal of spinal cord medicine, 34, 362-79, 2011 **Ref Id** 1024500 **Country/ies where the study was carried out** USA **Study type**	**Sample size** N= 35 (randomised) • BWS on fixed track: 14 • BWS on treadmill: 9 • Control: 12 N= 35 (analysed) • BWS on fixed track: 14 • BWS on treadmill: 9 • Control: 12 **Characteristics** Age in years (range): • BWS on fixed track= 21-61 • BWS on treadmill= 19-63 • Control= 22-63 Gender (M/F): • BWS on fixed track (N): 12/2 • BWS on treadmill (N): 8/1 • Control (N): 10/2 Time since injury (range in years): • BWS on fixed track= 1-37	**Interventions** • All groups received training 3 days per week for 13 weeks, totalling 39 sessions. Sessions were for a maximum of one hour, to mimic a typical outpatient rehabilitation schedule. Subjects were instructed to walk at a self-selected pace, although they were allowed to modify pace and take rests if needed. • *Intervention:* body weight supported (BWS) ambulation using 30% BWS provided with a parachute-type harness, adjusted to be tight across the lower pelvis but loose about the thighs to allow for un-restricted hip flexion and extension. Amount of BWS was determined using either load cells attached to lifting bar (all treadmills and some fixed track participants) or force plates along the walking path (remaining fixed track participants). Duration of training, average heart rate and distance walked was recorded for each sessions. • BWS ambulation on fixed track: participants helped by an assistant without formal rehabilitation training. The assistant provided encouragement during training	*SAWS (mean; SD):* After intervention completion (week 13): • Fixed track BWS: 32.4 (7.6) • Treadmill BWS: 35.2 (8.7) • Control (physiotherapy): 29.0 (7.9) 4 weeks follow-up after intervention completion (week 17): • Fixed track BWS: 32.4 (6.4) • Treadmill BWS: 31.2 (7.8) • Control (physiotherapy): 31.4 (5.5) *SF-36 General health perception score* (mean; SD):*	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI - simply described as random 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? PY – staff member not associated with the study, drew printed labels from a box 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN – no statistical analysis presented but text states 'no differences' Risk-of-bias judgement Low

Study details	Participants	Interventions	Outcomes and Results	Comments
RCT **Aim of the study** This RCT aimed to compare two device-specific training interventions, body weight supported ambulation on a fixed track or body weight supported ambulation on a treadmill to comprehensive physical therapy in adults after spinal cord injury (SCI). **Study dates** Recruitment: Not reported **Source of funding** Supported by National Institute of Health, the State University of New York - Upstate Medical University, and Miami Project to Cure Paralysis - The University of Miami.	• BWS on treadmill= 1-12 • Control= 1.2-25 Level of injury (AIS grade range): • BWS on fixed track= all C-D • BWS on treadmill= all C-D • Control= all C-D **Inclusion criteria** Participants had to: • Be aged 16 to 70 years old • Have SCI at level of T10 (vertebral) or rostral • Be injured at least one year prior to enrolment • Have voluntary movement in at least one leg • Be able to rise from seated to standing with no more than moderate assistance and advance one leg • Agreed to maintain their current routine of medications and activity levels while training • Medically cleared by study physician **Exclusion criteria** • Degenerative myelopathy, neoplasm or congenital spinal cord abnormalities • Prior gait training with BWS	sessions but was told not to offer training-specific advice. • BWS ambulation on treadmill: suspension was accomplished by ceiling-mounted pulley system. Support rails on either side of the treadmill were removed to prevent subject unloaded through the arms but there were grab handles in place at the front of the machine for stabilisation if needed. • *Control:* Comprehensive physiotherapy sessions delivered by a licensed physical therapist. Programmes were individually designed for each subject and involved gait, balance, and functional activity modalities e.g. strengthening, stretching and aerobic exercises. Physical therapist kept detailed log of activity, along with average heart rate. **Details** • *Follow-up:* at intervention conclusion (week 13) over two days, one month after completion (week 17)	After intervention completion (week 13): • Fixed track BWS: 2.5 (0.7) • Treadmill BWS: 2.6 (1.1) • Control (physiotherapy): 2.8 (0.8) 4 weeks follow-up after intervention completion (week 17): • Fixed track BWS: 2.6 (1.0) • Treadmill BWS: 2.2 (1.36) • Control (physiotherapy): 2.9 (0.7) *SF-36 Energy score* (mean; SD):* After intervention completion (week 13): • Fixed track BWS: 10.8 (3.0) • Treadmill BWS: 10.9 (3.2) • Control (physiotherapy): 11.8 (2.9)	risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY - not possible to blind due to nature of intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY - not possible to blind due to nature of intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? NI 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y - ITT analysis 2.7 If No/PN/NI to 2.6: Was there potential for a substantial

Study details	Participants	Interventions	Outcomes and Results	Comments
	• Bi-lateral knee-ankle-foot orthoses needed for standing • Ability to run or jog		4 weeks follow-up after intervention completion (week 17): • Fixed track BWS: 14.7 (2.7) • Treadmill BWS: 9.8 (4.5) • Control (physiotherapy): 11.4 (2.7) *SF-36 Mental health perception score* (mean; SD):* After intervention completion (week 13): • Fixed track BWS: 8.0 (1.9) • Treadmill BWS: 8.7 (1.7) • Control (physiotherapy): 7.5 (1.6) 4 weeks follow-up after intervention completion (week 17): • Fixed track BWS: 7.7 (2.0) • Treadmill BWS: 7.0 (1.9) • Control (physiotherapy): 7.3 (1.7)	impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Some concerns **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA Risk-of-bias judgement Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2:

Study details	Participants	Interventions	Outcomes and Results	Comments
			SF-36 Fatigue score (mean; SD):* After intervention completion (week 13): • Fixed track BWS: 24.6 (2.5) • Treadmill BWS: 24.4 (3.2) • Control (physiotherapy): 24.6 (2.8) 4 weeks follow-up after intervention completion (week 17): • Fixed track BWS: 23.2 (3.9) • Treadmill BWS: 25.0 (3.7) • Control (physiotherapy): 23.6 (3.4) * Study authors report using measurements derived from corresponding SF-36 domains, but not all questions.	Were outcome assessors aware of the intervention received by study participants? No - assessors blinded to intervention group 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA Risk-of-bias judgement Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN

Study details	Participants	Interventions	Outcomes and Results	Comments
				5.3 ... multiple analyses of the data? NI Risk-of-bias judgement Some concerns **Overall risk of bias** Risk-of-bias judgement Some concerns **Other information** None.
Full citation Burke, Dearbhla, Lennon, Olive, Blake, Catherine, Nolan, Maeve, Barry, Sorcha, Smith, Eimear, Maye, Fiona, Lynch, John, O'Connor, Lorna, Maume, Liz, Cheyne, Sheena, Ni Ghiollain, Sadb, Fullen, Brona M., An internet delivered cognitive behavioural therapy pain management programme for spinal cord injury pain: A randomised controlled trial, European journal of pain (London, England), 2019 **Ref Id** 1020872 **Country/ies where**	**Sample size** N= 69 (randomised) • Intervention: 35 • Control: 34 N= 69 (analysed) • Intervention: 35 • Control: 34 **Characteristics** Age in years [Mean (SD)]: • Intervention=50 (12.3) • Control= 52 (13.8) Gender (M/F): • Intervention (N): 25/10; • Control (N): 27/7 Time since injury in years [Mean (SD)]: • Intervention= 16(11.8) • Control= 16 (12.6) Level of injury (cervical SCI/thoracic SCI/lumbar	**Interventions** • *Intervention group:* participants in the intervention group was each assigned an individual account to access SPIRE and was emailed unique usernames and passwords. Once participants had started the programme, they were sent two weekly email prompts; one reminding participants to access the SPIRE content and a second notifying them when new content was uploaded. The interven tion (internet-delivered cognitive behavioural therapy pain management programmes) comprised six modules, delivered once weekly which included CBT and educational sessions written in plain English guided audio relaxation practice and a progressive exercise programme which was adaptable to different levels of mobility and involved flexibility, strength, aerobic and pilates exercise in line with established exercise guidelines post-SCI (see table 2 page 4 for details on the 6 modules). To promote peer support, SPIRE (the intervention: Spinal Cord Injury Pain Ireland) also included a peer forum where	*WHOQOL (Physical) (mean; SD):* After intervention completion (week 8): • CBT Programme: 56.25 (15.63) • Control (standard care): 50.66 (16.81) 6 months follow-up (from discharge): • CBT Programme: 62.52 (19.57) • Control (standard care): 58.84 (2.30) *WHOQOL (Psychological) (mean; SD):* After intervention completion (week 8): • CBT Programme: 63.85 (14.81) • Control (standard	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN - no statistical analysis presented but visibly appear similar Risk-of-bias judgement: Low risk **Domain 2: Risk of bias due to deviations from the intended interventions**

Study details	Participants	Interventions	Outcomes and Results	Comments
the study was carried out Ireland **Study type** RCT **Aim of the study** This RCT aimed to compare the effect of an internet-delivered cognitive behavioural therapy pain management programme to usual care in adults after acute spinal cord injury (SCI). **Study dates** Recruitment: January to April 2017 **Source of funding** The project was funded by The Irish Society of Chartered Physiotherapists Eastern Branch Research Bursary 2016 and the Health Informatics Society of Ireland Research Bursary 2016.	SCI/tetraplegia/paraplegia/not reported): • Intervention (N): 10/13/7/10/20/5 • Control (N): 7/17/7/7/24/3 Type of SCI (motor complete/incomplete/not reported) • Intervention (N): 9/22/4 • Control (N): 9/22/3 Injury cause (traumatic/non-traumatic/not reported) • Intervention: 21/12/2 • Control: 24/10/0 **Inclusion criteria** Participants had to: • have an AIS score A–D • be discharged from acute hospital and rehabilitation services • Chronic pain (longer than 3 months) • Over 18 years of age • Fluency in English (verbal and written) • Regular internet access and basic computer/tablet skills **Exclusion criteria** • Previous completed a CBT-PMP	participants could post questions and discuss concepts of the programme with one another. The SPIRE programme was supported by a printed manual that was mailed to all intervention participants (i.e. an information leaflet for family members that summarized the programme goals and how best to support the participant in their pain management. • *Control Group:* participants in the control group continued to manage their chronic pain as they normally did and received no further intervention for the duration of the study. They were offered access to the SPIRE programme on completion of the study. (No further details were given.) **Details** • *Follow-up*: post-intervention, and 3 months after intervention complention	care): 55.12 (17.15) 6 months follow-up (from discharge): • CBT Programme: 68.30 (14.89) • Control (standard care): 54.72 (2.26) *WHOQOL (Social) (mean; SD):* After intervention completion (week 8): • CBT Programme: 61.21 (24.53) • Control (standard care): 56.02 (17.99) 6 months follow-up (from discharge): • CBT Programme: 62.19 (23.54) • Control (standard care): 54.51 (2.48) *WHOQOL (Environmental) (mean; SD):* After intervention completion (week 8): • CBT Programme: 66.93 (14.14) • Control (standard	**(*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? Y 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? No 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? NI 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y - ITT analysis 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement: Some concerns **Domain 3: Missing outcome**

Study details	Participants	Interventions	Outcomes and Results	Comments
	• Mental health issues requiring active psychiatric management • Confounding co-morbidities (cancer, unstable angina/uncontrolled cardiac arrhythmias/severe aortic stenosis, acute systemic infection accompanied by fever, systemic/inflammatory diseases, e.g. rheumatoid arthritis) and substance misuse		care): 62.78 (16.15) 6 months follow-up (from discharge): • CBT Programme: 69.05 (14.90) • Control (standard care): 64.07 (1.37) *ISCI QoL (Wellbeing) (mean; SD):* After intervention completion (week 8): • CBT Programme: 5.79 (2.66) • Control (standard care): 5.39 (2.25) 6 months follow-up (from discharge): • CBT Programme: 6.15 (2.66) • Control (standard care): 5.46 (2.60) *ISCI QoL (Physical) (mean; SD):* After intervention completion (week 8): • CBT Programme: 5.79 (2.40) • Control (standard care): 4.71 (2.14)	**data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA Risk-of-bias judgement: Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No – outcome assessors blinded to intervention group 4.4 If Y/PY/NI to 4.3: Could

Study details	Participants	Interventions	Outcomes and Results	Comments
			6 months follow-up (from discharge): • CBT Programme: 5.85 (2.81) • Control (standard care): 5.29 (2.40) *ISCI QoL (Psychological) (mean; SD):* After intervention completion (week 8): • CBT Programme: 6.66 (2.40) • Control (standard care): 5.46 (1.95) 6 months follow-up (from discharge): • CBT Programme: 6.81 (2.47) • Control (standard care): 5.38 (2.65) *CPAQ (Engagement) (mean; SD):* After intervention completion (week 8): • CBT Programme: 17.69 (4.37) • Control (standard care): 14.96 (4.94)	assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA Risk-of-bias judgement: Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN Risk-of-bias judgement Some concerns **Overall risk of bias** Risk-of-bias judgement: Some

Study details	Participants	Interventions	Outcomes and Results	Comments
			6 months follow-up (from discharge): • CBT Programme: 18.52 (3.91) • Control (standard care): 16.09 (4.44) *CPAQ (Willingness) (mean; SD):* After intervention completion (week 8): • CBT Programme: 14.04 (5.82) • Control (standard care): 13.19 (5.73) 6 months follow-up (from discharge): • CBT Programme: 12.46 (6.49) • Control (standard care): 11.00 (5.84)	concerns **Other information** None.
Full citation Coker, J., Cuthbert, J., Ketchum, J. M., Holicky, R., Huston, T., Charlifue, S., Re-inventing yourself after spinal cord injury: a site-specific randomized clinical trial, Spinal Cord, 57,	**Sample size** N= 81 (randomised) • Intervention: 41 • Control: 40 N= 81 (analysed) • Intervention: 41 • Control: 40	**Interventions** • *Intervention group:* 'Re-inventing Yourself after SCI' - a manual-based, educationally-based group therapeutic intervention programme consisting of 2 hour weekly sessions for 6 weeks. 8 specific skills were presented over the course, designed to re-frame the way an individual looks at events, build their confidence and developing ways to express positive attitude. These skills	*SWLS (mean; SE):* After intervention completion (week 6): • Therapeutic intervention programme: 19.25 (1.40) • Control (waitlist): 19.43 (1.39)	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y – group

Study details	Participants	Interventions	Outcomes and Results	Comments
282-292, 2019 **Ref Id** 1021091 **Country/ies where the study was carried out** USA **Study type** RCT **Aim of the study** This RCT aimed to compare the effect of a self-efficacy group treatment programme to no treatment in adults after acute spinal cord injury (SCI). **Study dates** Recruitment: October 2011 to November 2015 **Source of funding** Funded by a grant from National Institute on Disability and Rehabilitation Research/National Institute on Disability,	**Characteristics** Age in years [Mean (SD)]: • Intervention= 48.0 (12.8) • Control= 52.0 (15.3) Gender (M/F): • Intervention (N): 34/7 • Control (N): 32/8 Time since injury (years, Mean [SD]): Not reported Level of injury (AIS grade A/B/C/D): • Intervention(N): 19/2/7/13 • Control(N): 16/3/8/13 Type of SCI (motor complete/incomplete) • Intervention (N): 19/22 • Control (N): 16/24 **Inclusion criteria** Participants had to: • be 18 years old or over at enrolment • have a traumatic or non-traumatic SCI at any level • be at least 4 weeks post-discharge from initial inpatient rehabilitation • be English-speaking • provide informed consent to participate	were taught in a schedule, designed to progress from introductory concepts to more complex ones. Each session was led by trained group facilitators (including a physical therapist, a nurse, a social worker, and an individual with SCI) and included presentations, goal setting and group discussion. Tasks were also assigned to be completed at home between sessions. • *Control Group:* waitlist control. **Details** • *Follow-up:* week 6 (after completion of intervention), week 30 post-enrolment.	24 weeks follow-up from baseline (week 30): • Therapeutic intervention programme: 19.38 (1.43) • Control (waitlist): 20.56 (1.39) *PHQ-9 (mean; SE):* After intervention completion (week 6): • Therapeutic intervention programme: 7.19 (0.87) • Control (waitlist): 6.83 (0.85) 24 weeks follow-up from baseline (week 30): • Therapeutic intervention programme: 7.18 (0.88) • Control (waitlist): 6.58 (0.85)	blocked randomisation by statistician in groups of 17 participants 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN - no statistical analysis presented but visibly appear similar Risk-of-bias judgement Low risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? Y 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY - not possible to blind due to nature of intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No –

Study details	Participants	Interventions	Outcomes and Results	Comments
Independent Living, and Rehabilitation Research.	**Exclusion criteria** • History of moderate or severe traumatic brain injury • Participant in another RCT, formal clinical group or psychological therapy • Individuals currently experiencing ≥moderately severe levels of depression • Individuals currently self-efficacious • Living beyond a reasonable commuting distance from the study site • Participants unable to verbally communicate			modular approach and strict schedule to intervention. Treatment fidelity monitoring also performed. 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y - ITT analysis 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? No – only 4 (5%) lost to follow up/withdrew but all were assigned to the intervention group 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				data? PY – sensitivity analysis and adjustment for co-variates done 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA Risk-of-bias judgement Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No – outcome assessors blinded to intervention group 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely

Study details	Participants	Interventions	Outcomes and Results	Comments
				that assessment of the outcome was influenced by knowledge of intervention received? NA Risk-of-bias judgement Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN Risk-of-bias judgement Some concerns **Overall risk of bias** Risk-of-bias judgement Some concerns **Other information** None.
Full citation Dallolio, L., Menarini,	**Sample size** N= 137 (randomised)	**Interventions** • *Intervention group:* standard care (as	*Increase in SCIM (mean; SD):*	**Limitations** **Quality assessment:** Risk of

Study details	Participants	Interventions	Outcomes and Results	Comments
M., China, S., Ventura, M., Stainthorpe, A., Soopramanien, A., Rucci, P., Fantini, M. P., Functional and clinical outcomes of telemedicine in patients with spinal cord injury, Archives of physical medicine and rehabilitation, 89, 2332-2341, 2008 **Ref Id** 988225 **Country/ies where the study was carried out** Belgium, Italy and UK **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of a telemedicine schedule with standard care in adults with SCI. **Study dates** Recruitment: November 2003 to	[UK/Belgium/Italy] • Intervention: 69 [28/30/11] • Control: 68 [28/3010] N= 127 (analysed) [UK/Belgium/Italy] • Intervention: 62 [25:30:7] • Control: 65 [26:29:10] **Characteristics** Reported by site rather than by treatment received. Age in years [Mean (SD)]: • Italy = 37.34 (13.64); • Belgium (Brussels) = 37.88 (15.41); • UK = 43.90 (15.75) Gender (M/F): • Italy (N) = 53/6; • Belgium (Brussels) (N) = 12/5; • UK (N) = 42/9 Time since injury (months): Not reported Level of injury: Not reported (inclusion criteria states lesion level at C4-L2) Type of SCI: Not reported **Inclusion criteria**	described below) plus patients received 17 telemedicine sessions (approximately 45 minutes each) over 6 months. 8 sessions were scheduled weekly for first 2 months and then 9 bi-monthly sessions until 6 months. Sessions were a mix of 2 types. Type 1 sessions involved at least 1 medical doctor and 1 nurse, and consisted of structured interviews designed to collect signs and symptoms usually address in clinical routine. Patients and caregivers had the opportunity to share views and concerns. At the end of the sessions, physicians and nurses formulated specific recommendations to be passed on to relevant therapists or general practitioners. In some cases, general practitioners attended the telemedicine sessions to be updated on the patient's progress. Type 2 sessions involved 1 physiotherapist and/or 1 occupational therapist, and consisted of structured interviews assessing functional parameters relating to mobility. Specific recommendations were given in response to these. • *Control group:* standard card consisting of the home, nursing or unspecialised hospital care they would normally have received after discharge from the spinal cord unit. **Details** • *Follow-up:* 6 months after intervention completition (from postdischarge)	UK site at 6 months follow-up after intervention completion: • Telemedicine rehabilitation: -2.06 (9.06) • Control (standard care): 0.10 (7.39) Italian site at 6 months follow-up after intervention completion: • Telemedicine rehabilitation: 3.38 (4.66) • Control (standard care): 3.38 (4.69) Belgian site at 6 months follow-up after intervention completion: • Telemedicine rehabilitation: 1.40 (1.95) • Control (standard care): 7.30 (19.78)	bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? PY – randomised list for each centre held by study co-ordinator 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No Risk-of-bias judgement Low risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of telemedicine intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the

Study details	Participants	Interventions	Outcomes and Results	Comments
February 2006 **Source of funding** The project was funded by European Commission's Framework V Programme.	Participants had to: • age 18 years old or over • have non-progressive, complete or incomplete SCI with lesion level at C4-L2 • willingness to participate with their caregivers • discharged for the first time from the spinal cord unit to their homes (Belgium and Italy) or to their homes or another facility (UK) • living with the catchment area of the spinal cord unit (UK and Belgium) or be willing to travel to the spinal cord unit with their caregiver for 2 follow up visits (Italy) • able to install broadband lines and videoconference at home **Exclusion criteria** • Participants withdrew from the trail before the end of the trial period by: • declaring voluntary withdrawal • not participating in 2 consecutive scheduled telemedicine sessions • patient re-admitted to the spinal cord unit or another hospital for a period longer than 2 weeks			trial? PY – not possible to blind due to nature of telemedicine intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? PY – GPs could attended sessions in some cases. Mixture of type 1 or 2 interventions given but ratios Not reported. 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NI – ratios and attendance of primary physicians Not reported. 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? PY – differing levels of care 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? NI – ITT analysis performed but results Not reported 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NI – too much uncertainty in reporting

Study details	Participants	Interventions	Outcomes and Results	Comments
				to make judgment Risk-of-bias judgement High risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? No 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? No 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? Y 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? PY Risk-of-bias judgement High risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN – patient acceptability measured using specific questionnaire developed for this trial by one of the authors. No information given on validity. 4.2 Could measurement or ascertainment of the outcome have differed between

Study details	Participants	Interventions	Outcomes and Results	Comments
				intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? NI 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? PY – patient acceptability measured using specific questionnaire developed for this trial by one of the authors. 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? PY – patient acceptability measured using specific questionnaire developed for this trial by one of the authors. Risk-of-bias judgement High risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available

Study details	Participants	Interventions	Outcomes and Results	Comments
				for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PY – ITT analysis performed and reported as 'overlapping' with the published results but no further evidence. Risk-of-bias judgement High risk **Overall risk of bias** Risk-of-bias judgement High risk **Other information** None.
Full citation Dorstyn, Diana, Mathias, Jane, Denson, Linley, Robertson, Marie, Effectiveness of telephone counseling in managing psychological outcomes after spinal cord injury: a preliminary study, Archives of physical	**Sample size** N= 39 (randomised) • Intervention: 20 • Control: 19 N=39 (analysed) • Intervention: 20 • Control: 19 (1 withdrew) **Characteristics** Age in years [Mean (SD)]: • Intervention=53.8 (16.3) • Control= 53.1 (20.0)	**Interventions** • *Intervention group:* Participants in the intervention group received a telecounselling program, which was designed to improve short-term emotional outcomes in adults post-SCI, and was delivered by a clinical psychologist. The intervention lasted 12 weeks and consisted of biweekly phone consults. It included 7 sessions in addition to standard care: ○ Session 1. Aims were to monitor and manage both mood and coping skills. ○ Sessions 2 and 3. This session	*DASS-21 Depression (mean; SD):* After intervention completion (week 12): • Telecounselling sessions: 5.30 (6.23) • Control (standard care): 3.16 (4.73) At 3 months follow-up after intervention completion:	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and

Study details	Participants	Interventions	Outcomes and Results	Comments
medicine and rehabilitation, 93, 2100-8, 2012 **Ref Id** 1078037 **Country/ies where the study was carried out** Australia **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of telephone-telecounseling delivered by a psychologist **to** standard care in adults with a newly acquired spinal cord injury (SCI) **Study dates** Recruitment: Not reported **Source of funding** Reported as not impacting conflict of interest.	Gender (M/F): • Intervention (N): 13/7; • Control (N): 14/5 Time since injury (months): Not reported Level of injury (paraplegia/tetraplegia): • Intervention (N): 15/5 • Control (N): 9/10 Type of SCI (motor complete/incomplete) • Intervention (N): 11/9 • Control (N): 3/16 Injury cause (Traumatic/non-traumatic) • Intervention (N): 9/11 • Contro (N)l: 13/6 **Inclusion criteria** Participants had to be: • over 18 years old • good English comprehension • recently acquired an SCI (less than 1 year ago) • sufficient cognitive capacity to enable them to provide informed consent and participate in the therapy process	included education on the psychosocial impact of SCI. ○ Sessions 4 to 6. Aims were to deliver education, reinforcement, and monitoring of positive coping strategies. ○ Session 7. This session included a review of treatment progress and referral to community-based psychological services, if required. • *Control group*: Participants in the control group received standard care only which involved routine individual medical follow-up and physical therapies (eg, physiotherapy, occupational therapy), in addition to a face-to-face consultation with a psychologist at 3 months post discharge. **Details** • *Follow-up:* 1) end-of-intervention (at week 12 from baseline); 2) at 3 months after the end of the intervention (DASS only)	• Telecounselling sessions: 4.84 (5.00) • Control (standard care): 3.44 (8.23) *DASS-21 Anxiety (mean; SD):* After intervention completion (week 12): • Telecounselling sessions: 3.70 (4.01) • Control (standard care): 2.32 (3.35) At 3 months follow-up after intervention completion: • Telecounselling sessions: 4.74 (4.82) • Control (standard care): 1.78 (3.29) *DASS-21 Stress (mean; SD):* After intervention completion (week 12): • Telecounselling sessions: 7.10 (8.34) • Control (standard care): 5.26 (7.78) At 3 months follow-up after intervention	assigned to interventions? NI: no details were reported in the article 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PY: Whereas the distribution of age, sex and main demographics were about equal, there was a difference in scores of major depression at baseline between groups. This difference was not statistically significant. Nevertheless, this may represent an important clinical difference. Risk-of-bias judgement: High risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PN 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI: No information were reported in the article 2.3. If Y/PY/NI to 2.1 or 2.2:

Study details	Participants	Interventions	Outcomes and Results	Comments
	• completed their primary rehabilitation in the Spinal Injuries Unit at Hampstead Rehabilitation Centre • accessed psychological services during their inpatient rehabilitation in order to assist with their adjustment to disability. **Exclusion criteria** People were excluded from the study if they: • had a congenital spinal condition (e.g. spina bifida) • had significant cognitive impairments that would impact on their ability to participate in therapy (that is, severe traumatic brain injury, as determined by medical report) • were currently engaged in another psycho-therapeutic intervention from another agency		completion: • Telecounselling sessions: 6.63 (7.27) • Control (standard care): 6.22 (9.65) *SCL CSQ: Fighting spirit (mean; SD):* After intervention completion (week 12): • Telecounselling sessions: 3.29 (0.35) • Control (standard care): 3.39 (0.64) *SCL CSQ: Acceptance (mean; SD):* After intervention completion (week 12): • Telecounselling sessions: 2.93 (0.65) • Control (standard care): 2.88 (0.55) *SCL CSQ: Social reliance (mean; SD):* After intervention completion (week 12): • Telecounselling sessions: 2.89 (0.62) • Control (standard care): 2.79 (0.48)	Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement*: Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? PY (for all outcomes) 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could

Study details	Participants	Interventions	Outcomes and Results	Comments
				missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? PN *Risk-of-bias judgement*: Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No - outcome assessors blinded to intervention and allocation (all assessments of were administered by an independent psychologist who was not informed of group allocation.) 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA

Study details	Participants	Interventions	Outcomes and Results	Comments
				4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement*: Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN *Risk-of-bias judgement:* low risk ***Overall risk of bias Risk-of-bias judgement:*** High risk **Other information** None.
Full citation Duchnick, Jennifer J., Letsch, Elizabeth A., Curtiss, Glenn, Coping effectiveness training during acute	**Sample size** N= 41 (randomised) • Intervention: 21 • Control: 20 N= 33 (analysed)	**Interventions** • *Intervention group:* The intervention (Coping effectiveness training [CET]) consisted of weekly 60-min psycho-educational group intervention sessions focused into six topic areas:	*CESD (mean; SD):* After intervention completion (3 months from baseline): • Coping	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias**

Study details	Participants	Interventions	Outcomes and Results	Comments
rehabilitation of spinal cord injury/dysfunction: a randomized clinical trial, Rehabilitation psychology, 54, 123-32, 2009 **Ref Id** 1078038 **Country/ies where the study was carried out** USA **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of coping effectiveness training (CET) and supportive group therapy (SGT) in adults after acute spinal cord injury (SCI). **Study dates** Recruitment: October 2004 to June 2006 **Source of funding**	• Intervention: 16 • Control: 17 **Characteristics** Age in years [Mean (SD)]: • Intervention=50.8 (16.9) • Control= 54.6 (9.8) Gender (M/F): • Intervention (%): 95/5; • Control (%): 100/0 Time since injury in days [Mean (SD)]: • Intervention=46.7 (42.5) • Control= 59.6 (50.5) Level of injury (Tetraplegia): • Intervention (%): 40 • Control (%): 70 Type of SCI (AIS category [A/B/C/D or NA) • Intervention (%): 30/30/5/35 • Control (%): 20/20/20/40 Injury cause: • Intervention: All traumatic • Control: All traumatic **Inclusion criteria** Participants had to: • have received a diagnosis of paraplegia or tetraplegia	○ stress reactions; ○ situation appraisal, coping strategy choice ○ interaction between thoughts, emotions, and behaviors ○ relaxation ○ problem solving ○ communication and social support. ○ Group sessions incorporated education, group discussion, and modeling of coping behaviors. • *Control Group:* The control (Supportive group therapy [SGT]) consisted of minimally structured, emotion-focused SGT sessions and served as the control condition to account for nonspecific effects of therapeutic contact. Sixty-minute sessions were held weekly and members were encouraged to attend until discharged from the facility. Sessions emphasized the sharing of experiences and information surrounding injury-related topics, exploration of emotional and cognitive reactions, and the opportunity for support and education from peers and psychologists. • NOTE: The psychologists cofacilitated both groups then independently lead one of the groups for the remainder of the study. **Details** • *Follow-up*: 3-month after intervention	effectiveness training sessions: 9.4 (6.1) • Control (supportive group therapy): 11.1 (8.1) 3 months follow-up from intervention completion: • Coping effectiveness training sessions: 14.2 (12.8) • Control (supportive group therapy): 17.0 (12.1) *SAI (mean; SD):* After intervention completion (3 months from baseline): • Coping effectiveness training sessions: 33.2 (9.3) • Control (supportive group therapy): 35.3 (15.1) 3 months follow-up from intervention completion: • Coping effectiveness training sessions: 36.3 (15.0) • Control (supportive group therapy): 41.7 (17.3)	**arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? No 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN - no statistical analysis presented but visibly appear similar *Risk-of-bias judgement*: Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? Y 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? Y 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? N 2.4. If Y/PY to 2.3: Were these

Study details	Participants	Interventions	Outcomes and Results	Comments
The project was funded by the James A. Haley Veterans' Hospital	within the preceding 6 months • be fluent in the English language • had no severe psychiatric condition precluding group therapy participation (e.g., active psychosis) • have cognitive capacity to provide informed consent and participate in group process. **Exclusion criteria** • Not reported (see inclusion criteria)			deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? PY 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement*: Some concerns **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? PN – 3 (15%) lost to follow up/withdrew (per intervention group) 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? No 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? PN 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the

Study details	Participants	Interventions	Outcomes and Results	Comments
				outcome depended on its true value? PN *Risk-of-bias judgement*: Some concerns **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? Y 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? Y 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? PY *Risk-of-bias judgement*: High risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that

Study details	Participants	Interventions	Outcomes and Results	Comments
				produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN Risk-of-bias judgement Some concerns **Overall risk of bias** ***Risk-of-bias judgement***: High risk **Other information** None.
Full citation Galea, M. P., Panisset, M. G., El-Ansary, D., Dunlop, S. A., Marshall, R., Clark, J. M., Churilov, L., SCIPA Switch-On: A Randomized Controlled Trial Investigating the Efficacy and Safety of Functional Electrical	**Sample size** N= 24 (randomised) • Intervention: 12 • Control: 12 N= 24 (analysed) • Intervention: 12 • Control: 12 **Characteristics** Age in years [Mean (SD)]: • Intervention=38.6 (15.1)	**Interventions** • 4 cycling sessions were held each week, maximum of 60 minutes, for a total of 12 weeks. • *Intervention group*: FES-assisted cycling – 5 minutes of passive cycling as a warm up. Then a multichannel stimulator co-ordinating the neuromuscular stimulation of the quadriceps, hamstrings, and gluteal muscles. Pattern of stimulation was synchronised to a low cadence (30-50 rpm) peddling pattern. Stimulation intensity	*QoL: AQoL score (median; IQR):* 1 week from intervention completion (12 weeks from baseline): • FES-assisted cycling: 0.43 (0.25 to 0.54) • Control (passive cycling): 0.26 (0.11 to	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until

Study details	Participants	Interventions	Outcomes and Results	Comments
Stimulation-Assisted Cycling and Passive Cycling Initiated Early after Traumatic Spinal Cord Injury, Neurorehabilitation and Neural Repair, 31, 540-551, 2017 **Ref Id** 1021601 **Country/ies where the study was carried out** Australia and New Zealand **Study type** RCT **Aim of the study** This RCT aimed to compare the efficacy, safety and feasibility of functional electrical stimulation-assisted cycling (FESC) and passive cycling (PC) to attenuate muscle atrophy after acute spinal cord injury (SCI). **Study dates**	• Control= 38.2 (16.1) Gender (M/F): • Intervention (N): 11/1 • Control (N): 12/0 Time since injury (days, Median [IQR]): • Intervention: 14.5 (13-18) • Control: 16.5 (12-19) Level of injury (AIS grade A/B/C): • Intervention (N): 6/2/3 • Control (N): 8/2/1 Type of SCI (motor complete/incomplete) • Intervention (N): 8/4 • Control (N): 10/2 **Inclusion criteria** Participants had to be: • 18 years old or over • Motor complete or incomplete above the neurological level of T12 • No more than 4 weeks post-injury • Had medical and surgical clearance to participate **Exclusion criteria** • Patient had non traumatic SCI	gradually increased until either a) muscles failed to produce enough power to maintain 30 rpm or b) onset of signs of muscle fibrillation. Warm down 2 minutes of passive cycling. • *Control group*: Passive cycling – procedure the same as FESC, without stimulation or resistance. Participants were instructed to relax and not push the pedals. • Standard care: All patients continued to receive standard care, including personalised physiotherapy. NOTE: Clinical lower-limb electrical stimulation was not permitted during 12-week intervention period. **Details** • *Follow-up*: Post-intervention assessment carried out 1 week after intervention completion.	0.50) *QoL: WHOQOL-bref-domain 1 (median; IQR):* 1 week from intervention completion (12 weeks from baseline): • FES-assisted cycling: 66 (44 to 69) • Control (passive cycling): 63 (44 to 69) *QoL: WHOQOL-bref-domain 2 (median; IQR):* 1 week from intervention completion (12 weeks from baseline): • FES-assisted cycling: 59.5 (50 to 75) • Control (passive cycling): 69 (56 to 69) *QoL: WHOQOL-bref-domain 3 (median; IQR):* 1 week from intervention completion	participants were enrolled and assigned to interventions? PY 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No *Risk-of-bias judgement Low risk* **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI: No information were reported in the article 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have

Study details	Participants	Interventions	Outcomes and Results	Comments
Recruitment: November 2012 to March 2014 **Source of funding** The project was funded by the Transport Accident Commission (Victorian Neurotrauma Initiative) and the National Health and Medical Research Council of Australia.	• Patient had long bone or pelvic fracture • Patient had pressure injury		(12 weeks from baseline): • FES-assisted cycling: 69(50 to 69) • Control (passive cycling): 56 (50 to 75) *QoL: WHOQOL-bref-domain 4 (median; IQR):* 1 week from intervention completion (12 weeks from baseline): • FES-assisted cycling: 63 (63 to 75) • Control (passive cycling): 69 (56 to 75) *Mood; HADS anxiety (median; IQR):* 1 week from intervention completion (12 weeks from baseline): • FES-assisted cycling: 9 (8 to 9) • Control (passive cycling): 11 (10 to 13.5) *Mood: HADS depression (median;*	affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement Low risk* **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y (for all outcomes) 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NI 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NI 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NI *Risk-of-bias judgement:* low risk **Domain 4: Risk of bias in measurement of the outcome**

Study details	Participants	Interventions	Outcomes and Results	Comments
			IQR): 1 week from intervention completion (12 weeks from baseline): • FES-assisted cycling: 10 (10 to 11) • Control (passive cycling): 10 (9 to 12)	4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No - outcome assessors blinded to intervention and allocation (single-blind design, assessors were blinded to group allocation) 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement Low risk* **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-

Study details	Participants	Interventions	Outcomes and Results	Comments
				specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN *Risk-of-bias judgement:* low risk ***Overall risk of bias Risk-of-bias judgement:*** low risk **Other information** None.
Full citation Harvey, L. A., Fornusek, C., Bowden, J. L., Pontifex, N., Glinsky, J., Middleton, J. W., Gandevia, S. C., Davis, G. M., Electrical stimulation plus progressive resistance training for leg strength in spinal cord injury: a randomized controlled trial, Spinal Cord, 48, 570-5, 2010 **Ref Id** 1025733 **Country/ies where**	**Sample size** N= 20 (randomised) • Intervention: 10 • Control: 10 N=20 (analysed) • Intervention: 10 • Control: 10 **Characteristics** Age in years [Median (IQR)]: • Intervention=40 (28–49) • Control= 39 (29–49) Gender (M/F): • Intervention (N): 7/3 • Control (N): 7/3 Time since injury in	**Interventions** • *Intervention group*: Participants in the intervention group received neurological electrical stimulation superimposed on progressive resistance training to the quadriceps muscles of one leg, thrice weekly for 8 weeks. All training was undertaken in participants' homes with a portable device. Electrical stimulation (ES) was delivered through a STIWELL med4 portable neurostimulator. The intervention consisted of 12 sets of 10 knee extension repetitions. The first six sets involved ES superimposed on maximal voluntary knee extension. The second six sets involved ES-evoked muscle contractions alone. • Control group: Participants in the control group did not receive the intervention	*COPM: Performance (median; IQR):* After intervention completion (8 weeks from baseline): • Neurological electrical stimulation: 6.3 (5.3 to 7.8) • Control (standard care): 5.6 (5.4 to 6.6)	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PY: Whereas the

Study details	Participants	Interventions	Outcomes and Results	Comments
the study was carried out Australia **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of neurological electrical stimulation plus progressive resistance training for leg strength and standard care (including general fitness or mobility programs) to provide adults with spinal cord injury (SCI) with increased voluntar y strength in the paretic quadriceps muscles during rehabilitation. **Study dates** Recruitment: 2008 to 2009 (study's protocol: ACTRN1260 9000079246) **Source of funding** The project was	months[Median (IQR)]: • Intervention: 3(2-8) • Control: 4(2-7) Level of injury (AIS impairment classification C/D): • Intervention (N): 7/3 • Control (N): 2/8 Type of SCI (motor complete/incomplete): all participants had motor incomplete lesions **Inclusion criteria** Participants had to be: • with complete or incomplete SCI sustained more than 6 months before testing, • at least 90 degrees passive knee range of motion and moderate neurologically induced weakness in their quadriceps muscles of one leg that was responsive to ES **Exclusion criteria** • recent history of trauma to the lower extremity • currently participating in a lower limb strength or ES training program or limited ability to comply.	• NOTE: Both control and experimental participants were allowed to continue general fitness or mobility programs that they had been participating in before the trial. They were requested not to change their usual activities of daily living. **Details** • *Follow-up:* end of the intervention (8 weeks from baseline)		distribution of age, and sex were about equal, there was a difference in scores according to the AIS classificatioin of impairment (level of SCI) Risk-of-bias *judgement*: High risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI: No information were reported in the article 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate

Study details	Participants	Interventions	Outcomes and Results	Comments
funded by the Spinal Cord Injury and Other Neurological Conditions Research Grants Program of the New South Wales Office for Science and Medical Research.				analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement*: Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y (for all outcomes) 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA *Risk-of-bias judgement*: Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No - outcome assessors blinded to intervention and allocation 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement*: Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI 5.2. ... multiple outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN *Risk-of-bias judgement:* low risk ***Overall risk of bias Risk-of-bias judgement***: high risk **Other information** None.
Full citation Harvey, L. A., Ristev, D., Hossain, M. S., Hossain, M. A., Bowden, J. L., Boswell-Ruys, C. L., Hossain, M. M., Ben, M., Training unsupported sitting does not improve ability to sit in people with recently acquired paraplegia: a randomised trial, Journal of physiotherapy, 57, 83-90, 2011 **Ref Id** 1078039 **Country/ies where the study was carried out**	**Sample size** N= 32 (randomised) • Intervention: 16 • Control: 16 N= 32 (analysed) • Intervention: 16 • Control: 16 **Characteristics** Age in years [Median (IQR)]: • Intervention= 26 (24 to 31) • Control= 27 (24 to 31) Gender (M/F): • Intervention (N): 14/2; • Control (N): 16/0 Time since injury (weeks) [Median (IQR)] : • Intervention: 11 (9 to 17) • Control: 10 (8 to 14)	**Interventions** • *Intervention group*: standard physiotherapy and occupational therapy plus 30 minutes of task-specific training, 3 times a week for 6 weeks. Training was given by a physiotherapist trained in SCI management and was tailored to each participant's stage of rehabilitation. Participants had 84 different exercises each with three grade of difficulty, for a total of 252 exercises. • *Control group/standard care:* standard physiotherapy and occupational therapy. This included training for transfers wheelchair skills, dressing and showering. Protocol also dictated that control participants should receive 3 5-minute sessions but this was only given to control participants in the Bangladesh site. **Details** • *Follow-up*: end-of-intervention (at 6 weeks)	*COPM: Satisfaction subscore (mean):* After intervention completion (6 weeks from baseline): • Task-specific training: 7.5 • Control (standard physiotherapy and occupational therapy): 7.5 NB. Variability i.e. SD, SE or SEM not reported	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN – report notes 'groups similar at baseline' but no statistical analysis results presented *Risk-of-bias judgement*: Low risk **Domain 2: Risk of bias due**

Study details	Participants	Interventions	Outcomes and Results	Comments
Australia and India **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of a 6-week motor retraining programme with standard care to provide adults with spinal cord injury (SCI) with an improved ability to sit unsupported. **Study dates** Recruitment: Not reported **Source of funding** The project was funded by The Rehabilitation and Disability Foundation.	Level of injury, AIS Grade (A/B/C): • Intervention (N): 16/0/0 • Control (N): 13/2/1 Type of SCI: Not reported **Inclusion criteria** Participants had to: • be over 18 years old • sustained complete or incomplete spinal cord injury below T1 • have sustained SCI less than 6 months ago • be receiving physiotherapy and occupational therapy as part of an in-patient rehabilitation programme • have limited ability to sit unsupported (verified by the unsupported sitting item of the Clinical Outcomes Variable Scale) **Exclusion criteria** • Participant unlikely to co-operate • Had pressure areas necessitating bedrest			**to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? Y – protocol dictated that control participants received 3x5-min sessions per week of training in unsupported sitting. Not provided for Australian control. 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? No – sessions delivered as described to Indian control group, not provided to Australian control group. 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? PY 2.6 Was an appropriate analysis used to estimate the

Study details	Participants	Interventions	Outcomes and Results	Comments
				effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement*: High risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA *Risk-of-bias judgement*: Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or

Study details	Participants	Interventions	Outcomes and Results	Comments
				ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement*: Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? PY Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				measurements (e.g. scales, definitions, time points) within the outcome domain? N 5.3 ... multiple analyses of the data? No – performed ITT and per-protocol analyses but both reported in article. *Risk-of-bias judgement*: Low risk **Overall risk of bias** ***Risk-of-bias judgement***: High risk **Other information** None.
Full citation Harvey, L. A., Dunlop, S. A., Churilov, L., Galea, M. P., Early intensive hand rehabilitation is not more effective than usual care plus one-to-one hand therapy in people with sub-acute spinal cord injury ('Hands On'): a randomised trial, Journal of physiotherapy, 62, 88-95, 2016 **Ref Id** 1021845 **Country/ies where**	**Sample size** N= 70 (randomised) • Intervention: 37 • Control: 33 N=70 (analysed) • Intervention: 37 (35 week 11; 31 week 26) • Control: 33 (33 week 11; 26 week 26) **Characteristics** Age in years [median (IQR)]: • Intervention=29 (23-45) • Control= 29 (22-53) Gender (M/F): • Intervention (N): 33/4 • Control (N): 28/5 Time since injury (days,	**Interventions** • *Intervention group*: The intervention consisted of an intensive task-specific hand-training program provided through an instrumented exercise workstation in conjunction with FES. The hand activities involved playing computer games while practising functional tasks using different manipulanda (including reaching, grasping, manipulating, pulling, rotating and releasing). The FES was provided through 5-cm diameter electrodes. The FES was administered to any two stimulatable key muscles of the hand, including the flexors and extensors of the wrist, fingers and thumb. Participants triggered it by clicking their teeth; this stimulated the hand to open or close, allowing participants to grasp or release the various manipulanda on the workstation independent of assistance	*AQoL-8 (mean; SD):* At 11 weeks follow-up after intervention: • FES and task-specific training: 0.37 (0.24) • Control (standard care): 0.30 (0.23) At 26 weeks follow-up after intervention: • FES and task-specific training: 0.41 (0.20) • Control (standard care): 0.37 (0.25) *SCIM (mean; SD):* At 11 weeks follow-up	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No *Risk-of-bias judgement*: Low risk **Domain 2: Risk of bias due**

Study details	Participants	Interventions	Outcomes and Results	Comments
the study was carried out Australia **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of an intensive hand-training program (including instrumented exercise workstation, and computer game) plus FES and standard care versus standard case alone to provide adults with spinal cord injury (SCI) with possible benefits on muscle strength, sensation, function and quality of life. **Study dates** Recruitment: Novembe r 2009 to December 2013 **Source of funding** The project was funded by the Transport	median [IQR]): • Intervention: 81 (45-110) • Control: 62 (47-87) Level of injury (AIS Impairment Scale A/B/C/D): • Intervention (N): 14/7/3/13 • Control (N): 10/5/9/9 Type of SCI (complete/incomplete): unclear **Inclusion criteria** Participants had to : • be 16 years or older • had sustained a motor complete or incomplete SCI at the neurological level of C2 to T1 within the preceding 6 months • reduced ability to grasp with the target hand, as determined by the clinical judgement of the hospital therapist; • able to tolerate sufficient FES to enable the target hand to grasp and release **Exclusion criteria** • Pre-existing hand or upper	from the trial therapists. • *Control group*: Control participants did not receive the intervention. Instead, both control and experimental participants continued to receive usual care. • Standard care: Involved typical inpatient rehabilitation consisting of physiotherapy as well as vocational, recreational and occupational therapy. In addition, over the 8-week intervention period, both control and experimental participants received at least three 15-minute sessions per week of one-to-one hand therapy for the target hand. **Details** • *Follow-up*: 0, 11, and 26 weeks after the intervention.	after intervention: • FES and task-specific training: 10.1 (5.7) • Control (standard care): 8.3 (5.9) At 26 weeks follow-up after intervention: • FES and task-specific training: 10.9 (6.6) • Control (standard care): 9.5 (7.1)	**to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI: No information were reported in the article 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? N 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If N/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants

Study details	Participants	Interventions	Outcomes and Results	Comments
Accident Commission (Victorian Neurotrauma Initiative), NSW Lifetime Care and Support Authority, The University of Melbourne and The University of Western Australia.	limb injury that prevented exercise.			in the group to which they were randomized? NA *Risk-of-bias judgement*: Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? PN: Data were missing on four participants at the post-intervention assessment and on 13 participants at the 26-week assessments 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? PN 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? N 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA *Risk-of-bias judgement:* Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? PY - outcome assessors were unblinded for two assessments 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NI: No information were reported in the article 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? No *Risk-of-bias judgement*: Some concerns **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN

Study details	Participants	Interventions	Outcomes and Results	Comments
				5.3 ... multiple analyses of the data? PN *Risk-of-bias judgement:* low risk ***Overall risk of bias Risk-of-bias judgement:*** Some concerns **Other information** None.
Full citation Heutink, M., Post, M. W., Bongers-Janssen, H. M., Dijkstra, C. A., Snoek, G. J., Spijkerman, D. C., Lindeman, E., The CONECSI trial: results of a randomized controlled trial of a multidisciplinary cognitive behavioral program for coping with chronic neuropathic pain after spinal cord injury, Pain, 153, 120-128, 2012 **Ref Id** 1021904 **Country/ies where the study was carried out** The Netherlands	**Sample size** N= 61 (randomised) • Intervention: 31 • Control: 30 N= 61 (analysed) • Intervention: 31 • Control: 30 **Characteristics** Age in years [Mean (SD)]: 58.8 (11.4) • Intervention= Not reported • Control= Not reported Gender (M/F): • Intervention (N): 21/10 • Control (N): 18/12 Time since injury [years, Median (IQR)]: 5.4 (1.4-23.7) • Intervention: Not reported • Control: Not reported Level of injury (AIS grade	**Interventions** • *Intervention group:* multidisciplinary programme consisting of 3 hour weekly sessions for 10 weeks, plus follow-up session 3 weeks after 10th session. Sessions were led by physiotherapists and overseen by either a psychologist or nurse practitioner. The programme focused on educational, cognitive and behavioural components specifically targeted at coping with chronic neuropathic pain from SCI and was accompanied by a course book containing information on all sessions, reading texts and homework. Participants were encouraged to bring a buddy to two sessions to learn about the intervention and be a support source outside of the sessions. Two theoretical models were used to underpin the content. • *Control Group:* waitlist control for 6 months. **Details** • *Follow-up:* 3 months (immediately after intervention completion) and 6 months.	*HADS Anxiety (mean; SD):* At intervention completion (3 months from baseline): • Intervention programme: 5.6 (3.6) • Control (waitlist): 5.7 (3.4) At 3 months follow-up after intervention (6 months from baseline): • Intervention programme: 5.9 (3.6) • Control (waitlist): 5.6 (3.6) *UAL (mean; SD):* At intervention completion (3 months from baseline): • Intervention programme: 39.3	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI - simply described as random 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? N Risk-of-bias judgement Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)**

Study details	Participants	Interventions	Outcomes and Results	Comments
Study type RCT **Aim of the study** This RCT aimed to compare the efficacy of a multi-disciplinary cognitive behavioural treatment programme to waitlist controls in adults with chronic neuropathic pain after acute spinal cord injury (SCI). **Study dates** Recruitment: Not reported **Source of funding** Supported by an unrestricted grant from Pfizer.	A/B/C): Not reported Type of SCI (motor complete/incomplete) • Intervention (N): 15/16 • Control (N): 24/6 **Inclusion criteria** Participants had to: • be 18 years old or above • have an SCI • at least 1 year after discharge from first inpatient SCI rehabilitation • main type of pain experienced is neuropathic pain for at least 6 months, and intensity score in previous week of at least 40 on Chronic Pain Scale. **Exclusion criteria** • SCI caused by metastatic tumour • previous cognitive behavioural therapy for coping with pain after SCI • insufficient level of Dutch • inability to function in a group due to psychopathology		(20.4) • Control (waitlist): 42.6 (21.1) At 3 months follow-up after intervention (6 months from baseline): • Intervention programme: 41.5 (17.5) • Control (waitlist): 51.0 (19.3)	2.1. Were participants aware of their assigned intervention during the trial? NI 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? N – modular approach and strict schedule to intervention. Treatment fidelity monitoring also performed. 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y - ITT analysis 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk

Study details	Participants	Interventions	Outcomes and Results	Comments
				Domain 3: Missing outcome data 3.1 Were data for this outcome available for all, or nearly all, participants randomized? No – 11.5% dropout rate 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? No 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? PY 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? PN Risk-of-bias judgement Some concerns **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If N/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? NI 4.4 If Y/PY/NI to 4.3: Could

Study details	Participants	Interventions	Outcomes and Results	Comments
				assessment of the outcome have been influenced by knowledge of intervention received? Y – self reported measures used for pain and QoL 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? PN Risk-of-bias judgement Some concerns **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? PY Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN – multiple analyses but justification given for all Risk-of-bias judgement Low

Study details	Participants	Interventions	Outcomes and Results	Comments
				risk **Overall risk of bias** ***Risk-of-bias judgement*** High risk **Other information** None.
Full citation Hitzig, Sander L., Craven, B. Catharine, Panjwani, Aliza, Kapadia, Naaz, Giangregorio, Lora M., Richards, Kieva, Masani, Kei, Popovic, Milos R., Randomized trial of functional electrical stimulation therapy for walking in incomplete spinal cord injury: effects on quality of life and community participation, Topics in Spinal Cord Injury Rehabilitation, 19, 245-58, 2013 **Ref Id** 1021926 **Country/ies where the study was carried out** Canada	**Sample size** N= 34 (randomised) • Intervention: 17 • Control: 17 N= 27 (analysed) • Intervention: 16 • Control: 11 **Characteristics** Age in years [Mean (SD)]: • Intervention= 56.6 (14.0) • Control= 54.1 (16.5) Gender (M/F): • Intervention (N): 14/3 • Control (N): 12/5 Time since injury in years [Mean (SD)]: • Intervention: 8.75 (9.7) • Control: 10.3 (11.1) Level of injury (AIS grade C/D): • Intervention (N): 6/11 • Control (N): 7/10 Type of SCI: not reported but	**Interventions** *Intervention group:* Received FES stimulation while ambulating on a body weight support treadmill, which included overhead harness that attached to cables and pulleys so that a constant upward force can be applied while the subject is walking. Minimal amount of body weight support was used to facilitate walking. Walking exercise were performed at a speed selected by the attending physiotherapist with input from the subject. Manual assistance was applied by up to 3 assistants to the subject's lower extremities and lower back when needed to facilitate walking and ensure movements were carried out in a physiological way. The amount of body weight support and manual assistance was progressively decreased over time with the goal of achieving no support or assistance. FES was delivered using 2 transcutaneous electric stimulators. Each stimulation behaved as an independent system controlling gait sequence or a designated leg and was manually triggered using a push button. The following muscles were stimulated: quadriceps, hamstrings, tibialis anterior and gastrocnemius. Stimulation pulse amplitude, pulse duration and pulse frequencies differed between	*SWLS (mean; SD):* At 4 months follow up: • BWS with FES: 18.69 (9.60) • Control (attention control): 17.82 (6.79) At 6 months follow up: • BWS with FES: 18.63 (9.79) • Control (attention control): 18.45 (6.53) At 12 months follow up: • BWS with FES: 18.63 (9.79) • Control (attention control): 18.45 (6.53) *IADL (mean; SD):* At 4 months follow up: • BWS with FES: 18.50 (3.67) • Control (attention control): 19.91 (2.94) At 6 months follow up:	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN reported 'no significant differences' but no statistical results presented *Risk-of-bias judgement* Low risk **Domain 2: Risk of bias due to deviations from the intended interventions (effect of assignment to intervention)** 2.1. Were participants aware

Study details	Participants	Interventions	Outcomes and Results	Comments
Study type RCT **Aim of the study** This RCT aimed to compare the effectiveness of a FES-assisted walking intervention with a non-FES exercise program on quality of life and participation in adults post-SCI. **Study dates** Recruitment: commenced March 2005. Last subject completed follow-up: December 2010. **Source of funding** The project was funded by Ontario Neurotrauma Foundation and Toronto Rehabilitation Institute, which receives finding under the Provincial Rehabilitation Research Program from Ministry of Health and Long Term Care in	protocol states inclusion criteria as incomplete (AIS score C or D) and chronic. **Inclusion criteria** Participants had to: • Have a chronic (≥ 18 months) traumatic SCI • Lesion between C2-T12 or (equivalent to AIS scale C or D) **Exclusion criteria** • Patients exhibiting contraindications to FES: ○ Cardiac pacemakers ○ Skin lesions or rashes at potential electrode site or denervation of targeted muscles ○ Lower extremity grade IV pressure ulcers or grade III pressure ulcers at FES application and harness contact sites ○ Uncontrolled hypertension ○ Symptoms of orthostatic hypotension after 15 minutes standing ○ Susceptibility to autonomic dysreflexia requiring medication	participants. During stimulation, the targeted muscles were stimulated bilaterally and in a physiologically correct sequence that mimicked the muscle activation sequence observed during ambulation in able-bodied individuals. *Control group:* Sessions were supervised by trained kinesiologists. Participants joined an exercise programme that has 20-25 minutes of resistance training and 20-25 minutes aerobic training (including walking with parallel bars or on a treadmill). 2-3 sets of resistance training were performed at 12-15 repetition maximum resistance for all muscle groups that were capable of voluntary activity. Aerobic exercise was performed at a moderate pace and participants had the opportunity to exercise on a treadmill if they were able to walk unassisted. Note: Both groups received the same level of attention throughout the trial i.e. some form of physical activity for 45 minutes per session, 3 days a week for 4 months, for a total of 48 sessions. **Details** *Follow-up:* Outcomes assessed at baseline, at 4 months of intervention/control activities, at 6 month follow-up (i.e. 2 months after intervention/control activities had ceased), and at 12-month follow-up (i.e. 8 months after intervention/control activities had ceased).	• BWS with FES: 20.44 (3.78) • Control (attention control): 21.55 (3.62) At 12 months follow up: • BWS with FES: 20.44 (3.78) • Control (attention control): 21.55 (3.62) *SCIM (mean; SD):* At 12 months follow up: • BWS with FES: 21.33 (7.62) • Control (attention control): 17.36 (5.46)	of their assigned intervention during the trial? PY - not possible to blind due to nature of intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY - not possible to blind due to nature of intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement* Low risk **Domain 3: Missing outcome**

Study details	Participants	Interventions	Outcomes and Results	Comments
Ontario.				**data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? No 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? No 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NI 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? PY - uneven loss to follow up (only 1 lost to follow-up in intervention arm, 7 in control over 12 months) *Risk-of-bias judgement* High risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? No 4.3 If N/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No

Study details	Participants	Interventions	Outcomes and Results	Comments
				4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement* Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? PY Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? N *Risk-of-bias judgement* Low risk ***Risk-of-bias judgement:*** High

Study details	Participants	Interventions	Outcomes and Results	Comments
				risk **Other information** None.
Full citation Latimer, A. E., Ginis, K. A. M., Arbour, K. P., The efficacy of an implementation intention intervention for promoting physical activity among individuals with spinal cord injury: A randomized controlled trial, Rehabilitation Psychology, 51, 273-280, 2006 **Ref Id** 1026234 **Country/ies where the study was carried out** Canada **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of an 8-week implementation intention intervention	**Sample size** N= 54 (randomised) • Intervention: 26 • Control: 28 N= 37 (analysed) • Intervention: 19 • Control: 18 **Characteristics** Age in years [Mean (SD)]: • Intervention= 27.30 (26.79) • Control= 16.80 (17.23) Gender (M/F): • Intervention (N): 11/8 • Control (N): 10/8 Time since injury (months): Not reported Level of injury (Paraplegia/tetraplegia [1 missing]): • Intervention (N): 12/6 • Contro (N)l: 12/6 Type of SCI (motor complete/incomplete) • Intervention (N): 8/10 • Control (N): 12/6	**Interventions** • *Intervention group:* Participants in the intervention group received 3 30-minbouts of moderate to heavy intensity physical activity per week for 4 weeks. Participants were subsequently e-mailed a calendar showing their implementation intentions and a 4-week physical activity logbook. For some individuals, referring to a physical activity schedule on a calendar may induce self-monitoring, to control for this potential confound, we required all participants to log their physical activity. At Week 4, the interventionist telephoned participants to help them update their implementation intentions (updating their calendar, and showing their new implementation intentions and another 4-week logbook). *Control Group:* Participants in the control group received 3 30-min bouts of moderate to heavy intensity physical activity per week over the next 4 weeks. Then participants were asked to verbally list the physical activities they might try over the course of the next 4 weeks. • NOTE: In summary, participants in both the control and intervention groups received a motivational intervention (i.e., the physical activity tool kit) and a standard goal (engaging in three 30-min bouts of moderate to heavy intensity physical activity per week over the next 4 weeks). The	*Intentions (mean; SD):* At intervention completion (8 weeks from baseline): • Exercise and intention intervention: 12.68 (1.60) • Control (exercise only): 11.71 (2.08) *PBC (mean; SD):* At intervention completion (8 weeks from baseline): • Exercise and intention intervention: 37.58 (4.49) • Control (exercise only): 35.41 (5.36) *Scheduling self-efficacy (mean; SD):* At intervention completion (8 weeks from baseline): • Exercise and intention intervention: 27.32 (3.67) • Control (exercise	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? PN 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No *Risk-of-bias judgement*: Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? NI 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI

Study details	Participants	Interventions	Outcomes and Results	Comments
to no treatment in adults after acute spinal cord injury (SCI). **Study dates** Recruitment: Not reported **Source of funding** The project was funded by Canadian Institutes of Health Research Grant MOP-57778	Injury cause (Traumatic/non-traumatic): Not reported **Inclusion criteria** Participants had to be: • neurological impairment secondary to SCI (i.e., traumatic or nontraumatic SCI) • between 18 and 65 years old • physician's approval to participate in physical activity • manual or power wheelchair use as a primary mode of mobility • no cognitive impairment • able to speak and read English • access to e-mail, and sedentary lifestyle **Exclusion criteria** • Not reported (see inclusion criteria)	control differed from the intervention group because they did not received the implementation intention intervention **Details** • *Follow-up*: post-intervention (at 8 weeks from baseline)	only): 24.25 (6.78) *Barrier self-efficacy (mean; SD):* At intervention completion (8 weeks from baseline): • Exercise and intention intervention: 69 (12.08) • Control (exercise only): 57.37 (20.75)	2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? No, only individuals who maintained fidelity to the intervention were included in the analyses 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? PN *Risk-of-bias judgement:* High risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? No – 17 of 54 (10 in control and 7) lost to follow up/withdrew

Study details	Participants	Interventions	Outcomes and Results	Comments
				3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? PN 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? PN 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA *Risk-of-bias judgement*: Some concerns **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No – outcome assessors blinded to intervention group 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA

Study details	Participants	Interventions	Outcomes and Results	Comments
				4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement*: Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN Risk-of-bias judgement Some concerns **Overall risk of bias** ***Risk-of-bias judgement***: High risk **Other information** None.
Full citation	**Sample size**	**Interventions**	*SCIM3 (Mean, SE*)*	**Limitations**

Study details	Participants	Interventions	Outcomes and Results	Comments
Midik, M., Paker, N., Bugdayci, D., Midik, A. C., Effects of robot-assisted gait training on lower extremity strength, functional independence, and walking function in men with incomplete traumatic spinal cord injury, Turkish Journal of Physical Medicine and Rehabilitation, 66, 54-59, 2020 **Ref Id** 1286240 **Country/ies where the study was carried out** Turkey **Study type** RCT **Aim of the study** To investigate the effectiveness of robot-assisted gait training plus standard care compared to standard care alone in males following traumatic SCI.	N= 30 (randomised) • Robot-assisted gait training + standard rehabilitation = 15 • Standard rehabilitation = 15 N= 30 (analysed) • Robot-assisted gait training + standard rehabilitation = 15 • Standard rehabilitation = 15 **Characteristics** Age in years [Mean (SD)]: • Robot-assisted gait training + standard rehabilitation = 35.4 (12.1) • Standard rehabilitation = 37.9 (10.0) Gender (M/F): • Robot-assisted gait training + standard rehabilitation = 15/0 • Standard rehabilitation = 15/0 Time since injury in months [Median (IQR)]: • Robot-assisted gait training + standard rehabilitation = 5 (4-30) • Standard rehabilitation = 24 (17-44) Injury cause:	• *Intervention group:* Robot-assisted gait training sessions performed using Lokomat Prodevice (supported body weight system with robotic gait orthosis) on treadmill, 3x 20min sessions per week for 5 weeks (total 15 sessions). Initially, treadmill speed was set and 1.5 km/h and 50% of body weight was supported. This was increased and decreased respectively throughout sessions as per patient's limits. Standard rehabilitation as per the control group. • *Control group:* Conventional rehabilitation sessions included range of motion exercises, strengthening, balance training, self-care ability and ground-walking training for 5 weeks. No further details reported. • *Follow-up:* Week 5; month 3.	At baseline: • Robot-assisted gait training + standard rehabilitation = 69.1 (4.9) • Standard rehabilitation = 69.2 (3.0) • No significant difference between groups (p=0.991, independent t-test) At 5 weeks from baseline (intervention completion): • Robot-assisted gait training + standard rehabilitation = 79.1 (4.6) • Standard rehabilitation = 76.2 (2.4) • No significant difference between groups (p=0.579, independent t-test) At 3 months follow-up (unclear if from baseline or from intervention completion):	**Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI – Simply states block randomised. 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI. 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PY – Time since injury significantly longer in control group (median time 5 months versus 24 months). Additionally, level of injury between the 2 groups is visibly different and approaching significance. *Risk-of-bias judgement:* Serious concerns. **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention

Study details	Participants	Interventions	Outcomes and Results	Comments
Study dates September 2011 – February 2013 **Source of funding** No financial support.	• Robot-assisted gait training + standard rehabilitation = all traumatic • Standard rehabilitation = all traumatic Level of injury (T12/L1-3): • Robot-assisted gait training + standard rehabilitation (n) = 6/9 • Standard rehabilitation (n) = 1/14 Level of injury (AIS C/AIS D): • Robot-assisted gait training + standard rehabilitation (n) = 6/9 • Standard rehabilitation (n) = 10/5 **Inclusion criteria** Participants had to: • Be aged ≥18 years • Be male • Have a traumatic SCI • Have a time since injury of at least 12 weeks • Have a LEMS score ≥10 **Exclusion criteria** • Cardiovascular disease • Contractures and deformities		• Robot-assisted gait training + standard rehabilitation = 85.6 (2.2) • Standard rehabilitation = 76.8 (2.4) • Significantly higher (better) in intervention group (p=0.008, independent t-test) *In order to perform statistical analysis, standard errors were converted into SD using RevMan.	during the trial? PY – Not possible to blind due to nature of the intervention. 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? N - Physiotherapist carrying out rehabilitation was blinded. 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? NI. 2.4. If Y/PY to 2.3: Were these deviations likely to have affected the outcome? NA. 2.5 If No/PN/NI to 2.4: Were these deviations from intended intervention balanced between groups? NA. 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y – Intention to treat. 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA. *Risk-of-bias judgement:* Some concerns. **Domain 3: Missing outcome**

Study details	Participants	Interventions	Outcomes and Results	Comments
	of lower extremities • Pressure ulcers			**data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y – No dropouts reported. 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA. 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA. 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA. *Risk-of-bias judgement:* Low risk. **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? N. 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN – Measurements taken at the same time points and using same procedures. 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants?

Study details	Participants	Interventions	Outcomes and Results	Comments
				Y – Physician was unblinded. 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? PY. 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? PN – SCIM3 is a structured, validated measurement tool, and assessor was a trained professional. *Risk-of-bias judgement:* Some concerns. **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI. Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN.

Study details	Participants	Interventions	Outcomes and Results	Comments
				5.3 ... multiple analyses of the data? PN. *Risk-of-bias judgement:* Some concerns. **Overall risk of bias** ***Risk-of-bias judgement*** High risk. **Other information** None.
Full citation Migliorini, C., Sinclair, A., Brown, D., Tonge, B., New, P., A randomised control trial of an Internet-based cognitive behaviour treatment for mood disorder in adults with chronic spinal cord injury, Spinal Cord, 54, 695-701, 2016 **Ref Id** 1022802 **Country/ies where the study was carried out** Australia **Study type** RCT **Aim of the study**	**Sample size** N= 59 (randomised) • Intervention: 34 • Control: 25 N= 48 (analysed) • Intervention: 23 • Control: 25 **Characteristics** Age in years [Mean (SD)]: • Intervention= 47.5 (12.2) • Control= 52.8 (12.9) Gender (M/F): • Intervention (N): 25/9 • Control (N): 17/8 Time since injury in months (Mean [SD]): • Intervention: 11.4 (11.9) • Control: 19.8 (14.0) Level of injury (AIS grade A/B/C): Not reported	**Interventions** • *Intervention:* ePACT, a weekly modular skills and psycho-educational programme based on cognitive behavioural therapy for 10 sessions (between 10 mins and 1 hour). Work was assigned outside of class to continue development and it was recommended to have clinician support by telephone and/or e-mail. • *Control:* Waitlist control **Details** • *Follow-up:* at 10-12 weeks post-intervention. Additional subset measured at 6 months post-intervention.	*DASS-21: Depression (mean; SD):* At intervention completion (10-12 weeks from baseline): • Psycho-educational programme: 12.3 (12.2) • Control (waitlist): 15.0 (10.8) *DASS-21: Anxiety (mean; SD):* At intervention completion (10-12 weeks from baseline): • Psycho-educational programme: 7.0 (7.9) • Control (waitlist): 7.2 (8.2) •	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y - block allocation (groups of 10) 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? PN – 1:1 block randomisation (groups of 10) changed to 3:2 (groups of 10) as study progressed due to large drop out in one arm 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PY – comparative analysis performed. Some

Study details	Participants	Interventions	Outcomes and Results	Comments
This RCT aimed to compare a skills and psycho-education programme intervention to waitlist controls in adults after spinal cord injury (SCI). **Study dates** Recruitment: 15 month period from 2012 to 2013 **Source of funding** Supported by beyondblue, Victorian Centre of Excellence 2011 Research Grant.	Type of SCI (motor complete/incomplete): Not reported **Inclusion criteria** Participants had to: • be aged between 18 and 70 years old • have chronic (more than 6 months) SCI • scored above normative threshold on Depression, Anxiety and Stress Scale-Short Form • be living in the community **Exclusion criteria** • Not reported. See inclusion criteria above.			discrepancies in time since and level of injury. Risk-of-bias judgement High risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? Y – allocation concealed from participants until baseline interview completed 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? PN – modular approach and strict schedule to intervention. 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA

Study details	Participants	Interventions	Outcomes and Results	Comments
				2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y - ITT analysis 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? No - roughly 18.5% dropout. 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? No 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? PY – documented several reasons but not for all 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? PY – all drop-out occurred in intervention group, some reasons due to intervention itself *Risk-of-bias judgement* High

Study details	Participants	Interventions	Outcomes and Results	Comments
				risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PN 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? PY – majority self-reported (unblended study), not mention of professional study assessors 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? y - self reported measures used 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? PN *Risk-of-bias judgement* Some concerns **Domain 5: Risk of bias in selection of the reported result**

Study details	Participants	Interventions	Outcomes and Results	Comments
				5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? NI 5.3 ... multiple analyses of the data? NI Risk-of-bias judgement Some concerns **Overall risk of bias** ***Risk-of-bias judgement*** High risk **Other information** None.
Full citation Phillips, V. L., Vesmarovich, S., Hauber, R., Wiggers, E., Egner, A., Telehealth: reaching out to newly injured spinal cord patients, Public health reports (Washington, D.C. : 1974), 116 Suppl 1,	**Sample size** N= 111 (randomised) • Telephone: 36 • Video: 36 • Control: 39 N= 111 (analysed) • Telephone: 36 • Video: 36 • Control: 39	**Interventions** • *Telephone intervention group:* standard care plus participants took part in individual educational rehabilitation sessions (average 30-40 minutes) with a study nurse. Session were once a week for 5 weeks, then once every 2 weeks for 1 month, for a total of 9 weeks. Sessions consisted of structured review of skin care, nutrition, bowel and bladder routines, psychosocial issues and discussion of equipment needs.	*CES-D (mean; SD):* At 12 months follow-up: • Telephone intervention: 9.0 (8.8) • Video intervention: 17.0 (14.0) • Control (standard care): 8.0 (7.8) *QWBS (mean; SD):*	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI – simply described as random

Study details	Participants	Interventions	Outcomes and Results	Comments
94-102, 2001 **Ref Id** 1078041 **Country/ies where the study was carried out** USA **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of video telehealth sessions and telephone telehealth sessions on days of hospitalisation, depressive symptoms and health-related quality of life in adults with spinal cord injury (SCI). **Study dates** Recruitment: until September 2000 **Source of funding** The project was funded by the Office of	**Characteristics** Age in years [Mean (SD)]: • Telephone = 37 (13.1) • Video = 35 (10.8) • Control = 33 (11.2) Gender (M/F): • Telephone (N)= 26/10 • Video (N)= 27/9 • Control (N)= 32/7 Time since injury (months): Not reported Level of injury: Not reported Type of SCI: Not reported **Inclusion criteria** Participants had to be: • Aged 18 to 60 years old • Newly acquired spinal cord injury **Exclusion criteria** • Concomitant diagnosis of a brain injury • Active substance abuse • 'Mild' impairment of mobility	• *Video intervention group:* standard care plus participants took part in individual educational rehabilitation sessions (average 30-40 minutes) with a study nurse. Session were once a week for 5 weeks, then once every 2 weeks for 1 month, for a total of 9 weeks. Content and structure of education session was similar to that of telephone intervention group, but participant's also saw real time images of the nurse. • *Standard* care*/control*: routine care offered by Shepherd Center, including regular 2 month post-discharge visit. Additional instructions for participants to call the hospital helpline if and when they need assistance prior to this visit. **Details** • *Follow-up*: 12-months (unclear whether is end-of-intervention or from baseline)	At 12 months follow-up: • Telephone intervention: 0.54 (0.07) • Video intervention: 0.53 (0.12) • Control (standard care): 0.48 (0.05) *Annual hospital days (mean; SD):* At 12 months follow-up: • Telephone intervention: 5.2 (14.7) • Video intervention: 3.0 (8.9) • Control (standard care): 8.0 (14.1)	1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN – slight difference in discharge Functional Indepence Measure (FIM) in control group but not statistical Risk-of-bias judgement Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of telemedicine intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY – not possible to blind due to nature of telemedicine intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the

Study details	Participants	Interventions	Outcomes and Results	Comments
Child Development, Disability and Health, National Center from Environmental Health, Centers for Disease Control and Prevention.				experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? PY 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? NI – no flow diagram showing if any loos to follow-up 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? PN – noted that 'where necessary, outcome variables adjusted for duration of enrolment' but no information on other adjustments for loss

Study details	Participants	Interventions	Outcomes and Results	Comments
				to follow-up 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NI 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NI Risk-of-bias judgement High risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? PN – collected by trained study interviewers not associated with research centre 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the

Study details	Participants	Interventions	Outcomes and Results	Comments
				outcome was influenced by knowledge of intervention received? NA Risk-of-bias judgement Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI – appears to be rolling enrolment so unaware of at which point analyses were finalised. Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? N Risk-of-bias judgement Low risk **Overall risk of bias** ***Risk-of-bias judgement*** High risk **Other information** None.

Study details	Participants	Interventions	Outcomes and Results	Comments
Full citation Popovic, Milos R., Kapadia, Naaz, Zivanovic, Vera, Furlan, Julio C., Craven, B. Cathy, McGillivray, Colleen, Functional electrical stimulation therapy of voluntary grasping versus only conventional rehabilitation for patients with subacute incomplete tetraplegia: a randomized clinical trial, Neurorehabilitation and Neural Repair, 25, 433-42, 2011 **Ref Id** 1026890 **Country/ies where the study was carried out** Canada **Study type** RCT **Aim of the study** This RCT aimed to compare the efficacy	**Sample size** N= 24 (randomised) • Intervention: 11 • Control: 13 N= 21 (analysed) • Intervention: 9 • Control: 12 N= 5 (6 month follow-up) • Intervention: 4 • Control: 1 **Characteristics** Age in years [Mean (SEM)]: • Intervention= 43.2 (5.45) • Control= 44.75 (4.72) Gender (M/F): • Intervention (N): 8/2; • Control (N): 9/3 Time since injury in days [Mean (SEM)]: • Intervention: 69.9 (14.11) • Control: 58.33 (6.55) Level of injury (AIS Grade B/C/D): • Intervention (N): 4/5/1 • Control (N): 4/8/0 Type of SCI: Not reported but protocol states incomplete SCI as inclusion criteria.	**Interventions** • *Intervention group:* received 1 hour of conventional occupational therapy (COT) plus 1 hour of functional electrical stimulation (FES) every weekday, totalling 10 hours every week for 8 weeks. • Control group: received 2 hours of COT every weekday, totalling 10 hours every week for 8 weeks. • FES included individualised stimulation protocols for each subject, designed to generate power (circular grip and lateral pinch) and precision (opposition with 2 and 3 fingers) grasps on demand. These protocols were developed for use on a transcutaneous stimulator. Participants were encouraged to complete the movements voluntarily before the command for activating the stimulation sequence was issued with a push button with the therapist. FES was not used for muscle strengthening but was used to retrain the neuromuscular system to execute previously known tasks. Number of repetitions was determined based on the subject's strength and endurance. Stimulation parameters were balanced, biphasic current regulated electrical pulses. • *Convention occupational therapy* (COT) which includes: muscle facilitation exercises emphasizing the neurodevelopment treatment approach task-specific, repetitive functional training strengthening and motor control training using resistance stretching exercises electro-muscular stimulation (not	*SCIM Upper extremity subscore (mean):* After intervention completion (8 weeks from baseline): • COT+FES: 12.1 • Control (COT): 6.4 *FIM Self-care sub-score (mean):* After intervention completion (8 weeks from baseline): • COT+FES: 12.1 • Control (COT): 6.4 NB. Variability i.e. SD, SE or SEM not reported	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN – cause of SCI un-even between two groups but only characteristic that is Risk-of-bias judgement Low risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of FES intervention 2.2. Were carers and people delivering the interventions

Study details	Participants	Interventions	Outcomes and Results	Comments
of 40 hours of FET plus conventional occupational therapy with conventional occupational therapy alone to improve grasping in adults with spinal cord injury (SCI). **Study dates** Recruitment: Not reported **Source of funding** The project was funded by The Physicians' Services Incorporated Foundation, Christopher and Dana Reeve Foundation, the Toronto Rehabilitation Institute and Ontario Ministry of Health and Long Term Care.	**Inclusion criteria** Participants had to: • Age 18 years old or above • Sustained a traumatic and incomplete SCI (level of C4-C7, AIS grade B, C or D) • SCI occurred less than 6 months prior to baseline assessment • Unable to grasp and manipulate various objects (unilaterally or bilaterally), in order to independently perform activities of daily living **Exclusion criteria** • Contraindications for FES (to include cardiac pacemaker, skin lesions and rashes and potential electrode sites) • Individuals with cardiovascular conditions requiring medication (to include uncontrolled hypertension and autonomic dysreflexia) • Individuals with denervated muscles i.e damage to nerves supplying the muscle of interest	FES or FET) for muscle strengthening practice of activities of daily living caregiver training **Details** • *Follow-up*: end-of-intervention (at 8 weeks)		aware of participants' assigned intervention during the trial? PY – not possible to blind due to nature of FES intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No – 'subjects in the control and intervention arms of the study received equal amount of therapy and attention' 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk **Domain 3: Missing outcome data**

Study details	Participants	Interventions	Outcomes and Results	Comments
				3.1 Were data for this outcome available for all, or nearly all, participants randomized? No – authors did not analyse 6 month data due to high loss to follow-up 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NI 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NI 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NI Risk-of-bias judgement High risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? No - outcome assessors blinded to

Study details	Participants	Interventions	Outcomes and Results	Comments
				intervention and allocation 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA Risk-of-bias judgement Low risk **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI – planned to analyse up to 6 months but large loss to follow-up so discounted this. Unsure when analysis plan was finalised. Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN

Study details	Participants	Interventions	Outcomes and Results	Comments
				5.3 ... multiple analyses of the data? PY – 6 month data Not reported due to high loss to follow-up Risk-of-bias judgement High risk **Overall risk of bias** ***Risk-of-bias judgement*** High risk **Other information** None.
Full citation Rahimi, M., Torkaman, G., Ghabaee, M., Ghasem-Zadeh, A., Advanced weight-bearing mat exercises combined with functional electrical stimulation to improve the ability of wheelchair-dependent people with spinal cord injury to transfer and attain independence in activities of daily living: a randomized controlled trial, Spinal Cord, 58, 78-85, 2020 **Ref Id** 1195924 **Country/ies where the study was carried**	**Sample size** N = 10 (randomised) • Weight-bearing exercise + FES = 5 • Weight-bearing exercise only = 5 N = 10 (analysed) • Weight-bearing exercise + FES = 5 • Weight-bearing exercise only = 5 **Characteristics** Age in years [Mean (SD)]: • Weight-bearing exercise + FES = 35 (5.7) • Weight-bearing exercise only = 37 (4.5) Gender (M/F): • Weight-bearing exercise +	**Interventions** • *Intervention group:* Weight-bearing exercise + FES. Advanced weight-bearing mat exercises performed as per control group, with FES applied during the exercises to the quadriceps and gastrocnemius muscles simultaneously on both sides of the body. FES used a 733X electrical stimulation, with pulse characteristics as follows: width = 400 µs; frequency = 40 Hz; on/off cycle = 5/10 secs. • *Control group:* Weight-bearing exercise. Mat exercises of quadruped unilateral reaching (participants assumed position kneeling on all 4s, and reached forward with 1 arm at a time while remaining balanced) and tall-kneeling (participants assumed quadruped or side-seating position and used a wall ladder to pull themselves into a tall-kneeling position) sessions were performed 3 x per week for 24 weeks (totalling 72 sessions). During initial 2 weeks, each exercise was held for 5 mins. This time was increased by 2 mins (4 mins	*SCIM3 [Mean (SD)]* At baseline: • Weight-bearing exercise + FES = 64.8 (5.8) • Weight-bearing exercise only = 63.0 (9.6) At 24 weeks from baseline (intervention completion): • Weight-bearing exercise + FES = 68.6 (3.4) • Weight-bearing exercise only = 65.4 (8.7) • No significant difference between 2 groups (statistical information not	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI – Simply states block randomisation. 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y – Performed by independent professional and using sealed, opaque and stapled envelopes. 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PN –

Study details	Participants	Interventions	Outcomes and Results	Comments
out Iran **Study type** RCT **Aim of the study** To investigate the effectiveness of advanced weight-bearing exercises with FES compared to advanced weight-bearing exercises without FES on levels of independence in wheelchair-dependent individuals following SCI. **Study dates** October 2016 - August 2017 **Source of funding** This study received funding from the Medical Science Faculty of Tarbiat Modares University, Tehran.	FES = 0/5 • Weight-bearing exercise only = 1/4 Time since injury in years [Mean (SD)]: • Weight-bearing exercise + FES = 14 (7.0) • Weight-bearing exercise only = 13 (5.7) Injury cause: • Weight-bearing exercise + FES = all traumatic • Weight-bearing exercise only = all traumatic Level of injury: • Intervention (N) =all AIS A • Control (N) = all AIS A **Inclusion criteria** Participants had to: • Be aged between 25-45 years • Have a traumatic SCI • Have a time since injury of ≥ 1 year • Have paraplegia with AIS score A or B • No voluntary movement of lower limbs	total) every 2 weeks, for a maximum of 27 mins each by intervention completion. Participants also performed a 5 min warm-up before weight-bearing exercise. • *Follow-up:* 24 weeks.	reported)	No statistical analysis presented but there is no mention of baseline imbalances and baseline characteristics appear visually similar. *Risk-of-bias judgement:* Low risk. **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – Blinding not possible due to nature of intervention. 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY – Blinding not possible due to nature of intervention. 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? NI. 2.4. If Y/PY to 2.3: Were these deviations likely to have affected the outcome? NA. 2.5 If No/PN/NI to 2.4: Were these deviations from intended intervention balanced between

Study details	Participants	Interventions	Outcomes and Results	Comments
	• Have quadriceps and gastrocnemius muscles that respond to FES with visible muscle contractions • Have a sufficient range of motion in lower limb joints to carry out weight-bearing exercises • Be medically stable • Have not had regular physiotherapy sessions in the last 6 months **Exclusion criteria** • Unwillingness to participate • Complications including fractures, infections and/or pregnancy			groups? NA. 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y – Intention to treat. 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA. *Risk-of-bias judgement:* Some concerns. **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y – No reported drop outs. 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA. 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA. 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA. *Risk-of-bias judgement:* Low risk. **Domain 4: Risk of bias in measurement of the**

Study details	Participants	Interventions	Outcomes and Results	Comments
				outcome 4.1 Was the method of measuring the outcome inappropriate? N. 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN. Measurements at same time points and following same procdeures. 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? N – Blinded physiotherapist carried out assessments. 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? NA. 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA. *Risk-of-bias judgement:* Low risk. **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-

Study details	Participants	Interventions	Outcomes and Results	Comments
				specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI. Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN. 5.3 ... multiple analyses of the data? PN. *Risk-of-bias judgement:* Some concerns. **Overall risk of bias** ***Risk-of-bias judgement*** Some concerns. **Other information** This study had a total of 3 arms and 16 participants: weight-bearing with FES (n=5), weight-bearing without FES (n=5) and a control group (n=6). However, the control group received no treatment and therefore does not fit the review PICO. As such, data related to this arm has not been extracted.
Full citation Shin, Ji Cheol, Kim, Ji Yong, Park, Han Kyul,	**Sample size** N= 53 (randomised) • Intervention: 27	**Interventions** • *Intervention group*: People in the intervention group received robotic-assisted	*SCIM3 Mobility (median, IQR):*	**Limitations** **Quality assessment:** Risk of bias assessed using revised

Study details	Participants	Interventions	Outcomes and Results	Comments
Kim, Na Young, Effect of robotic-assisted gait training in patients with incomplete spinal cord injury, Annals of rehabilitation medicine, 38, 719-25, 2014 **Ref Id** 1023716 **Country/ies where the study was carried out** Korea **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of robotic-assisted gait training (RAGT) to conventional overground training to provide adults with spinal cord injury (SCI) with improved ambulatory function. **Study dates** Recruitment: May 2012 to May 2014	• Control: 26 N=53 (analysed) • Intervention: 27 • Control: 26 **Characteristics** Age in years [Mean (SD)]: • Intervention=43.2 (14.4) • Control= 48.2 (11.5) Gender (M/F): • Intervention (N): 20/7; • Control (N): 14/12 Time since injury in months [Mean (SD)]: • Intervention: 3.33 (2.02) • Control: 2.73 (1.97) Level of injury (cervical/thoracic and lumbar)= • Intervention (N): 15/12 • Control (N): 16/10 Type of SCI (motor complete/incomplete): all participants have motor incomplete SCI **Inclusion criteria** Participants had to: • have a non-progressive spinal cord lesion as a result of traumatic or non-traumatic	gait training with regular physiotherapy. The overall session time of robotic-assisted gait training treatment was 1-hour, including set-up time. The actual training time was 40 minutes • *Control group:* The control group underwent regular physiotherapy twice a day and 5 times a week using Bobath principles. • Standard care: All subjects were allowed to participate in other treatments, such as occupational therapy or FES **Details** • *Follow-up:* end of intervention	After intervention completion: • Robotic-assisted gait training: 10 (0 to 26) • Control (standard physiotherapy): 9 (0 to 33)	Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI: No details were reported in the article 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI: No details were reported in the article 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No Risk-of-bias *judgement*: Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? NI: No information were reported in the article 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the

Study details	Participants	Interventions	Outcomes and Results	Comments
Source of funding Not reported (No potential conflict of interest relevant to this article was reported)	causes • have onset less than 6 months • be classified as AIS grade D upon entrty • 20 to 65 years old **Exclusion criteria** • patients with pressure ulcers • severe limitation of range of motion of the hips and knee joints • severe cognitive impairment • patients with pulmonary or heart disease requiring monitoring during exercise • people with lower motor neuron lesion, such as cauda equina injury • previously experienced the intervention			trial? NI: No information were reported in the article 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement*: Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y (for all outcomes) 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA *Risk-of-bias judgement:* Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? PY: the assessment tools were reported to be likely inappropriate 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? NI: No details were reported in the article 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? PN 4.5 If Y/PY/NI to 4.4: Is it likely

Study details	Participants	Interventions	Outcomes and Results	Comments
				that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement*: Some concerns **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN *Risk-of-bias judgement:* low risk **Overall risk of bias** ***Risk-of-bias judgement*** High risk **Other information** None.
Full citation Shuai, L., Yu, G. H., Feng, Z., Wang, W. S., Sun, W. M., Zhou, L., Yan, Y., Application of a paraplegic gait	**Sample size** N= 36 (randomised) • Intervention: 18 • Control: 18 N= 36 (analysed)	**Interventions** • *Intervention group*: The same rehabilitation training as the control group plus individualised paraplegic gait orthosis (including reciprocating gait orthosis, Walkabout, bilateral hip-knee ankle foot	*ADL (mean; SD):* At 3 months follow-up (after intervention completion): • Training and	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias**

Study details	Participants	Interventions	Outcomes and Results	Comments
orthosis in thoracolumbar spinal cord injury, Neural Regeneration Research, 11, 1997-2003, 2016 **Ref Id** 1023724 **Country/ies where the study was carried out** China **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of an individualised paraplegic gait orthosis plus functional rehabilitation (including FES) to functional rehabilitation (including FES) only for improving locomotion in adults with spinal cord injury (SCI). **Study dates** Recruitment: January	• Intervention: 18 • Control: 18 **Characteristics** Age in years [Mean (SD)]: • Intervention= 33.9 (11.1) • Control= 37.3 (10.2) Gender (M/F): • Intervention (n): 13/5; • Control (n): 11/7 Time since injury (reported as course of disease) in days [Mean (SD)]: • Intervention: 25.00 (4.52) • Control: 23.00 (6.29) Level of injury (AIS grade A/B/C/D)= • Intervention (N): 9/4/3/2 • Control (N): 8/6/4/0 Type of SCI (1.complete/incomplete; 2. acute/chronic) Not reported **Inclusion criteria** Participants had to: • Aged between 16 and 70 years old • Have thoracic or lumbar SCI (below T4, not ASIA Classification Grade E) • Have illness longer than 30	orthosis, bilateral knee-ankle foot orthosis, unilateral knee-ankle foot orthosis, and an ankle foot orthosis), which was based on the level of SCI and the desired rehabilitation targets. Training included brace wearing and removal, standing balance function, conversion of gravity centre and ambulation. Training was performed twice a day, 30-40 mins each, with a therapist gradually moving the participants towards independence throughout the study period. • *Control group:* The following rehabilitation training was given to each participants, for 3-4 hours a day. • Maintenance of joint range of motion for 20-30 minutes daily - joints above SCI level were exercised by participant and below SCI were passively exercised by trained therapist. Particular emphasis was placed on passive hip extension exercises. • Residual muscle strength training - treatment modes transitioned from therapist-assisted strength training to progressive resistance strength training. • Standing training for 40 minutes twice a day - initially assisted by an electric tilt table with a gradual transition to parallel bar-assisted standing training. • Balance training - gradual transition from the sitting position to erect position, as well as from static balance to dynamic balance. • FES for a 20 minutes per session - applied to key muscles below the SCI level. 15 sessions consisted of a treatment	orthosis: 63.62 (32.33) • Control (training): 29.98 (28.33)	**arising from the randomization process** 1.1 Was the allocation sequence random? NI - simply described as randomised 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No Risk-of-bias judgement Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the

Study details	Participants	Interventions	Outcomes and Results	Comments
2008 to December 2015 **Source of funding** Not reported	days duration **Exclusion criteria** • Cognitive disorder • Cancer • Serious organ function damage • Patients who did not consent	course. 2 weeks rest followed a treatment course before the next treatment course was started. **Details** • *Follow-up*: at 3-month follow-up (from end of intervention)		experimental context? PN – differences in othosis depending on level of SCI and rehab targets but same time spent with trained professionals and nature of SCI means different orthosis will be required 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA Risk-of-bias judgement Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No – modified Barthel Index 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? NI 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? PY – patient reported outcomes and unsure whether outcome assessors are blinded 4.5 If Y/PY/NI to 4.4: Is it likely

Study details	Participants	Interventions	Outcomes and Results	Comments
				that assessment of the outcome was influenced by knowledge of intervention received? PN – control was rigorous rehabilitation training Risk-of-bias judgement Some concerns **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? PY Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN Risk-of-bias judgement Low risk **Overall risk of bias** ***Risk-of-bias judgement*** Some concerns **Other information** None.
Full citation	**Sample size**	**Interventions**	*SCIM (median, IQR):*	**Limitations**

Study details	Participants	Interventions	Outcomes and Results	Comments
Wirz, M., Mac, H. O., Maier, D., Benito-Penalva, J., Taylor, J., Esclarin, A., D. Ietz V, Effectiveness of Automated Locomotor Training in Patients with Acute Incomplete Spinal Cord Injury: A Randomized, Controlled, Multicenter Trial, Journal of Neurotrauma, 34, 1891-1896, 2017 **Ref Id** 1024266 **Country/ies where the study was carried out** Germany, Spain, Switzerland, and the UK **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness of prolonged Lokomat training (enhanced robotic	N= 21 (randomised) • Intervention: 11 • Control: 10 N=18 (analysed) • Intervention: 9 • Control: 9 **Characteristics** Age in years [Mean (SD)]: • Intervention=35.6 (13.8) • Control= 34.3 (16.0) Gender (M/F): • Intervention (N): 1/8 • Control (N): 8/1 Time since injury (months): Not reported Level of injury (tetraplegic/AIS grade B or C, ii.paraplegic/ AIS grade B or C) = • Intervention: i. 1/6; ii. 2/0 • Control: i. 4/2; ii. 2/1 Type of SCI: All sujects were people with acute incomplete SCI **Inclusion criteria** Participants had to be: • between 18 and 60 years old • acute traumatic etiology of	• Patients of both groups performed 3–5 days of training per week of robotic assisted locomotor training (lasting 8 weeks). The robotic device was the Lokomat. In order to ensure that the training was similar in the participating centers, a written guideline was developed and oral instructions were conducted. • *Intervention group:* The walking time per training was set at a minimum of 50 min. • *Control group:* The walking time per training was kept at a maximum of 25 min. **Details** • *Follow-up:* end of the intervention (8 weeks from baseline)	After intervention completion (8 weeks from baseline): • Intervention: 20.0 (9 to 38) • Control: 10.0 (2 to 39)	**Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? Y 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? Y 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? PY: Whereas the distribution of age, sex, and neurological level of injury were about equal, there was a difference in scores according to the AIS classifications but this was not statistically significant Risk-of-bias judgement: High risk **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? NI: No

Study details	Participants	Interventions	Outcomes and Results	Comments
assisted locomotor training) and shorter Lokomat treaing (reduced robotic assisted locomotor training), to provide adults with spinal cord injury (SCI) with better locomotor function during rehanilitation. **Study dates** Recruitment: unclear (Study's protocol published in 2011: NCT01147185) **Source of funding** Not reported (The authors declare that they have no competing interests)	SCI (i.e., early post-injury) • AIS grade of B or C upon entry • Motor level lesion between C4 and T12 • limited walking ability (Walking Index for Spinal Cord Injury (WISCI II) <=5) • study inclusion within 60 days post-trauma • able to follow the study intervention and assessment procedures **Exclusion criteria** • anthropometrics exceeding the possible range of the Lokomat (i.e. body weight >130 kg, body height >200 cm, or difference in leg length >2 cm); • concomitant injuries or pre-existing medical conditions interfering with the study procedures (including but not limited to osteoporosis, lower extremity fractures, traumatic brain injury, chronic pain and cardiopulmonary disease). • patients who already participated in another rehabilitation or pharmacological study.			information were reported in the article 2.2. Were carers and people delivering the interventions aware of participants' assigned intervention during the trial? NI: No information were reported in the article 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? No 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA *Risk-of-bias judgement*: Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome

Study details	Participants	Interventions	Outcomes and Results	Comments
				available for all, or nearly all, participants randomized? PY (for all outcomes): Follow-up assessments 6 months after training were planned in the design of the original studies, but not included in the analyses. 3.2 If No/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? PN *Risk-of-bias judgement:* Some concerns **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study

Study details	Participants	Interventions	Outcomes and Results	Comments
				participants? NI: No information were reported in the article 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? No 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? NA *Risk-of-bias judgement*: Some concerns **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? NI 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN 5.3 ... multiple analyses of the data? PN *Risk-of-bias judgement:* low risk **Overall risk of bias** ***Risk-of-bias judgement***

Study details	Participants	Interventions	Outcomes and Results	Comments
				High risk **Other information** None.
Full citation Yan, Xu, Lan, Jie, Liu, Yancheng, Miao, Jun, Efficacy and Safety of Botulinum Toxin Type A in Spasticity Caused by Spinal Cord Injury: A Randomized, Controlled Trial, Medical science monitor : international medical journal of experimental and clinical research, 24, 8160-8171, 2018 **Ref Id** 1024326 **Country/ies where the study was carried out** China **Study type** RCT **Aim of the study** This RCT aimed to compare the effectiveness and safety of Baclofen and	**Sample size** N= 336 (randomised) • Baclofen: 112 • Botulinum toxin type A: 112 • Control: 112 N= 336 (analysed) • Baclofen: 112 • Botulinum toxin type A: 112 • Control: 112 **Characteristics** Age in years [Mean (SD)]: • Baclofen: 36.55 (3.42) • Botulinum toxin type A= 36.95 (7.12) • Control= 35.47 (2.21) Gender (M/F): • Baclofen (N): 40/72 • Botulinum toxin type A (N)= 36/76 • Control (N)= 30/82 Time since injury (reported as duration of illness) in days [Mean (SD)]: • Baclofen: 211.45 (25.47) • Botulinum toxin type A=	**Interventions** • *Baclofen:* physical therapy plus schedule of Baclofen use. Participants received 5 mg of Baclofen 3 times a day in week 1, 10 mg Baclofen 3 times a day in week 2, 15 mg Baclofen 3 times a day in week 3 and 20 mg Baclofen 3 times a day in week 4. • *Botulinum toxin type A:* physical therapy plus local intramuscular injection of 500 U of botulinum toxin type A. • *Control group:* physical therapy sessions for 6 weeks. Sessions included locomotor training (e.g. body weight supported treadmill training, stepping practice, walking practice) and intensive task-specific motor training (e.g. walking, sit-to-stand transfer, standing) for rehabilitation. **Details** • *Follow*-up: 6 weeks (from baseline: the start of the intervention)	*Barthel Functional Outcomes Score (mean; SD):* 6 weeks follow-up from baseline: • Baclofen: 48.52 (11.45) • Botulinum toxin type A: 48.11 (10.54) • Control (physical therapy): 44.51 (9.11)	**Limitations** **Quality assessment:** Risk of bias assessed using revised Cochrane risk of bias tool (RoB 2) **Domain 1: Risk of bias arising from the randomization process** 1.1 Was the allocation sequence random? NI - simply described as randomised 1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions? NI 1.3 Did baseline differences between intervention groups suggest a problem with the randomization process? No Risk-of-bias judgement Some concerns **Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)** 2.1. Were participants aware of their assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.2. Were carers and people

Study details	Participants	Interventions	Outcomes and Results	Comments
Botulinum toxin type A, to improve spasticity in adults with spinal cord injury (SCI). **Study dates** Recruitment: Decembe r 2012 to March 2017 **Source of funding** The project was funded by the National Natural Science Foundation of China.	207.45 (20.49) • Control= 205.98 (16.45) Level of injury: Not reported Type of SCI: Not reported **Inclusion criteria** Participants had to: • Be aged 18 years old and above • Have signed informed consent form • Have hip adductors muscle and medial hamstring muscle spasticity or chronic spastic hypertonia in the lower limbs (history of 6 months or more) • Have modified Ashworth scale score ≤ 2 • Have modified Medical Research Council score ≤ 2 • Have Barthel Index functional outcomes score ≤ 50 **Exclusion criteria** • Orthopaedic fracture • Concomitant neurological disease • Pregnant women or those breastfeeding • Patients who had not been tested for sensitivity to botulinum toxin type A			delivering the interventions aware of participants' assigned intervention during the trial? PY – not possible to blind due to nature of intervention 2.3. If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context? PN 2.4. If Y/PY to 2.3: Were these deviations from intended intervention balanced between groups? NA 2.5 If No/PN/NI to 2.4: Were these deviations likely to have affected the outcome? NA 2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention? Y 2.7 If No/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized? NA Risk-of-bias judgement Low risk **Domain 3: Missing outcome data** 3.1 Were data for this outcome available for all, or nearly all, participants randomized? Y 3.2 If No/PN/NI to 3.1: Is there

Study details	Participants	Interventions	Outcomes and Results	Comments
	injection • Patients taking spasticity-modifying drugs and loss of locomotion other than spasticity			evidence that the result was not biased by missing outcome data? NA 3.3 If No/PN to 3.2: Could missingness in the outcome depend on its true value? NA 3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value? NA Risk-of-bias judgement: Low risk **Domain 4: Risk of bias in measurement of the outcome** 4.1 Was the method of measuring the outcome inappropriate? No – Barthel Index 4.2 Could measurement or ascertainment of the outcome have differed between intervention groups? PN 4.3 If No/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants? NI 4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received? PY – patient reported outcomes and unsure whether outcome assessors

Study details	Participants	Interventions	Outcomes and Results	Comments
				are blinded 4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received? PN – very good inter-rate reliability recorded between results Risk-of-bias judgement Some concerns **Domain 5: Risk of bias in selection of the reported result** 5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis? PY Is the numerical result being assessed likely to have been selected, on the basis of the results, from... 5.2. ... multiple outcome measurements (e.g. scales, definitions, time points) within the outcome domain? PN – multiple measures but reports for all 5.3 ... multiple analyses of the data? PN – mentions that results were evaluated twice but only to determine reliability Risk-of-bias judgement Low

Study details	Participants	Interventions	Outcomes and Results	Comments
				risk **Overall risk of bias** ***Risk-of-bias judgement*** Some concerns **Other information** None.

ADL: Activities of daily living; AIS: American Spinal Injury Association impairment scale; AQoL: Assessment of quality of life (version); BWS: Body weight support; CBT(-PMP): Cognitive behavioural therapy (pain management programme); CESD: Center for Epidemiologic Studies depression scale; CI: Confidence interval; COPM: Canadian Occupational Performance Measure; COT: Conventional occupational therapy; CPAQ: Chronic pain acceptance questionnaire; DASS-21: Depression, anxiety, stress scale (21 items); ES: Electrical stimulation; F: Female; FES: Functional electrical stiumulation; FET: Functional electrical therapy; HADS: Hospital anxiety and depression scale; IADL: Lawton activities of daily living scale; ISCI QoL: International spinal cord injury quality of life scale; ITT: Intention to treat; IQR: Interquartile range; M: Male; N: Number [or No if answering a risk of bias checklist question); NA: Not applicable; NI: No information; PBC: Perceived behavioural control; PHQ-9: Patient health questionnaire (9 item); PN: Probably not; PY: Probably yes; QoL: Quality of life; RCT: Randomised controlled trial; RoB2: Revised Cochrane risk of bias tool; SAI: State-Trait anxiety inventory; SAWS: Satisfaction with abilities and wellbeing scale; SCI: Spinal cord injury; SCIM: Spinal cord independence measure; SCL CSQ: Spinal cord lesion coping strategies questionnaire; SD: Standard deviation; SE: Standard error; SEM; Standard error of the mean; SF-36: Short form (36 Items) health survey; SPIRE: Spinal cord injury pain Ireland; SWLS: Satisfaction with life scale; UAL: Utrecht activities scale; WHOQOL: World Health Organization quality of life questionnaire

Clinical evidence tables for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No evidence was identified which was applicable to this review question.

Appendix E – Forest plots

Forest plots for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No meta-analyses were performed as the interventions or outcomes were either not sufficiently similar to allow them to be combined or they were not reported by more than one study.

Forest plots for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No evidence was identified which was applicable to this review question.

Appendix F – GRADE tables

GRADE tables for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Table 7: Clinical evidence profile for telephone-based follow-up rehabilitation versus standard follow-up rehabilitation

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Telephone-based follow-up rehabilitation	Standard follow-up rehabilitation	Relative (95% CI)	Absolute		
Overall quality of life: Quality of Well-Being Scale (QWBS; range 0-1; better indicated by higher values) [at 12 months follow-up (unclear whether is end-of-intervention or from baseline)]												
1 (Phillips 2001)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	36	39	-	MD 0.06 higher (0.03 to 0.09 higher)	LOW	CRITICAL
Acute length of staying in main trauma unit: Annual hospital days [at 12 months follow-up (unclear whether is end-of-intervention or from baseline)] (Better indicated by lower values)												
1 (Phillips 2001)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	serious [2]	none	36	39	-	MD 2.8 lower (9.33 lower to 3.73	VERY LOW	CRITICAL

										higher)		
Changes in mood – depression: Center for Epidemiologic Studies Depression Scale (CES-D; range 0-60; better indicated by lower values) [at 12 months follow-up (unclear whether is end-of-intervention or from baseline)]												
1 (Phillips 2001)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	serious[2]	none	36	39	-	MD 1 higher (2.74 lower to 4.74 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Confidence intervals crosses 1 MID (for CES-D +/- 4.45; annual hospital days +/- 7.35)

Table 8: Clinical evidence profile for video-based follow-up rehabilitation versus standard follow-up rehabilitation

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Video-based follow-up rehabilitation**	**Standard follow-up rehabilitation**	**Relative (95% CI)**	**Absolute**		
Overall quality of life: Quality of Well-Being Scale (QWBS; range 0-1; better indicated by higher values) [at 12 months follow-up (unclear whether is end-of-intervention or from baseline)]												
1 (Phillips 2001)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	36	39	-	MD 0.05 higher (0.01 to 0.09 higher)	LOW	CRITICAL
Acute length of staying in main trauma unit: Annual hospital days [at 12 months follow-up (unclear whether is end-of-intervention or from baseline)] (Better indicated by lower values)												

1 (Phillips 2001)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	36	39	-	MD 5 lower (10.29 lower to 0.29 higher)	VERY LOW	CRITICAL
Changes in mood – depression: Center for Epidemiologic Studies Depression Scale (CES-D; range 0-60; better indicated by lower values) [at 12 months follow-up (unclear whether is end-of-intervention or from baseline)]												
1 (Phillips 2001)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	36	39	-	MD 9 higher (3.84 to 14.16 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Confidence intervals crosses 1 MID (for CES-D +/- 4.65; annual hospital days +/- 7.05)

Table 9: Clinical evidence profile for telemedicine- rehabilitation versus standard care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Telemedicine-rehabilitation**	**Standard care**	**Relative (95% CI)**	**Absolute**		
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) [at 6 months follow-up after intervention completion (from post-discharge)] - All sites												
1 (Dallolio 2008)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[3]	none	62	65	-	MD 0.62 lower (2.7 lower to 1.46 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) [at 6 months follow-up												

after intervention completion (from post-discharge)] - UK site												
1 (Dallolio 2008)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	26	-	MD 2.16 lower (6.71 lower to 2.39 higher)	LOW	IMPORTANT
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) [at 6 months follow-up after intervention completion (from post-discharge)] - Italian site												
1 (Dallolio 2008)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	30	29	-	MD 0 higher (2.39 lower to 2.39 higher)	LOW	IMPORTANT
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) [at 6 months follow-up after intervention completion (from post-discharge)] - Belgian site												
1 (Dallolio 2008)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	7	10	-	MD 5.9 lower (18.24 lower to 6.44 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 2 MID: (for SCIM - All sites +/- 0.5)
3 95% CI crosses 1 MID: (for SCIM - Belgian site +/- 11.45)

Table 10: Clinical evidence profile for unsupported sitting training plus standard in-patient rehabilitation versus standard in-patient therapy

Quality assessment	No of patients	Effect	Quality	Importance

No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Unsupported sitting training plus standard in-patient rehabilitation	Standard in-patient therapy	Unsupported sitting training plus standard in-patient rehabilitation	Standard in-patient therapy		
Patient acceptability: Canadian Occupational Performance Measure (COPM; scale not reported; better indicated by higher values) [at 6 weeks from baseline (after intervention completion)]												
1 (Harvey 2011)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	very serious[2]	none	16	16	Median (IQR): 7.5 (7.0 to 8.5)[3]	Median (IQR): 7.5 (7.0 to 9.0)[3]	VERY LOW	CRITICAL

IQR: interquartile range
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Imprecision could not be assessed using MIDSs due to no reporting of SD and no published MIDs so was instead assessed using the sample size: The result was not downgraded if n≥400, if n=399-200, the result was downgraded 1 level, and if n<200 the result was downgraded by 2 levels. Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
3 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 0.5 higher (95% CI 0.5 lower to 1.5 higher)]

Table 11: Clinical evidence profile for comparison FES (repetitive grasping exercises using a neuro-prosthesis) plus standard care versus standard care alone

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Functional electrical stimulation	Standard care	Relative (95% CI)	Absolute		
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM), upper extremity sub-score (scale not reported; better indicated by higher values) [after intervention completion (at 8 weeks from baseline)]												

1 (Popovic 2011)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	9	12	-	MD 10.4 higher (0.65 to 20.15 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Functional Independence Measure (FIM), self-care sub-score (scale not reported; better indicated by higher values) [after intervention completion (at 8 weeks from baseline)]												
1 (Popovic 2011)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	9	12	-	MD 6.1 higher (1.51 to 10.69 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (for SCIM +/- 4.33; FIM +/- 2.59)

Table 12: Clinical evidence profile for comparison FES plus weight-bearing exercise versus weight-bearing exercise alone

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**FES + weight-bearing exercise**	**Weight-bearing exercise only**	**Relative (95% CI)**	**Absolute**		
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM3; range 0-100; better indicated by higher values) [at 24 weeks from baseline (after intervention completion)]												
1 (Rahimi 2020)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	5	5	-	MD 3.2 higher (4.99 lower to 11.39 higher)	VERY LOW	IMPORTANT

1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 2 MIDs (for SCIM3 +/- 4.8)

Table 13: Clinical evidence profile for neurological electrical stimulation (NMES) plus progressive resistance training for leg strength versus standard care

Quality assessment							Number of patients		Effect		Quality	Importance
Number of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NMES	Standard care	NMES	Standard care		
Patient acceptability: Canadian Occupational Performance Measure (COPM; scale not reported; better indicated by higher values) [at 8 weeks from baseline (after intervention completion)]												
1 (Harvey 2010)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	very serious[2]	none	10	10	Median (IQR): 6.3 (5.3 to 7.8)[3]	Median (IQR): 5.6 (5.4 to 6.6)[3]	VERY LOW	CRITICAL

IQR: interquartile range
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Imprecision could not be assessed using MIDs due to no reporting of SD and no published MIDs so was instead assessed using the sample size: The result was not downgraded if n≥400, if n=399-200, the result was downgraded 1 level, and if n<200 the result was downgraded by 2 levels. Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
3 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 1.4 higher (95% CI 0.1 lower to 4.6 higher)]

Table 14: Clinical evidence profile for on-line based cognitive behavioural therapy (CBT) pain management programme versus standard care

Quality assessment	Number of patients	Effect	Quality	Importance

Number of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	On-line based CBT	Standard care	Relative (95% CI)	Absolute		
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), physical domain (scale note reported; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 5.59 higher (2.07 lower to 13.25 higher)	LOW	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), physical domain (scale note reported; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 3.68 higher (2.85 lower to 10.21 higher)	LOW	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), psychological domain (scale note reported; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 8.53 higher (0.96 to 16.1 higher)	LOW	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), psychological domain (scale note reported; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	35	34	-	MD 13.58 higher (8.59 to 18.57 higher)	MODERATE	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), social domain (scale note reported; better indicated by higher values) - at week 8 from baseline (after intervention completion)												

1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 5.19 higher (4.94 lower to 15.32 higher)	LOW	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), social domain (scale note reported; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 7.68 higher (0.16 lower to 15.52 higher)	LOW	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), environmental domain (scale note reported; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 4.15 higher (3.02 lower to 11.32 higher)	LOW	CRITICAL
Overall quality of life: World Health Organization Quality of Life Brief Questionnaire (WHOQOL), environmental domain (scale note reported; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 4.98 higher (0.02 to 9.94 higher)	LOW	CRITICAL
Overall quality of life: International Spinal Cord Injury Quality of Life Data Set (ISCI QoL Data Set), Wellbeing (range 0-10; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 0.4 higher (0.76 lower to 1.56 higher)	LOW	CRITICAL
Overall quality of life: International Spinal Cord Injury Quality of Life Data Set (ISCI QoL Data Set), Wellbeing (range 0-10; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 0.69 higher (0.55 lower to 1.93 higher)	LOW	CRITICAL

Overall quality of life: International Spinal Cord Injury Quality of Life Data Set (ISCI QoL Data Set), Physical (range 0-10; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 1.08 higher (0.01 to 2.15 higher)	LOW	CRITICAL
Overall quality of life: International Spinal Cord Injury Quality of Life Data Set (ISCI QoL Data Set), Physical (range 0-10; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious[2]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 0.56 higher (0.67 lower to 1.79 higher)	LOW	CRITICAL
Overall quality of life: International Spinal Cord Injury Quality of Life Data Set (ISCI QoL Data Set), Psychological (range 0-10; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 1.2 higher (0.17 to 2.23 higher)	LOW	CRITICAL
Overall quality of life: International Spinal Cord Injury Quality of Life Data Set (ISCI QoL Data Set), Psychological (range 0-10; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1(Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 1.43 higher (0.22 to 2.64 higher)	LOW	CRITICAL
Patient acceptability: Chronic Pain Acceptance Questionnaire (CPAQ), Engagement (scale not reported; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 2.73 higher (0.53 to 4.93 higher)	LOW	CRITICAL
Patient acceptability: Chronic Pain Acceptance Questionnaire (CPAQ), Engagement (scale not reported; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke	randomise	serious	no serious	no serious	serious[2]	none	35	34	-	MD 2.43	LOW	CRITICAL

2019)	d trials	[1]	inconsistency	indirectness						higher (0.45 to 4.41 higher)		
Patient acceptability: Chronic Pain Acceptance Questionnaire (CPAQ), Willingness (scale not reported; better indicated by higher values) - at week 8 from baseline (after intervention completion)												
1 (Burke 2019)	randomised trials	serious [1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 0.85 higher (1.88 lower to 3.58 higher)	LOW	CRITICAL
Patient acceptability: Chronic Pain Acceptance Questionnaire (CPAQ), Willingness (scale not reported; better indicated by higher values) - at 6 months follow-up after intervention completion (from post-discharge)												
1 (Burke 2019)	randomised trials	serious [1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	34	-	MD 1.46 higher (1.45 lower to 4.37 higher)	LOW	CRITICAL

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (for WHOQOL—Physical +/- 7.74; WHOQOL—Psychological +/- 7.96; WHOQOL—Social +/- 11.98; WHOQOL—Environmental +/- 8.47); ISCI QoL—Wellbeing +/- 1.16; ISCI QoL—Physical +/- 1.24; ISCI QoL—Psychological +/- 1.19; CPAQ—Engagement +/- 2.88; CPAQ—Willingness +/- 2.88)

Table 15: Clinical evidence profile for on-line based cognitive behavioural therapy (CBT) versus waitlist control

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	On-line based CBT	Waitlist control	Relative (95% CI)	Absolute		
Changes in mood – depression: Depression, Anxiety and Stress Scale (DASS21; range 0-42; better indicated by lower values) [after intervention completion (10-12 weeks from baseline)]												

1 (Migliorini 2016)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	23	25	-	MD 2.7 lower (9.24 lower to 3.84 higher)	VERY LOW	IMPORTANT
Changes in mood – anxiety: Depression, Anxiety and Stress Scale (DASS21; range 0-42; better indicated by lower values) [after intervention completion (10-12 weeks from baseline)]												
1 (Migliorini 2016)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	very serious[4]	none	23	25	-	MD 0.2 lower (4.76 lower to 4.36 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Population is indirect: mix of traumatic and non-traumatic patients (exact numbers were not reported)
3 95% CI crosses 1 MID (for DASS21: Depression +/- 5.40)
4 95% CI crosses 2 MID (for DASS21: Anxiety +/- 4.20)

Table 16: Clinical evidence profile for cognitive behavioural therapy (CBT) multi-disciplinary programme (including educational, cognitive and behavioural components) versus waitlist control

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**CBT including educational, cognitive and behavioural components**	**Waitlist control**	**Relative (95% CI)**	**Absolute**		
Changes in mood – anxiety: Hospital Anxiety and Depression Score (HADS; range 0-21; better indicated by lower values) - at 3 months from baseline (after intervention completion)												
1 (Heutink 2012)	randomised trials	serious [1]	no serious inconsistency	serious[2]	serious[3]	none	31	30	-	MD 0.1 lower (1.86	VERY LOW	IMPORTANT

										lower to 1.66 higher)		
Changes in mood – anxiety: Hospital Anxiety and Depression Score (HADS; range 0-21; better indicated by lower values) - at 6 months from baseline												
1 (Heutink 2012)	randomised trials	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	31	30	-	MD 0.3 higher (1.51 lower to 2.11 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Utrecht Activities Scale (UAL; scale not reported; better indicated by higher values) - at 3 months from baseline (after intervention completion) (Better indicated by higher values)												
1 (Heutink 2012)	randomised trials	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	31	30	-	MD 3.3 lower (13.72 lower to 7.12 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Utrecht Activities Scale (UAL; scale not reported; better indicated by higher values) - at 6 months from baseline												
1 (Heutink 2012)	randomised trials	serious[1]	no serious inconsistency	serious[2]	serious[3]	none	31	30	-	MD 9.5 lower (18.75 to 0.25 lower)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Population is indirect: mix of traumatic (N=34) and non-traumatic (N=17) patients
3 95% CI crosses 1 MID (for HADS Anxiety Score +/- 1.75; UAL +/- 10.55)

Table 17: Clinical evidence profile for individualised counselling intervention delivered by telephone versus standard care

Quality assessment						No of patients		Effect	Quality	Importance

No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Telephone based counselling	Standard care	Relative (95% CI)	Absolute		
Patient acceptability – fighting spirit: Spinal Cord Lesion Coping Strategies Questionnaire (SCL CSQ; scale not reported; better indicated by lower values) [at 3 months from baseline (after intervention completion)]												
1 (Dorstyn 2012)	randomised trials	very serious[1]	no serious inconsistency	serious[2]	very serious[4]	none	20	19	-	MD 0.1 lower (0.43 lower to 0.23 higher)	VERY LOW	CRITICAL
Patient acceptability – acceptance: Spinal Cord Lesion Coping Strategies Questionnaire (SCL CSQ; scale not reported; better indicated by lower values) [at 3 months from baseline (after intervention completion)]												
1 (Dorstyn 2012)	randomised trials	very serious[1]	no serious inconsistency	serious[2]	very serious[4]	none	20	19	-	MD 0.05 higher (0.33 lower to 0.43 higher)	VERY LOW	CRITICAL
Patient acceptability – social reliance: Spinal Cord Lesion Coping Strategies Questionnaire (SCL CSQ; scale not reported; better indicated by lower values) - at 3 months from baseline (after intervention completion)]												
1 (Dorstyn 2012)	randomised trials	very serious[1]	no serious inconsistency	serious[2]	very serious[4]	none	20	19	-	MD 0.1 higher (0.25 lower to 0.45 higher)	VERY LOW	CRITICAL
Changes in mood – depression: Depression Anxiety and Stress Scale-21 (DASS- 21; range 0-42; better indicated by lower values) - at 3 months from baseline (after intervention completion)												
1	randomise	very	no serious	serious[2]	serious[3]	none	20	19	-	MD 2.14	VERY	IMPORTANT

(Dorstyn 2012)	d trials	serious [1]	inconsistency							higher (1.32 lower to 5.6 higher)	LOW	
Changes in mood – depression: Depression Anxiety and Stress Scale-21 (DASS- 21; range 0-42; better indicated by lower values) - at 6 months from baseline												
1 (Dorstyn 2012)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	20	19	-	MD 1.4 higher (2.9 lower to 5.7 higher)	VERY LOW	IMPORTANT
Changes in mood – anxiety: Depression Anxiety and Stress Scale-21 (DASS- 21; range 0-42; better indicated by lower values) - at 3 months from baseline (after intervention completion)												
1 (Dorstyn 2012)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	20	19	-	MD 1.38 higher (0.93 lower to 3.69 higher)	VERY LOW	IMPORTANT
Changes in mood – anxiety: Depression Anxiety and Stress Scale-21 (DASS- 21; ; range 0-42; better indicated by lower values) - at 6 months from baseline												
1 (Dorstyn 2012)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	20	19	-	MD 2.96 higher (0.38 to 5.54 higher)	VERY LOW	IMPORTANT
Changes in mood – stress: Depression Anxiety and Stress Scale-21 (DASS- 21; range 0-42; better indicated by lower values) - at 3 months from baseline (after intervention completion)												
1 (Dorstyn 2012)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	20	19	-	MD 1.84 higher (3.22 lower to 6.9 higher)	VERY LOW	IMPORTANT
Changes in mood – stress: Depression Anxiety and Stress Scale-21 (DASS- 21; range 0-42; better indicated by lower values) - at 6 months from baseline												

1 (Dorstyn 2012)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	very serious[4]	none	20	19	-	MD 0.41 higher (4.97 lower to 5.79 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Population is indirect: mix of traumatic (N=22) and non-traumatic (N=17) patients
3 95% CI crosses 1 MID (for DASS-21: Depression +/- 3.07; DASS-21: Anxiety +/- 1.77); DASS-21: Stress +/- 4.10)
4 95% CI crosses 2 MID: (for SCL CSQ: Fighting spirit +/- 0.14; SCL CSQ Acceptance +/- 0.20; SCL CSQ Social reliance +/- 0.24; DASS-21: Stress +/- 4.10)

Table 18: Clinical evidence profile for self-effectiveness and coping interventions: educationally based group therapeutic programme versus waitlist control

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Group therapeutic programme**	**Waitlist control**	**Relative (95% CI)**	**Absolute**		
Changes in mood: Patient Health Questionnaire 9-Item (PHQ-9; range 0-27; better indicated by lower values) - at 6 weeks from baseline (after intervention completion)												
1 (Coker 2019)	randomised trials	serious [1]	no serious inconsistency	serious[2]	serious[3]	none	41	40	-	MD 0.36 higher (1.96 lower to 2.68 higher)	VERY LOW	IMPORTANT
Changes in mood: Patient Health Questionnaire 9-Item (PHQ-9; range 0-27; better indicated by lower values) - at 24 weeks after intervention completion (Better indicated by lower values)												
1 (Coker 2019)	randomised trials	serious [1]	no serious inconsistency	serious[2]	serious[3]	none	41	40	-	MD 0.6 higher (1.80 lower to 3.00	VERY LOW	IMPORTANT

										higher)		

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Population is indirect: mix of traumatic and non-traumatic patients (exact numbers were not reported)
3 95% CI crosses 1 MID: (for PHQ-9 +/-2.53)

Table 19: Clinical evidence profile for self-effectiveness and coping interventions: coping effectiveness training (CET) versus supportive group therapy (SGT)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	CET	SGT	Relative (95% CI)	Absolute		
Changes in mood - depression: Center for Epidemiologic Studies–Depression Scale (CES-D; range 0-60; better indicated by lower values) - at 3 months from baseline (after intervention completion)												
1 (Duchnick 2009)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	serious[2]	none	16	17	-	MD 1.7 lower (6.57 lower to 3.17 higher)	VERY LOW	IMPORTANT
Changes in mood - depression: Center for Epidemiologic Studies–Depression Scale (CES-D; range 0-60; better indicated by lower values) - at 3 months after intervention completion												
1 (Duchnick 2009)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	very serious[3]	none	16	17	-	MD 2.8 lower (11.31 lower to 5.71 higher)	VERY LOW	IMPORTANT
Changes in mood - anxiety: State-Trait Anxiety Inventory, State Form (SAI; scale not reported; better indicated by lower values) - at 3 months from baseline (after intervention completion)												
1	randomise	very	no serious	no serious	serious[2]	none	16	17	-	MD 2.1	VERY LOW	IMPORTANT

(Duchnick 2009)	d trials	serious [1]	inconsistency	indirectness						lower (10.6 lower to 6.4 higher)		
Changes in mood - anxiety: State-Trait Anxiety Inventory, State Form (SAI; scale not reported; better indicated by lower values) - at 3 months after intervention completion												
1 (Duchnick 2009)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	serious[2]	none	16	17	-	MD 5.4 lower (16.43 lower to 5.63 higher)	VERY LOW	IMPORTANT

CET: Coping effectiveness training; CI: Confidence interval; MD: Mean difference; SGT: Supportive group therapy
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (for CES-D +/- 5.35; SAI +/- 7.50)
3 95% CI crosses 2 MIDs (for CES-D +/-5.35)

Table 20: Clinical evidence profile for self-effectiveness and coping interventions: implementation intention intervention versus no treatment

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Implementation intention intervention	No treatment	Relative (95% CI)	Absolute		
Patient acceptability: Intentions (range 2-14; better indicated by higher values) [4] [at 8 weeks from baseline (after intervention completion)]												
1 (Latimer 2006)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	19	18	-	MD 0.97 higher (0.23 lower to 2.17 higher)	VERY LOW	CRITICAL
Patient acceptability: Perceived behavioural control (PBC; scale not reported; better indicated by higher values) [5] [at 8 weeks from baseline (after intervention completion)]												

1 (Latimer 2006)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	19	18	-	MD 2.17 higher (1.02 lower to 5.36 higher)	VERY LOW	CRITICAL
Patient acceptability: Scheduling self-efficacy (scale not reported; better indicated by higher values)[6] [at 8 weeks from baseline (after intervention completion)]												
1 (Latimer 2006)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	19	18	-	MD 3.07 higher (0.47 lower to 6.61 higher)	VERY LOW	CRITICAL
Patient acceptability: Barrier self-efficacy (scale not reported; better indicated by higher values)[7] [at 8 weeks from baseline (after intervention completion)]												
1 (Latimer 2006)	randomised trials	very serious [1]	no serious inconsistency	serious[2]	serious[3]	none	19	18	-	MD 11.63 higher (0.61 to 22.65 higher)	VERY LOW	CRITICAL

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 Population is indirect: mix of traumatic and non-traumatic patients (exact numbers were not reported)
3 95% CI crosses 1 MID (for Intentions +/- 0.65; PBC +/- 2.75; Scheduling self-efficacy +/- 1.95; Barrier self-efficacy +/- 9.48)
4 Intentions were measured using two items: (a) "I will try to do at least 30 min of moderate to heavy physical activity 3 days per week over the next 4 weeks" (1 = definitely false to 7 = definitely true) and (b) "I intend to do at least 30 min of moderate to heavy physical activity 3 days per week in the forthcoming month" (1 = extremely unlikely to 7 = extremely likely)
5 PBC was measured with six items adapted from Armitage and Conner: Three items assessed beliefs about the extent to which being physically active is personally controllable and three items assessed perceived ease or difficulty of engaging in physical activity
6 Scheduling self-efficacy was measured with three items assessing participants' confidence that they could engage in a 30-min bout of moderate to heavy intensity physical activity one, two, and three times per week over the next 3 weeks
7 Barrier self-efficacy was measured with nine items assessing participants' confidence that they could overcome salient barriers to physical activity

Table 21: Clinical evidence profile for Baclofen plus standard care versus standard care alone

Quality assessment	No of patients	Effect	Quality	Importance

No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Baclofen	Standard care	Relative (95% CI)	Absolute		
Changes in activity of daily living: Barthel Index Functional Outcomes Score (range 0-100; better indicated by higher values) [at 6 weeks follow-up from baseline]												
1 (Yan 2018)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	112	112	-	MD 4.01 higher (1.3 to 6.72 higher)	LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB2
2 95% CI crosses 1 MID (for Barthel Index +/- 1.555)

Table 22: Clinical evidence profile for Botulinum toxin type A plus standard care versus standard care alone

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Botulinum toxin type A	Standard care	Relative (95% CI)	Absolute		
Changes in activity of daily living: Barthel Index Functional Outcomes Score (range 0-100; better indicated by higher values) [at 6 weeks follow-up from baseline]												
1 (Yan	randomised	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	112	112	-	MD 3.6 higher	LOW	IMPORTANT

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Botulinum toxin type A	Standard care	Relative (95% CI)	Absolute		
2018)	trials									(1.02 to 6.18 higher)		

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB2
2 95% CI crosses 1 MID (for Barthel Index +/- 1.555)

Table 23: Clinical evidence profile for body weight supported gait training (BWSGT) on a fixed track versus standard care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	BWSGT on a fixed track	Standard care	Relative (95% CI)	Absolute		
Overall quality of life: SF-36 General health perception score[1] (scale not reported; better indicated by lower values) - at week 13 from baseline (after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[3]	none	14	12	-	MD 0.3 lower (0.88 lower to	VERY LOW	CRITICAL

									0.28 higher)		
Overall quality of life: SF-36 General health perception score[1] (scale not reported; better indicated by lower values) - at week 17 from baseline (4 weeks after intervention completion)											
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[3]	none	14	12	-	MD 0.3 lower (0.96 lower to 0.36 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Energy score[1] (scale not reported; better indicated by lower values) - at week 13 from baseline (after intervention completion)											
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[3]	none	14	12	-	MD 1 lower (3.27 lower to 1.27 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Energy score[1] (scale not reported; better indicated by lower values) - at week 17 from baseline (4 weeks after intervention completion) (Better indicated by lower values)											
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[3]	none	14	12	-	MD 3.3 higher (1.22 to 5.38 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Mental health perception Score[1] (scale not reported; better indicated by higher values) - at week 13 from baseline (after intervention completion)											
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[3]	none	14	12	-	MD 0.5 higher (0.85 lower to 1.85 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Mental health perception Score[1] (scale not reported; better indicated by higher values) - at week 17 from baseline (4 weeks after intervention completion)											
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[3]	none	14	12	-	MD 0.4 higher (1.02 lower to 1.82 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Fatigue score[1] (scale not reported; better indicated by higher values) - at week 13 from baseline (after intervention completion) (Better indicated by higher values)											

1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[4]	none	14	12	-	MD 0 higher (2.06 lower to 2.06 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Fatigue score[1] (scale not reported; better indicated by higher values) - at week 17 from baseline (4 weeks after intervention completion) (Better indicated by higher values)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[4]	none	14	12	-	MD 0.4 lower (3.21 lower to 2.41 higher)	VERY LOW	CRITICAL
Patient acceptability: Satisfaction with Abilities and Well-Being Scale (SAWS; scale not reported; better indicated by lower values) - at week 13 from baseline (after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[3]	none	14	12	-	MD 3.4 higher (2.59 lower to 9.39 higher)	VERY LOW	CRITICAL
Patient acceptability: Satisfaction with Abilities and Well-Being Scale (SAWS; scale not reported; better indicated by lower values) - at week 17 from baseline (4 weeks after intervention completion) (Better indicated by lower values)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[4]	none	14	12	-	MD 1 higher (3.57 lower to 5.57 higher)	VERY LOW	CRITICAL

CI: Confidence interval; MD: Mean difference; SF-36: the Short Form (36) Health Survey
1 Study authors report using measurements derived from corresponding SF-36 domains, but not all questions.
2 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
3 Confidence intervals crosses 1 MID (for SF-36 General health perception score +/- 0.40; SF-36 Energy score +/- 2.15; SAWS +/- 4.45; SF-36 Mental health perception Score +/- 1.00)
4 Confidence intervals crosses 2 MIDs (for SF-36 Mental health perception Score +/- 1.00; SF-36 Fatigue score +/- 1.35)

Table 24: Clinical evidence profile for body weight supported gait training (BWSGT) on a treadmill versus standard care

Quality assessment	No of patients	Effect	Quality	Importance

No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	BWSGT on a treadmill	Standard care	Relative (95% CI)	Absolute		
Overall quality of life: SF-36 General health perception score[1] (scale not reported; better indicated by lower values) - at week 13 from baseline (after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[3]	none	9	12	-	MD 0.2 lower (1.05 lower to 0.65 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 General health perception score[1] (scale not reported; better indicated by lower values) - at week 17 from baseline (4 weeks after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	9	12	-	MD 0.7 lower (1.64 lower to 0.24 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Energy score[1] (scale not reported; better indicated by lower values) - at week 13 from baseline (after intervention completion)												
11 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	9	12	-	MD 0.9 lower (3.56 lower to 1.76 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Energy score[1] (scale not reported; better indicated by lower values) - at week 17 from baseline (4 weeks after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	9	12	-	MD 1.6 lower (4.91 lower to 1.71 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Mental health perception Score[1] (scale not reported; better indicated by higher values) - at week 13 from baseline (after intervention completion)												

1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	9	12	-	MD 1.2 higher (0.23 lower to 2.63 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Mental health perception Score[1] (scale not reported; better indicated by higher values) - at week 17 from baseline (4 weeks after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[3]	none	9	12	-	MD 0.3 lower (1.87 lower to 1.27 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Fatigue score[1] (scale not reported; better indicated by higher values) - at week 13 from baseline (after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[3]	none	9	12	-	MD 0.2 lower (2.82 lower to 2.42 higher)	VERY LOW	CRITICAL
Overall quality of life: SF-36 Fatigue score[1] (scale not reported; better indicated by higher values) - at week 17 from baseline (4 weeks after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[3]	none	9	12	-	MD 1.4 higher (1.69 lower to 4.49 higher)	VERY LOW	CRITICAL
Patient acceptability: Satisfaction with Abilities and Well-Being Scale (SAWS; scale not reported; better indicated by lower values) - at week 13 from baseline (after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	serious[4]	none	9	12	-	MD 6.2 higher (1.03 lower to 13.43 higher)	VERY LOW	CRITICAL
Patient acceptability: Satisfaction with Abilities and Well-Being Scale (SAWS; scale not reported; better indicated by lower values) - at week 17 from baseline (4 weeks after intervention completion)												
1 (Alexeeva 2011)	randomised trials	very serious[2]	no serious inconsistency	no serious indirectness	very serious[4]	none	9	12	-	MD 0.2 lower (6.17 lower to	VERY LOW	CRITICAL

										5.77 higher)		

CI: Confidence interval; MD: Mean difference; SF-36: Short Form Health Survey – 36 item
1 Study authors report using measurements derived from corresponding SF-36 domains, but not all questions.
2 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
3 Confidence intervals crosses 2 MIDs (for SF-36 General health perception score +/- 0.40; SF-36 Fatigue score +/- 1.35; SF-36 Mental health perception Score +/- 1.00; SAWS +/- 4.45)
4 Confidence intervals crosses 1 MID (for SF-36 General health perception score +/- 0.40; SF-36 Energy score +/- 2.15; SF-36 Mental health perception Score +/- 1.00; SAWS +/- 4.45)

Table 25: Clinical evidence profile for body weight supported gait training (BWSGT) on a treadmill plus functional electrical stimulation (FES) versus standard care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	BWSGT on a treadmill plus FES	Standard care	Relative (95% CI)	Absolute		
Patient acceptability: Satisfaction with Life Scale (SWLS; range 5-35; better indicated by higher values) - at 4 months follow-up												
1 (Hitzig 2013)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	16	11	-	MD 0.87 higher (5.31 lower to 7.05 higher)	VERY LOW	CRITICAL
Patient acceptability: Satisfaction with Life Scale (SWLS; range 5-35; better indicated by higher values) - at 6 months follow-up												
1 (Hitzig 2013)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	16	11	-	MD 0.18 higher (5.98 lower to 6.34 higher)	VERY LOW	CRITICAL
Patient acceptability: Satisfaction with Life Scale (SWLS; range 5-35; better indicated by higher values) - at 12 months follow-up												
1 (Hitzig	randomis	very	no serious	no serious	very serious[2]	none	16	11	-	MD 0.18	VERY	CRITICAL

2013)	ed trials	serious[1]	inconsistency	indirectness						higher (5.98 lower to 6.34 higher)	LOW	
Changes in activity of daily living: Lawton Instrument Activities of Daily Living Scale (IADL; range 0-8; better indicated by higher values) - at 4 months follow-up												
1 (Hitzig 2013)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	16	11	-	MD 1.41 lower (3.91 lower to 1.09 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Lawton Instrument Activities of Daily Living Scale (IADL; range 0-8; better indicated by higher values) - at 6 months follow-up												
1 (Hitzig 2013)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	16	11	-	MD 1.11 lower (3.94 lower to 1.72 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Lawton Instrument Activities of Daily Living Scale (IADL; range 0-8; better indicated by higher values) - at 12 months follow-up												
1 (Hitzig 2013)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	16	11	-	MD 1.11 lower (3.94 lower to 1.72 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) [at 12 months follow-up]												
1 (Hitzig 2013)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	16	11	-	MD 3.97 higher (0.96 lower to 8.9 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2.
2 Confidence intervals crosses 2 MIDs (for SWLS +/- 4.03)
3 Confidence intervals crosses 1 MID (for IADL +/- 1.93; SCIM +/- 3.54)

Table 26: Clinical evidence profile for functional electrical stimulation (FES) plus functional training versus standard care

Quality assessment						No of patients		Effect	Quality	Importance

No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**FES plus functional training**	**Standard care**	**Relative (95% CI)**	**Absolute**		
Overall quality of life: Assessment of Quality of Life-8 (AQoL-8; scale not reported; better indicated by higher values) - at 11 months follow-up from baseline (after intervention completion)												
1 (Harvey 2016)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	31	-	MD 0.07 higher (0.04 lower to 0.18 higher)	LOW	CRITICAL
Overall quality of life: Assessment of Quality of Life-8 (AQoL-8; scale not reported; better indicated by higher values) - at 26 months follow-up from baseline												
1 (Harvey 2016)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	30	26	-	MD 0.04 higher (0.08 lower to 0.16 higher)	LOW	CRITICAL
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) - at 11 months follow-up from baseline (after intervention completion)												
1 (Harvey 2016)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	31	-	MD 1.8 higher (1.01 lower to 4.61 higher)	LOW	IMPORTANT

Changes in activity of daily living: Spinal Cord Independence Measure (SCIM; range 0-100; better indicated by higher values) - at 26 months follow-up from baseline												
1 (Harvey 2016)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[3]	none	31	26	-	MD 1.4 higher (2.18 lower to 4.98 higher)	VERY LOW	IMPORTANT

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2.
2 Confidence intervals crosses 1 MID (for AQoL-8 +/- 0.10; SCIM +/- 1.70)
3 Confidence intervals crosses 2 MIDs (for SCIM +/- 1.70)

Table 27: Clinical evidence profile for functional electrical stimulation (FES) in bike versus passive cycling

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**FES-assisted cycling**	**Passive cycling**	**Relative (95% CI)**	**Absolute**		
Overall quality of life: Assessment of Quality of Life 8 (AQoL; scale not reported; better indicated by higher values) [at 12 weeks from baseline (1 week after intervention completion)]												
1 (Galea 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	10	11	Median (IQR): 0.43 (0.25 to 0.54)[2]	Median (IQR): 0.26 (0.11 to 0.5)[2]	LOW	CRITICAL
Overall quality of life: World Health Organisation Quality of Life—Australian Version 2000 (WHOQOL; scale not reported; better indicated by higher values) [at 12 weeks from baseline (1 week after intervention completion)] - Domain 1: Physical health												
1	randomise	no	no serious	no serious	very serious[1]	none	10	11	Median	Median	LOW	CRITICAL

(Galea 2017)	d trials	serious risk of bias	inconsistency	indirectness					(IQR): 66 (44 to 69)[3]	(IQR): 63 (44 to 69)[3]		
Overall quality of life: World Health Organisation Quality of Life—Australian Version 2000 (WHOQOL; scale not reported; better indicated by higher values) [at 12 weeks from baseline (1 week after intervention completion)] - Domain 2: Psychological												
1 (Galea 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	10	11	Median (IQR): 59.5 (50 to 75)[4]	Median (IQR): 69 (56 to 69)[4]	LOW	CRITICAL
Overall quality of life: World Health Organisation Quality of Life—Australian Version 2000 (WHOQOL; scale not reported; better indicated by higher values) [at 12 weeks from baseline (1 week after intervention completion)] - Domain 3: Social relationships												
1 (Galea 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	10	11	Median (IQR): 69 (50 to 69)[5]	Median (IQR): 56 (50 to 75)[5]	LOW	CRITICAL
Overall quality of life: World Health Organisation Quality of Life—Australian Version 2000 (WHOQOL; scale not reported; better indicated by higher values) [at 12 weeks from baseline (1 week after intervention completion)] - Domain 3: Environment												
1 (Galea 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	10	11	Median (IQR): 63 (63 to 75)[6]	Median (IQR): 69 (50 to 75)[6]	LOW	CRITICAL
Changes in mood – anxiety: Hospital Anxiety and Depression Scale (HADS) anxiety subscale (range 0-21; better indicated by lower values) [at 12 weeks from baseline (1 week after intervention completion)]												
1 (Galea 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	10	11	Median (IQR): 9 (8 to 9)[7]	Median (IQR): 11 (10 to 13.5)[7]	LOW	IMPORTANT
Changes in mood – depression: Hospital Anxiety and Depression Scale (HADS) depression subscale (range 0-21; better indicated by lower values) [at 12 weeks from baseline (1 week after intervention completion)] (Better indicated by lower values)												
1 (Galea 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	10	11	Median (IQR): 10 (10 to 11)[8]	Median (IQR): 10 (9 to 12)[8]	LOW	IMPORTANT

IQR: interquartile range

1 Imprecision could not be assessed using MIDs due to no reporting of SD and no published MIDs so was instead assessed using the sample size: The result was not downgraded if n≥400, if n=399-200, the result was downgraded 1 level, and if n<200 the result was downgraded by 2 levels. Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 0.11 higher (95% CI 0.10 lower to 0.33 higher)]
3 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 0.4 lower (95% CI 15.1 lower to 14.2 higher)]
4 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 2.1 higher (95% CI 12.9 lower to 17.1 higher)]
5 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 3.9 higher (95% CI 9.0 to lower 16.7 higher)]
6 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 2.6 lower (95% CI 14.9 lower to 9.7 higher)]
7 According to the statistical analyses performed by the author, the median difference was not statistically significant [Median difference: 1.1 lower (95% CI 3.5 lower to 0.2 higher)]
8 According to the statistical analyses performed by the author in the paper, the median difference was not statistically significant [Median difference: 0.09 lower (95% CI 1.7 lower to 1.5 higher)]

Table 28: Clinical evidence profile for paraplegic gait orthosis plus functional training versus standard care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Paraplegic gait orthosis plus functional training	Standard care	Relative (95% CI)	Absolute		
Changes in activity of daily living: modified Barthel Index (mBI; range 0-100; better indicated by higher values) [at 3 months follow-up after intervention completion]												
1 (Shuai 2016)	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	18	18	-	MD 33.94 higher (14.08 to	MODERATE	IMPORTANT

										53.8 higher)		

CI: Confidence interval; MD: Mean difference
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2.

Table 29: Clinical evidence profile for robotic-assisted gait training versus conventional over-ground training

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Robotic-assisted gait training versus conventional over-ground training**	**Conventional over-ground training**	**Robotic-assisted gait training versus conventional over-ground training**	**Conventional over-ground training**		
Changes in activity of daily living: Spinal Cord Independence Measure III (SCIM3; range 0-100; better indicated by higher values) [after intervention completion (at 8 weeks from baseline)]												
1 (Shin 2014)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	27	26	Median (IQR): 10 (0 to 26)	Median (IQR): 9 (0 to 33)	VERY LOW	IMPORTANT

IQR: interquartile range
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2.
2 Imprecision could not be assessed using MIDs due to no reporting of SD and no published MIDs so was instead assessed using the sample size: The result was not downgraded if n≥400, if n=399-200, the result was downgraded 1 level, and if n<200 the result was downgraded by 2 levels. Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
3 According to the statistical analyses performed by the authorr, the median difference was statistically not significant [p value= 0.13]

Table 30: Clinical evidence profile for enhanced versus reduced robotic-assisted gait training

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Enhanced robotic-assisted gait training	Reduced robotic-assisted gait training	Enhanced robotic-assisted gait training	Reduced robotic-assisted gait training		
Changes in activity of daily living: Spinal Cord Independence Measure III (SCIM3) [after intervention completion (at 8 weeks from baseline)] (Better indicated by higher values)												
1 (Wirz 2017)	randomised trials	very serious [1]	no serious inconsistency	no serious indirectness	very serious[2]	none	9	9	Median (IQR): 20 (9 to 38)[3]	Median (IQR): 10 (2 to 39) [3]	VERY LOW	IMPORTANT

1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2.
2 Imprecision could not be assessed using MIDs due to no reporting of SD and no published MIDs so was instead assessed using the sample size: The result was not downgraded if n≥400, if n=399-200, the result was downgraded 1 level, and if n<200 the result was downgraded by 2 levels. Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
3 Authors reported that the outcome significantly improved in both groups from week 0 to week 8, but reported no between-group analyses.

Table 31: Clinical evidence profile for robot-assisted gait training (RAGT) plus standard rehabilitation versus standard rehabilitation alone

Quality assessment	No of patients	Effect	Quality	Importance

No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	RAGT + standard rehabilitation	Standard rehabilitation	Relative (95% CI)	Absolute		
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM3) - At 5 weeks from baseline (after intervention completion) (Better indicated by higher values)												
1 (Midik 2020)	randomised trials	very serious1	no serious inconsistency	no serious indirectness	serious[2]	none	15	15	-	MD 2.9 higher (7.27 lower to 13.07 higher)	VERY LOW	IMPORTANT
Changes in activity of daily living: Spinal Cord Independence Measure (SCIM3) - At 3 months follow-up (unclear if from baseline or from intervention completion) (Better indicated by higher values)												
1 (Midik 2020)	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	15	15	-	MD 8.8 higher (2.42 to 15.18 higher)	VERY LOW	IMPORTANT

1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (for SCIM3 +/-11.62)

GRADE tables for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No evidence was identified which was applicable to this review question.

Appendix G – Economic evidence study selection

Economic evidence study selection for:

C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

C.3b For children and young people with complex rehabilitation needs after traumtic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

A combined search was conducted for both review questions.

Figure 3: Study selection flow chart: Adults

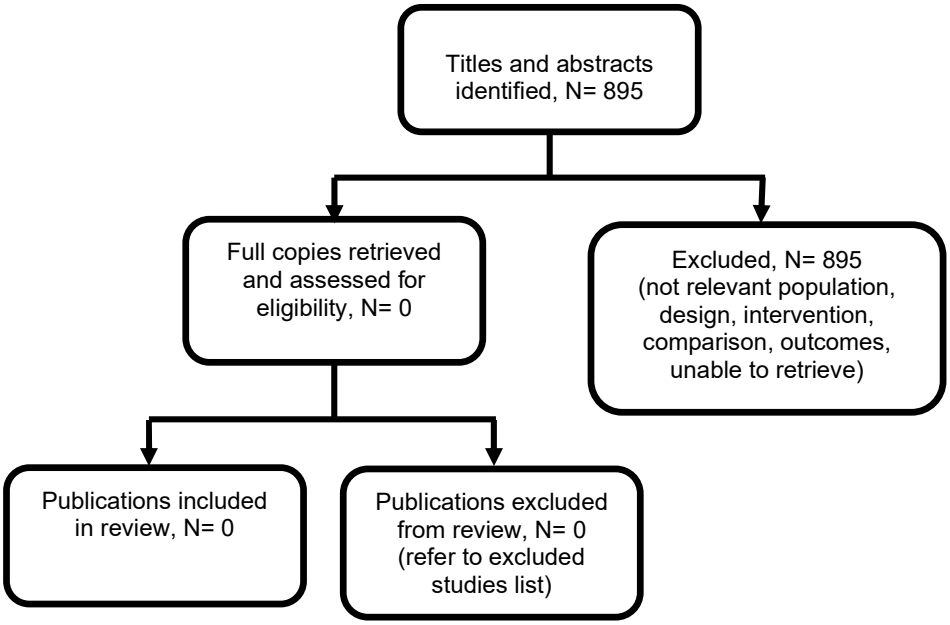
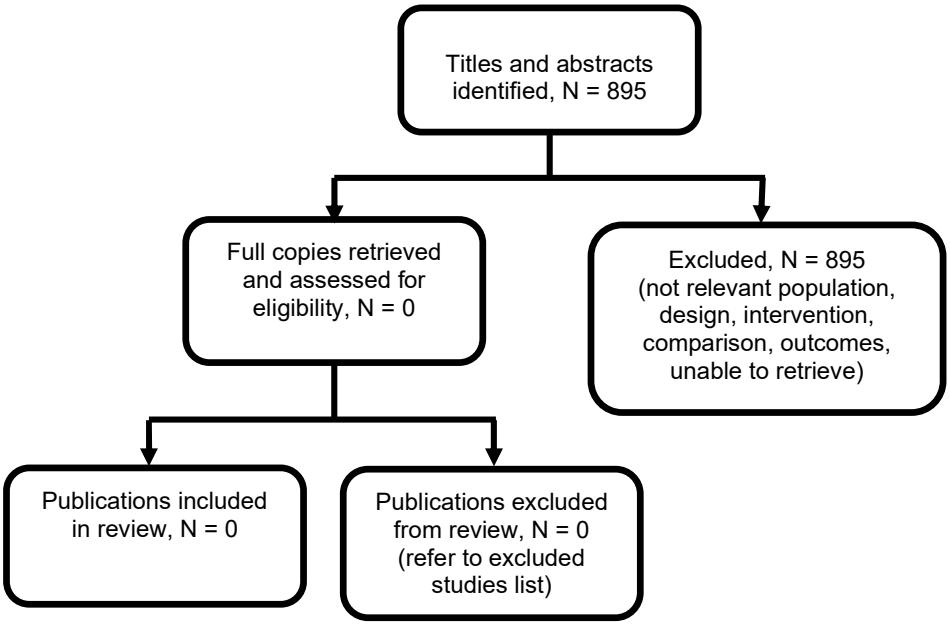


Figure 4: Study selection flow chart: Children and young people


Titles and abstracts identified, N = 895
Full copies retrieved and assessed for eligibility, N = 0
Excluded, N = 895 (not relevant population, design, intervention, comparison, outcomes, unable to retrieve)
Publications included in review, N = 0
Publications excluded from review, N = 0 (refer to excluded studies list)

Appendix H – Economic evidence tables

Economic evidence tables for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No economic studies were identified which were applicable to this review question.

Economic evidence tables for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No economic studies were identified which were applicable to this review question.

Appendix I – Economic evidence profiles

Economic evidence profiles for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No economic studies were identified which were applicable to this review question.

Economic evidence profiles for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No economic studies were identified which were applicable to this review question.

Appendix J – Economic analysis

Economic evidence analysis for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No economic analysis was undertaken for this review question.

Economic evidence analysis for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

No economic analysis was undertaken for this review question.

Appendix K – Excluded studies

Excluded clinical and economic studies for review question: C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Clinical studies

Table 32: Excluded studies and reasons for their exclusion

Study	Reason for Exclusion
Abrams, P., Amarenco, G., Bakke, A., Buczynski, A., Castro-Diaz, D., Harrison, S., Kramer, G., Marsik, R., Prajsner, A., Stohrer, M., Van Kerrebroeck, P., Wyndaele, J. J., Tamsulosin: Efficacy and safety in patients with neurogenic lower urinary tract dysfunction due to suprasacral spinal cord injury, Journal of Urology, 170, 1242-1251, 2003	Outcome not in PICO: Maximum urethral pressure
Actrn,, A randomised controlled trial of a specialised multidisciplinary consultation team to improve the outcomes of patients with recent onset spinal cord injury in acute hospital, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12610000164099, 2010	Clinical trial protocol for which there were no published data
Actrn,, Abdominal Functional Electrical Stimulation to reduce respiratory complications in spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12618000214235, 2018	Clinical trial protocol for which there were no published data
Actrn,, Does standing improve bowel function in people with spinal cord injury? A randomised controlled trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12612000003875, 2012	Clinical trial protocol for which there were no published data
Actrn,, Does the type of enema administration affect time to complete bowel care in people with recent Spinal Cord Injury?, Http://wwwanzctrorgau/actrn12618000221257aspx, 2018	Clinical trial protocol for which there were no published data
Actrn,, Effects of Functional Electrical Stimulation-cycling Plus Progressive Resistance Training on Muscle Strength After Incomplete Spinal Cord Injury: a Randomized Controlled Trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12616000670471, 2016	Clinical trial protocol for which there were no published data
Actrn,, Progressive resistance training to increase the strength of partially-paralysed muscles in people with recent spinal cord injury: a within-participant randomised controlled trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12614000914662, 2014	Clinical trial protocol for which there were no published data
Actrn,, The effectiveness of functional electrical stimulation cycling on urine output, lower limb swelling and spasticity in recent spinal cord injury: a randomised control trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12611000923965, 2011	Clinical trial protocol for which there were no published data
Actrn,, The effectiveness of Telehealth for the treatment of chronic shoulder pain in wheelchair users with spinal cord injury: a randomised controlled trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12618001172291, 2018	Clinical trial protocol for which there were no published data
Adegoke, B. O., Badmos, K. A., Acceleration of pressure ulcer healing in spinal cord injured patients using interrupted direct current, African	Intervention not in PICO: Routine nursing care

Study	Reason for Exclusion
journal of medicine and medical sciences, 30, 195-7, 2001	plus interrupted direct current stimulations versus routine nursing care plus placebo interrupted direct current
Aguirre-Guemez, A. V., Perez-Sanpablo, A. I., Quinzanos-Fresnedo, J., Perez-Zavala, R., Barrera-Ortiz, A., Walking speed is not the best outcome to evaluate the effect of robotic assisted gait training in people with motor incomplete Spinal Cord Injury: A Systematic Review with meta-analysis, Journal of Spinal Cord Medicine, 42, 142-154, 2019	Systematic review: Included studies checked for relevance.
Aguirre-Guemez, Ana Valeria, Perez-Sanpablo, Aberto Isaac, Quinzanos-Fresnedo, Jimena, Perez-Zavala, Ramiro, Barrera-Ortiz, Aida, Walking speed is not the best outcome to evaluate the effect of robotic assisted gait training in people with motor incomplete Spinal Cord Injury: A Systematic Review with meta-analysis, The journal of spinal cord medicine, 42, 142-154, 2019	Systematic review: Included studies checked for relevance.
Akkurt, H., Kirazli, Y., Karapolat, H., Kose, T., The effects of aerobic exercise on cardiopulmonary functions, quality of life, psychological state, disability and metabolic syndrome parameters in patients with spinal cord injury, Turkiye Fiziksel Tip ve Rehabilitasyon Dergisi, 59, 409, 2013	Conference abstract
Akpinar, P., Atici, A., Ozkan, F. U., Aktas, I., Kulcu, D. G., Sari, A., Durmus, B., Reliability of the Modified Ashworth Scale and Modified Tardieu Scale in patients with spinal cord injuries, Spinal Cord, 55, 944-949, 2017	Study design not in PICO: Psychometrics study to assess measurement reliability
Alcobendas-Maestro, M., Esclarín-Ruz, A., Casado-López, R. M., Muñoz-González, A., Pérez-Mateos, G., González-Valdizán, E., Martín, J. L., Lokomat robotic-assisted versus overground training within 3 to 6 months of incomplete spinal cord lesion: randomized controlled trial, Neurorehabilitation and Neural Repair, 26, 1058-1063, 2012	Outcomes not in PICO: Walking speed, Walking Index for Spinal Cord Injury, 6-minute walk test, Functional Independence Measure for walking, Lower Extremity Motor Score, Ashworth Scale, and Visual Analog Scale
Alsawadi, Abdulrahman, The clinical effectiveness of permissive hypotension in blunt abdominal trauma with hemorrhagic shock but without head or spine injuries or burns: a systematic review, Open access emergency medicine : OAEM, 4, 21-9, 2012	Systematic review: Included studies checked for relevance.
Amorim, Samuel, Teixeira, Vitor Hugo, Corredeira, Rui, Cunha, Maria, Maia, Bruno, Margalho, Paulo, Pires, Joana, Creatine or vitamin D supplementation in individuals with a spinal cord injury undergoing resistance training: A double-blinded, randomized pilot trial, The journal of spinal cord medicine, 41, 471-478, 2018	Intervention not in PICO: Creatine versus vitamin D supplementation in individuals with a spinal cord injury undergoing resistance training
Ancha, H. R., Spungen, A. M., Bauman, W. A., Rosman, A. S., Shaw, S., Hunt, K. K., Post, J. B., Galea, M., Korsten, M. A., Clinical trial: the efficacy and safety of routine bowel cleansing agents for elective colonoscopy in persons with spinal cord injury - a randomized prospective single-blind study, Alimentary pharmacology & therapeutics, 30, 1110-7, 2009	Intervention not in PICO: Bowel cleansing agents for elective colonoscopy in persons with spinal cord injury
Andresen, S. R., Bing, J., Hansen, R. M., Biering-Sørensen, F., Johannesen, I. L., Hagen, E. M., Rice, A. S., Nielsen, J. F., Bach, F. W., Finnerup, N. B., Ultramicronized palmitoylethanolamide in spinal cord injury neuropathic pain: a randomized, double-blind, placebo-controlled trial, Pain, 157, 2097-2103, 2016	Intervention not in PICO: Ultramicronized palmitoylethanolamide in spinal cord injury neuropathic pain
Aravind, Nisha, Harvey, Lisa A., Glinsky, Joanne V., Physiotherapy	Systematic review:

Study	Reason for Exclusion
interventions for increasing muscle strength in people with spinal cord injuries: a systematic review, Spinal Cord, 2019	Included studies checked for relevance.
Arazpour, M., Samadian, M., Ebrahimzadeh, K., Ahmadi Bani, M., Hutchins, S. W., The influence of orthosis options on walking parameters in spinal cord-injured patients: a literature review, Spinal Cord, 54, 412-22, 2016	Systematic review: Included studies checked for relevance.
Arija-Blazquez, Alfredo, Ceruelo-Abajo, Silvia, Diaz-Merino, Maria S., Godino-Duran, Juan Antonio, Martinez-Dhier, Luis, Martin, Jose L. R., Florensa-Vila, Jose, Effects of electromyostimulation on muscle and bone in men with acute traumatic spinal cord injury: A randomized clinical trial, The journal of spinal cord medicine, 37, 299-309, 2014	Outcomes not in PICO: Bone biomarkers, lipid, and lipoprotein profiles
Aydin, G., Tomruk, S., KeleÅŸ, I., Demir, S. O., Orkun, S., Transcutaneous electrical nerve stimulation versus baclofen in spasticity: clinical and electrophysiologic comparison, American journal of physical medicine & rehabilitation, 84, 584-592, 2005	Outcomes not in PICO: Outcomes were spasticity, electrophysiologic evaluations and functional evaluations.
Baastrup, C., Finnerup, N. B., Pharmacological management of neuropathic pain following spinal cord injury, CNS Drugs, 22, 455-475, 2008	Intervention not in PICO: Overview of literature on pharmacological management strategies of neuropathic pain following spinal cord injury
Bakkum, A. J. T., De Groot, S., Stolwijk-Swuste, J. M., Van Kuppevelt, D. J., Van Der Woude, L. H. V., Janssen, T. W. J., Effects of hybrid cycling versus handcycling on wheelchair-specific fitness and physical activity in people with long-term spinal cord injury: A 16-week randomized controlled trial, Spinal Cord, 53, 395-401, 2015	Outcomes not in PICO: Outcome measures were fitness parameters and physical activity.
Bakkum, A. J., de Groot, S., van der Woude, L. H., Janssen, T. W., The effects of hybrid cycle training in inactive people with long-term spinal cord injury: design of a multicenter randomized controlled trial, Disability and Rehabilitation, 35, 1127-1132, 2013	Study protocol
Baldi, J. C., Jackson, R. D., Moraille, R., Mysiw, W. J., Muscle atrophy is prevented in patients with acute spinal cord injury using functional electrical stimulation, Spinal Cord, 36, 463-9, 1998	Outcomes not in PICO: Total body lean body mass, lower limb lean body mass, and gluteal lean body mass
Barak, N., Gecse, K. B., Takács, I., Topical Oxymetazoline for Fecal Incontinence in Patients with Spinal Cord Injury: a Double-Blind Randomized Controlled Crossover Study, Diseases of the Colon and Rectum, 62, 234-240, 2019	Study design not in PICO: Cross-over RCT
Barker, R. N., Amsters, D. I., Kendall, M. D., Pershouse, K. J., Haines, T. P., Reliability of the Clinical Outcome Variables Scale When Administered Via Telephone to Assess Mobility in People With Spinal Cord Injury, Archives of Physical Medicine and Rehabilitation, 88, 632-637, 2007	Study design not in PICO: Non-RCT with <100 per arm
Beekhuizen, Kristina S., Field-Fote, Edelle C., Sensory stimulation augments the effects of massed practice training in persons with tetraplegia, Archives of Physical Medicine and Rehabilitation, 89, 602-8, 2008	Not relevant to PICO: This RCT was aimed to compare functional changes and cortical neuroplasticity associated with hand and upper extremity use after massed (repetitive task-oriented practice) training, somatosensory

Study	Reason for Exclusion
	stimulation, massed practice training combined with somatosensory stimulation, or no intervention, in persons with chronic incomplete tetraplegia
Bekhet, Amira Hassan, Bochkezanian, Vanesa, Saab, Ibtissam M., Gorgey, Ashraf S., The Effects of Electrical Stimulation Parameters in Managing Spasticity After Spinal Cord Injury: A Systematic Review, American journal of physical medicine & rehabilitation, 98, 484-499, 2019	Systematic review: Included studies checked for relevance.
Ben, Marsha, Harvey, Lisa, Denis, Sophie, Glinsky, Joanne, Goehl, Gerlinde, Chee, Shane, Herbert, Robert D., Does 12 weeks of regular standing prevent loss of ankle mobility and bone mineral density in people with recent spinal cord injuries?, The Australian journal of physiotherapy, 51, 251-6, 2005	Not relevant to PICO: RCT aimed to assess the effects of a 12-week standing program on ankle mobility and femur bone mineral density
Benard, A., Morliere, C., Verpillot, E., Donon, L., Salmi, L. R., Joseph, P. A., Vignes, J. R., A Cost-Utility Analysis of Sacral Anterior Root Stimulation (SARS) Compared to Medical Treatment in Complete Spinal Cord Injured Patients with a Neurological Bladder, Value in health : the journal of the International Society for Pharmacoeconomics and Outcomes Research, 17, A398, 2014	Conference abstract
Benard, A., Verpillot, E., Grandoulier, A. S., Perrouin-Verbe, B., Chene, G., Vignes, J. R., Comparative cost-effectiveness analysis of sacral anterior root stimulation for rehabilitation of bladder dysfunction in spinal cord injured patients, Neurosurgery, 73, 600-608, 2013	Study design not in PICO: Non-RCT with <100 per arm
Benoussaad, Mourad, Poignet, Philippe, Hayashibe, Mitsuhiro, Azevedo-Coste, Christine, Fattal, Charles, Guiraud, David, Experimental parameter identification of a multi-scale musculoskeletal model controlled by electrical stimulation: application to patients with spinal cord injury, Medical & biological engineering & computing, 51, 617-31, 2013	Clinical trial protocol for which there were no published data
Berlowitz, David J., Tamplin, Jeanette, Respiratory muscle training for cervical spinal cord injury, The Cochrane database of systematic reviews, CD008507, 2013	Not relevant to PICO: Cochrane review aimed to evaluate the efï¬ cacy of various types of respiratory muscle training versus standard care or sham treatments in people with cervical spinal cord injury
Betz, R., Boden, B., Triolo, R., Mesgarzadeh, M., Gardner, E., Fife, R., Effects of functional electrical stimulation on the joints of adolescents with spinal cord injury, Paraplegia, 34, 127-36, 1996	Date not in PICO: Before 1995
Bian, J., Zhang, W., Wang, Y., Cong, D., Song, B., Chinese medicine synthesis rehabilitation in treatment of neurogenic bladder urinary retention after incomplete spinal cord injury: a multicenter randomized controlled clinical trial, Journal of jilin university medicine edition, 45, 100-104, 2019	Chinese language article
Biering-Sorensen, F., Hansen, B., Lee, B. S. B., Non-pharmacological treatment and prevention of bone loss after spinal cord injury: A systematic review, Spinal Cord, 47, 508-518, 2009	Systematic review: Included studies checked for relevance.
Bombardier, C., Fann, J. R., Ehde, D., Reyes, M. R., Hoffman, J. M., Collaborative care for pain, depression and physical inactivity in an	Conference abstract

Study	Reason for Exclusion
outpatient SCI clinic: The sci-care study, Archives of Physical Medicine and Rehabilitation, 97, e78-e79, 2016	
Bombardier, C., Fann, J., Richards, J. S., Heinemann, A., Wilson, C., Marie Warren, A., Brooks, L., Tate, D., Venlafaxine XR for major depressive disorder after spinal cord injury: Rationale, results, and recommendations, Topics in Spinal Cord Injury Rehabilitation, Conference, 2013	Paper unavailable
Bonfill, X., Rigau, D., Esteban-Fuertes, M., Barrera-Chacon, J. M., Jauregui-Abrisqueta, M. L., Salvador, S., Aleman-Sanchez, C. M., Borau, A., Bea-Munoz, M., Hidalgo, B., Andrade, M. J., Espinosa, J. R., Martinez-Zapata, M. J., Canovas, E., Zazo, N., Gich, I., Bea, M., Garran, M., Herrero, M. P., Morcillo, M., Barbara, E., Jauregui, M. L., Cuadrado, M., Sanchez, N. C., Montoto, A., Ferreiro, M. E., Moraleda, S., Mendez, B., Zarco, M. J., Garcia, I., Esteban, M., Florencio, M., de Miguel, J. I., Lanzillotti, C. M., Navarro, J., Soares, D., Akkoc, Y., Senocak, O., Vasquez, N. N., Orrego, V., Courbis, M., Seguel, M., Efficacy and safety of urinary catheters with silver alloy coating in patients with spinal cord injury: a multicentric pragmatic randomized controlled trial. The ESCALE trial, Spine Journal, 17, 1650-1657, 2017	Outcomes not in PICO: Incidence of symptomatic urinary tract infections, bacteremia in the urinary tract and adverse events.
Bosveld, Rick, Field-Fote, Edelle C., Single-dose effects of whole body vibration on quadriceps strength in individuals with motor-incomplete spinal cord injury, The journal of spinal cord medicine, 38, 784-91, 2015	Outcomes not in PICO: Maximal voluntary isometric quadriceps force and functional lower extremity strength.
Boswell-Ruys, C. L., Harvey, L. A., Barker, J. J., Ben, M., Middleton, J. W., Lord, S. R., Training unsupported sitting in people with chronic spinal cord injuries: a randomized controlled trial, Spinal cord, 48, 138-43, 2010	Outcomes not in PICO: Canadian Occupational Performance Measure, and tests of Upper Body Sway, Maximal Balance Range and donning and doffing a T-shirt
Bragge, Peter, Guy, Stacey, Boulet, Mark, Ghafoori, Eraj, Goodwin, Denise, Wright, Breanna, A systematic review of the content and quality of clinical practice guidelines for management of the neurogenic bladder following spinal cord injury, Spinal Cord, 2019	Systematic review: Included studies checked for relevance.
Bravo, P., Labarta, C., Alcaraz, M. A., Mendoza, J., Verdu, A., An assessment of factors affecting neurological recovery after spinal cord injury with vertebral fracture, Paraplegia, 34, 164-6, 1996	Not relevant to PICO: Retrospective study comparing patients after spinal cord injury who had an improvement in their functional and neurological status with patients who had no improvement
Brody, M., Houlihan, B. V., Skeels, S. E., Zazula, J., Pernigotti, D., Mercier, H. W., Green, C., Belliveau, T., Rosenblum, D., Seetharama, S., Jette, A., Development of a peer-led phone intervention for goal-setting health care needs in spinal cord injury, Archives of Physical Medicine and Rehabilitation, 96, e19, 2015	Conference abstract
Burchiel, K. J., K. Hsu F.P, Pain and spasticity after spinal cord injury: Mechanisms and treatment, Spine, 26, S146-S161, 2001	Systematic review: Included studies checked for relevance.
Burke, D., Lennon, O., Blake, C., Nolan, M., Barry, S., Smith, E., Maye, F., Lynch, J., O'Connor, L., Maume, L., Cheyne, S., Ni Ghiollain, S., Fullen, B. M., An internet-delivered cognitive behavioural therapy pain management programme for spinal cord injury pain: A randomized controlled trial, European Journal of Pain (United Kingdom), 23, 1264-	Mixed population: Included traumatic (45/69) and non-traumatic (22/69) and unreported (2/69) causes

Study	Reason for Exclusion
1282, 2019	of injury. Results not reported separately for target population.
Burns, A. S., Rivas, D. A., Ditunno, J. F., The management of neurogenic bladder and sexual dysfunction after spinal cord injury, Spine, 26, S129-36, 2001	Systematic review: Included studies checked for relevance.
Burns, A., Wilson, J., Aarabi, B., Anderson, P., Brodke, D., Chiba, K., Dettori, J., Furlan, J., Harrop, J., Holly, L., Howley, S., Jeji, T., Kalsi-Ryan, S., Kotter, M., Kurpad, S., Kwon, B., Marino, R., Martin, A., Massicotte, E., Merli, G., Middleton, J., Nakashima, H., Nagoshi, N., Palmieri, K., Shamji, M., Singh, A., Skelly, A., Tetreault, L., Yee, A., Fehlings, M., Guidelines for the management of patients with spinal cord injury: The type and timing of rehabilitation, Journal of Neurotrauma, 33, A56, 2016	Conference abstract
Burns, Anthony S., Marino, Ralph J., Kalsi-Ryan, Sukhvinder, Middleton, James W., Tetreault, Lindsay A., Dettori, Joseph R., Mihalovich, Kathryn E., Fehlings, Michael G., Type and Timing of Rehabilitation Following Acute and Subacute Spinal Cord Injury: A Systematic Review, Global Spine Journal, 7, 175S-194S, 2017	Systematic review: Included studies checked for relevance.
Bye, E. A., Harvey, L. A., Gambhir, A., Kataria, C., Glinsky, J. V., Bowden, J. L., Malik, N., Tranter, K. E., Lam, C. P., White, J. S., et al.,, Strength training for partially paralysed muscles in people with recent spinal cord injury: a within-participant randomised controlled trial, Spinal Cord, 55, 460-465, 2017	Outcomes not in PICO: Maximal isometric muscle strength, spasticity, fatigue and participants' perception of function and strength
Calder, Allyson, Nunnerley, Jo, Mulligan, Hilda, Ahmad Ali, Nordawama, Kensington, Gemma, McVicar, Tim, van Schaik, Olivia, Experiences of persons with spinal cord injury undertaking a physical activity programme as part of the SCIPA 'Full-On' randomized controlled trial, Disability and Health Journal, 11, 267-273, 2018	Study design not in PICO: Qualitative study
Cameron, A., Schomer, K., Rodriguez, G., Systematic review of urological follow up after spinal cord injury, Neurourology and Urodynamics, 30, 275, 2011	Conference abstract
Canavan, C., Power, C. K., Fullen, B. M., The efficacy of medication for chronic spinal cord injury pain; A systematic review, Pain Practice, 18, 56, 2018	Conference abstract
Canon, Stephen, Shera, Annashia, Phan, Nhan Marc Hieu, Lapicz, Lynne, Scheidweiler, Tanya, Batchelor, Lori, Swearingen, Christopher, Autonomic dysreflexia during urodynamics in children and adolescents with spinal cord injury or severe neurologic disease, Journal of Pediatric Urology, 11, 32.e1-4, 2015	Study design not in PICO: No intervention
Cardenas, D., Moore, K. N., Dannels-McClure, A., Scelza, W., Graves, D., Brooks, M., Intermittent catheterisation with hydrophilic-coated catheters delays the onset of urinary tract infection in patients with acute spinal cord injury: An international, multicenter, randomised controlled trial, International Urogynecology Journal and Pelvic Floor Dysfunction, 21, S186-S187, 2010	Conference abstract
Cardenas, Diana D., Moore, Katherine N., Dannels-McClure, Amy, Scelza, William M., Graves, Daniel E., Brooks, Monifa, Busch, Anna Karina, Intermittent catheterization with a hydrophilic-coated catheter delays urinary tract infections in acute spinal cord injury: a prospective, randomized, multicenter trial, PM & R : the journal of injury, function, and rehabilitation, 3, 408-17, 2011	Outcomes not in PICO: Time from the first catheterization to the first antibiotic-treated symptomatic urinary tract infections, total number of symptomatic urinary tract infections and adverse effects
Cardenas,D.D., Doctor,J.N., Cost-effectiveness of rehabilitation after	Study design not in

Study	Reason for Exclusion
spinal cord injury, Critical Reviews in Physical and Rehabilitation Medicine, 10, 359-367, 1998	PICO: Non-RCT with <100 per arm
Carhart, Michael R., He, Jiping, Herman, Richard, D'Luzansky, S., Willis, Wayne T., Epidural spinal-cord stimulation facilitates recovery of functional walking following incomplete spinal-cord injury, IEEE transactions on neural systems and rehabilitation engineering : a publication of the IEEE Engineering in Medicine and Biology Society, 12, 32-42, 2004	Study design not in PICO: Non-RCT with <100 per arm
Chancellor, M. B., Bennett, C., Simoneau, A. R., Finocchiaro, M. V., Kline, C., Bennett, J. K., Foote, J. E., Green, B. G., Hudson Martin, S., Wylly Killoran, R., Crewalk, J. A., Rivas, D. A., Sphincteric stent versus external sphincterotomy in spinal cord injured men: Prospective randomized multicenter trial, Journal of Urology, 161, 1893-1898, 1999	Outcomes not in PICO: Urodynamic parameter of maximum detrusor pressure and urodynamic parameters of bladder capacity.
Chang, F. Y., Chang, M. C., Wang, S. T., Yu, W. K., Liu, C. L., Chen, T. H., Can povidone-iodine solution be used safely in a spinal surgery?, European Spine Journal, 15, 1005-1014, 2006	Not relevant to PICO: This RCT aimed to evaluate the safety of povidone-iodine solution in spinal surgeries
Chang, K. V., Hung, C. Y., Chen, W. S., Lai, M. S., Chien, K. L., Han, D. S., Effectiveness of bisphosphonate analogues and functional electrical stimulation on attenuating post-injury osteoporosis in spinal cord injury patients- A Systematic Review and Meta-Analysis, PLoS ONE, 8, e81124, 2013	Systematic review: Included studies checked for relevance.
Chang, S. H., Afzal, T., Berliner, J., Francisco, G. E., Exoskeleton-assisted gait training to improve gait in individuals with spinal cord injury: A pilot randomized study, Pilot and Feasibility Studies, 4, 62, 2018	Outcomes not in PICO: Lower Extremity Motor Score, walking speed, Timed Up and Go test, and gait characteristics
Chang, Sarah R., Nandor, Mark J., Kobetic, Rudi, Foglyano, Kevin M., Quinn, Roger D., Triolo, Ronald J., Improving stand-to-sit maneuver for individuals with spinal cord injury, Journal of NeuroEngineering and Rehabilitation, 13, 27, 2016	Study design not in PICO: Non-RCT with <100 per arm
Chang, Y. J., Liang, J. N., Hsu, M. J., Lien, H. Y., Fang, C. Y., Lin, C. H., Effects of continuous passive motion on reversing the adapted spinal circuit in humans with chronic spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, 822-828, 2013	Study design not in PICO: Cross-over RCT
Chen, A. L., Hu, Z. J., Fu, W. J., Ai, K., The clinical efficacy of umbilical moxibustion therapy combined with bladder treaining in neurogenic bladder after spinal cord injury, Journal of emergency in traditional chinese medicine [zhong guo zhong yi ji zheng za zhi], 25, 1154-1157, 2016	Chinese language article
Chen, Guoqing, Liao, Limin, Li, Yao, The possible role of percutaneous tibial nerve stimulation using adhesive skin surface electrodes in patients with neurogenic detrusor overactivity secondary to spinal cord injury, International Urology and Nephrology, 47, 451-5, 2015	Intervention not in PICO: Percutaneous tibial nerve stimulation using adhesive skin surface electrodes versus solifenacin succinate in patients with neurogenic detrusor overactivity secondary to spinal cord injury
Chen, Y. C., Kuo, H. C., The therapeutic effects of repeated detrusor injections between 200 or 300 units of onabotulinumtoxinA in chronic spinal cord injured patients, Neurourology & Urodynamics, 33, 129-34, 2014	Intervention not in PICO: Not early prophylactic bladder management (mean injury duration was 8.7 /- 8.1 years)

Study	Reason for Exclusion
Cheng, L. M., Wang, J. J., Zeng, Z. L., Zhu, R., Yu, Y., Li, C., Wu, Z. R., Pedicle screw fixation for traumatic fractures of the thoracic and lumbar spine, The Cochrane database of systematic reviews, 5, CD009073, 2013	Not relevant to PICO: The aim of this systematic review was to assess the effects (benefits and harms) of pedicle screw fixation for traumatic fractures of the thoracic and lumbar spine
Cheng, P. T., Chen, C. L., Wang, C. M., Chung, C. Y., Effect of neuromuscular electrical stimulation on cough capacity and pulmonary function in patients with acute cervical cord injury, Journal of Rehabilitation Medicine, 38, 32-36, 2006	Outcomes not in PICO: Pulmonary function parameters
Cheron, G., Duvinage, M., De Saedeleer, C., Castermans, T., Bengoetxea, A., Petieau, M., Seetharaman, K., Hoellinger, T., Dan, B., Dutoit, T., Sylos Labini, F., Lacquaniti, F., Ivanenko, Y., From spinal central pattern generators to cortical network: integrated BCI for walking rehabilitation, Neural Plasticity, 2012, 375148, 2012	Not relevant to PICO: The aim of this review was to explore the evidence on the use of brain-computer interfaces
Cheung, E. Y. Y., Chau, R. M. W., Cheing, G. L. Y., Effects of robot-assisted body weight supported treadmill training for people with incomplete spinal cord injury-a pilot study, Physiotherapy (United Kingdom), 101, eS237-eS238, 2015	Conference abstract
Cheung, Eddy Y. Y., Ng, Thomas K. W., Yu, Kevin K. K., Kwan, Rachel L. C., Cheing, Gladys L. Y., Robot-Assisted Training for People With Spinal Cord Injury: A Meta-Analysis, Archives of Physical Medicine and Rehabilitation, 98, 2320-2331.e12, 2017	Systematic review: Included studies checked for relevance.
Chi, Ctr Ior, A prospective randomized comparative study between intelligent urinary bladder monitoring device and conventional urinary catheter in patients with voiding dysfunction caused by spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx? Trialid=chictr-ior-14005686, 2014	Clinical trial entry
Chi, Ctr Ior, Transcutaneous posterior tibial nerve stimulation for neurogenic constipation after spinal cord injury: a randomized controlled trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=chictr-ior-14005433, 2014	Clinical trial protocol for which there were no published data
ChiCtr,, Preventive effect of dorsal penile nerve stimulation on bladder detrusor hyperexcitability after spinal cord injury: a randomized, controlled trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=chictr1800018655, 2018	Clinical trial protocol for which there were no published data
Christensen, P., Andreasen, J., Ehlers, L., Cost-effectiveness of transanal irrigation versus conservative bowel management for spinal cord injury patients, Spinal Cord, 47, 138-43, 2009	Study design not in PICO: Non-RCT with <100 per arm
Christensen, P., Bazzocchi, G., Coggrave, M., Abel, R., Hultling, C., Krogh, K., Media, S., Laurberg, S., Treatment of faecal incontinence and constipation in patients with spinal cord injury - a prospective, randomised, controlled, multicentre trial of transanal irrigation vs conservative bowel management (Abstract number 71), Neurourology and Urodynamics, 25, 594-595, 2006	Conference abstract
Christensen, Peter, Bazzocchi, Gabriele, Coggrave, Maureen, Abel, Rainer, Hultling, Claes, Krogh, Klaus, Media, Shwan, Laurberg, Soren, A randomized, controlled trial of transanal irrigation versus conservative bowel management in spinal cord-injured patients, Gastroenterology, 131, 738-47, 2006	Intervention not in PICO: This is not early prophylactic bowel management (median duration of bowel symptoms 54-60 months, if mo = months; Table 1)

Study	Reason for Exclusion
Cole, M., Froehlich-Grobe, K., Driver, S., Web-based intervention to promote exercise among people with spinal cord injury, Journal of Spinal Cord Medicine, 40, 603-604, 2017	Conference abstract
Colegate, J., Ward, R., Valentine, J., The robotic arm in activity based rehabilitation for children, Developmental Medicine and Child Neurology, 58, 69, 2016	Conference abstract
Cordell, W. H., Hollingsworth, J. C., Olinger, M. L., Stroman, S. J., Nelson, D. R., Pain and tissue-interface pressures during spine-board immobilization, Annals of Emergency Medicine, 26, 31-36, 1995	Study design not in PICO: Non-RCT with <100 per arm
Cosman, Bard C., Vu, Tri T., Lidocaine anal block limits autonomic dysreflexia during anorectal procedures in spinal cord injury: a randomized, double-blind, placebo-controlled trial, Diseases of the Colon and Rectum, 48, 1556-61, 2005	Outcomes not in PICO: Systolic blood pressure
Cosman, Bard C., Vu, Tri T., Plowman, Brian K., Topical lidocaine does not limit autonomic dysreflexia during anorectal procedures in spinal cord injury: a prospective, double-blind study, International Journal of Colorectal Disease, 17, 104-8, 2002	Outcomes not in PICO: Systolic blood pressure
Cotie, L. M., Geurts, C. L., Adams, M. M., MacDonald, M. J., Leg skin temperature with body-weight-supported treadmill and tilt-table standing training after spinal cord injury, Spinal Cord, 49, 149-153, 2011	Outcomes not in PICO: Skin temperature and blood flow
Crameri, R. M., Weston, A. R., Rutkowski, S., Middleton, J. W., Davis, G. M., Sutton, J. R., Effects of electrical stimulation leg training during the acute phase of spinal cord injury: a pilot study, European Journal of Applied Physiology, 83, 409-15, 2000	Outcomes not in PICO: Type I fibers, myosin heavy chain, and fiber cross-sectional area
Craven, B. Catharine, Giangregorio, Lora M., Alavinia, S. Mohammad, Blencowe, Lindsie A., Desai, Naaz, Hitzig, Sander L., Masani, Kei, Popovic, Milos R., Evaluating the efficacy of functional electrical stimulation therapy assisted walking after chronic motor incomplete spinal cord injury: effects on bone biomarkers and bone strength, The journal of spinal cord medicine, 40, 748-758, 2017	Outcomes not in PICO: Bone biomarkers and lower extremity bone strength
Creasey, G. H., Grill, J. H., Korsten, M., Betz, R., Anderson, R., Walter, J., An implantable neuroprosthesis for restoring bladder and bowel control to patients with spinal cord injuries: A multicenter trial, Archives of Physical Medicine and Rehabilitation, 82, 1512-1519, 2001	Study design not in PICO: Non-RCT with <100 per arm
Curiale, A., Mehta, S., Aubut, J., Teasell, R., Treatment of secondary complications postspinal cord injury through the use of electrical stimulation therapy: A systematic review, Archives of Physical Medicine and Rehabilitation, 91, e22, 2010	Conference abstract
Curiale, A., Mehta, S., Teasell, R., Preventing secondary complications postspinal cord injury through electrical stimulation: A systematic review, Archives of Physical Medicine and Rehabilitation, 91, e22, 2010	Conference abstract
Curtis, Kathryn, Hitzig, Sander L., Bechsgaard, Gitte, Stoliker, Candice, Alton, Charlene, Saunders, Nicole, Leong, Nicole, Katz, Joel, Evaluation of a specialized yoga program for persons with a spinal cord injury: a pilot randomized controlled trial, Journal of Pain Research, 10, 999-1017, 2017	Not relevant to PICO: This RCT aimed to evaluate the effects of a specialized yoga program for individuals with a spinal cord injury on pain, psychological, and mindfulness variables
Dahlberg, A., Perttila, I., Wuokko, E., Ala-Opas, M., Bladder management in persons with spinal cord lesion, Spinal Cord, 42, 694-8, 2004	Study design not in PICO: Cross-sectional clinical descriptive prevalence study
D'Amico, Jessica M., Condliffe, Elizabeth G., Martins, Karen J. B., Bennett, David J., Gorassini, Monica A., Recovery of neuronal and	Systematic review: Included studies checked

Study	Reason for Exclusion
network excitability after spinal cord injury and implications for spasticity, Frontiers in integrative neuroscience, 8, 36, 2014	for relevance.
Darouiche, Rabih O., Al Mohajer, Mayar, Siddiq, Danish M., Minard, Charles G., Short versus long course of antibiotics for catheter-associated urinary tract infections in patients with spinal cord injury: a randomized controlled noninferiority trial, Archives of Physical Medicine and Rehabilitation, 95, 290-6, 2014	Outcomes not in PICO: Clinical cure at end of therapy, microbiologic response, resolution of pyuria, patient survival and incidence of adverse events.
de Freitas, Gabriel Ribeiro, Szpoganicz, Camila, Ilha, Jocemar, Does Neuromuscular Electrical Stimulation Therapy Increase Voluntary Muscle Strength After Spinal Cord Injury? A Systematic Review, Topics in Spinal Cord Injury Rehabilitation, 24, 6-17, 2018	Systematic review: Included studies checked for relevance.
De Groat, W. C., Keynote address: Lower urinary tract dysfunction after spinal cord injury: Pathophysiology and development of new therapies, Journal of Spinal Cord Medicine, 39, 557-558, 2016	Conference abstract
De La Garza Ramos, R., Nakhla, J., Nasser, R., Haranhalli, N., Kiinon, M., Sciubba, D., Yassari, R., The impact of hospital teaching status on timing of intervention, inpatient morbidity, and mortality after surgery for vertebral column fractures with spinal cord injury, Global Spine Journal, 7, 339S, 2017	Conference abstract
De Maio, G., Bizzarini, E., Chittaro, L., Cisotti, C., Malisan, C., Mauro, L., Menosso, R., Moschioni, C., Pinzini, C., Sioni, R., Zampa, A., Restoring of walking with body weight supported treadmill training and virtual reality in subjects with incomplete spinal cord injury, Neurorehabilitation and Neural Repair, 26, 398-399, 2012	Conference abstract
De Seze, M., Petit, H., Gallien, P., De Seze, M. P., Joseph, P. A., Mazaux, J. M., Barat, M., Botulinum A toxin and detrusor sphincter dyssynergia: A double-blind lidocaine-controlled study in 13 patients with spinal cord disease, European Urology, 42, 56-62, 2002	Outcomes not in PICO: Residual urine volume, micturition diary, satisfaction score, maximal urethral pressure, maximum detrusor pressure and type of detrusor sphincter dyssynergia
De Seze, M., Wiart, L., De Seze, M. P., Soyeur, L., Dosque, J. P., Blajezewski, S., Moore, N., Brochet, B., Mazaux, J. M., Barat, M., Joseph, P. A., Intravesical capsaicin versus resiniferatoxin for the treatment of detrusor hyperreflexia in spinal cord injured patients: A double-blind, randomized, controlled study, Journal of Urology, 171, 251-255, 2004	Outcomes not in PICO: Voiding chart data, urodynamic data and maximal detrusor pressure.
de Seze, M., Wiart, L., Joseph, P. A., Dosque, J. P., Mazaux, J. M., Barat, M., Capsaicin and neurogenic detrusor hyperreflexia: a double-blind placebo-controlled study in 20 patients with spinal cord lesions, Neurourology and Urodynamics, 17, 513-23, 1998	Outcomes not in PICO: Voiding chart data, urodynamic data and maximal detrusor pressure.
Demchak, Timothy J., Linderman, Jon K., Mysiw, W. Jerry, Jackson, Rebecca, Suun, Jihong, Devor, Steven T., Effects of functional electric stimulation cycle ergometry training on lower limb musculature in acute sci individuals, Journal of sports science & medicine, 4, 263-71, 2005	Study design not in PICO: Case-control study.
Deng, Yuling, Dong, Yonghai, Liu, Yun, Zhang, Qiong, Guan, Xihong, Chen, Xiaodan, Li, Meng, Xu, Lei, Yang, Cheng, A systematic review of clinical studies on electrical stimulation therapy for patients with neurogenic bowel dysfunction after spinal cord injury, Medicine, 97, e12778, 2018	Systematic review: Included studies checked for relevance.
Deng, Yuling, Dong, Yonghai, Liu, Yun, Zhang, Qiong, Guan, Xihong, Chen, Xiaodan, Li, Meng, Xu, Lei, Yang, Cheng, A systematic review of	Systematic review: Included studies checked

Study	Reason for Exclusion
clinical studies on electrical stimulation therapy for patients with neurogenic bowel dysfunction after spinal cord injury, Medicine, 97, e12778, 2018	for relevance.
Diego, Miguel A., Field, Tiffany, Hernandez-Reif, Maria, Hart, Sybil, Brucker, Bernard, Field, Tory, Burman, Iris, Spinal cord patients benefit from massage therapy, The International journal of neuroscience, 112, 133-42, 2002	Comparison not in PICO: Massage therapy versus exercise.
do Espirito Santo, C. C., Swarowsky, A., Recchia, T. L., Lopes, A. P. F., Ilha, J., Is body weight-support treadmill training effective in increasing muscle trophism after traumatic spinal cord injury? A systematic review, Spinal Cord, 53, 176-181, 2015	Systematic review: Included studies checked for relevance.
Dobkin, B. H., Apple, D., Barbeau, H., Saulino, M., Fugate, L., Scott, M., Randomised trial of body weight-supported treadmill training (BWSM) after acute spinal cord injury (SCI), Neurorehabilitation and Neural Repair, 13, 50, 1999	Conference abstract
Dobkin, B., Apple, D., Barbeau, H., Basso, M., Behrman, A., Deforge, D., Ditunno, J., Dudley, G., Elashoff, R., Fugate, L., et al.,, Weight-supported treadmill versus over-ground training for walking after acute incomplete SCI, Neurology, 66, 484-493, 2006	Outcomes not in PICO: Functional Independence Measure for walking and American Spinal Cord Injury Association level.
Dobkin, B., Barbeau, H., Deforge, D., Ditunno, J., Elashoff, R., Apple, D., Basso, M., Behrman, A., Harkema, S., Saulino, M., Scott, M., The evolution of walking-related outcomes over the first 12 weeks of rehabilitation for incomplete traumatic spinal cord injury: The multicenter randomized Spinal Cord Injury Locomotor Trial, Neurorehabilitation and Neural Repair, 21, 25-35, 2007	Outcomes not in PICO: Functional Independence Measure for walking, walking speed, and lower extremity motor score.
Dobkin, Bruce H., Apple, David, Barbeau, Hugues, Basso, Michele, Behrman, Andrea, Deforge, Dan, Ditunno, John, Dudley, Gary, Elashoff, Robert, Fugate, Lisa, Harkema, Susan, Saulino, Michael, Scott, Michael, Methods for a randomized trial of weight-supported treadmill training versus conventional training for walking during inpatient rehabilitation after incomplete traumatic spinal cord injury, Neurorehabilitation and Neural Repair, 17, 153-67, 2003	Research protocol of a RCT
Dobkin, Bruce H., Motor rehabilitation after stroke, traumatic brain, and spinal cord injury: common denominators within recent clinical trials, Current Opinion in Neurology, 22, 563-9, 2009	Systematic review: Included studies checked for relevance.
Dole, A., Engel, C. M., Janusko, E., Sanko, J. P., A systematic review of the effects of robotic assisted stepping to increase cardiovascular fitness in individuals with incomplete spinal cord injury, Cardiopulmonary Physical Therapy Journal, 29, 52, 2018	Conference abstract
Domingo, A., Al-Yahya, A. A., Asiri, Y., Eng, J. J., Lam, T., A systematic review of the effects of pharmacological agents on walking function in people with spinal cord injury, Journal of Neurotrauma, 29, 865-879, 2012	Systematic review: Included studies checked for relevance.
Domurath, B., Kutzenberger, J., Kurze, I., Knoth, H. S., Clinical evaluation of a newly developed catheter (SpeediCath Compact Male) in men with spinal cord injury: residual urine and user evaluation, Spinal Cord, 49, 817-21, 2011	Intervention not in PICO: Not early prophylactic bladder management (mean duration of intermittent catheterization use = 88.76 months (range 2-“264 months)
Donenberg, Jennifer Glenna, Fetters, Linda, Johnson, Robert, The effects of locomotor training in children with spinal cord injury: a systematic review, Developmental neurorehabilitation, 22, 272-287, 2019	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
Donovan, W. H., Halter, J. A., Graves, D. E., Blight, A. R., Calvillo, O., McCann, M. T., Sherwood, A. M., Castillo, T., Parsons, K. C., Strayer, J. R., Intravenous infusion of 4-AP in chronic spinal cord injured subjects, Spinal Cord, 38, 7-15, 2000	Study design not in PICO: Cross-over study
Dorstyn, D. S., Mathias, J. L., Denson, L. A., Psychological intervention during spinal rehabilitation: a preliminary study, Spinal Cord, 48, 756-61, 2010	Study design not in PICO: Non-RCT with <100 per arm
Dorstyn, Diana, Mathias, Jane, Denson, Linley, Applications of telecounselling in spinal cord injury rehabilitation: a systematic review with effect sizes, Clinical rehabilitation, 27, 1072-83, 2013	Systematic review: Included studies checked for relevance.
Dorstyn, Diana, Mathias, Jane, Denson, Linley, Efficacy of cognitive behavior therapy for the management of psychological outcomes following spinal cord injury: a meta-analysis, Journal of health psychology, 16, 374-91, 2011	Systematic review: Included studies checked for relevance.
Dost, Gulseren, Dulgeroglu, Deniz, Yildirim, Adem, Ozgirgin, Nese, The effects of upper extremity progressive resistance and endurance exercises in patients with spinal cord injury, Journal of Back and Musculoskeletal Rehabilitation, 27, 419-26, 2014	Outcomes not in PICO: Functional Independence Measurement and upper limb strength measures
Duerinck, Saartje, Swinnen, Eva, Beyl, Pieter, Hagman, Friso, Jonkers, Ilse, Vaes, Peter, Van Roy, Peter, The added value of an actuated ankle-foot orthosis to restore normal gait function in patients with spinal cord injury: a systematic review, Journal of rehabilitation medicine, 44, 299-309, 2012	Systematic review: Included studies checked for relevance.
Duffell, L. D., Brown, G. L., Mirbagheri, M. M., Interventions to Reduce Spasticity and Improve Function in People with Chronic Incomplete Spinal Cord Injury, Neurorehabilitation and Neural Repair, 29, 566-576, 2015	Outcomes not in PICO: Walking speed and Timed Up and Go test
Duschau-Wicke, Alexander, Caprez, Andrea, Riener, Robert, Patient-cooperative control increases active participation of individuals with SCI during robot-aided gait training, Journal of NeuroEngineering and Rehabilitation, 7, 43, 2010	Study design not in PICO: Non-RCT with <100 per arm
Effing, T. W., van Meeteren, N. L. U., van Asbeck, F. W. A., Prevo, A. J. H., Body weight-supported treadmill training in chronic incomplete spinal cord injury: a pilot study evaluating functional health status and quality of life, Spinal Cord, 44, 287-96, 2006	Study design not in PICO: Case study
Ehde, D. M., Jensen, M. P., Psychological treatments for pain management in persons with spinal cord injury: Cognitive therapy and self-hypnosis training, Topics in Spinal Cord Injury Rehabilitation, 13, 72-80, 2007	Systematic review: Included studies checked for relevance.
El-Kotob, R., Verrier, M. C., Mathur, S., Craven, B. C., The effect of exercise on heart rate variability in spinal cord injury, Journal of Spinal Cord Medicine, 37, 644-645, 2014	Conference abstract
Elliott, T. R., Kennedy, P., Treatment of Depression Following Spinal Cord Injury: An Evidence-Based Review, Rehabilitation Psychology, 49, 134-139, 2004	Systematic review: Included studies checked for relevance.
Elmelund, M., Biering-Sørensen, F., Due, U., Klarskov, N., The effect of pelvic floor muscle training and intravaginal electrical stimulation on urinary incontinence in women with incomplete spinal cord injury: an investigator-blinded parallel randomized clinical trial, International Urogynecology Journal, 29, 1597-1606, 2018	Intervention not in PICO: Pelvic floor muscle training alone and combined with intravaginal electrical stimulation
Esclarin-Ruz, Ana, Alcobendas-Maestro, Monica, Casado-Lopez, Rosa, Perez-Mateos, Guillermo, Florido-Sanchez, Miguel Angel, Gonzalez-Valdizan, Esteban, Martin, Jose Luis R., A comparison of robotic walking therapy and conventional walking therapy in individuals with upper versus lower motor neuron lesions: a randomized controlled trial,	Outcomes not in PICO: Walking speed, Walking Index for Spinal Cord Injury, lower extremity motor score, and

Study	Reason for Exclusion
Archives of Physical Medicine and Rehabilitation, 95, 1023-31, 2014	Functional Independence Measure for walking.
Estes, Stephen, Iddings, Jennifer A., Ray, Somu, Kirk-Sanchez, Neva J., Field-Fote, Edelle C., Comparison of Single-Session Dose Response Effects of Whole Body Vibration on Spasticity and Walking Speed in Persons with Spinal Cord Injury, Neurotherapeutics : the journal of the American Society for Experimental NeuroTherapeutics, 15, 684-696, 2018	Study design not in PICO: Cross-over RCT
Euctr, G. B., A randomised trial of rectal stimulants for neurogenic bowel management after spinal cord injury - Rectal stimulant trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=euctr2006-006855-10-gb, 2007	Clinical trial protocol for which there were no published data
Faaborg, P. M., Christensen, P., Krassioukov, A., Laurberg, S., Frandsen, E., Krogh, K., Autonomic dysreflexia during bowel evacuation procedures and bladder filling in subjects with spinal cord injury, Spinal Cord, 52, 494-8, 2014	Outcomes not in PICO: Blood levels of norepinephrine and epinephrine
Faaborg, P. M., Christensen, P., Krassioukov, A., Laurberg, S., Krogh, K., Randomized study of autonomic dysrefleksia during bowel evacuation and bladder filling in people with high spinal cord injuries, Colorectal Disease, 14, 26-27, 2012	Conference abstract
Fang, C. Y., Hsu, M. J., Chen, C. C., Cheng, H. Y. K., Chou, C. C., Chang, Y. J., Robot-assisted passive exercise for ankle hypertonia in individuals with chronic spinal cord injury, Journal of Medical and Biological Engineering, 35, 464-472, 2015	Study design not in PICO: Cross-over RCT
Fang, H., Lin, J., Liang, L., Long, X., Zhu, X., Cai, W., A nonsurgical and nonpharmacological care bundle for preventing upper urinary tract damage in patients with spinal cord injury and neurogenic bladder, International journal of nursing practice, 26, e12761, 2020	Systematic review: Included studies checked for relevance.
Fassett, H. J., Turco, C. V., El-Sayes, J., Lulic, T., Baker, S., Richardson, B., Nelson, A. J., Transcranial magnetic stimulation with intermittent theta burst stimulation alters corticospinal output in patients with chronic incomplete Spinal cord injury, Frontiers in Neurology, 8, 380, 2017	Study design not in PICO: Case study
Feng, J. J., Li, Y. H., Effects of hyperbaric oxygen therapy on depression and anxiety in the patients with incomplete spinal cord injury (a STROBE-compliant article), Medicine (United States), 96, e7334, 2017	Intervention not in PICO: Hyperbaric oxygen therapy versus standard psychotherapy
Fernandez-Tenorio, E., Serrano-Munoz, D., Avendano-Coy, J., Gomez-Soriano, J., Transcutaneous electrical nerve stimulation for spasticity: A systematic review, Neurologia, 34, 451-460, 2019	Systematic review: Included studies checked for relevance.
Field-Fote, E. C., Spinal cord control of movement: implications for locomotor rehabilitation following spinal cord injury, Physical Therapy, 80, 477-84, 2000	Systematic review: Included studies checked for relevance.
Field-Fote, Edelle C., Lindley, Stephen D., Sherman, Andrew L., Locomotor training approaches for individuals with spinal cord injury: a preliminary report of walking-related outcomes, Journal of neurologic physical therapy : JNPT, 29, 127-37, 2005	Outcomes not in PICO: Walking speed and gait parameters.
Field-Fote, Edelle C., Roach, Kathryn E., Influence of a locomotor training approach on walking speed and distance in people with chronic spinal cord injury: a randomized clinical trial, Physical Therapy, 91, 48-60, 2011	Outcomes not in PICO: Over-ground walking ability and lower-extremity motor scores.
Fisahn, Christian, Aach, Mirko, Jansen, Oliver, Moisi, Marc, Mayadev, Angeli, Pagarigan, Krystle T., Dettori, Joseph R., Schildhauer, Thomas A., The Effectiveness and Safety of Exoskeletons as Assistive and Rehabilitation Devices in the Treatment of Neurologic Gait Disorders in Patients with Spinal Cord Injury: A Systematic Review, Global spine	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
journal, 6, 822-841, 2016	
Fliess-Douer, O., Vanlandewijck, Y. C., Lubel Manor, G., Van Der Woude, L. H., A systematic review of wheelchair skills tests for manual wheelchair users with a spinal cord injury: towards a standardized outcome measure, Clinical Rehabilitation, 24, 867-886, 2010	Systematic review: Included studies checked for relevance.
Flores, M. C., Kumru, H., Benito, J., Murillo, N., Tormos, J. M., Vidal, J., Effects of repetitive transcranial magnetic stimulation on motor and gait improvement in incomplete spinal Cord injury patients, Clinical Neurophysiology, 124, e183, 2013	Conference abstract
Fornusek, Che, Davis, Glen Macartney, Russold, Michael Friedrich, Pilot study of the effect of low-cadence functional electrical stimulation cycling after spinal cord injury on thigh girth and strength, Archives of Physical Medicine and Rehabilitation, 94, 990-3, 2013	Outcomes not in PICO: Lower limb circumference and quadriceps muscle torque during an isometric contraction
Forrest, G., Angeli, C., Cignigliaro, C., Faghri, P., Kirschblum, S., Harkema, S., Hip and femur bone mineral density changes after electrical stimulation and loading in persons with motor complete spinal cord injury, Archives of Physical Medicine and Rehabilitation, 91, e22, 2010	Conference abstract
Francis, Kathleen, Physiology and management of bladder and bowel continence following spinal cord injury, Ostomy/wound management, 53, 18-27, 2007	Systematic review: Included studies checked for relevance.
Fregni, Felipe, Boggio, Paulo S., Lima, Moises C., Ferreira, Merari J. L., Wagner, Tim, Rigonatti, Sergio P., Castro, Anita W., Souza, Daniel R., Riberto, Marcelo, Freedman, Steven D., Nitsche, Michael A., Pascual-Leone, Alvaro, A sham-controlled, phase II trial of transcranial direct current stimulation for the treatment of central pain in traumatic spinal cord injury, Pain, 122, 197-209, 2006	Not relevant to PICO: This RCT aimed to assess transcranial direct current stimulation for the treatment of central pain in traumatic spinal cord injury
Funderburg, Sarah E., Josephson, Hannah E., Price, Ashlee A., Russo, Maredith A., Case, Laura E., Interventions for Gait Training in Children With Spinal Cord Impairments: A Scoping Review, Pediatric physical therapy : the official publication of the Section on Pediatrics of the American Physical Therapy Association, 29, 342-349, 2017	Scoping review: Included studies checked for relevance.
Furlan, Julio C., Craven, B. Catharine, Massicotte, Eric M., Fehlings, Michael G., Early Versus Delayed Surgical Decompression of Spinal Cord after Traumatic Cervical Spinal Cord Injury: A Cost-Utility Analysis, World Neurosurgery, 88, 166-74, 2016	Not relevant to PICO: Early versus delayed surgical decompression of spinal cord after trauma
Furusawa, K., Sugiyama, H., Tokuhiro, A., Takahashi, M., Nakamura, T., Tajima, F., Topical anesthesia blunts the pressor response induced by bowel manipulation in subjects with cervical spinal cord injury, Spinal Cord, 47, 144-8, 2009	Study design not in PICO: Non-RCT with <100 per arm
Galea, M. P., Dunlop, S. A., Geraghty, T., Davis, G. M., Nunn, A., Olenko, L., Hurley, M., Alexander, J., Fereday, S., Goodman, C., Batty, J., Li, T., Buchanan, J., Bullick, J., Marshall, R., Clark, J., Acland, R., Nunnerley, J., SCIPA full-on: A randomized controlled trial comparing intensive whole-body exercise and upper body exercise after spinal cord injury, Neurorehabilitation and Neural Repair, 32, 557-567, 2018	Comparison not in PICO: Full-body exercise (locomotor training functional electrical stimulation-assisted leg cycling trunk and lower extremity exercises) versus upper body exercise (upper body strength and aerobic fitness training only). No mention of standard care.

Study	Reason for Exclusion
Galea, M. P., Dunlop, S. A., Geraghty, T., Davis, G. M., Nunn, A., Olenko, L., Hurley, M., Alexander, J., Fereday, S., Goodman, C., et al.,, SCIPA full-on: a randomized controlled trial comparing intensive whole-body exercise and upper body exercise after spinal cord injury, Neurorehabilitation and Neural Repair, 32, 557-567, 2018	Duplicate
Galea, M., Dunlop, S., Geraghty, T., Davis, G., Nunn, A., Olenko, L., Intensive exercise program after spinal cord injury (SCIPA full-on): a randomized controlled trial, Annals of Physical and Rehabilitation Medicine, (no pagination), 2018	Conference abstract
Geigle, P., Gorman, P., Chen, K., Vanhiel, L., Tansey, K., Scott, W., Relationship among physical activity scale for individuals with disability (PASID), body mass index (BMI), and maximum oxygen consumption (VO2max) in persons with motor incomplete spinal cord injury, PM and R, 5, S130-S131, 2013	Conference abstract
Giangregorio, Lora, Craven, Catharine, Richards, Kieva, Kapadia, Naaz, Hitzig, Sander L., Masani, Kei, Popovic, Milos R., A randomized trial of functional electrical stimulation for walking in incomplete spinal cord injury: effects on body composition, The journal of spinal cord medicine, 35, 351-60, 2012	Outcomes not in PICO: Whole body and leg lean mass, whole body fat mass, lower-limb muscle cross-sectional area, and fat cross-sectional area
Giannantoni, A., Di Stasi, S. M., Scivoletto, G., Virgili, G., Dolci, S., Porena, M., Intermittent catheterization with a prelubricated catheter in spinal cord injured patients: a prospective randomized crossover study, The Journal of urology, 166, 130-3, 2001	Study design not in PICO: Cross-over RCT
Giannantoni, Antonella, Di Stasi, Savino M., Stephen, Robert L., Bini, Vittorio, Costantini, Elisabetta, Porena, Massimo, Intravesical resiniferatoxin versus botulinum-A toxin injections for neurogenic detrusor overactivity: a prospective randomized study, The Journal of urology, 172, 240-3, 2004	Outcomes not in PICO: Clinical evaluation and urodynamics
Gillis, D. J., Wouda, M., Hjeltnes, N., Non-pharmacological management of orthostatic hypotension after spinal cord injury: a critical review of the literature, Spinal Cord, 46, 652-9, 2008	Systematic review: Included studies checked for relevance.
Glinsky, Joanne, Harvey, Lisa, Korten, Monique, Drury, Craig, Chee, Shane, Gandevia, Simon C., Short-term progressive resistance exercise may not be effective at increasing wrist strength in people with tetraplegia: a randomised controlled trial, The Australian journal of physiotherapy, 54, 103-8, 2008	Intervention not in PICO: 8-week progressive resistance exercise program
Glinsky, Joanne, Harvey, Lisa, van Es, Pauline, Chee, Shane, Gandevia, Simon C., The addition of electrical stimulation to progressive resistance training does not enhance the wrist strength of people with tetraplegia: a randomized controlled trial, Clinical Rehabilitation, 23, 696-704, 2009	Outcomes not in PICO: Maximal voluntary isometric strength and fatigue resistance ratio
Gomara-Toldra, Natalia, Sliwinski, Martha, Dijkers, Marcel P., Physical therapy after spinal cord injury: a systematic review of treatments focused on participation, The journal of spinal cord medicine, 37, 371-9, 2014	Systematic review: Included studies checked for relevance.
Gorgey, A. S., Castillo, T., Gater, D., Recovery of force is challenged after an acute bout of FES-leg cycling in persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, e19, 2013	Conference abstract
Gorgey, Ashraf S., Dolbow, David R., Cifu, David X., Gater, David R., Neuromuscular electrical stimulation attenuates thigh skeletal muscles atrophy but not trunk muscles after spinal cord injury, Journal of electromyography and kinesiology : official journal of the International Society of Electrophysiological Kinesiology, 23, 977-84, 2013	Outcomes not in PICO: Changes in cross-sectional areas of thigh muscles
Gorgey, Ashraf S., Mather, Kieren J., Cupp, Heather R., Gater, David R., Effects of resistance training on adiposity and metabolism after	Outcomes not in PICO: Fasting and post-

Study	Reason for Exclusion
spinal cord injury, Medicine and Science in Sports and Exercise, 44, 165-74, 2012	challenge plasma glucose, insulin, and lipid profiles
Gorman, P., Scott, W., York, H., Theyagaraj, M., Price-Miller, N., McQuaid, J., Eyvazzadeh, M., Robotic treadmill training does not improve timed measures of ambulatory function in chronic motor incomplete spinal cord injury: A pilot controlled clinical trial, Topics in Spinal Cord Injury Rehabilitation, 16, 63, 2011	Conference abstract
Gorman, P., Scott, W., York, H., Theyagaraj, M., Price-Miller, N., McQuaid, J., Eyvazzadeh, M., Robotic treadmill training improves peak exercise capacity in chronic incomplete spinal cord injury: A pilot controlled clinical trial, Topics in Spinal Cord Injury Rehabilitation, 16, 40-41, 2011	Conference abstract
Gorman, Peter H., Scott, William, York, Henry, Theyagaraj, Melita, Price-Miller, Naomi, McQuaid, Jean, Eyvazzadeh, Megan, Ivey, Frederick M., Macko, Richard F., Robotically assisted treadmill exercise training for improving peak fitness in chronic motor incomplete spinal cord injury: A randomized controlled trial, The journal of spinal cord medicine, 39, 32-44, 2016	Outcome not in PICO: Peak oxygen consumption
Grasmucke, Dennis, Zieriacks, Amrei, Jansen, Oliver, Fisahn, Christian, Sczesny-Kaiser, Matthias, Wessling, Martin, Meindl, Renate C., Schildhauer, Thomas A., Aach, Mirko, Against the odds: what to expect in rehabilitation of chronic spinal cord injury with a neurologically controlled Hybrid Assistive Limb exoskeleton. A subgroup analysis of 55 patients according to age and lesion level, Neurosurgical focus, 42, E15, 2017	Study design not in PICO: Non-RCT with <100 per arm
Grieshofer, P., Scherer, R., Nowak, T., Ranner, S., Tanzer, M., The paediatric lokomat: A possibility to treat children with a robotic-assisted locomotor training experiences after 190 patients, Neurorehabilitation and Neural Repair, 26, 657-658, 2012	Conference abstract
Groah, Suzanne L., Lichy, Alison M., Libin, Alexander V., Ljungberg, Inger, Intensive electrical stimulation attenuates femoral bone loss in acute spinal cord injury, PM & R : the journal of injury, function, and rehabilitation, 2, 1080-7, 2010	Outcomes not in PICO: Dual energy x-ray absorptiometry, serum osteocalcin , and urinary N-telopeptide
Gruenthal, M., Mueller, M., Olson, W. L., Priebe, M. M., Sherwood, A. M., Olson, W. H., Gabapentin for the treatment of spasticity in patients with spinal cord injury, Spinal Cord, 35, 686-9, 1997	Outcomes not in PICO: Ashworth spasticity scale, muscle stretch reflexes and reflex response to noxious stimuli.
Haas, U., Geng, V., Evers, G. C. M., Knecht, H., Bowel management in patients with spinal cord injury - A multicentre study of the German speaking society of paraplegia (DMGP), Spinal Cord, 43, 724-730, 2005	Study design not in PICO: No comparison group.
Hagenbach, U., Luz, S., Ghafoor, N., Berger, J. M., Grotenhermen, F., Brenneisen, R., Mader, M., The treatment of spasticity with Delta9-tetrahydrocannabinol in persons with spinal cord injury, Spinal Cord, 45, 551-62, 2007	Study design not in PICO: Open label study to determine drug dose RCT
Hamid, Samar, Hayek, Ray, Role of electrical stimulation for rehabilitation and regeneration after spinal cord injury: an overview, European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society, 17, 1256-69, 2008	Systematic review: Included studies checked for relevance.
Hammond, Flora M., Lieberman, Jesse, Smout, Randall J., Horn, Susan D., Dijkers, Marcel P., Backus, Deborah, Missed therapy time during inpatient rehabilitation for spinal cord injury, Archives of Physical	Study design not in PICO: Non-RCT with <100 per arm

Study	Reason for Exclusion
Medicine and Rehabilitation, 94, S106-14, 2013	
Hamzaid, N. A., Davis, G. M., Health and fitness benefits of functional electrical stimulation-evoked leg exercise for spinal cord-injured individuals: A position review, Topics in Spinal Cord Injury Rehabilitation, 14, 88-121, 2009	Systematic review: Included studies checked for relevance.
Harvey, L. A., Glinsky, J. V., Bowden, J. L., The effectiveness of 22 commonly administered physiotherapy interventions for people with spinal cord injury: a systematic review, Spinal Cord, 54, 914-923, 2016	Systematic review: Included studies checked for relevance.
Harvey, L., Fornusek, C., Bowden, J., Pontifex, N., Glinksy, J., Middleton, J., Gandevia, S., Davis, G., Electrical stimulation combined with progressive resistance training increases strength in people with spinal cord injury, Physiotherapy (United Kingdom), 97, eS457, 2011	Conference abstract
Harvey, Lisa A., Byak, Adrian J., Ostrovskaya, Marsha, Glinsky, Joanne, Katte, Lyndall, Herbert, Robert D., Randomised trial of the effects of four weeks of daily stretch on extensibility of hamstring muscles in people with spinal cord injuries, The Australian journal of physiotherapy, 49, 176-81, 2003	Outcomes not in PICO: Changes in hamstring muscle extensibility
Harvey, Lisa A., Dunlop, Sarah A., Churilov, Leonid, Galea, Mary P., Spinal Cord Injury Physical Activity Hands On Trial, Collaborators, Early intensive hand rehabilitation is not more effective than usual care plus one-to-one hand therapy in people with sub-acute spinal cord injury ('Hands On'): a randomised trial, Journal of physiotherapy, 63, 197-204, 2017	Duplicate
Hawryluk, G. W., Whetstone, W., Saigal, R., Ferguson, A., Talbott, J., Bresnahan, J., Pan, J., Dhall, S., Beattie, M., Manley, G., Higher mean arterial blood pressures following human spinal cord injury correlate with greater neurological recovery, Journal of Neurotrauma, 31, A8, 2014	Conference abstract
Hayes, Heather B., Jayaraman, Arun, Herrmann, Megan, Mitchell, Gordon S., Rymer, William Z., Trumbower, Randy D., Daily intermittent hypoxia enhances walking after chronic spinal cord injury: a randomized trial, Neurology, 82, 104-13, 2014	Outcomes not in PICO: Walking speed and endurance
Hearn, J. H., Cross, A., Mindfulness for pain, depression, anxiety, and quality of life in people with spinal cord injury: A systematic review, BMC Neurology, 20, 32, 2020	Systematic review: Included studies checked for relevance.
Hearn, J., Efficacy of online mindfulness for people with spinal cord injury, Journal of Spinal Cord Medicine, 41, 605-606, 2018	Conference abstract
Hearn, Jasmine Heath, Cotter, Imogen, Finlay, Katherine Anne, Efficacy of Internet-Delivered Mindfulness for Improving Depression in Caregivers of People With Spinal Cord Injuries and Chronic Neuropathic Pain: A Randomized Controlled Feasibility Trial, Archives of Physical Medicine and Rehabilitation, 100, 17-25, 2019	Population not in PICO: Carers of people with spinal cord injury
Hearn, Jasmine Heath, Finlay, Katherine Anne, Internet-delivered mindfulness for people with depression and chronic pain following spinal cord injury: a randomized, controlled feasibility trial, Spinal Cord, 56, 750-761, 2018	Comparison not in PICO: Web-based mindfulness training versus internet delivered psychoeducation. No mention of standard care.
Hemmes, B., Brink, P. R., Poeze, M., Effects of unconsciousness during spinal immobilization on tissue-interface pressures: a randomized controlled trial comparing a standard rigid spineboard with a newly developed soft-layered long spineboard, Injury, 45, 1741-1746, 2014	Not relevant to PICO: Patients were randomised to immobilization on either the rigid spineboard or the soft-layered spineboard for the

Study	Reason for Exclusion
	duration of their elective surgery. No rehabilitation.
Hicks, A. L., Adams, M. M., Martin Ginis, K., Giangregorio, L., Latimer, A., Phillips, S. M., McCartney, N., Long-term body-weight-supported treadmill training and subsequent follow-up in persons with chronic SCI: effects on functional walking ability and measures of subjective well-being, Spinal Cord, 43, 291-8, 2005	Study design not in PICO: Non-RCT with <100 per arm
Hicks, A. L., Martin Ginis, K. A., Pelletier, C. A., Ditor, D. S., Foulon, B., Wolfe, D. L., The effects of exercise training on physical capacity, strength, body composition and functional performance among adults with spinal cord injury: A systematic review, Spinal Cord, 49, 1103-1127, 2011	Systematic review: Included studies checked for relevance.
Hicks, A. L., Martin, K. A., Ditor, D. S., Latimer, A. E., Craven, C., Bugaresti, J., McCartney, N., Long-term exercise training in persons with spinal cord injury: effects on strength, arm ergometry performance and psychological well-being, Spinal cord, 41, 34-43, 2003	Comparison not in PICO: Exercise training versus eduction only
Hoffman, Larisa, Field-Fote, Edelle, Effects of practice combined with somatosensory or motor stimulation on hand function in persons with spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 19, 288-99, 2013	Outcomes not in PICO: Chedoke Arm and Hand Activity Inventory, Health Assessment Questionnaire, Jebsen Taylor Hand Function Test, Semmes-Weinstein Monofilament Test
Holanda, Ledycnarf J., Silva, Patricia M. M., Amorim, Thiago C., Lacerda, Matheus O., Simao, Camila R., Morya, Edgard, Robotic assisted gait as a tool for rehabilitation of individuals with spinal cord injury: a systematic review, Journal of NeuroEngineering and Rehabilitation, 14, 126, 2017	Systematic review: Included studies checked for relevance.
Holler, Y., Thomschewski, A., Schwenker, K., Trinka, E., Kunz, A., Golaszewski, S., Nardone, R., Leis, S., Holler, P., Random forest trees identify useful HD-EEG configurations for BCI based on movement imagination in patients after spinal cord injury, Neurologie und Rehabilitation, 22, S39, 2016	German language article
Hornby, T. G., Campbell, D. D., Zemon, D. H., Kahn, J. H., Clinical and quantitative evaluation of robotic-assisted treadmill walking to retrain ambulation after spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 11, 1-17, 2005	Outcomes not in PICO: Gait parameters and clinical metaboloic measures
Hornby, T. George, Zemon, David H., Campbell, Donielle, Robotic-assisted, body-weight-supported treadmill training in individuals following motor incomplete spinal cord injury, Physical Therapy, 85, 52-66, 2005	Outcomes not in PICO: Gait parameters
Houghton, Pamela E., Campbell, Karen E., Fraser, Christine H., Harris, Connie, Keast, David H., Potter, Patrick J., Hayes, Keith C., Woodbury, M. Gail, Electrical stimulation therapy increases rate of healing of pressure ulcers in community-dwelling people with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 91, 669-78, 2010	Outcomes not in PICO: Wound healing
Houlihan, B., Brody, M., Everhart-Skeels, S., Pernigotti, D., Sam, J. Z., Hasiotis, B. S., Green, C., Seetharama, S., Belliveau, T., Rosenblum, D., Jette, A., "my care my call," a peer-led, telephone-based intervention for persons with spinal cord injury improves self-management behaviors, Archives of Physical Medicine and Rehabilitation, 97, e23, 2016	Conference abstract
Houlihan, B., Brody, M., Skeels, S., Pernigotti, D., Zazula, J., Burnett, S., Green, C., Seetharama, S., Hasiotis, S., Belliveau, T., Rosenblum, D., Jette, A., RCT of peer-led phone-based empowerment intervention	Conference abstract

Study	Reason for Exclusion
for persons with chronic spinal cord injury improves health self-management, Archives of Physical Medicine and Rehabilitation, 98, e152, 2017	
House, J. G., Stiens, S. A., Pharmacologically initiated defecation for persons with spinal cord injury: effectiveness of three agents, Archives of Physical Medicine and Rehabilitation, 78, 1062-5, 1997	Outcome not in PICO: Time taken for bowel care sessions and adverse events.
Hsieh, J. T. C., Wolfe, D. L., Connolly, S., Townson, A. F., Curt, A., Blackmer, J., Sequeira, K., Aubut, J., Spasticity after spinal cord injury: An evidence-based review of current interventions, Topics in Spinal Cord Injury Rehabilitation, 13, 81-97, 2007	Systematic review: Included studies checked for relevance.
Huang, M., Chen, H., Xie, K., Jiang, C., Tang, P., Ou, R., Zeng, J., Liu, Q., Li, Q., Huang, J., Huang, T., Trigone-including BTX-A injection for the treatment of low bladder compliance and urinary incontinence secondary to spinal cord injury, International Journal of Clinical and Experimental Medicine, 9, 18207-18213, 2016	Outcomes not in PICO: Number of vesicoureteral refluxes, detrusor leak point pressure, incontinence measures and voiding volume.
Huang, Qiuchen, Yu, Lili, Gu, Rui, Zhou, Yue, Hu, Chunying, Effects of robot training on bowel function in patients with spinal cord injury, Journal of physical therapy science, 27, 1377-8, 2015	Outcomes not in PICO: Defecation time and enema dose
Huang, X., Hu, W., Guo, Y., Li, W., Effects of quality control circle on patients with neurogenic urination disorder after spinal cord injury and intermittent catheterization, International Journal of Clinical and Experimental Medicine, 12, 4132-4139, 2019	Outcomes not in PICO: Awareness rate of neurogenic bladder, incidence of urinary tract infection and hydronephrosis, recovery of bladder urinary function, self-management ability, and nursing satisfaction
Ibitoye, M. O., Hamzaid, N. A., Hasnan, N., Wahab, A. K. A., Davis, G. M., Strategies for rapid muscle fatigue reduction during FES exercise in individuals with spinal cord injury: A systematic review, PLoS ONE, 11, e0149024, 2016	Systematic review: Included studies checked for relevance.
Ibitoye, M. O., Hamzaid, N. A., Hayashibe, M., Hasnan, N., Davis, G. M., Restoring prolonged standing via functional electrical stimulation after spinal cord injury: A systematic review of control strategies, Biomedical Signal Processing and Control, 49, 34-47, 2019	Systematic review: Included studies checked for relevance.
In, T., Jung, K., Lee, M. G., Cho, H. Y., Whole-body vibration improves ankle spasticity, balance, and walking ability in individuals with incomplete cervical spinal cord injury, NeuroRehabilitation, 42, 491-497, 2018	Outcomes not in PICO: Spasticity of ankle plantar-flexors, balance and walking ability.
Isrctn,, Prevention of bone loss following spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx? Trialid=isrctn46977778, 2004	Intervention not in PICO: Zoledronic acid versus standard treatment
Isrctn,, Volitional control of the pelvic floor in incomplete spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx? Trialid=isrctn53547889, 2006	Clinical trial protocol for which there were no published data
Iwahashi, K., Hayashi, T., Watanabe, R., Nishimura, A., Ueta, T., Maeda, T., Shiba, K., Effects of orthotic therapeutic electrical stimulation in the treatment of patients with paresis associated with acute cervical spinal cord injury: a randomized control trial, Spinal Cord, 55, 1066-1070, 2017	Intervention not in PICO: Orthotic therapeutic electrical stimulation
Jacobs, P. L., Nash, M. S., Modes, benefits, and risks of voluntary an delectrically induced exercise in persons with spinal cord injury, The journal of spinal cord medicine, 24, 10-8, 2001	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
Jansen, Oliver, Grasmuecke, Dennis, Meindl, Renate C., Tegenthoff, Martin, Schwenkreis, Peter, Sczesny-Kaiser, Matthias, Wessling, Martin, Schildhauer, Thomas A., Fisahn, Christian, Aach, Mirko, Hybrid Assistive Limb Exoskeleton HAL in the Rehabilitation of Chronic Spinal Cord Injury: Proof of Concept; the Results in 21 Patients, World Neurosurgery, 110, e73-e78, 2018	Study design not in PICO: Non-RCT with <100 per arm
Janssen, Thomas W. J., Pringle, D. Drew, Effects of modified electrical stimulation-induced leg cycle ergometer training for individuals with spinal cord injury, Journal of Rehabilitation Research and Development, 45, 819-30, 2008	Study design not in PICO: Non-RCT with <100 per arm
Jarosz, R., Littlepage, M., Creasey, G., McKenna, S., Functional electrical stimulation in spinal cord injury respiratory care, Topics in Spinal Cord Injury Rehabilitation, 18, 315-321, 2012	Systematic review: Included studies checked for relevance.
Jayaraman, Arun, Thompson, Christopher K., Rymer, William Z., Hornby, T. George, Short-term maximal-intensity resistance training increases volitional function and strength in chronic incomplete spinal cord injury: a pilot study, Journal of neurologic physical therapy : JNPT, 37, 112-7, 2013	Study design not in PICO: Cross-over RCT
Jensen, Mark P., Barber, Joseph, Romano, Joan M., Hanley, Marisol A., Raichle, Katherine A., Molton, Ivan R., Engel, Joyce M., Osborne, Travis L., Stoelb, Brenda L., Cardenas, Diana D., Patterson, David R., Effects of self-hypnosis training and EMG biofeedback relaxation training on chronic pain in persons with spinal-cord injury, The International journal of clinical and experimental hypnosis, 57, 239-68, 2009	Outcomes not in PICO: Pain management
Jezernik, S., Scharer, R., Colombo, G., Morari, M., Adaptive robotic rehabilitation of locomotion: a clinical study in spinally injured individuals, Spinal Cord, 41, 657-66, 2003	Study design not in PICO: Non-RCT with <100 per arm
Johnston, T. E., Betz, R. R., Smith, B. T., Mulcahey, M. J., Implanted functional electrical stimulation: an alternative for standing and walking in pediatric spinal cord injury, Spinal Cord, 41, 144-52, 2003	Study design not in PICO: Non-RCT with <100 per arm
Johnston, T. E., Schmidt-Read, M., Marino, R., Oleson, C., Leiby, B., Modlesky, C., Musculoskeletal effects of two functional electrical stimulation cycling paradigms for people with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 95, e84, 2014	Conference abstract
Johnston, Therese E., Betz, Randal R., Lauer, Richard T., Impact of cycling on hip subluxation in children with spinal cord injury, Journal of pediatric orthopedics, 29, 402-5, 2009	Outcomes not in PICO: Bone mineral density
Johnston, Therese E., Marino, Ralph J., Oleson, Christina V., Schmidt-Read, Mary, Leiby, Benjamin E., Sendecki, Jocelyn, Singh, Harshvardhan, Modlesky, Christopher M., Musculoskeletal Effects of 2 Functional Electrical Stimulation Cycling Paradigms Conducted at Different Cadences for People With Spinal Cord Injury: A Pilot Study, Archives of Physical Medicine and Rehabilitation, 97, 1413-1422, 2016	Outcomes not in PICO: Bone mineral density, bone microarchitecture thigh muscle volume and bone turnover.
Johnston, Therese E., Smith, Brian T., Mulcahey, Mary J., Betz, Randal R., Lauer, Richard T., A randomized controlled trial on the effects of cycling with and without electrical stimulation on cardiorespiratory and vascular health in children with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 90, 1379-88, 2009	Outcomes not in PICO: Oxygen uptake, resting heart rate, forced vital capacity and fasting lipid profile
Jones, Michael L., Evans, Nicholas, Tefertiller, Candace, Backus, Deborah, Sweatman, Mark, Tansey, Keith, Morrison, Sarah, Activity-based therapy for recovery of walking in chronic spinal cord injury: results from a secondary analysis to determine responsiveness to therapy, Archives of Physical Medicine and Rehabilitation, 95, 2247-52, 2014	Study design not in PICO: Secondary analysis of results from a RCT with delayed treatment design.
Kamm, M. A., Constipation-general approach and management,	Conference abstract

Study	Reason for Exclusion
Journal of Gastroenterology and Hepatology, 27, 18, 2012	
Kapadia, N. M., Zivanovic, V., Furlan, J., Craven, B. C., McGillivray, C., Popovic, M. R., Functional Electrical Stimulation Therapy for Grasping in Traumatic Incomplete Spinal Cord Injury: Randomized Control Trial, Artificial Organs, 35, 212-216, 2011	Paper does not report sufficient data details.
Kapadia, N., Masani, K., Craven, B. C., Giangregorio, L. M., Hitzig, S. L., Richards, K., Popovic, M. R., A randomized trial of functional electrical stimulation for walking in incomplete spinal cord injury: Effects on walking competency, Journal of Spinal Cord Medicine, 37, 511-524, 2014	Outcomes not in PICO: Gait parameters, balance, spasticity and functional measures
Kapadia, N., Zivanovic, V., Furlan, J., Craven, B. C., McGillivray, C., Popovic, M. R., Toronto rehabilitation institute's functional electrical stimulation therapy for grasping in traumatic incomplete spinal cord injury: Randomized control trial, Artificial Organs, 34, A33, 2010	Conference abstract
Kapadia, N., Zivanovic, V., Verrier, M., Popovic, M., Toronto rehabilitation institute-hand function test: Assessment of gross motor function in individuals with spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 18, 167-186, 2012	Not relevant to PICO: The objective of this study was to evaluate the interrater reliability, construct validity, and sensitivity of Toronto Rehabilitation Institute-Hand Function Test
Kapadia, Naaz, Zivanovic, Vera, Popovic, Milos R., Restoring voluntary grasping function in individuals with incomplete chronic spinal cord injury: pilot study, Topics in Spinal Cord Injury Rehabilitation, 19, 279-87, 2013	No relevant data reported
Karimi, Mohammad Taghi, Robotic rehabilitation of spinal cord injury individual, Ortopedia, traumatologia, rehabilitacja, 15, 1-7, 2013	Systematic review: Included studies checked for relevance.
Kaydok, E., Levendoglu, F., Ozerbil, M. O., Karahan, A. Y., Comparison of the efficacy of gabapentin and pregabalin for neuropathic pain in patients with spinal cord injury: A crossover study, 30, 1343-1348, 2014	Study design not in PICO: Cross-over RCT
Kct,, Comparison of the Efficacy between Biofeedback plus Laxatives Therapy Group and Laxatives Therapy Group in Dyssynergic Defecation Associated with Spinal Cord Disease: a Prospective Randomized Controlled Trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=kct0000337, 2012	Clinical trial protocol for which there were no published data
Kennedy, P., Duff, J., Evans, M., Beedie, A., Coping effectiveness training reduces depression and anxiety following traumatic spinal cord injuries, The British journal of clinical psychology, 42, 41-52, 2003	Study design not in PICO: Non-RCT with <100 per arm
Kim, Dong-Il, Lee, Hyelim, Lee, Bum-Suk, Kim, Jongbae, Jeon, Justin Y., Effects of a 6-Week Indoor Hand-Bike Exercise Program on Health and Fitness Levels in People With Spinal Cord Injury: A Randomized Controlled Trial Study, Archives of physical medicine and rehabilitation, 96, 2033-40.e1, 2015	Ouctomes not in PICO: Health parameters, fitness outcomes and upper limb flexion.
Kim, Jae Heon, Shim, Sung Ryul, Doo, Seung Whan, Yang, Won Jae, Yoo, Byung Wook, Kim, Joyce Mary, Ko, Young Myoung, Song, Eun Seop, Lim, Ik Sung, Lee, Hong Jun, Song, Yun Seob, Bladder recovery by stem cell based cell therapy in the bladder dysfunction induced by spinal cord injury: systematic review and meta-analysis, PLoS ONE, 10, e0113491, 2015	Intervention not in PICO: Bladder recovery by stem cell based cell therapy
King, C. E., Wang, P. T., Chui, L. A., Do, A. H., Nenadic, Z., Operation of a brain-computer interface walking simulator for individuals with spinal cord injury, Journal of NeuroEngineering and Rehabilitation, 10, 77, 2013	Study design not in PICO: Case study
Kirby, R. L., Smith, C., Rushton, P. W., Routhier, F., Miller, W. C.,	Conference abstract

Study	Reason for Exclusion
Wheelchair skills assessment and training for people with spinal cord injury who use wheelchairs: Current state of the science, Journal of Spinal Cord Medicine, 37, 611, 2014	
Kohlmeyer, K. M., Hill, J. P., Yarkony, G. M., Jaeger, R. J., Electrical stimulation and biofeedback effect on recovery of tenodesis grasp: a controlled study, Archives of Physical Medicine and Rehabilitation, 77, 702-6, 1996	Comparison not in PICO: Conventional exercise therapy (passive range of motion orthotic intervention exercise therapy) versus cyclic electrical stimulation versus Biofeedback versus Biofeedback plus electrical stimulation. Standard care not mentioned.
Konety, B. R., Nguyen, T. S. T., Brenes, G., Lewis, N., Saul, M., Nelson, J. B., Getzenberg, R. H., Evaluation of the effect of spinal cord injury on serum PSA levels, Urology, 56, 82-86, 2000	Study design not in PICO: Case-control study.
Korsten, M. A., Yen, C., Radulovic, M., Rosman, A. S., Hunt, K. K., Spungen, A. M., Galea, M. D., Kornfeld, S. D., Bauman, W., Low volume PEG and adjunctive neostigmine/glycopyrrolate improve colonoscopic bowel preparation in subjects with spinal cord injury, Gastroenterology, 146, S545-S546, 2014	Conference abstract
Kressler, Jochen, Nash, Mark S., Burns, Patricia A., Field-Fote, Edelle C., Metabolic responses to 4 different body weight-supported locomotor training approaches in persons with incomplete spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, 1436-42, 2013	Outcomes not in PICO: Maximum oxygen uptake, walking velocity and economy and substrate utilization.
Krogh, K., Jensen, M. Bach, Gandrup, P., Laurberg, S., Nilsson, J., Kerstens, R., De Pauw, M., Efficacy and tolerability of prucalopride in patients with constipation due to spinal cord injury, Scandinavian journal of gastroenterology, 37, 431-6, 2002	Intervention not in PICO: Prucalopride for the treatment of constipation
Kryger, Michael Alan, Crytzer, Theresa M., Fairman, Andrea, Quinby, Eleanor J., Karavolis, Meredith, Pramana, Gede, Setiawan, I. Made Agus, McKernan, Gina Pugliano, Parmanto, Bambang, Dicianno, Brad E., The Effect of the Interactive Mobile Health and Rehabilitation System on Health and Psychosocial Outcomes in Spinal Cord Injury: Randomized Controlled Trial, Journal of medical Internet research, 21, e14305, 2019	Mixed population: Traumatic and non-traumatic SCI. Results not presented separately for target population.
Kumar, N., Kulshrestha, R., Chowdhury, J. R., El-Masri, W., Osman, A. E., Germon, T., Long-term outcome of paediatric spinal cord injury, Spine Journal, 16, S69-S70, 2016	Conference abstract
Kumru, H., Benito-Penalva, J., Valls-Sole, J., Murillo, N., Tormos, J. M., Flores, C., Vidal, J., Placebo-controlled study of rTMS combined with Lokomat gait training for treatment in subjects with motor incomplete spinal cord injury, Experimental Brain Research, 234, 3447-3455, 2016	Outcomes not in PICO: Spasticity, upper and lower extremity motor score, walking speed and Walking Index
Kumru, Hatice, Benito-Penalva, Jesus, Kofler, Markus, Vidal, Joan, Analgesic effect of intrathecal baclofen bolus on neuropathic pain in spinal cord injury patients, Brain research bulletin, 140, 205-211, 2018	Outcomes not in PICO: Spasticity and pain
Kwok, S., Harvey, L., Glinsky, J., Bowden, J. L., Coggrave, M., Tussler, D., Does regular standing improve bowel function in people with spinal cord injury? A randomised crossover trial, Spinal Cord, 53, 36-41, 2015	Outcomes not in PICO: Time to 1st stool plus other aspects of bowel function and spasticity
Labruyere, Rob, van Hedel, Hubertus J. A., Strength training versus robot-assisted gait training after incomplete spinal cord injury: a randomized pilot study in patients depending on walking assistance,	Outcomes not in PICO: Walk test at preferred and maximal speed,

Study	Reason for Exclusion
Journal of NeuroEngineering and Rehabilitation, 11, 4, 2014	balance, strength, risk of falling and pain
Lai, E. C. C., Kao Yang, Y. H., Kuo, H. C., Ng, K., Cheng, E., Evaluation on health expenditure among patients with neurogenic detrusor overactivity after spinal cord injury, Value in Health, 15, A644, 2012	Conference abstract
Lajeunesse, Veronique, Vincent, Claude, Routhier, Francois, Careau, Emmanuelle, Michaud, Francois, Exoskeletons' design and usefulness evidence according to a systematic review of lower limb exoskeletons used for functional mobility by people with spinal cord injury, Disability and rehabilitation. Assistive technology, 11, 535-47, 2016	Systematic review: Included studies checked for relevance.
Lam, T., Eng, J. J., Wolfe, D. L., Hsieh, J. T. C., Whittaker, M., A systematic review of the efficacy of gait rehabilitation strategies for spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 13, 32-57, 2007	Systematic review: Included studies checked for relevance.
Lam, T., Pauhl, K., Ferguson, A., Malik, R. N., Krassioukov, A., Janice, J., Training with robot-applied resistance in people with motor-incomplete spinal cord injury: Pilot study, Journal of Rehabilitation Research and Development, 52, 113-130, 2015	Outcomes not in PICO: Exertion, reports of soreness, overground skilled walking capacity, walking speed and distance
Lam, T., Pauhl, K., Ferguson, A., Malik, R., Krassioukov, A., Eng, J., A new training paradigm using robot-applied resistance to enhance skilled walking in people with spinal cord injury, Physiotherapy (United Kingdom), 101, eS813-eS814, 2015	Conference abstract
Lam, T., Pauhl, K., Ferguson, A., Malik, R., Krassioukov, A., Eng, J., A pilot RCT to test the effect of lokomat-applied force fields on functional walking skills in people with motor-incomplete spinal cord injury, Neurorehabilitation and Neural Repair, 28, NP1, 2014	Conference abstract
Lam, T., Williams, A., Deegan, E., Walter, M., Stothers, L., Can exoskeleton gait training improve lower urinary tract function in people with spinal cord injury? Preliminary findings from a randomized pilot trial, Neurourology and Urodynamics, 38, S342-S343, 2019	Conference abstract
Lauderdale, M., Pineda, C., Groah, S., Ballard, P., Whitehair, C., Hubbard, K., Ljungberg, I., Triyana, B., Effectiveness of standardized spinal cord injury patients in physical medicine and rehabilitation resident training: A feasibility and technical needs assessment, Archives of Physical Medicine and Rehabilitation, 91, e21, 2010	Conference abstract
Lauer, R. T., Smith, B. T., Mulcahey, M. J., Betz, R. R., Johnston, T. E., Effects of cycling and/or electrical stimulation on bone mineral density in children with spinal cord injury, Spinal Cord, 49, 917-23, 2011	Outcomes not in PICO: Bone mineral density
Lavado, Edson L., Cardoso, Jefferson R., Silva, Luiza G. A., Dela Bela, Lais F., Atallah, Alvaro N., Effectiveness of aerobic physical training for treatment of chronic asymptomatic bacteriuria in subjects with spinal cord injury: a randomized controlled trial, Clinical rehabilitation, 27, 142-9, 2013	Outcomes not in PICO: Angular and linear kinematic gait parameters
Lechner, Helga E., Kakebeeke, Tanja H., Hegemann, Dorte, Baumberger, Michael, The effect of hippotherapy on spasticity and on mental well-being of persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 88, 1241-8, 2007	Intervention not in PICO: Hippotherapy
Leduc, B. E., Fournier, C., Jacquemin, G., Lepage, Y., Vinet, B., Hetu, P. O., Chagnon, M., Midodrine in patients with spinal cord injury and anejaculation: A double-blind randomized placebo-controlled pilot study, Journal of Spinal Cord Medicine, 38, 57-62, 2015	Not relevant to PICO: The aim of this RCT was to evaluate the efficacy of midodrine in the treatment of anejaculation in men with spinal cord injury

Study	Reason for Exclusion
Lee, B. B., Haran, M. J., Hunt, L. M., Simpson, J. M., Marial, O., Rutkowski, S. B., Middleton, J. W., Kotsiou, G., Tudehope, M., Cameron, I. D., Spinal-injured neuropathic bladder antisepsis (SINBA) trial, Spinal Cord, 45, 542-50, 2007	Not relevant to PICO: Methenamine Hippurate versus cranberry tablets prevent urinary tract infections
Leech, K. A., Kinnaird, C. R., Hornby, T. G., Effects of Serotonergic Medications on Locomotor Performance in Humans with Incomplete Spinal Cord Injury, Journal of Neurotrauma, 31, 1334-1342, 2014	Study design not in PICO: Cross-over RCT
Levi, A. D., Anderson, K. D., Okonkwo, D. O., Park, P., Bryce, T. N., Kurpad, S. N., Aarabi, B., Hsieh, J., Gant, K., Clinical Outcomes from a Multi-Center Study of Human Neural Stem Cell Transplantation in Chronic Cervical Spinal Cord Injury, Journal of Neurotrauma, 36, 891-902, 2019	Intervention not in PICO: Human neural stem cell transplantation
Li, G. P., Wang, X. Y., Zhang, Y., Efficacy and safety of OnabotulinumtoxinA in patients with neurogenic detrusor overactivity caused by spinal cord injury: A systematic review and meta-analysis, International Neurourology Journal, 22, 275-286, 2018	Systematic review: Included studies checked for relevance.
Li, H. J., Cao, X. J., A prospective randomized comparative study on effects in preventing urinary tract infection between Intelligent urinary bladder monitoring device and conventional urinary catheter in patients with voiding dysfunction caused by spinal cord injury, Http://www.chictr.org.cn/showproj.aspx? Proj=10090, 2014	Clinical trial protocol for which there were no published data
Li, Jia, Polston, Keith F. L., Eraslan, Mualla, Bickel, C. Scott, Windham, Samuel T., McLain, Amie B., Oster, Robert A., Bamman, Marcas M., Yarar-Fisher, Ceren, A high-protein diet or combination exercise training to improve metabolic health in individuals with long-standing spinal cord injury: a pilot randomized study, Physiological reports, 6, e13813, 2018	Intervention not in PICO: 8-week iso-caloric high-protein diet versus a combined exercise regimen
Li, L., Ye, W., Ruan, H., Yang, B., Zhang, S., Impact of hydrophilic catheters on urinary tract infections in people with spinal cord injury: Systematic review and meta-analysis of randomized controlled trials, Archives of Physical Medicine and Rehabilitation, 94, 782-787, 2013	Systematic review: Included studies checked for relevance.
Li, Shengai, Davis, Matthew, Frontera, Joel E., Li, Sheng, A novel nonpharmacological intervention - breathing-controlled electrical stimulation for neuropathic pain management after spinal cord injury - a preliminary study, Journal of Pain Research, 9, 933-940, 2016	Study design not in PICO: Cross-over RCT
Li, Yan, Bressington, Daniel, Chien, Wai Tong, Systematic Review of Psychosocial Interventions for People With Spinal Cord Injury During Inpatient Rehabilitation: Implications for Evidence-Based Practice, Worldviews on evidence-based nursing, 14, 499-506, 2017	Systematic review: Included studies checked for relevance.
Liechti, M. D., van der Lely, S., Stalder, S. A., Anderson, C. E., Birkhauser, V., Bachmann, L. M., Brinkhof, M. W. G., Curt, A., Jordan, X., Leitner, L., Mehnert, U., Mohr, S., Pannek, J., Schubert, M., Kessler, T. M., Update from TASCI, a Nationwide, Randomized, Sham-controlled, Double-blind Clinical Trial on Transcutaneous Tibial Nerve Stimulation in Patients with Acute Spinal Cord Injury to Prevent Neurogenic Detrusor Overactivity, European Urology Focus, 6, 877-879, 2020	No results presented.
Lim, Peter A. C., Tow, Adela M., Recovery and regeneration after spinal cord injury: a review and summary of recent literature, Annals of the Academy of Medicine, Singapore, 36, 49-57, 2007	Systematic review: Included studies checked for relevance.
Lima, C., Escada, P., Pratas-Vital, J., Branco, C., Arcangeli, C. A., Lazzeri, G., Maia, C. A., Capucho, C., Hasse-Ferreira, A., Peduzzi, J. D., Olfactory mucosal autografts and rehabilitation for chronic traumatic spinal cord injury, Neurorehabilitation and Neural Repair, 24, 10-22, 2010	Study design not in PICO: Non-RCT with <100 per arm

Study	Reason for Exclusion
Linsenmeyer, Todd A., Harrison, Barbara, Oakley, Anne, Kirshblum, Steven, Stock, Jeffrey A., Millis, Scott R., Evaluation of cranberry supplement for reduction of urinary tract infections in individuals with neurogenic bladders secondary to spinal cord injury. A prospective, double-blinded, placebo-controlled, crossover study, The journal of spinal cord medicine, 27, 29-34, 2004	Study design not in PICO: Cross-over RCT
Liu, C. W., Chen, C. H., Huang, Y. F., Huang, M. H., Auricular acupressure as a treatment for neuropathic pain in patients with spinal cord injury, European Journal of Pain Supplements, 4, 132, 2010	Conference abstract
Liu, Hongju, Li, Jianjun, Du, Liangjie, Yang, Mingliang, Yang, Degang, Li, Jun, Gao, Feng, Ma, Ke, Short-term effects of core stability training on the balance and ambulation function of individuals with chronic spinal cord injury: a pilot randomized controlled trial, Minerva Medica, 110, 216-223, 2019	Full-text article not available
Liu, X. F., Liao, Z. A., Deng, W. H., Guan, X. L., Luo, J., Effects of drug injection at eight-liao point combined with bladder function training on bladder dysfunction due to spinal cord injury, Chinese Journal of Clinical Rehabilitation, 9, 142-143, 2005	Chinese language article
Lopez-Larraz, Eduardo, Trincado-Alonso, Fernando, Rajasekaran, Vijaykumar, Perez-Nombela, Soraya, Del-Ama, Antonio J., Aranda, Joan, Minguez, Javier, Gil-Agudo, Angel, Montesano, Luis, Control of an Ambulatory Exoskeleton with a Brain-Machine Interface for Spinal Cord Injury Gait Rehabilitation, Frontiers in Neuroscience, 10, 359, 2016	Study design not in PICO: Non-RCT with <100 per arm
Louie, D. R., Eng, J. J., Lam, T., Gait speed using powered robotic exoskeletons after spinal cord injury: A systematic review and correlational study, Journal of NeuroEngineering and Rehabilitation, 12, 82, 2015	Systematic review: Included studies checked for relevance.
Lovas, J., Tran, Y., Middleton, J., Bartrop, R., Moore, N., Craig, A., Managing pain and fatigue in people with spinal cord injury: a randomized controlled trial feasibility study examining the efficacy of massage therapy, Spinal Cord, 55, 162-166, 2017	Outcomes not in PICO: Pain and fatigue
Lu, Xiao, Battistuzzo, Camilla R., Zoghi, Maryam, Galea, Mary P., Effects of training on upper limb function after cervical spinal cord injury: a systematic review, Clinical rehabilitation, 29, 3-13, 2015	Systematic review: Included studies checked for relevance.
Lucareli, P. R., Lima, M. O., Lima, F. P. S., de Almeida, J. G., Brech, G. C., D'Andrea Greve, J. M., Gait analysis following treadmill training with body weight support versus conventional physical therapy: a prospective randomized controlled single blind study, Spinal cord, 49, 1001-7, 2011	Outcomes not in PICO: oOxygen consumption and positive urinary culture.
Lucci, V. E. M., McGrath, M. S., Willms, R., Claydon, V. E., The use of lidocaine lubricant in bowel management practices does not improve autonomic dysreflexia in Spinal cord injury: A randomized clinical trial, Clinical Autonomic Research, 27, 315, 2017	Conference abstract
Lui, J., Sarai, M., Mills, P. B., Chemodenervation for treatment of limb spasticity following spinal cord injury: a systematic review, Spinal Cord, 53, 252-64, 2015	Systematic review: Included studies checked for relevance.
Ma, D. N., Zhang, X. Q., Ying, J., Chen, Z. J., Li, L. X., Efficacy and safety of 9 nonoperative regimens for the treatment of spinal cord injury: A network meta-analysis, Medicine (United States), 96, e8679, 2017	Outcomes not in PICO: Lower extremity motor score, walking index for spinal cord injury, constipation, headache, incontinence. NMA including 9 RCTs: Included studies checked for relevance.

Study	Reason for Exclusion
MacDonald, Roderick, Monga, Manoj, Fink, Howard A., Wilt, Timothy J., Neurotoxin treatments for urinary incontinence in subjects with spinal cord injury or multiple sclerosis: a systematic review of effectiveness and adverse effects, The journal of spinal cord medicine, 31, 157-65, 2008	Systematic review: Included studies checked for relevance.
Mackelprang, Jessica L., Hoffman, Jeanne M., Garbaccio, Chris, Bombardier, Charles H., Outcomes and Lessons Learned From a Randomized Controlled Trial to Reduce Health Care Utilization During the First Year After Spinal Cord Injury Rehabilitation: Telephone Counseling Versus Usual Care, Archives of Physical Medicine and Rehabilitation, 97, 1793-1796.e1, 2016	Population not in PICO: Adults who had already completed standard care rehabilitation after SCI.
Madhusmita, M., Srinivasan, T. M., Ebnezar, J., Nagendra, H. R., Mohanty, P. P., Effect of integrated yoga as an add-on to physiotherapy on walking index, esr, pain, and spasticity among subjects with traumatic spinal cord injury: A randomized control study, Journal of Stem Cells, 13, 58-66, 2018	Intervention not in PICO: Integrated Yoga as an-add on to the physiotherapy.
Maharaj, Monish M., Hogan, Jarred A., Phan, Kevin, Mobbs, Ralph J., The role of specialist units to provide focused care and complication avoidance following traumatic spinal cord injury: a systematic review, European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society, 25, 1813-20, 2016	Systematic review: Included studies checked for relevance.
Marshall, D. F., Boston, V. E., Altered bladder and bowel function following cutaneous electrical field stimulation in children with spina bifida - Interim results of a randomized double-blind placebo-controlled trial, European Journal of Pediatric Surgery, 7, 41-43, 1997	Intervention not in PICO: Non-invasive electrical stimulation versus placebo control
Martinez, Stephanie A., Nguyen, Nhuquynh D., Bailey, Eric, Doyle-Green, Denis, Hauser, Henry A., Handrakis, John P., Knezevic, Steven, Marett, Casey, Weinman, Jennifer, Romero, Angelica F., Santiago, Tiffany M., Yang, Ajax H., Yung, Lok, Asselin, Pierre K., Weir, Joseph P., Kornfeld, Stephen D., Bauman, William A., Spungen, Ann M., Harel, Noam Y., Multimodal cortical and subcortical exercise compared with treadmill training for spinal cord injury, PLoS ONE, 13, e0202130, 2018	Study design not in PICO: Cross-over RCT
Mayson, Tanja A., Harris, Susan R., Functional electrical stimulation cycling in youth with spinal cord injury: A review of intervention studies, The journal of spinal cord medicine, 37, 266-77, 2014	Systematic review: Included studies checked for relevance.
McBain, Rachel A., Boswell-Ruys, Claire L., Lee, Bonsan B., Gandevia, Simon C., Butler, Jane E., Abdominal muscle training can enhance cough after spinal cord injury, Neurorehabilitation and Neural Repair, 27, 834-43, 2013	Study design not in PICO: Cross-over RCT
McCaughey, E. J., Borotkanics, R. J., Gollee, H., Folz, R. J., McLachlan, A. J., Abdominal functional electrical stimulation to improve respiratory function after spinal cord injury: a systematic review and meta-analysis, Spinal Cord, 55, 798, 2017	Systematic review: Included studies checked for relevance.
McIntyre, A., Janzen, S., Mehta, S., Teasell, R., A systematic review examining efficacy of intrathecal baclofen on spasticity in individuals greater than six months post-spinal cord injury, Archives of Physical Medicine and Rehabilitation, 93, E45, 2012	Conference abstract
McIntyre, Amanda, Mays, Rachel, Mehta, Swati, Janzen, Shannon, Townson, Andrea, Hsieh, Jane, Wolfe, Dalton, Teasell, Robert, Examining the effectiveness of intrathecal baclofen on spasticity in individuals with chronic spinal cord injury: a systematic review, The journal of spinal cord medicine, 37, 11-8, 2014	Systematic review: Included studies checked for relevance.
Mehrholz, J., Harvey, L. A., Thomas, S., Elsner, B., Is body-weight-supported treadmill training or robotic-assisted gait training superior to overground gait training and other forms of physiotherapy in people with	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
spinal cord injury? A systematic review, Spinal Cord, 55, 722-729, 2017	
Mehrholz, Jan, Kugler, Joachim, Pohl, Marcus, Locomotor training for walking after spinal cord injury, The Cochrane database of systematic reviews, 11, CD006676, 2012	Systematic review: Included studies checked for relevance.
Mehta, S., Foley, N., Wolfe, D., Hsieh, J., Ethans, K., Hill, D., Teasell, R., Effectiveness of botulinum toxin injections to the external sphincter in treating incomplete voiding postspinal cord injury: A meta-analysis, Archives of Physical Medicine and Rehabilitation, 91, e18, 2010	Conference abstract
Mehta, S., Orenczuk, S., Hansen, K. T., Aubut, J. A. L., Hitzig, S. L., Legassic, M., Teasell, R. W., An Evidence-Based Review of the Effectiveness of Cognitive Behavioral Therapy for Psychosocial Issues Post-Spinal Cord Injury, Rehabilitation Psychology, 56, 15-25, 2011	Systematic review: Included studies checked for relevance.
Mehta, S., Orenczuk, S., Teasell, R., Evidence based management of depression following spinal cord injury: A meta-analysis, Archives of Physical Medicine and Rehabilitation, 92, 1706-1707, 2011	Conference abstract
Mehta, S., Peynenburg, V. A., Hadjistavropoulos, H. D., Internet-delivered cognitive behaviour therapy for chronic health conditions: a systematic review and meta-analysis, Journal of behavioral medicine, 42, 169-187, 2019	Systematic review: Included studies checked for relevance.
Mehta, Swati, Hill, Denise, Foley, Norine, Hsieh, Jane, Ethans, Karen, Potter, Patrick, Baverstock, Richard, Teasell, Robert W., Wolfe, Dalton, Spinal Cord Injury Rehabilitation Evidence Research, Team, A meta-analysis of botulinum toxin sphincteric injections in the treatment of incomplete voiding after spinal cord injury, Archives of Physical Medicine and Rehabilitation, 93, 597-603, 2012	Systematic review: Included studies checked for relevance.
Mehta, Swati, Hill, Denise, McIntyre, Amanda, Foley, Norine, Hsieh, Jane, Ethans, Karen, Teasell, Robert W., Loh, Eldon, Welk, Blayne, Wolfe, Dalton, Meta-analysis of botulinum toxin A detrusor injections in the treatment of neurogenic detrusor overactivity after spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, 1473-81, 2013	Systematic review: Included studies checked for relevance.
Menendez, H., Ferrero, C., Martin-Hernandez, J., Figueroa, A., Marin, P. J., Herrero, A. J., Chronic effects of simultaneous electromyostimulation and vibration on leg blood flow in spinal cord injury, Spinal Cord, 54, 1169-1175, 2016	Outcomes not in PICO: Blood flow parameters, muscle thickness and bone mineral density
Meng, Z., Wang, T., Yin, Z., Wang, J., Clinical research of electroacupuncture combined with transperineal injection of BTX-A for neurogenic bladder after spinal cord injury, Zhongguo zhen jiu [Chinese acupuncture & moxibustion], 35, 17-20, 2015	Chinese language article
Midrio, P., Mosiello, G., Ausili, E., Gamba, P., Marte, A., Lombardi, L., Iacobelli, B. D., Caponcelli, E., Marrello, S., Meroni, M., Brisighelli, G., Leva, E., Rendeli, C., Peristeen() transanal irrigation in paediatric patients with anorectal malformations and spinal cord lesions: a multicentre Italian study, Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland, 18, 86-93, 2016	Study design not in PICO: No comparison group.
Millar, Philip J., Rakobowchuk, Mark, Adams, Melanie M., Hicks, Audrey L., McCartney, Neil, MacDonald, Maureen J., Effects of short-term training on heart rate dynamics in individuals with spinal cord injury, Autonomic neuroscience : basic & clinical, 150, 116-21, 2009	Study design not in PICO: Cross-over RCT
Miller, Larry E., Zimmermann, Angela K., Herbert, William G., Clinical effectiveness and safety of powered exoskeleton-assisted walking in patients with spinal cord injury: systematic review with meta-analysis, Medical devices (Auckland, N.Z.), 9, 455-66, 2016	Systematic review: Included studies checked for relevance.
Morales, V., Bladder management of the pediatric spinal cord injury patient, SCI nursing : a publication of the American Association of Spinal Cord Injury Nurses, 18, 102-4, 2001	Paper unavailable

Study	Reason for Exclusion
Morawietz, Christina, Moffat, Fiona, Effects of locomotor training after incomplete spinal cord injury: a systematic review, Archives of physical medicine and rehabilitation, 94, 2297-308, 2013	Systematic review: Included studies checked for relevance.
Mulroy, Sara J., Thompson, Lilli, Kemp, Bryan, Hatchett, Patricia Pate, Newsam, Craig J., Lupold, Dee Gutierrez, Haubert, Lisa Lighthall, Eberly, Valerie, Ge, Ting-Ting, Azen, Stanley P., Winstein, Carolee J., Gordon, James, Physical Therapy Clinical Research, Network, Strengthening and optimal movements for painful shoulders (STOMPS) in chronic spinal cord injury: a randomized controlled trial, Physical Therapy, 91, 305-24, 2011	Comparison not in PICO: Exercise/movement optimization intervention (12-week home-based program of shoulder strengthening and stretching exercises) versus attention control intervention only
Mushahwar, Vivian K., Jacobs, Patrick L., Normann, Richard A., Triolo, Ronald J., Kleitman, Naomi, New functional electrical stimulation approaches to standing and walking, Journal of Neural Engineering, 4, S181-97, 2007	Systematic review: Included studies checked for relevance.
Musselman, Kristin E., Yang, Jaynie F., Spinal Cord Injury Functional Ambulation Profile: a preliminary look at responsiveness, Physical Therapy, 94, 240-50, 2014	Study design not in PICO: Cross-over RCT
Nam, K. Y., Kim, H. J., Kwon, B. S., Park, J. W., Lee, H. J., Yoo, A., Robot-assisted gait training (Lokomat) improves walking function and activity in people with spinal cord injury: a systematic review, Journal of NeuroEngineering and Rehabilitation, 14, 24, 2017	Systematic review: Included studies checked for relevance.
Nance, P. W., Huff, F. J., Martinez-Arizala, A., Ayyoub, Z., Chen, D., Bian, A., Stamler, D., Efficacy and safety study of arbaclofen placarbil in patients with spasticity due to spinal cord injury, Spinal Cord, 49, 974-80, 2011	Study design not in PICO: Cross-over RCT
Nance, P., Schryvers, O., Schmidt, B., Dubo, H., Loveridge, B., Fewer, D., Intrathecal baclofen therapy for adults with spinal spasticity: therapeutic efficacy and effect on hospital admissions, The Canadian journal of neurological sciences. Le journal canadien des sciences neurologiques, 22, 22-9, 1995	Study design not in PICO: Non-RCT with <100 per arm
Nardone, R., Holler, Y., Thomschewski, A., Brigo, F., Orioli, A., Holler, P., Golaszewski, S., Trinka, E., rTMS modulates reciprocal inhibition in patients with traumatic spinal cord injury, Spinal Cord, 52, 831-5, 2014	Study design not in PICO: Cross-over RCT
Nardone, R., Langthaler, P. B., Orioli, A., Höller, P., Höller, Y., Frey, V. N., Brigo, F., Trinka, E., Effects of intermittent theta burst stimulation on spasticity after spinal cord injury, Restorative Neurology and Neuroscience, 35, 287-294, 2017	Study design not in PICO: Cross-over RCT
Navarrete-Opazo, A., Alcayaga, J. J., Sepúlveda, O., Varas, G., Intermittent Hypoxia and Locomotor Training Enhances Dynamic but Not Standing Balance in Patients With Incomplete Spinal Cord Injury, Archives of Physical Medicine and Rehabilitation, 98, 415-424, 2017	Outcomes not in PICO: Balance measurements.
Nct,, A Safety and Efficacy Study of XP19986 in Subjects With Spasticity Due to Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00557973, 2007	Clinical trial protocol for which there were no published data
Nct,, Activity-Dependent Transspinal Stimulation in SCI, Https://clinicaltrials.gov/show/nct03669302, 2018	Clinical trial protocol for which there were no published data
Nct,, Acute Effect of Ventilatory Support During Exercise in Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03267212, 2017	Clinical trial protocol for which there were no published data
Nct,, An Internet-Delivered Pain Management Programme for Spinal Cord Injury Pain, Https://clinicaltrials.gov/show/nct03150017, 2017	Clinical trial protocol for which there were no published data

Study	Reason for Exclusion
Nct,, Association Between tDCS and Lokomat Training in Patients With Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct02562001, 2015	Clinical trial protocol for which there were no published data
Nct,, Bonfill, X., Rigau, D., Multicentric, Controlled, Randomized Clinical Trial to Assess the Efficacy and Cost-effectiveness of Urinary Catheters With Silver Alloy Coating Versus Conventional Catheters in Spinal Cord Injured Patients, Http://clinicaltrials.gov/show/nct01803919, 2012	Clinical trial protocol for which there were no published data
Nct,, Cardenas, D., A Prospective, Randomized, Parallel-group, Multi-center Study to Compare the Occurrence of Urinary Tract Infections in Patients With Spinal Cord Injury Using Either Coated or Uncoated Intermittent Catheters, Http://clinicaltrials.gov/show/nct00318591, 2006	Clinical trial protocol for which there were no published data
Nct,, Effect of Tadalafil (Cialis) on the Cardiovascular System of Spinal Cord Injury (SCI) Males, Https://clinicaltrials.gov/show/nct01067391, 2010	Clinical trial protocol for which there were no published data
Nct,, Effects of Robotic Versus Manually-Assisted Locomotor Training for Individuals With Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00127439, 2005	Outcomes not in PICO: Walking balance and distance
Nct,, Evaluation of a Specialized Yoga Program for Persons With Spinal Cord Injury (SCI), Https://clinicaltrials.gov/show/nct02656927, 2016	Clinical trial protocol for which there were no published data
Nct,, Exercise to Reduce Obesity in Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00270855, 2005	Clinical trial protocol for which there were no published data
Nct,, Exoskeleton and Spinal Cord Stimulation for SCI, Https://clinicaltrials.gov/show/nct03096197, 2017	Clinical trial protocol for which there were no published data
Nct,, FES-Rowing Versus Zoledronic Acid to Improve Bone Health in Spinal Cord Injury (SCI), Https://clinicaltrials.gov/show/nct01426555, 2011	Clinical trial protocol for which there were no published data
Nct,, Improving Self-Management Skills Among People With Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03140501, 2017	Clinical trial protocol for which there were no published data
Nct,, Intervention Study to Assess the Effects of Moderate and High Intensity Aerobic Training on Physical Capacity and Activity Level in Persons With Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct01903226, 2013	Clinical trial protocol for which there were no published data
Nct,, Investigation Into Optimal FES Training Characteristics After Sub-acute Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03621254, 2018	Clinical trial protocol for which there were no published data
Nct,, Laurberg, S., Treatment of Fecal Incontinence and Constipation in Patients With Spinal Cord Injury - a Prospective, Randomized, Controlled, Multicentre Trial of Transanal Irrigation Vs. Conservative Bowel Management, Http://clinicaltrials.gov/show/nct00286520, 2003	Clinical trial protocol for which there were no published data
Nct,, Non-Ambulatory SCI Walk Using a Robotic Exoskeleton: effect on Bone and Muscle, Https://clinicaltrials.gov/show/nct02324322, 2014	Clinical trial protocol for which there were no published data
Nct,, Phase II Randomized Pilot Study of Body Weight Support and Treadmill Training for Chronic Thoracic Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00004812, 2000	Clinical trial protocol for which there were no published data
Nct,, Preventing Pressure Ulcers in Veterans With Spinal Cord Injury (SCI), Https://clinicaltrials.gov/show/nct00105859, 2005	Study design not in PICO: Cross-sectional study
Nct,, ReInventing Yourself After SCI: an Intervention to Improve Outcomes After Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03390140, 2018	Clinical trial protocol for which there were no published data

Study	Reason for Exclusion
Nct,, Restoration of Upper Limb Function in Individuals With Sub-Acute Spinal Cord Injury, Https://clinicaltrials.gov/show/nct01292811, 2011	Clinical trial protocol for which there were no published data
Nct,, Robotic Gait Training in Spinal Cord Injury, Https://clinicaltrials.gov/show/nct02749357, 2016	Clinical trial protocol for which there were no published data
Nct,, Robotic-assisted Locomotor Training on Mobility and Cardiopulmonary Function in Patients Suffering From Spinal Cord Injury, Https://clinicaltrials.gov/show/nct01989806, 2013	Outcome not in PICO: Walking and cardiopulmonary function in people with spinal cord injury
Nct,, rTMS and Body Weight-support Treadmill Training After Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03394560, 2018	Clinical trial protocol for which there were no published data
Nct,, Spinal Cord Injury Exercise and Nutrition Conceptual Engagement, Https://clinicaltrials.gov/show/nct03495986, 2018	Clinical trial protocol for which there were no published data
Nct,, Sprint Interval Training During Rehabilitation After Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03709095, 2018	Clinical trial protocol for which there were no published data
Nct,, Treadmill Training for Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00006429, 2000	Clinical trial protocol for which there were no published data
Nct,, Treadmill Training With Body Weight Support in Patients With Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00061295, 2003	Clinical trial protocol for which there were no published data
Nct,, Treatment of Chronic Pain After Spinal Cord Injury (SCI) or Amputation, Https://clinicaltrials.gov/show/nct00006448, 2000	Clinical trial protocol for which there were no published data
Nct,, Ventilatory Support to Improve Exercise Training in High Level Spinal Cord Injury, Https://clinicaltrials.gov/show/nct02865343, 2016	Clinical trial protocol for which there were no published data
Needham-Shropshire, B. M., Broton, J. G., Cameron, T. L., Klose, K. J., Improved motor function in tetraplegics following neuromuscular stimulation-assisted arm ergometry, The journal of spinal cord medicine, 20, 49-55, 1997	Outcomes not in PICO: Tnceps Manual Muscle Grade and number of improved muscles
Nistor-Cseppento, C., Cioara, F., Suciu, R. N., Matica, A., Cevei, M., Correlation of bone mass variation with physical therapy in patients with quadriplegia, Osteoporosis International, 26, S322, 2015	Conference abstract
Niu, Xun, Varoqui, Deborah, Kindig, Matthew, Mirbagheri, Mehdi M., Prediction of gait recovery in spinal cord injured individuals trained with robotic gait orthosis, Journal of NeuroEngineering and Rehabilitation, 11, 42, 2014	Outcomes not in PICO: Measures related to walking capacity
Nooijen, C. F., Ter Hoeve, N., Field-Fote, E. C., Gait quality is improved by locomotor training in individuals with SCI regardless of training approach, Journal of NeuroEngineering and Rehabilitation, 6, 36, 2009	Outcomes not in PICO: Gait parameters
Norrbrink Budh, Cecilia, Kowalski, Jan, Lundeberg, Thomas, A comprehensive pain management programme comprising educational, cognitive and behavioural interventions for neuropathic pain following spinal cord injury, Journal of Rehabilitation Medicine, 38, 172-80, 2006	Study design not in PICO: Non-RCT with <100 per arm
Oo, W. M., Efficacy of addition of transcutaneous electrical nerve stimulation to standardized physical therapy in subacute spinal spasticity, Archives of Physical Medicine and Rehabilitation, 96, e26, 2015	Conference abstract
Oo, Win Min, Efficacy of addition of transcutaneous electrical nerve	Intervention not in PICO:

Study	Reason for Exclusion
stimulation to standardized physical therapy in subacute spinal spasticity: a randomized controlled trial, Archives of Physical Medicine and Rehabilitation, 95, 2013-20, 2014	Transcutaneous electrical nerve stimulation plus standardized physical therapy
Ordia, J. I., Fischer, E., Adamski, E., Spatz, E. L., Chronic intrathecal delivery of baclofen by a programmable pump for the treatment of severe spasticity, Journal of Neurosurgery, 85, 452-7, 1996	Comparison not in PICO: Intrathecal delivery of baclofen versus placebo. No mention of standard care.
Ozkul, Cagla, Kilinc, Muhammed, Yildirim, Sibel Aksu, Topcuoglu, Elif Yalcin, Akyuz, Mufit, Effects of visual illusion and transcutaneous electrical nerve stimulation on neuropathic pain in patients with spinal cord injury: A randomised controlled cross-over trial, Journal of back and musculoskeletal rehabilitation, 28, 709-19, 2015	Study design not in PICO: Cross-over RCT
Pactr,, new approach gamal technique bladder rehabilitation spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx?Trialid=pactr201803003100338, 2018	Clinical trial protocol for which there were no published data
Panisset, M. G., Galea, M. P., El-Ansary, D., Does early exercise attenuate muscle atrophy or bone loss after spinal cord injury?, Spinal cord, 54, 84-92, 2016	Systematic review: Included studies checked for relevance.
Papathomas, Anthony, Williams, Toni L., Smith, Brett, Understanding physical activity participation in spinal cord injured populations: Three narrative types for consideration, International journal of qualitative studies on health and well-being, 10, 2015	Study design not in PICO: Non-RCT with <100 per arm
Parent, Stefan, Barchi, Soraya, LeBreton, Michel, Casha, Steve, Fehlings, Michael G., The impact of specialized centers of care for spinal cord injury on length of stay, complications, and mortality: a systematic review of the literature, Journal of Neurotrauma, 28, 1363-70, 2011	Systematic review: Included studies checked for relevance.
Parittotokkaporn, S., Varghese, C., O'Grady, G., Svirskis, D., Subramanian, S., O'Carroll, S. J., Non-invasive neuromodulation for bowel, bladder and sexual restoration following spinal cord injury: A systematic review, Clinical Neurology and Neurosurgery, 194, 105822, 2020	Systematic review: Included studies checked for relevance.
Patil, Siddeshwar, Raza, Wajid A., Jamil, Firas, Caley, Richard, O'Connor, Rory J., Functional electrical stimulation for the upper limb in tetraplegic spinal cord injury: a systematic review, Journal of medical engineering & technology, 39, 419-23, 2014	Systematic review: Included studies checked for relevance.
Patzer, D., Vu, P., Pardo, V., Galen, S., Immediate effect of whole-body vibration on gait in patients with incomplete spinal cord injury, Journal of Spinal Cord Medicine, 37, 624-625, 2014	Conference abstract
Perkes, Sarah J., Bowman, Julia, Penkala, Stefania, Psychological therapies for the management of co-morbid depression following a spinal cord injury: a systematic review, Journal of health psychology, 19, 1597-612, 2014	Systematic review: Included studies checked for relevance.
Phadke, C., Veira, L., Mathur, S., Cipriano, G., Ismail, F., Boulias, C., Impact of passive leg cycling in persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 98, e135, 2017	Conference abstract
Phillips, A. A., Elliott, S. L., Zheng, M. M., Krassioukov, A. V., Selective alpha adrenergic antagonist reduces severity of transient hypertension during sexual stimulation after spinal cord injury, Journal of Neurotrauma, 32, 392-396, 2015	Not relevant to PICO: This RCT aimed to compare the effect of a short-acting selective alpha antagonist on autonomic dysreflexia severity during medically

Study	Reason for Exclusion
	supervised penile vibro-stimulation in six males with cervical spinal cord injury
Pickard, W. G., Grundy, D. J., A comparison of two methods of sterile urethral catheterisation in spinal cord injured adults, Paraplegia, 34, 30-3, 1996	Intervention not in PICO: Methods of sterile urethral catheterisation
Piira, A., Lannem, A. M., Gjesdal, K., Knutsen, R., Jorgensen, L., Glott, T., Hjeltnes, N., Knutsen, S. F., Sorensen, M., Quality of life and psychological outcomes of body-weight supported locomotor training in spinal cord injured persons with long-standing incomplete lesions, Spinal Cord, 58, 560-569, 2020	Mixed population: Included traumatic (21/37) and non-traumatic (16/37). Results not reported separately for target population.
Piira, A., Lannem, A. M., Sørensen, M., Glott, T., Knutsen, R., Jørgensen, L., Gjesdal, K., Hjeltnes, N., Knutsen, S. F., Manually assisted body-weight supported locomotor training does not re-establish walking in non-walking subjects with chronic incomplete spinal cord injury: a randomized clinical trial, Journal of Rehabilitation Medicine, 51, 113-119, 2019	Outcomes not in PICO: Walking function, lower extremity muscle strength and balance
Piira, A., Lannem, A. M., Sorensen, M., Glott, T., Knutsen, R., Jorgensen, L., Gjesdal, K., Hjeltnes, N., Knutsen, S. F., Robot-assisted locomotor training did not improve walking function in patients with chronic incomplete spinal cord injured: A randomized clinical trial, Journal of Rehabilitation Medicine, 2019	Outcomes not in PICO: Walking function, lower extremity muscle strength and balance
Ping Ho Chung, Bryan, Kam Kwan Cheng, Benson, Immediate effect of transcutaneous electrical nerve stimulation on spasticity in patients with spinal cord injury, Clinical Rehabilitation, 24, 202-10, 2010	Intervention not in PICO: Transcutaneous electrical nerve stimulation
Pooyania, Sepideh, Ethans, Karen, Szturm, Tony, Casey, Alan, Perry, Daryl, A randomized, double-blinded, crossover pilot study assessing the effect of nabilone on spasticity in persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 91, 703-7, 2010	Study design not in PICO: Cross-over RCT
Popovic, M. R., Functional electrical stimulation therapy for restoration of voluntary reaching and grasping functions following stroke and spinal cord injury: Randomized clinical trials, Neuromodulation, 15, e1, 2012	Conference abstract
Popovic, M. R., Thrasher, T. A., Adams, M. E., Takes, V., Zivanovic, V., Tonack, M. I., Functional electrical therapy: retraining grasping in spinal cord injury, Spinal Cord, 44, 143-51, 2006	No relevant data reported
Popovic, M., Kapadia, N., Zivanovic, V., Improving voluntary upper limb function in individuals with chronic incomplete spinal cord injury, Journal of Spinal Cord Medicine, 37, 637, 2014	Conference abstract
Post, M. W. M., van Leeuwen, C. M. C., Psychosocial issues in spinal cord injury: a review, Spinal Cord, 50, 382-9, 2012	Systematic review: Included studies checked for relevance.
Postans, Neil J., Hasler, Jon P., Granat, Malcolm H., Maxwell, Douglas J., Functional electric stimulation to augment partial weight-bearing supported treadmill training for patients with acute incomplete spinal cord injury: A pilot study, Archives of Physical Medicine and Rehabilitation, 85, 604-10, 2004	Study design not in PICO: Cross-over RCT
Postma, K., Haisma, J. A., Hopman, M. T., Bergen, M. P., Stam, H. J., Bussmann, J. B., Resistive inspiratory muscle training in people with spinal cord injury during inpatient rehabilitation: a randomized controlled trial, Physical Therapy, 94, 1709-1719, 2014	Intervention not in PICO: Resistive inspiratory muscle training
Potter, P. J., Hayes, K. C., Segal, J. L., Hsieh, J. T., Brunnemann, S. R., Delaney, G. A., Tierney, D. S., Mason, D., Randomized double-blind	Study design not in PICO: Cross-over RCT

Study	Reason for Exclusion
crossover trial of fampridine-SR (sustained release 4-aminopyridine) in patients with incomplete spinal cord injury, Journal of Neurotrauma, 15, 837-49, 1998	
Powell, Elizabeth Salmon, Carrico, Cheryl, Raithatha, Ravi, Salyers, Emily, Ward, Andrea, Sawaki, Lumy, Transvertebral direct current stimulation paired with locomotor training in chronic spinal cord injury: A case study, NeuroRehabilitation, 38, 27-35, 2016	Study design not in PICO: Cross-over RCT
Pramodhyakul, Noppol, Amatachaya, Pipatana, Sooknuan, Thanat, Arayawichanon, Preeda, Amatachaya, Sugalya, Visuotemporal cues clinically improved walking ability of ambulatory patients with spinal cord injury within 5 days, The journal of spinal cord medicine, 39, 405-11, 2016	Study design not in PICO: Non-RCT with <100 per arm
Qin, J., Zhao, Y., Shi, X., Hu, Y., Tang, J., Ren, D., Cao, Z., Tang, J., Effects of acupuncture intervention at different stages on urinary function reconstruction of neurogenic bladder after spinal cord injury, Zhongguo zhen jiu [Chinese acupuncture & moxibustion], 35, 132-136, 2015	Chinese language article
Quach, J., Alappat, C., Flett, H., Guy, K., Verrier, M. C., Postural control in individuals with spinal cord injury:What do we knowabout assessments and rehabilitation interventions?, Journal of Spinal Cord Medicine, 37, 653-654, 2014	Conference abstract
Rahul, S., Singh, D., Rustagi, S., Sureka, S. K., Srivastava, A., Ansari, M. S., Intra-sphincteric botulinum a toxin for refractory voiding dysfunction in neurologically normal children: A new ray of hope, Indian Journal of Urology, 34, 35-36, 2018	Conference abstract
Raithatha, R., Carrico, C., Powell, E. S., Westgate, P. M., Chelette, K. C., Lee, K., Dunsmore, L., Salles, S., Sawaki, L., Non-invasive brain stimulation and robot-assisted gait training after incomplete spinal cord injury: A randomized pilot study, NeuroRehabilitation, 38, 15-25, 2016	Outcomes not in PICO: Manual muscle testing, walking speed, Timed Up and Go test, Berg Balance Scale and Spinal Cord Independence Measure-III
Ralston, Keira E., Harvey, Lisa, Batty, Julia, Bonsan, Lee B., Ben, Marsha, Cusmiani, Rita, Bennett, Jacqueline, Functional electrical stimulation cycling has no clear effect on urine output, lower limb swelling, and spasticity in people with spinal cord injury: a randomised cross-over trial, Journal of physiotherapy, 59, 237-43, 2013	Study design not in PICO: Cross-over RCT
Rayegani, Seyed Mansoor, Shojaee, Hadi, Sedighipour, Leyla, Soroush, Mohammad Reza, Baghbani, Mohammad, Amirani, Omm'ol Banin, The effect of electrical passive cycling on spasticity in war veterans with spinal cord injury, Frontiers in Neurology, 2, 39, 2011	Outcomes not in PICO: Lower limb range of motion, spasticity scale, and electrodiagnostic parameters.
Ren, Jian, Chew, Daniel J., Biers, Suzanne, Thiruchelvam, Nikesh, Electrical nerve stimulation to promote micturition in spinal cord injury patients: A review of current attempts, Neurourology and urodynamics, 35, 365-70, 2016	Systematic review: Included studies checked for relevance.
Rice, Ian M., Pohlig, Ryan T., Gallagher, Jerri D., Boninger, Michael L., Handrim wheelchair propulsion training effect on overground propulsion using biomechanical real-time visual feedback, Archives of physical medicine and rehabilitation, 94, 256-63, 2013	Outcomes not in PICO: Handrim kinetics, contact angle, and stroke frequency
Richardson, E. J., Brooks, L. G., Richards, J. S., Bombardier, C. H., Barber, J., Tate, D., Forchheimer, M. B., Fann, J. R., Changes in pain and quality of life in depressed individuals with spinal cord injury: does type of pain matter?, Journal of Spinal Cord Medicine, 39, 535-543, 2016	Not relevant to PICO: The aim was to examine the association of neuropathic and nociceptive pain severity and interference with

Study	Reason for Exclusion
	quality of life in persons with spinal cord injury who underwent a randomized controlled 12-week trial of an antidepressant to treat depression.
Rintala, D. H., Holmes, S. A., Courtade, D., Fiess, R. N., Tastard, L. V., Loubser, P. G., Comparison of the Effectiveness of Amitriptyline and Gabapentin on Chronic Neuropathic Pain in Persons With Spinal Cord Injury, Archives of Physical Medicine and Rehabilitation, 88, 1547-1560, 2007	Study design not in PICO: Cross-over RCT
Sadeghi, Mahsa, Sawatzky, Bonita, Effects of vibration on spasticity in individuals with spinal cord injury: a scoping systematic review, American journal of physical medicine & rehabilitation, 93, 995-1007, 2014	Systematic review: Included studies checked for relevance.
Sahagun Olmos Roberto, C., Pineda Villasenor Carlos, J., Jimena, Q. F., Cristina, H. D., Mendoza Cosio Christian, A., Araceli, B. G., Carmona Plaza, A., Cardiovascular effects of gait training on a robotic orthosis in individuals with chronic incomplete spinal cord injury: Preeliminary report, Journal of Cardiopulmonary Rehabilitation and Prevention, 35, 290, 2015	Conference abstract
Salzberg, C. A., Cooper-Vastola, S. A., Perez, F., Viehbeck, M. G., Byrne, D. W., The effects of non-thermal pulsed electromagnetic energy on wound healing of pressure ulcers in spinal cord-injured patients: a randomized, double-blind study, Ostomy/wound management, 41, 42-passim, 1995	Study design not in PICO: Cross-over RCT
Samal, V., Mecl, J., Kyrianova, A., Sram, J., Using of hydrophylic-coated catheters for intermittent catheterization in the conditions of spinal cord unit, European Urology, Supplements, 11, 101, 2012	Conference abstract
Samuelsson, K. A., Tropp, H., Nylander, E., Gerdle, B., The effect of rear-wheel position on seating ergonomics and mobility efficiency in wheelchair users with spinal cord injuries: a pilot study, Journal of Rehabilitation Research and Development, 41, 65-74, 2004	Outcomes not in PICO: Wheelchair's propulsion efficiency, seating comfort, and propulsion qualities.
Sandler, Evan B., Roach, Kathryn E., Field-Fote, Edelle C., Dose-Response Outcomes Associated with Different Forms of Locomotor Training in Persons with Chronic Motor-Incomplete Spinal Cord Injury, Journal of Neurotrauma, 34, 1903-1908, 2017	Outcomes not in PICO: Walking distance and speed
Sarica, S., Akkoc, Y., Karapolat, H., Aktug, H., Comparison of the use of conventional, hydrophilic and gel-lubricated catheters with regard to urethral micro trauma, urinary system infection, and patient satisfaction in patients with spinal cord injury: a randomized controlled study, European journal of physical and rehabilitation medicine, 46, 473-9, 2010	Intervention not in PICO: Not early prophylactic bladder management.
Schottler, Jennifer, Vogel, Lawrence C., Sturm, Peter, Spinal cord injuries in young children: a review of children injured at 5 years of age and younger, Developmental Medicine and Child Neurology, 54, 1138-43, 2012	Study design not in PICO: No comparison group.
Schurch, B., De Seze, M., Denys, P., Chartier-Kastler, E., Haab, F., Everaert, K., Plante, P., Perrouin-Verbe, B., Kumar, C., Fraczek, S., Brint, M. F., Botulinum toxin type A is a safe and effective treatment for neurogenic urinary incontinence: Results of a single treatment, randomized, placebo controlled 6-month study, Journal of Urology, 174, 196-200, 2005	No intervention of interest: This RCT evaluated the effects of 2 doses of botulinum toxin type A (BTX-A) (200 or 300 U BOTOX) injected into the detrusor for urinary incontinence

Study	Reason for Exclusion
	caused by neurogenic detrusor overactivity of predominantly spinal cord origin. This was not an "Early prophylactic bladder management "
Senthilvelkumar, Thangavelu, Magimairaj, Henry, Fletcher, Jebaraj, Tharion, George, George, Jacob, Comparison of body weight-supported treadmill training versus body weight-supported overground training in people with incomplete tetraplegia: a pilot randomized trial, Clinical Rehabilitation, 29, 42-9, 2015	Outcomes not in PICO: Walking Index for Spinal Cord Injury and Lower Extremity Muscle Score
Shackleton, C., Albertus, Y., Effects of Robotic Walking & Activity-Based Rehabilitation on Health-realted Benifits in Persons With SCI, Archives of Physical Medicine and Rehabilitation, 100, e177, 2019	Conference abstract
Shackleton, C., Evans, R., Shamley, D., West, S., Albertus, Y., Effectiveness of over-ground robotic locomotor training in improving walking performance, cardiovascular demands, secondary complications and user-satisfaction in individuals with spinal cord injuries: A systematic review, Journal of rehabilitation medicine, 51, 723-733, 2019	Systematic review: Included studies checked for relevance.
Shendy, W. S., El Semary, M. M., Battecha, K. H., Abdel-Azim, M. S., Mourad, H. S., El Gohary, A. M., Efficacy of transcutaneous electrical nerve stimulation versus biofeedback training on bladder and erectile dysfunction in patients with spinal cord injury, Egyptian Journal of Neurology, Psychiatry and Neurosurgery, 52, 194-200, 2015	Intervention not in PICO: Transcutaneous electrical nerve stimulation versus pelvic floor biofeedback
Shojaei, Mir Hatef, Alavinia, Seyed Mohammad, Craven, B. Catharine, Management of obesity after spinal cord injury: a systematic review, The journal of spinal cord medicine, 40, 783-794, 2017	Systematic review: Included studies checked for relevance.
Siddall, P. J., Middleton, J. W., A proposed algorithm for the management of pain following spinal cord injury, Spinal Cord, 44, 67-77, 2006	Systematic review: Included studies checked for relevance.
Simis, M., Ricardo Sato, J., Santos, K., Fregni, F., Rizzo Battistella, L., Using functional near infrared spectroscopy (FNIRS) to assess the effect of transcranial direct-current stimulation (TDCS) on spinal cord injury patient, during robot-assisted gait, Annals of Physical and Rehabilitation Medicine, (no pagination), 2018	Conference abstract
Skeers, Peta, Battistuzzo, Camila R., Clark, Jillian M., Bernard, Stephen, Freeman, Brian J. C., Batchelor, Peter E., Acute Thoracolumbar Spinal Cord Injury: Relationship of Cord Compression to Neurological Outcome, The Journal of bone and joint surgery. American volume, 100, 305-315, 2018	Study design not in PICO: Case study
Skold, Camilla, Lonn, Lars, Harms-Ringdahl, Karin, Hultling, Claes, Levi, Richard, Nash, Mark, Seiger, Ake, Effects of functional electrical stimulation training for six months on body composition and spasticity in motor complete tetraplegic spinal cord-injured individuals, Journal of Rehabilitation Medicine, 34, 25-32, 2002	Outcomes not in PICO: Modified Ashworth Scale and electromyography measurements, resistive torque, and Visual Analogue Scale
Smith, Peter A., Hassani, Sahar, Reiners, Kathyrn, Vogel, Lawrence C., Harris, Gerald F., Gait analysis in children and adolescents with spinal cord injuries, The journal of spinal cord medicine, 27 Suppl 1, S44-9, 2004	Study design not in PICO: No intervention
Soleyman-Jahi, S., Yousefian, A., Maheronnaghsh, R., Shokraneh, F., Zadegan, S. A., Soltani, A., Hosseini, S. M., Vaccaro, A. R., Rahimi-Movaghar, V., Evidence-based prevention and treatment of osteoporosis after spinal cord injury: a systematic review, European Spine Journal, 27, 1798-1814, 2018	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
Spoljar, J., Erjavec, T., Obreza, P., Savrin, R., Vipavec, B., Impact of feedback display during robotic-assisted treadmill training on cardiorespiratory properties in persons with spinal cord injury: A pilot study, Physiotherapy (United Kingdom), 101, eS1430, 2015	Conference abstract
Srivastava, R. N., Motor segmental recovery in spinal cord injury-a blessing in disguise!, European Spine Journal, 19, 1408, 2010	Conference abstract
Stampas, A., Gustafson, K., Korupolu, R., Smith, C., Zhu, L., Li, S., Bladder neuromodulation in acute spinal cord injury via transcutaneous tibial nerve stimulation: Cystometrogram and autonomic nervous system evidence from a randomized control pilot trial, Frontiers in Neuroscience, 13, 119, 2019	Intervention not in PICO: Transcutaneous tibial nerve stimulation versus sham stimulation
Stampas, A., Korupolu, R., Zhu, L., Smith, C. P., Gustafson, K., Safety, Feasibility, and Efficacy of Transcutaneous Tibial Nerve Stimulation in Acute Spinal Cord Injury Neurogenic Bladder: A Randomized Control Pilot Trial, Neuromodulation, 2018	Intervention not in PICO: Transcutaneous tibial nerve stimulation versus sham stimulation
Sukumar, S., Lenherr, S., Myers, J., Patel, D., Gor, R., Jha, A., Presson, A., Zhang, C., Rosenbluth, J., Stoffel, J., Welk, B., Elliott, S., Quality of life associated with bladder management strategy after spinal cord injury, Journal of Urology, 197, e1261, 2017	Conference abstract
Swinnen, E., Duerinck, S., Baeyens, J. P., Meeusen, R., Kerckhofs, E., Effectiveness of robot-assisted gait training in persons with spinal cord injury: a systematic review, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 42, 520-526, 2010	Systematic review: Included studies checked for relevance.
Szarpak, L., Smereka, J., Ruetzler, K., Intubation with an ETView VivaSight SL in a simulated cervical spine damage setting, Hong kong journal of emergency medicine, 23, 315-, 2016	Conference abstract
Tamburella, F., Scivoletto, G., Molinari, M., Somatosensory inputs by application of KinesioTaping: Effects on spasticity, balance, and gait in chronic spinal cord injury, Frontiers in Human Neuroscience, 8, 367, 2014	Study design not in PICO: Cross-over RCT
Tan, Gabriel, Rintala, Diana H., Jensen, Mark P., Richards, J. Scott, Holmes, Sally Ann, Parachuri, Rama, Lashgari-Saegh, Shamsi, Price, Larry R., Efficacy of cranial electrotherapy stimulation for neuropathic pain following spinal cord injury: a multi-site randomized controlled trial with a secondary 6-month open-label phase, The journal of spinal cord medicine, 34, 285-96, 2011	Intervention not in PICO: Cranial electrotherapy stimulation versus sham stimulation
Tan, Gabriel, Rintala, Diana H., Thornby, John I., Yang, June, Wade, Walter, Vasilev, Christine, Using cranial electrotherapy stimulation to treat pain associated with spinal cord injury, Journal of Rehabilitation Research and Development, 43, 461-74, 2006	Intervention not in PICO: Cranial electrotherapy stimulation versus sham stimulation
Tang, Qiantuo, Huang, Qiuchen, Hu, Chunying, Research on Design Theory and Compliant Control for Underactuated Lower-extremity Rehabilitation Robotic Systems code: (51175368); 2012.01-2015.12, Journal of physical therapy science, 26, 1597-9, 2014	Outcomes not in PICO: Probe Reaction Time and maximum walking speed
Taricco, M., Adone, R., Pagliacci, C., Telaro, E., Pharmacological interventions for spasticity following spinal cord injury, Cochrane Database of Systematic Reviews, CD001131, 2009	Systematic review: Included studies checked for relevance.
Tate, D. G., Rohn, E., Duggan, C., Madrid, R., Forchheimer, M., Zafiroff, E., Response shift and perceptions of quality of life following neurogenic bowel and bladder in persons with spinal cord injury, Quality of Life Research, 24, 63-64, 2015	Conference abstract
Tederko, Piotr, Krasuski, Tomasz, Krasuski, Marek, Dlugolecka, Alicja, Tarnacka, Beata, Determinants of health knowledge and health perceptions from the perspective of health-related education of patients with spinal cord injury: a systematic review, International journal of	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
rehabilitation research. Internationale Zeitschrift fur Rehabilitationsforschung. Revue internationale de recherches de readaptation, 40, 97-106, 2017	
Theiss, Renee D., Hornby, T. George, Rymer, W. Zev, Schmit, Brian D., Riluzole decreases flexion withdrawal reflex but not voluntary ankle torque in human chronic spinal cord injury, Journal of Neurophysiology, 105, 2781-90, 2011	Not relevant to PICO: This study aimed to assess the contribution of spinal neuron persistent sodium conductances to reflex hyperexcitability in human chronic spinal cord injury.
Thomaz, S. R., Cipriano Jr, G., Formiga, M. F., Fachin-Martins, E., Cipriano, G. F. B., Martins, W. R., Cahalin, L. P., Effect of electrical stimulation on muscle atrophy and spasticity in patients with spinal cord injury - a systematic review with meta-analysis, Spinal Cord, 57, 258-266, 2019	Systematic review: Included studies checked for relevance.
Tongprasert, S., Namchandee, A., Sotthipoka, K., Kammuang-Lue, P., Reliability of the International Spinal Cord Injury Upper Extremity Basic Data Set, Spinal Cord, 56, 913-918, 2018	Study design not in PICO: Psychometrics study
Valent, L., Dallmeijer, A., Houdijk, H., Talsma, E., van der Woude, L., The effects of upper body exercise on the physical capacity of people with a spinal cord injury: A systematic review, Clinical Rehabilitation, 21, 315-330, 2007	Systematic review: Included studies checked for relevance.
van der Bruggen, M. A., Huisman, H. B., Beckerman, H., Bertelsmann, F. W., Polman, C. H., Lankhorst, G. J., Randomized trial of 4-aminopyridine in patients with chronic incomplete spinal cord injury, Journal of Neurology, 248, 665-71, 2001	Study design not in PICO: Cross-over RCT
van der Woude, L. H., de Groot, S., Postema, K., Bussmann, J. B., Janssen, T. W., Post, M. W., Active LifestyLe Rehabilitation interventions in aging spinal cord injury (ALLRISC): a multicentre research program, Disability and Rehabilitation, 35, 1097-1103, 2013	Research protocol for a RCT
Van Houtte, S., Vanlandewijck, Y., Gosselink, R., Respiratory muscle training in persons with spinal cord injury: A systematic review, Respiratory Medicine, 100, 1886-1895, 2006	Intervention not in PICO: Respiratory muscle training in persons with spinal cord injury
Van Houtte, Siska, Vanlandewijck, Yves, Kiekens, Carlotte, Spengler, Christina M., Gosselink, Rik, Patients with acute spinal cord injury benefit from normocapnic hyperpnoea training, Journal of rehabilitation medicine, 40, 119-25, 2008	Outcomes not in PICO: Respiratory parameters and respiratory muscle strength and endurance.
Varoqui, Deborah, Niu, Xun, Mirbagheri, Mehdi M., Ankle voluntary movement enhancement following robotic-assisted locomotor training in spinal cord injury, Journal of NeuroEngineering and Rehabilitation, 11, 46, 2014	Outcomes not in PICO: Muscle strength, Timed Up and Go test and walking speed.
Vivodtzev, I., Picard, G., Cepeda, F. X., Taylor, J. A., Acute effect of non-invasive ventilation during FES-rowing exercise in patients with high-level spinal cord injury, European Respiratory Journal, 52, 2018	Conference abstract
Wadsworth, Brooke M., Haines, Terry P., Cornwell, Petrea L., Rodwell, Leanne T., Paratz, Jennifer D., Abdominal binder improves lung volumes and voice in people with tetraplegic spinal cord injury, Archives of Physical Medicine and Rehabilitation, 93, 2189-97, 2012	Study design not in PICO: Cross-over RCT
Waites, Ken B., Canupp, Kay C., Armstrong, Sarah, DeVivo, Michael J., Effect of cranberry extract on bacteriuria and pyuria in persons with neurogenic bladder secondary to spinal cord injury, The journal of spinal cord medicine, 27, 35-40, 2004	Study design not in PICO: Microbiology measurements
Warms, Catherine A., Backus, Deborah, Rajan, Suparna, Bombardier,	Systematic review:

Study	Reason for Exclusion
Charles H., Schomer, Katherine G., Burns, Stephen P., Adverse events in cardiovascular-related training programs in people with spinal cord injury: a systematic review, The journal of spinal cord medicine, 37, 672-92, 2014	Included studies checked for relevance.
Wessels, Monique, Lucas, Cees, Eriks, Inge, de Groot, Sonja, Body weight-supported gait training for restoration of walking in people with an incomplete spinal cord injury: a systematic review, Journal of rehabilitation medicine, 42, 513-9, 2010	Systematic review: Included studies checked for relevance.
West, C. R., Taylor, B. J., Campbell, I. G., Romer, L. M., Effects of inspiratory muscle training on exercise responses in Paralympic athletes with cervical spinal cord injury, Scandinavian journal of medicine & science in sports, 24, 764-72, 2014	Intervention not in PICO: Inspiratory muscle training
Wielink, G., Essink-Bot, M. L., Van Kerrebroeck, P. E. V., Rutten, F. F. H., Bosch, J. L. H. R., Debruyne, F. M. J., D'Hollosy, W., Van der Aa, H. E., Alleman, E. R. J., Kersten, P., Hermens, H., Vorsteveld, J. H. C., Koldewijn, E. L., Rosier, P. F. W., Zilvold, G., Rijkhoff, N., Wijkstra, H., Sacral rhizotomies and electrical bladder stimulation in spinal cord injury. 2. Cost-effectiveness and quality of life analysis, European Urology, 31, 441-446, 1997	Study design not in PICO: Non-RCT with <100 per arm
Wiener, J., Hsieh, J., McIntyre, A., Mehta, S., Janzen, S., Teasell, R., The effectiveness of 4-aminopyridine for the management of spasticity in individuals with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 98, e138, 2017	Conference abstract
Wilde, Mary H., McMahon, James M., Fairbanks, Eileen, Brasch, Judith, Parshall, Robert, Zhang, Feng, Miner, Sarah, Thayer, Deborah, Schneiderman, Dan, Harrington, Brian, Feasibility of a Web-Based Self-management Intervention for Intermittent Urinary Catheter Users With Spinal Cord Injury, Journal of wound, ostomy, and continence nursing : official publication of The Wound, Ostomy and Continence Nurses Society, 43, 529-38, 2016	Study design not in PICO: Non-RCT with <100 per arm
Wilder, R. P., Jones, E. V., Wind, T. C., Edlich, R. F., A review on functional electrical stimulation cycle ergometer exercise for spinal cord injured patients, Journal of Long-Term Effects of Medical Implants, 27, 279-292, 2017	Paper unavailable
Wilsey, B., Marcotte, T. D., Deutsch, R., Zhao, H., Prasad, H., Phan, A., An Exploratory Human Laboratory Experiment Evaluating Vaporized Cannabis in the Treatment of Neuropathic Pain From Spinal Cord Injury and Disease, Journal of Pain, 17, 982-1000, 2016	Study design not in PICO: Cross-over RCT
Wirz, M., Dietz, V., Esclarin, A., Benito, J., Mach, O., Bastiaenen, C., De Bie, R. A., Schneider, S., Dose-response relationship of locomotor training in patients with spinal cord injury: Preliminary results, Physiotherapy (United Kingdom), 101, eS1348, 2015	Conference abstract
Wirz, Markus, Bastiaenen, Carolien, de Bie, Rob, Dietz, Volker, Effectiveness of automated locomotor training in patients with acute incomplete spinal cord injury: a randomized controlled multicenter trial, BMC Neurology, 11, 60, 2011	Research protocol for a RCT
Wolfe, D., Hsieh, J., Teasell, R., Eng, J., Townson, A., Miller, W., Connolly, S., Konnyu, K., Foulon, B., Sakakibara, B., SCI rehabilitation: An evidence-based review (SCIRE) v.2, Journal of Spinal Cord Medicine, 32, 481, 2009	Conference abstract
Worsoe, J., Fynne, L., Laurberg, S., Krogh, K., Rijkhoff, N. J. M., Acute effect of electrical stimulation of the dorsal genital nerve on rectal capacity in patients with spinal cord injury, Spinal Cord, 50, 462-6, 2012	Outcomes not in PICO: Impedance planimetry and manometry
Wu, M., Landry, J. M., Schmit, B. D., Hornby, T. G., Yen, S. C., Robotic resistance treadmill training improves locomotor function in human spinal cord injury: A pilot study, Archives of Physical Medicine and	Study design not in PICO: Cross-over RCT

Study	Reason for Exclusion
Rehabilitation, 93, 782-789, 2012	
Wu, Ming, Kim, Janis, Wei, Feng, Facilitating Weight Shifting During Treadmill Training Improves Walking Function in Humans With Spinal Cord Injury: A Randomized Controlled Pilot Study, American journal of physical medicine & rehabilitation, 97, 585-592, 2018	Outcomes not in PICO: Walking speed and distance
Wyndaele, J. J., Van Kerrebroeck, P., The effects of 4 weeks treatment with cisapride on cystometric parameters in spinal cord injury patients. A double-blind, placebo controlled study, Paraplegia, 33, 625-7, 1995	Study design not in PICO: Cross-over RCT
Xing, S. T., Wang, D., Wen, X. H., Wu, Z. Q., Sun, Q., Zhang, D. W., Cheng, Y., Yan, D., Yu, F., Clinical research of electroacupuncture combined with acupoint-injection of botulinum toxin A in treating the muscle spasticity by spinal cord injury, Zhongguo gu shang [China journal of orthopaedics and traumatology], 23, 350-353, 2010	Chinese language article
Xu, X., Xu, Y., Clinical efficacy on neurogenic bladder after spinal cord injury treated with rehabilitation training and acupuncture-moxibustion, Zhongguo zhen jiu [Chinese acupuncture & moxibustion], 35, 670-673, 2015	Chinese language article
Yang, A., Pena, S., Spungen, A. M., Harel, N. Y., Dynamic knee bracing to improve weight bearing during SCI balance training, Journal of Spinal Cord Medicine, 37, 454, 2014	Conference abstract
Yang, Jaynie F., Musselman, Kristin E., Livingstone, Donna, Brunton, Kelly, Hendricks, Gregory, Hill, Denise, Gorassini, Monica, Repetitive mass practice or focused precise practice for retraining walking after incomplete spinal cord injury? A pilot randomized clinical trial, Neurorehabilitation and neural repair, 28, 314-24, 2014	Study design not in PICO: Cross-over RCT
Yarar-Fisher, C., The effects of high protein diet and combination exercise on metabolic health in individuals with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 96, e69, 2015	Conference abstract
Yarar-Fisher, Ceren, Kulkarni, Adarsh, Li, Jia, Farley, Paige, Renfro, Cassandra, Aslam, Hammad, Bosarge, Patrick, Wilson, Landon, Barnes, Stephen, Evaluation of a ketogenic diet for improvement of neurological recovery in individuals with acute spinal cord injury: a pilot, randomized safety and feasibility trial, Spinal cord series and cases, 4, 88, 2018	Study design not in PICO: Cross-over RCT
Yildirim, M. A., Ones, K., Goksenoglu, G., Early term effects of robotic assisted gait training on ambulation and functional capacity in patients with spinal cord injury, Turkish Journal of Medical Sciences, 49, 838-843, 2019	Mixed population: Included traumatic (68/88) and non-traumatic (20/88) causes of injury. Results not reported separately for target population.
Yildirim, Mustafa Aziz, Ones, Kadriye, Goksenoglu, Goksen, Early term effects of robotic assisted gait training on ambulation and functional capacity in patients with spinal cord injury, Turkish journal of medical sciences, 49, 2019	Duplicate
Yuan, Y., Yu, X., Therapeutic effects of rehabilitation training methods on spinal cord injury: a meta-analysis, The Lancet, 394, S27, 2019	Poster abstract
Zhai, H. W., Gong, Z. K., Sun, J., Chen, W., Zhang, M., Zhou, J. J., Zheng, B., Ganglioside with nerve growth factor for the recovery of extremity function following spinal cord injury and somatosensory evoked potential, European Review for Medical and Pharmacological Sciences, 19, 2282-2286, 2015	Intervention not in PICO: Nerve growth factor plus ganglioside
Zhang, Yanyan, Xia, Xiyan, Zhuang, Xuewei, Effect of quantitative assessment-based nursing intervention on the bowel function and life quality of patients with neurogenic bowel dysfunction after spinal cord injury, Journal of clinical nursing, 27, e1146-e1151, 2018	Intervention not in PICO: Regular nursing versus quantitative assessment-based nursing

Study	Reason for Exclusion
Zidek, K. A., Srinivasan, R., Rehabilitation of a child with a spinal cord injury, Seminars in Pediatric Neurology, 10, 140-150, 2003	Study design not in PICO: No comparison group.
Zoghi, Maryam, Galea, Mary, Brain Motor Control Assessment Post Early Intensive Hand Rehabilitation After Spinal Cord Injury, Topics in Spinal Cord Injury Rehabilitation, 24, 157-166, 2018	Outcomes not in PICO: Brain Motor Control Assessment

Economic studies

All studies were excluded at the initial title and abstract screening stage. See appendix G for further information.

Excluded clinical and economic studies for review question: C.3b For children and young people with complex rehabilitation needs after traumatic injury that results in spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Clinical studies

Table 33: Excluded studies and reasons for their exclusion

Study	Reason for Exclusion
Abrams, P., Amarenco, G., Bakke, A., Buczynski, A., Castro-Diaz, D., Harrison, S., Kramer, G., Marsik, R., Prajsner, A., Stohrer, M., Van Kerrebroeck, P., Wyndaele, J. J., Tamsulosin: Efficacy and safety in patients with neurogenic lower urinary tract dysfunction due to suprasacral spinal cord injury, Journal of Urology, 170, 1242-1251, 2003	Outcome not in PICO: Maximum urethral pressure
Actrn,, A randomised controlled trial of a specialised multidisciplinary consultation team to improve the outcomes of patients with recent onset spinal cord injury in acute hospital, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12610000164099, 2010	Clinical trial protocol for which there were no published data
Actrn,, Abdominal Functional Electrical Stimulation to reduce respiratory complications in spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12618000214235, 2018	Clinical trial protocol for which there were no published data
Actrn,, Does standing improve bowel function in people with spinal cord injury? A randomised controlled trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12612000003875, 2012	Clinical trial protocol for which there were no published data
Actrn,, Does the type of enema administration affect time to complete bowel care in people with recent Spinal Cord Injury?, Http://wwwanzctrorgau/actrn12618000221257aspx, 2018	Clinical trial protocol for which there were no published data
Actrn,, Effects of Functional Electrical Stimulation-cycling Plus Progressive Resistance Training on Muscle Strength After Incomplete Spinal Cord Injury: a Randomized Controlled Trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12616000670471, 2016	Clinical trial protocol for which there were no published data
Actrn,, Progressive resistance training to increase the strength of partially-paralysed muscles in people with recent spinal cord injury: a within-participant randomised controlled trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12614000914662, 2014	Clinical trial protocol for which there were no published data
Actrn,, The effectiveness of functional electrical stimulation cycling on	Clinical trial protocol for

Study	Reason for Exclusion
urine output, lower limb swelling and spasticity in recent spinal cord injury: a randomised control trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12611000923965, 2011	which there were no published data
Actrn,, The effectiveness of Telehealth for the treatment of chronic shoulder pain in wheelchair users with spinal cord injury: a randomised controlled trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=actrn12618001172291, 2018	Clinical trial protocol for which there were no published data
Adegoke, B. O., Badmos, K. A., Acceleration of pressure ulcer healing in spinal cord injured patients using interrupted direct current, African journal of medicine and medical sciences, 30, 195-7, 2001	Intervention not in PICO: Routine nursing care plus interrupted direct current stimulations versus routine nursing care plus placebo interrupted direct current
Aguirre-Guemez, A. V., Perez-Sanpablo, A. I., Quinzanos-Fresnedo, J., Perez-Zavala, R., Barrera-Ortiz, A., Walking speed is not the best outcome to evaluate the effect of robotic assisted gait training in people with motor incomplete Spinal Cord Injury: A Systematic Review with meta-analysis, Journal of Spinal Cord Medicine, 42, 142-154, 2019	Systematic review: Included studies checked for relevance.
Aguirre-Guemez, Ana Valeria, Perez-Sanpablo, Aberto Isaac, Quinzanos-Fresnedo, Jimena, Perez-Zavala, Ramiro, Barrera-Ortiz, Aida, Walking speed is not the best outcome to evaluate the effect of robotic assisted gait training in people with motor incomplete Spinal Cord Injury: A Systematic Review with meta-analysis, The journal of spinal cord medicine, 42, 142-154, 2019	Systematic review: Included studies checked for relevance.
Akkurt, H., Kirazli, Y., Karapolat, H., Kose, T., The effects of aerobic exercise on cardiopulmonary functions, quality of life, psychological state, disability and metabolic syndrome parameters in patients with spinal cord injury, Turkiye Fiziksel Tip ve Rehabilitasyon Dergisi, 59, 409, 2013	Conference abstract
Akpinar, P., Atici, A., Ozkan, F. U., Aktas, I., Kulcu, D. G., Sari, A., Durmus, B., Reliability of the Modified Ashworth Scale and Modified Tardieu Scale in patients with spinal cord injuries, Spinal Cord, 55, 944-949, 2017	Study design not in PICO: Psychometrics study to assess measurement reliability
Alcobendas-Maestro, M., Esclarín-Ruz, A., Casado-López, R. M., Muñoz-González, A., Pérez-Mateos, G., González-Valdizán, E., Martín, J. L., Lokomat robotic-assisted versus overground training within 3 to 6 months of incomplete spinal cord lesion: randomized controlled trial, Neurorehabilitation and Neural Repair, 26, 1058-1063, 2012	Outcomes not in PICO: Walking speed, Walking Index for Spinal Cord Injury, 6-minute walk test, Functional Independence Measure for walking, Lower Extremity Motor Score, Ashworth Scale, and Visual Analog Scale
Alexeeva N, Sames C, Jacobs PL, Hobday L, Distasio MM, Mitchell SA, Calancie B. Comparison of training methods to improve walking in persons with chronic spinal cord injury: a randomized clinical trial. J Spinal Cord Med. 2011;34(4):362-79	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Alsawadi, Abdulrahman, The clinical effectiveness of permissive hypotension in blunt abdominal trauma with hemorrhagic shock but without head or spine injuries or burns: a systematic review, Open access emergency medicine : OAEM, 4, 21-9, 2012	Systematic review: Included studies checked for relevance.
Amorim, Samuel, Teixeira, Vitor Hugo, Corredeira, Rui, Cunha, Maria, Maia, Bruno, Margalho, Paulo, Pires, Joana, Creatine or vitamin D supplementation in individuals with a spinal cord injury undergoing resistance training: A double-blinded, randomized pilot	Intervention not in PICO: Creatine versus vitamin D supplementation in individuals with a spinal

Study	Reason for Exclusion
trial, The journal of spinal cord medicine, 41, 471-478, 2018	cord injury undergoing resistance training
Ancha, H. R., Spungen, A. M., Bauman, W. A., Rosman, A. S., Shaw, S., Hunt, K. K., Post, J. B., Galea, M., Korsten, M. A., Clinical trial: the efficacy and safety of routine bowel cleansing agents for elective colonoscopy in persons with spinal cord injury - a randomized prospective single-blind study, Alimentary pharmacology & therapeutics, 30, 1110-7, 2009	Intervention not in PICO: Bowel cleansing agents for elective colonoscopy in persons with spinal cord injury
Andresen, S. R., Bing, J., Hansen, R. M., Biering-Sørensen, F., Johannesen, I. L., Hagen, E. M., Rice, A. S., Nielsen, J. F., Bach, F. W., Finnerup, N. B., Ultramicronized palmitoylethanolamide in spinal cord injury neuropathic pain: a randomized, double-blind, placebo-controlled trial, Pain, 157, 2097-2103, 2016	Intervention not in PICO: Ultramicronized palmitoylethanolamide in spinal cord injury neuropathic pain
Aravind, Nisha, Harvey, Lisa A., Glinsky, Joanne V., Physiotherapy interventions for increasing muscle strength in people with spinal cord injuries: a systematic review, Spinal Cord, 2019	Systematic review: Included studies checked for relevance.
Arazpour, M., Samadian, M., Ebrahimzadeh, K., Ahmadi Bani, M., Hutchins, S. W., The influence of orthosis options on walking parameters in spinal cord-injured patients: a literature review, Spinal Cord, 54, 412-22, 2016	Systematic review: Included studies checked for relevance.
Arija-Blazquez, Alfredo, Ceruelo-Abajo, Silvia, Diaz-Merino, Maria S., Godino-Duran, Juan Antonio, Martinez-Dhier, Luis, Martin, Jose L. R., Florensa-Vila, Jose, Effects of electromyostimulation on muscle and bone in men with acute traumatic spinal cord injury: A randomized clinical trial, The journal of spinal cord medicine, 37, 299-309, 2014	Outcomes not in PICO: Bone biomarkers, lipid, and lipoprotein profiles
Aydin, G., Tomruk, S., KeleÅŸ, I., Demir, S. O., Orkun, S., Transcutaneous electrical nerve stimulation versus baclofen in spasticity: clinical and electrophysiologic comparison, American journal of physical medicine & rehabilitation, 84, 584-592, 2005	Outcomes not in PICO: Outcomes were spasticity, electrophysiologic evaluations and functional evaluations.
Baastrup, C., Finnerup, N. B., Pharmacological management of neuropathic pain following spinal cord injury, CNS Drugs, 22, 455-475, 2008	Intervention not in PICO: Overview of literature on pharmacological management strategies of neuropathic pain following spinal cord injury
Bakkum, A. J. T., De Groot, S., Stolwijk-Swuste, J. M., Van Kuppevelt, D. J., Van Der Woude, L. H. V., Janssen, T. W. J., Effects of hybrid cycling versus handcycling on wheelchair-specific fitness and physical activity in people with long-term spinal cord injury: A 16-week randomized controlled trial, Spinal Cord, 53, 395-401, 2015	Outcomes not in PICO: Outcome measures were fitness parameters and physical activity.
Bakkum, A. J., de Groot, S., van der Woude, L. H., Janssen, T. W., The effects of hybrid cycle training in inactive people with long-term spinal cord injury: design of a multicenter randomized controlled trial, Disability and Rehabilitation, 35, 1127-1132, 2013	Study protocol
Baldi, J. C., Jackson, R. D., Moraille, R., Mysiw, W. J., Muscle atrophy is prevented in patients with acute spinal cord injury using functional electrical stimulation, Spinal Cord, 36, 463-9, 1998	Outcomes not in PICO: Total body lean body mass, lower limb lean body mass, and gluteal lean body mass
Barak, N., Gecse, K. B., Takács, I., Topical Oxymetazoline for Fecal Incontinence in Patients with Spinal Cord Injury: a Double-Blind Randomized Controlled Crossover Study, Diseases of the Colon and Rectum, 62, 234-240, 2019	Study design not in PICO: Cross-over RCT
Barker, R. N., Amsters, D. I., Kendall, M. D., Pershouse, K. J., Haines, T. P., Reliability of the Clinical Outcome Variables Scale	Study design not in PICO: Non-RCT with <100 per

Study	Reason for Exclusion
When Administered Via Telephone to Assess Mobility in People With Spinal Cord Injury, Archives of Physical Medicine and Rehabilitation, 88, 632-637, 2007	arm
Beekhuizen, Kristina S., Field-Fote, Edelle C., Sensory stimulation augments the effects of massed practice training in persons with tetraplegia, Archives of Physical Medicine and Rehabilitation, 89, 602-8, 2008	Not relevant to PICO: This RCT was aimed to compare functional changes and cortical neuroplasticity associated with hand and upper extremity use after massed (repetitive task-oriented practice) training, somatosensory stimulation, massed practice training combined with somatosensory stimulation, or no intervention, in persons with chronic incomplete tetraplegia
Bekhet, Amira Hassan, Bochkezanian, Vanesa, Saab, Ibtissam M., Gorgey, Ashraf S., The Effects of Electrical Stimulation Parameters in Managing Spasticity After Spinal Cord Injury: A Systematic Review, American journal of physical medicine & rehabilitation, 98, 484-499, 2019	Systematic review: Included studies checked for relevance.
Ben, Marsha, Harvey, Lisa, Denis, Sophie, Glinsky, Joanne, Goehl, Gerlinde, Chee, Shane, Herbert, Robert D., Does 12 weeks of regular standing prevent loss of ankle mobility and bone mineral density in people with recent spinal cord injuries?, The Australian journal of physiotherapy, 51, 251-6, 2005	Not relevant to PICO: RCT aimed to assess the effects of a 12-week standing program on ankle mobility and femur bone mineral density
Benard, A., Morliere, C., Verpillot, E., Donon, L., Salmi, L. R., Joseph, P. A., Vignes, J. R., A Cost-Utility Analysis of Sacral Anterior Root Stimulation (SARS) Compared to Medical Treatment in Complete Spinal Cord Injured Patients with a Neurological Bladder, Value in health : the journal of the International Society for Pharmacoeconomics and Outcomes Research, 17, A398, 2014	Conference abstract
Benard, A., Verpillot, E., Grandoulier, A. S., Perrouin-Verbe, B., Chene, G., Vignes, J. R., Comparative cost-effectiveness analysis of sacral anterior root stimulation for rehabilitation of bladder dysfunction in spinal cord injured patients, Neurosurgery, 73, 600-608, 2013	Study design not in PICO: Non-RCT with <100 per arm
Benoussaad, Mourad, Poignet, Philippe, Hayashibe, Mitsuhiro, Azevedo-Coste, Christine, Fattal, Charles, Guiraud, David, Experimental parameter identification of a multi-scale musculoskeletal model controlled by electrical stimulation: application to patients with spinal cord injury, Medical & biological engineering & computing, 51, 617-31, 2013	Clinical trial protocol for which there were no published data
Berlowitz, David J., Tamplin, Jeanette, Respiratory muscle training for cervical spinal cord injury, The Cochrane database of systematic reviews, CD008507, 2013	Not relevant to PICO: Cochrane review aimed to evaluate the efï¬ cacy of various types of respiratory muscle training versus standard care or sham treatments in people with cervical spinal cord injury
Betz, R., Boden, B., Triolo, R., Mesgarzadeh, M., Gardner, E., Fife, R., Effects of functional electrical stimulation on the joints of	Date not in PICO: Before 1995

Study	Reason for Exclusion
adolescents with spinal cord injury, Paraplegia, 34, 127-36, 1996	
Bian, J., Zhang, W., Wang, Y., Cong, D., Song, B., Chinese medicine synthesis rehabilitation in treatment of neurogenic bladder urinary retention after incomplete spinal cord injury: a multicenter randomized controlled clinical trial, Journal of jilin university medicine edition, 45, 100-104, 2019	Chinese language article
Biering-Sorensen, F., Hansen, B., Lee, B. S. B., Non-pharmacological treatment and prevention of bone loss after spinal cord injury: A systematic review, Spinal Cord, 47, 508-518, 2009	Systematic review: Included studies checked for relevance.
Bombardier, C., Fann, J. R., Ehde, D., Reyes, M. R., Hoffman, J. M., Collaborative care for pain, depression and physical inactivity in an outpatient SCI clinic: The sci-care study, Archives of Physical Medicine and Rehabilitation, 97, e78-e79, 2016	Conference abstract
Bombardier, C., Fann, J., Richards, J. S., Heinemann, A., Wilson, C., Marie Warren, A., Brooks, L., Tate, D., Venlafaxine XR for major depressive disorder after spinal cord injury: Rationale, results, and recommendations, Topics in Spinal Cord Injury Rehabilitation, Conference, 2013	Paper unavailable
Bonfill, X., Rigau, D., Esteban-Fuertes, M., Barrera-Chacon, J. M., Jauregui-Abrisqueta, M. L., Salvador, S., Aleman-Sanchez, C. M., Borau, A., Bea-Munoz, M., Hidalgo, B., Andrade, M. J., Espinosa, J. R., Martinez-Zapata, M. J., Canovas, E., Zazo, N., Gich, I., Bea, M., Garran, M., Herrero, M. P., Morcillo, M., Barbara, E., Jauregui, M. L., Cuadrado, M., Sanchez, N. C., Montoto, A., Ferreiro, M. E., Moraleda, S., Mendez, B., Zarco, M. J., Garcia, I., Esteban, M., Florencio, M., de Miguel, J. I., Lanzillotti, C. M., Navarro, J., Soares, D., Akkoc, Y., Senocak, O., Vasquez, N. N., Orrego, V., Courbis, M., Seguel, M., Efficacy and safety of urinary catheters with silver alloy coating in patients with spinal cord injury: a multicentric pragmatic randomized controlled trial. The ESCALE trial, Spine Journal, 17, 1650-1657, 2017	Outcomes not in PICO: Incidence of symptomatic urinary tract infections, bacteremia in the urinary tract and adverse events.
Bosveld, Rick, Field-Fote, Edelle C., Single-dose effects of whole body vibration on quadriceps strength in individuals with motor-incomplete spinal cord injury, The journal of spinal cord medicine, 38, 784-91, 2015	Outcomes not in PICO: Maximal voluntary isometric quadriceps force and functional lower extremity strength.
Boswell-Ruys, C. L., Harvey, L. A., Barker, J. J., Ben, M., Middleton, J. W., Lord, S. R., Training unsupported sitting in people with chronic spinal cord injuries: a randomized controlled trial, Spinal cord, 48, 138-43, 2010	Outcomes not in PICO: Canadian Occupational Performance Measure, and tests of Upper Body Sway, Maximal Balance Range and donning and doffing a T-shirt
Bragge, Peter, Guy, Stacey, Boulet, Mark, Ghafoori, Eraj, Goodwin, Denise, Wright, Breanna, A systematic review of the content and quality of clinical practice guidelines for management of the neurogenic bladder following spinal cord injury, Spinal Cord, 2019	Systematic review: Included studies checked for relevance.
Bravo, P., Labarta, C., Alcaraz, M. A., Mendoza, J., Verdu, A., An assessment of factors affecting neurological recovery after spinal cord injury with vertebral fracture, Paraplegia, 34, 164-6, 1996	Not relevant to PICO: Retrospective study comparing patients after spinal cord injury who had an improvement in their functional and neurological status with patients who had no improvement
Brody, M., Houlihan, B. V., Skeels, S. E., Zazula, J., Pernigotti, D., Mercier, H. W., Green, C., Belliveau, T., Rosenblum, D., Seetharama,	Conference abstract

Study	Reason for Exclusion
S., Jette, A., Development of a peer-led phone intervention for goal-setting health care needs in spinal cord injury, Archives of Physical Medicine and Rehabilitation, 96, e19, 2015	
Burchiel, K. J., K. Hsu F.P, Pain and spasticity after spinal cord injury: Mechanisms and treatment, Spine, 26, S146-S161, 2001	Systematic review: Included studies checked for relevance.
Burke D, Lennon O, Blake C, Nolan M, Barry S, Smith E, Maye F, Lynch J, O'Connor L, Maume L, Cheyne S, Ní Ghiollain S, Fullen BM. An internet-delivered cognitive behavioural therapy pain management programme for spinal cord injury pain: A randomized controlled trial. Eur J Pain. 2019;23(7):1264-1282	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Burke, D., Lennon, O., Blake, C., Nolan, M., Barry, S., Smith, E., Maye, F., Lynch, J., O'Connor, L., Maume, L., Cheyne, S., Ni Ghiollain, S., Fullen, B. M., An internet-delivered cognitive behavioural therapy pain management programme for spinal cord injury pain: A randomized controlled trial, European Journal of Pain (United Kingdom), 23, 1264-1282, 2019	Mixed population: Included traumatic (45/69) and non-traumatic (22/69) and unreported (2/69) causes of injury. Results not reported separately for target population.
Burns, A. S., Rivas, D. A., Ditunno, J. F., The management of neurogenic bladder and sexual dysfunction after spinal cord injury, Spine, 26, S129-36, 2001	Systematic review: Included studies checked for relevance.
Burns, A., Wilson, J., Aarabi, B., Anderson, P., Brodke, D., Chiba, K., Dettori, J., Furlan, J., Harrop, J., Holly, L., Howley, S., Jeji, T., Kalsi-Ryan, S., Kotter, M., Kurpad, S., Kwon, B., Marino, R., Martin, A., Massicotte, E., Merli, G., Middleton, J., Nakashima, H., Nagoshi, N., Palmieri, K., Shamji, M., Singh, A., Skelly, A., Tetreault, L., Yee, A., Fehlings, M., Guidelines for the management of patients with spinal cord injury: The type and timing of rehabilitation, Journal of Neurotrauma, 33, A56, 2016	Conference abstract
Burns, Anthony S., Marino, Ralph J., Kalsi-Ryan, Sukhvinder, Middleton, James W., Tetreault, Lindsay A., Dettori, Joseph R., Mihalovich, Kathryn E., Fehlings, Michael G., Type and Timing of Rehabilitation Following Acute and Subacute Spinal Cord Injury: A Systematic Review, Global Spine Journal, 7, 175S-194S, 2017	Systematic review: Included studies checked for relevance.
Bye, E. A., Harvey, L. A., Gambhir, A., Kataria, C., Glinsky, J. V., Bowden, J. L., Malik, N., Tranter, K. E., Lam, C. P., White, J. S., et al.,, Strength training for partially paralysed muscles in people with recent spinal cord injury: a within-participant randomised controlled trial, Spinal Cord, 55, 460-465, 2017	Outcomes not in PICO: Maximal isometric muscle strength, spasticity, fatigue and participants' perception of function and strength
Calder, Allyson, Nunnerley, Jo, Mulligan, Hilda, Ahmad Ali, Nordawama, Kensington, Gemma, McVicar, Tim, van Schaik, Olivia, Experiences of persons with spinal cord injury undertaking a physical activity programme as part of the SCIPA 'Full-On' randomized controlled trial, Disability and Health Journal, 11, 267-273, 2018	Study design not in PICO: Qualitative study
Cameron, A., Schomer, K., Rodriguez, G., Systematic review of urological follow up after spinal cord injury, Neurourology and Urodynamics, 30, 275, 2011	Conference abstract
Canavan, C., Power, C. K., Fullen, B. M., The efficacy of medication for chronic spinal cord injury pain; A systematic review, Pain Practice, 18, 56, 2018	Conference abstract
Canon, Stephen, Shera, Annashia, Phan, Nhan Marc Hieu, Lapicz, Lynne, Scheidweiler, Tanya, Batchelor, Lori, Swearingen, Christopher, Autonomic dysreflexia during urodynamics in children and adolescents with spinal cord injury or severe neurologic disease, Journal of Pediatric Urology, 11, 32.e1-4, 2015	Study design not in PICO: No intervention
Cardenas, D., Moore, K. N., Dannels-McClure, A., Scelza, W.,	Conference abstract

Study	Reason for Exclusion
Graves, D., Brooks, M., Intermittent catheterisation with hydrophilic-coated catheters delays the onset of urinary tract infection in patients with acute spinal cord injury: An international, multicenter, randomised controlled trial, International Urogynecology Journal and Pelvic Floor Dysfunction, 21, S186-S187, 2010	
Cardenas, Diana D., Moore, Katherine N., Dannels-McClure, Amy, Scelza, William M., Graves, Daniel E., Brooks, Monifa, Busch, Anna Karina, Intermittent catheterization with a hydrophilic-coated catheter delays urinary tract infections in acute spinal cord injury: a prospective, randomized, multicenter trial, PM & R : the journal of injury, function, and rehabilitation, 3, 408-17, 2011	Outcomes not in PICO: Time from the first catheterization to the first antibiotic-treated symptomatic urinary tract infections, total number of symptomatic urinary tract infections and adverse effects
Cardenas,D.D., Doctor,J.N., Cost-effectiveness of rehabilitation after spinal cord injury, Critical Reviews in Physical and Rehabilitation Medicine, 10, 359-367, 1998	Study design not in PICO: Non-RCT with <100 per arm
Carhart, Michael R., He, Jiping, Herman, Richard, D'Luzansky, S., Willis, Wayne T., Epidural spinal-cord stimulation facilitates recovery of functional walking following incomplete spinal-cord injury, IEEE transactions on neural systems and rehabilitation engineering : a publication of the IEEE Engineering in Medicine and Biology Society, 12, 32-42, 2004	Study design not in PICO: Non-RCT with <100 per arm
Chancellor, M. B., Bennett, C., Simoneau, A. R., Finocchiaro, M. V., Kline, C., Bennett, J. K., Foote, J. E., Green, B. G., Hudson Martin, S., Wylly Killoran, R., Crewalk, J. A., Rivas, D. A., Sphincteric stent versus external sphincterotomy in spinal cord injured men: Prospective randomized multicenter trial, Journal of Urology, 161, 1893-1898, 1999	Outcomes not in PICO: Urodynamic parameter of maximum detrusor pressure and urodynamic parameters of bladder capacity.
Chang, F. Y., Chang, M. C., Wang, S. T., Yu, W. K., Liu, C. L., Chen, T. H., Can povidone-iodine solution be used safely in a spinal surgery?, European Spine Journal, 15, 1005-1014, 2006	Not relevant to PICO: This RCT aimed to evaluate the safety of povidone-iodine solution in spinal surgeries
Chang, K. V., Hung, C. Y., Chen, W. S., Lai, M. S., Chien, K. L., Han, D. S., Effectiveness of bisphosphonate analogues and functional electrical stimulation on attenuating post-injury osteoporosis in spinal cord injury patients- A Systematic Review and Meta-Analysis, PLoS ONE, 8, e81124, 2013	Systematic review: Included studies checked for relevance.
Chang, S. H., Afzal, T., Berliner, J., Francisco, G. E., Exoskeleton-assisted gait training to improve gait in individuals with spinal cord injury: A pilot randomized study, Pilot and Feasibility Studies, 4, 62, 2018	Outcomes not in PICO: Lower Extremity Motor Score, walking speed, Timed Up and Go test, and gait characteristics
Chang, Sarah R., Nandor, Mark J., Kobetic, Rudi, Foglyano, Kevin M., Quinn, Roger D., Triolo, Ronald J., Improving stand-to-sit maneuver for individuals with spinal cord injury, Journal of NeuroEngineering and Rehabilitation, 13, 27, 2016	Study design not in PICO: Non-RCT with <100 per arm
Chang, Y. J., Liang, J. N., Hsu, M. J., Lien, H. Y., Fang, C. Y., Lin, C. H., Effects of continuous passive motion on reversing the adapted spinal circuit in humans with chronic spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, 822-828, 2013	Study design not in PICO: Cross-over RCT
Chen, A. L., Hu, Z. J., Fu, W. J., Ai, K., The clinical efficacy of umbilical moxibustion therapy combined with bladder treaining in neurogenic bladder after spinal cord injury, Journal of emergency in traditional chinese medicine [zhong guo zhong yi ji zheng za zhi], 25, 1154-1157, 2016	Chinese language article
Chen, Guoqing, Liao, Limin, Li, Yao, The possible role of	Intervention not in PICO:

Study	Reason for Exclusion
percutaneous tibial nerve stimulation using adhesive skin surface electrodes in patients with neurogenic detrusor overactivity secondary to spinal cord injury, International Urology and Nephrology, 47, 451-5, 2015	Percutaneous tibial nerve stimulation using adhesive skin surface electrodes versus solifenacin succinate in patients with neurogenic detrusor overactivity secondary to spinal cord injury
Chen, Y. C., Kuo, H. C., The therapeutic effects of repeated detrusor injections between 200 or 300 units of onabotulinumtoxinA in chronic spinal cord injured patients, Neurourology & Urodynamics, 33, 129-34, 2014	Intervention not in PICO: Not early prophylactic bladder management (mean injury duration was 8.7 /- 8.1 years)
Cheng, L. M., Wang, J. J., Zeng, Z. L., Zhu, R., Yu, Y., Li, C., Wu, Z. R., Pedicle screw fixation for traumatic fractures of the thoracic and lumbar spine, The Cochrane database of systematic reviews, 5, CD009073, 2013	Not relevant to PICO: The aim of this systematic review was to assess the effects (benefits and harms) of pedicle screw fixation for traumatic fractures of the thoracic and lumbar spine
Cheng, P. T., Chen, C. L., Wang, C. M., Chung, C. Y., Effect of neuromuscular electrical stimulation on cough capacity and pulmonary function in patients with acute cervical cord injury, Journal of Rehabilitation Medicine, 38, 32-36, 2006	Outcomes not in PICO: Pulmonary function parameters
Cheron, G., Duvinage, M., De Saedeleer, C., Castermans, T., Bengoetxea, A., Petieau, M., Seetharaman, K., Hoellinger, T., Dan, B., Dutoit, T., Sylos Labini, F., Lacquaniti, F., Ivanenko, Y., From spinal central pattern generators to cortical network: integrated BCI for walking rehabilitation, Neural Plasticity, 2012, 375148, 2012	Not relevant to PICO: The aim of this review was to explore the evidence on the use of brain-computer interfaces
Cheung, E. Y. Y., Chau, R. M. W., Cheing, G. L. Y., Effects of robot-assisted body weight supported treadmill training for people with incomplete spinal cord injury-a pilot study, Physiotherapy (United Kingdom), 101, eS237-eS238, 2015	Conference abstract
Cheung, Eddy Y. Y., Ng, Thomas K. W., Yu, Kevin K. K., Kwan, Rachel L. C., Cheing, Gladys L. Y., Robot-Assisted Training for People With Spinal Cord Injury: A Meta-Analysis, Archives of Physical Medicine and Rehabilitation, 98, 2320-2331.e12, 2017	Systematic review: Included studies checked for relevance.
Chi, Ctr Ior, A prospective randomized comparative study between intelligent urinary bladder monitoring device and conventional urinary catheter in patients with voiding dysfunction caused by spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx? Trialid=chictr-ior-14005686, 2014	Clinical trial entry
Chi, Ctr Ior, Transcutaneous posterior tibial nerve stimulation for neurogenic constipation after spinal cord injury: a randomized controlled trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=chictr-ior-14005433, 2014	Clinical trial protocol for which there were no published data
ChiCtr,, Preventive effect of dorsal penile nerve stimulation on bladder detrusor hyperexcitability after spinal cord injury: a randomized, controlled trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=chictr1800018655, 2018	Clinical trial protocol for which there were no published data
Christensen, P., Andreasen, J., Ehlers, L., Cost-effectiveness of transanal irrigation versus conservative bowel management for spinal cord injury patients, Spinal Cord, 47, 138-43, 2009	Study design not in PICO: Non-RCT with <100 per arm
Christensen, P., Bazzocchi, G., Coggrave, M., Abel, R., Hultling, C., Krogh, K., Media, S., Laurberg, S., Treatment of faecal incontinence	Conference abstract

Study	Reason for Exclusion
and constipation in patients with spinal cord injury - a prospective, randomised, controlled, multicentre trial of transanal irrigation vs conservative bowel management (Abstract number 71), Neurourology and Urodynamics, 25, 594-595, 2006	
Christensen, Peter, Bazzocchi, Gabriele, Coggrave, Maureen, Abel, Rainer, Hultling, Claes, Krogh, Klaus, Media, Shwan, Laurberg, Soren, A randomized, controlled trial of transanal irrigation versus conservative bowel management in spinal cord-injured patients, Gastroenterology, 131, 738-47, 2006	Intervention not in PICO: This is not early prophylactic bowel management (median duration of bowel symptoms 54-60 months, if mo = months; Table 1)
Coker J, Cuthbert J, Ketchum JM, Holicky R, Huston T, Charlifue S. Re-inventing yourself after spinal cord injury: a site-specific randomized clinical trial. Spinal Cord.2019;57(4):282-292	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Cole, M., Froehlich-Grobe, K., Driver, S., Web-based intervention to promote exercise among people with spinal cord injury, Journal of Spinal Cord Medicine, 40, 603-604, 2017	Conference abstract
Colegate, J., Ward, R., Valentine, J., The robotic arm in activity based rehabilitation for children, Developmental Medicine and Child Neurology, 58, 69, 2016	Conference abstract
Cordell, W. H., Hollingsworth, J. C., Olinger, M. L., Stroman, S. J., Nelson, D. R., Pain and tissue-interface pressures during spine-board immobilization, Annals of Emergency Medicine, 26, 31-36, 1995	Study design not in PICO: Non-RCT with <100 per arm
Cosman, Bard C., Vu, Tri T., Lidocaine anal block limits autonomic dysreflexia during anorectal procedures in spinal cord injury: a randomized, double-blind, placebo-controlled trial, Diseases of the Colon and Rectum, 48, 1556-61, 2005	Outcomes not in PICO: Systolic blood pressure
Cosman, Bard C., Vu, Tri T., Plowman, Brian K., Topical lidocaine does not limit autonomic dysreflexia during anorectal procedures in spinal cord injury: a prospective, double-blind study, International Journal of Colorectal Disease, 17, 104-8, 2002	Outcomes not in PICO: Systolic blood pressure
Cotie, L. M., Geurts, C. L., Adams, M. M., MacDonald, M. J., Leg skin temperature with body-weight-supported treadmill and tilt-table standing training after spinal cord injury, Spinal Cord, 49, 149-153, 2011	Outcomes not in PICO: Skin temperature and blood flow
Crameri, R. M., Weston, A. R., Rutkowski, S., Middleton, J. W., Davis, G. M., Sutton, J. R., Effects of electrical stimulation leg training during the acute phase of spinal cord injury: a pilot study, European Journal of Applied Physiology, 83, 409-15, 2000	Outcomes not in PICO: Type I fibers, myosin heavy chain, and fiber cross-sectional area
Craven, B. Catharine, Giangregorio, Lora M., Alavinia, S. Mohammad, Blencowe, Lindsie A., Desai, Naaz, Hitzig, Sander L., Masani, Kei, Popovic, Milos R., Evaluating the efficacy of functional electrical stimulation therapy assisted walking after chronic motor incomplete spinal cord injury: effects on bone biomarkers and bone strength, The journal of spinal cord medicine, 40, 748-758, 2017	Outcomes not in PICO: Bone biomarkers and lower extremity bone strength
Creasey, G. H., Grill, J. H., Korsten, M., Betz, R., Anderson, R., Walter, J., An implantable neuroprosthesis for restoring bladder and bowel control to patients with spinal cord injuries: A multicenter trial, Archives of Physical Medicine and Rehabilitation, 82, 1512-1519, 2001	Study design not in PICO: Non-RCT with <100 per arm
Curiale, A., Mehta, S., Aubut, J., Teasell, R., Treatment of secondary complications postspinal cord injury through the use of electrical stimulation therapy: A systematic review, Archives of Physical Medicine and Rehabilitation, 91, e22, 2010	Conference abstract
Curiale, A., Mehta, S., Teasell, R., Preventing secondary	Conference abstract

Study	Reason for Exclusion
complications postspinal cord injury through electrical stimulation: A systematic review, Archives of Physical Medicine and Rehabilitation, 91, e22, 2010	
Curtis, Kathryn, Hitzig, Sander L., Bechsgaard, Gitte, Stoliker, Candice, Alton, Charlene, Saunders, Nicole, Leong, Nicole, Katz, Joel, Evaluation of a specialized yoga program for persons with a spinal cord injury: a pilot randomized controlled trial, Journal of Pain Research, 10, 999-1017, 2017	Not relevant to PICO: This RCT aimed to evaluate the effects of a specialized yoga program for individuals with a spinal cord injury on pain, psychological, and mindfulness variables
Dahlberg, A., Perttila, I., Wuokko, E., Ala-Opas, M., Bladder management in persons with spinal cord lesion, Spinal Cord, 42, 694-8, 2004	Study design not in PICO: Cross-sectional clinical descriptive prevalence study
Dallolio L, Menarini M, China S, Ventura M, Stainthorpe A, Soopramanien A, Rucci P, Fantini MP. Functional and clinical outcomes of telemedicine in patients with spinal cord injury. Arch Phys Med Rehabil. 2008;89(12):2332-41	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
D'Amico, Jessica M., Condliffe, Elizabeth G., Martins, Karen J. B., Bennett, David J., Gorassini, Monica A., Recovery of neuronal and network excitability after spinal cord injury and implications for spasticity, Frontiers in integrative neuroscience, 8, 36, 2014	Systematic review: Included studies checked for relevance.
Darouiche, Rabih O., Al Mohajer, Mayar, Siddiq, Danish M., Minard, Charles G., Short versus long course of antibiotics for catheter-associated urinary tract infections in patients with spinal cord injury: a randomized controlled noninferiority trial, Archives of Physical Medicine and Rehabilitation, 95, 290-6, 2014	Outcomes not in PICO: Clinical cure at end of therapy, microbiologic response, resolution of pyuria, patient survival and incidence of adverse events.
de Freitas, Gabriel Ribeiro, Szpoganicz, Camila, Ilha, Jocemar, Does Neuromuscular Electrical Stimulation Therapy Increase Voluntary Muscle Strength After Spinal Cord Injury? A Systematic Review, Topics in Spinal Cord Injury Rehabilitation, 24, 6-17, 2018	Systematic review: Included studies checked for relevance.
De Groat, W. C., Keynote address: Lower urinary tract dysfunction after spinal cord injury: Pathophysiology and development of new therapies, Journal of Spinal Cord Medicine, 39, 557-558, 2016	Conference abstract
De La Garza Ramos, R., Nakhla, J., Nasser, R., Haranhalli, N., Kiinon, M., Sciubba, D., Yassari, R., The impact of hospital teaching status on timing of intervention, inpatient morbidity, and mortality after surgery for vertebral column fractures with spinal cord injury, Global Spine Journal, 7, 339S, 2017	Conference abstract
De Maio, G., Bizzarini, E., Chittaro, L., Cisotti, C., Malisan, C., Mauro, L., Menosso, R., Moschioni, C., Pinzini, C., Sioni, R., Zampa, A., Restoring of walking with body weight supported treadmill training and virtual reality in subjects with incomplete spinal cord injury, Neurorehabilitation and Neural Repair, 26, 398-399, 2012	Conference abstract
De Seze, M., Petit, H., Gallien, P., De Seze, M. P., Joseph, P. A., Mazaux, J. M., Barat, M., Botulinum A toxin and detrusor sphincter dyssynergia: A double-blind lidocaine-controlled study in 13 patients with spinal cord disease, European Urology, 42, 56-62, 2002	Outcomes not in PICO: Residual urine volume, micturition diary, satisfaction score, maximal urethral pressure, maximum detrusor pressure and type of detrusor sphincter dyssynergia
De Seze, M., Wiart, L., De Seze, M. P., Soyeur, L., Dosque, J. P.,	Outcomes not in PICO:

Study	Reason for Exclusion
Blajezewski, S., Moore, N., Brochet, B., Mazaux, J. M., Barat, M., Joseph, P. A., Intravesical capsaicin versus resiniferatoxin for the treatment of detrusor hyperreflexia in spinal cord injured patients: A double-blind, randomized, controlled study, Journal of Urology, 171, 251-255, 2004	Voiding chart data, urodynamic data and maximal detrusor pressure.
de Seze, M., Wiart, L., Joseph, P. A., Dosque, J. P., Mazaux, J. M., Barat, M., Capsaicin and neurogenic detrusor hyperreflexia: a double-blind placebo-controlled study in 20 patients with spinal cord lesions, Neurourology and Urodynamics, 17, 513-23, 1998	Outcomes not in PICO: Voiding chart data, urodynamic data and maximal detrusor pressure.
Demchak, Timothy J., Linderman, Jon K., Mysiw, W. Jerry, Jackson, Rebecca, Suun, Jihong, Devor, Steven T., Effects of functional electric stimulation cycle ergometry training on lower limb musculature in acute sci individuals, Journal of sports science & medicine, 4, 263-71, 2005	Study design not in PICO: Case-control study.
Deng, Yuling, Dong, Yonghai, Liu, Yun, Zhang, Qiong, Guan, Xihong, Chen, Xiaodan, Li, Meng, Xu, Lei, Yang, Cheng, A systematic review of clinical studies on electrical stimulation therapy for patients with neurogenic bowel dysfunction after spinal cord injury, Medicine, 97, e12778, 2018	Systematic review: Included studies checked for relevance.
Deng, Yuling, Dong, Yonghai, Liu, Yun, Zhang, Qiong, Guan, Xihong, Chen, Xiaodan, Li, Meng, Xu, Lei, Yang, Cheng, A systematic review of clinical studies on electrical stimulation therapy for patients with neurogenic bowel dysfunction after spinal cord injury, Medicine, 97, e12778, 2018	Systematic review: Included studies checked for relevance.
Diego, Miguel A., Field, Tiffany, Hernandez-Reif, Maria, Hart, Sybil, Brucker, Bernard, Field, Tory, Burman, Iris, Spinal cord patients benefit from massage therapy, The International journal of neuroscience, 112, 133-42, 2002	Comparison not in PICO: Massage therapy versus exercise.
do Espirito Santo, C. C., Swarowsky, A., Recchia, T. L., Lopes, A. P. F., Ilha, J., Is body weight-support treadmill training effective in increasing muscle trophism after traumatic spinal cord injury? A systematic review, Spinal Cord, 53, 176-181, 2015	Systematic review: Included studies checked for relevance.
Dobkin, B. H., Apple, D., Barbeau, H., Saulino, M., Fugate, L., Scott, M., Randomised trial of body weight-supported treadmill training (BWSM) after acute spinal cord injury (SCI), Neurorehabilitation and Neural Repair, 13, 50, 1999	Conference abstract
Dobkin, B., Apple, D., Barbeau, H., Basso, M., Behrman, A., Deforge, D., Ditunno, J., Dudley, G., Elashoff, R., Fugate, L., et al.,, Weight-supported treadmill versus over-ground training for walking after acute incomplete SCI, Neurology, 66, 484-493, 2006	Outcomes not in PICO: Functional Independence Measure for walking and American Spinal Cord Injury Association level.
Dobkin, B., Barbeau, H., Deforge, D., Ditunno, J., Elashoff, R., Apple, D., Basso, M., Behrman, A., Harkema, S., Saulino, M., Scott, M., The evolution of walking-related outcomes over the first 12 weeks of rehabilitation for incomplete traumatic spinal cord injury: The multicenter randomized Spinal Cord Injury Locomotor Trial, Neurorehabilitation and Neural Repair, 21, 25-35, 2007	Outcomes not in PICO: Functional Independence Measure for walking, walking speed, and lower extremity motor score.
Dobkin, Bruce H., Apple, David, Barbeau, Hugues, Basso, Michele, Behrman, Andrea, Deforge, Dan, Ditunno, John, Dudley, Gary, Elashoff, Robert, Fugate, Lisa, Harkema, Susan, Saulino, Michael, Scott, Michael, Methods for a randomized trial of weight-supported treadmill training versus conventional training for walking during inpatient rehabilitation after incomplete traumatic spinal cord injury, Neurorehabilitation and Neural Repair, 17, 153-67, 2003	Research protocol of a RCT
Dobkin, Bruce H., Motor rehabilitation after stroke, traumatic brain, and spinal cord injury: common denominators within recent clinical	Systematic review: Included studies checked

Study	Reason for Exclusion
trials, Current Opinion in Neurology, 22, 563-9, 2009	for relevance.
Dole, A., Engel, C. M., Janusko, E., Sanko, J. P., A systematic review of the effects of robotic assisted stepping to increase cardiovascular fitness in individuals with incomplete spinal cord injury, Cardiopulmonary Physical Therapy Journal, 29, 52, 2018	Conference abstract
Domingo, A., Al-Yahya, A. A., Asiri, Y., Eng, J. J., Lam, T., A systematic review of the effects of pharmacological agents on walking function in people with spinal cord injury, Journal of Neurotrauma, 29, 865-879, 2012	Systematic review: Included studies checked for relevance.
Domurath, B., Kutzenberger, J., Kurze, I., Knoth, H. S., Clinical evaluation of a newly developed catheter (SpeediCath Compact Male) in men with spinal cord injury: residual urine and user evaluation, Spinal Cord, 49, 817-21, 2011	Intervention not in PICO: Not early prophylactic bladder management (mean duration of intermittent catheterization use = 88.76 months (range 2- “264 months)
Donenberg, Jennifer Glenna, Fetters, Linda, Johnson, Robert, The effects of locomotor training in children with spinal cord injury: a systematic review, Developmental neurorehabilitation, 22, 272-287, 2019	Systematic review: Included studies checked for relevance.
Donovan, W. H., Halter, J. A., Graves, D. E., Blight, A. R., Calvillo, O., McCann, M. T., Sherwood, A. M., Castillo, T., Parsons, K. C., Strayer, J. R., Intravenous infusion of 4-AP in chronic spinal cord injured subjects, Spinal Cord, 38, 7-15, 2000	Study design not in PICO: Cross-over study
Dorstyn D, Mathias J, Denson L, Robertson M. Effectiveness of telephone counseling in managing psychological outcomes after spinal cord injury: a preliminary study. Arch Phys Med Rehabil. 2012;93(11):2100-8	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Dorstyn, D. S., Mathias, J. L., Denson, L. A., Psychological intervention during spinal rehabilitation: a preliminary study, Spinal Cord, 48, 756-61, 2010	Study design not in PICO: Non-RCT with <100 per arm
Dorstyn, Diana, Mathias, Jane, Denson, Linley, Applications of telecounselling in spinal cord injury rehabilitation: a systematic review with effect sizes, Clinical rehabilitation, 27, 1072-83, 2013	Systematic review: Included studies checked for relevance.
Dorstyn, Diana, Mathias, Jane, Denson, Linley, Efficacy of cognitive behavior therapy for the management of psychological outcomes following spinal cord injury: a meta-analysis, Journal of health psychology, 16, 374-91, 2011	Systematic review: Included studies checked for relevance.
Dost, Gulseren, Dulgeroglu, Deniz, Yildirim, Adem, Ozgirgin, Nese, The effects of upper extremity progressive resistance and endurance exercises in patients with spinal cord injury, Journal of Back and Musculoskeletal Rehabilitation, 27, 419-26, 2014	Outcomes not in PICO: Functional Independence Measurement and upper limb strength measures
Duchnick JJ, Letsch EA, Curtiss G. Coping effectiveness training during acute rehabilitation of spinal cord injury/dysfunction: a randomized clinical trial. Rehabil Psychol. 2009;54(2):123-32	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Duerinck, Saartje, Swinnen, Eva, Beyl, Pieter, Hagman, Friso, Jonkers, Ilse, Vaes, Peter, Van Roy, Peter, The added value of an actuated ankle-foot orthosis to restore normal gait function in patients with spinal cord injury: a systematic review, Journal of rehabilitation medicine, 44, 299-309, 2012	Systematic review: Included studies checked for relevance.
Duffell, L. D., Brown, G. L., Mirbagheri, M. M., Interventions to Reduce Spasticity and Improve Function in People with Chronic Incomplete Spinal Cord Injury, Neurorehabilitation and Neural Repair, 29, 566-576, 2015	Outcomes not in PICO: Walking speed and Timed Up and Go test
Duschau-Wicke, Alexander, Caprez, Andrea, Riener, Robert, Patient-	Study design not in PICO:

Study	Reason for Exclusion
cooperative control increases active participation of individuals with SCI during robot-aided gait training, Journal of NeuroEngineering and Rehabilitation, 7, 43, 2010	Non-RCT with <100 per arm
Effing, T. W., van Meeteren, N. L. U., van Asbeck, F. W. A., Prevo, A. J. H., Body weight-supported treadmill training in chronic incomplete spinal cord injury: a pilot study evaluating functional health status and quality of life, Spinal Cord, 44, 287-96, 2006	Study design not in PICO: Case study
Ehde, D. M., Jensen, M. P., Psychological treatments for pain management in persons with spinal cord injury: Cognitive therapy and self-hypnosis training, Topics in Spinal Cord Injury Rehabilitation, 13, 72-80, 2007	Systematic review: Included studies checked for relevance.
El-Kotob, R., Verrier, M. C., Mathur, S., Craven, B. C., The effect of exercise on heart rate variability in spinal cord injury, Journal of Spinal Cord Medicine, 37, 644-645, 2014	Conference abstract
Elliott, T. R., Kennedy, P., Treatment of Depression Following Spinal Cord Injury: An Evidence-Based Review, Rehabilitation Psychology, 49, 134-139, 2004	Systematic review: Included studies checked for relevance.
Elmelund, M., Biering-Sørensen, F., Due, U., Klarskov, N., The effect of pelvic floor muscle training and intravaginal electrical stimulation on urinary incontinence in women with incomplete spinal cord injury: an investigator-blinded parallel randomized clinical trial, International Urogynecology Journal, 29, 1597-1606, 2018	Intervention not in PICO: Pelvic floor muscle training alone and combined with intravaginal electrical stimulation
Esclarin-Ruz, Ana, Alcobendas-Maestro, Monica, Casado-Lopez, Rosa, Perez-Mateos, Guillermo, Florido-Sanchez, Miguel Angel, Gonzalez-Valdizan, Esteban, Martin, Jose Luis R., A comparison of robotic walking therapy and conventional walking therapy in individuals with upper versus lower motor neuron lesions: a randomized controlled trial, Archives of Physical Medicine and Rehabilitation, 95, 1023-31, 2014	Outcomes not in PICO: Walking speed, Walking Index for Spinal Cord Injury, lower extremity motor score, and Functional Independence Measure for walking.
Estes, Stephen, Iddings, Jennifer A., Ray, Somu, Kirk-Sanchez, Neva J., Field-Fote, Edelle C., Comparison of Single-Session Dose Response Effects of Whole Body Vibration on Spasticity and Walking Speed in Persons with Spinal Cord Injury, Neurotherapeutics : the journal of the American Society for Experimental NeuroTherapeutics, 15, 684-696, 2018	Study design not in PICO: Cross-over RCT
Euctr, G. B., A randomised trial of rectal stimulants for neurogenic bowel management after spinal cord injury - Rectal stimulant trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=euctr2006-006855-10-gb, 2007	Clinical trial protocol for which there were no published data
Faaborg, P. M., Christensen, P., Krassioukov, A., Laurberg, S., Frandsen, E., Krogh, K., Autonomic dysreflexia during bowel evacuation procedures and bladder filling in subjects with spinal cord injury, Spinal Cord, 52, 494-8, 2014	Outcomes not in PICO: Blood levels of norepinephrine and epinephrine
Faaborg, P. M., Christensen, P., Krassioukov, A., Laurberg, S., Krogh, K., Randomized study of autonomic dysrefleksia during bowel evacuation and bladder filling in people with high spinal cord injuries, Colorectal Disease, 14, 26-27, 2012	Conference abstract
Fang, C. Y., Hsu, M. J., Chen, C. C., Cheng, H. Y. K., Chou, C. C., Chang, Y. J., Robot-assisted passive exercise for ankle hypertonia in individuals with chronic spinal cord injury, Journal of Medical and Biological Engineering, 35, 464-472, 2015	Study design not in PICO: Cross-over RCT
Fang, H., Lin, J., Liang, L., Long, X., Zhu, X., Cai, W., A nonsurgical and nonpharmacological care bundle for preventing upper urinary tract damage in patients with spinal cord injury and neurogenic bladder, International journal of nursing practice, 26, e12761, 2020	Systematic review: Included studies checked for relevance.
Fassett, H. J., Turco, C. V., El-Sayes, J., Lulic, T., Baker, S.,	Study design not in PICO:

Study	Reason for Exclusion
Richardson, B., Nelson, A. J., Transcranial magnetic stimulation with intermittent theta burst stimulation alters corticospinal output in patients with chronic incomplete Spinal cord injury, Frontiers in Neurology, 8, 380, 2017	Case study
Feng, J. J., Li, Y. H., Effects of hyperbaric oxygen therapy on depression and anxiety in the patients with incomplete spinal cord injury (a STROBE-compliant article), Medicine (United States), 96, e7334, 2017	Intervention not in PICO: Hyperbaric oxygen therapy versus standard psychotherapy
Fernandez-Tenorio, E., Serrano-Munoz, D., Avendano-Coy, J., Gomez-Soriano, J., Transcutaneous electrical nerve stimulation for spasticity: A systematic review, Neurologia, 34, 451-460, 2019	Systematic review: Included studies checked for relevance.
Field-Fote, E. C., Spinal cord control of movement: implications for locomotor rehabilitation following spinal cord injury, Physical Therapy, 80, 477-84, 2000	Systematic review: Included studies checked for relevance.
Field-Fote, Edelle C., Lindley, Stephen D., Sherman, Andrew L., Locomotor training approaches for individuals with spinal cord injury: a preliminary report of walking-related outcomes, Journal of neurologic physical therapy : JNPT, 29, 127-37, 2005	Outcomes not in PICO: Walking speed and gait parameters.
Field-Fote, Edelle C., Roach, Kathryn E., Influence of a locomotor training approach on walking speed and distance in people with chronic spinal cord injury: a randomized clinical trial, Physical Therapy, 91, 48-60, 2011	Outcomes not in PICO: Over-ground walking ability and lower-extremity motor scores.
Fisahn, Christian, Aach, Mirko, Jansen, Oliver, Moisi, Marc, Mayadev, Angeli, Pagarigan, Krystle T., Dettori, Joseph R., Schildhauer, Thomas A., The Effectiveness and Safety of Exoskeletons as Assistive and Rehabilitation Devices in the Treatment of Neurologic Gait Disorders in Patients with Spinal Cord Injury: A Systematic Review, Global spine journal, 6, 822-841, 2016	Systematic review: Included studies checked for relevance.
Fliess-Douer, O., Vanlandewijck, Y. C., Lubel Manor, G., Van Der Woude, L. H., A systematic review of wheelchair skills tests for manual wheelchair users with a spinal cord injury: towards a standardized outcome measure, Clinical Rehabilitation, 24, 867-886, 2010	Systematic review: Included studies checked for relevance.
Flores, M. C., Kumru, H., Benito, J., Murillo, N., Tormos, J. M., Vidal, J., Effects of repetitive transcranial magnetic stimulation on motor and gait improvement in incomplete spinal Cord injury patients, Clinical Neurophysiology, 124, e183, 2013	Conference abstract
Fornusek, Che, Davis, Glen Macartney, Russold, Michael Friedrich, Pilot study of the effect of low-cadence functional electrical stimulation cycling after spinal cord injury on thigh girth and strength, Archives of Physical Medicine and Rehabilitation, 94, 990-3, 2013	Outcomes not in PICO: Lower limb circumference and quadriceps muscle torque during an isometric contraction
Forrest, G., Angeli, C., Cignigliaro, C., Faghri, P., Kirschblum, S., Harkema, S., Hip and femur bone mineral density changes after electrical stimulation and loading in persons with motor complete spinal cord injury, Archives of Physical Medicine and Rehabilitation, 91, e22, 2010	Conference abstract
Francis, Kathleen, Physiology and management of bladder and bowel continence following spinal cord injury, Ostomy/wound management, 53, 18-27, 2007	Systematic review: Included studies checked for relevance.
Fregni, Felipe, Boggio, Paulo S., Lima, Moises C., Ferreira, Merari J. L., Wagner, Tim, Rigonatti, Sergio P., Castro, Anita W., Souza, Daniel R., Riberto, Marcelo, Freedman, Steven D., Nitsche, Michael A., Pascual-Leone, Alvaro, A sham-controlled, phase II trial of transcranial direct current stimulation for the treatment of central pain in traumatic spinal cord injury, Pain, 122, 197-209, 2006	Not relevant to PICO: This RCT aimed to assess transcranial direct current stimulation for the treatment of central pain in traumatic spinal cord injury

Study	Reason for Exclusion
Funderburg, Sarah E., Josephson, Hannah E., Price, Ashlee A., Russo, Maredith A., Case, Laura E., Interventions for Gait Training in Children With Spinal Cord Impairments: A Scoping Review, Pediatric physical therapy : the official publication of the Section on Pediatrics of the American Physical Therapy Association, 29, 342-349, 2017	Scoping review: Included studies checked for relevance.
Furlan, Julio C., Craven, B. Catharine, Massicotte, Eric M., Fehlings, Michael G., Early Versus Delayed Surgical Decompression of Spinal Cord after Traumatic Cervical Spinal Cord Injury: A Cost-Utility Analysis, World Neurosurgery, 88, 166-74, 2016	Not relevant to PICO: Early versus delayed surgical decompression of spinal cord after trauma
Furusawa, K., Sugiyama, H., Tokuhiro, A., Takahashi, M., Nakamura, T., Tajima, F., Topical anesthesia blunts the pressor response induced by bowel manipulation in subjects with cervical spinal cord injury, Spinal Cord, 47, 144-8, 2009	Study design not in PICO: Non-RCT with <100 per arm
Galea, M. P., Dunlop, S. A., Geraghty, T., Davis, G. M., Nunn, A., Olenko, L., Hurley, M., Alexander, J., Fereday, S., Goodman, C., Batty, J., Li, T., Buchanan, J., Bullick, J., Marshall, R., Clark, J., Acland, R., Nunnerley, J., SCIPA full-on: A randomized controlled trial comparing intensive whole-body exercise and upper body exercise after spinal cord injury, Neurorehabilitation and Neural Repair, 32, 557-567, 2018	Comparison not in PICO: Full-body exercise (locomotor training functional electrical stimulation-assisted leg cycling trunk and lower extremity exercises) versus upper body exercise (upper body strength and aerobic fitness training only). No mention of standard care.
Galea, M. P., Dunlop, S. A., Geraghty, T., Davis, G. M., Nunn, A., Olenko, L., Hurley, M., Alexander, J., Fereday, S., Goodman, C., et al.,, SCIPA full-on: a randomized controlled trial comparing intensive whole-body exercise and upper body exercise after spinal cord injury, Neurorehabilitation and Neural Repair, 32, 557-567, 2018	Duplicate
Galea, M. P., Panisset, M. G., El-Ansary, D., Dunlop, S. A., Marshall, R., Clark, J. M., Churilov, L., SCIPA Switch-On: A Randomized Controlled Trial Investigating the Efficacy and Safety of Functional Electrical Stimulation-Assisted Cycling and Passive Cycling Initiated Early after Traumatic Spinal Cord Injury, Neurorehabilitation and Neural Repair, 31, 540-551, 2017	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Galea, M., Dunlop, S., Geraghty, T., Davis, G., Nunn, A., Olenko, L., Intensive exercise program after spinal cord injury (SCIPA full-on): a randomized controlled trial, Annals of Physical and Rehabilitation Medicine, (no pagination), 2018	Conference abstract
Geigle, P., Gorman, P., Chen, K., Vanhiel, L., Tansey, K., Scott, W., Relationship among physical activity scale for individuals with disability (PASID), body mass index (BMI), and maximum oxygen consumption (VO2max) in persons with motor incomplete spinal cord injury, PM and R, 5, S130-S131, 2013	Conference abstract
Giangregorio, Lora, Craven, Catharine, Richards, Kieva, Kapadia, Naaz, Hitzig, Sander L., Masani, Kei, Popovic, Milos R., A randomized trial of functional electrical stimulation for walking in incomplete spinal cord injury: effects on body composition, The journal of spinal cord medicine, 35, 351-60, 2012	Outcomes not in PICO: Whole body and leg lean mass, whole body fat mass, lower-limb muscle cross-sectional area, and fat cross-sectional area
Giannantoni, A., Di Stasi, S. M., Scivoletto, G., Virgili, G., Dolci, S., Porena, M., Intermittent catheterization with a prelubricated catheter in spinal cord injured patients: a prospective randomized crossover study, The Journal of urology, 166, 130-3, 2001	Study design not in PICO: Cross-over RCT
Giannantoni, Antonella, Di Stasi, Savino M., Stephen, Robert L., Bini, Vittorio, Costantini, Elisabetta, Porena, Massimo, Intravesical resiniferatoxin versus botulinum-A toxin injections for neurogenic	Outcomes not in PICO: Clinical evaluation and urodynamics

Study	Reason for Exclusion
detrusor overactivity: a prospective randomized study, The Journal of urology, 172, 240-3, 2004	
Gillis, D. J., Wouda, M., Hjeltnes, N., Non-pharmacological management of orthostatic hypotension after spinal cord injury: a critical review of the literature, Spinal Cord, 46, 652-9, 2008	Systematic review: Included studies checked for relevance.
Glinsky, Joanne, Harvey, Lisa, Korten, Monique, Drury, Craig, Chee, Shane, Gandevia, Simon C., Short-term progressive resistance exercise may not be effective at increasing wrist strength in people with tetraplegia: a randomised controlled trial, The Australian journal of physiotherapy, 54, 103-8, 2008	Intervention not in PICO: 8-week progressive resistance exercise program
Glinsky, Joanne, Harvey, Lisa, van Es, Pauline, Chee, Shane, Gandevia, Simon C., The addition of electrical stimulation to progressive resistance training does not enhance the wrist strength of people with tetraplegia: a randomized controlled trial, Clinical Rehabilitation, 23, 696-704, 2009	Outcomes not in PICO: Maximal voluntary isometric strength and fatigue resistance ratio
Gomara-Toldra, Natalia, Sliwinski, Martha, Dijkers, Marcel P., Physical therapy after spinal cord injury: a systematic review of treatments focused on participation, The journal of spinal cord medicine, 37, 371-9, 2014	Systematic review: Included studies checked for relevance.
Gorgey, A. S., Castillo, T., Gater, D., Recovery of force is challenged after an acute bout of FES-leg cycling in persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, e19, 2013	Conference abstract
Gorgey, Ashraf S., Dolbow, David R., Cifu, David X., Gater, David R., Neuromuscular electrical stimulation attenuates thigh skeletal muscles atrophy but not trunk muscles after spinal cord injury, Journal of electromyography and kinesiology : official journal of the International Society of Electrophysiological Kinesiology, 23, 977-84, 2013	Outcomes not in PICO: Changes in cross-sectional areas of thigh muscles
Gorgey, Ashraf S., Mather, Kieren J., Cupp, Heather R., Gater, David R., Effects of resistance training on adiposity and metabolism after spinal cord injury, Medicine and Science in Sports and Exercise, 44, 165-74, 2012	Outcomes not in PICO: Fasting and post-challenge plasma glucose, insulin, and lipid profiles
Gorman, P., Scott, W., York, H., Theyagaraj, M., Price-Miller, N., McQuaid, J., Eyvazzadeh, M., Robotic treadmill training does not improve timed measures of ambulatory function in chronic motor incomplete spinal cord injury: A pilot controlled clinical trial, Topics in Spinal Cord Injury Rehabilitation, 16, 63, 2011	Conference abstract
Gorman, P., Scott, W., York, H., Theyagaraj, M., Price-Miller, N., McQuaid, J., Eyvazzadeh, M., Robotic treadmill training improves peak exercise capacity in chronic incomplete spinal cord injury: A pilot controlled clinical trial, Topics in Spinal Cord Injury Rehabilitation, 16, 40-41, 2011	Conference abstract
Gorman, Peter H., Scott, William, York, Henry, Theyagaraj, Melita, Price-Miller, Naomi, McQuaid, Jean, Eyvazzadeh, Megan, Ivey, Frederick M., Macko, Richard F., Robotically assisted treadmill exercise training for improving peak fitness in chronic motor incomplete spinal cord injury: A randomized controlled trial, The journal of spinal cord medicine, 39, 32-44, 2016	Outcome not in PICO: Peak oxygen consumption
Grasmucke, Dennis, Zieriacks, Amrei, Jansen, Oliver, Fisahn, Christian, Sczesny-Kaiser, Matthias, Wessling, Martin, Meindl, Renate C., Schildhauer, Thomas A., Aach, Mirko, Against the odds: what to expect in rehabilitation of chronic spinal cord injury with a neurologically controlled Hybrid Assistive Limb exoskeleton. A subgroup analysis of 55 patients according to age and lesion level, Neurosurgical focus, 42, E15, 2017	Study design not in PICO: Non-RCT with <100 per arm

Study	Reason for Exclusion
Grieshofer, P., Scherer, R., Nowak, T., Ranner, S., Tanzer, M., The paediatric lokomat: A possibility to treat children with a robotic-assisted locomotor training experiences after 190 patients, Neurorehabilitation and Neural Repair, 26, 657-658, 2012	Conference abstract
Groah, Suzanne L., Lichy, Alison M., Libin, Alexander V., Ljungberg, Inger, Intensive electrical stimulation attenuates femoral bone loss in acute spinal cord injury, PM & R : the journal of injury, function, and rehabilitation, 2, 1080-7, 2010	Outcomes not in PICO: Dual energy x-ray absorptiometry, serum osteocalcin , and urinary N-telopeptide
Gruenthal, M., Mueller, M., Olson, W. L., Priebe, M. M., Sherwood, A. M., Olson, W. H., Gabapentin for the treatment of spasticity in patients with spinal cord injury, Spinal Cord, 35, 686-9, 1997	Outcomes not in PICO: Ashworth spasticity scale, muscle stretch reflexes and reflex response to noxious stimuli.
Haas, U., Geng, V., Evers, G. C. M., Knecht, H., Bowel management in patients with spinal cord injury - A multicentre study of the German speaking society of paraplegia (DMGP), Spinal Cord, 43, 724-730, 2005	Study design not in PICO: No comparison group.
Hagenbach, U., Luz, S., Ghafoor, N., Berger, J. M., Grotenhermen, F., Brenneisen, R., Mader, M., The treatment of spasticity with Delta9-tetrahydrocannabinol in persons with spinal cord injury, Spinal Cord, 45, 551-62, 2007	Study design not in PICO: Open label study to determine drug dose RCT
Hamid, Samar, Hayek, Ray, Role of electrical stimulation for rehabilitation and regeneration after spinal cord injury: an overview, European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society, 17, 1256-69, 2008	Systematic review: Included studies checked for relevance.
Hammond, Flora M., Lieberman, Jesse, Smout, Randall J., Horn, Susan D., Dijkers, Marcel P., Backus, Deborah, Missed therapy time during inpatient rehabilitation for spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, S106-14, 2013	Study design not in PICO: Non-RCT with <100 per arm
Hamzaid, N. A., Davis, G. M., Health and fitness benefits of functional electrical stimulation-evoked leg exercise for spinal cord-injured individuals: A position review, Topics in Spinal Cord Injury Rehabilitation, 14, 88-121, 2009	Systematic review: Included studies checked for relevance.
Harvey LA, Dunlop SA, Churilov L, Galea MP. Early intensive hand rehabilitation is not more effective than usual care plus one-to-one hand therapy in people with sub-acute spinal cord injury ('Hands On'): a randomised trial. J Physiother, 62(2), 88-95, 2016	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Harvey LA, Fornusek C, Bowden JL, Pontifex N, Glinsky J, Middleton JW, Gandevia SC, Davis GM. Electrical stimulation plus progressive resistance training for leg strength in spinal cord injury: a randomized controlled trial. Spinal Cord. 2010;48(7):570-5	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Harvey LA, Ristev D, Hossain MS, Hossain MA, Bowden JL, Boswell-Ruys CL, Hossain MM, Ben M. Training unsupported sitting does not improve ability to sit in people with recently acquired paraplegia: a randomised trial. J Physiother. 2011;57(2):83-90	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Harvey, L. A., Glinsky, J. V., Bowden, J. L., The effectiveness of 22 commonly administered physiotherapy interventions for people with spinal cord injury: a systematic review, Spinal Cord, 54, 914-923, 2016	Systematic review: Included studies checked for relevance.
Harvey, L., Fornusek, C., Bowden, J., Pontifex, N., Glinksy, J., Middleton, J., Gandevia, S., Davis, G., Electrical stimulation combined with progressive resistance training increases strength in people with spinal cord injury, Physiotherapy (United Kingdom), 97, eS457, 2011	Conference abstract

Study	Reason for Exclusion
Harvey, Lisa A., Byak, Adrian J., Ostrovskaya, Marsha, Glinsky, Joanne, Katte, Lyndall, Herbert, Robert D., Randomised trial of the effects of four weeks of daily stretch on extensibility of hamstring muscles in people with spinal cord injuries, The Australian journal of physiotherapy, 49, 176-81, 2003	Outcomes not in PICO: Changes in hamstring muscle extensibility
Harvey, Lisa A., Dunlop, Sarah A., Churilov, Leonid, Galea, Mary P., Spinal Cord Injury Physical Activity Hands On Trial, Collaborators, Early intensive hand rehabilitation is not more effective than usual care plus one-to-one hand therapy in people with sub-acute spinal cord injury ('Hands On'): a randomised trial, Journal of physiotherapy, 63, 197-204, 2017	Duplicate
Hawryluk, G. W., Whetstone, W., Saigal, R., Ferguson, A., Talbott, J., Bresnahan, J., Pan, J., Dhall, S., Beattie, M., Manley, G., Higher mean arterial blood pressures following human spinal cord injury correlate with greater neurological recovery, Journal of Neurotrauma, 31, A8, 2014	Conference abstract
Hayes, Heather B., Jayaraman, Arun, Herrmann, Megan, Mitchell, Gordon S., Rymer, William Z., Trumbower, Randy D., Daily intermittent hypoxia enhances walking after chronic spinal cord injury: a randomized trial, Neurology, 82, 104-13, 2014	Outcomes not in PICO: Walking speed and endurance
Hearn, J. H., Cross, A., Mindfulness for pain, depression, anxiety, and quality of life in people with spinal cord injury: A systematic review, BMC Neurology, 20, 32, 2020	Systematic review: Included studies checked for relevance.
Hearn, J., Efficacy of online mindfulness for people with spinal cord injury, Journal of Spinal Cord Medicine, 41, 605-606, 2018	Conference abstract
Hearn, Jasmine Heath, Cotter, Imogen, Finlay, Katherine Anne, Efficacy of Internet-Delivered Mindfulness for Improving Depression in Caregivers of People With Spinal Cord Injuries and Chronic Neuropathic Pain: A Randomized Controlled Feasibility Trial, Archives of Physical Medicine and Rehabilitation, 100, 17-25, 2019	Population not in PICO: Carers of people with spinal cord injury
Hearn, Jasmine Heath, Finlay, Katherine Anne, Internet-delivered mindfulness for people with depression and chronic pain following spinal cord injury: a randomized, controlled feasibility trial, Spinal Cord, 56, 750-761, 2018	Comparison not in PICO: Web-based mindfulness training versus internet delivered psychoeducation. No mention of standard care.
Hemmes, B., Brink, P. R., Poeze, M., Effects of unconsciousness during spinal immobilization on tissue-interface pressures: a randomized controlled trial comparing a standard rigid spineboard with a newly developed soft-layered long spineboard, Injury, 45, 1741-1746, 2014	Not relevant to PICO: Patients were randomised to immobilization on either the rigid spineboard or the soft-layered spineboard for the duration of their elective surgery. No rehabilitation.
Heutink M, Post MW, Bongers-Janssen HM, Dijkstra CA, Snoek GJ, Spijkerman DC, Lindeman E. The CONECSI trial: results of a randomized controlled trial of a multidisciplinary cognitive behavioral program for coping with chronic neuropathic pain after spinal cord injury. Pain. 2012;153(1):120-8	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Hicks, A. L., Adams, M. M., Martin Ginis, K., Giangregorio, L., Latimer, A., Phillips, S. M., McCartney, N., Long-term body-weight-supported treadmill training and subsequent follow-up in persons with chronic SCI: effects on functional walking ability and measures of subjective well-being, Spinal Cord, 43, 291-8, 2005	Study design not in PICO: Non-RCT with <100 per arm
Hicks, A. L., Martin Ginis, K. A., Pelletier, C. A., Ditor, D. S., Foulon, B., Wolfe, D. L., The effects of exercise training on physical capacity, strength, body composition and functional performance among adults	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
with spinal cord injury: A systematic review, Spinal Cord, 49, 1103-1127, 2011	
Hicks, A. L., Martin, K. A., Ditor, D. S., Latimer, A. E., Craven, C., Bugaresti, J., McCartney, N., Long-term exercise training in persons with spinal cord injury: effects on strength, arm ergometry performance and psychological well-being, Spinal cord, 41, 34-43, 2003	Comparison not in PICO: Exercise training versus eduction only
Hitzig SL, Craven BC, Panjwani A, Kapadia N, Giangregorio LM, Richards K, Masani K, Popovic MR. Randomized trial of functional electrical stimulation therapy for walking in incomplete spinal cord injury: effects on quality of life and community participation. Top Spinal Cord Inj Rehabil. 2013 Fall;19(4):245-58	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Hoffman, Larisa, Field-Fote, Edelle, Effects of practice combined with somatosensory or motor stimulation on hand function in persons with spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 19, 288-99, 2013	Outcomes not in PICO: Chedoke Arm and Hand Activity Inventory, Health Assessment Questionnaire, Jebsen Taylor Hand Function Test, Semmes-Weinstein Monofilament Test
Holanda, Ledycnarf J., Silva, Patricia M. M., Amorim, Thiago C., Lacerda, Matheus O., Simao, Camila R., Morya, Edgard, Robotic assisted gait as a tool for rehabilitation of individuals with spinal cord injury: a systematic review, Journal of NeuroEngineering and Rehabilitation, 14, 126, 2017	Systematic review: Included studies checked for relevance.
Holler, Y., Thomschewski, A., Schwenker, K., Trinka, E., Kunz, A., Golaszewski, S., Nardone, R., Leis, S., Holler, P., Random forest trees identify useful HD-EEG configurations for BCI based on movement imagination in patients after spinal cord injury, Neurologie und Rehabilitation, 22, S39, 2016	German language article
Hornby, T. G., Campbell, D. D., Zemon, D. H., Kahn, J. H., Clinical and quantitative evaluation of robotic-assisted treadmill walking to retrain ambulation after spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 11, 1-17, 2005	Outcomes not in PICO: Gait parameters and clinical metaboloic measures
Hornby, T. George, Zemon, David H., Campbell, Donielle, Robotic-assisted, body-weight-supported treadmill training in individuals following motor incomplete spinal cord injury, Physical Therapy, 85, 52-66, 2005	Outcomes not in PICO: Gait parameters
Houghton, Pamela E., Campbell, Karen E., Fraser, Christine H., Harris, Connie, Keast, David H., Potter, Patrick J., Hayes, Keith C., Woodbury, M. Gail, Electrical stimulation therapy increases rate of healing of pressure ulcers in community-dwelling people with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 91, 669-78, 2010	Outcomes not in PICO: Wound healing
Houlihan, B., Brody, M., Everhart-Skeels, S., Pernigotti, D., Sam, J. Z., Hasiotis, B. S., Green, C., Seetharama, S., Belliveau, T., Rosenblum, D., Jette, A., "my care my call," a peer-led, telephone-based intervention for persons with spinal cord injury improves self-management behaviors, Archives of Physical Medicine and Rehabilitation, 97, e23, 2016	Conference abstract
Houlihan, B., Brody, M., Skeels, S., Pernigotti, D., Zazula, J., Burnett, S., Green, C., Seetharama, S., Hasiotis, S., Belliveau, T., Rosenblum, D., Jette, A., RCT of peer-led phone-based empowerment intervention for persons with chronic spinal cord injury improves health self-management, Archives of Physical Medicine and Rehabilitation, 98, e152, 2017	Conference abstract
House, J. G., Stiens, S. A., Pharmacologically initiated defecation for	Outcome not in PICO: Time

Study	Reason for Exclusion
persons with spinal cord injury: effectiveness of three agents, Archives of Physical Medicine and Rehabilitation, 78, 1062-5, 1997	taken for bowel care sessions and adverse events.
Hsieh, J. T. C., Wolfe, D. L., Connolly, S., Townson, A. F., Curt, A., Blackmer, J., Sequeira, K., Aubut, J., Spasticity after spinal cord injury: An evidence-based review of current interventions, Topics in Spinal Cord Injury Rehabilitation, 13, 81-97, 2007	Systematic review: Included studies checked for relevance.
Huang, M., Chen, H., Xie, K., Jiang, C., Tang, P., Ou, R., Zeng, J., Liu, Q., Li, Q., Huang, J., Huang, T., Trigone-including BTX-A injection for the treatment of low bladder compliance and urinary incontinence secondary to spinal cord injury, International Journal of Clinical and Experimental Medicine, 9, 18207-18213, 2016	Outcomes not in PICO: Number of vesicoureteral refluxes, detrusor leak point pressure, incontinence measures and voiding volume.
Huang, Qiuchen, Yu, Lili, Gu, Rui, Zhou, Yue, Hu, Chunying, Effects of robot training on bowel function in patients with spinal cord injury, Journal of physical therapy science, 27, 1377-8, 2015	Outcomes not in PICO: Defecation time and enema dose
Huang, X., Hu, W., Guo, Y., Li, W., Effects of quality control circle on patients with neurogenic urination disorder after spinal cord injury and intermittent catheterization, International Journal of Clinical and Experimental Medicine, 12, 4132-4139, 2019	Outcomes not in PICO: Awareness rate of neurogenic bladder, incidence of urinary tract infection and hydronephrosis, recovery of bladder urinary function, self-management ability, and nursing satisfaction
Ibitoye, M. O., Hamzaid, N. A., Hasnan, N., Wahab, A. K. A., Davis, G. M., Strategies for rapid muscle fatigue reduction during FES exercise in individuals with spinal cord injury: A systematic review, PLoS ONE, 11, e0149024, 2016	Systematic review: Included studies checked for relevance.
Ibitoye, M. O., Hamzaid, N. A., Hayashibe, M., Hasnan, N., Davis, G. M., Restoring prolonged standing via functional electrical stimulation after spinal cord injury: A systematic review of control strategies, Biomedical Signal Processing and Control, 49, 34-47, 2019	Systematic review: Included studies checked for relevance.
In, T., Jung, K., Lee, M. G., Cho, H. Y., Whole-body vibration improves ankle spasticity, balance, and walking ability in individuals with incomplete cervical spinal cord injury, NeuroRehabilitation, 42, 491-497, 2018	Outcomes not in PICO: Spasticity of ankle plantar-flexors, balance and walking ability.
Isrctn,, Prevention of bone loss following spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx? Trialid=isrctn46977778, 2004	Intervention not in PICO: Zoledronic acid versus standard treatment
Isrctn,, Volitional control of the pelvic floor in incomplete spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx? Trialid=isrctn53547889, 2006	Clinical trial protocol for which there were no published data
Iwahashi, K., Hayashi, T., Watanabe, R., Nishimura, A., Ueta, T., Maeda, T., Shiba, K., Effects of orthotic therapeutic electrical stimulation in the treatment of patients with paresis associated with acute cervical spinal cord injury: a randomized control trial, Spinal Cord, 55, 1066-1070, 2017	Intervention not in PICO: Orthotic therapeutic electrical stimulation
Jacobs, P. L., Nash, M. S., Modes, benefits, and risks of voluntary an delectrically induced exercise in persons with spinal cord injury, The journal of spinal cord medicine, 24, 10-8, 2001	Systematic review: Included studies checked for relevance.
Jansen, Oliver, Grasmuecke, Dennis, Meindl, Renate C., Tegenthoff, Martin, Schwenkreis, Peter, Sczesny-Kaiser, Matthias, Wessling, Martin, Schildhauer, Thomas A., Fisahn, Christian, Aach, Mirko, Hybrid Assistive Limb Exoskeleton HAL in the Rehabilitation of Chronic Spinal Cord Injury: Proof of Concept; the Results in 21	Study design not in PICO: Non-RCT with <100 per arm

Study	Reason for Exclusion
Patients, World Neurosurgery, 110, e73-e78, 2018	
Janssen, Thomas W. J., Pringle, D. Drew, Effects of modified electrical stimulation-induced leg cycle ergometer training for individuals with spinal cord injury, Journal of Rehabilitation Research and Development, 45, 819-30, 2008	Study design not in PICO: Non-RCT with <100 per arm
Jarosz, R., Littlepage, M., Creasey, G., McKenna, S., Functional electrical stimulation in spinal cord injury respiratory care, Topics in Spinal Cord Injury Rehabilitation, 18, 315-321, 2012	Systematic review: Included studies checked for relevance.
Jayaraman, Arun, Thompson, Christopher K., Rymer, William Z., Hornby, T. George, Short-term maximal-intensity resistance training increases volitional function and strength in chronic incomplete spinal cord injury: a pilot study, Journal of neurologic physical therapy : JNPT, 37, 112-7, 2013	Study design not in PICO: Cross-over RCT
Jensen, Mark P., Barber, Joseph, Romano, Joan M., Hanley, Marisol A., Raichle, Katherine A., Molton, Ivan R., Engel, Joyce M., Osborne, Travis L., Stoelb, Brenda L., Cardenas, Diana D., Patterson, David R., Effects of self-hypnosis training and EMG biofeedback relaxation training on chronic pain in persons with spinal-cord injury, The International journal of clinical and experimental hypnosis, 57, 239-68, 2009	Outcomes not in PICO: Pain management
Jezernik, S., Scharer, R., Colombo, G., Morari, M., Adaptive robotic rehabilitation of locomotion: a clinical study in spinally injured individuals, Spinal Cord, 41, 657-66, 2003	Study design not in PICO: Non-RCT with <100 per arm
Johnston, T. E., Betz, R. R., Smith, B. T., Mulcahey, M. J., Implanted functional electrical stimulation: an alternative for standing and walking in pediatric spinal cord injury, Spinal Cord, 41, 144-52, 2003	Study design not in PICO: Non-RCT with <100 per arm
Johnston, T. E., Schmidt-Read, M., Marino, R., Oleson, C., Leiby, B., Modlesky, C., Musculoskeletal effects of two functional electrical stimulation cycling paradigms for people with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 95, e84, 2014	Conference abstract
Johnston, Therese E., Betz, Randal R., Lauer, Richard T., Impact of cycling on hip subluxation in children with spinal cord injury, Journal of pediatric orthopedics, 29, 402-5, 2009	Outcomes not in PICO: Bone mineral density
Johnston, Therese E., Marino, Ralph J., Oleson, Christina V., Schmidt-Read, Mary, Leiby, Benjamin E., Sendecki, Jocelyn, Singh, Harshvardhan, Modlesky, Christopher M., Musculoskeletal Effects of 2 Functional Electrical Stimulation Cycling Paradigms Conducted at Different Cadences for People With Spinal Cord Injury: A Pilot Study, Archives of Physical Medicine and Rehabilitation, 97, 1413-1422, 2016	Outcomes not in PICO: Bone mineral density, bone microarchitecture thigh muscle volume and bone turnover.
Johnston, Therese E., Smith, Brian T., Mulcahey, Mary J., Betz, Randal R., Lauer, Richard T., A randomized controlled trial on the effects of cycling with and without electrical stimulation on cardiorespiratory and vascular health in children with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 90, 1379-88, 2009	Outcomes not in PICO: Oxygen uptake, resting heart rate, forced vital capacity and fasting lipid profile
Jones, Michael L., Evans, Nicholas, Tefertiller, Candace, Backus, Deborah, Sweatman, Mark, Tansey, Keith, Morrison, Sarah, Activity-based therapy for recovery of walking in chronic spinal cord injury: results from a secondary analysis to determine responsiveness to therapy, Archives of Physical Medicine and Rehabilitation, 95, 2247-52, 2014	Study design not in PICO: Secondary analysis of results from a RCT with delayed treatment design.
Kamm, M. A., Constipation-general approach and management, Journal of Gastroenterology and Hepatology, 27, 18, 2012	Conference abstract
Kapadia, N. M., Zivanovic, V., Furlan, J., Craven, B. C., McGillivray, C., Popovic, M. R., Functional Electrical Stimulation Therapy for	Paper does not report sufficient data details.

Study	Reason for Exclusion
Grasping in Traumatic Incomplete Spinal Cord Injury: Randomized Control Trial, Artificial Organs, 35, 212-216, 2011	
Kapadia, N., Masani, K., Craven, B. C., Giangregorio, L. M., Hitzig, S. L., Richards, K., Popovic, M. R., A randomized trial of functional electrical stimulation for walking in incomplete spinal cord injury: Effects on walking competency, Journal of Spinal Cord Medicine, 37, 511-524, 2014	Outcomes not in PICO: Gait parameters, balance, spasticity and functional measures
Kapadia, N., Zivanovic, V., Furlan, J., Craven, B. C., McGillivray, C., Popovic, M. R., Toronto rehabilitation institute's functional electrical stimulation therapy for grasping in traumatic incomplete spinal cord injury: Randomized control trial, Artificial Organs, 34, A33, 2010	Conference abstract
Kapadia, N., Zivanovic, V., Verrier, M., Popovic, M., Toronto rehabilitation institute-hand function test: Assessment of gross motor function in individuals with spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 18, 167-186, 2012	Not relevant to PICO: The objective of this study was to evaluate the interrater reliability, construct validity, and sensitivity of Toronto Rehabilitation Institute-Hand Function Test
Kapadia, Naaz, Zivanovic, Vera, Popovic, Milos R., Restoring voluntary grasping function in individuals with incomplete chronic spinal cord injury: pilot study, Topics in Spinal Cord Injury Rehabilitation, 19, 279-87, 2013	No relevant data reported
Karimi, Mohammad Taghi, Robotic rehabilitation of spinal cord injury individual, Ortopedia, traumatologia, rehabilitacja, 15, 1-7, 2013	Systematic review: Included studies checked for relevance.
Kaydok, E., Levendoglu, F., Ozerbil, M. O., Karahan, A. Y., Comparison of the efficacy of gabapentin and pregabalin for neuropathic pain in patients with spinal cord injury: A crossover study, 30, 1343-1348, 2014	Study design not in PICO: Cross-over RCT
Kct,, Comparison of the Efficacy between Biofeedback plus Laxatives Therapy Group and Laxatives Therapy Group in Dyssynergic Defecation Associated with Spinal Cord Disease: a Prospective Randomized Controlled Trial, Http://www.who.int/trialsearch/trial2.aspx? Trialid=kct0000337, 2012	Clinical trial protocol for which there were no published data
Kennedy, P., Duff, J., Evans, M., Beedie, A., Coping effectiveness training reduces depression and anxiety following traumatic spinal cord injuries, The British journal of clinical psychology, 42, 41-52, 2003	Study design not in PICO: Non-RCT with <100 per arm
Kim, Dong-Il, Lee, Hyelim, Lee, Bum-Suk, Kim, Jongbae, Jeon, Justin Y., Effects of a 6-Week Indoor Hand-Bike Exercise Program on Health and Fitness Levels in People With Spinal Cord Injury: A Randomized Controlled Trial Study, Archives of physical medicine and rehabilitation, 96, 2033-40.e1, 2015	Ouctomes not in PICO: Health parameters, fitness outcomes and upper limb flexion.
Kim, Jae Heon, Shim, Sung Ryul, Doo, Seung Whan, Yang, Won Jae, Yoo, Byung Wook, Kim, Joyce Mary, Ko, Young Myoung, Song, Eun Seop, Lim, Ik Sung, Lee, Hong Jun, Song, Yun Seob, Bladder recovery by stem cell based cell therapy in the bladder dysfunction induced by spinal cord injury: systematic review and meta-analysis, PLoS ONE, 10, e0113491, 2015	Intervention not in PICO: Bladder recovery by stem cell based cell therapy
King, C. E., Wang, P. T., Chui, L. A., Do, A. H., Nenadic, Z., Operation of a brain-computer interface walking simulator for individuals with spinal cord injury, Journal of NeuroEngineering and Rehabilitation, 10, 77, 2013	Study design not in PICO: Case study
Kirby, R. L., Smith, C., Rushton, P. W., Routhier, F., Miller, W. C., Wheelchair skills assessment and training for people with spinal cord injury who use wheelchairs: Current state of the science, Journal of	Conference abstract

Study	Reason for Exclusion
Spinal Cord Medicine, 37, 611, 2014	
Kohlmeyer, K. M., Hill, J. P., Yarkony, G. M., Jaeger, R. J., Electrical stimulation and biofeedback effect on recovery of tenodesis grasp: a controlled study, Archives of Physical Medicine and Rehabilitation, 77, 702-6, 1996	Comparison not in PICO: Conventional exercise therapy (passive range of motion orthotic intervention exercise therapy) versus cyclic electrical stimulation versus Biofeedback versus Biofeedback plus electrical stimulation. Standard care not mentioned.
Konety, B. R., Nguyen, T. S. T., Brenes, G., Lewis, N., Saul, M., Nelson, J. B., Getzenberg, R. H., Evaluation of the effect of spinal cord injury on serum PSA levels, Urology, 56, 82-86, 2000	Study design not in PICO: Case-control study.
Korsten, M. A., Yen, C., Radulovic, M., Rosman, A. S., Hunt, K. K., Spungen, A. M., Galea, M. D., Kornfeld, S. D., Bauman, W., Low volume PEG and adjunctive neostigmine/glycopyrrolate improve colonoscopic bowel preparation in subjects with spinal cord injury, Gastroenterology, 146, S545-S546, 2014	Conference abstract
Kressler, Jochen, Nash, Mark S., Burns, Patricia A., Field-Fote, Edelle C., Metabolic responses to 4 different body weight-supported locomotor training approaches in persons with incomplete spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, 1436-42, 2013	Outcomes not in PICO: Maximum oxygen uptake, walking velocity and economy and substrate utilization.
Krogh, K., Jensen, M. Bach, Gandrup, P., Laurberg, S., Nilsson, J., Kerstens, R., De Pauw, M., Efficacy and tolerability of prucalopride in patients with constipation due to spinal cord injury, Scandinavian journal of gastroenterology, 37, 431-6, 2002	Intervention not in PICO: Prucalopride for the treatment of constipation
Kryger, Michael Alan, Crytzer, Theresa M., Fairman, Andrea, Quinby, Eleanor J., Karavolis, Meredith, Pramana, Gede, Setiawan, I. Made Agus, McKernan, Gina Pugliano, Parmanto, Bambang, Dicianno, Brad E., The Effect of the Interactive Mobile Health and Rehabilitation System on Health and Psychosocial Outcomes in Spinal Cord Injury: Randomized Controlled Trial, Journal of medical Internet research, 21, e14305, 2019	Mixed population: Traumatic and non-traumatic SCI. Results not presented separately for target population.
Kumar, N., Kulshrestha, R., Chowdhury, J. R., El-Masri, W., Osman, A. E., Germon, T., Long-term outcome of paediatric spinal cord injury, Spine Journal, 16, S69-S70, 2016	Conference abstract
Kumru, H., Benito-Penalva, J., Valls-Sole, J., Murillo, N., Tormos, J. M., Flores, C., Vidal, J., Placebo-controlled study of rTMS combined with Lokomat gait training for treatment in subjects with motor incomplete spinal cord injury, Experimental Brain Research, 234, 3447-3455, 2016	Outcomes not in PICO: Spasticity, upper and lower extremity motor score, walking speed and Walking Index
Kumru, Hatice, Benito-Penalva, Jesus, Kofler, Markus, Vidal, Joan, Analgesic effect of intrathecal baclofen bolus on neuropathic pain in spinal cord injury patients, Brain research bulletin, 140, 205-211, 2018	Outcomes not in PICO: Spasticity and pain
Kwok, S., Harvey, L., Glinsky, J., Bowden, J. L., Coggrave, M., Tussler, D., Does regular standing improve bowel function in people with spinal cord injury? A randomised crossover trial, Spinal Cord, 53, 36-41, 2015	Outcomes not in PICO: Time to 1st stool plus other aspects of bowel function and spasticity
Labruyere, Rob, van Hedel, Hubertus J. A., Strength training versus robot-assisted gait training after incomplete spinal cord injury: a randomized pilot study in patients depending on walking assistance, Journal of NeuroEngineering and Rehabilitation, 11, 4, 2014	Outcomes not in PICO: Walk test at preferred and maximal speed, balance, strength, risk of falling and pain

Study	Reason for Exclusion
Lai, E. C. C., Kao Yang, Y. H., Kuo, H. C., Ng, K., Cheng, E., Evaluation on health expenditure among patients with neurogenic detrusor overactivity after spinal cord injury, Value in Health, 15, A644, 2012	Conference abstract
Lajeunesse, Veronique, Vincent, Claude, Routhier, Francois, Careau, Emmanuelle, Michaud, Francois, Exoskeletons' design and usefulness evidence according to a systematic review of lower limb exoskeletons used for functional mobility by people with spinal cord injury, Disability and rehabilitation. Assistive technology, 11, 535-47, 2016	Systematic review: Included studies checked for relevance.
Lam, T., Eng, J. J., Wolfe, D. L., Hsieh, J. T. C., Whittaker, M., A systematic review of the efficacy of gait rehabilitation strategies for spinal cord injury, Topics in Spinal Cord Injury Rehabilitation, 13, 32-57, 2007	Systematic review: Included studies checked for relevance.
Lam, T., Pauhl, K., Ferguson, A., Malik, R. N., Krassioukov, A., Janice, J., Training with robot-applied resistance in people with motor-incomplete spinal cord injury: Pilot study, Journal of Rehabilitation Research and Development, 52, 113-130, 2015	Outcomes not in PICO: Exertion, reports of soreness, overground skilled walking capacity, walking speed and distance
Lam, T., Pauhl, K., Ferguson, A., Malik, R., Krassioukov, A., Eng, J., A new training paradigm using robot-applied resistance to enhance skilled walking in people with spinal cord injury, Physiotherapy (United Kingdom), 101, eS813-eS814, 2015	Conference abstract
Lam, T., Pauhl, K., Ferguson, A., Malik, R., Krassioukov, A., Eng, J., A pilot RCT to test the effect of lokomat-applied force fields on functional walking skills in people with motor-incomplete spinal cord injury, Neurorehabilitation and Neural Repair, 28, NP1, 2014	Conference abstract
Lam, T., Williams, A., Deegan, E., Walter, M., Stothers, L., Can exoskeleton gait training improve lower urinary tract function in people with spinal cord injury? Preliminary findings from a randomized pilot trial, Neurourology and Urodynamics, 38, S342-S343, 2019	Conference abstract
Latimer, A. E., Ginis, K. A. M., Arbour, K. P., The efficacy of an implementation intention intervention for promoting physical activity among individuals with spinal cord injury: A randomized controlled trial, Rehabilitation Psychology, 51, 273-280, 2006	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Lauderdale, M., Pineda, C., Groah, S., Ballard, P., Whitehair, C., Hubbard, K., Ljungberg, I., Triyana, B., Effectiveness of standardized spinal cord injury patients in physical medicine and rehabilitation resident training: A feasibility and technical needs assessment, Archives of Physical Medicine and Rehabilitation, 91, e21, 2010	Conference abstract
Lauer, R. T., Smith, B. T., Mulcahey, M. J., Betz, R. R., Johnston, T. E., Effects of cycling and/or electrical stimulation on bone mineral density in children with spinal cord injury, Spinal Cord, 49, 917-23, 2011	Outcomes not in PICO: Bone mineral density
Lavado, Edson L., Cardoso, Jefferson R., Silva, Luiza G. A., Dela Bela, Lais F., Atallah, Alvaro N., Effectiveness of aerobic physical training for treatment of chronic asymptomatic bacteriuria in subjects with spinal cord injury: a randomized controlled trial, Clinical rehabilitation, 27, 142-9, 2013	Outcomes not in PICO: Angular and linear kinematic gait parameters
Lechner, Helga E., Kakebeeke, Tanja H., Hegemann, Dorte, Baumberger, Michael, The effect of hippotherapy on spasticity and on mental well-being of persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 88, 1241-8, 2007	Intervention not in PICO: Hippotherapy
Leduc, B. E., Fournier, C., Jacquemin, G., Lepage, Y., Vinet, B., Hetu, P. O., Chagnon, M., Midodrine in patients with spinal cord	Not relevant to PICO: The aim of this RCT was to

Study	Reason for Exclusion
injury and anejaculation: A double-blind randomized placebo-controlled pilot study, Journal of Spinal Cord Medicine, 38, 57-62, 2015	evaluate the efficacy of midodrine in the treatment of anejaculation in men with spinal cord injury
Lee, B. B., Haran, M. J., Hunt, L. M., Simpson, J. M., Marial, O., Rutkowski, S. B., Middleton, J. W., Kotsiou, G., Tudehope, M., Cameron, I. D., Spinal-injured neuropathic bladder antisepsis (SINBA) trial, Spinal Cord, 45, 542-50, 2007	Not relevant to PICO: Methenamine Hippurate versus cranberry tablets prevent urinary tract infections
Leech, K. A., Kinnaird, C. R., Hornby, T. G., Effects of Serotonergic Medications on Locomotor Performance in Humans with Incomplete Spinal Cord Injury, Journal of Neurotrauma, 31, 1334-1342, 2014	Study design not in PICO: Cross-over RCT
Levi, A. D., Anderson, K. D., Okonkwo, D. O., Park, P., Bryce, T. N., Kurpad, S. N., Aarabi, B., Hsieh, J., Gant, K., Clinical Outcomes from a Multi-Center Study of Human Neural Stem Cell Transplantation in Chronic Cervical Spinal Cord Injury, Journal of Neurotrauma, 36, 891-902, 2019	Intervention not in PICO: Human neural stem cell transplantation
Li, G. P., Wang, X. Y., Zhang, Y., Efficacy and safety of OnabotulinumtoxinA in patients with neurogenic detrusor overactivity caused by spinal cord injury: A systematic review and meta-analysis, International Neurourology Journal, 22, 275-286, 2018	Systematic review: Included studies checked for relevance.
Li, H. J., Cao, X. J., A prospective randomized comparative study on effects in preventing urinary tract infection between Intelligent urinary bladder monitoring device and conventional urinary catheter in patients with voiding dysfunction caused by spinal cord injury, Http://www.chictr.org.cn/showproj.aspx? Proj=10090, 2014	Clinical trial protocol for which there were no published data
Li, Jia, Polston, Keith F. L., Eraslan, Mualla, Bickel, C. Scott, Windham, Samuel T., McLain, Amie B., Oster, Robert A., Bamman, Marcas M., Yarar-Fisher, Ceren, A high-protein diet or combination exercise training to improve metabolic health in individuals with long-standing spinal cord injury: a pilot randomized study, Physiological reports, 6, e13813, 2018	Intervention not in PICO: 8-week iso-caloric high-protein diet versus a combined exercise regimen
Li, L., Ye, W., Ruan, H., Yang, B., Zhang, S., Impact of hydrophilic catheters on urinary tract infections in people with spinal cord injury: Systematic review and meta-analysis of randomized controlled trials, Archives of Physical Medicine and Rehabilitation, 94, 782-787, 2013	Systematic review: Included studies checked for relevance.
Li, Shengai, Davis, Matthew, Frontera, Joel E., Li, Sheng, A novel nonpharmacological intervention - breathing-controlled electrical stimulation for neuropathic pain management after spinal cord injury - a preliminary study, Journal of Pain Research, 9, 933-940, 2016	Study design not in PICO: Cross-over RCT
Li, Yan, Bressington, Daniel, Chien, Wai Tong, Systematic Review of Psychosocial Interventions for People With Spinal Cord Injury During Inpatient Rehabilitation: Implications for Evidence-Based Practice, Worldviews on evidence-based nursing, 14, 499-506, 2017	Systematic review: Included studies checked for relevance.
Liechti, M. D., van der Lely, S., Stalder, S. A., Anderson, C. E., Birkhauser, V., Bachmann, L. M., Brinkhof, M. W. G., Curt, A., Jordan, X., Leitner, L., Mehnert, U., Mohr, S., Pannek, J., Schubert, M., Kessler, T. M., Update from TASCI, a Nationwide, Randomized, Sham-controlled, Double-blind Clinical Trial on Transcutaneous Tibial Nerve Stimulation in Patients with Acute Spinal Cord Injury to Prevent Neurogenic Detrusor Overactivity, European Urology Focus, 6, 877-879, 2020	No results presented.
Lim, Peter A. C., Tow, Adela M., Recovery and regeneration after spinal cord injury: a review and summary of recent literature, Annals of the Academy of Medicine, Singapore, 36, 49-57, 2007	Systematic review: Included studies checked for relevance.
Lima, C., Escada, P., Pratas-Vital, J., Branco, C., Arcangeli, C. A.,	Study design not in PICO:

Study	Reason for Exclusion
Lazzeri, G., Maia, C. A., Capucho, C., Hasse-Ferreira, A., Peduzzi, J. D., Olfactory mucosal autografts and rehabilitation for chronic traumatic spinal cord injury, Neurorehabilitation and Neural Repair, 24, 10-22, 2010	Non-RCT with <100 per arm
Linsenmeyer, Todd A., Harrison, Barbara, Oakley, Anne, Kirshblum, Steven, Stock, Jeffrey A., Millis, Scott R., Evaluation of cranberry supplement for reduction of urinary tract infections in individuals with neurogenic bladders secondary to spinal cord injury. A prospective, double-blinded, placebo-controlled, crossover study, The journal of spinal cord medicine, 27, 29-34, 2004	Study design not in PICO: Cross-over RCT
Liu, C. W., Chen, C. H., Huang, Y. F., Huang, M. H., Auricular acupressure as a treatment for neuropathic pain in patients with spinal cord injury, European Journal of Pain Supplements, 4, 132, 2010	Conference abstract
Liu, Hongju, Li, Jianjun, Du, Liangjie, Yang, Mingliang, Yang, Degang, Li, Jun, Gao, Feng, Ma, Ke, Short-term effects of core stability training on the balance and ambulation function of individuals with chronic spinal cord injury: a pilot randomized controlled trial, Minerva Medica, 110, 216-223, 2019	Full-text article not available
Liu, X. F., Liao, Z. A., Deng, W. H., Guan, X. L., Luo, J., Effects of drug injection at eight-liao point combined with bladder function training on bladder dysfunction due to spinal cord injury, Chinese Journal of Clinical Rehabilitation, 9, 142-143, 2005	Chinese language article
Lopez-Larraz, Eduardo, Trincado-Alonso, Fernando, Rajasekaran, Vijaykumar, Perez-Nombela, Soraya, Del-Ama, Antonio J., Aranda, Joan, Minguez, Javier, Gil-Agudo, Angel, Montesano, Luis, Control of an Ambulatory Exoskeleton with a Brain-Machine Interface for Spinal Cord Injury Gait Rehabilitation, Frontiers in Neuroscience, 10, 359, 2016	Study design not in PICO: Non-RCT with <100 per arm
Louie, D. R., Eng, J. J., Lam, T., Gait speed using powered robotic exoskeletons after spinal cord injury: A systematic review and correlational study, Journal of NeuroEngineering and Rehabilitation, 12, 82, 2015	Systematic review: Included studies checked for relevance.
Lovas, J., Tran, Y., Middleton, J., Bartrop, R., Moore, N., Craig, A., Managing pain and fatigue in people with spinal cord injury: a randomized controlled trial feasibility study examining the efficacy of massage therapy, Spinal Cord, 55, 162-166, 2017	Outcomes not in PICO: Pain and fatigue
Lu, Xiao, Battistuzzo, Camilla R., Zoghi, Maryam, Galea, Mary P., Effects of training on upper limb function after cervical spinal cord injury: a systematic review, Clinical rehabilitation, 29, 3-13, 2015	Systematic review: Included studies checked for relevance.
Lucareli, P. R., Lima, M. O., Lima, F. P. S., de Almeida, J. G., Brech, G. C., D'Andrea Greve, J. M., Gait analysis following treadmill training with body weight support versus conventional physical therapy: a prospective randomized controlled single blind study, Spinal cord, 49, 1001-7, 2011	Outcomes not in PICO: oOxygen consumption and positive urinary culture.
Lucci, V. E. M., McGrath, M. S., Willms, R., Claydon, V. E., The use of lidocaine lubricant in bowel management practices does not improve autonomic dysreflexia in Spinal cord injury: A randomized clinical trial, Clinical Autonomic Research, 27, 315, 2017	Conference abstract
Lui, J., Sarai, M., Mills, P. B., Chemodenervation for treatment of limb spasticity following spinal cord injury: a systematic review, Spinal Cord, 53, 252-64, 2015	Systematic review: Included studies checked for relevance.
Ma, D. N., Zhang, X. Q., Ying, J., Chen, Z. J., Li, L. X., Efficacy and safety of 9 nonoperative regimens for the treatment of spinal cord injury: A network meta-analysis, Medicine (United States), 96, e8679, 2017	Outcomes not in PICO: Lower extremity motor score, walking index for spinal cord injury,

Study	Reason for Exclusion
	constipation, headache, incontinence. NMA including 9 RCTs: Included studies checked for relevance.
MacDonald, Roderick, Monga, Manoj, Fink, Howard A., Wilt, Timothy J., Neurotoxin treatments for urinary incontinence in subjects with spinal cord injury or multiple sclerosis: a systematic review of effectiveness and adverse effects, The journal of spinal cord medicine, 31, 157-65, 2008	Systematic review: Included studies checked for relevance.
Mackelprang, Jessica L., Hoffman, Jeanne M., Garbaccio, Chris, Bombardier, Charles H., Outcomes and Lessons Learned From a Randomized Controlled Trial to Reduce Health Care Utilization During the First Year After Spinal Cord Injury Rehabilitation: Telephone Counseling Versus Usual Care, Archives of Physical Medicine and Rehabilitation, 97, 1793-1796.e1, 2016	Population not in PICO: Adults who had already completed standard care rehabilitation after SCI.
Madhusmita, M., Srinivasan, T. M., Ebnezar, J., Nagendra, H. R., Mohanty, P. P., Effect of integrated yoga as an add-on to physiotherapy on walking index, esr, pain, and spasticity among subjects with traumatic spinal cord injury: A randomized control study, Journal of Stem Cells, 13, 58-66, 2018	Intervention not in PICO: Integrated Yoga as an-add on to the physiotherapy.
Maharaj, Monish M., Hogan, Jarred A., Phan, Kevin, Mobbs, Ralph J., The role of specialist units to provide focused care and complication avoidance following traumatic spinal cord injury: a systematic review, European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society, 25, 1813-20, 2016	Systematic review: Included studies checked for relevance.
Marshall, D. F., Boston, V. E., Altered bladder and bowel function following cutaneous electrical field stimulation in children with spina bifida - Interim results of a randomized double-blind placebo-controlled trial, European Journal of Pediatric Surgery, 7, 41-43, 1997	Intervention not in PICO: Non-invasive electrical stimulation versus placebo control
Martinez, Stephanie A., Nguyen, Nhuquynh D., Bailey, Eric, Doyle-Green, Denis, Hauser, Henry A., Handrakis, John P., Knezevic, Steven, Marett, Casey, Weinman, Jennifer, Romero, Angelica F., Santiago, Tiffany M., Yang, Ajax H., Yung, Lok, Asselin, Pierre K., Weir, Joseph P., Kornfeld, Stephen D., Bauman, William A., Spungen, Ann M., Harel, Noam Y., Multimodal cortical and subcortical exercise compared with treadmill training for spinal cord injury, PLoS ONE, 13, e0202130, 2018	Study design not in PICO: Cross-over RCT
Mayson, Tanja A., Harris, Susan R., Functional electrical stimulation cycling in youth with spinal cord injury: A review of intervention studies, The journal of spinal cord medicine, 37, 266-77, 2014	Systematic review: Included studies checked for relevance.
McBain, Rachel A., Boswell-Ruys, Claire L., Lee, Bonsan B., Gandevia, Simon C., Butler, Jane E., Abdominal muscle training can enhance cough after spinal cord injury, Neurorehabilitation and Neural Repair, 27, 834-43, 2013	Study design not in PICO: Cross-over RCT
McCaughey, E. J., Borotkanics, R. J., Gollee, H., Folz, R. J., McLachlan, A. J., Abdominal functional electrical stimulation to improve respiratory function after spinal cord injury: a systematic review and meta-analysis, Spinal Cord, 55, 798, 2017	Systematic review: Included studies checked for relevance.
McIntyre, A., Janzen, S., Mehta, S., Teasell, R., A systematic review examining efficacy of intrathecal baclofen on spasticity in individuals greater than six months post-spinal cord injury, Archives of Physical Medicine and Rehabilitation, 93, E45, 2012	Conference abstract
McIntyre, Amanda, Mays, Rachel, Mehta, Swati, Janzen, Shannon, Townson, Andrea, Hsieh, Jane, Wolfe, Dalton, Teasell, Robert,	Systematic review: Included studies checked

Study	Reason for Exclusion
Examining the effectiveness of intrathecal baclofen on spasticity in individuals with chronic spinal cord injury: a systematic review, The journal of spinal cord medicine, 37, 11-8, 2014	for relevance.
Mehrholz, J., Harvey, L. A., Thomas, S., Elsner, B., Is body-weight-supported treadmill training or robotic-assisted gait training superior to overground gait training and other forms of physiotherapy in people with spinal cord injury? A systematic review, Spinal Cord, 55, 722-729, 2017	Systematic review: Included studies checked for relevance.
Mehrholz, Jan, Kugler, Joachim, Pohl, Marcus, Locomotor training for walking after spinal cord injury, The Cochrane database of systematic reviews, 11, CD006676, 2012	Systematic review: Included studies checked for relevance.
Mehta, S., Foley, N., Wolfe, D., Hsieh, J., Ethans, K., Hill, D., Teasell, R., Effectiveness of botulinum toxin injections to the external sphincter in treating incomplete voiding postspinal cord injury: A meta-analysis, Archives of Physical Medicine and Rehabilitation, 91, e18, 2010	Conference abstract
Mehta, S., Orenczuk, S., Hansen, K. T., Aubut, J. A. L., Hitzig, S. L., Legassic, M., Teasell, R. W., An Evidence-Based Review of the Effectiveness of Cognitive Behavioral Therapy for Psychosocial Issues Post-Spinal Cord Injury, Rehabilitation Psychology, 56, 15-25, 2011	Systematic review: Included studies checked for relevance.
Mehta, S., Orenczuk, S., Teasell, R., Evidence based management of depression following spinal cord injury: A meta-analysis, Archives of Physical Medicine and Rehabilitation, 92, 1706-1707, 2011	Conference abstract
Mehta, S., Peynenburg, V. A., Hadjistavropoulos, H. D., Internet-delivered cognitive behaviour therapy for chronic health conditions: a systematic review and meta-analysis, Journal of behavioral medicine, 42, 169-187, 2019	Systematic review: Included studies checked for relevance.
Mehta, Swati, Hill, Denise, Foley, Norine, Hsieh, Jane, Ethans, Karen, Potter, Patrick, Baverstock, Richard, Teasell, Robert W., Wolfe, Dalton, Spinal Cord Injury Rehabilitation Evidence Research, Team, A meta-analysis of botulinum toxin sphincteric injections in the treatment of incomplete voiding after spinal cord injury, Archives of Physical Medicine and Rehabilitation, 93, 597-603, 2012	Systematic review: Included studies checked for relevance.
Mehta, Swati, Hill, Denise, McIntyre, Amanda, Foley, Norine, Hsieh, Jane, Ethans, Karen, Teasell, Robert W., Loh, Eldon, Welk, Blayne, Wolfe, Dalton, Meta-analysis of botulinum toxin A detrusor injections in the treatment of neurogenic detrusor overactivity after spinal cord injury, Archives of Physical Medicine and Rehabilitation, 94, 1473-81, 2013	Systematic review: Included studies checked for relevance.
Menendez, H., Ferrero, C., Martin-Hernandez, J., Figueroa, A., Marin, P. J., Herrero, A. J., Chronic effects of simultaneous electromyostimulation and vibration on leg blood flow in spinal cord injury, Spinal Cord, 54, 1169-1175, 2016	Outcomes not in PICO: Blood flow parameters, muscle thickness and bone mineral density
Meng, Z., Wang, T., Yin, Z., Wang, J., Clinical research of electroacupuncture combined with transperineal injection of BTX-A for neurogenic bladder after spinal cord injury, Zhongguo zhen jiu [Chinese acupuncture & moxibustion], 35, 17-20, 2015	Chinese language article
Midik, M., Paker, N., Bugdayci, D., Midik, A. C., Effects of robot-assisted gait training on lower extremity strength, functional independence, and walking function in men with incomplete traumatic spinal cord injury, Turkish Journal of Physical Medicine and Rehabilitation, 66, 54-59, 2020	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Midrio, P., Mosiello, G., Ausili, E., Gamba, P., Marte, A., Lombardi, L., Iacobelli, B. D., Caponcelli, E., Marrello, S., Meroni, M., Brisighelli, G., Leva, E., Rendeli, C., Peristeen() transanal irrigation in paediatric	Study design not in PICO: No comparison group.

Study	Reason for Exclusion
patients with anorectal malformations and spinal cord lesions: a multicentre Italian study, Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland, 18, 86-93, 2016	
Migliorini C, Sinclair A, Brown D, Tonge B, New P. A randomised control trial of an Internet-based cognitive behaviour treatment for mood disorder in adults with chronic spinal cord injury. Spinal Cord. 2016;54(9):695-701	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Millar, Philip J., Rakobowchuk, Mark, Adams, Melanie M., Hicks, Audrey L., McCartney, Neil, MacDonald, Maureen J., Effects of short-term training on heart rate dynamics in individuals with spinal cord injury, Autonomic neuroscience : basic & clinical, 150, 116-21, 2009	Study design not in PICO: Cross-over RCT
Miller, Larry E., Zimmermann, Angela K., Herbert, William G., Clinical effectiveness and safety of powered exoskeleton-assisted walking in patients with spinal cord injury: systematic review with meta-analysis, Medical devices (Auckland, N.Z.), 9, 455-66, 2016	Systematic review: Included studies checked for relevance.
Morales, V., Bladder management of the pediatric spinal cord injury patient, SCI nursing : a publication of the American Association of Spinal Cord Injury Nurses, 18, 102-4, 2001	Paper unavailable
Morawietz, Christina, Moffat, Fiona, Effects of locomotor training after incomplete spinal cord injury: a systematic review, Archives of physical medicine and rehabilitation, 94, 2297-308, 2013	Systematic review: Included studies checked for relevance.
Mulroy, Sara J., Thompson, Lilli, Kemp, Bryan, Hatchett, Patricia Pate, Newsam, Craig J., Lupold, Dee Gutierrez, Haubert, Lisa Lighthall, Eberly, Valerie, Ge, Ting-Ting, Azen, Stanley P., Winstein, Carolee J., Gordon, James, Physical Therapy Clinical Research, Network, Strengthening and optimal movements for painful shoulders (STOMPS) in chronic spinal cord injury: a randomized controlled trial, Physical Therapy, 91, 305-24, 2011	Comparison not in PICO: Exercise/movement optimization intervention (12-week home-based program of shoulder strengthening and stretching exercises) versus attention control intervention only
Mushahwar, Vivian K., Jacobs, Patrick L., Normann, Richard A., Triolo, Ronald J., Kleitman, Naomi, New functional electrical stimulation approaches to standing and walking, Journal of Neural Engineering, 4, S181-97, 2007	Systematic review: Included studies checked for relevance.
Musselman, Kristin E., Yang, Jaynie F., Spinal Cord Injury Functional Ambulation Profile: a preliminary look at responsiveness, Physical Therapy, 94, 240-50, 2014	Study design not in PICO: Cross-over RCT
Nam, K. Y., Kim, H. J., Kwon, B. S., Park, J. W., Lee, H. J., Yoo, A., Robot-assisted gait training (Lokomat) improves walking function and activity in people with spinal cord injury: a systematic review, Journal of NeuroEngineering and Rehabilitation, 14, 24, 2017	Systematic review: Included studies checked for relevance.
Nance, P. W., Huff, F. J., Martinez-Arizala, A., Ayyoub, Z., Chen, D., Bian, A., Stamler, D., Efficacy and safety study of arbaclofen placarbil in patients with spasticity due to spinal cord injury, Spinal Cord, 49, 974-80, 2011	Study design not in PICO: Cross-over RCT
Nance, P., Schryvers, O., Schmidt, B., Dubo, H., Loveridge, B., Fewer, D., Intrathecal baclofen therapy for adults with spinal spasticity: therapeutic efficacy and effect on hospital admissions, The Canadian journal of neurological sciences. Le journal canadien des sciences neurologiques, 22, 22-9, 1995	Study design not in PICO: Non-RCT with <100 per arm
Nardone, R., Holler, Y., Thomschewski, A., Brigo, F., Orioli, A., Holler, P., Golaszewski, S., Trinka, E., rTMS modulates reciprocal inhibition in patients with traumatic spinal cord injury, Spinal Cord, 52, 831-5, 2014	Study design not in PICO: Cross-over RCT
Nardone, R., Langthaler, P. B., Orioli, A., Höller, P., Höller, Y., Frey,	Study design not in PICO:

Study	Reason for Exclusion
V. N., Brigo, F., Trinka, E., Effects of intermittent theta burst stimulation on spasticity after spinal cord injury, Restorative Neurology and Neuroscience, 35, 287-294, 2017	Cross-over RCT
Navarrete-Opazo, A., Alcayaga, J. J., Sepúlveda, O., Varas, G., Intermittent Hypoxia and Locomotor Training Enhances Dynamic but Not Standing Balance in Patients With Incomplete Spinal Cord Injury, Archives of Physical Medicine and Rehabilitation, 98, 415-424, 2017	Outcomes not in PICO: Balance measurements.
Nct,, A Safety and Efficacy Study of XP19986 in Subjects With Spasticity Due to Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00557973, 2007	Clinical trial protocol for which there were no published data
Nct,, Activity-Dependent Transspinal Stimulation in SCI, Https://clinicaltrials.gov/show/nct03669302, 2018	Clinical trial protocol for which there were no published data
Nct,, Acute Effect of Ventilatory Support During Exercise in Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03267212, 2017	Clinical trial protocol for which there were no published data
Nct,, An Internet-Delivered Pain Management Programme for Spinal Cord Injury Pain, Https://clinicaltrials.gov/show/nct03150017, 2017	Clinical trial protocol for which there were no published data
Nct,, Association Between tDCS and Lokomat Training in Patients With Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct02562001, 2015	Clinical trial protocol for which there were no published data
Nct,, Bonfill, X., Rigau, D., Multicentric, Controlled, Randomized Clinical Trial to Assess the Efficacy and Cost-effectiveness of Urinary Catheters With Silver Alloy Coating Versus Conventional Catheters in Spinal Cord Injured Patients, Http://clinicaltrials.gov/show/nct01803919, 2012	Clinical trial protocol for which there were no published data
Nct,, Cardenas, D., A Prospective, Randomized, Parallel-group, Multi-center Study to Compare the Occurrence of Urinary Tract Infections in Patients With Spinal Cord Injury Using Either Coated or Uncoated Intermittent Catheters, Http://clinicaltrials.gov/show/nct00318591, 2006	Clinical trial protocol for which there were no published data
Nct,, Effect of Tadalafil (Cialis) on the Cardiovascular System of Spinal Cord Injury (SCI) Males, Https://clinicaltrials.gov/show/nct01067391, 2010	Clinical trial protocol for which there were no published data
Nct,, Effects of Robotic Versus Manually-Assisted Locomotor Training for Individuals With Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00127439, 2005	Outcomes not in PICO: Walking balance and distance
Nct,, Evaluation of a Specialized Yoga Program for Persons With Spinal Cord Injury (SCI), Https://clinicaltrials.gov/show/nct02656927, 2016	Clinical trial protocol for which there were no published data
Nct,, Exercise to Reduce Obesity in Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00270855, 2005	Clinical trial protocol for which there were no published data
Nct,, Exoskeleton and Spinal Cord Stimulation for SCI, Https://clinicaltrials.gov/show/nct03096197, 2017	Clinical trial protocol for which there were no published data
Nct,, FES-Rowing Versus Zoledronic Acid to Improve Bone Health in Spinal Cord Injury (SCI), Https://clinicaltrials.gov/show/nct01426555, 2011	Clinical trial protocol for which there were no published data
Nct,, Improving Self-Management Skills Among People With Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03140501, 2017	Clinical trial protocol for which there were no published data
Nct,, Intervention Study to Assess the Effects of Moderate and High Intensity Aerobic Training on Physical Capacity and Activity Level in	Clinical trial protocol for which there were no

Study	Reason for Exclusion
Persons With Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct01903226, 2013	published data
Nct,, Investigation Into Optimal FES Training Characteristics After Sub-acute Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03621254, 2018	Clinical trial protocol for which there were no published data
Nct,, Laurberg, S., Treatment of Fecal Incontinence and Constipation in Patients With Spinal Cord Injury - a Prospective, Randomized, Controlled, Multicentre Trial of Transanal Irrigation Vs. Conservative Bowel Management, Http://clinicaltrials.gov/show/nct00286520, 2003	Clinical trial protocol for which there were no published data
Nct,, Non-Ambulatory SCI Walk Using a Robotic Exoskeleton: effect on Bone and Muscle, Https://clinicaltrials.gov/show/nct02324322, 2014	Clinical trial protocol for which there were no published data
Nct,, Phase II Randomized Pilot Study of Body Weight Support and Treadmill Training for Chronic Thoracic Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00004812, 2000	Clinical trial protocol for which there were no published data
Nct,, Preventing Pressure Ulcers in Veterans With Spinal Cord Injury (SCI), Https://clinicaltrials.gov/show/nct00105859, 2005	Study design not in PICO: Cross-sectional study
Nct,, ReInventing Yourself After SCI: an Intervention to Improve Outcomes After Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03390140, 2018	Clinical trial protocol for which there were no published data
Nct,, Restoration of Upper Limb Function in Individuals With Sub-Acute Spinal Cord Injury, Https://clinicaltrials.gov/show/nct01292811, 2011	Clinical trial protocol for which there were no published data
Nct,, Robotic Gait Training in Spinal Cord Injury, Https://clinicaltrials.gov/show/nct02749357, 2016	Clinical trial protocol for which there were no published data
Nct,, Robotic-assisted Locomotor Training on Mobility and Cardiopulmonary Function in Patients Suffering From Spinal Cord Injury, Https://clinicaltrials.gov/show/nct01989806, 2013	Outcome not in PICO: Walking and cardiopulmonary function in people with spinal cord injury
Nct,, rTMS and Body Weight-support Treadmill Training After Incomplete Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03394560, 2018	Clinical trial protocol for which there were no published data
Nct,, Spinal Cord Injury Exercise and Nutrition Conceptual Engagement, Https://clinicaltrials.gov/show/nct03495986, 2018	Clinical trial protocol for which there were no published data
Nct,, Sprint Interval Training During Rehabilitation After Spinal Cord Injury, Https://clinicaltrials.gov/show/nct03709095, 2018	Clinical trial protocol for which there were no published data
Nct,, Treadmill Training for Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00006429, 2000	Clinical trial protocol for which there were no published data
Nct,, Treadmill Training With Body Weight Support in Patients With Spinal Cord Injury, Https://clinicaltrials.gov/show/nct00061295, 2003	Clinical trial protocol for which there were no published data
Nct,, Treatment of Chronic Pain After Spinal Cord Injury (SCI) or Amputation, Https://clinicaltrials.gov/show/nct00006448, 2000	Clinical trial protocol for which there were no published data
Nct,, Ventilatory Support to Improve Exercise Training in High Level Spinal Cord Injury, Https://clinicaltrials.gov/show/nct02865343, 2016	Clinical trial protocol for which there were no published data
Needham-Shropshire, B. M., Broton, J. G., Cameron, T. L., Klose, K. J., Improved motor function in tetraplegics following neuromuscular stimulation-assisted arm ergometry, The journal of spinal cord	Outcomes not in PICO: Tnceps Manual Muscle Grade and number of

Study	Reason for Exclusion
medicine, 20, 49-55, 1997	improved muscles
Nistor-Cseppento, C., Cioara, F., Suciu, R. N., Matica, A., Cevei, M., Correlation of bone mass variation with physical therapy in patients with quadriplegia, Osteoporosis International, 26, S322, 2015	Conference abstract
Niu, Xun, Varoqui, Deborah, Kindig, Matthew, Mirbagheri, Mehdi M., Prediction of gait recovery in spinal cord injured individuals trained with robotic gait orthosis, Journal of NeuroEngineering and Rehabilitation, 11, 42, 2014	Outcomes not in PICO: Measures related to walking capacity
Nooijen, C. F., Ter Hoeve, N., Field-Fote, E. C., Gait quality is improved by locomotor training in individuals with SCI regardless of training approach, Journal of NeuroEngineering and Rehabilitation, 6, 36, 2009	Outcomes not in PICO: Gait parameters
Norrbrink Budh, Cecilia, Kowalski, Jan, Lundeberg, Thomas, A comprehensive pain management programme comprising educational, cognitive and behavioural interventions for neuropathic pain following spinal cord injury, Journal of Rehabilitation Medicine, 38, 172-80, 2006	Study design not in PICO: Non-RCT with <100 per arm
Oo, W. M., Efficacy of addition of transcutaneous electrical nerve stimulation to standardized physical therapy in subacute spinal spasticity, Archives of Physical Medicine and Rehabilitation, 96, e26, 2015	Conference abstract
Oo, Win Min, Efficacy of addition of transcutaneous electrical nerve stimulation to standardized physical therapy in subacute spinal spasticity: a randomized controlled trial, Archives of Physical Medicine and Rehabilitation, 95, 2013-20, 2014	Intervention not in PICO: Transcutaneous electrical nerve stimulation plus standardized physical therapy
Ordia, J. I., Fischer, E., Adamski, E., Spatz, E. L., Chronic intrathecal delivery of baclofen by a programmable pump for the treatment of severe spasticity, Journal of Neurosurgery, 85, 452-7, 1996	Comparison not in PICO: Intrathecal delivery of baclofen versus placebo. No mention of standard care.
Ozkul, Cagla, Kilinc, Muhammed, Yildirim, Sibel Aksu, Topcuoglu, Elif Yalcin, Akyuz, Mufit, Effects of visual illusion and transcutaneous electrical nerve stimulation on neuropathic pain in patients with spinal cord injury: A randomised controlled cross-over trial, Journal of back and musculoskeletal rehabilitation, 28, 709-19, 2015	Study design not in PICO: Cross-over RCT
Pactr,, new approach gamal technique bladder rehabilitation spinal cord injury, Http://www.who.int/trialsearch/trial2.aspx?Trialid=pactr201803003100338, 2018	Clinical trial protocol for which there were no published data
Panisset, M. G., Galea, M. P., El-Ansary, D., Does early exercise attenuate muscle atrophy or bone loss after spinal cord injury?, Spinal cord, 54, 84-92, 2016	Systematic review: Included studies checked for relevance.
Papathomas, Anthony, Williams, Toni L., Smith, Brett, Understanding physical activity participation in spinal cord injured populations: Three narrative types for consideration, International journal of qualitative studies on health and well-being, 10, 2015	Study design not in PICO: Non-RCT with <100 per arm
Parent, Stefan, Barchi, Soraya, LeBreton, Michel, Casha, Steve, Fehlings, Michael G., The impact of specialized centers of care for spinal cord injury on length of stay, complications, and mortality: a systematic review of the literature, Journal of Neurotrauma, 28, 1363-70, 2011	Systematic review: Included studies checked for relevance.
Parittotokkaporn, S., Varghese, C., O'Grady, G., Svirskis, D., Subramanian, S., O'Carroll, S. J., Non-invasive neuromodulation for bowel, bladder and sexual restoration following spinal cord injury: A systematic review, Clinical Neurology and Neurosurgery, 194, 105822, 2020	Systematic review: Included studies checked for relevance.

Study	Reason for Exclusion
Patil, Siddeshwar, Raza, Wajid A., Jamil, Firas, Caley, Richard, O'Connor, Rory J., Functional electrical stimulation for the upper limb in tetraplegic spinal cord injury: a systematic review, Journal of medical engineering & technology, 39, 419-23, 2014	Systematic review: Included studies checked for relevance.
Patzer, D., Vu, P., Pardo, V., Galen, S., Immediate effect of whole-body vibration on gait in patients with incomplete spinal cord injury, Journal of Spinal Cord Medicine, 37, 624-625, 2014	Conference abstract
Perkes, Sarah J., Bowman, Julia, Penkala, Stefania, Psychological therapies for the management of co-morbid depression following a spinal cord injury: a systematic review, Journal of health psychology, 19, 1597-612, 2014	Systematic review: Included studies checked for relevance.
Phadke, C., Veira, L., Mathur, S., Cipriano, G., Ismail, F., Boulias, C., Impact of passive leg cycling in persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 98, e135, 2017	Conference abstract
Phillips VL, Vesmarovich S, Hauber R, Wiggers E, Egner A. Telehealth: reaching out to newly injured spinal cord patients. Public Health Rep. 2001;116 Suppl 1:94-102	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Phillips, A. A., Elliott, S. L., Zheng, M. M., Krassioukov, A. V., Selective alpha adrenergic antagonist reduces severity of transient hypertension during sexual stimulation after spinal cord injury, Journal of Neurotrauma, 32, 392-396, 2015	Not relevant to PICO: This RCT aimed to compare the effect of a short-acting selective alpha antagonist on autonomic dysreflexia severity during medically supervised penile vibro-stimulation in six males with cervical spinal cord injury
Pickard, W. G., Grundy, D. J., A comparison of two methods of sterile urethral catheterisation in spinal cord injured adults, Paraplegia, 34, 30-3, 1996	Intervention not in PICO: Methods of sterile urethral catheterisation
Piira, A., Lannem, A. M., Gjesdal, K., Knutsen, R., Jorgensen, L., Glott, T., Hjeltnes, N., Knutsen, S. F., Sorensen, M., Quality of life and psychological outcomes of body-weight supported locomotor training in spinal cord injured persons with long-standing incomplete lesions, Spinal Cord, 58, 560-569, 2020	Mixed population: Included traumatic (21/37) and non-traumatic (16/37). Results not reported separately for target population.
Piira, A., Lannem, A. M., Sørensen, M., Glott, T., Knutsen, R., Jørgensen, L., Gjesdal, K., Hjeltnes, N., Knutsen, S. F., Manually assisted body-weight supported locomotor training does not re-establish walking in non-walking subjects with chronic incomplete spinal cord injury: a randomized clinical trial, Journal of Rehabilitation Medicine, 51, 113-119, 2019	Outcomes not in PICO: Walking function, lower extremity muscle strength and balance
Piira, A., Lannem, A. M., Sorensen, M., Glott, T., Knutsen, R., Jorgensen, L., Gjesdal, K., Hjeltnes, N., Knutsen, S. F., Robot-assisted locomotor training did not improve walking function in patients with chronic incomplete spinal cord injured: A randomized clinical trial, Journal of Rehabilitation Medicine, 2019	Outcomes not in PICO: Walking function, lower extremity muscle strength and balance
Ping Ho Chung, Bryan, Kam Kwan Cheng, Benson, Immediate effect of transcutaneous electrical nerve stimulation on spasticity in patients with spinal cord injury, Clinical Rehabilitation, 24, 202-10, 2010	Intervention not in PICO: Transcutaneous electrical nerve stimulation
Pooyania, Sepideh, Ethans, Karen, Szturm, Tony, Casey, Alan, Perry, Daryl, A randomized, double-blinded, crossover pilot study assessing the effect of nabilone on spasticity in persons with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 91, 703-7, 2010	Study design not in PICO: Cross-over RCT
Popovic MR, Kapadia N, Zivanovic V, Furlan JC, Craven BC, McGillivray C. Functional electrical stimulation therapy of voluntary	Population not in PICO: Adults aged ≥18 years old.

Study	Reason for Exclusion
grasping versus only conventional rehabilitation for patients with subacute incomplete tetraplegia: a randomized clinical trial. Neurorehabil Neural Repair. 2011;25(5):433-42	Included in corresponding adult evidence review.
Popovic, M. R., Functional electrical stimulation therapy for restoration of voluntary reaching and grasping functions following stroke and spinal cord injury: Randomized clinical trials, Neuromodulation, 15, e1, 2012	Conference abstract
Popovic, M. R., Thrasher, T. A., Adams, M. E., Takes, V., Zivanovic, V., Tonack, M. I., Functional electrical therapy: retraining grasping in spinal cord injury, Spinal Cord, 44, 143-51, 2006	No relevant data reported
Popovic, M., Kapadia, N., Zivanovic, V., Improving voluntary upper limb function in individuals with chronic incomplete spinal cord injury, Journal of Spinal Cord Medicine, 37, 637, 2014	Conference abstract
Post, M. W. M., van Leeuwen, C. M. C., Psychosocial issues in spinal cord injury: a review, Spinal Cord, 50, 382-9, 2012	Systematic review: Included studies checked for relevance.
Postans, Neil J., Hasler, Jon P., Granat, Malcolm H., Maxwell, Douglas J., Functional electric stimulation to augment partial weight-bearing supported treadmill training for patients with acute incomplete spinal cord injury: A pilot study, Archives of Physical Medicine and Rehabilitation, 85, 604-10, 2004	Study design not in PICO: Cross-over RCT
Postma, K., Haisma, J. A., Hopman, M. T., Bergen, M. P., Stam, H. J., Bussmann, J. B., Resistive inspiratory muscle training in people with spinal cord injury during inpatient rehabilitation: a randomized controlled trial, Physical Therapy, 94, 1709-1719, 2014	Intervention not in PICO: Resistive inspiratory muscle training
Potter, P. J., Hayes, K. C., Segal, J. L., Hsieh, J. T., Brunnemann, S. R., Delaney, G. A., Tierney, D. S., Mason, D., Randomized double-blind crossover trial of fampridine-SR (sustained release 4-aminopyridine) in patients with incomplete spinal cord injury, Journal of Neurotrauma, 15, 837-49, 1998	Study design not in PICO: Cross-over RCT
Powell, Elizabeth Salmon, Carrico, Cheryl, Raithatha, Ravi, Salyers, Emily, Ward, Andrea, Sawaki, Lumy, Transvertebral direct current stimulation paired with locomotor training in chronic spinal cord injury: A case study, NeuroRehabilitation, 38, 27-35, 2016	Study design not in PICO: Cross-over RCT
Pramodhyakul, Noppol, Amatachaya, Pipatana, Sooknuan, Thanat, Arayawichanon, Preeda, Amatachaya, Sugalya, Visuotemporal cues clinically improved walking ability of ambulatory patients with spinal cord injury within 5 days, The journal of spinal cord medicine, 39, 405-11, 2016	Study design not in PICO: Non-RCT with <100 per arm
Qin, J., Zhao, Y., Shi, X., Hu, Y., Tang, J., Ren, D., Cao, Z., Tang, J., Effects of acupuncture intervention at different stages on urinary function reconstruction of neurogenic bladder after spinal cord injury, Zhongguo zhen jiu [Chinese acupuncture & moxibustion], 35, 132-136, 2015	Chinese language article
Quach, J., Alappat, C., Flett, H., Guy, K., Verrier, M. C., Postural control in individuals with spinal cord injury:What do we knowabout assessments and rehabilitation interventions?, Journal of Spinal Cord Medicine, 37, 653-654, 2014	Conference abstract
Rahimi, M., Torkaman, G., Ghabaee, M., Ghasem-Zadeh, A., Advanced weight-bearing mat exercises combined with functional electrical stimulation to improve the ability of wheelchair-dependent people with spinal cord injury to transfer and attain independence in activities of daily living: a randomized controlled trial, Spinal Cord, 58, 78-85, 2020	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Rahul, S., Singh, D., Rustagi, S., Sureka, S. K., Srivastava, A., Ansari, M. S., Intra-sphincteric botulinum a toxin for refractory voiding	Conference abstract

Study	Reason for Exclusion
dysfunction in neurologically normal children: A new ray of hope, Indian Journal of Urology, 34, 35-36, 2018	
Raithatha, R., Carrico, C., Powell, E. S., Westgate, P. M., Chelette, K. C., Lee, K., Dunsmore, L., Salles, S., Sawaki, L., Non-invasive brain stimulation and robot-assisted gait training after incomplete spinal cord injury: A randomized pilot study, NeuroRehabilitation, 38, 15-25, 2016	Outcomes not in PICO: Manual muscle testing, walking speed, Timed Up and Go test, Berg Balance Scale and Spinal Cord Independence Measure-III
Ralston, Keira E., Harvey, Lisa, Batty, Julia, Bonsan, Lee B., Ben, Marsha, Cusmiani, Rita, Bennett, Jacqueline, Functional electrical stimulation cycling has no clear effect on urine output, lower limb swelling, and spasticity in people with spinal cord injury: a randomised cross-over trial, Journal of physiotherapy, 59, 237-43, 2013	Study design not in PICO: Cross-over RCT
Rayegani, Seyed Mansoor, Shojaee, Hadi, Sedighipour, Leyla, Soroush, Mohammad Reza, Baghbani, Mohammad, Amirani, Omm'ol Banin, The effect of electrical passive cycling on spasticity in war veterans with spinal cord injury, Frontiers in Neurology, 2, 39, 2011	Outcomes not in PICO: Lower limb range of motion, spasticity scale, and electrodiagnostic parameters.
Ren, Jian, Chew, Daniel J., Biers, Suzanne, Thiruchelvam, Nikesh, Electrical nerve stimulation to promote micturition in spinal cord injury patients: A review of current attempts, Neurourology and urodynamics, 35, 365-70, 2016	Systematic review: Included studies checked for relevance.
Rice, Ian M., Pohlig, Ryan T., Gallagher, Jerri D., Boninger, Michael L., Handrim wheelchair propulsion training effect on overground propulsion using biomechanical real-time visual feedback, Archives of physical medicine and rehabilitation, 94, 256-63, 2013	Outcomes not in PICO: Handrim kinetics, contact angle, and stroke frequency
Richardson, E. J., Brooks, L. G., Richards, J. S., Bombardier, C. H., Barber, J., Tate, D., Forchheimer, M. B., Fann, J. R., Changes in pain and quality of life in depressed individuals with spinal cord injury: does type of pain matter?, Journal of Spinal Cord Medicine, 39, 535-543, 2016	Not relevant to PICO: The aim was to examine the association of neuropathic and nociceptive pain severity and interference with quality of life in persons with spinal cord injury who underwent a randomized controlled 12-week trial of an antidepressant to treat depression.
Rintala, D. H., Holmes, S. A., Courtade, D., Fiess, R. N., Tastard, L. V., Loubser, P. G., Comparison of the Effectiveness of Amitriptyline and Gabapentin on Chronic Neuropathic Pain in Persons With Spinal Cord Injury, Archives of Physical Medicine and Rehabilitation, 88, 1547-1560, 2007	Study design not in PICO: Cross-over RCT
Sadeghi, Mahsa, Sawatzky, Bonita, Effects of vibration on spasticity in individuals with spinal cord injury: a scoping systematic review, American journal of physical medicine & rehabilitation, 93, 995-1007, 2014	Systematic review: Included studies checked for relevance.
Sahagun Olmos Roberto, C., Pineda Villasenor Carlos, J., Jimena, Q. F., Cristina, H. D., Mendoza Cosio Christian, A., Araceli, B. G., Carmona Plaza, A., Cardiovascular effects of gait training on a robotic orthosis in individuals with chronic incomplete spinal cord injury: Preeliminary report, Journal of Cardiopulmonary Rehabilitation and Prevention, 35, 290, 2015	Conference abstract
Salzberg, C. A., Cooper-Vastola, S. A., Perez, F., Viehbeck, M. G., Byrne, D. W., The effects of non-thermal pulsed electromagnetic energy on wound healing of pressure ulcers in spinal cord-injured	Study design not in PICO: Cross-over RCT

Study	Reason for Exclusion
patients: a randomized, double-blind study, Ostomy/wound management, 41, 42-passim, 1995	
Samal, V., Mecl, J., Kyrianova, A., Sram, J., Using of hydrophylic-coated catheters for intermittent catheterization in the conditions of spinal cord unit, European Urology, Supplements, 11, 101, 2012	Conference abstract
Samuelsson, K. A., Tropp, H., Nylander, E., Gerdle, B., The effect of rear-wheel position on seating ergonomics and mobility efficiency in wheelchair users with spinal cord injuries: a pilot study, Journal of Rehabilitation Research and Development, 41, 65-74, 2004	Outcomes not in PICO: Wheelchair's propulsion efficiency, seating comfort, and propulsion qualities.
Sandler, Evan B., Roach, Kathryn E., Field-Fote, Edelle C., Dose-Response Outcomes Associated with Different Forms of Locomotor Training in Persons with Chronic Motor-Incomplete Spinal Cord Injury, Journal of Neurotrauma, 34, 1903-1908, 2017	Outcomes not in PICO: Walking distance and speed
Sarica, S., Akkoc, Y., Karapolat, H., Aktug, H., Comparison of the use of conventional, hydrophilic and gel-lubricated catheters with regard to urethral micro trauma, urinary system infection, and patient satisfaction in patients with spinal cord injury: a randomized controlled study, European journal of physical and rehabilitation medicine, 46, 473-9, 2010	Intervention not in PICO: Not early prophylactic bladder management.
Schottler, Jennifer, Vogel, Lawrence C., Sturm, Peter, Spinal cord injuries in young children: a review of children injured at 5 years of age and younger, Developmental Medicine and Child Neurology, 54, 1138-43, 2012	Study design not in PICO: No comparison group.
Schurch, B., De Seze, M., Denys, P., Chartier-Kastler, E., Haab, F., Everaert, K., Plante, P., Perrouin-Verbe, B., Kumar, C., Fraczek, S., Brint, M. F., Botulinum toxin type A is a safe and effective treatment for neurogenic urinary incontinence: Results of a single treatment, randomized, placebo controlled 6-month study, Journal of Urology, 174, 196-200, 2005	No intervention of interest: This RCT evaluated the effects of 2 doses of botulinum toxin type A (BTX-A) (200 or 300 U BOTOX) injected into the detrusor for urinary incontinence caused by neurogenic detrusor overactivity of predominantly spinal cord origin. This was not an "Early prophylactic bladder management "
Senthilvelkumar, Thangavelu, Magimairaj, Henry, Fletcher, Jebaraj, Tharion, George, George, Jacob, Comparison of body weight-supported treadmill training versus body weight-supported overground training in people with incomplete tetraplegia: a pilot randomized trial, Clinical Rehabilitation, 29, 42-9, 2015	Outcomes not in PICO: Walking Index for Spinal Cord Injury and Lower Extremity Muscle Score
Shackleton, C., Albertus, Y., Effects of Robotic Walking & Activity-Based Rehabilitation on Health-realted Benifits in Persons With SCI, Archives of Physical Medicine and Rehabilitation, 100, e177, 2019	Conference abstract
Shackleton, C., Evans, R., Shamley, D., West, S., Albertus, Y., Effectiveness of over-ground robotic locomotor training in improving walking performance, cardiovascular demands, secondary complications and user-satisfaction in individuals with spinal cord injuries: A systematic review, Journal of rehabilitation medicine, 51, 723-733, 2019	Systematic review: Included studies checked for relevance.
Shendy, W. S., El Semary, M. M., Battecha, K. H., Abdel-Azim, M. S., Mourad, H. S., El Gohary, A. M., Efficacy of transcutaneous electrical nerve stimulation versus biofeedback training on bladder and erectile dysfunction in patients with spinal cord injury, Egyptian Journal of Neurology, Psychiatry and Neurosurgery, 52, 194-200, 2015	Intervention not in PICO: Transcutaneous electrical nerve stimulation versus pelvic floor biofeedback
Shin JC, Kim JY, Park HK, Kim NY. Effect of robotic-assisted gait	Population not in PICO:

Study	Reason for Exclusion
training in patients with incomplete spinal cord injury. Ann Rehabil Med. 2014;38(6):719-25	Adults aged ≥18 years old. Included in corresponding adult evidence review.
Shojaei, Mir Hatef, Alavinia, Seyed Mohammad, Craven, B. Catharine, Management of obesity after spinal cord injury: a systematic review, The journal of spinal cord medicine, 40, 783-794, 2017	Systematic review: Included studies checked for relevance.
Shuai L, Yu GH, Feng Z, Wang WS, Sun WM, Zhou L, Yan Y. Application of a paraplegic gait orthosis in thoracolumbar spinal cord injury. Neural Regen Res. 2016;11(12):1997-2003	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Siddall, P. J., Middleton, J. W., A proposed algorithm for the management of pain following spinal cord injury, Spinal Cord, 44, 67-77, 2006	Systematic review: Included studies checked for relevance.
Simis, M., Ricardo Sato, J., Santos, K., Fregni, F., Rizzo Battistella, L., Using functional near infrared spectroscopy (FNIRS) to assess the effect of transcranial direct-current stimulation (TDCS) on spinal cord injury patient, during robot-assisted gait, Annals of Physical and Rehabilitation Medicine, (no pagination), 2018	Conference abstract
Skeers, Peta, Battistuzzo, Camila R., Clark, Jillian M., Bernard, Stephen, Freeman, Brian J. C., Batchelor, Peter E., Acute Thoracolumbar Spinal Cord Injury: Relationship of Cord Compression to Neurological Outcome, The Journal of bone and joint surgery. American volume, 100, 305-315, 2018	Study design not in PICO: Case study
Skold, Camilla, Lonn, Lars, Harms-Ringdahl, Karin, Hultling, Claes, Levi, Richard, Nash, Mark, Seiger, Ake, Effects of functional electrical stimulation training for six months on body composition and spasticity in motor complete tetraplegic spinal cord-injured individuals, Journal of Rehabilitation Medicine, 34, 25-32, 2002	Outcomes not in PICO: Modified Ashworth Scale and electromyography measurements, resistive torque, and Visual Analogue Scale
Smith, Peter A., Hassani, Sahar, Reiners, Kathyrn, Vogel, Lawrence C., Harris, Gerald F., Gait analysis in children and adolescents with spinal cord injuries, The journal of spinal cord medicine, 27 Suppl 1, S44-9, 2004	Study design not in PICO: No intervention
Soleyman-Jahi, S., Yousefian, A., Maheronnaghsh, R., Shokraneh, F., Zadegan, S. A., Soltani, A., Hosseini, S. M., Vaccaro, A. R., Rahimi-Movaghar, V., Evidence-based prevention and treatment of osteoporosis after spinal cord injury: a systematic review, European Spine Journal, 27, 1798-1814, 2018	Systematic review: Included studies checked for relevance.
Spoljar, J., Erjavec, T., Obreza, P., Savrin, R., Vipavec, B., Impact of feedback display during robotic-assisted treadmill training on cardiorespiratory properties in persons with spinal cord injury: A pilot study, Physiotherapy (United Kingdom), 101, eS1430, 2015	Conference abstract
Srivastava, R. N., Motor segmental recovery in spinal cord injury-a blessing in disguise!, European Spine Journal, 19, 1408, 2010	Conference abstract
Stampas, A., Gustafson, K., Korupolu, R., Smith, C., Zhu, L., Li, S., Bladder neuromodulation in acute spinal cord injury via transcutaneous tibial nerve stimulation: Cystometrogram and autonomic nervous system evidence from a randomized control pilot trial, Frontiers in Neuroscience, 13, 119, 2019	Intervention not in PICO: Transcutaneous tibial nerve stimulation versus sham stimulation
Stampas, A., Korupolu, R., Zhu, L., Smith, C. P., Gustafson, K., Safety, Feasibility, and Efficacy of Transcutaneous Tibial Nerve Stimulation in Acute Spinal Cord Injury Neurogenic Bladder: A Randomized Control Pilot Trial, Neuromodulation, 2018	Intervention not in PICO: Transcutaneous tibial nerve stimulation versus sham stimulation
Sukumar, S., Lenherr, S., Myers, J., Patel, D., Gor, R., Jha, A., Presson, A., Zhang, C., Rosenbluth, J., Stoffel, J., Welk, B., Elliott,	Conference abstract

Study	Reason for Exclusion
S., Quality of life associated with bladder management strategy after spinal cord injury, Journal of Urology, 197, e1261, 2017	
Swinnen, E., Duerinck, S., Baeyens, J. P., Meeusen, R., Kerckhofs, E., Effectiveness of robot-assisted gait training in persons with spinal cord injury: a systematic review, Journal of rehabilitation medicine : official journal of the UEMS European Board of Physical and Rehabilitation Medicine, 42, 520-526, 2010	Systematic review: Included studies checked for relevance.
Szarpak, L., Smereka, J., Ruetzler, K., Intubation with an ETView VivaSight SL in a simulated cervical spine damage setting, Hong kong journal of emergency medicine, 23, 315-, 2016	Conference abstract
Tamburella, F., Scivoletto, G., Molinari, M., Somatosensory inputs by application of KinesioTaping: Effects on spasticity, balance, and gait in chronic spinal cord injury, Frontiers in Human Neuroscience, 8, 367, 2014	Study design not in PICO: Cross-over RCT
Tan, Gabriel, Rintala, Diana H., Jensen, Mark P., Richards, J. Scott, Holmes, Sally Ann, Parachuri, Rama, Lashgari-Saegh, Shamsi, Price, Larry R., Efficacy of cranial electrotherapy stimulation for neuropathic pain following spinal cord injury: a multi-site randomized controlled trial with a secondary 6-month open-label phase, The journal of spinal cord medicine, 34, 285-96, 2011	Intervention not in PICO: Cranial electrotherapy stimulation versus sham stimulation
Tan, Gabriel, Rintala, Diana H., Thornby, John I., Yang, June, Wade, Walter, Vasilev, Christine, Using cranial electrotherapy stimulation to treat pain associated with spinal cord injury, Journal of Rehabilitation Research and Development, 43, 461-74, 2006	Intervention not in PICO: Cranial electrotherapy stimulation versus sham stimulation
Tang, Qiantuo, Huang, Qiuchen, Hu, Chunying, Research on Design Theory and Compliant Control for Underactuated Lower-extremity Rehabilitation Robotic Systems code: (51175368); 2012.01-2015.12, Journal of physical therapy science, 26, 1597-9, 2014	Outcomes not in PICO: Probe Reaction Time and maximum walking speed
Taricco, M., Adone, R., Pagliacci, C., Telaro, E., Pharmacological interventions for spasticity following spinal cord injury, Cochrane Database of Systematic Reviews, CD001131, 2009	Systematic review: Included studies checked for relevance.
Tate, D. G., Rohn, E., Duggan, C., Madrid, R., Forchheimer, M., Zafiroff, E., Response shift and perceptions of quality of life following neurogenic bowel and bladder in persons with spinal cord injury, Quality of Life Research, 24, 63-64, 2015	Conference abstract
Tederko, Piotr, Krasuski, Tomasz, Krasuski, Marek, Dlugolecka, Alicja, Tarnacka, Beata, Determinants of health knowledge and health perceptions from the perspective of health-related education of patients with spinal cord injury: a systematic review, International journal of rehabilitation research. Internationale Zeitschrift fur Rehabilitationsforschung. Revue internationale de recherches de readaptation, 40, 97-106, 2017	Systematic review: Included studies checked for relevance.
Theiss, Renee D., Hornby, T. George, Rymer, W. Zev, Schmit, Brian D., Riluzole decreases flexion withdrawal reflex but not voluntary ankle torque in human chronic spinal cord injury, Journal of Neurophysiology, 105, 2781-90, 2011	Not relevant to PICO: This study aimed to assess the contribution of spinal neuron persistent sodium conductances to reflex hyperexcitability in human chronic spinal cord injury.
Thomaz, S. R., Cipriano Jr, G., Formiga, M. F., Fachin-Martins, E., Cipriano, G. F. B., Martins, W. R., Cahalin, L. P., Effect of electrical stimulation on muscle atrophy and spasticity in patients with spinal cord injury - a systematic review with meta-analysis, Spinal Cord, 57, 258-266, 2019	Systematic review: Included studies checked for relevance.
Tongprasert, S., Namchandee, A., Sotthipoka, K., Kammuang-Lue, P., Reliability of the International Spinal Cord Injury Upper Extremity	Study design not in PICO: Psychometrics study

Study	Reason for Exclusion
Basic Data Set, Spinal Cord, 56, 913-918, 2018	
Valent, L., Dallmeijer, A., Houdijk, H., Talsma, E., van der Woude, L., The effects of upper body exercise on the physical capacity of people with a spinal cord injury: A systematic review, Clinical Rehabilitation, 21, 315-330, 2007	Systematic review: Included studies checked for relevance.
van der Bruggen, M. A., Huisman, H. B., Beckerman, H., Bertelsmann, F. W., Polman, C. H., Lankhorst, G. J., Randomized trial of 4-aminopyridine in patients with chronic incomplete spinal cord injury, Journal of Neurology, 248, 665-71, 2001	Study design not in PICO: Cross-over RCT
van der Woude, L. H., de Groot, S., Postema, K., Bussmann, J. B., Janssen, T. W., Post, M. W., Active LifestyLe Rehabilitation interventions in aging spinal cord injury (ALLRISC): a multicentre research program, Disability and Rehabilitation, 35, 1097-1103, 2013	Research protocol for a RCT
Van Houtte, S., Vanlandewijck, Y., Gosselink, R., Respiratory muscle training in persons with spinal cord injury: A systematic review, Respiratory Medicine, 100, 1886-1895, 2006	Intervention not in PICO: Respiratory muscle training in persons with spinal cord injury
Van Houtte, Siska, Vanlandewijck, Yves, Kiekens, Carlotte, Spengler, Christina M., Gosselink, Rik, Patients with acute spinal cord injury benefit from normocapnic hyperpnoea training, Journal of rehabilitation medicine, 40, 119-25, 2008	Outcomes not in PICO: Respiratory parameters and respiratory muscle strength and endurance.
Varoqui, Deborah, Niu, Xun, Mirbagheri, Mehdi M., Ankle voluntary movement enhancement following robotic-assisted locomotor training in spinal cord injury, Journal of NeuroEngineering and Rehabilitation, 11, 46, 2014	Outcomes not in PICO: Muscle strength, Timed Up and Go test and walking speed.
Vivodtzev, I., Picard, G., Cepeda, F. X., Taylor, J. A., Acute effect of non-invasive ventilation during FES-rowing exercise in patients with high-level spinal cord injury, European Respiratory Journal, 52, 2018	Conference abstract
Wadsworth, Brooke M., Haines, Terry P., Cornwell, Petrea L., Rodwell, Leanne T., Paratz, Jennifer D., Abdominal binder improves lung volumes and voice in people with tetraplegic spinal cord injury, Archives of Physical Medicine and Rehabilitation, 93, 2189-97, 2012	Study design not in PICO: Cross-over RCT
Waites, Ken B., Canupp, Kay C., Armstrong, Sarah, DeVivo, Michael J., Effect of cranberry extract on bacteriuria and pyuria in persons with neurogenic bladder secondary to spinal cord injury, The journal of spinal cord medicine, 27, 35-40, 2004	Study design not in PICO: Microbiology measurements
Warms, Catherine A., Backus, Deborah, Rajan, Suparna, Bombardier, Charles H., Schomer, Katherine G., Burns, Stephen P., Adverse events in cardiovascular-related training programs in people with spinal cord injury: a systematic review, The journal of spinal cord medicine, 37, 672-92, 2014	Systematic review: Included studies checked for relevance.
Wessels, Monique, Lucas, Cees, Eriks, Inge, de Groot, Sonja, Body weight-supported gait training for restoration of walking in people with an incomplete spinal cord injury: a systematic review, Journal of rehabilitation medicine, 42, 513-9, 2010	Systematic review: Included studies checked for relevance.
West, C. R., Taylor, B. J., Campbell, I. G., Romer, L. M., Effects of inspiratory muscle training on exercise responses in Paralympic athletes with cervical spinal cord injury, Scandinavian journal of medicine & science in sports, 24, 764-72, 2014	Intervention not in PICO: Inspiratory muscle training
Wielink, G., Essink-Bot, M. L., Van Kerrebroeck, P. E. V., Rutten, F. F. H., Bosch, J. L. H. R., Debruyne, F. M. J., D'Hollosy, W., Van der Aa, H. E., Alleman, E. R. J., Kersten, P., Hermens, H., Vorsteveld, J. H. C., Koldewijn, E. L., Rosier, P. F. W., Zilvold, G., Rijkhoff, N., Wijkstra, H., Sacral rhizotomies and electrical bladder stimulation in spinal cord injury. 2. Cost-effectiveness and quality of life analysis, European Urology, 31, 441-446, 1997	Study design not in PICO: Non-RCT with <100 per arm

Study	Reason for Exclusion
Wiener, J., Hsieh, J., McIntyre, A., Mehta, S., Janzen, S., Teasell, R., The effectiveness of 4-aminopyridine for the management of spasticity in individuals with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 98, e138, 2017	Conference abstract
Wilde, Mary H., McMahon, James M., Fairbanks, Eileen, Brasch, Judith, Parshall, Robert, Zhang, Feng, Miner, Sarah, Thayer, Deborah, Schneiderman, Dan, Harrington, Brian, Feasibility of a Web-Based Self-management Intervention for Intermittent Urinary Catheter Users With Spinal Cord Injury, Journal of wound, ostomy, and continence nursing : official publication of The Wound, Ostomy and Continence Nurses Society, 43, 529-38, 2016	Study design not in PICO: Non-RCT with <100 per arm
Wilder, R. P., Jones, E. V., Wind, T. C., Edlich, R. F., A review on functional electrical stimulation cycle ergometer exercise for spinal cord injured patients, Journal of Long-Term Effects of Medical Implants, 27, 279-292, 2017	Paper unavailable
Wilsey, B., Marcotte, T. D., Deutsch, R., Zhao, H., Prasad, H., Phan, A., An Exploratory Human Laboratory Experiment Evaluating Vaporized Cannabis in the Treatment of Neuropathic Pain From Spinal Cord Injury and Disease, Journal of Pain, 17, 982-1000, 2016	Study design not in PICO: Cross-over RCT
Wirz M, Mach O, Maier D, Benito-Penalva J, Taylor J, Esclarin A, Dietz V. Effectiveness of Automated Locomotor Training in Patients with Acute Incomplete Spinal Cord Injury: A Randomized, Controlled, Multicenter Trial. J Neurotrauma. 2017;34(10):1891-1896	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Wirz, M., Dietz, V., Esclarin, A., Benito, J., Mach, O., Bastiaenen, C., De Bie, R. A., Schneider, S., Dose-response relationship of locomotor training in patients with spinal cord injury: Preliminary results, Physiotherapy (United Kingdom), 101, eS1348, 2015	Conference abstract
Wirz, Markus, Bastiaenen, Carolien, de Bie, Rob, Dietz, Volker, Effectiveness of automated locomotor training in patients with acute incomplete spinal cord injury: a randomized controlled multicenter trial, BMC Neurology, 11, 60, 2011	Research protocol for a RCT
Wolfe, D., Hsieh, J., Teasell, R., Eng, J., Townson, A., Miller, W., Connolly, S., Konnyu, K., Foulon, B., Sakakibara, B., SCI rehabilitation: An evidence-based review (SCIRE) v.2, Journal of Spinal Cord Medicine, 32, 481, 2009	Conference abstract
Worsoe, J., Fynne, L., Laurberg, S., Krogh, K., Rijkhoff, N. J. M., Acute effect of electrical stimulation of the dorsal genital nerve on rectal capacity in patients with spinal cord injury, Spinal Cord, 50, 462-6, 2012	Outcomes not in PICO: Impedance planimetry and manometry
Wu, M., Landry, J. M., Schmit, B. D., Hornby, T. G., Yen, S. C., Robotic resistance treadmill training improves locomotor function in human spinal cord injury: A pilot study, Archives of Physical Medicine and Rehabilitation, 93, 782-789, 2012	Study design not in PICO: Cross-over RCT
Wu, Ming, Kim, Janis, Wei, Feng, Facilitating Weight Shifting During Treadmill Training Improves Walking Function in Humans With Spinal Cord Injury: A Randomized Controlled Pilot Study, American journal of physical medicine & rehabilitation, 97, 585-592, 2018	Outcomes not in PICO: Walking speed and distance
Wyndaele, J. J., Van Kerrebroeck, P., The effects of 4 weeks treatment with cisapride on cystometric parameters in spinal cord injury patients. A double-blind, placebo controlled study, Paraplegia, 33, 625-7, 1995	Study design not in PICO: Cross-over RCT
Xing, S. T., Wang, D., Wen, X. H., Wu, Z. Q., Sun, Q., Zhang, D. W., Cheng, Y., Yan, D., Yu, F., Clinical research of electroacupuncture combined with acupoint-injection of botulinum toxin A in treating the muscle spasticity by spinal cord injury, Zhongguo gu shang [China journal of orthopaedics and traumatology], 23, 350-353, 2010	Chinese language article

Study	Reason for Exclusion
Xu, X., Xu, Y., Clinical efficacy on neurogenic bladder after spinal cord injury treated with rehabilitation training and acupuncture-moxibustion, Zhongguo zhen jiu [Chinese acupuncture & moxibustion], 35, 670-673, 2015	Chinese language article
Yan X, Lan J, Liu Y, Miao J. Efficacy and Safety of Botulinum Toxin Type A in Spasticity Caused by Spinal Cord Injury: A Randomized, Controlled Trial. Med Sci Monit. 2018;24:8160-8171	Population not in PICO: Adults aged ≥18 years old. Included in corresponding adult evidence review.
Yang, A., Pena, S., Spungen, A. M., Harel, N. Y., Dynamic knee bracing to improve weight bearing during SCI balance training, Journal of Spinal Cord Medicine, 37, 454, 2014	Conference abstract
Yang, Jaynie F., Musselman, Kristin E., Livingstone, Donna, Brunton, Kelly, Hendricks, Gregory, Hill, Denise, Gorassini, Monica, Repetitive mass practice or focused precise practice for retraining walking after incomplete spinal cord injury? A pilot randomized clinical trial, Neurorehabilitation and neural repair, 28, 314-24, 2014	Study design not in PICO: Cross-over RCT
Yarar-Fisher, C., The effects of high protein diet and combination exercise on metabolic health in individuals with spinal cord injury, Archives of Physical Medicine and Rehabilitation, 96, e69, 2015	Conference abstract
Yarar-Fisher, Ceren, Kulkarni, Adarsh, Li, Jia, Farley, Paige, Renfro, Cassandra, Aslam, Hammad, Bosarge, Patrick, Wilson, Landon, Barnes, Stephen, Evaluation of a ketogenic diet for improvement of neurological recovery in individuals with acute spinal cord injury: a pilot, randomized safety and feasibility trial, Spinal cord series and cases, 4, 88, 2018	Study design not in PICO: Cross-over RCT
Yildirim, M. A., Ones, K., Goksenoglu, G., Early term effects of robotic assisted gait training on ambulation and functional capacity in patients with spinal cord injury, Turkish Journal of Medical Sciences, 49, 838-843, 2019	Mixed population: Included traumatic (68/88) and non-traumatic (20/88) causes of injury. Results not reported separately for target population.
Yildirim, Mustafa Aziz, Ones, Kadriye, Goksenoglu, Goksen, Early term effects of robotic assisted gait training on ambulation and functional capacity in patients with spinal cord injury, Turkish journal of medical sciences, 49, 2019	Duplicate
Yuan, Y., Yu, X., Therapeutic effects of rehabilitation training methods on spinal cord injury: a meta-analysis, The Lancet, 394, S27, 2019	Poster abstract
Zhai, H. W., Gong, Z. K., Sun, J., Chen, W., Zhang, M., Zhou, J. J., Zheng, B., Ganglioside with nerve growth factor for the recovery of extremity function following spinal cord injury and somatosensory evoked potential, European Review for Medical and Pharmacological Sciences, 19, 2282-2286, 2015	Intervention not in PICO: Nerve growth factor plus ganglioside
Zhang, Yanyan, Xia, Xiyan, Zhuang, Xuewei, Effect of quantitative assessment-based nursing intervention on the bowel function and life quality of patients with neurogenic bowel dysfunction after spinal cord injury, Journal of clinical nursing, 27, e1146-e1151, 2018	Intervention not in PICO: Regular nursing versus quantitative assessment-based nursing
Zidek, K. A., Srinivasan, R., Rehabilitation of a child with a spinal cord injury, Seminars in Pediatric Neurology, 10, 140-150, 2003	Study design not in PICO: No comparison group.
Zoghi, Maryam, Galea, Mary, Brain Motor Control Assessment Post Early Intensive Hand Rehabilitation After Spinal Cord Injury, Topics in Spinal Cord Injury Rehabilitation, 24, 157-166, 2018	Outcomes not in PICO: Brain Motor Control Assessment

Economic studies

All studies were excluded at the initial title and abstract screening stage. See appendix G for further information.

Appendix L – Research recommendations

Research recommendations for:

C.3a For adults with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

C.3b For children and young people with complex rehabilitation needs after traumatic injury that involves spinal cord injury, what specific rehabilitation programmes and packages are effective and acceptable?

Also applicable for the following review questions:

What physical rehabilitation interventions are effective and acceptable for adults/children and young people with complex rehabilitation needs after traumatic injury?

Research question

What is the effectiveness and cost-effectiveness of short-term bed-rest versus long-term bed-rest on functional outcomes in people with complex rehabilitation needs after traumatic injury that involves the spinal column or spinal cord injury?

Why this is important?

Bed rest is associated with negative effects on respiratory function, trunk and limb muscle strength, adverse cardiovascular and blood pressure parameters, and increased risk of skin pressure damage. Prolonged bed rest leads to increased length of hospital stay and consequent increased disabilities for the patient prior to commencing rehabilitation which is then more challenging. There may also be negative effects on mental health due to lack of occupation and autonomy.

For patients with fractures of the spinal column (uncomplicated vertebral fractures without spinal cord injury), long term bed rest was traditionally used to allow bone healing and prevent potential spinal cord damage prior to current routine operative techniques for spinal stabilisation and pain management optimisation for those with stable fractures. Evidence for benefit of prolonged best rest, given these potential detrimental effects is unclear. For patients with incomplete SCI theoretically early cord swelling may be adversely affected by early mobilisation which may impact on the final functional outcome, however there are no studies which address this issue. Encouraging earlier mobilisation - for patients with incomplete SCI or uncomplicated stable spinal fractures would allow access to rehabilitation and progression of return to function earlier with reduced length of stay and medical complications.

Table 34: Research recommendation rationale

Research question	
Why is this needed	

Research question	
Importance to 'patients' or the population	Following SCI or spinal column injury, a period of initial bed-rest is needed whilst assessment of stability of the spinal column and cardiorespiratory function occurs. Once this is established (with or without the need for surgery), rehabilitation to progress to upright posture (weight-bearing by sitting, standing and walking as able) can commence if there are no concerns about the impact of cord swelling on function. However, the optimum length of bed-rest is not clear in the literature or the healthcare professional community. Long-term immobilisation is associated with adverse complications such as respiratory failure or muscle atrophy. Conversely, short-term bed-rest might not provide enough time for the spinal cord swelling to settle, leading to further damage when rehabilitation begins.
Relevance to NICE guidance	High – The committee were unable to issue any recommendation on the length of bed rest following SCI or spinal column injury due to the lack of evidence, potential resource implications and lack of consensus within the medical community. By conducting research in this area, it is hoped that NICE guidance on this can be issued.
Relevance to the NHS	High – There is a trade-off between patient outcomes and resource use, i.e., longer bed rest has associated resource implications for the NHS (increased length of stay, increased staffing levels to assist with activities of daily living). However, any poorer patient outcomes (due to shorter bed-rest) might have additional costs associated with unmet healthcare needs. It is essential to identify the optimal length of bed rest that would represent the most effective and cost-effective practice to the NHS.
National priorities	Research into the optimum length of bed rest following SCI or spinal column injury is important to the NHS long-term plan by promoting high quality care which is safe, effective and focused on patient experience.
Current evidence base	At the time of searching there were no RCTs or cohort studies in the literature.
Equality	All patients with SCI or spinal column injury deserve to receive optimal length of bedrest, in order to achieve best possible outcomes. As SCI is a chronic condition with potential for profound disability, these outcomes could have a large impact on their level of disability throughout their lifetime. Those with incomplete spinal cord injury have potential to change their level of function and independence with support of optimal early rehabilitation interventions
Feasibility	A prospective comparative multi-centre cohort study will allow trauma units to continue with their current bed-rest protocols (short-term or long-

Research question	
	term) and should have little impact on their practice.
Other comments	None.

NHS: National Health Service; NICE: National Institute for Health and Care Excellence; SCI: Spinal cord injury

Table 35: Research recommendation modified PICO table

Criterion	Explanation
Population	People (any age) with complex rehabilitation needs resulting from traumatic injury that involves spinal cord injury or spinal column injury and requires admission to hospital
Intervention	Short-term (≤2 weeks) length of bed-rest
Comparator	Long-term (>2 weeks) length of bed-rest
Outcomes	Overall quality of life (validated scales) Patient acceptability (any direct measure) Mood (validated scales) Activity of daily living (validated scales) Return to nursery, work or education Resource use i.e. acute length of stay in trauma unit, hospital re-admissions, outpatient visits Neurological function (American Spinal Cord Injury Association [ASIA] Impairment Scale; International Standards for neurological classification of SCI [ISNCSCI]) Pain (visual assessment scale; numerical rating scale) Cost-effectiveness
Study design	Prospective comparative multi-centre cohort study (minimum sample size ≥ 100 per arm)
Timeframe	≤ 18 months.
Additional information	None.