National Institute for Health and Care Excellence

Draft for consultation

Pelvic floor dysfunction: prevention and non-surgical management

[L] Physical activity for the management of symptoms

NICE guideline number tbc
Evidence review underpinning recommendations 1.6.11, 1.6.12 and 2 research recommendations in the NICE guideline

Evidence reviews

June 2021

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

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ISBN:

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Physical activity for the management of symptoms

Review question

What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

Introduction

Physical activity is often a time when pelvic floor dysfunction symptoms are noticed by women; for example, urinary incontinence with exercise. However, physical exercise may improve symptoms of pelvic floor dysfunction. The evidence on how physical activity may improve or worsen symptoms associated with pelvic floor dysfunction has yet to by synthesised systematically. This review question aims to identify what types of physical activity should be recommended or avoided by women with pelvic floor dysfunction.

Summary of the protocol

See **Table 1** for a summary of the Population, Intervention, Comparison and Outcome (PICO) characteristics of this review.

Table 1: Summary of the protocol (PICO table)

Population	Women and young women (aged 12 years and older) with symptoms associated with pelvic floor dysfunction
Intervention	Studies where women have changed their physical activity either intentionally or unintentionally to influence their symptoms of pelvic floor dysfunction Examples of changes to physical activity (but not exclusively): • Change in weight-based exercises (including lifting heavy objects) • Change in cardiovascular exercises • Change in endurance type physical activity • Change in balance type physical activity (including yoga, Pilates) • Change in flexibility type physical activity • Change in high impact exercises • Change in sedentary behaviour • Interventions aimed at changing intra-abdominal muscles Combined interventions (those with a mixture of those listed above, or in combination with dietary interventions) will only be included if the primary aim is a change in physical activity
Comparison	• Any of the above • No treatment/no change

Outcome	**Critical**
	• Subjective change in the following symptoms:
	  ○ urinary incontinence,
	  ○ emptying disorders of the bladder,
	  ○ faecal incontinence,
	  ○ emptying disorders of the bowel,
	  ○ pelvic organ prolapse,
	  ○ sexual dysfunction
	  ○ chronic pelvic pain syndromes

	• Health related quality of life **Important** • Adherence to intervention • Adverse events leading to withdrawal/discontinuation • Anxiety and depression (validated tools only) • Change in activity levels

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 the methods document (supplementary document 1).

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

Clinical evidence

Included studies

Seventeen RCTs were included for this review (Chu 2019, Ehsani 2020, Hagovska 2019, Hagovska 2020, Huang 2014, Huang 2019, Kim 2007, Kim 2011, Khorasani 2020, Koenig 2020, Lausen 2018, Ozengin 2015, Sweta 2018, Talley 2017, Virtuoso 2019, Wagg 2019, Yuvarani 2018).

Three studies included interventions based on yoga (Sweta 2018, Huang 2014, Huang 2018), 3 studies included interventions based on pilates (Lausen 2018, Ozengin 2015, Yuvarani 2018), 1 study compared weight based training with pelvic floor muscle training (PFMT) to PFMT alone (Virtuoso 2019), 1 study compared high intensity activity to low intensity activity (Hagovska 2019), 2 studies included interventions based on stabilisation related balance exercise (Ehsani 2020, Khorasani 2020) and 7 studies compared multicomponent physical activity interventions to control (Chu 2019, Hagovska 2020, Kim 2007, Kim 2011, Koenig 2020, Tally 2017, Wagg 2019).

Two studies were for women with symptoms of pelvic organ prolapse (Ozengin 2015 and Sweta 2018) and 1 study was for women with overactive bladder (OAB; Hagovska 2019). All other included studies were for women with urinary incontinence. Even though implied (considering the exclusion criteria in the studies) none of them explicitly specified that the symptoms were directly associated with pelvic floor dysfunction.

No evidence was identified for any other symptoms associated with pelvic floor dysfunction.

The included studies are summarised in Table 2 to **Error! Reference source not found.**.

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

Excluded studies

Studies not included in this review are listed, and reasons for their exclusion are provided in appendix K.

Summary of studies included in the evidence review

Summaries of the studies that were included in this review are presented in Table 2.

Table 2: Summary of included studies

Study	Population	Intervention	Comparison	Outcomes
Yoga				
Huang 2014 RCT US	N=19 Women with UI Mean age: 61 years	<u>Group based yoga</u> Twice weekly 90-minute yoga class for 6 weeks. Based on Iyengar yoga (a form of Hatha yoga) Given a pamphlet on self-management bladder training	<u>Self-management</u> Given a pamphlet on self-management bladder training Received a gift receipt for yoga classes following the study	• Urinary incontinence (IIQ -7, UDI-6, PPBC)
Huang 2019 RCT US	N= 56 Women with UI Mean age: Yoga group: 66 years Stretch/Strength group: 67 years	<u>Group based yoga</u> Twice weekly 90 minute yoga class for 3 months. Based on Iyengar yoga (a form of Hatha yoga). Also asked to practice at home at least one hour per week Given a pamphlet on self-management bladder training	<u>Stretching and Strength training</u> Twice weekly 90 minute classes for 3 months. Non-specific muscle stretching and strengthening. Also advised to practice exercises at home Given a pamphlet on self-management bladder training	• Urinary incontinence (IIQ -7, UDI-6, PPBC) • Adherence to intervention
Sweta 2018 RCT India	N=50 Women with POP Mean age: not reported	<u>Yoga</u> Mula bandha yoga 12 weeks (plus conventional therapy)	<u>Control</u> Conventional therapy (provided with multivitamins)	• Symptoms of PFD: (POPDI-6, PFDI-20, POPIQ-7, CRADI-8, UIQ-7, UDI-6, CRAIQ-7,) • Presence of vaginal bulge
Multicomponent interventions				

Study	Population	Intervention	Comparison	Outcomes
Chu 2019 RCT US	N=37 Women with UI Mean age Exercise group: 72 years Control group: 76 years	Integrated PA and bladder training Home based intervention consisting of: 1) Balance and strength training exercise program 2) Bladder training 3) Falls prevention Exercise undertaken 3 days per week for 6 weeks	Control Usual care, were offered an appointment with a UI specialist	• Urinary incontinence (ICIQ-UI)
Hagovska 2020 RCT Slovakia	N=93 Women with overactive bladder symptoms Mean age: 27 years	3-month program for reducing abdominal fat Exercise was performed two times a week for 60-80 minutes and included aerobic training, stretching and strength training for reduction of abdominal fat, deep abdominal activation and superficial abdominal muscles. Eating habits were not changed	No treatment Women did not undergo exercise, and did not change their everyday life activities or eating habits.	• OAB (OAB-Q)
Kim 2007 RCT Japan	N=70 Women with UI Mean age Exercise group: 77 years Control group: 77 years	Group PA classes 12 week, 60 minute group exercise sessions, consisting of:	Control Instructed to refrain from special exercises to increase muscle strength, walking	• Cure • Frequency

Study	Population	Intervention	Comparison	Outcomes
		1) Warm up/stretches 2) PFM exercises 3) Fitness exercises	speed or to change dietary habits After 3 months the control group were given the same exercises	
Kim 2011 RCT Japan	N=127 Women with UI (Four arm study, 2 arms not relevant for inclusion) Mean age: Exercise group: 77 years Control group: 76 years	Group PA exercises Group training session twice a week for 3 months which included: 1) Warm up/stretches 2) PFM exercises 3) Strength training	Control General education on cognitive function, osteoporosis, and oral hygiene classes held once a month for 3 months	• Cure
Koenig 2020 RCT Switzerland	N=38 Women with SUI Mean age Exercise group 50 years; Control 51 years	Physiotherapy plus whole-body movement A standard physiotherapy programme, plus whole body movements such as short running sequences and jumps, with the aim of triggering PFM reflex activity. The intervention was 16 weeks, including nine personal physiotherapy consultations and 78 short home training sessions.	Physiotherapy alone A standard physiotherapy program with educational background information and evident sensorimotor learning at the beginning, followed by voluntarily performed strength training concepts with progression of training for strength, power, and hypertrophy.	• Urinary incontinence (ICIQ-UI)
Talley 2017 RCT US	N = 42 Women with UI Mean age: 85 years	Physical activity and bladder training	Control Received one home visit to complete a health history and	• Urinary incontinence (ICIQ) • UDI -6 • UI - QoL

Study	Population	Intervention	Comparison	Outcomes
		12 week intervention consisting of: 1) Physical activity program, to meet national guidelines, 150minutes moderate intensity walking (30 minutes 5 days a week) plus twice weekly 1 hour group sessions for strength building 2) Bladder interventions plus PFMT, nurse led home interventions lasting 20 to 60 minutes	physical activity examination (also received by those in the intervention arm)	
Wagg 2019 Cluster RCT Bangladesh	N = 579 Women with UI Mean age 65 years	<u>Exercise plus education</u> An initial education session on bladder habits and PFMT. Twice weekly, 60 minute group exercises classes for 12 weeks including: 1) Mobility exercises 2) PFMT	<u>Control</u> Education only	• Urinary incontinence (number of leakage episodes) • Depression (CES-D-10)
Pilates				
Lausen 2018 RCT UK	N=73 Women with UI Mean age: Pilates 51 years; control 50 years	<u>Modified Pilates</u> 6 one hour group classes: Mind-body approach based on low, controlled movements. Modified	<u>PFMT</u> Standard care: 3 to 6 individual sessions of supervised PFMT for 3 months	• Urinary incontinence (SSI, SII) • Health related quality of life (I-QoL, ICIQ-LUTSqol,)

Study	Population	Intervention	Comparison	Outcomes
		Pilates avoids intense abdominal contractions Plus standard care: 3 to 6 individual sessions of supervised PFMT for 3 months		
Ozengin 2015 RCT Turkey	N=55 Women with POP Mean age: Stabilization group: 44 years (SD 8.41) Control group: 48 years (SD 10.50)	Stabilization (Pilates) Group classes with a physiotherapist. One hour theory session, and taught to use an abdominal supporter with stabilizer. Three one hour sessions for 8 weeks of stabilization exercises	PFMT PFMT given as a home based training program	• POP symptoms (POP-Q) • Health related quality of life (P-QOL)
Yuvarani 2018 RCT India	N=40 Women with SUI N = 40 Age: Not reported (range 21 to 25 years)	Pilates Exercises done 5 days a week for 3 months. Included: Bridging, roll up, kick front and back, double leg stretch.	TrA (PFMT) Used a sphygmomanometer pressure cuff to maintain a pressure of 40mmHg during exercises. Carried out 15 exercises in one set for 3 months	• Urinary incontinence (UDI-6, IIQ-7)
Weight training				
Virtuoso 2019 RCT Brazil	N=32 Women with SUI Mean age: Intervention 65 years; control 67 years	Weight training plus PFMT Two session a week for 12 weeks of PFMT. Also encouraged to practice at home	PFMT Two session a week for 12 weeks of PFMT. Also encouraged to practice at home	• Urinary incontinence (ICIQ-7) • Absence of symptoms

Study	Population	Intervention	Comparison	Outcomes
		Two sessions of 50 minutes for 12 weeks (carried out after the PFMT sessions) included 15 repetitions of exercises		
Exercise intensity				
Hagovska 2019 RCT Slovakia	N=77 Women with OAB Mean age: High intensity: 26 years (SD 4.89) Low intensity: 26 years (SD 5.06)	<u>High intensity</u> Stretching, strength training, aerobics training, strengthening of superficial and deep abdominal muscles 60 – 90 minutes sessions, 3 times a week for 12 weeks under supervision.	<u>Low intensity</u> Stretching, strength training, aerobics training, strengthening of superficial and deep abdominal muscles 60 – 90 minutes sessions, once a week for 12 weeks under supervision.	• Voiding • Health related quality of life (OAB-q)
Balance (stabilisation)				
Ehsani 2020 RCT Iran	N=70 Women with postpartum lumbopelvic pain Mean age: Intervention 28.74 (4.53) Control 27.69 (6.75)	<u>Stabilisation exercise</u> Stretching and stationary bicycling as a warm up, followed by exercises to activate the TrA muscles, including progression of exercises over the sessions. Three sessions per week for 8 weeks.	<u>General exercise</u> General exercise without emphasis on the contraction of the TrA. Three sessions per week for 8 weeks.	• Pain (VAS)
Khorasani 2020 RCT Iran	N=80 Women with SUI and low back pain	<u>Stabilisation exercise</u> Stabilisation exercises focusing on the pelvic floor	<u>No treatment</u> No intervention.	• ICIQ-SF UI

Study	Population	Intervention	Comparison	Outcomes
	Mean age: Intervention 30.75 (5.09) Control 30.25 (5.65)	muscles, including contraction of the TrA muscle, manometric biofeedback and pelvic muscle contraction. Three days a week for 12 weeks.		

CES-D-10: Centre for Epidemiologic Studies Depression Scale; CRADI-8; Colorectal-Anal Distress Inventory-8; ICIQ-7: International Consultation on Incontinence Questionnaire-7; IIQ-7: Incontinence impact questionnaire 7 ; I-QoL: Incontinence Quality of Life Questionnaire; ICIQ-LUTSqol: International Consultation on Incontinence Questionnaire – Lower Urinary Tract Symptoms Quality of Life; OAB: Overactive bladder symptoms; OAB-q: Overactive Bladder Questionnaire; PA: Physical activity; PFM: Pelvic floor muscle; PFD: Pelvic floor distress; PFD-20: Pelvic Floor Distress Inventory-20; PFMT: Pelvic floor muscle training; PPBC: Patient perception of bladder condition: POP: Pelvic organ prolapse; POPDI-6; Pelvic Organ Prolapse Distress Inventory-6; POPIQ-7; Pelvic Organ Prolapse Impact Questionnaire-7; POP-Q: Pelvic organ prolapse quantification system; P-QOL: Prolapse quality of life scale; SSI: Symptom Severity Index, SII: Symptom Impact Index; SUI: stress urinary incontinence; TrA: Transverses Abdominis training; UDI-6: Urogenital distress inventiory-6; UI: Urinary incontinence; UIQ-7: Urinary impact questionnaire-7; VAS: Visual analogue scale

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

Quality assessment of studies included in the evidence review

See the evidence profiles in appendix F.

Economic evidence

Included studies

A single economic search was undertaken for all topics included in the scope of this guideline but no economic studies were identified which were applicable to this review question. See the literature search strategy in appendix B and economic study selection flow chart in appendix G.

Excluded studies

Studies not included in this review are listed, and reasons for their exclusion are provided in appendix K.

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation as any recommendations were unlikely to have a significant unit costs.

Brief summary of the evidence

Yoga

- Very low to low quality evidence indicated yoga was beneficial for women with POP as compared to conventional treatment, with fewer women have moderate or severe bulge

following the yoga intervention. Very low to moderate evidence showed no clear benefit of yoga versus other exercises or self-management on urinary incontinence symptoms.

Multicomponent interventions

- Very low to low quality evidence suggested that multi-component physical activity interventions improved symptoms in women with UI.

Pilates

- Very low to low quality evidence showed no clear benefit of Pilates when compared to PFMT alone.

Weight training

- Very low quality evidence showed that women who undertook weight training in addition to PFMT as compared to PFMT alone reported fewer symptoms of UI.

Exercise intensity

- Very low to low quality suggested women with OAB reported fewer voids and OAB symptoms if they exercised three times a week as compared to those who exercised once a week.

Balance (stabilisation)

- Low quality evidence indicated balance exercise was beneficial when compared to general exercise or no exercise in terms of pain and urinary incontinence symptoms.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

The committee agreed that improvement in symptoms of pelvic floor dysfunction and health related quality of life were the most critical outcomes for this review question. These outcomes are likely to have the most impact on the woman's life, and the interventions included should specifically target the management of these symptoms. As physical inactivity is a growing public health concern, a change in physical activity levels was considered an important outcome. Anxiety and depression were considered important outcomes as pelvic floor dysfunction often has a psychological impact on women's lives. Other important outcomes were adherence to the intervention and adverse events leading to withdrawal / discontinuation as these outcomes were considered the most relevant to determining if, and potentially why the intervention was or was not successful.

The quality of the evidence

The quality of evidence for this review was assessed using GRADE and ranged from very low to moderate quality, with most of the evidence being of very low quality. Generally, the outcomes were downgraded due to a high risk of bias, the majority of included studies were poorly reported, with risk of bias relating to randomisation, measurement of outcomes, missing outcomes and selective reporting. Outcomes were also downgraded due to imprecision in the data, which is likely related to the small study size.

No evidence was identified for the following symptoms associated with pelvic floor dysfunction: faecal incontinence, emptying disorders of the bowel and sexual dysfunction. There was no evidence about adverse events or anxiety and depression.

Benefits and harms

The committee noted that the physical activity regimes were not well defined in the evidence, were of short duration and also included pelvic floor muscle training. The committee discussed that is was difficult to make firm conclusions on the evidence presented, but agreed based on the evidence, and on their experience and knowledge, that supervised physical activities such as yoga and Pilates are unlikely to cause significant harm, and have psychological and other physical benefits. The committee agreed that women should have the choice to undertake physical activity if they want to, and this recommendation supports this.

The committee noted that there was no evidence that studied women identified as having 'pelvic floor dysfunction' specifically. Additionally, no evidence was identified on physical activities such as walking and cycling which women may undertake as part of their daily activities, as such the committee agreed a research recommendation was needed.

Yoga

One study showed yoga was beneficial for women with POP as compared to conventional treatment, with fewer women having moderate or severe bulge following the yoga intervention. The remaining evidence did not show a clear benefit for yoga versus other interventions. The committee were conscious that the yoga described in these studies was supervised and incorporated a specific focus on pelvic floor muscles. The committee noted that it was likely that the component of the focus on the pelvic floor muscle was the effective part and given that the evidence was low to very low quality and findings were inconsistent between studies, the committee decided that there was too much uncertainty to specifically recommend yoga for pelvic floor dysfunction on its own. However, as long as it was in addition to pelvic floor muscle training and it was supervised exercise (all evidence investigated the effectiveness of supervised yoga) there was no evidence of harm and it may help with symptoms.

Multi-component interventions

The evidence presented suggested that multi-component physical activity interventions improved outcomes in women with UI. The committee noted that the interventions also included pelvic floor muscle training and behavioural training; therefore, the direct effect of physical activity alone on symptoms of UI could not be concluded.

Pilates

The evidence on Pilates was of very low to low quality and generally did not show a benefit with Pilates. Data on one outcome (quality of life) showed a significant improvement when compared to carrying out PFMT alone. The committee discussed that this evidence only compared Pilates to PFMT, there were no studies which compared Pilates to wait-list, and therefore although outcomes were no better with Pilates they did not show any harm, and as such women should not be discouraged from undertaking Pilates classes.

Weight training with PFMT

Very low quality evidence from one study showed that women who undertook weight training in addition to PFMT as compared to PFMT alone reported fewer symptoms of UI. The committee discussed that in their experience, lifting heavy objects can be associated with a significant rise in intra-abdominal pressure above a certain threshold that can weaken pelvic organ support; therefore, historically weight training has not been recommended, as it is assumed it could lead to harm. The committee acknowledged that weight training can also involve high repetitions with relatively low weights which would not affect intra-abdominal pressure in the same way as lifting heavy objects.

High intensity versus low intensity exercise

Very low quality evidence from one study indicated women with OAB reported fewer number of voids over 24 hours if they undertook exercise three times a week as compared to those who undertook exercise once a week. These exercises included stretch and strength training, aerobic exercises and focused on the abdominal muscles. The committee did not think they could make a direct recommendation on frequency based on one small study; however, the recommendation is supported by this evidence that supervised exercise may be beneficial.

Unsupervised exercise

The committee discussed that during consultations a common questions by women is whether unsupervised activities could help manage their symptoms. Due to a lack of evidence and the general health benefits associated with having an active lifestyle, the committee recommended that women should be told that there was no evidence about whether this may improve or worsen their symptoms. Due to the lack of evidence the committee also made a research recommendation (see below).

Research recommendations

Despite a lengthy discussion regarding potential benefits of supervised weight training, which focuses on engagement of the core, the committee did not want to make a recommendation on weight training, based on one study alone. However, the study did show significant benefits, and the committee discussed that many women are weight training as a form of exercise. Therefore, determining whether this could have benefits, or predispose these women to pelvic floor dysfunction was important. The committee agreed that more research is needed in this area and as such made a research recommendation on weight training.

The committee were conscious that the included studies on physical exercise implemented "structured exercise programmes". These programmes were supervised and incorporated pelvic floor muscle exercises. A second research recommendation was therefore made to address unsupervised activities (such as walking or swimming) and exercise.

Cost effectiveness and resource use

No recommendations were made for exercise interventions to be provided by the NHS as there was insufficient evidence to determine whether such interventions would be effective and, by implication, whether they would be cost-effective. However, as the evidence did not indicate any harms from supervised exercise the committee recommended that women should be advised that such exercise was unlikely to worsen their condition and could potentially improve their symptoms. The committee agreed that this recommendation could readily be incorporated into current practice on information provision and advice.

Recommendations supported by this evidence review

This evidence review supports recommendation 1.6.11, 1.6.12 and 2 research recommendations (one on weight training and the other on unsupervised exercise) in the NICE guideline.

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Appendices

Appendix A – Review protocol

Review protocol for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

Table 3: Review protocol

ID	Field	Content
0.	PROSPERO registration number	CRD42019153135
1.	Review title	Physical activity for management of symptoms
2.	Review question	What types of physical activity can increase or decrease symptoms of pelvic floor dysfunction?
3.	Objective	Different types of physical activity may improve symptoms associated with pelvic floor dysfunction, or make them worse; therefore, the objective of this review is to determine what physical activity factors can change symptoms associated with pelvic floor dysfunction (including urinary incontinence, pelvic organ prolapse, emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, sexual dysfunction and chronic pelvic pain syndromes).
4.	Searches	The following databases will be searched: • Cochrane Database of Systematic Reviews (CDSR) • Cochrane Central Register of Controlled Trials (CENTRAL) • MEDLINE & Medline in Process • Embase • CINAHL or Emcare • PsycINFO • Searches will be restricted by: • Date limit: 1980 onwards (see section 10 for justification) • English language • Human studies Other searches: Inclusion lists of potentially relevant systematic reviews The full search strategies for MEDLINE database will be published in the final review.

ID	Field	Content
		For each search, the principal database search strategy is quality assured by a second information scientist using an adaptation of the PRESS 2015 Guideline Evidence-Based Checklist.
5.	Condition or domain being studied	The following symptoms will be addressed as long as they are associated with pelvic floor dysfunction: urinary incontinence, emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, pelvic organ prolapse, sexual dysfunction and chronic pelvic pain syndromes.
6.	Population	Inclusion • Women and young women (aged 12 years and older) with symptoms associated with pelvic floor dysfunction Exclusion • Studies which include women with urinary incontinence, emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, pelvic organ prolapse, sexual dysfunction and chronic pelvic pain syndromes which are not due to pelvic floor dysfunction will be excluded. For example women who have urinary incontinence due to a neurological condition or pelvic cancer will be excluded. During the screening stage, the reported inclusion/exclusion criteria of studies will be examined carefully. We do not anticipate studies on urinary incontinence, emptying disorders of the bladder or pelvic organ prolapse will explicitly state “associated with pelvic floor dysfunction” therefore this will be a pragmatic decision based on the description of the condition provided by the study authors. Some of these symptoms (for example urinary incontinence) are most often due to a failure in the pelvic floor and therefore unless the exclusion criteria states a different cause, these studies are likely to be included. However for studies on faecal incontinence, emptying disorders of the bowel, sexual dysfunction and pelvic pain the causes are more numerous. As such for these symptoms unless the study specifically states “associated with pelvic floor dysfunction” they will be excluded. If any ambiguity exists, at least two reviewers will make the final decision if to include or exclude the study. • Men • Babies and children
7.	Intervention	We will include studies where women have changed their physical activity either intentionally or unintentionally to influence their symptoms of pelvic floor dysfunction Examples of changes to physical activity (but not exclusively): • Change in weight-based exercises (including lifting heavy objects) • Change in cardiovascular exercises • Change in endurance type physical activity • Change in balance type physical activity (including yoga, Pilates) • Change in flexibility type physical activity • Change in high impact exercises

ID	Field	Content
		• Change in sedentary behaviour • Interventions aimed at changing intra-abdominal muscles Combined interventions (those with a mixture of those listed above, or in combination with dietary interventions) will only be included if the primary aim is a change in physical activity
8.	Comparator	• Any of the above • No treatment/no change
9.	Types of study to be included	Systematic reviews of RCTs RCTs If there is no RCT evidence then other studies designs will be considered, namely Non-randomised controlled studies Prospective cohort studies The decision to include non RCT study designs will be determined for each of the listed symptoms associated with pelvic floor dysfunction. For example if we identify an RCT on urinary incontinence but not for pelvic organ prolapse, then we will continue our search for observational studies on pelvic organ prolapse but we will not search for further study designs for or urinary incontinence. The decision to include non RCT study designs was made to ensure all relevant symptoms associated with pelvic floor dysfunctions are given equal consideration. Additionally interventions may influence the various symptoms differently, and it is important this is considered. Within each symptom category (for example faecal incontinence), the committee has agreed a subset of symptoms that are specifically associated with pelvic floor dysfunction, as such each symptom only includes those sub-symptoms which occur as a result of pelvic floor dysfunction (rather than anybody with faecal incontinence). The committee agreed these subsets of symptoms by examining the population search strategy. Therefore if lower level of evidence is identified it will only be relevant to symptoms that specifically result from pelvic floor dysfunction, rather than the entire population for which there could potentially have been a higher level of evidence. Potentially important confounders which should be considered include BMI, age, ethnicity, dietary factors and weight loss. Appropriate adjustment for these confounders within the included studies will be considered during the GRADE process. Note: For further details, see the algorithm in appendix H, Developing NICE guidelines: the manual..
10.	Other exclusion criteria	Physical activity programmes specifically aimed at strengthening the pelvic floor

ID	Field	Content
		Conference abstracts will be excluded because these do not typically provide sufficient information to fully assess risk of bias Studies with a mixed population (women with symptoms such as urinary incontinence which are associated with pelvic floor dysfunction and women with symptoms that are not associated with pelvic floor dysfunction) will be excluded, unless subgroup analysis for those women with symptoms associated with pelvic floor dysfunction has been reported Only articles published after 1980 will be included. This was agreed by the committee as this is the date that the condition "pelvic floor dysfunction" was recognised to include agreed terminology on symptoms. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2815805/
11.	Context	Studies which explicitly demonstrate a change in outcomes for symptoms associated with pelvic floor dysfunction will be prioritised for decision making in regards to recommendations, and these recommendations will apply to those receiving care in any healthcare settings (for example community, primary, secondary care). However, the context of recommendations is likely broader than just the health care setting itself. Women who are not currently accessing services may benefit from the recommendations in order to make lifestyle changes which could improve symptoms they are experiencing. Specific recommendations for groups listed in the Equality Considerations section of the scope may be also be made as appropriate.

12.	Primary outcomes (critical outcomes)	• Subjective change in the following symptoms:
		  ○ urinary incontinence,
		  ○ emptying disorders of the bladder,
		  ○ faecal incontinence,
		  ○ emptying disorders of the bowel,
		  ○ pelvic organ prolapse,
		  ○ sexual dysfunction
		  ○ chronic pelvic pain syndromes
		• Health related QOL
		
		For primary outcomes listed, only validated tools will be included (for example: ICIQ-UI, ICIQ-VS, BFLUTS, KHQ, UDI, ISI, ePAQ, POPSS, PISQ, POPQ, FISI, FIQL, GIQLI, PAC-QM, PAC –SYM, PDI, BPI)

13.	Secondary outcomes (important outcomes)	• Adherence to intervention • Adverse events leading to withdrawal/discontinuation • Anxiety and depression (validated tools only) • Change in activity levels

ID	Field	Content
		Outcomes are in line with those described in the core outcome set …..
14.	Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into STAR and de-duplicated. Titles and abstracts of the retrieved citations will be screened to identify studies that potentially meet the inclusion criteria outlined in the review protocol. Dual sifting will be performed on at least 10% of records; 90% agreement is required. Disagreements will be resolved via discussion between the two reviewers, and consultation with senior staff if necessary. Full versions of the selected studies will be obtained for assessment. Studies that fail to meet the inclusion criteria once the full version has been checked will be excluded at this stage. Each study excluded after checking the full version will be listed, along with the reason for its exclusion. A standardised form will be used to extract data from studies. One reviewer will extract relevant data into a standardised form, and this will be quality assessed by a senior reviewer. Information to be extracted from studies includes: study type, study dates, location of study, funding, inclusion and exclusion criteria, participant characteristics, and details of the intervention and comparator.
15.	Risk of bias (quality) assessment	Quality assessment of individual studies will be performed using the following checklists • ROBIS tool for systematic reviews • Cochrane RoB tool v.2 for RCTs and quasi-RCTs • Cochrane ROBINS-I tool for non-randomised (clinical) controlled trials and cohort studies The quality assessment will be performed by one reviewer and this will be quality assessed by a senior reviewer.
16.	Strategy for data synthesis	Depending on the availability of the evidence, the findings will be summarised narratively or quantitatively. <u>Data Synthesis</u> Where possible, pair wise meta-analyses will be conducted using Cochrane Review Manager software. A fixed effect meta-analysis will be conducted and data will be presented as risk ratios for dichotomous outcomes. Peto odds ratio will be used for outcomes with zero events. Mean differences or standardised mean differences will be calculated for continuous outcomes. <u>Heterogeneity</u> Heterogeneity in the effect estimates of the individual studies will be assessed using the I2 statistic. I2 values of greater than 50% and 80% will be considered as significant and very significant heterogeneity, respectively. In the presence of heterogeneity sub-group analysis will be conducted According to risk of bias of individual studies According to socio economic status of population included

ID	Field	Content
		By ethnicity of included populations Exact subgroup analysis may vary depending on differences identified within included studies. If heterogeneity cannot be explained through subgroup analysis then a random effects model will be used for meta-analysis. If heterogeneity remains above 80% reviewers will consider if meta-analysis is appropriate given the characteristics of included <u>Minimal important differences (MIDs):</u> For outcomes where validated tools are included (for example ICIQ), then the published MIDs will be used. Where no published MID is available, default MIDs will be used: For risk ratios: 0.8 and 1.25. For continuous outcomes: For one study: the MID is calculated as +/-0.5 times the baseline SD of the control arm. For two studies: the MID is calculated as +/-0.5 times the mean of the SDs of the control arms at baseline. If baseline SD is not available, then SD at follow up will be used. For three or more studies (meta-analysed): the MID is calculated by ranking the studies in order of SD in the control arms. The MID is calculated as +/- 0.5 times median SD. For studies that have been pooled using SMD (meta-analysed): +0.5 and -0.5 in the SMD scale are used as MID boundaries. <u>Validity</u> The confidence in the findings across all available evidence will be evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: http://www.gradeworkinggroup.org/
17.	Analysis of sub-groups	Stratification All data will initially be pooled for overall analysis; however, if data is available, separate analysis will also be conducted on: • Women who are pregnant • Women before and after gynaecological surgery • Women aged 65 or older • Women with physical disabilities • Women with cognitive impairment • According to those who do not identify themselves as women, but who have female pelvic organs • Single and multiple physical activity interventions

ID	Field	Content			
		• Athletes Recommendations will apply to all those with pelvic floor dysfunction unless there is evidence of a difference in these stratified groups			
18.	Type and method of review	☒	Intervention		
		☐	Diagnostic		
		☐	Prognostic		
		☐	Qualitative		
		☐	Epidemiologic		
		☐	Service Delivery		
		☐	Other (please specify)		
19.	Language	English			
20.	Country	England			
21.	Anticipated or actual start date	TBC			
22.	Anticipated completion date	August 2021			
23.	Stage of review at time of this submission	Review stage	Started	Completed	
		Preliminary searches	x	x	
		Piloting of the study selection process	x	x	
		Formal screening of search results against eligibility criteria	x	x	
		Data extraction	x	x	
		Risk of bias (quality) assessment	x	x	
		Data analysis	x	x	
24.	Named contact	5a. Named contact			

ID	Field	Content
		National Guideline Alliance 5b Named contact e-mail PreventionofPOP@nice.org.uk 5e Organisational affiliation of the review National Institute for Health and Care Excellence (NICE) and the National Guideline Alliance
25.	Review team members	NGA technical team
26.	Funding sources/sponsor	This systematic review is being completed by the National Guideline Alliance, which is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists. NICE funds the National Guideline Alliance to develop guidelines for those working in the NHS, public health, and social care in England..
27.	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.
28.	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-ng10123/
29.	Other registration details	
30.	Reference/URL for published protocol	https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=153135
31.	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.
32.	Keywords	Physical activity Pelvic floor dysfunction Sedentary behaviour

ID	Field	Content	
33.	Details of existing review of same topic by same authors	Not applicable	
34.	Current review status	☒	Ongoing
		☒	Completed but not published
		☐	Completed and published
		☐	Completed, published and being updated
		☐	Discontinued
35.	Additional information		
36.	Details of final publication	www.nice.org.uk	

BFLUTS: Bristol Female Lower Urinary Tract Symptoms Questionnaire; BPI: Brief pain inventory; CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; DARE: Database of Abstracts of Reviews of Effects; ePAQ: Electronic personal health questionnaire; FIQL: Faecal incontinence quality of life scale; FISI: Faecal incontinence severity index; GIQLI: Gastrointestinal quality of life index; GRADE: Grading of Recommendations Assessment, Development and Evaluation; HTA: Health Technology Assessment; ICIQ-UI: International Consultation on Incontinence Questionnaire- Urinary incontinence; ICIQ-VA: International Consultation on Incontinence questionnaire – vaginal symptoms; ISI: Incontinence symptom index; KHQ: Kings health questionnaire; MID: minimally important difference; NGA: National Guideline Alliance; NHS: National health service; NICE: National Institute for Health and Care Excellence; PAC-QL: patient assessment of constipation - quality of life; PAC-SYM: Patient assessment of constipation symptoms; PDI: Pain disability index; PISQ: Pelvic organ prolapse/urinary incontinence sexual questionnaire; POPQ: Pelvic organ prolapse quantification system; POP-SS: Pelvic organ prolapse symptom score; RCT: randomised controlled trial; RoB: risk of bias; SD: standard deviation: UDI: Urinary distress index

1

Appendix B – Literature search strategies

Literature search strategies for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

Clinical Search

Database(s): Medline & Embase (Multifile) – OVID interface
Embase Classic+Embase 1947 to 2021 February 03; **Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily** 1946 to February 03, 2021
Date of last search: 5 February 2021

Multifile database codes: emczd = Embase Classic+Embase; ppez= MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily

#	Searches
1	Pelvic Floor/ use ppez
2	Pelvic Floor Disorders/ use ppez
3	pelvis floor/ use emczd
4	pelvic floor disorder/ use emczd
5	(pelvi$ adj (floor$ or diaphragm$) adj3 (dysfunction$ or disorder$ or fail$ or impair$ or incompeten$ or insufficien$ or dyssynerg$ or symptom$ or laxity or change$ or care$ or health$ or wellbeing$ or well-being$ or prevent$ or rehabilitat$ or weak$ or hypertonic$ or overactiv$ or over activ$ or over-activ$)).tw.
6	(pelvi$ adj (dysfunction$ or disorder$ or fail$ or impair$ or incompeten$ or insufficien$ or dyssynerg$ or symptom$ or laxity or care$ or health$ or wellbeing$ or well-being$ or prevent$ or rehabilitat$ or weak$ or hypertonic$ or overactiv$ or over activ$ or over-activ$)).tw.
7	or/1-6
8	exp *Urinary Incontinence/ use ppez
9	*Urinary Bladder, Overactive/ use ppez
10	exp *urine incontinence/ use emczd
11	*overactive bladder/ use emczd
12	*bladder instability/ use emczd
13	((stress$ or mix$ or urg$ or urin$) adj5 incontinen$).ti.
14	(bladder$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$ or incontinen$)).ti.
15	(detrusor$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$)).ti.
16	((urgency adj2 frequency) or (frequency adj2 urgency)).ti.
17	((urin$ or bladder$) adj2 (urg$ or frequen$)).ti.
18	(SUI or OAB).ti.
19	or/8-18
20	exp *Pelvic Organ Prolapse/ use ppez
21	exp *pelvic organ prolapse/ use emczd
22	*Rectocele/ use ppez
23	*rectocele/ use emczd
24	(pelvic$ adj3 organ$ adj3 prolaps$).ti.
25	(urinary adj3 bladder adj3 prolaps$).ti.
26	((vagin$ or urogenital$ or genit$ or uter$ or viscer$ or anterior$ or posterior$ or apical or pelvi$ or vault$ or urethr$ or bladder$ or cervi$ or rectal or rectum) adj3 prolaps$).ti.
27	(splanchnoptos$ or visceroptos$).ti.
28	(hernia$ adj3 (pelvi$ or vagin$ or urogenital$ or uter$ or bladder$ or urethr$ or viscer$)).ti.
29	(urethroc?ele$ or enteroc?ele$ or sigmoidoc?ele$ or proctoc?ele$ or rectoc?ele$ or cystoc?ele$ or rectoenteroc?ele$ or cystourethroc?ele$).ti.
30	or/20-29
31	*Fecal Incontinence/ use ppez
32	*feces incontinence/ use emczd
33	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat$ or defaecat$) adj5 (incontinence or incontinent or urge$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).ti.
34	or/31-33
35	Urinary Retention/ use ppez
36	urine retention/ use emczd
37	(urin$ adj3 (retention$ or retain$)).tw.
38	(voiding adj (disorder$ or dysfunction$ or problem$)).tw.
39	(empty$ adj disorder$ adj3 (bowel$ or bladder$ or vesical$ or stool$)).tw.
40	((urogeni$ or anorec$ or ano-rec$ or ano rec$) adj3 dysfunction$).tw.
41	defecation disorder/ use emczd

#	Searches
42	Fecal Impaction/ use ppez
43	Feces Impaction/ use emczd
44	((difficult$ or delay$ or irregular$ or infrequen$ or pain$) adj3 (defecat$ or defaecat$ or stool$ or faeces or feces or bowel movement$)).tw.
45	(obstruct$ adj3 (defecat$ or defaecat$)).tw.
46	((defecat$ or defaecat$ or evacuat$) adj3 (disorder$ or dysfunction$)).tw.
47	outlet$ dysfunction$ constipa$.tw.
48	(dys?ynerg$ adj (defecat$ or defaecat$)).tw.
49	(pelvi$ adj3 dyskines$).tw.
50	pelvi$ outlet$ obstruct$.tw.
51	anismus$.tw.
52	puborectal$ contract$.tw.
53	((rectal or rectum) adj3 urge$).tw.
54	or/35-53
55	female sexual dysfunction/ use emczd
56	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
57	(obstruct$ adj3 intercourse).tw.
58	(vagin$ adj3 laxity$).tw.
59	(vagin$ adj wind).tw.
60	Vaginismus/ use ppez
61	vaginism/ use emczd
62	vaginismus$.tw.
63	(vagin$ adj penetrat$ adj disorder$).tw.
64	or/55-63
65	exp Physical Endurance/ use ppez
66	exp endurance/ use emczd
67	Physical Exertion/ use ppez
68	physical activity/ use emczd
69	exp *Exercise/ use ppez
70	exp *exercise/ use emczd
71	((exercis$ or activit$) adj3 (advice$ or intervention$ or modif$ or change$)).tw.
72	(activit$ adj3 (restrict$ or recommend$ or avoid$ or modif$ or change$)).tw.
73	physical activity.tw,kw.
74	((endurance or strength$) adj train$).tw.
75	((intraabdominal$ or intra-abdominal$ or intra abdominal$) adj pressure$).tw.
76	(hypopress$ adj (technique$ or exercise$ or gymnastic$)).tw.
77	(stabili?ation adj exercise$).tw.
78	exp Exercise Movement Techniques/ use ppez
79	kinesiotherapy/ use emczd
80	pilates/ use emczd
81	yoga/ use emczd
82	*tai chi/ use emczd
83	(yoga$ or pilates$).tw.
84	(tai adj chi$).tw.
85	Swimming/ use ppez
86	swimming/ use emczd
87	Bicycling/ use ppez
88	cycling/ use emczd
89	horseback riding/ use emczd
90	Walking/ use ppez
91	walking/ use emczd
92	Running/ use ppez
93	running/ use emczd
94	jogging/ use emczd
95	(swimming or bicycl$ or walking or running or jogging).tw.
96	Weight Lifting/ use ppez
97	weight lifting/ use emczd
98	((heavy or repetitive) adj3 lift$).tw.
99	aerobic exercise/ use emczd
100	((high impact or high-impact or low impact or low-impact) adj3 (exercise$ or activit$)).tw.
101	((cardiovascular or aerobic$) adj3 (exercise$ or activit$)).tw.
102	Sedentary Behavior/ use ppez
103	sedentary lifestyle/ use emczd
104	(sedentary adj5 (behavio?r$ or activ$ or lifestyle$ or life style$ or exercise$ or change$ or women or female$)).tw.
105	or/65-104
106	(7 or 19 or 30 or 34 or 54 or 64) and 105
107	limit 106 to english language
108	limit 107 to yr="1980 -Current" [General Exclusions filter applied]

1

Database(s): Cochrane Library – Wiley interface
Cochrane Database of Systematic Reviews, Issue 2 of 12, February 2021; **Cochrane Central Register of Controlled Trials**, Issue 2 of 12, February 2021
Date of last search: 5 February 2021

#	Searches
#1	MeSH descriptor: [Pelvic Floor] this term only
#2	MeSH descriptor: [Pelvic Floor Disorders] this term only
#3	((pelvi* NEXT (floor* or diaphragm*) NEAR/3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*)):ti,ab,kw
#4	(((pelvi* NEXT (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*))):ti,ab,kw
#5	MeSH descriptor: [Urinary Incontinence] explode all trees
#6	MeSH descriptor: [Urinary Bladder, Overactive] this term only
#7	(((stress* or mix* or urg* or urin*) NEAR/5 incontinen*)):ti
#8	(((bladder* NEAR/5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*))):ti
#9	(((detrusor* NEAR/5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*))):ti
#10	(((((urgency NEAR/2 frequency) or (frequency NEAR/2 urgency))))):ti
#11	((((urin* or bladder*) NEAR/2 (urg* or frequen*)))):ti
#12	(((SUI or OAB))):ti
#13	MeSH descriptor: [Pelvic Organ Prolapse] explode all trees
#14	MeSH descriptor: [Rectocele] this term only
#15	(((pelvic* NEAR/3 organ* NEAR/3 prolaps*))):ti
#16	(((urinary NEAR/3 bladder NEAR/3 prolaps*))):ti
#17	(((((vagin* or urogenital* or genit* or uter* or viscer* or anterior* or posterior* or apical or pelvi* or vault* or urethr* or bladder* or cervi* or rectal or rectum) NEAR/3 prolaps*))):ti
#18	(((splanchnoptos* or visceroptos*))):ti
#19	(((hernia* NEAR/3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*)))):ti
#20	(((urethroc?ele* or enteroc?ele* or sigmoidoc?ele* or proctoc?ele* or rectoc?ele* or cystoc?ele* or rectoenteroc?ele* or cystourethroc?ele*))):ti
#21	MeSH descriptor: [Fecal Incontinence] this term only
#22	(((((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat* or defaecat*) NEAR/5 (incontinence or incontinent or urge* or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)))):ti
#23	MeSH descriptor: [Urinary Retention] this term only
#24	(((urin* NEAR/3 (retention* or retain*)))):ti,ab,kw
#25	(((voiding NEXT (disorder* or dysfunction* or problem*)))):ti,ab,kw
#26	(((empty* NEXT disorder* NEAR/3 (bowel* or bladder* or vesical* or stool*)))):ti,ab,kw
#27	(((((urogeni* or anorec* or ano-rec* or ano rec*) NEAR/3 dysfunction*))):ti,ab,kw
#28	MeSH descriptor: [Fecal Impaction] this term only
#29	(((((difficult* or delay* or irregular* or infrequen* or pain*) NEAR/3 (defecat* or defaecat* or stool* or faecal or fecal or faeces or feces or fecally or faecally or bowel movement*)))):ti,ab,kw
#30	(((obstruct* NEAR/3 (defecat* or defaecat*)))):ti,ab,kw
#31	(((((defecat* or defaecat* or evacuat*) NEAR/3 (disorder* or dysfunction*)))):ti,ab,kw
#32	((outlet* dysfunction* constipa*)):ti,ab,kw
#33	(((dys?ynerg* NEXT (defecat* or defaecat*)))):ti,ab,kw
#34	(((pelvi* NEAR/3 dyskines*))):ti,ab,kw
#35	((pelvi* outlet* obstruct*)):ti,ab,kw
#36	((anismus*)):ti,ab,kw
#37	((puborectal* contract*)):ti,ab,kw
#38	((((rectal or rectum) NEAR/3 urge*))):ti,ab,kw
#39	(((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*)))):ti,ab,kw
#40	(((obstruct* NEAR/3 intercourse))):ti,ab,kw
#41	(((vagin* NEAR/3 laxity*))):ti,ab,kw
#42	(((vagin* NEXT wind))):ti,ab,kw
#43	MeSH descriptor: [Vaginismus] this term only
#44	((vaginismus*)):ti,ab,kw
#45	(((vagin* NEXT penetrat* NEXT disorder*))):ti,ab,kw
#46	#1 OR #2 OR #3 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 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
#47	MeSH descriptor: [Exercise Movement Techniques] explode all trees
#48	((yoga* or pilates*)):ti,ab,kw
#49	((tai NEXT chi*)):ti,ab,kw
#50	MeSH descriptor: [Swimming] this term only
#51	(swimming):ti,ab,kw

#	Searches
#52	MeSH descriptor: [Bicycling] this term only
#53	(bicycl*):ti,ab,kw
#54	MeSH descriptor: [Sedentary Behavior] this term only
#55	((sedentary NEAR/5 (behavio?r* or activ* or lifestyle* or life style* or exercise* or change* or women or female*))):ti,ab,kw
#56	MeSH descriptor: [Walking] this term only
#57	MeSH descriptor: [Running] this term only
#58	((walking or running or jogging)):ti,ab,kw
#59	MeSH descriptor: [Weight Lifting] this term only
#60	(((heavy or repetitive) NEAR/3 lift*)):ti,ab,kw
#61	(((high impact or high-impact or low impact or low-impact) NEAR/3 (exercise* or activit*))):ti,ab,kw
#62	MeSH descriptor: [Physical Endurance] explode all trees
#63	MeSH descriptor: [Physical Exertion] this term only
#64	MeSH descriptor: [Exercise] explode all trees
#65	(((exercis* or activit*) NEAR/3 (advice* or intervention* or modif* or change*))):ti,ab,kw
#66	((activit* NEAR/3 (restrict* or recommend* or avoid* or modif* or change*))):ti,ab,kw
#67	((hypopress* NEXT (technique* or exercise* or gymnastic*))):ti,ab,kw
#68	(((cardiovascular or aerobic*) NEAR/3 (exercise* or activit*))):ti,ab,kw
#69	(((intraabdominal* or intra-abdominal* or intra abdominal*) NEXT pressure*)):ti,ab,kw
#70	(((stabilisation or stabilization) NEXT exercise*)):ti,ab,kw
#71	(physical NEXT activity):ti,ab,kw
#72	(((endurance or strength*) NEXT train*)):ti,ab,kw
#73	#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	#46 AND #73

Database(s): Database of Abstracts of Reviews of Effects (DARE); HTA Database – CRD interface

Date of last search: 5 February 2021

#	Searches
1	MeSH DESCRIPTOR Pelvic Floor IN DARE,HTA
2	MeSH DESCRIPTOR Pelvic Floor Disorders IN DARE,HTA
3	((pelvi* NEXT (floor* or diaphragm*) NEAR3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*))) IN DARE, HTA
4	((pelvi* NEXT (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*))) IN DARE, HTA
5	MeSH DESCRIPTOR Urinary Incontinence EXPLODE ALL TREES IN DARE,HTA
6	MeSH DESCRIPTOR Urinary Bladder, Overactive IN DARE,HTA
7	(((stress* or mix* or urg* or urin*) NEAR5 incontinen*)) IN DARE, HTA
8	((bladder* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*))) IN DARE, HTA
9	((detrusor* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*))) IN DARE, HTA
10	(((urgency NEAR2 frequency) or (frequency NEAR2 urgency))) IN DARE, HTA
11	(((urin* or bladder*) NEAR2 (urg* or frequen*))) IN DARE, HTA
12	((SUI or OAB)) IN DARE, HTA
13	MeSH DESCRIPTOR Pelvic Organ Prolapse EXPLODE ALL TREES IN DARE,HTA
14	MeSH DESCRIPTOR Rectocele IN DARE,HTA
15	((pelvic* NEAR3 organ* NEAR3 prolaps*)) IN DARE, HTA
16	((urinary NEAR3 bladder NEAR3 prolaps*)) IN DARE, HTA
17	(((vagin* or urogenital* or genit* or uter* or viscer* or anterior* or posterior* or apical or pelvi* or vault* or urethr* or bladder* or cervi* or rectal or rectum) NEAR3 prolaps*)) IN DARE, HTA
18	((splanchnoptos* or visceroptos*)) IN DARE, HTA
19	((hernia* NEAR3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*))) IN DARE, HTA
20	((urethroc?ele* or enteroc?ele* or sigmoidoc?ele* or proctoc?ele* or rectoc?ele* or cystoc?ele* or rectoenteroc?ele* or cystourethroc?ele*)) IN DARE, HTA
21	MeSH DESCRIPTOR Fecal Incontinence IN DARE,HTA
22	(((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat* or defaecat*) NEAR5 (incontinence or incontinent or urge* or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction))) IN DARE, HTA
23	MeSH DESCRIPTOR Urinary Retention IN DARE,HTA
24	((urin* NEAR3 (retention* or retain*))) IN DARE, HTA
25	((voiding NEXT (disorder* or dysfunction* or problem*))) IN DARE, HTA
26	((empty* NEXT disorder* NEAR3 (bowel* or bladder* or vesical* or stool*))) IN DARE, HTA
27	(((urogeni* or anorec* or ano-rec* or ano rec*) NEAR3 dysfunction*)) IN DARE, HTA
28	MeSH DESCRIPTOR Fecal Impaction IN DARE,HTA
29	(((difficult* or delay* or irregular* or infrequen* or pain*) NEAR3 (defecat* or defaecat* or stool* or faecal or fecal or faeces or feces or fecally or faecally or bowel movement*))) IN DARE, HTA

#	Searches
30	((obstruct* NEAR3 (defecat* or defaecat*))) IN DARE, HTA
31	(((defecat* or defaecat* or evacuat*) NEAR3 (disorder* or dysfunction*))) IN DARE, HTA
32	(((outlet* NEXT dysfunction* NEXT constipa*))) IN DARE, HTA
33	((dys?ynerg* NEXT (defecat* or defaecat*))) IN DARE, HTA
34	((pelvi* NEAR3 dyskines*)) IN DARE, HTA
35	((pelvi* NEXT outlet* NEXT obstruct*)) IN DARE, HTA
36	((anismus*)) IN DARE, HTA
37	((puborectal* NEXT contract*)) IN DARE, HTA
38	(((rectal or rectum) NEAR3 urge*)) IN DARE, HTA
39	((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*))) IN DARE, HTA
40	((obstruct* NEAR3 intercourse)) IN DARE, HTA
41	((vagin* NEAR3 laxity*)) IN DARE, HTA
42	((vagin* NEXT wind)) IN DARE, HTA
43	MeSH DESCRIPTOR Vaginismus IN DARE,HTA
44	((vaginismus*)) IN DARE, HTA
45	((vagin* NEXT penetrat* NEXT disorder*)) IN DARE, HTA
46	#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 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
47	MeSH DESCRIPTOR Physical Endurance EXPLODE ALL TREES IN DARE,HTA
48	MeSH DESCRIPTOR Physical Exertion IN DARE,HTA
49	MeSH DESCRIPTOR Exercise EXPLODE ALL TREES IN DARE,HTA
50	(((exercis* or activit*) NEAR3 (advice* or intervention* or modif* or change*))) IN DARE, HTA
51	((activit* NEAR3 (restrict* or recommend* or avoid* or modif* or change*))) IN DARE, HTA
52	(physical NEXT activity) IN DARE, HTA
53	(((endurance or strength*) NEXT train*)) IN DARE, HTA
54	(((intraabdominal* or intra-abdominal* or intra abdominal*) NEXT pressure*)) IN DARE, HTA
55	((hypopress* NEXT (technique* or exercise* or gymnastic*))) IN DARE, HTA
56	((stabili?ation NEXT exercise*)) IN DARE, HTA
57	MeSH DESCRIPTOR Exercise Movement Techniques EXPLODE ALL TREES IN DARE,HTA
58	((yoga* or pilates*)) IN DARE, HTA
59	((tai NEXT chi*)) IN DARE, HTA
60	MeSH DESCRIPTOR Swimming IN DARE,HTA
61	MeSH DESCRIPTOR Bicycling IN DARE,HTA
62	MeSH DESCRIPTOR Walking IN DARE,HTA
63	MeSH DESCRIPTOR Running IN DARE,HTA
64	((swimming or bicycl* or walking or running or jogging)) IN DARE, HTA
65	MeSH DESCRIPTOR Weight Lifting IN DARE,HTA
66	(((heavy or repetitive) NEAR3 lift*)) IN DARE, HTA
67	(((high impact or high-impact or low impact or low-impact) NEAR3 (exercise* or activit*))) IN DARE, HTA
68	(((cardiovascular or aerobic*) NEAR3 (exercise* or activit*))) IN DARE, HTA
69	MeSH DESCRIPTOR Sedentary lifestyle IN DARE,HTA
70	((sedentary NEAR5 (behavio?r* or activ* or lifestyle* or life style* or exercise* or change* or women or female*))) IN DARE, HTA
71	#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
72	#46 AND #71

Database(s): EMCare & PsycINFO (Multifile) – OVID interface
EMCare 1995 to present; **APA PsycINFO** 1806 to January Week 4 2021
Date of last search: 5 February 2021

Multifile database codes: emcr = Emcare; psyh = APA PsycINFO

#	Searches
1	pelvis floor/ use emcr
2	pelvic floor disorder/ use emcr
3	(pelvi$ adj (floor$ or diaphragm$) adj3 (dysfunction$ or disorder$ or fail$ or impair$ or incompeten$ or insufficien$ or dyssynerg$ or symptom$ or laxity or change$ or care$ or health$ or wellbeing$ or well-being$ or prevent$ or rehabilitat$ or weak$ or hypertonic$ or overactiv$ or over activ$ or over-activ$)).tw.
4	(pelvi$ adj (dysfunction$ or disorder$ or fail$ or impair$ or incompeten$ or insufficien$ or dyssynerg$ or symptom$ or laxity or care$ or health$ or wellbeing$ or well-being$ or prevent$ or rehabilitat$ or weak$ or hypertonic$ or overactiv$ or over activ$ or over-activ$)).tw.
5	1 or 2 or 3 or 4
6	exp *Urinary Incontinence/ use emcr,psyh
7	*overactive bladder/ use emcr
8	*bladder instability/ use emcr
9	((stress$ or mix$ or urg$ or urin$) adj5 incontinen$).ti.

#	Searches
10	(bladder$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$ or incontinen$)).ti.
11	(detrusor$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$)).ti.
12	((urgency adj2 frequency) or (frequency adj2 urgency)).ti.
13	((urin$ or bladder$) adj2 (urg$ or frequen$)).ti.
14	(SUI or OAB).ti.
15	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14
16	exp *pelvic organ prolapse/ use emcr
17	*rectocele/ use emcr
18	(pelvic$ adj3 organ$ adj3 prolaps$).ti.
19	(urinary adj3 bladder adj3 prolaps$).ti.
20	((vagin$ or urogenital$ or genit$ or uter$ or viscer$ or anterior$ or posterior$ or apical or pelvi$ or vault$ or urethr$ or bladder$ or cervi$ or rectal or rectum) adj3 prolaps$).ti.
21	(splanchnoptos$ or visceroptos$).ti.
22	(hernia$ adj3 (pelvi$ or vagin$ or urogenital$ or uter$ or bladder$ or urethr$ or viscer$)).ti.
23	(urethroc?ele$ or enteroc?ele$ or sigmoidoc?ele$ or proctoc?ele$ or rectoc?ele$ or cystoc?ele$ or rectoenteroc?ele$ or cystourethroc?ele$).ti.
24	16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25	exp *Fecal Incontinence/ use emcr,psyh
26	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat$ or defaecat$) adj5 (incontinence or incontinent or urge$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).ti.
27	25 or 26
28	urine retention/ use emcr
29	(urin$ adj3 (retention$ or retain$)).tw.
30	(voiding adj (disorder$ or dysfunction$ or problem$)).tw.
31	(empty$ adj disorder$ adj3 (bowel$ or bladder$ or vesical$ or stool$)).tw.
32	((urogeni$ or anorec$ or ano-rec$ or ano rec$) adj3 dysfunction$).tw.
33	defecation disorder/ use emcr
34	feces impaction/ use emcr
35	((difficult$ or delay$ or irregular$ or infrequen$ or pain$) adj3 (defecat$ or defaecat$ or stool$ or faeces or feces or bowel movement$)).tw.
36	(obstruct$ adj3 (defecat$ or defaecat$)).tw.
37	((defecat$ or defaecat$ or evacuat$) adj3 (disorder$ or dysfunction$)).tw.
38	outlet$ dysfunction$ constipa$.tw.
39	(dys?ynerg$ adj (defecat$ or defaecat$)).tw.
40	(pelvi$ adj3 dyskines$).tw.
41	pelvi$ outlet$ obstruct$.tw.
42	anismus$.tw.
43	puborectal$ contract$.tw.
44	((rectal or rectum) adj3 urge$).tw.
45	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
46	Female Sexual Dysfunction/ use emcr,psyh
47	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
48	(obstruct$ adj3 intercourse).tw.
49	(vagin$ adj3 laxity$).tw.
50	(vagin$ adj wind).tw.
51	Vaginismus/ use emcr,psyh
52	vaginismus$.tw.
53	(vagin$ adj penetrat$ adj disorder$).tw.
54	46 or 47 or 48 or 49 or 50 or 51 or 52 or 53
55	exp Physical Endurance/ use emcr,psyh
56	Physical Activity/ use emcr,psyh
57	exp *Exercise/ use emcr,psyh
58	((exercis$ or activit$) adj3 (advice$ or intervention$ or modif$ or change$)).tw.
59	(activit$ adj3 (restrict$ or recommend$ or avoid$ or modif$ or change$)).tw.
60	physical activity.tw,kw.
61	((endurance or strength$) adj train$).tw.
62	((intraabdominal$ or intra-abdominal$ or intra abdominal$) adj pressure$).tw.
63	(hypopress$ adj (technique$ or exercise$ or gymnastic$)).tw.
64	(stabili?ation adj exercise$).tw.
65	kinesiotherapy/ use emcr
66	pilates/ use emcr
67	Yoga/ use emcr,psyh
68	*tai chi/ use emcr
69	(yoga$ or pilates$).tw.
70	(tai adj chi$).tw.
71	Swimming/ use emcr,psyh
72	cycling/ use emcr

#	Searches
73	horseback riding/ use emcr
74	Walking/ use emcr,psyh
75	Running/ use emcr,psyh
76	jogging/ use emcr
77	(swimming or bicycl$ or walking or running or jogging).tw.
78	weight lifting/ use emcr
79	((heavy or repetitive) adj3 lift$).tw.
80	aerobic exercise/ use emcr
81	((high impact or high-impact or low impact or low-impact) adj3 (exercise$ or activit$)).tw.
82	((cardiovascular or aerobic$) adj3 (exercise$ or activit$)).tw.
83	Sedentary Behavior/ use psyh
84	sedentary lifestyle/ use emcr
85	(sedentary adj5 (behavio?r$ or activ$ or lifestyle$ or life style$ or exercise$ or change$ or women or female$)).tw.
86	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
87	(5 or 15 or 24 or 27 or 45 or 54) and 86
88	limit 87 to english language
89	limit 88 to yr="1980 -Current" [General Exclusions filter applied]

Economic Search

One global search was conducted for economic evidence across the guideline.

Database(s): NHS Economic Evaluation Database (NHS EED); HTA Database – CRD interface

Date of last search: 3 February 2021

#	Searches
1	MeSH DESCRIPTOR Pelvic Floor IN NHSEED,HTA
2	MeSH DESCRIPTOR Pelvic Floor Disorders IN NHSEED,HTA
3	MeSH DESCRIPTOR Urinary Bladder, Overactive IN NHSEED,HTA
4	(((pelvi* NEXT (floor* or diaphragm*) NEAR3 (dysfunction* or disorder* or fail* or impair* or incompeten* or insufficien* or dyssynerg* or symptom* or laxity or change* or care* or health* or wellbeing* or well-being* or prevent* or rehabilitat* or weak* or hypertonic* or overactiv* or over activ* or over-activ*)))) IN NHSEED, HTA
5	MeSH DESCRIPTOR Urinary Incontinence EXPLODE ALL TREES IN NHSEED,HTA
6	MeSH DESCRIPTOR Urinary Bladder, Overactive IN NHSEED,HTA
7	((((stress* or mix* or urg* or urin*) NEAR5 incontinen*))) IN NHSEED, HTA
8	(((bladder* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*)))) IN NHSEED, HTA
9	(((detrusor* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*)))) IN NHSEED, HTA
10	((((urgency NEAR2 frequency) or (frequency NEAR2 urgency)))) IN NHSEED, HTA
11	((((urin* or bladder*) NEAR2 (urg* or frequen*)))) IN NHSEED, HTA
12	(((SUI or OAB))) IN NHSEED, HTA
13	MeSH DESCRIPTOR Pelvic Organ Prolapse EXPLODE ALL TREES IN NHSEED,HTA
14	MeSH DESCRIPTOR Rectocele IN NHSEED,HTA
15	(((pelvic* NEAR3 organ* NEAR3 prolaps*))) IN NHSEED, HTA
16	(((urinary NEAR3 bladder NEAR3 prolaps*))) IN NHSEED, HTA
17	((((vagin* or urogenital* or genit* or uter* or viscer* or anterior* or posterior* or apical or pelvi* or vault* or urethr* or bladder* or cervi* or rectal or rectum) NEAR3 prolaps*))) IN NHSEED, HTA
18	(((splanchnoptos* or visceroptos*))) IN NHSEED, HTA
19	(((hernia* NEAR3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*)))) IN NHSEED, HTA
20	(((urethroc?ele* or enteroc?ele* or sigmoidoc?ele* or proctoc?ele* or rectoc?ele* or cystoc?ele* or rectoenteroc?ele* or cystourethroc?ele*))) IN NHSEED, HTA
21	MeSH DESCRIPTOR Fecal Incontinence IN NHSEED,HTA
22	((((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat* or defaecat*) NEAR5 (incontinence or incontinent or urge* or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)))) IN NHSEED, HTA
23	MeSH DESCRIPTOR Urinary Retention IN NHSEED,HTA
24	(((urin* NEAR3 (retention* or retain*)))) IN NHSEED, HTA
25	(((voiding NEXT (disorder* or dysfunction* or problem*)))) IN NHSEED, HTA
26	(((empty* NEXT disorder* NEAR3 (bowel* or bladder* or vesical* or stool*)))) IN NHSEED, HTA
27	((((urogeni* or anorec* or ano-rec* or ano rec*) NEAR3 dysfunction*))) IN NHSEED, HTA
28	MeSH DESCRIPTOR Fecal Impaction IN NHSEED,HTA
29	((((difficult* or delay* or irregular* or infrequen* or pain*) NEAR3 (defecat* or defaecat* or stool* or faecal or fecal or faeces or feces or fecally or faecally or bowel movement*)))) IN NHSEED, HTA
30	(((obstruct* NEAR3 (defecat* or defaecat*)))) IN NHSEED, HTA
31	((((defecat* or defaecat* or evacuat*) NEAR3 (disorder* or dysfunction*)))) IN NHSEED, HTA
32	((((outlet* NEXT dysfunction* NEXT constipa*)))) IN NHSEED, HTA
33	(((dys?ynerg* NEXT (defecat* or defaecat*)))) IN NHSEED, HTA

#	Searches
34	(((pelvi* NEAR3 dyskines*))) IN NHSEED, HTA
35	(((pelvi* NEXT outlet* NEXT obstruct*))) IN NHSEED, HTA
36	(((anismus*))) IN NHSEED, HTA
37	(((puborectal* NEXT contract*))) IN NHSEED, HTA
38	((((rectal or rectum) NEAR3 urge*))) IN NHSEED, HTA
39	(((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*)))) IN NHSEED, HTA
40	(((obstruct* NEAR3 intercourse))) IN NHSEED, HTA
41	(((vagin* NEAR3 laxity*))) IN NHSEED, HTA
42	(((vagin* NEXT wind))) IN NHSEED, HTA
43	MeSH DESCRIPTOR Vaginismus IN NHSEED,HTA
44	(((vaginismus*))) IN NHSEED, HTA
45	(((vagin* NEXT penetrat* NEXT disorder*))) IN NHSEED, HTA
46	(#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 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) IN NHSEED, HTA

Database(s): Medline & Embase (Multifile) – OVID interface
Embase Classic+Embase 1947 to 2021 February 01; **Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily** 1946 to February 01, 2021
Date of last search: 3 February 2021

Multifile database codes: emczd = Embase Classic+Embase; ppez= MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily

#	Searches
1	Pelvic Floor/ use ppez
2	Pelvic Floor Disorders/ use ppez
3	pelvis floor/ use emczd
4	pelvic floor disorder/ use emczd
5	(pelvi$ adj (floor$ or diaphragm$) adj3 (dysfunction$ or disorder$ or fail$ or impair$ or incompeten$ or insufficien$ or dyssynerg$ or symptom$ or laxity or change$ or care$ or health$ or wellbeing$ or well-being$ or prevent$ or rehabilitat$ or weak$ or hypertonic$ or overactiv$ or over activ$ or over-activ$)).tw.
6	(pelvi$ adj (dysfunction$ or disorder$ or fail$ or impair$ or incompeten$ or insufficien$ or dyssynerg$ or symptom$ or laxity or care$ or health$ or wellbeing$ or well-being$ or prevent$ or rehabilitat$ or weak$ or hypertonic$ or overactiv$ or over activ$ or over-activ$)).tw.
7	or/1-6
8	exp *Urinary Incontinence/ use ppez
9	*Urinary Bladder, Overactive/ use ppez
10	exp *urine incontinence/ use emczd
11	*overactive bladder/ use emczd
12	*bladder instability/ use emczd
13	((stress$ or mix$ or urg$ or urin$) adj5 incontinen$).ti.
14	(bladder$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$ or incontinen$)).ti.
15	(detrusor$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$)).ti.
16	((urgency adj2 frequency) or (frequency adj2 urgency)).ti.
17	((urin$ or bladder$) adj2 (urg$ or frequen$)).ti.
18	(SUI or OAB).ti.
19	or/8-18
20	exp *Pelvic Organ Prolapse/ use ppez
21	exp *pelvic organ prolapse/ use emczd
22	*Rectocele/ use ppez
23	*rectocele/ use emczd
24	(pelvic$ adj3 organ$ adj3 prolaps$).ti.
25	(urinary adj3 bladder adj3 prolaps$).ti.
26	((vagin$ or urogenital$ or genit$ or uter$ or viscer$ or anterior$ or posterior$ or apical or pelvi$ or vault$ or urethr$ or bladder$ or cervi$ or rectal or rectum) adj3 prolaps$).ti.
27	(splanchnoptos$ or visceroptos$).ti.
28	(hernia$ adj3 (pelvi$ or vagin$ or urogenital$ or uter$ or bladder$ or urethr$ or viscer$)).ti.
29	(urethroc?ele$ or enteroc?ele$ or sigmoidoc?ele$ or proctoc?ele$ or rectoc?ele$ or cystoc?ele$ or rectoenteroc?ele$ or cystourethroc?ele$).ti.
30	or/20-29
31	*Fecal Incontinence/ use ppez
32	*feces incontinence/ use emczd
33	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat$ or defaecat$) adj5 (incontinence or incontinent or urge$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).ti.

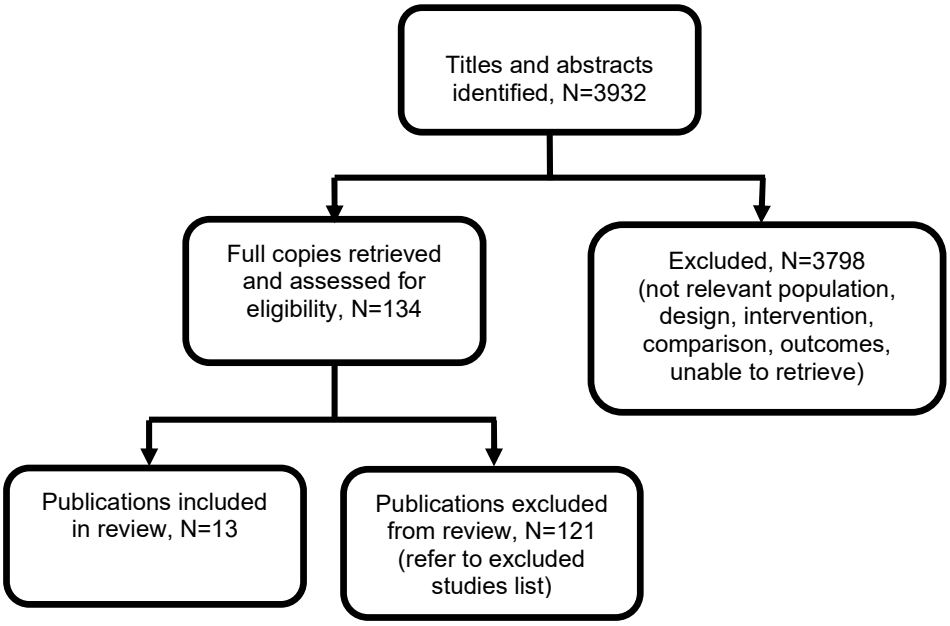
#	Searches
34	or/31-33
35	Urinary Retention/ use ppez
36	urine retention/ use emczd
37	(urin$ adj3 (retention$ or retain$)).tw.
38	(voiding adj (disorder$ or dysfunction$ or problem$)).tw.
39	(empty$ adj disorder$ adj3 (bowel$ or bladder$ or vesical$ or stool$)).tw.
40	((urogeni$ or anorec$ or ano-rec$ or ano rec$) adj3 dysfunction$).tw.
41	defecation disorder/ use emczd
42	Fecal Impaction/ use ppez
43	Feces Impaction/ use emczd
44	((difficult$ or delay$ or irregular$ or infrequen$ or pain$) adj3 (defecat$ or defaecat$ or stool$ or faeces or feces or bowel movement$)).tw.
45	(obstruct$ adj3 (defecat$ or defaecat$)).tw.
46	((defecat$ or defaecat$ or evacuat$) adj3 (disorder$ or dysfunction$)).tw.
47	outlet$ dysfunction$ constipa$.tw.
48	(dys?ynerg$ adj (defecat$ or defaecat$)).tw.
49	(pelvi$ adj3 dyskines$).tw.
50	pelvi$ outlet$ obstruct$.tw.
51	anismus$.tw.
52	puborectal$ contract$.tw.
53	((rectal or rectum) adj3 urge$).tw.
54	or/35-53
55	female sexual dysfunction/ use emczd
56	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
57	(obstruct$ adj3 intercourse).tw.
58	(vagin$ adj3 laxity$).tw.
59	(vagin$ adj wind).tw.
60	Vaginismus/ use ppez
61	vaginism/ use emczd
62	vaginismus$.tw.
63	(vagin$ adj penetrat$ adj disorder$).tw.
64	or/55-63
65	7 or 19 or 30 or 34 or 54 or 64
66	Economics/ use ppez
67	Value of life/ use ppez
68	exp "Costs and Cost Analysis"/ use ppez
69	exp Economics, Hospital/ use ppez
70	exp Economics, Medical/ use ppez
71	Economics, Nursing/ use ppez
72	Economics, Pharmaceutical/ use ppez
73	exp "Fees and Charges"/ use ppez
74	exp Budgets/ use ppez
75	health economics/ use emczd
76	exp economic evaluation/ use emczd
77	exp health care cost/ use emczd
78	exp fee/ use emczd
79	budget/ use emczd
80	funding/ use emczd
81	budget*.ti,ab.
82	cost*.ti.
83	(economic* or pharmaco?economic*).ti.
84	(price* or pricing*).ti,ab.
85	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
86	(financ* or fee or fees).ti,ab.
87	(value adj2 (money or monetary)).ti,ab.
88	or/66-87
89	65 and 88
90	limit 89 to english language

1

Appendix C – Clinical evidence study selection

Study selection for: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

Figure 1: Study selection flow chart



1

1 Appendix D – Evidence tables

2 Evidence tables for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

3 Table 4: Evidence tables

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Chu, C. M., Schmitz, K. H., Khanijow, K., Stambakio, H., Newman, D. K., Arya, L. A., Andy, U. U., Feasibility and outcomes: Pilot Randomized Controlled Trial of a home-based integrated physical exercise and bladder-training program vs usual care for community-dwelling older women with urinary incontinence, Neurourology & UrodynamicsNeurourol Urodyn, 38, 1399-1408, 2019 **Ref Id** 1147534 **Country/ies where the study was carried out** USA **Study type** Parallel arm, non-blinded pilot	**Sample size** N=37 N=19 Intervention group N=18 Usual care group **Characteristics** Mean age (SD): Intervention 72.4 (6.3) years, Usual care 76.4 (9.9) years Mean BMI (unclear if range or 95% CI), kg/m2: Intervention 26 (17.4-46.1), Usual care 34 (23.2-47.4) Type of incontinence Stress UI only, n: Intervention 1 (5.6%), Usual care 2 (11.1%) Urge UI only, n: Intervention 7 (38.9%), Usual care 8 (44.4%) Mixed UI, n: Intervention 10 (55.6%), Usual care 8 (44.4%) Urinary incontinence score (ICIQ-UI short form): Intervention 13 (7-18), Usual care 13.5 (8-19) Physical activity Daily steps: Intervention 2671.7 (2168.5-3386.3),	**Interventions** 6 week multi-component intervention including exercise, bladder training and falls prevention. Physical activity included general balance and strength training. FlexToBa (Flexibility, Toning and Balance), a validated home exercise video program, which includes an instruction booklet and 6 exercise programs on 3 DVDs for program progression over 24 weeks. Bladder training consisted of a DVD on urge suppression and behavioural measures (developed by a nurse practitioner with extensive experience in behavioural management of UI). Falls prevention was carried out by a trained study co-ordinator who carried out a home visit and highlighted improvements	**Details** Usual care group were offered an appointment with a physical therapist, nurse practitioner specialising in UI or a UI specialist. The study measured severity of UI (ICIQ-UI), Nocturia Enuresis and Sleep interruption Questionnaire (NNES-Q), Falls Efficacy Scale International (FES-I) and physical activity (accelerometers). The accelerometers were instructed to be worn 7 days at baseline and at 6 weeks. Adequate accelerometer wear time definition: 4 days out of 7 with a minimum of 600 minutes/day.	**Results** Urinary incontinence score (ICIQ-UI SF), change from baseline (SD): Intervention -6.2 (5.8), Usual care -2.4 (4.2) Adherence to intervention Total with post intervention self-reported exercise data: 17/19 (89.5%) Total number of exercise sessions recommended using DVD over 6 wk (median): 13 (0-21) % of exercise sessions performed out of total instructed (out of 18 sessions): 72% (0-117) % achieving ≥18 sessions: 10.5% (2/19) % achieving ≥ 13 sessions (70% adherence): 52.6% (10/19) (also reported but not extracted; number of exercise sessions performed each week, number who exercise 3 times a week by week, no exercise, median weekly time spent in other exercises by week) and sedentary behaviour. Mean wear time for the accelerometer was 6.7 (1.2) days. Median daily wear time was 776.1 (range 402.1-1,304.8) minutes, with 31/37 meeting adequate wear time criteria.	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1-randomisation: High risk** 1.1: No information on the method of randomisation 1.2: No information 1.3: Probably yes, statistically significant unbalanced baseline characteristics between the two groups **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no

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randomised controlled trial **Aim of the study** To assess the feasibility of a randomised controlled trial of a home based integrated physical exercise and bladder- training program vs usual care in community-dwelling women with urinary incontinence (UI). **Study dates** Not reported. Source of funding Supported by a University of Pennsylvania Perelman School of Medicine PCOR-Pilot Grant. Dr. Uduak U. Andy is supported by a grant from the National Institute of Aging (R03-AF-053277, PI: Andy).	Usual care 1315.4 (1061.5-2023) Moderate and vigorous activity (MVPA), daily: Intervention 24.3 (15.0, 33.2), Usual care 12.5 (8.2, 15.4) Note: Statistically significant difference at baseline between the two groups for daily steps and MVPA. **Inclusion criteria** • Women aged ≥65 years • Recruited from local community centres and geriatric clinics • Ambulatory • Moderate to severe UI on the International Consultation on Incontinence Questionnaire - Urinary Incontinence Short form (ICIQ-UI SF) **Exclusion criteria** • Self-reported seeking treatment for urinary symptoms (other than UTI) from a health car provider in the last 12 months • Women identified by their primary care physicians as being	using a checklist to prevent falls from occurring (developed by the Centre for Disease Control and Prevention). Recommendations included; how to apply for assistive aids and home modifications. Participants received the FlexToBa exercise DVD, the bladder training DVD and exercise equipment (resistance bands, set of 2lb weights and a yoga mat).		Change in activity levels Daily steps: Intervention -45.62 (-611.75, 3077.5), Usual care 57.75 (-366.62, 319) Daily MET (energy expenditure): Intervention 0.01 (-0.01, 0.02), Usual care 0 (-0.01, 0.01) MVPA (moderate and vigorous activity) time, daily: -1.3 (-5, 5.0), Usual care -0.5 (-2.5, 3.8)	2.6. Probably yes **Domain 2b- Deviations from intended interventions (effect of adhering to the interventions): High risk** 2.1: Yes 2.2. Yes 2.3. Probably no 2.4. Probably yes, only 56% of the intervention group had ≥70% adherence 2.5. Probably yes 2.6. No, unclear method of analysis **Domain - Risk of bias due to missing outcome data: Low risk** 3.1. Probably yes **Domain 4 - Measurement of the outcome: Low risk for physical activity outcomes, Some concerns for ICIQ-UI SF** 4.1. No 4.2. Probably yes for ICIQ-UI SF due to imbalance in abnormal cognitive function, probably no for physical activity

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	unfit to participate in an exercise study				4.3. Yes no blinding 4.4. Probably no (physical activity/objective measures), probably yes for ICIQ-UI SF 4.5. Probably no as both have an active intervention **Domain 5- Selection of the reported result: Some concerns** 5.1. No information 5.2. Probably no 5.3. No information, unclear methods Other considerations: No protocol to check methods against and limited information in the methods. No adjustment for imbalances at baseline made. **Domain 6- Overall judgment of bias: High risk**
Full citation Ehsani, F., Sahebi, N., Shanbehzadeh, S., Arab, A. M., ShahAli, S., Stabilization exercise affects function of transverse abdominis and pelvic floor muscles in women with	**Sample size** Number of participants randomised: n=70 (Intervention n=25; control n=35) Number of participants analysed: n=70	**Interventions** Both groups performed their respective exercises for three sessions per week during 8 weeks. At the beginning of each session subjects in both groups received similar programs including a warm-up period (stretching exercises and	**Details** In both groups, all outcome measures were assessed before and after intervention.	**Results** Pain (VAS, 0-100; change score) Intervention: 2.45 (1.99) Control: 2.34 (1.47)	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2).

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postpartum lumbo-pelvic pain: a double-blinded randomized clinical trial study, International Urogynecology Journal, 31, 197-204, 2020 **Ref Id** 1241983 **Country/ies where the study was carried out** Iran **Study type** RCT **Aim of the study** To compare the effect of stabilization exercise (SE) and general exercise (GE) on TrA and PFM muscle activity and pain intensity in women with postpartum LPP **Study dates** This study was performed during the second half of 2017 **Source of funding** Not reported	**Characteristics** Age (mean, SD), years: Intervention 28.74 (4.53); Control 27.69 (6.75) BMI (mean, SD): Intervention 25.43 (4.24); Control 25.34 (3.53) Pain (mean, SD), 0-100; Intervention 6.74 (1.63); Control 5.91 (1.80) **Inclusion criteria** The inclusion criteria were: being 20 to 40 years of age, vaginal delivery childbirth, experiencing low back pain or posterior pelvic pain with or without symphysis pubic pain (the pain is located from T12 to the gluteal fold) and with or without radicular pain to the knees, the onset of pain during pregnancy or within 3 weeks after delivery, experiencing second or third vaginal deliveries, and being 2 to 4 weeks past delivery time. **Exclusion criteria** Participants were excluded if they experienced pain isolated to the symphysis pubic, acute inflammation or infectious disease, low back pain subsequent to	stationary bicycling for 10–15 min). The activation of TrA muscles was performed in different positions and progressed from static to dynamic conditions in the intervention group group. This group was instructed to perform low-load isometric activation of the TrA muscles (abdominal hollowing) in minimally loading positions (4-point kneeling, supine lying, sitting, and standing). The progression of the exercises performed in the SE group was as follow: For the first 2 weeks the holding time and then the number of TrA muscle contractions increased in those positions up to three sets of ten contraction repetitions × 10-s hold. The number of repetitions in each set increased up to 30 contractions from week 3 to 5. Also arm and leg movements were added while holding the TrA muscle contraction in the previously mentioned positions. From week 6 to 8, TrA muscle contraction was held in more challenging and dynamic postures. A slight drawing-in maneuver of the lower part of the anterior abdominal wall below the umbilical level was			Domain 1-randomisation: Some concerns 1.1: No information, just states that sequences of random numbers were used for randomisation 1.2: No information 1.3: Probably no Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk 2.1: Yes 2.2. Probably no, states that investigators were blinded 2.3. Probably no 2.6. Yes Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): Low risk 2.1: Yes 2.2. Probably no, states that researchers were blinded to group allocation 2.3. No information 2.6. Yes Domain 3 - Risk of bias due to missing

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	visceral disease, radicular pain below the knees, locomotor or spinal cord problems, a history of neoplasm or spinal surgery, spinal or pelvic fracture, spinal deformity, severe trauma, and treatment using SE during pregnancy. In addition, the participants with post-partum urinary incontinence were excluded from the study.	considered a correct activation of the TrA muscle. The progression of the exercises was based on the correct performance of the previous exercise stage for every session. If this was not achieved for a subject, the participant remained at the same exercise level. The control group received GE without emphasis on the contraction of the TrA. The intensity of exercises in both groups increased gradually each week and progressively developed in functional situations. The supervised exercise intervention was conducted 3 days a week			outcome data: Low risk 3.1. Yes, no missing data Domain 4 - Measurement of the outcome: Low risk 4.1. No 4.2. Probably no 4.3. Probably yes as subjective patient assessed outcomes 4.4. Probably no 4.5. Probably no Domain 5- Selection of the reported result: Some concerns 5.1. No information 5.2. No information 5.3. No information Domain 6- Overall judgment of bias: Some concerns **Other information**
Full citation Hagovska, M., Svihra, J., Bukova, A., Drackova, D., Horbacz, A., The impact of different intensities of exercise on body weight reduction and overactive bladder symptoms- randomised trial, European Journal	**Sample size** N=93 randomised N=16 excluded (n=12 insufficiently completed questionnaires, n=4 lost to follow-up (didn't start the exercise programme) Analysed:	**Interventions** High Intensity exercise: 12 week programme. 3 times a week for 60-90 minutes. Sports trainer and physiotherapist supervision. Low Intensity exercise:	**Details** No changes were made to the women's dietary habits or everyday life activity. The study measured changes in body	**Results** Results are reported as baseline, and follow up at 12 weeks, with a p value. Below are the final values at 12 weeks of follow up, mean (SD): Patient perception of Intensity of Urgency Scale: High intensity;0.46 (0.50), Low intensity; 1.13 (0.99)	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2).

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of Obstetrics and Gynecology and Reproductive Biology, 242, 144-149, 2019 **Ref Id** 1146973 **Country/ies where the study was carried out** Slovakia **Study type** Randomised controlled trial **Aim of the study** To find out the effect of a 3-month exercise programme with two different intensities on the reduction of body weight and body fat percentage in overweight women with overactive bladder symptoms (OAB). **Study dates** March 2018-September 2018 **Source of funding** Grant project no 1/0825/17 "Recommendations for physical activities in prevention and control of non-communicable diseases and their	N=38 High intensity group exercise N=39 Low intensity group exercise **Characteristics** Mean age: High intensity; 26.28 (4.89), Low intensity; 26.24 (5.06) years. BMI, kg/m^2: High intensity; 25.00 (1.92), Low intensity; 26.16 (3.80) Type of incontinence All overactive bladder symptoms Number of voiding per 24 hours: High intensity; 8.92 (1.7), Low intensity; 9.11 (2.4) PPIUS- Patient Perception of Intensity of Urgency Scale: High intensity; 1.51 (0.72), Low intensity; 1.71 (1.03) SS- Symptom score OAB-q: High intensity; 11.36 (8.57), Low intensity; 11.22 (10.91) HR-quality of life OAB-q: High intensity; 93.41 (6.51), Low intensity; 93.60 (7.01) No differences reported in participants between groups at baseline.	12 week programme. Once a week for 60-90 minutes. Sports trainer and physiotherapist supervision. Exercises for both programmes included: Aerobic training - stationary bike Dynamic warm up- controlled stretching Strength training - activation of abdominal muscles to reduce abdominal fat Static stretching - passive stretching The aerobic (20-40 minutes) and strength (20-30 minutes) elements gradually increased in duration over the three months. Dynamic and static stretching were 10 minutes duration throughout.	composition, voiding patterns, and quality of life (symptoms and severity).	SS-Symptom score OAB-q (Overactive bladder questionnaire short form): High intensity; 1.45 (3.40), Low intensity; 9.56 (11.42) HR-quality of life OAB-q (Overactive bladder questionnaire short form): High intensity; 98.18 (3.54), Low intensity; 93.60 (7.01) Persistent OAB symptoms, n (%): High intensity; 3 (7.7%), Low intensity; 34 (89.5%)	**Domain 1-randomisation: Low risk** 1.1: Probably yes 1.2: Probably yes 1.3: No **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no 2.6. Yes **Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): Some concerns** 2.1: Yes 2.2. Yes 2.3. No information 2.4. No information 2.5. No information 2.6. No **Domain - Risk of bias due to missing outcome data: Low risk** 3.1. Probably yes

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
implementation in the Easter part of Slovakia" implemented at P.J. Safarik University in Kosice.	**Inclusion criteria** • Women aged 18-35 years • BMI 25-29.9 • Waist circumference of >80cm • OAB- urgency, urination frequency during the day ≥8 times, at night ≥2 times **Exclusion criteria** • Stress urinary incontinence (SUI) • Surgical treatment of gynaecological and urological diseases • Urinary tract infection • Oncological and neurological urinary tract disease • Incomplete questionnaires • Refusal to participate in the study				**Domain 4 - Measurement of the outcome: Some concerns** 4.1. No 4.2. Probably no 4.3. Probably yes, no blinding 4.4. Probably yes 4.5. Probably no **Domain 5- Selection of the reported result: High risk** 5.1. No information 5.2. Probably no 5.3. Probably yes Other considerations: Very poor reporting of the methods used in the trials, method of analysis **Domain 6- Overall judgment of bias: High risk**
Full citation Hagovska, M., Svihra, J., Bukova, A., Drackova, D., Horbacz, A., Nagyova, I., Effect of an Exercise Programme for Reducing Abdominal Fat on Overactive Bladder Symptoms in	**Sample size** n=93 **Characteristics** Age (mean, SD): Intervention group 26.7 (4.8); Control 26.9 (4.9) years	**Interventions** **Intervention (n=46):** Programme for reducing abdominal fat, with activation of deep abdominal muscles and strengthening of the surface abdominal muscles. The duration of the intervention was 12 weeks. The women did not	**Details** OAB symptoms were measured using the OAB-q. : This questionnaire focuses on the symptoms of an overactive bladder in the last 4 weeks. It contains six questions, the	**Results** **OAB-Q: SS-symptom score (mean, SD; final score; 10 weeks)** Intervention (n=34): 1 (1.3) Control (n=36): 11.9 (1.4) **OAB-Q: HR-quality of life score (mean, SD; final score; 10 weeks)** Intervention (n=34): 100 (0.9) Control (n=36): 93 (0.9)	**Limitations** Limitations Cochrane risk of bias (Version 2.0)

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Young Overweight Women, Obstetrical and Gynecological Survey, 75, 471-472, 2020 **Ref Id** 1287224 **Country/ies where the study was carried out** Slovakia **Study type** RCT **Aim of the study** To reduce symptoms of OAB through a 3-month exercise programme in young overweight women with OAB **Study dates** Between March and September 2018 **Source of funding** This work was supported by the Slovak Research and Development Agency	OAB-q - SS symptoms score (mean, SD): Intervention group 10.9 (10.6); Control group 11.1 (8.6) OAB-q - HR-quality of life (mean, SD): Intervention group 94.6 (6.6); Control group 93.0 (7.6) BMI (mean, SD): Intervention group 25.0 (3.0); control group 25.1 (4.2) Body weight (mean, SD), kg: Intervention group 66 (8.4); Control group 67 (11.5) **Inclusion criteria** Women aged 18–35, BMI 25–29.9, waist circumference > 88 cm and OAB defined as urgency usually accompanied by frequency and nocturia, with or without urge urinary incontinence (UUI), with the absence of urinary tract infections and other pathologies **Exclusion criteria** Stress urinary incontinence (SUI), surgical treatment of gynaecological and urological diseases,	change their movement and physical activities other then the intervention. In addition, their eating habits were not changed during this study. Exercise was performed two times a week for 60–80 min under the supervision of a sports trainer and physiotherapist. The training programme had elements of: (1) Aerobic training: a stationary bicycle for 20 min; (2) Dynamic warm-up: stretching muscles by slow and controlled movements, 10 min; (3) Strength training: for reduction of abdominal fat, deep abdominal muscle activation (M. transversus abdominis, M. obliquus abdominis internus), 20 min, strengthening of superficial abdominal muscles (M. obliquus abdominis externus, M. rectus abdominis). (4) Static stretching: passive stretching of lower limbs and abdominal muscles, 10 min. **Control (n=47):** The control group did not undergo the exercise programme. The women did not change their everyday life activities or their eating habits.	symptom score (0 without symptoms, 100 = the most symptoms) and 13 questions that assess quality of life (100 = best quality of life, 0 = the worst quality of life)		Domain 1: Randomisation: Low risk 1.1: Probably yes, patients were randomly allocated to treatments using Microsoft Excel 1.2: No information 1.3: Probably yes, no significant differences between groups Domain 2: Deviations from intended interventions: Some risk 2.1: Yes, participants not blinded 2.2: Yes, carers and people delivering the interventions not blinded 2.3: Yes, states that twelve women did not complete the exercise programme in the experimental group, and 11 did not appear for examination in the control group.

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	urinary tract infection, oncological and neurological urinary tract disease, incomplete questionnaires and refusal to participate in the study				Further, the level of adherence was 75% 2.4: Probably yes, drop out and non-adherence is likely to effect the outcome 2.5: No, drop out is similar between the groups Domain 3: Missing outcome data: Low risk 3.1: Probably no, 26% of the intervention group and 23% in the control group were lost to follow-up or excluded from final analysis 3.2: Probably no, no evidence that the results were not biased by missing outcome data 3.3: Probably no, missingness of the outcome was not dependent on its true value

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					Domain 4: Measurement of the outcome: High risk 4.1: Probably no, outcomes clearly defined and some information on how they were assessed 4.2: Probably no, outcomes unlikely to differ between treatment arms 4.3: Yes, due to self report 4.4: Probably yes, as the control group did not have any intervention 4.5: Probably yes, as the control group did not have any intervention Domain 5: Selection of the reported result: Some concerns 5.1: No, no pre-panned analysis or protocol available

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					5.2: No, descriptive data presented 5.3: No, data presented as expected Domain 6: Overall judgment of bias: High risk **Other information**
Full citation Huang, A. J., Jenny, H. E., Chesney, M. A., Schembri, M., Subak, L. L., A group-based yoga therapy intervention for urinary incontinence in women: a pilot randomized trial, Female Pelvic Medicine & Reconstructive Surgery Female pelvic med, 20, 147-54, 2014 **Ref Id** 1146997 **Country/ies where the study was carried out** USA **Study type**	**Sample size** N=19 N=10 Yoga intervention N=9 Waitlist control **Characteristics** Mean age: 61.4 years (8.2) Mean number of incontinence episodes per day: 2.5 (1.3) Gynaecological history No menses in the past year, n: 7 (88%) yoga, 4 (40%) control Oophorectomy, n: 0 (0%) yoga, 1 (11%) control Hysterectomy, n: 2 (20%) yoga, 1 (11%) control Clinical incontinence type	**Interventions** Intervention group: Group yoga classes with home practices Based on Iyengar yoga, a form of Hatha yoga. Emphasis on anatomical/ postural alignment, incorporation of props to minimise risk of injury/ accommodate different levels of strength/flexibility and incorporation of mindfulness during the postures. Focussed on 8 core postures. Introductory 90 minute orientation session, followed by twice weekly 90 minute group yoga classes for 6 weeks. Experienced, certified instructor and	**Details** All participants received a pamphlet with instructions about standard behavioural self-management strategies for improving bladder control (standard behavioural care in the community for incontinence). No additional education was given. The study measured frequency of urinary incontinence, changes in type of incontinence etc. in voiding diaries,	**Results** N=9 yoga group, N=9 control group Subjective change in urinary incontinence- ANCOVA model adjusting for baseline outcome levels Incontinence Impact Questionnaire-7, mean change (SD): -29.2 (28.7) yoga, -30.9 (44.8) control Urogenital Distress Inventory-6, mean change (SD): -1.0 (0.8) yoga, -0.1 (0.3) control Patient Perception of Bladder Condition, mean change (SD): -1.0 (1.0) yoga, -0.4 (0.9) control Adherence to intervention Attendance of ≥11 of the 12 yoga classes, n: 9 (100%) yoga	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1-randomisation: High risk** 1.1: Yes 1.2: No information 1.3: Probably yes, statistically significant differences at baseline **Domain 2a-Deviations from intended interventions (effect of assignment to**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Pilot Randomised controlled Trial. **Aim of the study** To examine the feasibility, efficacy and safety of a group-based yoga therapy intervention for middle aged and older women with urinary incontinence. **Study dates** August to October 2012 **Source of funding** UCSF Osher Center for Integrative Medicine Pilot Award from Mt. Zion Health Fund. Authors received individual grants from the following: Paul Beeson Career Development Award (1K23AG038335) from the National Institute on Aging and the American Federation for Aging Research (AFAR), Medical Student Training in Aging Research Grant from AFAR, grant #5K24DK080775 from the National Institute of Diabetes and Digestive and Kidney Disorders.	Urgency or urgency-predominant, n: 6 (60%) yoga, 6 (67%) control Stress or stress-predominant, n: 4 (40%) yoga, 3 (33%) control Mean Total incontinence (SD), episodes/day: 2.77 (1.3) yoga, 2.16 (1.2) control Mean Urgency Incontinence (SD), episodes/day: 1.69 (1.1) yoga, 1.21 (1.0) control Mean Stress Incontinence (SD), episodes/day: 0.93 (1.1) yoga, 0.84 (0.8) control Incontinence Impact Questionnaire, mean score (SD): 52.3 (38.9) yoga, 104.1 (60.0) control Urogenital Distress Inventory-6, mean score (SD): 1.6 (0.5) yoga, 1.5 (0.4) control Patient Perception of Bladder Condition, mean score (SD): 3.1 (0.7) yoga, 3.1 (0.9) control Statistically significant differences at baseline were found for diastolic blood pressure, daytime	assistant took the classes. In addition, participants were encouraged to practice yoga at home for ≥1 hour per week and to record the dates/duration in a diary. Participants also received a yoga mat, belt and block to take home with a manual (written descriptions and pictures of the yoga poses). Control group: Waitlist for yoga classes. Instructed to avoid outside yoga instruction for 6 weeks. Received a voucher for $180 for yoga classes at a local yoga studio as well as a a yoga block, mat and strap to take home at the end of the study.	Urogenital Distress Inventory 6 (UDI-6), Patient Perception for Bladder Condition (PPBC), Incontinence Impact Questionnaire Short Form (IIQ-7) and adherence (attendance logs/ diaries). 3 week telephone call and at the 6 week visit, participants were questioned on negative changes (AEs).	Attendance of 100% group yoga classes, n: 6 (67%) yoga Completed the 6 hours of home practice, n: 9 (100%) yoga Also reports voiding diary outcomes on urinary frequency.	**interventions): Some concerns** 2.1: Yes 2.2. Probably yes 2.3. No information 2.4. No information 2.5. No information 2.6. Yes **Domain 2b- Deviations from intended interventions (effect of adhering to the interventions): Low risk** 2.1. Yes 2.2. Probably yes 2.3. Probably yes 2.4. No 2.5. Yes **Domain 3 - Risk of bias due to missing outcome data: Low risk** 3.1. Yes 3.2. Probably yes **Domain 4 - Measurement of the outcome: Low risk** 4.1. No 4.2. Probably no **Domain 5- Selection of the reported result: Some concerns**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	voids, total voids and Incontinence Impact Questionnaire. **Inclusion criteria** • Responded to a newspaper advertisement, flyer posted in local community centres and businesses or through direct recruitment from clinician offices • ≥40 years, female • Experiencing incontinence for ≥3 months • ≥7 episodes of incontinence on a screening 7-day voiding diary, with at least half of those episodes being stress-type or urgency-type **Exclusion criteria** • Severe mobility limitations that would prevent them from participating in a yoga therapy program (inability to walk up a single flight of stairs or at least 2 city blocks on level ground or an inability to stand up from a supine position unaided within 10 seconds)				5.1. No information 5.2. Probably no 5.3. Probably no Other considerations: **Domain 6- Overall judgment of bias: High risk**

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	• Formal yoga instruction within the past year or any prior use of yoga to treat incontinence specifically • Pregnancy within the past 6 months • Current urinary tract infection (UTI) or hematuria • History of ≥3 UTIs in the past year • Major neurologic condition such as stroke, multiple sclerosis or Parkinson's disease • History of congenital defect leading to incontinence • Fistula in the bladder or rectum • Pelvic cancer or radiation • Interstitial cystitis or chronic pelvic pain • Current symptomatic pelvic organ prolapse • BMI>35kg/m^2 • Prior surgery to the urinary tract • Use of practitioner-supervised behavioural, pharmacological or other clinical treatments (such as pessary) for incontinence within				

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	the past 3 months, or be planning to initiate new clinical incontinence treatments during the study				
Full citation Huang, A. J., Chesney, M., Lisha, N., Vittinghoff, E., Schembri, M., Pawlowsky, S., Hsu, A., Subak, L., A group-based yoga program for urinary incontinence in ambulatory women: feasibility, tolerability, and change in incontinence frequency over 3 months in a single-center randomized trial, American Journal of Obstetrics & GynecologyAm J Obstet Gynecol, 220, 87.e1-87.e13, 2019 **Ref Id** 1146761 **Country/ies where the study was carried out** USA **Study type** Single centre, parallel group RCT, single outcome assessor blinding **Aim of the study**	**Sample size** n=56 Intervention group n=28 Control group n=28 **Characteristics** Age, years: Intervention 65.5 (9.1), control 66.6 (6.8) BMI, kg/m^2: Intervention 26.8 (4.8), control 27.7 (4.8) Type of incontinence Urgency or urgency - predominant incontinence, n: Intervention 18 (64%), control 19 (68%) Stress or stress-predominant incontinence, n: Intervention 10 (36%), control 9 (32%) Equally mixed stress and urgency incontinence, n: Intervention 0 (0%), control 0 (0%) Incontinence frequency: Total incontinence (episodes/day): Intervention 3.8 (1.6), control 3.1 (2.3)	**Interventions** 3 months therapeutic yoga program or nonspecific muscle stretching and strengthening control program. Both groups also received a pamphlet: basic patient-directed information about behavioural self-management of incontinence (such as pelvic floor exercises and timed urination) consistent with usual first-line care. Intervention group: Program was based on Iyengar yoga. The yoga included core yoga postures used in Hatha yoga practice but was feasible for women with some mobility limitations. Home and Group yoga classes. 90- minute group classes, twice a week, average of 6 to 8 students. Instructor led with study specific training who followed a study specific guide. Home yoga for at least 1 additional hour per week. Participants also received a written manual	**Details** Adherence: Classes were documented by instructors using attendance logs. At home participants completed a home log including the dates and times of practice. Safety and tolerability: Follow up visit or phone calls, participants were asked about any negative changes in their health (documented as adverse events). Urinary incontinence: assessed using validated 3 day voiding diaries at baseline and 3 months. Quality of Life: Measured at baseline and 3 months using the 28-item Incontinence Impact Questionnaire (IIQ),	**Results** Study completed by n=27 in the intervention group (n=1 discontinued due to illness/medical reason), n=23 in the control group (n=1 lost to follow up, n=4 discontinuations; due to being too busy (n=2), family illness/emergency (n=1) and illness/medical reason (n=1)). Total (any) incontinence Intervention (n=28): Absolute change (95% CI) -2.8 (-3.6 to -2.0), Control (n=28)-1.9 (-2.8 to -0.9). Mean difference of final values: 0.9 (-0.3 - 2.2) Stress-type incontinence Intervention (n=28): Absolute change (95% CI) -0.8 (-1.2 to -0.4), Control (n=28)-0.4 (-0.9 to 0.1). Mean difference of final values: 0.4 (-0.2 - 1.1) Urgency-type incontinence Intervention (n=28): Absolute change (95% CI) -1.7 (-2.6 to -0.91), Control (n=28)-1.7 (-2.6 to -0.7). Mean difference of final values: 0.1 (-1.2 - 1.3) Total daytime incontinence Intervention (n=28): Absolute change (95% CI) -2.5 (-3.3 to -1.8), Control	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1-randomisation: Low risk** 1.1: Yes 1.2: Yes 1.3: No **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no, reasons for non-adherence were not related to the intervention 2.6. Yes **Domain 2b-Deviations from intended**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
To assess the feasibility and tolerability of a group-based yoga program for ambulatory middle-aged and older women with urinary incontinence, and to assess for changes in incontinence frequency after 3 months of yoga practice. **Study dates** January 2015- April 2017 (dates taken from the Clinical Trials Registry: NCT02342678) **Source of funding** Funding for all authors and individuals named in the Acknowledgements section was provided by grant #R34AT008028 from the National Center for Complementary and Integrative Medicine and from the University of California San Francisco Osher Center for Integrative Medicine's Bradley fund. Dr. Leslee Subak was also supported by grant #5K24DK080775 from the National Institute of Diabetes and Digestive and Kidney Disorders. Drs.	Urgency incontinence (episodes/day): Intervention: 2.1 (1.8), control 2.3 (2.3) Stress incontinence (episodes/day): Intervention: 1.4 (1.5), control 0.7 (1.1) Incontinence duration: <1 year, n: Intervention 2 (7.1%), control 2 (7.1%) 1-4 years, n: Intervention 9 (32%), control 14 (50%) ≥5 years, n: Intervention 17 (30%), control 12 (43%) Urinary symptom questionnaire scores: Incontinence Impact Questionnaire: Intervention 117.9 (82.1), control 133.9 (92.3) Urogenital Distress Inventory-6: Intervention 34.5 (16.4), control 36.5 (19.5) Patient perception of Bladder Condition: Intervention 3.4 (1.0), control 3.3 (1.1) PROMIS Adult Physical Function Profile: Intervention 13.8 (5.5), control 13.6 (5.0) Short Physical Performance Battery: Intervention 11.5 (1.2), control 11.1 (0.9)	(pictures, descriptions of postures) and a yoga mat, belt, and 2 blocks. Control group: Non-specific muscle stretching and strengthening program (not to engage pelvic floor/ or encourage mindful relaxation). 90 minute group sessions twice a week. Instructor led with specific study training. Home exercises for at least 1 additional hour per week. Participants also received a written manual, stretch straps, resistance bands and a mat for home use.	the 6-item Urogenital Distress Inventory-6 (UDI-6), and the single-item Patient Perception of Bladder Condition (PPBC).	(n=28)-1.6 (-2.5 to -0.8). Mean difference of final values: 0.9 (-0.3 - 2.0) Total night time incontinence Intervention (n=28): Absolute change (95% CI) -0.3 (-0.5 to -0.1), Control (n=28)-0.2 (-0.5 to -0.0). Mean difference of final values: 0.1 (-0.3 - 0.4) Incontinence Impact Questionnaire Intervention (n=28): Absolute change (95%CI) -74 (-103 to -45), Control (n=28) -94 (-127 to -60). Mean difference of final values: -19.3 (-62.9 - 24.3). Urogenital Distress Inventory -6 Intervention (n=28): Absolute change (95%CI) -21 (-27 to -15), Control (n=28) -15 (-23 to -8). Mean difference of final values: 5.6 (-3.7-14.8) Patient perception of bladder condition Intervention (n=28): Absolute change (95%CI) -1.3 (-1.7 to -0.8), Control (n=28) -1.0 (-1.5 to -0.5). Mean difference of final values: 0.2 (-0.4-0.9) Adherence to group intervention classes Attended 24 group classes, 100% adherence: Intervention (n=28) 12 (44%), Control (n=28) 11 (48%) Attended 20-23 group classes, >80% but <100% adherence: Intervention	**interventions (effect of adhering to the interventions): Some concerns** 2.1: Yes 2.2. Yes 2.3. No information 2.4. Probably no, high adherence (majority >80%) 2.5. Probably yes, they were likely to adhere to the assigned intervention 2.6. Probably yes, multiple imputation ANCOVA models **Domain 3 - Risk of bias due to missing outcome data: Some concerns** 3.1. No, 3.5% vs. 17.9% drop outs 3.2. No, no data presented demonstrating different assumptions for the reasons for dropping out 3.3. Probably yes, the missing data could be related to the participants health status for some of the drop outs 3.4. Probably no, the drop outs that could be related to the participants health

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Alison Huang and Leslee Subak have received funding from Pfizer Inc. and Astellas through grants awarded to the University of California San Francisco to conduct research unrelated to this report.	Centre for Epidemiologic Studies Depression scale: Intervention 10.0 (8.6), control 9.7 (9.1) **Inclusion criteria** • Women of at least 50 years of age • Report incontinence for at least 3 months • Document at least 3 episodes of incontinence on a screening 3 day voiding diary • Self-report predominantly stress-, urgency-, or mixed-type incontinence • Participants also had to agree to forgo other clinical incontinence treatments during the 3 month trial, including practitioner supervised behavioural treatments such as pelvic floor therapy **Exclusion criteria** • Major mobility limitations such as being unable to walk 2 blocks on level ground or to get up from a supine to standing position unassisted • Not already be engaged in organized yoga classes or have completed prior yoga			(n=28) 12 (44%), Control (n=28) 9 (39%) Attended ≤19 group classes, <80% adherence: Intervention (n=28) 3 (11.1%), Control (n=28) 3 (13%) Adherence to home intervention practice Completed all 12 recommended home practice hours, 100% adherence: Intervention (n=28) 22 (82%), Control (n=28) 15 (65%) Completed 10-11 recommended home practice hours, >80% but <100% adherence: Intervention (n=28) 2 (7.4%), Control (n=28) 5 (22%) Completed <10 recommended home practice hours, <80% adherence: Intervention (n=28) 3 (1%), Control (n=28) 3 (13%) Adverse events leading to withdrawal/discontinuation: Not reported. Two participants did withdraw due to illness/ medical reason (1 in each treatment group), the reasons for this was not described. All adverse events reported were thought not to be directly attributable to yoga or the control groups interventions. Anxiety and Depression: Spielberger State Trait Anxiety Inventory (STAI), Hospital Anxiety and Depression Scale (HADS), Perceived Stress Scale (PSS) and Center for Epidemiologic Studies Depression Scale (CES-D) were stated to have been measured but were not reported.	are equal in both arms **Domain 4 - Measurement of the outcome: Low risk** 4.1. Probably no 4.2. Probably no 4.3. No 4.4. No/ probably no **Domain 5- Selection of the reported result: Low risk** 5.1. Yes 5.2. Probably no 5.3. No Other considerations: Selective outcome reporting for anxiety, depression and stress outcomes which were stated to have been measured in the protocol. **Domain 6- Overall judgment of bias: Some concerns**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	training directed specifically at treatment of incontinence • Pregnancy in the past 6 months • Current urinary tract infection or hematuria • History of 3 or more urinary tract infections in the past year • Major neurologic condition such as stroke • History of bladder or rectal fistula • Pelvic cancer or radiation • Interstitial cystitis or chronic pelvic pain • Congenital defect leading to incontinence • Current symptomatic pelvic organ prolapse • Prior anti-incontinence or urethral surgery • Other pelvic surgery in the past 3 months				
Full citation Kim,H., Suzuki,T., Yoshida,Y., Yoshida,H., Effectiveness of multidimensional exercises for the treatment of stress urinary incontinence in elderly community-dwelling Japanese women: a randomized,	**Sample size** n=70 Intervention group n=35 Control group n=35 **Characteristics** Mean age (SD): Intervention group 76.6 (5.0), control group 76.6 (3.8)	**Interventions** Intervention group: The invention consisted of 60 minute group exercise sessions held twice a week for 12 weeks. During the follow up period, home based exercise was performed individually. Exercises included:	**Details** Outcome measures were completed during an interview and functional fitness test at baseline, 3 months (exercise vs control) and 1 year (all participants had done intervention).	**Results** At the end of the 3 month exercise intervention: Usual walking speed m/s (mean, SD): Intervention group, final score (n=33) 1.1 (0.2), control group 1.1 (0.3) Maximum walking speed, m/s (mean, SD): Intervention group, final score	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
controlled, crossover trial, Journal of the American Geriatrics Society, 55, 1932-1939, 2007 **Ref Id** 109939 **Country/ies where the study was carried out** Japan **Study type** Single Centre, Randomised crossover trial **Aim of the study** To assess the effectiveness of pelvic floor muscle (PFM) and fitness exercises in reducing urine leakage in elderly women with stress urinary incontinence. **Study dates** Recruitment took place in December 2002 **Source of funding** This study was supported by a Research Grant of the Ministry of Health and Welfare of Japan and a Grant-in-Aid for Scientific Research B of	Mean BMI (SD): Intervention group 24.1 (4.3), control group 24.7 (3.7) Mean usual walking speed, m/s (SD): intervention group 1.1 (0.3), control group 1.1 (0.2) Mean maximum walking speed, m/s (SD): intervention group 1.6 (0.4), control group 1.7 (0.4) Mean onset age or urine leakage (SEM): intervention group 71.2 (1.8), control group 68.1 (2.4) Mean duration of urine leakage, year (SEM): intervention group 7.0 (1.4), control group 9.2 (2.1) **Inclusion criteria** • Aged 70 and older • Residing in Itabashi ward of Metropolitan Tokyo • Experiencing urine leakage once a month or more **Exclusion criteria**	Warm up and stretching: 10-15 minutes, including shoulder rotation, waist rotation and others PFM exercises: participants were taught the structure of PFMs, and asked to become conscious of these muscles. They were taught how to exert pressure on the PFM without excessively straining the abdominals. Participants performed 10 fast contractions, and 10 sustained contractions in sitting, lying and standing positions. Fitness exercises: Body awareness, breathing, relaxation, strength training of the thigh, abdominal and back muscles, performed between PFM exercise positions. Additional training included bending the knees, tilting the pelvis backward and forward, lifting the buttocks on the back with the knees bent, raising one leg while lying on the back, and others. Other exercises included the use of two kinds of training balls, including sitting on, and rolling the ball bath and forth and side to side.	The study measured frequency of urine leakage based on the International Consultation on Incontinence Questionnaire (ICIQ) and a 3-day diary to cross check validity of the interview. it was assessed as cured when urine leakage episodes disappeared, improved when the frequency of urine leakage episodes decreased, unchanged when there was no change infrequency was present, and worsened when the frequency increased. Grip strength, BMI, walking speed and hip abductor muscle strength were also measured.	(n=33) 1.7 (0.4), control group 1.6 (0.3) Grip strength, kg (mean, SD): Intervention group, final score (n=33) 18.2 (4.0), control group (n=32) 18.9 (4.8) Abductor muscle strength, Nm (mean, SD): Seated - Intervention group, final score (n=33) 59.4 (14.7), control group (n=32) 51.5 (13.1) Supine - Intervention group, final score (n=33) 49.2 (17.3), control group (n=32) 40.7 (17.3) Frequency score of urine leakage, point (mean, SD): Intervention group, final score (n=33) 1.5 (1.8), control group (n=32) 2.4 (1.4) Cured of urine leakage (%): Intervention group, final score (n=33) 54.5, control group (n=32) 9.4	**Domain 1-randomisation: Some concerns** 1.1: Yes 1.2: No information 1.3: Probably no, no baseline differences described. Although does describe randomisation process as being repeated if significant differences were detected until there were no significant differences between groups. **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no 2.6. Yes **Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): High risk** 2.1: Yes 2.2. Yes 2.3. No information

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
the Japan Society for the Promotion of Science.	• Those categorised as having urge or mixed incontinence	Control group. Participants were instructed to lead a normal life and to refrain for exercises aiming to increase muscle strength or walking speed, decrease BMI or improve dietary habits. After the intervention group completed the first stage, the control group was given the same 3 month exercise. During the 1 year follow up period, all participants attended monthly group exercise sessions as well as a home based exercise programme (30 minute sessions, twice per week)			2.4. Probably no, intervention was successful for most participants 2.5. Probably yes, they were likely to adhere to the assigned intervention 2.6. Probably no **Domain 3 - Risk of bias due to missing outcome data: Low risk** 3.1. Yes, low number of drop outs **Domain 4 - Measurement of the outcome: Low risk** 4.1. Probably no 4.2. Probably no 4.3. Probably yes, no mention of blinding 4.4. Probably no, unlikely to have been influenced by the knowledge of the intervention received **Domain 5- Selection of the reported result: Some concerns** 5.1. Probably yes 5.2. Probably no 5.3. No information Other considerations:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					Domain 6- Overall judgement of bias: High
Full citation Kim, H., Yoshida, H., Suzuki, T., The effects of multidimensional exercise treatment on community-dwelling elderly Japanese women with stress, urge, and mixed urinary incontinence: a randomized controlled trial, International Journal of Nursing Studies, 48, 1165-72, 2011 **Ref Id** 1147244 **Country/ies where the study was carried out** Japan **Study type** Single investigator blinded RCT **Aim of the study** To determine the effects of multidimensional exercise treatment on reducing urine leakage in elderly Japanese women with stress, urge and mixed urinary incontinence.	**Sample size** N=127 randomised N=63 Intervention (exercise) group N=64 Control (education) group **Characteristics** Mean age (SD), years: 76.1 (4.3) intervention, 75.7 (4.4) control Mean BMI (SD), kg/m^2: 23.4 (3.3) intervention, 24.3 (3.0) control Mean grip strength (SD), kg: 19.2 (4.6) intervention, 18.6 (4.7) control Mean usual walking speed (SD), m/s: 1.2 (0.3) intervention, 1.1 (0.3) control Mean maximal walking speed (SD), m/s: 1.7 (0.4) intervention, 1.7 (0.4) control Mean adductor muscle strength (SD), m/s: 20.6 (6.9) intervention, 21.5 (4.8) control Mean onset age of incontinence (SD), years: 4.8 (6.4) intervention, 4.6 (6.0) control **Inclusion criteria**	**Interventions** Intervention (Exercise) group Exercise training session, twice a week for 3 months at the TMIG (Tokyo Metropolitan Institute of Gerontology) health promotion classes. Consisting of 3 parts: Stretching exercises: 5-10 mins PFM exercises: 10 fast contractions (3s), 5s rest, 10 sustained contractions (8-10s) with 10s rest between contractions. This was done sitting, lying and standing positions with legs apart Fitness classes: Strength training of thigh and abdominal muscles. During the 7 month follow up period: participants attended 1 hour exercise classes once a month at the TMIG health promotion centre. The home base program was made up of 2-3 sets of the 13 exercises and PFM exercises they had learnt in the sessions. ≥3/day per week for about 30mins per day. This was	**Details** Control group (General Education) Classes held once a month for 3 months. Topics included: cognitive function, osteoporosis and oral hygiene Urinary diaries were completed in the exercise group which were collected every 2 weeks. The study measured cure rate of urine leakage episodes (self-reported urinary diary data), body weight, BMI, waist circumference, usual walking speed, maximal walking speed, grip strength, adductor muscle strength, urine leakage score	**Results** At the end of the 3 month intervention: Mean grip strength (SD), kg: 20.7 (5.0) intervention, 20.2 (3.5) control Mean usual walking speed (SD), m/s: 1.2 (0.2) intervention, 1.1 (0.3) control Mean maximal walking speed (SD), m/s: 1.8 (0.4) intervention, 1.6 (0.4) control Mean adductor muscle strength (SD), m/s: 24.1 (7.7) intervention, 22.1 (4.8) control At the end of the 7 month follow up: Mean grip strength (SD), kg: 19.8 (5.7) intervention, 19.5 (3.8) control Mean usual walking speed (SD), m/s: 1.2 (0.2) intervention, 1.1 (0.2) control Mean maximal walking speed (SD), m/s: 1.8 (0.4) intervention, 1.6 (0.4) control Mean adductor muscle strength (SD), m/s: 24.3 (7.9) intervention, 21.8 (4.9) control Also reports adjusted ORs for compliance to exercise and increased walking speed for both time points (not extracted) Adherence to intervention:	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1- randomisation: Some concerns** 1.1: Yes 1.2: No information 1.3: Probably no, no baseline differences described **Domain 2a- Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no, reasons for non-adherence unlikely to be related to the intervention 2.6. Yes **Domain 2b- Deviations from intended interventions (effect**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates January 2007- March 2007 Source of funding The research was supported in part by a Research Grant from the Ministry of Health and Welfare of Japan and a Grant-in-Aid for Scientific Research B from the Japan society for the Promotion of Science (19300236) and was supported by the Sanitary Products Research Foundation of the KAO Corporation.	• Women aged ≥70 years that were on the Basic Resident Register and resided in the Itabashi ward (district) of Tokyo as of April 1, 2006 • Suffering from urge, stress or mixed UI • Having urine leakage episodes >1 per week • Completing a 1 week urinary diary **Exclusion criteria** • Unclear type of UI • Having urine leakage episodes <1 per week • Not completing the 1 week urinary diary • Impaired cognition (MMS score <24) • Unstable cardiac conditions such as ventricular dysrhythmias, pulmonary oedema or other musculoskeletal conditions	monitored with a recording sheet.		Attendance rate during the 3 month intervention ranged from 63.5% to 81.1%, Mean 70.3% Exercise frequency during the 7 month follow up: every day 35.7%, 2-3 times/week 42.9%, ≤1/week 21.4%	**of adhering to the interventions): High risk** 2.1: Yes 2.2. Yes 2.3. No information 2.4. Probably yes, attendance ranged from 63.5-81.1% 2.5. Probably yes, they were likely to adhere to the assigned intervention 2.6. Probably no **Domain 3 - Risk of bias due to missing outcome data: Low risk** 3.1. Yes **Domain 4 - Measurement of the outcome: Low risk** 4.1. Probably no 4.2. Probably no, unlikely to be different between the two groups 4.3. No **Domain 5- Selection of the reported result: Some concerns** 5.1. Probably yes 5.2. Probably no 5.3. No information

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					Domain 6- Overall judgment of bias: High risk
Full citation Khorasani, F., Ghaderi, F., Bastani, P., Sarbakhsh, P., Berghmans, B., TheÂ Effects of home-based stabilization exercises focusing on the pelvic floor on postnatal stress urinary incontinence and low back pain: a randomized controlled trial, International Urogynecology Journal, 2020 **Ref Id** 1290505 **Country/ies where the study was carried out** Iran **Study type** RCT **Aim of the study** To compare the effects of stabilization exercises focusing on the pelvic floor on postnatal SUI and LBP	**Sample size** Number of participants randomised n=80 Number of people analysed: Intervention group n=28; Control group 27) **Characteristics** Age (mean, SD), years: Intervention 30.75 (5.09); Control 30.25 (5.65) ICIQ score (mean, SD): Intervention 10.21 (4.33); Control 9.88 (4.08) VAS (mean, SD): Intervention 6.60 (2.37); Control 6.44 (2.35) **Inclusion criteria** 1. Women living in Tabriz 2. Aged between 20 to 45 years old 3. Vaginal delivery 6 months before 4. Complaining of both SUI and LBP **Exclusion criteria** 1. Cesarean section 2. LBP or SUI	**Interventions** In the intervention group, women participated in a 12-week home-based program (3 days a week, 3 sets a day). Each set consisted of ten repetitions of three different types of exercise each week. Each contraction involved 8–10 s hold time and the same rest time. The objective of the first session was to instruct and educate the participants on how to perform a correct and adequate contraction of the TrA muscle, using manometric biofeedback, and a pelvic floor muscle contraction, using digital vaginal palpation. A leaflet and a video CD were provided for each participant. Exercises were monitored weekly through phone calls by the physiotherapist. Each week, new exercises started only when the participant explicitly indicated she had no problems performing the final set of the previous exercises. Stabilization exercises were also performed in consecutive weeks. During	**Details** The severity and impact of SUI were measured using the validated Persian version of the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF UI). This questionnaire consists of four questions: three about the frequency, severity and impact of SUI and a final question, consisting of eight items, about the cause and condition of urinary incontinence. The first question has five options with scores of 0 to 5, the second question has four options with scores of 0, 2, 4 and 6, and the third question determines the impact of urinary incontinence on the patient's quality of life, based on the VAS scale, with scores ranging from	**Results** **ICIQ score (final score; ITT analysis)** Baseline • Intervention (n=40): 10.25 (0.69) • Control (n=40): 10.05 (0.67) Post intervention • Intervention (n=40): 7.41 (0.69) • Control (n=40): 7.88 (0.90) **VAS (final score; ITT analysis)** Baseline • Intervention (n=40): 6.60 (2.37) • Control (n=40): 6.44 (2.35) Post intervention • Intervention (n=40): 4 (1.96) • Control (n=40): 6.55 (2.37)	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). Domain 1-randomisation: High risk 1.1: Yes, randomisation took place using random allocation software 1.2: Probably no, Yes, allocation was concealed by a blinded third person 1.3: Probably yes, statistically significant difference in one baseline characteristic (OD) Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk 2.1: Yes 2.2. Yes 2.3. No information 2.6. Probably yes, intention to treat analysis was reported

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates Not reported **Source of funding** Not reported	before pregnancy 3. Urogenital infections 4. History of pelvic floor or lumbar surgery 5. Malignancy 6. Pelvic or lumbar fractures 7. Twins or multiple birth history 8. Specific LBP 9. Severe UI	each exercise, the participants were asked to perform co-activation of the TrA and pelvic floor muscle while maintaining the corresponding positions. The control group did not receive any intervention.	0 to 10. The maximum score of the ICIQ-SF UI is 21.		Domain - Risk of bias due to missing outcome data: Low risk 3.1. No, 31.25% of participants dropped out 3.2. Probably yes, both the per protocol and the intention to treat analyses were presented Domain 4 - Measurement of the outcome: High risk 4.1. No 4.2. Probably yes 4.3. Yes as self reported 4.4. Probably yes as the control group had no intervention so would not have expected a difference 4.5. Probably yes Domain 5- Selection of the reported result: Some concerns 5.1. No information 5.2. Probably no 5.3. No information, Domain 6- Overall judgment of bias: High risk **Other information**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Koenig, I., Eichelberger, P., Luginbuehl, H., Kuhn, A., Lehmann, C., Taeymans, J., Radlinger, L., Activation patterns of pelvic floor muscles in women with incontinence while running: a randomized controlled trial, International Urogynecology Journal., 2020 **Ref Id** 1290292 **Country/ies where the study was carried out** Switzerland **Study type** RCT **Aim of the study** To compare the effect of the new physiotherapy program with a standard physiotherapy program on PFM activation patterns and fiber-type recruitment behaviour while running. **Study dates**	**Sample size** Number of participants randomised: n=96 (Intervention n=48; control n=48) Number of participants analysed: n=77 (Intervention n=38; control n=39) **Characteristics** Age (mean, SD), years: Intervention 49.8 (10.8); control 51 (9.1) BMI (mean, SD), kg/m2: Intervention 24.5 (3.2); control 24.6 (3.7) ICIQ (mean, SD): Intervention 10.5 (3.6); Control 9.6 (3.6) **Inclusion criteria** Inclusion criteria were SUI or mixed urinary incontinence with predominant SUI, age 18–70 years, BMI between 18 and 30 kg/m2, able to read and understand the German language, fit for exercises (running and jumping), negative pregnancy test, nulliparous or at least 12 months postpartum, finished lactation period, and in the case of systemic or local	**Interventions** Both protocols included a standard physiotherapy program with educational background information and evident sensorimotor learning at the beginning, followed by voluntarily performed strength training concepts with progression of training for strength, power, and hypertrophy. Intervention: Participants were additionally trained with whole body movements such as short running sequences and jumps, with the aim of triggering PFM reflex activity. The intervention group started after 6 weeks with the additional involuntary power training, building up to 3 × 15-s running sessions and following a maximum of 5 × 12 jumps. The intervention phase was 16 weeks, including nine personal physiotherapy consultations and 78 short home training sessions Control: standard physiotherapy as above.	**Details** The International Consultation on Incontinence Modular Questionnaire Urinary Incontinence short form (ICIQ-UIsf; scale 0 [not] to 21 [severely affected]) was measured at baseline, physiotherapy sessions 2 to 9 and post-intervention and defined as primary outcome	**Results** **ICIQ - post intervention** Intervention (n=38): 7.7 (4.0) Control (n=39): 6.6 (2.9)	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). Domain 1-randomisation: Some concerns 1.1: No information 1.2: No information 1.3: Probably no Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk 2.1: Yes 2.2. Probably no, states that investigators were blinded 2.3. Probably no 2.6. Yes Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): Low risk 2.1: Yes 2.2. Probably no, states that investigators were blinded 2.3. Probably yes 2.4. Probably no

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Not reported **Source of funding** The RCT was funded by the Swiss National Science Foundation, Division III	oestrogen treatment, stable for the past 3 months prior to inclusion **Exclusion criteria** Exclusion criteria were acute urinary tract or vaginal infections, tumor, fractures, predominant overactive bladder and urogenital prolapse grade > 1 POP-Q, de novo drug treatment with anticholinergics or other bladder-active substances				2.5. Probably no Domain 3 - Risk of bias due to missing outcome data: Low risk 3.1. Probably yes - 4.2% were missing Domain 4 - Measurement of the outcome: Low risk 4.1. No 4.2. Probably no 4.3. Probably yes as subjective patient assessed outcomes 4.4. Probably no 4.5. Probably no Domain 5- Selection of the reported result: Some concerns 5.1. No information 5.2. No information 5.3. No information Domain 6- Overall judgment of bias: Some concerns **Other information**
Full citation Lausen, A., Marsland, L., Head, S., Jackson, J., Lausen, B., Modified Pilates as an adjunct to standard physiotherapy care for urinary	**Sample size** N=73 Modified Pilates intervention group: n=36 Physiotherapy control group: n=37	**Interventions** 6 week course of modified pilates and physiotherapy	**Details** The study measured subjective urinary incontinence with the use of a Symptom Impact	**Results** Mean Symptom severity Index (SD) Intervention (n=22): -1.99 (3.00) Control (n=27): -2.32 (3.76) Mean Symptom Impact Index (SD)	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
incontinence: a mixed methods pilot for a randomised controlled trial, BMC Women's Health, 18, 16, 2018 **Ref Id** 1146836 **Country/ies where the study was carried** out UK **Study type** Single centre pilot RCT, plus qualitative interviews **Aim of the study** To provide preliminary findings about the effectiveness of a 6-week course of Modified Pilates as an adjunct to standard physiotherapy care for urinary incontinence, and to test the feasibility of an RCT. **Study dates** October 2012 to February 2014 (dates taken from ISRCTN registration website (ISRCTN74075972) **Source of funding** Funded by the National Institute for Health	**Characteristics** Mean age (SD): Intervention 51.28 (14.15) years, Control 48.97 (12.25) years. BMI mean, (SD) kg/m^2: Intervention 28.69 (4.77), Control 28.63 (4.69) No significant differences were found at baseline for the other measured characteristics (SSI, Self-esteem, QoL measures) **Inclusion criteria** • Age >18 years • Diagnosis of stress, urge or mixed urinary incontinence • Medically fit to perform physical activity **Exclusion criteria** • History of pelvic malignancy • Faecal incontinence • CNS diseases • Had given birth in the previous 3 months • Gynaecological surgery in the previous 6 months • Pregnant • Unable to actively contract pelvic floor muscles	intervention versus a 6 week physiotherapy care only (control). Modified pilates & physiotherapy (Intervention): 3 sessions of physiotherapy prior to the modified pilates sessions,3 sessions afterwards depending on clinical need 6 one hour group modified pilates sessions, of 6-8 women, once a week Instructor was a physiotherapist who specialised in pilates Focus of exercises: low intensity abdominal and pelvic floor control, awareness of posture and breathing, to try and promote a mind/body connection using visualisation techniques. Physiotherapy alone (Control): 3-6 individual sessions over 3-6 months Sessions included: PFMT, biofeedback, a home exercise programme and lifestyle advice.	Index (SII) and Symptom Severity Index (SSI). Quality of Life was assessed with the Incontinence Quality of Life Questionnaire (I-QOL), Incontinence Quality of Life Questionnaire urinary incontinence short form(ICIQ-UI sf.), the Incontinence Quality of Life Questionnaire-Lower Urinary Tract Symptoms Quality of Life (ICIQ-LUTSqol) and Rosenberg Self-Esteem scale (RSE).	Intervention (n=22): -0.82 (1.94) Control (n=27): -1.82 (2.06) Mean Rosenberg Self-Esteem scale (SD) Intervention (n=22): 0.86 (3.32) Control (n=27): -0.20 (2.99) Avoidance and Limiting behaviour: Intervention (n=21); 16.82 (20.76), Control (n=27);14.70 (17.97) Psychosocial Impacts: Intervention (n=22); 15.55 (22.69), Control (n=27); 8.58 (16.40) Social Embarrassment: Intervention (n=22); 23.86 (24.39), Control (n=27); 15.00 (19.36) Total: Intervention (n=21); 17.96 (21.10), Control (n=27); 12.23 (15.89) Incontinence Quality of Life Questionnaire- Urinary Incontinence short form, Mean (SD) Intervention (n=17): -3.06 (4.13) Control (n=22): -3.27 (2.57) Incontinence Quality of Life Questionnaire- Lower urinary Tract symptoms Quality of Life, Mean (SD) Role limitations: Intervention (n=22); -21.97 (22.65), Control (n=27); -15.43 (23.99)	**Domain 1-randomisation: Low risk** 1.1: Yes 1.2: Yes 1.3: No **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Some concerns** 2.1: Yes 2.2. Yes 2.3. NI, unclear if reasons for non-adherence were related to the intervention 2.4. Probably yes 2.6. Yes **Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): Some concerns** 2.1: Yes 2.2. Yes 2.3. No information 2.4. No information 2.5. No information 2.6. No

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Research (NIHR) under its Research for Patient Benefit (RfPB) Programme (Grant Reference Number PB-PG-1010-23,220).	• Unable to walk without a walking aid • Having insufficient mental capacity to complete questionnaires and/or follow exercise instructions (according to the principles of the Mental Capacity Act 2005)			Physical limitations: Intervention (n=22); -14.39 (29.23), Control (n=27); -12.96 (25.04) Social limitations: Intervention (n=22); -18.69 (25.11), Control (n=27); -9.47 (28.86) Personal relationships: Intervention (n=19); -14.91 (39.24), Control (n=19); -8.77 (26.86) Emotions: Intervention (n=22); -10.61 (24.36), Control (n=27); -8.64 (23.33) Sleep/energy: Intervention (n=22); -6.06 (19.62), Control (n=27); -9.88 (23.23) Severity measures: Intervention (n=22); -10.61 (16.50), Control (n=27); -6.48 (16.23) Overall score: Intervention (n=22); -13.38 (17.80), Control (n=27); -10.76 (16.85) Adverse events leading to withdrawal/discontinuation. This is not reported. Out of those who dropped out, there was 1 in the control group which was due to medical reasons (cause and relation to intervention unknown) To be measured at baseline, completion of treatment and 5 months after randomisation. The above are described as pre post-test differences and is assumed to be at the 5 month time point.	**Domain - Risk of bias due to missing outcome data: High** 3.1. No, 39% vs. 27% drop outs 3.2. No, no data presented demonstrating different assumptions for the reasons for dropping out 3.3. No information on whether the missing data could be related to the participants health status for some of the drop outs 3.4. Yes 3.5. No information **Domain 4 - Measurement of the outcome: High risk** 4.1. No 4.2. Probably no 4.3. Yes, no blinding 4.4. Probably yes 4.5. Probably yes **Domain 5- Selection of the reported result: High risk** 5.1. No information 5.2. Probably yes, unclear time point used. Two time points should have been presented. 5.3. Probably no

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					Domain 6- Overall judgment of bias: High risk
Full citation Özengin N, Yildirim, N. U., Duran, B., A comparison between stabilization exercises and pelvic floor muscle training in women with pelvic organ prolapse, Turk Jinekoloji ve Obstetrik Dernegi Dergisi, 12, 11-17, 2015 **Ref Id** 650599 **Country/ies where the study was carried out** Turkey **Study type** Non-randomised, single centre comparison study **Aim of the study** To assess the effectiveness of pelvic floor muscle training compared to stabilisation exercises in women with stage 1 and 2 pelvic organ prolapse. **Study dates**	**Sample size** n=55 Intervention n=32 Control n=23 **Characteristics** Mean age, years (SD): Intervention group 47.52 (10.50), control group 43.68 (8.41) Mean BMI, kg/m² (SD): Intervention group 30.18 (5.69), control group 27.03 (3.27) Prolapse Quality of Life Scale subscales, mean (SD) General health perception: intervention group 39.47 (15.17), control group 31.57 (16.33) Effect of prolapse: intervention group 47.36 (40.54), control group 10.52 (19.41) Limitations of roles: intervention group 16.66 (31.91), control group 1.75 (7.64)	**Interventions** Intervention group: Pelvic floor muscle exercises were given as home based training programme. Participants were taught how to contract the pelvic floor muscles and performed the following exercises; for the fast contacting muscles fibres, contract-relax; for the slowly contracting muscle fibres, slowly contract-counting up to ten-keeping contraction-counting up to ten-slowly relaxing-counting up to ten. Participants performed 5 sets of 10 repetitions per day. The number of sets was increased by 5 each day, they went up to 30 sets a day and continued. Control group: Stabilisation exercises given as group training with a physiotherapist. Training started with one hour theoretical education, then were taught how to use an abdominal supporter with stabiliser which was used for all exercises. The programme consisted of warm up, stabilisation and	**Details** The study measured muscular strengths, prolapse stage and quality of life before after the treatment. Quality of life was measured by the Prolapse Quality of Life Scale (P-QOL).	**Results** Study completed by n=19 in the intervention group (n=1 due to pregnancy, n=1 due to surgical operation, and n=11 did not come to final examination) and n=9 in the control group (n=1 due to surgical operation, n=11 did not come to final examination, and n=11 did not report an excuse) Prolapse Quality of Life Scale subscales, Change Score (mean, SD) General health perception - intervention group (n=19): -1.31 (24.25), control group (n=9) -15.78 (17.09) Prolapse Quality of Life Scale subscales, Final Score (mean, SD) Effect of prolapse: intervention group (n=19) 24.56 (31.11), control group (n=9) 1.75 (7.64) Limitations of roles: intervention group (n=19) 1.75 (5.25), control group (n=9) 2.63 (8.35) Physical limitations: intervention group (n=19) 19.29 (32.51), control group (n=9) 2.63 (11.47) Social limitations: intervention group (n=19) 1.75 (5.57), control group (n=9) 0.58 (2.54)	**Limitations** Limitations were assessed using the revised Cochrane risk of bias tool for randomised trials (RPB2). **Domain 1 - randomisation: High risk** 1.1: No 1.2: No information 1.3: Yes, differences in the baseline P=QOL values **Domain 2a - Deviations from intended interventions (effect of assignment to intervention): Some concerns** 2.1: Yes 2.2: Yes 2.3: No information 2.6: No information 2.7: Yes, probably, due to large number of drop outs **Domain 2b - Deviations from intended interventions (effect**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Not reported **Source of funding** Not reported	Physical limitations: intervention group 19.29 (32.51), control group 2.63 (11.47) Social limitations: intervention group 5.84 (17.90), control group 1.16 (3.50) Personal effects: intervention group 23.68 (38.21), control group 3.50 (15.29) Emotions: intervention group 26.9 (33.80), control group 8.77 (24.44) Sleep/energy: intervention group 22.80 (25.58), control group 6.14 (16.86) Level of severity: intervention group 12.28 (25.58), control group 4.38 (10.88) **Inclusion criteria** • People with pelvic organ prolapse (stage 1 and 2 according to the POP Quantification System) • Given birth at least 1 year ago **Exclusion criteria** • POP surgery • Breast feeding	cool down and was performed 3 days a week as 1 hour sessions for 8 weeks.		Personal effects: intervention group (n=19) 6.14 (16.86), control group (n=9) 3.50 (15.29) Emotions: intervention group (n=19) 13.45 (23.30), control group (n=9) 1.75 (7.64) Level of severity: intervention group (19) 2.63 (6.24), control group 4.38 (13.71)	**of adhering to intervention): High risk** 2.1: Yes 2.2: Yes 2.3: Yes, probably. Both groups told the same advice alongside interventions 2.4: No information 2.5: No information 2.6: No, probably **Domain 3 - Missing outcome data: Some concerns** 3.1: No, 13/32 lost to follow up in the intervention group and control group. 3.2: No, no evidence of sensitivity analysis or correcting for potential bias 3.3: No information, largely reported as 'did not come to final examination' but without indicating the reason for this 3.4: No, probably. Reasons for loss to follow up similar between groups, although control group had more participants not reporting an excuse

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Pelvic organ cancer • Neurological disease • Drug treatment for psychological problems • Untreated urinal infection • Stages 0, 3 or 4 according to the POP-Q • Intending to get pregnant in the following 6 months • Not being able to contract pelvic floor muscles				**Domain 4 - Measurement of the outcome: Some concerns** 4.1: No 4.2: No 4.3: Yes, assessors were the participants as it was self-reported 4.4: Yes 4.5: No, probably, as both interventions were active **Domain 5 - Selection of the reported result: Some concerns** 5.1: No information 5.2: No 5.3: No **Domain 6 - Overall judgement: High risk**
Full citation Sweta, K. M., Godbole, A., Awasthi, H. H., Pandey, U., Effect of Mula Bandha Yoga in Mild Grade Pelvic Organ Prolapse: A Randomized Controlled Trial, International Journal of YogaInt, 11, 116-121, 2018 **Ref Id**	**Sample size** n=56 (enrolled) n=50 (randomised) Intervention group n=25 Control group n=25 **Characteristics** Age (years): number of cases (%) 20-30: 4 (8) 31-40: 22 (44) 41-50: 13 (26)	**Interventions** Intervention group: Participants were advised in Mula Bandha yoga therapy. Yoga therapy was carried out for 12 weeks (90 days). Yoga therapy involved starting in a suitable pose such as the lotus, perfection, Mulabandhasana or Sukhasana pose. There is	**Details** This study measured changes in Pelvic Floor Dysfunction Inventory Score-20, changes in Pelvic Floor Impact Questionnaire-7, relief of symptoms and signs of the disease in terms of perineal pain, per vaginum discharge,	**Results** Perineal pain Final score (number, %) Absent - intervention group 6 (24), control group 1 (4) Mild - intervention group 12 (48), control group 9 (36) Moderate - intervention group 0 (0), control group 8 (32) Severe - intervention group 7 (28), control group 7 (28) P/V discharge Final score (number, %)	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1- randomisation: High risk** 1.1: Probably yes 1.2: No information

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
1147262 **Country/ies where the study was carried out** India **Study type** Single centre, parallel RCT **Aim of the study** To assess the effectiveness of 3 months of additional yoga therapy with conventional treatment compared to conventional treatment alone, in female patients with mild pelvic organ prolapse. **Study dates** Not reported **Source of funding** No financial support or sponsorship	51-60: 11 (22) Perineal pain Absent - intervention group 0 (0), control group 1 (4) Mild - intervention group 0 (0), control group 3 (12) Moderate - intervention group 10 (40), control group 13 (52) Severe - intervention group 15 (60), control group 8 (32) P/V discharge Absent - intervention group 0 (0), control group 2 (8) Mild - intervention group 1 (4), control group 8 (32) Moderate - intervention group 14 (56), control group 7 (28) Severe - intervention group 10 (40), control group 8 (32) Perineal muscle laxity Absent - intervention group 0 (0), control group 1 (4) Mild - intervention group 1 (4), control group 5 (20) Moderate - intervention group 14 (56), control group 15 (60) Severe - intervention group 10 (40), control group 4 (16) Feeling of something coming out P/V	a focus of relaxation, breathing, and attention to the pelvic floor region and genital-anal openings. The genitourinary and anal openings are contracted and pulled up slightly, this is held and the participant should also retain their breath without strain. Then, the openings should be relaxed and exhale. This cycle is repeated for 8-10 times or for 5-7 minutes, twice a day Control group: Participants were given dietary supplements (multivitamins). No further information.	perineal muscle laxity and feeling of something coming out P/V.	Absent - intervention group 8 (32), control group 5 (20) Mild - intervention group 8 (32), control group 7 (28) Moderate - intervention group 4 (16), control group 6 (24) Severe - intervention group 5 (20), control group 7 (28) Perineal muscle laxity Final score (number, %) Absent - intervention group 5 (20), control group 1 (4) Mild - intervention group 14 (56), control group 9 (36) Moderate - intervention group 2 (8), control group 11 (44) Severe - intervention group 4 (16), control group 4 (16) Feeling of something coming out P/V Final score (number, %) Absent - intervention group 5 (20), control group 0 (0) Mild - intervention group 12 (48), control group 1 (4) Moderate - intervention group 8 (32), control group 13 (52) Severe - intervention group 0 (0), control group 11 (44) Pelvic Floor Distress Inventory-20 (range 0-300) (difference in mean change, 95% CI): Intervention group 26.19 (33.44-18.93), control group 5.78 (14.71-3.15) Pelvic Organ Prolapse Distress Inventory-6 (range 0-100) (difference	1.3: Probably yes, looks to have baseline differences, no statistical tests carried out **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no 2.6. Yes **Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): High risk** 2.1: Yes 2.2. Yes 2.3. No information 2.4. Probably no, all received and completed the intervention 2.5. No information 2.6. Probably no, only ITT analysis **Domain 3 - Risk of bias due to missing outcome data: Low risk**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Absent - intervention group 2 (8), control group 10 (40) Mild - intervention group 1 (4), control group 1 (4) Moderate - intervention group 10 (40), control group 8 (32) Severe - intervention group 12 (48), control group 6 (24) Pelvic Floor Distress Inventory-20 (range 0-300) (mean, SD): Intervention group 96.7 (11.3), control group 85.54 (16.2) Pelvic Organ Prolapse Distress Inventory-6 (range 0-100) (mean, SD): Intervention group 49.3 (11.71), control group 45.41 (11.50) Colorectal-Anal Distress Inventory-8 (range 0-100) (mean, SD): Intervention group 15.41 (6.80), control group 11.50 (5.75) Urinary Distress Inventory-6 (range 0-100) (mean, SD): Intervention group 32 (10.98), control 28.62 (12.60) Urinary Impact Questionnaire-7 (range 0-100) (mean, SD): Intervention group 12.94 (9.96), control group 7.8 (6.57)			in mean change, 95% CI): Intervention group 12.82 (19.22-6.41), control group 3.26 (9.57-3.05) Colorectal-Anal Distress Inventory-8 (range 0-100) (difference in mean change, 95% CI): Intervention group 5.04 (8.69-1.38), control group 1.62 (1.92-5.16) Urinary Distress Inventory-6 (range 0-100) (difference in mean change, 95% CI)): Intervention group 8.34 (14.6-2.07), control 4.13 (10.72-2.46) Urinary Impact Questionnaire-7 (range 0-100) (difference in mean change, 95% CI): Intervention group 5.14 (9.93-0.34), control group 3.05 (6.47-0.37) Colorectal-Anal Impact Questionnaire (range 0-100) (difference in mean change, 95% CI): Intervention group 1.33 (2.96-0.30), control group 1.72 (0.16-3.6) Pelvic Organ Prolapse Impact Questionnaire-7 (range 0-100) (difference in mean change, 95% CI): Intervention group 15.01 (20.46-9.55), control group 6.51 (11.59-1.42) Pelvic Floor Impact Questionnaire-7 (range 0-300) (difference in mean change, 95% CI): Intervention group 17.48 (24.89-10.06), control group 7.85 (14.07-1.62)	3.1. Yes, no drop outs **Domain 4 - Measurement of the outcome: High risk** 4.1. No 4.2. Probably no, unlikely to be different between the groups 4.3. Yes 4.4. Probably yes, as active vs. control comparison and patients completed the questionnaires 4.5. Probably yes **Domain 5- Selection of the reported result: Some concerns** 5.1. No information 5.2. Probably no 5.3. Probably no Other considerations: Additional outcomes reported but were not stated in the methods (Colorectal Anal Distress Inventory-8, Urinary Distress Inventory-6, Pelvic Floor Impact Questionnaire-7, Urinary Impact Questionnaire, Colorectal Anal impact questionnaire. No results of statistical comparisons of

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Colorectal-Anal Impact Questionnaire (range 0-100) (mean, SD): Intervention group 4.37 (3.04), control group 3.8 (2.38) Pelvic Organ Prolapse Impact Questionnaire-7 (range 0-100) (mean, SD): Intervention group 23.95 (11.19), control group 21.32 (9.22) Pelvic Floor Impact Questionnaire-7 (range 0-300) (mean, SD): Intervention group 41.28 (17.33), control group 35.11 (11.49) **Inclusion criteria** • Women of age between 20 and 60 years • Willing to participate • Participants who discontinued all current modern medications before the start of study • Participants meeting the criteria for disease mild-grade uterine prolapse by clinical diagnosis. **Exclusion criteria**				change scores between the two groups are reported. **Domain 6- Overall judgement of bias: High risk**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Participants who have severe grade of prolapse • Pregnant or nursing women • Participants who had undergone surgeries and had malignancy of pelvic organs.				
Full citation Talley, K. M. C., Wyman, J. F., Bronas, U., Olson-Kellogg, B. J., McCarthy, T. C., Defeating Urinary Incontinence with Exercise Training: Results of a Pilot Study in Frail Older Women, Journal of the American Geriatrics Society, 65, 1321-1327, 2017 **Ref Id** 1147438 **Country/ies where the study was carried out** US **Study type** Pilot randomised controlled trial **Aim of the study** To determine the efficacy of a 12 week multifactorial programme for frail older women.	**Sample size** N = 42 Intervention group, n=23 Control group (no treatment), n=19 **Characteristics** Mean age: 84.9 years (SD 6.4) Type of incontinence Mixed SUI and urge: 62% SUI: 14% Urgency: 22% Functional: 2% No differences reported in baseline participants between groups at baseline **Inclusion criteria** • UI score of greater than 1 on ICIQ • Frail women (score of greater than 3 on	**Interventions** 12 week multi-component intervention which included both behaviour strategies and physical activity Physical activity included: Walking and lower extremity strength training. The intervention met the national guidelines for older adults: 150 minutes of moderate intensity walking (30 minutes per day, for 5 days of the week) 1 hour group exercise session twice a week - Based on strength training using resistance bands. Targeting muscles for walking and transferring. Provided with a pedometer for motivation The Behaviour strategies included: pelvic floor muscle training, bladder training, urge suppression,	**Details** Bladder interventions followed international guidelines for lifestyle and behaviour therapies for UI. A nurse administered these during home visits, and participants were also instructed to perform pelvic floor exercises 5 days of the week The study measured toileting skills, physical function and UI outcomes The control group received one home visit from a nurse practitioner and had a health history and physical activity assessment. they also received the same printed	**Results** Mean daily urinary leaks at 12 weeks Intervention (n=18): 0.8 (SD 1.1) Control (n=14): 1.7 (SD 1.1) ICIQ score at 12 weeks Intervention: 7.2 (SD 3.8) Control: 7.7 (SD 3.7) Physical function (Total score) at 12 weeks Intervention: 7.2 (SD 1.6) Control: 7.l4 (SD 1.6) Incontinence Impact Questionnaire at 12 weeks Intervention: 39.5 (SD 31.6) Control: 40.8 (SD 31.6) Urinary Distress Inventory at 12 weeks Intervention: 44.0 (SD 35.2) Control: 52.2 (SD 35.3)	**Limitations** Multi-component study, not solely physical activity Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1-randomisation: Some concerns** 1.1: Probably yes 1.2: No information 1.3: Probably no **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Some concerns** 2.1: Yes 2.2. Probably yes 2.3. No information 2.6. Yes

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
The Defeating Urinary Incontinence with Exercise Training Program (DUET) **Study dates** September 2012 to September 2015 **Source of funding** National Center for Advancing Translational Sciences of the National Institutes of Health, Building Interdisciplinary Research Careers in Women's Health Program of the National Institutes of Child Health and Human Development, University of Minnesota Academic Health Centre Seed grant program and the Hartford Centre for Geriatric Nursing Excellence, Iowa.	Vulnerable Elders Survey) • Gait speed less than 0.8m/s or used a walking assistant devices • Able to participate in low intensity exercise • Cognitively able (using Mini-Cog scale) **Exclusion criteria** • UI associated with central nervous system disorder, bladder cancer, recent bladder or incontinence surgery • Terminal illness • Had an ostomy • Used a pessary or urinary catheter • Started or changed dose of anti-incontinence medication within 3 months • Orthopaedic surgery of the lower extremities or the spine in the past 12 months	eliminating bladder irritants, adequate fluid intake, constipation prevention, reducing nocturia, medication education	material as the treatment group on lifestyle and behavioural therapies		**Domain 2b- Deviations from intended interventions (effect of adhering to the interventions): Some concerns** 2.1: Yes 2.2. Probably yes 2.3. No information 2.4. Probably no, no drop outs, relatively high adherence 2.5. Probably yes, they were likely to adhere to the assigned intervention 2.6. Probably no **Domain 3 - Risk of bias due to missing outcome data: Low risk** 3.1. Yes, no drop outs **Domain 4 - Measurement of the outcome: Low risk for objective measures, High risk for patient reported outcomes** 4.1. No 4.2. Probably no 4.3. Probably no for research assistant outcome assessment, yes for patient reported outcomes

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					4.4. Probably yes for patient reported outcomes 4.5. No information for patient reported outcomes **Domain 5- Selection of the reported result: Some concerns** 5.1. Probably yes 5.2. Probably no 5.3. No information Other considerations: Environmental toileting barriers checklist stated to be recorded at baseline (NCT registry) but no data in the publication. **Domain 6- Overall judgment of bias: Some concerns/ High risk**
Full citation Virtuoso, J. F., Menezes, E. C., Mazo, G. Z., Effect of Weight Training with Pelvic Floor Muscle Training in Elderly Women with Urinary Incontinence, Research quarterly for exercise and sport, 90, 141-150, 2019 **Ref Id** 1147696	**Sample size** N=32 N=14 Intervention group N=18 Control group **Characteristics** Mean age (SD),years: Intervention 64.8 (4.7), Control 66.5 (5.5) Mean Body mass index (SD), kg/m^2: Intervention 30.3 (4.5), Control 28.8 (4.7)	**Interventions** 12 week weight training intervention period Two sessions per week, 50 minutes long weight training sessions (protocol based on the American College of Sport's Medicine's program) which occurred immediately after the PFMT sessions. 15 repetitions with one minute interval between sets. Alternating order exercises	**Details** The study measured the International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF), variables looking at UI severity.	**Results** Change score, Mean ICIQ-SF (SD): Intervention 9.1 (5.0), Control 8.0 (5.6) Absence of symptoms of UI (score of 0 ICIQ-SF) at 4 weeks: Intervention 58.3%, Control 14.3% Absence of symptoms of UI (score of 0 ICIQ-SF) at 12 weeks: Intervention 75%, Control 35.7% Absence of symptoms of UI (score of 0 ICIQ-SF) at 1 month after treatment	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2). **Domain 1- randomisation: Some concerns** 1.1: Probably yes 1.2: No information 1.3: Probably no

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Country/ies where the study was carried out Brazil **Study type** Two arm, parallel, randomised controlled trial Brazilian Registry of Clinical Trials: UTN: U1111-1149-2398 **Aim of the study** To determine if weight training combined with pelvic floor muscle training is more efficient than pelvic floor muscle training alone for the treatment of urinary incontinence (UI) symptoms in elderly women. **Study dates** August 2013 - January 2015 **Source of funding**	Mean menopause time (SD), years: Intervention 14.5 (8.4), Control 17.9 (7.7) Median number of normal births (IQR): Intervention 0.5 (3.0), Control 2.0 (3.0) Regular physical activity, n (%): Intervention 10 (83.3), Control 7 (50.0) Mean UI time (SD), years: Intervention 4.7 (3.5), Control 10.3 (11.9) Activities causing incontinence, yes, n (%) Sneezing: Intervention 12 (100), Control 14 (100) Coughing: Intervention 12 (100), Control 14 (100) Laughing: Intervention 9 (75), Control 12 (85.7) Jumping: Intervention 6 (50.0), Control 9 (64.3) Weight lifting: Intervention 5 (41.7), Control 6 (42.9) Running: Intervention 5 (41.7), Control 8 (57.1) **Inclusion criteria** • Women aged >60 years • Recruited in the community • Experienced clinical UI symptoms during coughing, sneezing, or other physical activities (stress incontinence) and	starting with the largest muscle groups. The WT protocol was made up of 3 sections: familiarisation, weight determination and training sessions. Reminders about PFM contractions during exercises were put on banners where the weight training was carried out. Pelvic floor muscle training (PFMT) was done in both the intervention and control groups. This consisted of 2 group sessions of 30 minutes per week, with a maximum of 6 women. Three exercises in different positions (lying down, sitting and standing), each exercise had 8-12 repetitions of PFMT. All participants were encouraged to do the PFM contractions at home (≥30 contractions).		completion (at 16 weeks): Intervention 83.3%, Control 50% Adherence to home exercises, median: Intervention 9 (3-10), Control 8 (4-10)	**Domain 2a- Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Probably no, physiotherapist blinding 2.3. Probably no 2.6. Yes **Domain 2b- Deviations from intended interventions (effect of adhering to the interventions): High risk** 2.1: Yes 2.2. Probably no, physiotherapist blinding 2.3. Probably yes 2.4. No information 2.5. Probably yes 2.6. No, unclear analysis **Domain 3 - Risk of bias due to missing outcome data: Low risk** 3.1. Probably yes **Domain 4 - Measurement of the**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	two or three episodes of UI per week • Muscle and pelvic floor strength ≥2 according to the Oxford Scale • Cognitive function preserved **Exclusion criteria** • Physiotherapy treatment for symptoms of recent UI (< 6 months ago) • Urgent UI resulting from neurological causes • Presence of symptoms of urinary tract infection • Participation in weight training in the past 6 months • Diseases with contradictions for weight training				**outcome: Some concerns** 4.1. No 4.2. Probably no 4.3. Probably yes as subjective patient assessed outcomes 4.4. Probably yes 4.5. Probably no **Domain 5- Selection of the reported result: High risk** 5.1. No information 5.2. Probably yes, no description of change score analysis in methods 5.3. No information Other considerations: Changes to the listed protocol. Protocol states outcomes measured with the Kings Health Questionnaire, and pelvic floor measurement with the Perfect Scheme. No mention of the ICIQ-SF. Stated to be double blind and it is only single. **Domain 6- Overall judgment of bias: High risk**
Full citation Wagg, A., Chowdhury, Z., Galarneau, J. M., Haque, R., Kabir, F.,	**Sample size** N=32 villages (16 pairs) that were randomised (n=3577 potentially eligible	**Interventions** At baseline: all groups had a home visit and completed 3 day continence record,	**Details** 32 villages recruited from 6 districts of Bangladesh:	**Results** A/W response from Patrice re: extracting Unadjusted/adjusted and final/change score figures:	**Limitations** Limitations were assessed using the revised Cochrane

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
MacDonald, D., Naher, K., Yasui, Y., Cherry, N., Exercise intervention in the management of urinary incontinence in older women in villages in Bangladesh: a cluster randomised trial, The Lancet Global Health, 7, e923-e931, 2019 **Ref Id** 1147485 **Country/ies where the study was carried out** Bangladesh **Study type** Cluster randomised controlled trial (NCT02453100) **Aim of the study** To evaluate whether a group intervention that comprised of pelvic floor muscle training, mobility exercises and bladder exercises, and bladder education would be more effective than education alone , and report changes between villages (clusters) rather than between individual participants. **Study dates**	women) of which the following were eligible and consented to participation: N=298 Intervention (exercise + education) N=281 Control (education only) **Characteristics** The following characteristics are by village. 16 villages in both the intervention and control groups. Mean age (SD), years: 64.5 (1.2) intervention, 64.7 (1.3) control Mean Body Mass Index (SD), kg/m2: 20.9 (1.7) intervention, 21.0 (1.5) control Mean Gravidity (SD): 6.8 (1.2) intervention, 6.9 (1.5) control Poor or very poor: 69.0% intervention, 63.7% control Antibiotics given at baseline for UTI: 30.7% intervention, 31.4% control **Inclusion criteria** • Women aged 60-75 years recorded on the family card and confirmed by the woman • Current urinary incontinence • Positive response to ≥1 questions 2,3,or 4	education reinforcement, individual training on Pelvic floor exercises. Exercise plus education intervention Private location where the exercise classes could be held, led by a physiotherapist. 60 minute group session, twice a week for 12 weeks, followed by 30 minutes of brisk walking. Exercises consisted of PFMT and mobility exercises. After 4 visits, a home visit was made by the physiotherapist to identify any problems in doing home exercises and reinforce PFMT. After 12 weeks: physiotherapist moved on to another village. Weeks 13-24, paramedic encouraged home exercises, reinforced education element. Protocol deviation: Research paramedic organised group exercises as an optional extra. Education only Only received the education element of the intervention from the research paramedic.	Gazipur, Pabna, Chapai, Bhola, Sherpur, Gaibandha Villages were randomised to the intervention/control groups this was done in pairs of the same sub district to minimise unmeasured confounding. Of the eligible 52 villages, 16 pairs were selected (excluded villages with few women in the target age range, pairs chosen with greatest distance between them in the same sub district, matched on poor/very poor inhabitant proportions). Each village had an allocated paramedic (female).Family card was used for identification of the eligible women (card is routinely updated by village paramedic when any event occurs in that household). Paramedic screened for eligibility.	EQS5-D: CES-D: Adverse events leading to withdrawal:	risk-of-bias tool for randomised trials (RoB2). **Domain 1-randomisation: Some concerns** 1.1: Probably yes 1.2: Yes 1.3: Probably yes, imbalance of leakage episodes at baseline **Domain 2a-Deviations from intended interventions (effect of assignment to interventions): Low risk** 2.1: Yes 2.2. Yes 2.3. Probably no 2.6. Probably yes **Domain 2b-Deviations from intended interventions (effect of adhering to the interventions): High risk** 2.1: Yes 2.2. Yes 2.3. No information 2.4. Probably no 2.5. No information

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
August 22 2015 and July 2 2018. **Source of funding** Funded by the Canadian Institutes for Health Research.	(on urinary leakage with urgency, stress, or drops of urine loss) from the six-item Urinary Distress Inventory (UDI-Short Form, version 6) **Exclusion criteria** • Uterine prolapse of third degree or higher (reported by the woman and severity determined by the paramedic) • Unable to stand from sitting without help, walk without help at a normal pace for someone of their age • Reduced intellectual capacity/ unable to understand the paramedics questions and follow instructions		A village meeting was called to promote the healthy lifestyles study (no mention of UI) so that the inhabitants understood why a research team was in the village. Training camps held for physiotherapists (ran the exercise class), research paramedics (ran education intervention, questionnaire completion, use of ribbon belt to record urinary leakage) and field monitors (checked/ coded data). All groups had a training day on the 3 day continence record belt, group education session on how the urinary system works and how to maintain good bladder habits. Physiotherapist explained PFMT and exercise class arrangements. At week 12 education message repeated		2.6. Probably no, unclear analysis with protocol violations **Domain - Risk of bias due to missing outcome data: Low risk** 3.1. Yes **Domain 4 - Measurement of the outcome: Some concerns** 4.1. No 4.2. Probably no 4.3. Yes 4.4. Probably yes 4.5. Probably no **Domain 5- Selection of the reported result: Some concerns** 5.1. No information 5.2. Probably no 5.3. Probably no Other considerations: Selective outcome reporting for severity/ distress of symptoms **Domain 6- Overall judgment of bias: High risk**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
			"health bladder education". Urine checked at baseline and antibiotics given if indication of an infection. The study measured urinary leakage, EQ5D and its subscales, CES-D-10 (both Bangla versions), severity and distress of urinary symptoms, proportion cured of urinary leakage (exploratory additional outcome, not specified in the protocol), adverse events.		
Full citation Yuvarani, G., Daggumati, H. B., Ramachandran, S., Sudhakar, S., The effect of tRa training and pilates in women with stress urinary incontinence, Biomedicine (India), 38, 404-407, 2018 **Ref Id** 1146812 **Country/ies where the study was carried out** India	**Sample size** n=40 Intervention group n=20 Control group n=20 **Characteristics** Urogenital Distress Inventory-6: Intervention 11.3 (1.3), control 10.6 (0.95) Incontinence Impact-7: Intervention 19.8 (2.0), control 17.5 (1.71) **Inclusion criteria** • Women aged 21-25 years	**Interventions** 3 months TrA training or pilates. Intervention group: Training included being positioned in supine lying on a couch and a sphygmomanometer pressure cuff placed under the lower back by the lumber spine. The mercury level was then raised by inflating the cuff up to 40mm Hg of pressure. Participants were then asked to tuck in their tummy in order to maintain the same pressure. Participants could see the sphygmomanometer to	**Details** Adherence: not reported. Safety and tolerability: not reported Urinary incontinence: Measured at 3 weeks as cure rate. Cure rate is not defined. Quality of Life: Measured at baseline and 3 weeks using the Urogenital Distress Inventory-6 and the Incontinence Impact-7	**Results** Drop-out/discontinuation was not reported. Urogenital Distress Inventory-6 Intervention (n=20): Final score (mean, SD) 8.6 (1.2), control (n=20) 7.3 (0.89) Incontinence Impact-7 Questionnaire Intervention (n=20): Final score (mean, SD) 10.1 (2.5), control (n=20) 9.7 (0.91) Cure rates Intervention (n=20): 60.5%, control (n=20): 80.4%	**Limitations** Limitations were assessed using the revised Cochrane risk-of-bias tool for randomised trials (RoB2): **Domain 1 - randomisation: Some concerns** 1.1: No information 1.2: No 1.3: No information **Domain 2a - Deviations from intended interventions (effect**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study type Single Centre, parallel group RCT **Aim of the study** To evaluate the efficacy of Transverses Abdominis (TrA) training compared to Pilates in women with stress urinary incontinence (SUI) **Study dates** Not reported **Source of funding** Not reported	• Women with stress urinary incontinence at least once per week for more than 2 months • UDI-6 average score 25-50 • IIQ-7 average score 25-50 • Primiparous only **Exclusion criteria** • Women aged <21 years and >25 years • Women who have undergone lower segment caesarian section • Those on any other treatment for SUI • Immediate postnatal mothers (<3 months) • IIQ-7 score >70 • UDI-6 score >70	help maintain the pressure throughout the period of exercise. Exercises included 30-40 degree straight leg raise for 15 repetitions per set. Control group: Participants were explained and demonstrated the pilates techniques, including Bridging, Roll up, Kick front and back, and Double leg stretch. Each technique was performed for 10 repetitions for 5 days per week over the 3 month period. After receiving treatment for 3 weeks, post-treatment scores were recorded.	questionnaire short form.		**of assignment to interventions): Some concerns** 2.1: Yes 2.2: Yes 2.3: NI 2.6: Probably yes, if there were no drop-outs as suggested, although this is not stated **Domain 2b - Deviations from intended interventions (effect of adhering to the intervention): High risk** 2.1: Yes 2.2: Yes 2.3: No information 2.4: No information 2.5: No information 2.6: Probably not **Domain 3 - Missing outcome data: Some concerns** 3.1: No information 3.2: No 3.3: No information 3.4: No **Domain 4 - Risk of bias in measurement of the outcome: Some concerns**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					4.1: No 4.2: No 4.3: Yes 4.4: Yes 4.5: Probably no, as both were active interventions **Domain 5 - Risk of bias in selection of the reported result: High risk** 5.1: No information 5.2: Probably yes, the interventions were continued for 3 months but this data is not reported. Post-intervention scores are reported at 3 weeks instead. This is not explained. 5.3: N **Domain 6 - Overall risk of bias: High risk**

GRADE: Grading of Recommendations Assessment, Development and Evaluation; ICIQ-OAB: International Consultation on Incontinence Questionnaire- Overactive bladder; ICIQ-OABqol: International Consultation on Incontinence Questionnaire- Overactive bladder, quality of life; IDO: Idiopathic detrusor over-activity; IQR: Interquartile range; OAB: Overactive bladder; RCT: Randomised controlled trial; SD: standard deviation; UI: Urinary incontinence: USI: urodynamic stress incontinence.

6 Appendix E – Forest plots

7 Forest plots for review question: What physical activity can increase or decrease 8 symptoms of pelvic floor dysfunction?

9 No meta-analysis was conducted for this review; therefore there are no forest plots

1 Appendix F – GRADE tables

2 GRADE tables for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

3 Table 5: Clinical evidence profile for comparison yoga versus control

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Yoga	Conventional treatment	Relative (95% CI)	Absolute		
Feeling of something coming out per vaginum - Absent (follow-up mean 3 months)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	5/25 (20%)	0%	POR 8.83 (1.42 to 54.99)	200 more per 1000 (from 30 more to 370 more)	LOW	CRITICAL
Feeling of something coming out per vaginum - Mild (follow-up mean 3 months)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	12/25 (48%)	4%	RR 12 (1.68 to 85.47)	440 more per 1000 (from 27 more to 1000 more)	LOW	CRITICAL
Feeling of something coming out per vaginum - Moderate (follow-up 3 months)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	8/25 (32%)	52%	RR 0.62 (0.31 to 1.22)	198 fewer per 1000 (from 359 fewer to 114 more)	VERY LOW	CRITICAL
Feeling of something coming out per vaginum - Severe (follow-up 3 months)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	0/25 (0%)	44%	POR 0.08 (0.02 to 0.3)	381 fewer per 1000 (from 249 fewer to 425 fewer)	LOW	CRITICAL
PFDI-20 (follow-up mean 3 months; range of scores: 0-300; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 9.25 lower (17.37 to 1.13 lower)	LOW	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Yoga	Conventional treatment	Relative (95% CI)	Absolute		
POPDI-6 (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 5.67 lower (11.63 lower to 0.29 higher)	LOW	CRITICAL
CRADI-8 (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 2.75 lower (6.28 lower to 0.78 higher)	LOW	CRITICAL
UDI-6 (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 0.83 lower (6.81 lower to 5.15 higher)	LOW	CRITICAL
UIQ-7 (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 0.76 higher (2.47 lower to 3.99 higher)	LOW	CRITICAL
CRAIQ-7 (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 2.48 lower (4.38 to 0.58 lower)	LOW	CRITICAL
POPIQ-7 (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	25	25	-	MD 5.87 lower (10.41 to 1.33 lower)	LOW	CRITICAL
PFIQ-7 (follow-up 3 months; range of scores: 0-300; Better indicated by lower values)												
1 Sweta 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	25	25	-	MD 3.57 lower (8.32 lower to 1.18 higher)	VERY LOW	CRITICAL

CI: confidence interval; MD: mean difference; POPDI-6; Pelvic Organ Prolapse Distress Inventory-6; POR: Peto odds ratio; RR: risk ratio; UDI-6: Urogenital distress inventiory-6; UIQ-7: Urinary impact questionnaire-7
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (0.8, 1.25)

Table 6: Clinical evidence profile for comparison yoga versus strength and stretch exercises

Quality assessment							No of patients		Effect			
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Yoga	Strength and stretch training	Relative (95% CI)	Absolute	Quality	Importance
Change in SUI episodes per day (follow-up mean 3 months; Better indicated by lower values)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	28	28	-	MD 0.4 lower (0.85 lower to 0.05 higher)	LOW	CRITICAL
Change in UUI episodes per day (follow-up mean 3 months; Better indicated by lower values)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	28	28	-	MD 0 higher (0.61 lower to 0.61 higher)	MODERATE	CRITICAL
Change in IIQ-7 score (follow-up mean 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	28	28	-	MD 20 higher (1.35 lower to 41.35 higher)	LOW	CRITICAL
Change in UDI-6 score (follow-up mean 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	28	28	-	MD 6 lower (10.63 to 1.37 lower)	MODERATE	CRITICAL
Change in PPBC score (follow-up 3 months; range of scores: -2-2; Better indicated by lower values)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	28	28	-	MD 0.3 lower (0.63 lower to 0.03 higher)	MODERATE	CRITICAL
Adherence - 100% group attendance (follow-up mean 3 months)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[4]	none	12/27 (44.4 %)	47.8%	RR 0.93 (0.51 to 1.69)	33 fewer per 1000 (from 234	VERY LOW	IMPORTANT

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Yoga	Strength and stretch training	Relative (95% CI)	Absolute		
										fewer to 330 more)		
Adherence - 100% home practice (follow-up 3 months)												
1 Huang 2019	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[5]	none	22/27 (81.5 %)	65.2%	RR 1.25 (0.88 to 1.77)	163 more per 1000 (from 78 fewer to 502 more)	LOW	CRITICAL

CI: confidence interval; IIQ-7: Incontinence impact questionnaire 7; MD: mean difference; POR: Peto odds ratio; PPBC: Patient perception of bladder condition: RR: risk ratio; SUI: stress urinary incontinence; UUI: urge urinary incontinence
1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2outcomes
2 95% CI crosses 1 MID (0.5 x SD at baseline: 0.3)
3 95% CI crosses 1 published MID (16)
4 95% CI crosses 2 MIDs (0.8, 1.25)
5 95% CI crosses 1 MID (0.8, 1.25)

Table 7. Clinical evidence profile for comparison yoga versus self-management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Yoga	Self-management	Relative (95% CI)	Absolute		
Change in SUI episodes per day (follow-up mean 6 weeks; Better indicated by lower values)												
1 Huang 2014	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	9	9	-	MD 0.44 lower (1.67 lower to 0.79 higher)	VERY LOW	CRITICAL
Change in UUI episodes per day (follow-up mean 6 weeks; Better indicated by lower values)												
1 Huang 2014	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	9	9	-	MD 0.5 lower (1.23 lower to 0.23 higher)	VERY LOW	CRITICAL
Change in IIQ-7 score (follow-up 6 weeks; range of scores: 0-100; Better indicated by lower values)												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Yoga	Self-management	Relative (95% CI)	Absolute		
1 Huang 2014	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[4]	none	9	9	-	MD 1.7 higher (33.06 lower to 36.46 higher)	VERY LOW	CRITICAL
Change in UDI-6 score (follow-up 6 weeks; range of scores: 0-100; Better indicated by lower values)												
1 Huang 2014	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	9	9	-	MD 0.9 lower (1.46 to 0.34 lower)	LOW	CRITICAL
Change in PPBC (follow-up 6 weeks; range of scores: -2-2; Better indicated by lower values)												
1 Huang 2014	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	9	9	-	MD 0.6 lower (1.48 lower to 0.28 higher)	LOW	CRITICAL

CI: confidence interval; MD: mean difference; PPBC: Patient perception of bladder condition: POR: Peto odds ratio; RR: risk ratio; SUI: stress urinary incontinence; UUI: urge urinary incontinence

1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2

2 95% CI crosses 2 MIDs (0.5 x baseline control SD: 0.40)

3 95% CI crosses 1 MID (0.5 x baseline control SD: 0.5)

4 95% CI crosses 2 published MID (16)

Table 8. Clinical evidence profile for multi-component physical activity exercises versus control

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Multicomponent	Control	Relative (95% CI)	Absolute		
Change in ICIQ-UI score (follow-up mean 6 weeks; range of scores: 0-21; Better indicated by lower values)												
1 Chu 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	17	16	-	MD 3.8 lower (7.24 to 0.36 lower)	VERY LOW	CRITICAL
ICIQ score at 12 weeks (follow-up mean 12 weeks; range of scores: 0-21; Better indicated by lower values)												
1	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	23	19	-	MD 0.5 lower (2.78	LOW	CRITICAL

Quality assessment							No of patients		Effect			
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Multicomponent	Control	Relative (95% CI)	Absolute	Quality	Importance
Talley 2017										lower to 1.78 higher)		
ICIQ score at 16 weeks (follow-up mean 12 weeks; range of scores: 0-21; Better indicated by lower values)												
1 Koenig 2020	randomised trials	serious[1] [1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	38	39	-	MD 1.10 higher (0.46 lower to 2.66 higher)	MODERATE	CRITICAL
Change in daily MVPA (follow-up mean 6 weeks; Better indicated by lower values)												
1 Chu 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[3]	none	17	16	-	MD 0.8 lower (6.24 lower to 4.64 higher)	VERY LOW	CRITICAL
UDI (follow-up mean 12 weeks; range of scores: 0-300; Better indicated by lower values)												
1 Talley 2017	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[4]	none	23	19	-	MD 8.2 lower (29.62 lower to 13.22 higher)	VERY LOW	CRITICAL
Incontinence Impact QOL (follow-up mean 12 weeks; range of scores: 0-400; Better indicated by lower values)												
1 Talley 2017	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[5]	none	23	19	-	MD 1.3 lower (20.5 lower to 17.9 higher)	VERY LOW	CRITICAL
OAB-q (SS-symptom score at 12 weeks) (Better indicated by lower values)												
1 Hagovska 2020	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	36	34	-	MD 10.9 lower (11.53 to 10.27 lower)	LOW	CRITICAL
OAB-q (HR Quality of life at 12 weeks) (Better indicated by lower values)												
1 Hagovska 2020	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	36	34	-	MD 7 lower (6.58 to 7.42 lower)	LOW	CRITICAL
Cured of leakage (follow-up mean 3 months)												
2 Kim 2007	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	30/68 (44.1%)	6.2%	RR 7.28 (2.73 to 19.38)	389 more per 1000 (from 107 more to 1000 more)	LOW	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Multicomponent	Control	Relative (95% CI)	Absolute		
Kim 2011												
Frequency score (urine leakage) (follow-up mean 3 months; Better indicated by lower values)												
1 Kim 2007	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[6]	none	33	32	-	MD 0.9 lower (1.68 to 0.12 lower)	VERY LOW	CRITICAL
Cure rate - SUI (follow-up mean 3 months)												
1 Kim 2011	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[7]	none	7/35 (20%)	2.9%	RR 6.8 (0.88 to 52.37)	168 more per 1000 (from 3 fewer to 1000 more)	VERY LOW	CRITICAL
Cure rate - UUI (follow-up mean 3 months)												
1 Kim 2011	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[8]	none	2/35 (5.7%)	0%	RR 4.86 (0.24 to 97.69)	-	VERY LOW	CRITICAL
Cure rate - Mixed UI (follow-up mean 3 months)												
1 Kim 2011	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	12/35 (34.3%)	0%	RR 24.31 (1.5 to 394.99)	-	LOW	CRITICAL
3 day leakage episodes (follow-up mean 3 months; Better indicated by lower values)												
1 Wagg 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[9]	none	335	290	-	MD 6.5 lower (6.80 to 6.20 lower)	VERY LOW	CRITICAL
Depression (CES-D-10) score (follow-up mean 3 months; range of scores: 0-30; Better indicated by lower values)												
1 Wagg 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[10]	none	335	290	-	MD 1.5 lower (2.03 lower to 0.97 higher)	VERY LOW	CRITICAL

CI: confidence interval; MD: mean difference; POR: Peto odds ratio; RR: risk ratio
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 published MID (4)
3 95% CI crosses 2 MIDs (0.5 x post control SD: 2.95)
4 95% CI crosses 2 published MIDs (11)
5 95% CI crosses 2 published MIDs (16)

6 95% CI crosses 1 MID (0.5 x baseline control SD: 0.65)
7 95% CI crosses 1 MID (0.8, 1.25)
8 95% CI crosses 2 MIDs (0.8, 1.25)9 95% CI crosses 2 MIDs (0.5 x baseline control SD: 2.35)
10 95% CI crosses 1 MID (0.5 x baseline control SD: 1.95)
11 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2

Table 9. Clinical evidence profile for comparison Modified-Pilates versus PFMT

Quality assessment							No of patients		Effect			
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Modified Pilates**	**PFMT**	**Relative (95% CI)**	**Absolute**	**Quality**	**Importance**
Change in SSI score (follow-up mean 6 weeks; Better indicated by lower values)												
1 Lausen 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	22	27	-	MD 0.33 higher (1.56 lower to 2.22 higher)	VERY LOW	CRITICAL
Change in SII (follow-up 6 weeks; Better indicated by lower values)												
1 Lausen 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	22	27	-	MD 1 higher (0.12 lower to 2.12 higher)	VERY LOW	CRITICAL
I-QoL (follow-up 6 weeks; range of scores: 0-100; Better indicated by higher values)												
1 Lausen 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[5]	none	22	27	-	MD 5.73 higher (53.73 lower to 65.19 higher)	VERY LOW	CRITICAL
ICIQ-LUTSqol (follow-up 6 weeks; range of scores: 19-76; Better indicated by lower values)												
1 Lausen 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	very serious[4]	none	22	27	-	MD 2.62 lower (12.4 lower to 7.16 higher)	VERY LOW	CRITICAL

CI: confidence interval; MD: mean difference; POR: Peto odds ratio; RR: risk ratio
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 2 MIDs (0.5 x baseline control SD: 1.56)
3 95% CI crosses 1 MID (0.5 x baseline control SD: 2.0)
4 95% CI crosses 2 published MIDs (6)
5 95% CI crosses 2 published MIDs (4.74)

Table 10. Clinical evidence profile for comparison Pilates versus TrA (PFMT)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Pilates	TrA (PFMT)	Relative (95% CI)	Absolute		
UDI score at 3 weeks (follow-up mean 3 weeks; range of scores: 0-100; Better indicated by lower values)												
1 Yuvarani 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	20	20	-	MD 1.3 lower (1.95 to 0.65 lower)	LOW	CRITICAL
IIQ-7 score at 3 weeks (follow-up mean 3 weeks; range of scores: 0-100; Better indicated by lower values)												
1 Yuvarani 2018	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	20	20	-	MD 0.4 lower (1.57 lower to 0.77 higher)	LOW	CRITICAL

CI: confidence interval; MD: mean difference; POR: Peto odds ratio; RR: risk ratio
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2

Table 11. Clinical evidence profile for comparison stabilization (Pilates) versus PFMT

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Stabilazation	PFMT	Relative (95% CI)	Absolute		
POP-Q at 8 weeks - Aa (follow-up mean 8 weeks; range of scores: 0-4; Better indicated by lower values)												
1 Ozengin 2015	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	9	19	-	MD 0.25 lower (0.83 lower to 0.33 higher)	VERY LOW	CRITICAL
POP-Q at 8 weeks - Ba (follow-up mean 8 weeks; range of scores: 0-4; Better indicated by lower values)												
1 Ozengin 2015	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	9	19	-	MD 0.29 lower (0.89 lower to 0.31 higher)	VERY LOW	CRITICAL
POP-Q at 8 weeks - Ap (follow-up mean 8 weeks; range of scores: 0-4; Better indicated by lower values)												
1 Ozengin 2015	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[4]	none	9	19	-	MD 0.23 lower (0.92	VERY LOW	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Stabilazation	PFMT	Relative (95% CI)	Absolute		
										lower to 0.46 higher)		
POP-Q at 8 weeks - Bp (follow-up mean 8 weeks; range of scores: 0-4; Better indicated by lower values)												
1 Ozengin 2015	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[5]	none	9	19	-	MD 0.25 lower (1 lower to 0.5 higher)	VERY LOW	CRITICAL
P-QOL - level of severity (follow-up mean 8 weeks; range of scores: 0-100; Better indicated by lower values)												
1 Ozengin 2015	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[6]	none	9	19	-	MD 0.87 higher (6.32 lower to 8.06 higher)	VERY LOW	CRITICAL

CI: confidence interval; MD: mean difference; POR: Peto odds ratio; RR: risk ratio
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (0.5 x baseline control SD: 0.46)
3 95% CI crosses 1 MID (0.5 x baseline control SD: 0.465)
4 95% CI crosses 1 MID (0.5 x baseline control SD: 0.505)
5 95% CI crosses 1 MID (0.5 x baseline control SD: 0.555)
6 95% CI crosses 1 MID (0.5 x baseline control SD: 8.02)

Table 12. Clinical evidence profile for comparison weight training plus PFMT versus PFMT

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Weight training with PFMT	PFMT	Relative (95% CI)	Absolute		
Change in ICIQ-SF score (range of scores: 0-21; Better indicated by lower values)												
1 Virtuoso 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	14	18	-	MD 1.1 higher (2.63 lower to 4.83 higher)	VERY LOW	CRITICAL
Absence of UI symptoms - 4 weeks (follow-up mean 4 weeks)												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Weight training with PFMT	PFMT	Relative (95% CI)	Absolute		
1 Virtuoso 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	8/14 (57.1%)	16.7%	RR 3.43 (1.11 to 10.59)	406 more per 1000 (from 18 more to 1000 more)	VERY LOW	CRITICAL
Absence of UI symptoms - 12 weeks (follow-up mean 12 weeks)												
1 Virtuoso 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	11/14 (78.6%)	33.3%	RR 2.36 (1.16 to 4.79)	453 more per 1000 (from 53 more to 1000 more)	VERY LOW	CRITICAL
Absence of UI symptoms - (follow-up mean 4 months)												
1 Virtuoso 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	12/14 (85.7%)	50%	RR 1.71 (1.03 to 2.85)	355 more per 1000 (from 15 more to 925 more)	VERY LOW	CRITICAL

CI: confidence interval; MD: mean difference; POR: Peto odds ratio; RR: risk ratio
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 published MID (4)
3 95% CI crosses one 1 MID (0.8, 1.25)

Table 13. Clinical evidence profile for comparison high intensity exercise versus low intensity exercise

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	High intensity	Low intensity	Relative (95% CI)	Absolute		
Number of voids per 24 hours (follow-up 3 months; Better indicated by lower values)												
1 Hagovska 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	38	39	-	MD 1.45 lower (2 to 0.9 lower)	VERY LOW	CRITICAL
Day time frequency (follow-up 3 months; Better indicated by lower values)												
1 Hagovska 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[3]	none	38	39	-	MD 0.33 lower (0.85 lower to	VERY LOW	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	High intensity	Low intensity	Relative (95% CI)	Absolute		
										0.19 higher)		
Night-time frequency (follow-up 3 months; Better indicated by lower values)												
1 Hagovska 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	38	39	-	MD 1.12 lower (1.4 to 0.84 lower)	LOW	CRITICAL
Patient perception of Intensity or Urgency (follow-up 3 months; Better indicated by lower values)												
1 Hagovska 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[4]	none	38	39	-	MD 0.67 lower (1.02 to 0.32 lower)	VERY LOW	CRITICAL
OAB-q symptom score (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Hagovska 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	serious[5]	none	38	39	-	MD 8.11 lower (11.85 to 4.37 lower)	VERY LOW	CRITICAL
OAB-q HR-quality of life (follow-up 3 months; range of scores: 0-100; Better indicated by lower values)												
1 Hagovska 2019	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	38	39	-	MD 4.53 higher (2.06 to 7 higher)	LOW	CRITICAL

1 *CI: confidence interval; MD: mean difference; POR: Peto odds ratio; RR: risk ratio*
2 *1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2*
3 *2 95% CI crosses 1 MID (0.5 x baseline control SD: 1.2)*
4 *3 95% CI crosses 1 MID (0.5 x baseline control 0.73)4 95% CI crosses 1 MID (0.5 x baseline control SD: 0.515)*
5 *5 95% CI crosses 1 published MID (>10)*

Table 14. Clinical evidence profile for comparison balance exercise (stabilisation) versus general exercise

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Balance	General exercise	Relative (95% CI)	Absolute		
Pain (VAS) at 8 weeks (Better indicated by lower values)												
1 Ehsani 2020	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	35	35	-	MD 0.11 lower (0.93 lower to 0.71 higher)	LOW	CRITICAL

1 Serious risk of bias in the evidence contributing to the outcomes as per RoB 2
2 95% CI crosses 1 MID (0.5 x baseline control SD: 0.9)

Table 15. Clinical evidence profile for comparison balance exercise (stabilisation) versus no treatment

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Balance	No treatment	Relative (95% CI)	Absolute		
Stabilisation versus no treatment - ICIQ at 12 weeks (Better indicated by lower values)												
1 Khorasani 2020	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	40	40	-	MD 0.47 lower (0.82 to 0.12 lower)	LOW	CRITICAL

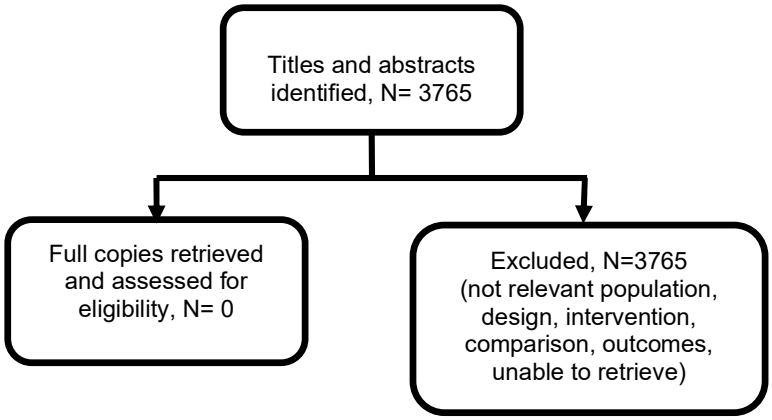
CI: confidence interval; MD: mean difference;
1 Very serious risk of bias in the evidence contributing to the outcomes as per RoB 2

Appendix G – Economic evidence study selection

Economic evidence study selection for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

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

Figure 2: **Study selection flow chart**



Appendix H – Economic evidence tables

Economic evidence tables for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

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

Appendix I – Economic evidence profiles

Economic evidence profiles for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

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

Appendix J – Economic analysis

Economic evidence analysis for review question: What physical activity can increase or decrease symptoms of pelvic floor dysfunction?

No economic analysis was conducted for this review question.

1 Appendix K – Excluded studies

2 Excluded studies for review question: What physical activity can increase or 3 decrease symptoms of pelvic floor dysfunction?

4 Clinical studies

5 **Table 16: Excluded studies and reasons for their exclusion (RCTs)**

Study	Reason for Exclusion
Actrn,, Effectiveness of Yoga and Pilates Training for Urinary Incontinence in Elderly Women: a Clinical Trial, http://www.who.int/trialsearch/Trial2.aspx?TrialID=ACTRN12619000784112, 2019	the study is not yet recruiting participants: http://apps.who.int/trialsearch/Trial2.aspx?TrialID=ACTRN12619000784112
Alessi, C. A., Schnelle, J. F., MacRae, P. G., Ouslander, J. G., al-Samarrai, N., Simmons, S. F., Traub, S., Does physical activity improve sleep in impaired nursing home residents?, Journal of the American Geriatrics Society, 43, 1098-102, 1995	No outcomes of relevance, only sleep and physical activity data reported
Alessi, C. A., Yoon, E. J., Schnelle, J. F., Al-Samarrai, N. R., Cruise, P. A., A randomized trial of a combined physical activity and environmental intervention in nursing home residents: do sleep and agitation improve?, Journal of the American Geriatrics Society, 47, 784-91, 1999	Relevant outcomes are not reported
Baker, J., Mindfulness-Based Stress Reduction Techniques and Yoga for treatment of urinary urge incontinence (MBSR-Yoga) (Trials Registry number: NCT01470560), Clinicaltrials.gov (http://clinicaltrials.gov), 2011	Trial registry. Published study identified; however, outcomes reported cannot be extracted
Baker, J., Costa, D., Guarino, J. M., Nygaard, I., Comparison of mindfulness-based stress reduction versus yoga on urinary urge incontinence: a randomized pilot study. with 6-month and 1-year follow-up visits, Female Pelvic Medicine & Reconstructive Surgery, 20, 141-6, 2014	Study data is not presented in a format we can extract
Balk, E., Adam, G. P., Kimmel, H., Rofeberg, V., Saeed, I., Jeppson, P., Trikalinos, T., Nonsurgical Treatments for Urinary Incontinence in Women: A Systematic Review Update , Agency for Healthcare Research and QualityAgency for Healthcare Research and Quality (US), 08, 2018	Systematic review. References checked One relevant study included (Huang 2014)
Batchelor, F. A., Dow, B., Low, M. A., Do continence management strategies reduce falls? a systematic review, Australasian Journal on Ageing, 32, 211-6, 2013	Systematic review. Studies do not include relevant outcomes; references checked for relevance
Bates-Jensen, B. M., Alessi, C. A., Al-Samarrai, N. R., Schnelle, J. F., The effects of an exercise and incontinence intervention on skin health outcomes in nursing home residents, Journal of the American Geriatrics Society, 51, 348-55, 2003	Reported outcomes do not meet the study criteria

Study	Reason for Exclusion
Berghmans, L. C. M., Conservative treatment of stress urinary incontinence in women: A systematic review of randomized clinical trials, British Journal of Urology, 82, 181-191, 1998	Systematic review, references checked. No relevant comparisons.
Bernardes, B. T., Resende, A. P., Stupp, L., Oliveira, E., Castro, R. A., Bella, Z. I., Girao, M. J., Sartori, M. G., Efficacy of pelvic floor muscle training and hypopressive exercises for treating pelvic organ prolapse in women: randomized controlled trial, Sao Paulo Medical Journal = Revista Paulista de Medicina, 130, 5-9, 2012	Intervention and comparison do not meet the inclusion criteria: Pelvic floor muscle training versus hypopressive exercises (PFMT) versus control
Beuttenmuller, L., Cader, S. A., Macena, R. H. M., Araujo, N. D. S., Nunes, E. F. C., Dantas, E. H. M., Muscle contraction of the pelvic floor and quality of life of women with stress urinary incontinence who underwent kinesitherapy, Fizjoterapia, 18, 35-41, 2010	Intervention does not meet the inclusion criteria; kinestiotherapy is a form of physical therapy, the aim of which was to target the pelvic floor, not to increase physical activity.
Bo, K., Urinary incontinence, pelvic floor dysfunction, exercise and sport, Sports MedicineSports Med, 34, 451-64, 2004	Systematic review, references checked. No relevant comparisons
Bo, K., Herbert, R. D., There is not yet strong evidence that exercise regimens other than pelvic floor muscle training can reduce stress urinary incontinence in women: A systematic review, Journal of Physiotherapy, 59, 159-168, 2013	Systematic review. Included studies examine exercise in combination, or versus pelvic floor exercises
Booth, J., Skelton, D., Howe, T., Ballinger, C., MacInnes, C., The effects of lifestyle and behavioural interventions for urinary incontinence on mobility, physical activity and falls in older people: A comprehensive systematic review, JBI Library of Systematic ReviewisJBI Libr Syst Rev, 7, 1-25, 2009	Protocol for a systematic review
Brown, J. S., Wing, R., Barrett-Connor, E., Nyberg, L. M., Kusek, J. W., Orchard, T. J., Ma, Y., Vittinghoff, E., Kanaya, A. M., Lifestyle intervention is associated with lower prevalence of urinary incontinence: The diabetes prevention program, Diabetes care, 29, 385-390, 2006	Study population does not meet the inclusion criteria, women all have impaired glucose regulation. Intervention does not meet the inclusion criteria; lifestyle modification, cannot determine which factors were changed (the focus is not physical activity)
Capobianco, G., Madonia, M., Morelli, S., Dessole, F., De Vita, D., Cherchi, P. L., Dessole, S., Management of female stress urinary incontinence: A care pathway and update, Maturitas, 109, 32-38, 2018	Summary paper, references checked for inclusion. No references relating to physical activity interventions were included
Davenport, M. H., Nagpal, T. S., Mottola, M. F., Skow, R. J., Riske, L., Poitras, V. J., Jaramillo Garcia, A., Gray, C. E., Barrowman, N., Meah, V. L., Sobierajski, F., James, M., Nuspl, M., Weeks, A., Marchand, A. A., Slater, L. G., Adamo, K. B., Davies, G. A., Barakat, R., Ruchat, S. M., Prenatal exercise (including but not limited to pelvic floor muscle training) and urinary incontinence during and following pregnancy: a systematic review and meta-analysis, British journal of sports medicine, 52, 1397-1404, 2018	Full text unavailable from the British Library

Study	Reason for Exclusion
Diokno, A. C., Practical approach to the management of urinary incontinence in the elderly, Comprehensive TherapyCompr Ther, 9, 67-75, 1983	Narrative review, does not cover physical activity
Ehsani, F., Sahebi, N., Shanbehzadeh, S., Arab, A. M., ShahAli, S., Stabilization exercise affects function of transverse abdominis and pelvic floor muscles in women with postpartum lumbo-pelvic pain: a double-blinded randomized clinical trial study, International Urogynecology Journal., 2019	No reference to pelvic floor dysfunction
Faleiro, D. J. A., Menezes, E. C., Capeletto, E., Fank, F., Porto, R. M., Mazo, G. Z., Association of Physical Activity With Urinary Incontinence in Older Women: A Systematic Review, Journal of Aging & Physical ActivityJ Aging Phys Activity, 1-8, 2019	Systematic review, references checked, no relevant studies included
Griebling, T., Re: Effect of physical training on urinary incontinence: A randomized parallel group trial in nursing homes, Journal of Urology, 190, 1330, 2013	Commentary paper. Referenced study identified and excluded as the whole population do not have UI
Imamura, M., Williams, K., Wells, M., McGrother, C., Lifestyle interventions for the treatment of urinary incontinence in adults, Cochrane Database of Systematic Reviews, 2015	Systematic review. Included studies are all cohort studies
Irct2015060122325N,, Effect of aerobic exercise on sexual dysfunction in reproductive ages women, http://www.who.int/trialsearch/Trial2.aspx?TrialID=IRCT2015060122325N2, 2015	Full text unavailable from the British Library
Isrctn,, Modified Pilates as an adjunct treatment for urinary incontinence, http://www.who.int/trialsearch/Trial2.aspx?TrialID=ISRCTN74075972, 2012	Full text unavailable from the British Library
Jprn, Umin, The effect of walking exercise on pelvic function in women with urinary incontinence due to pregnancy / labor, http://www.who.int/trialsearch/Trial2.aspx?TrialID=JPRN-UMIN000025931, 2017	Clinical trial registration, no published paper identified
Kang, H., Hong, G. R., Effect of muscle strength training on urinary incontinence and physical function: a randomized controlled trial in long-term care facilities, Journal of Korean Academy of Nursing, 45, 35â€ 45, 2015	The full text is in Korean, not English
Kim, H., Yoshida, H., Suzuki, T., The effects of multidimensional exercise on functional decline, urinary incontinence, and fear of falling in community-dwelling elderly women with multiple symptoms of geriatric syndrome: a randomized controlled and 6-month follow-up trial, Archives of Gerontology & GeriatricsArch Gerontol Geriatr, 52, 99-105, 2011	Mixed population, not all participants have urinary incontinence (64.5% and 50%)
Kim, J. I., Continence efficacy intervention program for community residing women with stress urinary incontinence in Japan, Public	Non-randomized. Intervention to encourage adherence to exercise participation.

Study	Reason for Exclusion
Health NursingPublic Health Nurs, 18, 64-72, 2001	
Kim,H., Yoshida,H., Suzuki,T., Effects of exercise treatment with or without heat and steam generating sheet on urine loss in community-dwelling Japanese elderly women with urinary incontinence, Geriatrics and Gerontology International, 11, 452-459, 2011	Publication appears to include women from Kim 20011 paper, which is included
Kobashi, K. C., Kobashi, L. I., Female stress urinary incontinence: Review of the current literature, Minerva Ginecologica, 58, 265-282, 2006	Does not cover physical activity interventions
Lausen, B., Head, S., Modified Pilates as an adjunct to standard physiotherapy care for urinary incontinence: a pilot study, Http://isrctn.org/isrctn74075972, 2012	Full text unavailable from the British Library
Liebergall-Wischnitzer, M., Paltiel, O., Hochner-Celnikier, D., Lavy, Y., Manor, O., Woloski Wruble, A. C., Sexual function and quality of life for women with mild-to-moderate stress urinary incontinence, Journal of Midwifery & Women's Health, 56, 461-7, 2011	Cross sectional survey analysis (baseline characteristics of a subgroup of women from an RCT (which was excluded from sift)).
McClurg, D., Pollock, A., Campbell, P., Hazelton, C., Elders, A., Hagen, S., Hill, D. C., Conservative interventions for urinary incontinence in women: An Overview of Cochrane systematic reviews, Cochrane Database of Systematic Reviews, 2016 (9) (no pagination), 2016	Study protocol
Menezes, E. C., Virtuoso, J. F., Gurjao, A. L. D., Mazo, G. Z., Acute effect of resistance exercise performed at different intensities on urine loss in older women, Physiotherapy Quarterly, 26, 23-27, 2018	Study design does not meet the inclusion criteria; non-randomised. Reported outcomes cannot be extracted for analysis. The whole population does not have UI
Moroni, R. M., Magnani, P. S., Haddad, J. M., Castro Rd.e, A., Brito, L. G., Conservative Treatment of Stress Urinary Incontinence: A Systematic Review with Meta-analysis of Randomized Controlled Trials, Revista brasileira de ginecologia e obstetricia : revista da Federacao Brasileira das Sociedades de Ginecologia e Obstetricia, 38, 97-111, 2016	Systematic review. Included interventions do not include physical activity interventions
Moser, H., Leitner, M., Baeyens, J. P., Radlinger, L., Pelvic floor muscle activity during impact activities in continent and incontinent women: a systematic review, International Urogynecology Journal, 29, 179-196, 2018	Systematic review, references checked and no relevant studies included
Nct,, Benefits of Peri-surgical Physical Therapy in the Management of III and IV Grades of Pelvic Organ Prolapse, https://clinicaltrials.gov/show/NCT02846480, 2016	Intervention does not meet the inclusion criteria. Physical therapy directed at posture and pelvic floor strengthening, not physical activity
Nct,, Mindfulness-Based Stress Reduction Techniques and Yoga for Treatment of Urinary Urge Incontinence (MBSR-Yoga), https://clinicaltrials.gov/show/NCT01470560, 2011	Comparison does not meet the inclusion criteria. Mindfulness based stress reduction (MBSR) versus Sham Yoga

Study	Reason for Exclusion
Nct,, Pilates Pelvic Floor Strengthening Program to Improve Urinary Incontinence, https://clinicaltrials.gov/show/NCT03118557, 2017	Full text unavailable from the British Library
Nct,, A Group-Based Therapeutic Yoga Intervention for Urinary Incontinence in Ambulatory Older Women, https://clinicaltrials.gov/show/NCT03672461, 2018	The study is currently recruiting, expected completion date is June 2024. https://clinicaltrials.gov/ct2/show/NCT03672461
Nct,, Lessening Incontinence by Learning Yoga, https://clinicaltrials.gov/show/NCT01672190, 2012	Clinical trial registration, see included study Huang 2014
Nct,, Cherry, N. M., Managing Urinary Incontinence in Elderly Village Women in Rural Bangladesh: a Cluster Randomized Trial of a Community Exercise-based Intervention, Https://clinicaltrials.gov/show/nct02453100, 2015	Intervention does not meet the inclusion criteria. Focus is on mobility and pelvic floor exercises
Nct,, Huang, A. J., Lessening Incontinence Through Low-impact Activity, a.k.a. Yoga to Enhance Behavioral Self-Management of Urinary Incontinence in Women, Http://clinicaltrials.gov/show/nct02342678, 2015	Clinical trials registration. See included study Huang 2019
Ouslander, J. G., Griffiths, P. C., McConnell, E., Riolo, L., Kutner, M., Schnelle, J., Functional incidental training: a randomized, controlled, crossover trial in Veterans Affairs nursing homes, Journal of the American Geriatrics Society, 53, 1091-100, 2005	Study population does not meet the inclusion criteria; majority of the population are men
Ouslander, J. G., Griffiths, P., McConnell, E., Riolo, L., Schnelle, J., Functional Incidental Training: applicability and feasibility in the Veterans Affairs nursing home patient population, Journal of the American Medical Directors AssociationJ Am Med Dir Assoc, 6, 121-7, 2005	Study population does not meet the inclusion criteria; majority of the population are men
Qaseem, A., Dallas, P., Forciea, M. A., Starkey, M., Denberg, T. D., Shekelle, P., Nonsurgical management of urinary incontinence in women: A clinical practice guideline from the American College of Physicians, Annals of Internal Medicine, 161, 429-440, 2014	Guideline publication. References checked for relevance
R. B. R. fvry, To verify the influence of moderate or strenuous Physical Activity and Sedentary lifestyle on the rate of Urinary Incontinence in young women who had never had children, http://www.who.int/trialsearch/Trial2.aspx?TrialID=RBR-27fvry, 2017	Full text unavailable from the British Library
Ree,M.L., Nygaard,I., Bo,K., Muscular fatigue in the pelvic floor muscles after strenuous physical activity, Acta Obstetricia et Gynecologica Scandinavica, 86, 870-876, 2007	No relevant outcomes reported
Sackley, C. M., Rodriguez, N. A., van den Berg, M., Badger, F., Wright, C., Besemer, J., van Reeuwijk, K. T. V., van Wely, L., A phase II exploratory cluster randomized controlled trial of a group mobility training and staff education	Population does not meet the inclusion criteria; only 71% of the intervention group and 56% of the control group had urinary incontinence at baseline

Study	Reason for Exclusion
intervention to promote urinary continence in UK care homes, Clinical Rehabilitation, 22, 714-721, 2008	
Savage, A. M., Is lumbopelvic stability training (using the Pilates model) an effective treatment strategy for women with stress urinary incontinence? A review of the literature and report of a pilot study, Journal of the association of chartered physiotherapists in women's health, 33â€ 48, 2005	Narrative review and short report only
Schnelle, J. F., Alessi, C. A., Simmons, S. F., Al-Samarrai, N. R., Beck, J. C., Ouslander, J. G., Translating clinical research into practice: A randomized controlled trial of exercise and incontinence care with nursing home residents, Journal of the American Geriatrics Society, 50, 1476-1483, 2002	Population does not meet the inclusion criteria; mixed male and female population and no sub-group analysis for women
Schnelle, J. F., Kapur, K., Alessi, C., Osterweil, D., Beck, J. G., Al-Samarrai, N. R., Ouslander, J. G., Does an exercise and incontinence intervention save healthcare costs in a nursing home population?, Journal of the American Geriatrics Society, 51, 161-168, 2003	Population does not meet the inclusion criteria; mixed male and female population and no sub-group analysis for women
Schnelle, J. F., Leung, F. W., Rao, S. S., Beuscher, L., Keeler, E., Clift, J. W., Simmons, S., A controlled trial of an intervention to improve urinary and fecal incontinence and constipation, Journal of the American Geriatrics Society, 58, 1504-11, 2010	Population does not meet the inclusion criteria; mixed male and female population and no sub-group analysis for women
Schnelle, J. F., MacRae, P. G., Ouslander, J. G., Simmons, S. F., Nitta, M., Functional Incidental Training, mobility performance, and incontinence care with nursing home residents, Journal of the American Geriatrics Society, 43, 1356-62, 1995	Population does not meet the inclusion criteria; mixed male and female population and no sub-group analysis for women
Sha, K., Palmer, M. H., Yeo, S., Yoga's Biophysiological Effects on Lower Urinary Tract Symptoms: A Scoping Review, Journal of Alternative & Complementary MedicineJ Altern Complement Med, 25, 279-287, 2019	Scoping review, references checked for relevance
Shaw, J. M., Nygaard, I. E., Role of chronic exercise on pelvic floor support and function, Current Opinion in UrologyCurr Opin Urol, 27, 257-261, 2017	Narrative review paper
Simmons, S. F., Ferrell, B. A., Schnelle, J. F., Effects of a controlled exercise trial on pain in nursing home residents, Clinical Journal of Pain, 18, 380â€ 385, 2002	Population does not meet the inclusion criteria; mixed male and female population and no sub-group analysis for women
Simmons, S. F., Ouslander, J. G., Resident and family satisfaction with incontinence and mobility care: sensitivity to intervention effects?, Gerontologist, 45, 318-26, 2005	Population does not meet the inclusion criteria; mixed male and female population and no sub-group analysis for women
Stenzelius, K., Molander, U., Odeberg, J., Hammarstrom, M., Franzen, K., Midlov, P., Samuelsson, E., Andersson, G., The effect of conservative treatment of urinary incontinence among older and frail older people: a systematic	Systematic review. References checked for relevance

Study	Reason for Exclusion
review, Age & AgeingAge Ageing, 44, 736-44, 2015	
Szumilewicz, A., Dornowski, M., Piernicka, M., Worska, A., Kuchta, A., Kortas, J., Bludnicka, M., Radziminski, L., Jastrzebski, Z., Exercises improves pelvic floor muscle function in healthy pregnant women - A randomized control trial, Frontiers in Physiology, 10 (JAN) (no pagination), 2019	Population does not meet inclusion criteria; excludes any present or previous pelvic floor dysfunctions diagnosed by health professionals
Szumilewicz, A., Dornowski, M., Piernicka, M., Worska, A., Kuchta, A., Kortas, J., Bludnicka, M., Radziminski, L., Jastrzebski, Z., High-Low Impact Exercise Program Including Pelvic Floor Muscle Exercises Improves Pelvic Floor Muscle Function in Healthy Pregnant Women - A Randomized Control Trial, Frontiers in Physiology, 9, 1867, 2018	Population does not meet the inclusion criteria; only healthy pregnant women are included
Tak, E. C., van Hespen, A., van Dommelen, P., Hopman-Rock, M., Does improved functional performance help to reduce urinary incontinence in institutionalized older women? A multicenter randomized clinical trial, BMC Geriatrics, 12, 51, 2012	Population does not meet the inclusion criteria; not all the participants had UI or FI. No information provided on the type, severity or cause of incontinence among participants
Vinsnes, A. G., Helbostad, J. L., Nyronning, S., Harkless, G. E., Granbo, R., Seim, A., Effect of physical training on urinary incontinence: a randomized parallel group trial in nursing homes, Clinical Interventions In AgingClin Interv Aging, 7, 45-50, 2012	Population do not meet the inclusion criteria; not all participants had UI at baseline
Wein, A. J., Re: A group-based yoga therapy intervention for urinary incontinence in women: A pilot randomized trial, Journal of Urology, 193, 1313, 2015	Commentary paper
Wieland, L. S., Shrestha, N., Lassi, Z. S., Panda, S., Chiaramonte, D., Skoetz, N., Yoga for treating urinary incontinence in women, Cochrane Database of Systematic Reviews, 2019	Systematic review. References checked for relevance

Table 17: Excluded studies and reasons for their exclusion (non-RCTs)

Study	Reason for Exclusion
Ali-Ross, N. S., Smith, A. R., Hosker, G., The effect of physical activity on pelvic organ prolapse, BJOG: An International Journal of Obstetrics & GynaecologyBjog, 116, 824-8, 2009	Study design does not meet the inclusion criteria, non-comparative cohort study
Anonymous,, Gynecology: Urinary incontinence and exercise, ACOG Clinical Review, 11, 7-8, 2006	Full text paper unavailable from the British Library
Anonymous,, Pill-free ways to fight urinary incontinence. New guidelines recommend solutions that don't require medication, Harvard health letter / from Harvard Medical School, 40, 6, 2015	Short report; health letter
Anonymous,, Summaries for patients. Nonsurgical management of urinary incontinence in women: a clinical practice guideline from the American College of Physicians, Annals of internal medicine, 161, I-34, 2014	Guideline; references checked for relevance
Anonymous,, Treating urinary incontinence with timed schedules and exercises, Nursing, 25, 32C-32D, 1995	Paper unavailable from the British Library
Bardill, A., Bachmann, L., Eichelberger, P., Koenig, I., Luginbuehl, H., Radlinger, L., Exploring fatigue of pelvic floor muscles with electromyographic measurements during running, International Urogynecology Journal and Pelvic Floor Dysfunction, 1), S93-S94, 2016	Population do not meet inclusion criteria, healthy women
Bethel, K., Yoga for Treating Urinary Incontinence in Women: Commentary on a Cochrane Review, Explore, 15, 320-322, 2019	Commentary paper. Cochrane review which the commentary refers is excluded and references have been checked
Bo, K., Stress urinary incontinence, physical activity and pelvic floor muscle strength training, Scandinavian Journal of Medicine and Science in Sports, 2, 197-206, 1992	Narrative review
Bo, K., Artal, R., Barakat, R., Brown, W. J., Davies, G. A. L., Dooley, M., Evenson, K. R., Haakstad, L. A. H., Kayser, B., Kinnunen, T. I., Larsen, K., Mottola, M. F., Nygaard, I., van Poppel, M., Stuge, B., Khan, K. M., I. O. C. Medical Commission, Exercise and pregnancy in recreational and elite athletes: 2016/17 evidence summary from the IOC Expert Group Meeting, Lausanne. Part 3-exercise in the postpartum period, British Journal of Sports Medicine, 51, 1516-1525, 2017	Systematic review; references checked for relevance
Caetano, A. S., Tavares, M. D. C. G. C. F., Lopes, M. H. B. D. M., Urinary incontinence and physical activity practice. [Portuguese, English], Revista Brasileira de Medicina do Esporte, 13, 245e-248e+270-274, 2007	Article not in English
Carvalhais, A., Simoes, D., Natal Jorge, R., Bo, K., Prevalence and risk factors of urinary incontinence among elite female athletes, Neurourology and Urodynamics, 35 (Supplement 4), S37-S38, 2016	Prevalence study, population does not meet the inclusion criteria

Study	Reason for Exclusion
Casey, E. K., Temme, K., Pelvic floor muscle function and urinary incontinence in the female athlete, Physician and Sportsmedicine, 45, 399-407, 2017	Narrative review
Chisholm, L., Delpe, S., Priest, T., Reynolds, W. S., Physical Activity and Stress Incontinence in Women, Current Bladder Dysfunction Reports, 14, 174-179, 2019	Narrative review
Da Roza, T., Brandao, S., Mascarenhas, T., Jorge, R. N., Duarte, J. A., Urinary Incontinence and Levels of Regular Physical Exercise in Young Women, International journal of sports medicine, 36, 776-80, 2015	Population does not meet the inclusion criteria, only healthy women were recruited
Dhikav, V., Karmarkar, G., Gupta, R., Verma, M., Gupta, R., Gupta, S., Anand, K. S., Yoga in female sexual functions, Journal of Sexual Medicine, 7, 964-70, 2010	Population does not meet the inclusion criteria; healthy women were recruited
Dickens, N., The lowdown on uplift, Practising Midwife, 13, 24-5, 2010	Narrative review
Dolk, A., Holmstrom, B., Johansson, C., Frostell, C., Nilsson, B. Y., The effect of yoga on puborectalis paradox, International Journal of Colorectal Disease, 6, 139-42, 1991	Study design does not meet the inclusion criteria, single arm study, no comparative group
Donovan, G., Terrell, S. L., EXERCISE STRATEGIES for IMPROVING QUALITY of LIFE in WOMEN with STRESS URINARY INCONTINENCE, ACSM's Health and Fitness Journal, 22, 28-31, 2018	Narrative review, exercise relates to pelvic floor muscle training, not physical activity
Dornowski, M., Makar, P., Sawicki, P., Wilczynska, D., Vereshchaka, I., Ossowski, Z., Effects of low- vs high-volume swimming training on pelvic floor muscle activity in women, Biology of Sport, 36, 95-99, 2019	Population does not meet the inclusion criteria; healthy women were recruited
El Bandrawy, A. M., Nashed, A. B., Hamada, H. A., Ghareeb, H. O., Effect of diaphragmatic breathing exercises and pelvic floor retraining on postmenopausal stress urinary incontinence: A randomized controlled trial, Fizjoterapia Polska, 19, 60-64, 2019	Full text unavailable from the British Library
Ferla, L., Paiva, L. L., Darki, C., Vieira, A., Comparison of the functionality of pelvic floor muscles in women who practice the Pilates method and sedentary women: a pilot study, International Urogynecology Journal, 27, 123-8, 2016	Population does not meet inclusion criteria; healthy women were recruited
Firra, J., Thompson, M., Smith, S. S., Paradoxical findings in the treatment of predominant stress and urge incontinence: A pilot study with exercise and electrical stimulation, Journal of Women's Health Physical Therapy, 37, 113-123, 2013	Intervention does not meet the inclusion criteria, the exercises target the pelvic floor, not physical activity
Firra, Joan C., Effects of treatment of urinary incontinence in women: Exercise or electrical stimulation or both, Dissertation Abstracts International: Section B: The Sciences and Engineering, 69, 4130, 2009	Intervention does not meet the inclusion criteria, the exercises target the pelvic floor, not physical activity

Study	Reason for Exclusion
Fozzatti, C., Riccetto, C., Herrmann, V., Brancalion, M. F., Raimondi, M., Nascif, C. H., Marques, L. R., Palma, P. P., Prevalence study of stress urinary incontinence in women who perform high-impact exercises, International Urogynecology Journal, 23, 1687-91, 2012	Study population does not meet the inclusion criteria; only healthy women were recruited
Fozzatti, M. C., Brancalion, M. F., Riccetto, C., Herrmann, V., Raimondi, M., Marques, L., Nascif, C., Etienne, M., Palma, P., Prevalence study of stress urinary incontinence among women on high impact regular exercises, International Urogynecology Journal and Pelvic Floor Dysfunction, 1), S125-S126, 2010	Conference abstract
Gaither, T. W., Awad, M. A., Murphy, G. P., Metzler, I., Sanford, T., Eisenberg, M. L., Sutcliffe, S., Osterberg, E. C., Breyer, B. N., Cycling and Female Sexual and Urinary Function: Results From a Large, Multinational, Cross-Sectional Study, Journal of Sexual Medicine, 15, 510-518, 2018	Population do not meet the inclusion criteria, women did not have pelvic floor dysfunction
Gephart, L. F., Doersch, K., Kuehl, T. J., Reyes, M., Danford, J. M., Intra-abdominal pressure during crossfit exercise, Female Pelvic Medicine and Reconstructive Surgery, 22 (5 Supplement 1), S108, 2016	Conference abstract
Goldstick, O., Constantini, N., Urinary incontinence in physically active women and female athletes, British Journal of Sports Medicine, 48, 296-8, 2014	Narrative review
Hendrickson, L. S., The frequency of stress incontinence in women before and after the implementation of an exercise program, Issues in health care of women, 3, 81-92, 1981	Intervention does not meet the inclusion criteria, the exercise is based on Kegel's exercise, not physical activity
Huitt, C., Smith, C., Scott, A., 069 Physical Therapy and the Effects of Exercise Intervention on Common Musculoskeletal Impairments in the Postpartum Population, Journal of Sexual Medicine, 16 (6 Supplement 3), S25-S26, 2019	Conference abstract
Jiang,K., Novi,J.M., Darnell,S., Arya,L.A., Exercise and urinary incontinence in women, Obstetrical and Gynecological Survey, 59, 717-721, 2004	Narrative review
Jirovec, M. M., The impact of daily exercise on the mobility, balance and urine control of cognitively impaired nursing home residents, International Journal of Nursing Studies, 28, 145-51, 1991	Study design does not meet the inclusion criteria; pre-test, post-test study. No comparative group
Junginger, B., Baessler, K., Gymnastics for pelvic floor disorders-destroying the myth, Physiotherapy (United Kingdom), 1), eS573-eS574, 2011	Conference abstract
Karmakar, D., Dwyer, P. L., High impact exercise may cause pelvic floor dysfunction: FOR: Scale, strengthen, protect!, BJOG: An International Journal of Obstetrics & GynaecologyBjog, 125, 614, 2018	Debate review paper

Study	Reason for Exclusion
Kim, G. S., Kim, E. G., Shin, K. Y., Choo, H. J., Kim, M. J., Combined pelvic muscle exercise and yoga program for urinary incontinence in middle-aged women, Japan Journal of Nursing Science: JJNSJpn J Nurs Sci, 12, 330-9, 2015	Study design does not meet the inclusion criteria; no comparison group is included
Kim, T. H., Lee, K. S., Seo, J. H., Moon, K. H., Choi, D. W., Sung, Y. G., Hur, J., Cho, W. Y., Application of Korean traditional dance to treat stress incontinence-possibility for being a complement and substitute for pelvic muscle exercises, International Urogynecology Journal and Pelvic Floor Dysfunction, 20 (3 SUPPL.), S430-S431, 2009	Conference abstract
Kruger, J., High impact exercise may cause pelvic floor dysfunction: AGAINST: Is high-impact exercise really bad for your pelvic floor?, BJOG: An International Journal of Obstetrics & GynaecologyBjog, 125, 615, 2018	Debate review paper
Kulpa, P., Preventing urinary incontinence in active women, Physician and Sportsmedicine, 25, 24x, 1997	Narrative review
Lacombe, A. D. C., Riccobene, V. M., Nogueira, L. A. C., Effectiveness of a program of therapeutic exercises on the quality of life and lumbar disability in women with Stress Urinary Incontinence, Journal of Bodywork and Movement Therapies, 19, 82-88, 2015	Intervention does not meet the inclusion criteria; exercise focuses on pelvic floor muscle not physical activity
Lausen, A., Marsland, L., Head, S., Jackson, J., Lausen, B., Modified pilates as an adjunct to standard physiotherapy care for urinary incontinence: A mixed-methods pilot for a randomized controlled trial, Journal of Pelvic, Obstetric and Gynaecological Physiotherapy, 2018, 20-33, 2018	Duplicate publication from BMC Women's Health; study already included
Majumdar, A., Saleh, S., Hill, M., Hill, S. R., The impact of strenuous physical activity on the development of pelvic organ prolapse, Journal of Obstetrics and Gynaecology, 33, 115-119, 2013	Narrative literature review
Monteiro, M. V., Almeida, M. A., Barra, A. A., Velloso, F. S., Fonseca, A. M., Silva-Filho, A. L., Figueiredo, E. M., Urinary incontinence is is not the only pelvic floor dysfunction that occur in female athletes, International urogynecology journal and pelvic floor dysfunction, 22, S1831-S1832, 2011	Conference abstract
Nygaard, I. E., Shaw, J. M., Physical activity and the pelvic floor, American journal of obstetrics and gynecology, 214, 164-171, 2016	Narrative review
Nygaard, I. E., Shaw, J. M., Bardsley, T., Egger, M. J., Lifetime physical activity and pelvic organ prolapse in middle-aged women, American journal of obstetrics and gynecology, 210, 477.e1-477.e12, 2014	Study design does not meet the inclusion criteria; case control study
Nygaard, I. E., Shaw, J. M., Bardsley, T., Egger, M. J., Lifetime physical activity and female stress urinary incontinence, American journal of	Study design does not meet the inclusion criteria; case control study

Study	Reason for Exclusion
obstetrics and gynecology, 213, 40.e1-40.e10, 2015	
Nygaard, I., Shaw, J., Egger, M. J., Exploring the association between lifetime physical activity and pelvic floor disorders: Study and design challenges, Contemporary clinical trials, 33, 819-827, 2012	Protocol and discussion paper
Ragupathi, M., Patel, C. B., Gandhi, D. P., Ramos-Valadez, D. I., Haas, E. M., Pelvic muscle rehabilitation for fecal incontinence: Quantitative assessment of physiologic outcomes, Gastroenterology, 1), S544, 2010	Conference abstract
Santos, P. C., Lopes, S., Mesquita, C., Macedo, C., Ferreira, M., Moreira, C., Mota, J., The impact of clinical pilates on quality of life and functionality of the pelvic floor in women with urinary incontinence, Neurourology and Urodynamics, 36 (Supplement 3), S284-S285, 2017	Conference abstract
Scheve, A. A., Engel, B. T., McCormick, K. A., Leahy, E. G., Exercise in continence, Geriatric nursing (New York, N.Y.), 12, 124, 1991	Intervention does not meet the inclusion criteria; pelvic muscle exercise not physical activity
Tenfelde, S., Logan, R., Abernethy, M., Yoga from the pelvic floor, BeginningsBeginnings, 34, 24-6, 2014	Narrative review
Tenfelde, S., Tell, D., Garfield, L., Mathews, H., Janusek, L., Yoga for Women With Urgency Urinary Incontinence: A Pilot Study, Female Pelvic Medicine & Reconstructive SurgeryFemale pelvic med, 05, 05, 2019	Study design does not meet the inclusion criteria; single arm study, no comparative group
Tennford, M., Ellstro, M. Engh M., Bo, K., Does early onset of exercise training postpartum negatively affect pelvic floor muscle function and prevalence of pelvic floor dysfunction 12 months postpartum?, Neurourology and Urodynamics, 38 (Supplement 3), S336-S337, 2019	Conference abstract
Tuttle, L. J., Fasching, J., Keller, A., Patel, M., Saville, C., Schlaff, R., Walker, A., Mason, M., Gombatto, S. P., Noninvasive Treatment of Postpartum Diastasis Recti Abdominis: A Pilot Study, Journal of Women's Health Physical Therapy, 42, 65-75, 2018	Population does not meet the inclusion criteria; condition not associated with pelvic floor dysfunction
Vitton, V., Baumstarck-Barrau, K., Brardjanian, S., Bouvier, M., Grimaud, J. C., Impact of high-level sport practice on the prevalence of anal incontinence in a young healthy female population, Gastroenterology, 1), S128, 2010	Conference abstract
Wein, A. J., Re: A group-based yoga therapy intervention for urinary incontinence in women: A pilot randomized trial, Journal of Urology, 193, 1313, 2015	Editorial commentary
Wellisch, L., Marques, F., Raker, C., Sung, V. W., Physical activity levels in women with pelvic floor disorders, Journal of Pelvic Medicine and Surgery, 2), S32-S33, 2010	Conference abstract

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Economic studies

No economic evidence was identified for this review.

Appendix L – Research recommendations

Research recommendations for review question: What types of physical activity can increase or decrease symptoms of pelvic floor dysfunction?

Research question

How effective is strength training and weight lifting at improving symptoms associated with pelvic floor dysfunction?

Why this is important

Lifestyle modification, including physical activity is an important part of the management of medical conditions; changing exercise behaviours can improve an individual's health. However, the role of exercise in the management of pelvic floor dysfunction is uncertain. Currently there is little evidence on the effect of exercise on the symptoms associated with pelvic floor dysfunction. There is some evidence of benefit in terms of UI symptoms but lifting heavy objects can be associated with a significant rise in intra-abdominal pressure that can weaken pelvic organ support. Therefore there is uncertainty about the balance of harms and benefits and further research on this topic is required, to allow recommendations for advice about exercise to be developed.

Table 18: Research recommendation rationale

Research question	What is the effectiveness of weight training on symptoms associated with pelvic floor dysfunction?
Why is this needed	
Importance to 'patients' or the population	Exercise is often suggested to people with pelvic floor dysfunction. However, there is very limited evidence to guide which exercise interventions are associated with symptomatic improvement. Without this information, people may modify their physical activity in a manner which serves no useful purpose for the management of pelvic floor dysfunction.
Relevance to NICE guidance	The relative absence of evidence regarding this topic currently restricts NICE guidance from making recommendations regarding dietary modification in pelvic floor dysfunction. The outcome of this research would allow such recommendations to be developed and become part of NICE guidance.
Relevance to the NHS	Exercise is an intervention with relatively low cost and may reduce the need for interventions with higher cost impacts on the NHS. It may be that the recommendations could be combined with existing dietary advice.
National priorities	Increasing physical activity to reduce the prevalence of ill health is a key national priority.
Current evidence base	There is current evidence regarding interventions based on yoga, weight based training and stabilisation related balance exercises. In these studies the physical activity regimes were not well defined, were of short duration and also included pelvic floor muscle training – so it is difficult to reach conclusions about their effectiveness.
Equality	Women with frailty, inactive women or those with physical disabilities may require adapted exercise regimes.
Feasibility	There are existing trials of different forms of exercise so this should be feasible.
Other comments	

Table 19: Research recommendation modified PICO table

Criterion	Explanation
Population	Over 18 with pre-existing pelvic floor dysfunction capable of understanding and carrying out an exercise programme.
Intervention	Exercise programme such as: • Weight based exercises
Comparator	• Usual physical activity • Balance exercises (yoga/Pilates) • Aerobic exercises
Outcomes	Change in symptoms associated with pelvic floor dysfunction.
Study design	RCT
Timeframe	Intermediate points would allow determination of the likely length of intervention before an improvement is achieved. It may also offset some of the dropout in the long-term.
Additional information	It would be useful to compare the results of this study with physical activity currently advised for other diseases. This would show synergies between the existing advice and any new advice to help answer the question in the guideline.

RCT: randomised controlled trial

Research question

What is the effectiveness of unsupervised exercise such as walking or swimming on symptoms associated with pelvic floor dysfunction?

Why this is important

Lifestyle modification, including physical activity is an important part of the management of medical conditions; changing exercise behaviours can improve an individual's health. However, the role of exercise in the management of pelvic floor dysfunction is uncertain. Currently there is little evidence on the effect of exercise on the symptoms associated with pelvic floor dysfunction. For these reasons, research on this topic is required, to allow recommendations for advice about exercise to be developed.

Table 20: Research recommendation rationale

Research question	What is the effectiveness of unsupervised exercise such as walking or swimming on symptoms associated with pelvic floor dysfunction?
Why is this needed	
Importance to 'patients' or the population	Exercise is often suggested to people with pelvic floor dysfunction. However, there is very limited evidence to guide which exercise interventions are associated with symptomatic improvement. Without this information, people may modify their physical activity in a manner which serves no useful purpose for the management of pelvic floor dysfunction.
Relevance to NICE guidance	The relative absence of evidence regarding this topic currently restricts NICE guidance from making recommendations regarding dietary modification in pelvic floor dysfunction. The outcome of this research would allow such recommendations to be developed and become part of NICE guidance.
Relevance to the NHS	Exercise is an intervention with relatively low cost and may reduce the need for interventions with higher cost impacts on the NHS. It may be

Research question	What is the effectiveness of unsupervised exercise such as walking or swimming on symptoms associated with pelvic floor dysfunction?
	that the recommendations could be combined with existing dietary advice.
National priorities	Increasing physical activity to reduce the prevalence of ill health is a key national priority.
Current evidence base	There is current evidence regarding interventions based on yoga, weight based training and stabilisation related balance exercises. In these studies, the physical activity regimes were not well defined, were of short duration and also included pelvic floor muscle training – so it is difficult to reach conclusions about their effectiveness.
Equality	Older women and those with physical disabilities may require adapted exercise regimes.
Feasibility	There are existing trials of different forms of exercise so this should be feasible.
Other comments	

Table 21: Research recommendation modified PICO table

Criterion	Explanation
Population	Over 18 with pre-existing pelvic floor dysfunction capable of understanding and carrying out an exercise programme.
Intervention	Unsupervised exercise programme such as: • Walking • Swimming
Comparator	Usual physical activity
Outcomes	Change in symptoms associated with pelvic floor dysfunction.
Study design	RCT
Timeframe	Intermediate points would allow determination of the likely length of intervention before an improvement is achieved. It may also offset some of the dropout in the long-term.
Additional information	It would be useful to compare the results of this study with physical activity currently advised for other diseases. This would show synergies between the existing advice and any new advice to help answer the question in the guideline.

RCT: randomised controlled trial

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