National Institute for Health and Care Excellence

Draft for consultation

Pelvic floor dysfunction: prevention and non-surgical management

[J] Weight loss interventions

NICE guideline number tbc

Evidence review underpinning recommendations 1.6.5 to 1.6.8 and a research recommendation 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

Disclaimer

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

Local commissioners and/or providers have a responsibility to enable the guideline to be applied when individual health professionals and their patients or service users wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with compliance with those duties.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the Welsh Government, Scottish Government, and Northern Ireland Executive. All NICE guidance is subject to regular review and may be updated or withdrawn.

ISBN:

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Review question

What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Introduction

Obesity is related to an increased prevalence of many chronic conditions. There is an assumption that being overweight or obese may increase pelvic floor dysfunction; a greater body weight results in an increased abdominal pressure, which may affect the pelvic floor detrimentally. However, evidence that weight loss can significantly improve symptoms associated with pelvic floor dysfunction has not been synthesised: this review aims to fill this gap in the evidence.

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	Any intervention with the aim of weight loss will be considered, for example, but not exclusively: • Calorie restricted weight loss diets (to include liquid based diets) • Weight loss physical activity programmes • Combined diet and exercise plans for weight loss • Social support groups for weight loss • Behavioural weight loss programmes Combined interventions (those with a mixture of those listed above) will only be included if the primary aim is weight loss
Comparison	• Any of the above • No treatment/usual care

Outcomes	**Critical**
	• Subjective measure of 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
	• Anxiety and depression (only validated scales will be included)
	• Adverse events leading to withdrawal/discontinuation
	• Weight loss (as reported in the study: for example change in BMI, percentage weight loss or total weight loss)

BMI: body mass index.

For 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

Eight publications (Breyer 2018, Myers 2012, Hagovska 2020 Subak 2005 Subak 2009, Gozukara 2014, West 2011, Wing 2011) from 4 randomised controlled trials (RCTs: Hagovska 2020 Subak 2005 Subak 2009; Gozukara 2014) were included for this review. Five of the publications were from the Subak 2009 RCT (Breyer 2018, Myers 2012, Subak 2009, West 2011, Wing 2011).

The included studies are summarised in Table 2.

Studies recruited women with urinary incontinence (Subak 2005, Subak 2009, Gozukara 2014) or overactive bladder (Hagovska 2020) and three studies used a combined low-calorie diet and exercise intervention to promote weight loss (Subak 2005, Subak 2009, Gozukara 2014). The intervention lasted for 6 months for Subak 2009 and Gozukara 2014 and 3 months for Hagovska 2020 and Subak 2005. Subak 2009 also included a 12 months of maintenance therapy for those in the intervention arm.

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

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
Breyer 2018 (secondary data analysis of Subak 2009)	See Subak 2009	See Subak 2009	See Subak 2009	• Daytime frequency • Nocturia, • Urinary urgency • IPSS Score ≥8
Gozukara 2014 RCT Turkey	N=378 women with urinary incontinence Age: Intervention	6-month behavioural weight loss program and structured education program	Structured education program 4 x 1hr sessions prior to randomisation with	• Change in UI symptoms • Change in PFD symptoms • Weight loss

Study	Population	Intervention	Comparison	Outcomes
	44.1 (8.6) years; Control 43.8 (9.7) years; BMI: Intervention 32.7 (4.1)kg/m^2; Control 32.3 (3.6) kg/m^2	Calorie and fat restricted diet (1200-1800 kcal/day). 6 x 1hr group sessions led by a nutrition, exercise and behaviour change internist. Encouraged to increase physical activity.	information on benefits of weight loss, physical activity and healthy eating on urinary complaints.	
Hagovska 2020	N=93 women with overactive bladder Age: Intervention 26.7 (4.8); Control 26.9 (4.9) BMI: Intervention 25 (3); Control 25.1 (4.2)	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.	• Change in OAB symptoms • Weight loss
Myers 2012 (secondary data analysis of Subak 2009)	See Subak 2009	See Subak 2009	See Subak 2009	• POP symptoms: cured • POP symptoms: improved bother or cured • POP symptoms: new report of symptom
Subak 2005 RCT USA	N=48 women with urinary incontinence Age (median, range): Intervention 50.5 (46-54) years; Control 57.5 (50-62) years BMI (median, range): Intervention 34 (32-40) kg/m2; Control 36 (32-38) kg/m2	3- month Weight loss program 800 calorie or less liquid diet. Weekly group meetings. Encouraged to increase physical activity until exercising 60mins daily and taught standard cognitive and behavioural skills to modify eating and exercise habits.	Wait-list control group No treatment for 3 months then received weight loss program	• Change in UI symptoms • Health related quality of life • Weight loss

Study	Population	Intervention	Comparison	Outcomes
Subak 2009 RCT USA	N=338 women with urinary incontinence Age: Intervention 53 (11) years; Control 53 (10) years; BMI: Intervention 36 (6)kg/m^2; Control 36 (5) kg/m^2	6- month Weight loss program Calorie and fat restricted diet (1200-1500 kcal/day. 1hr weekly group meeting. Vouchers for meal replacement shakes. Encouraged to increase physical activity aiming to achieve 200 minutes each week. Followed by 12-month maintenance approach Randomised to either a motivation-focused weight maintenance program or a skill-based maintenance program	Educational sessions 4 x 1hr sessions with general information about weight loss, physical activity and healthful eating habits	• Body weight (6 months) • Incontinence episodes/week (6 months; any, stress and urge)
West 2011 RCT USA	See Subak 2009	18 month follow-up after the initial 6 month intervention from Subak 2009 and then a 12 month maintenance programme for skill-based maintenance or motivational maintenance for the intervention arm	See Subak 2009	• Weight change at 18 months (see Wing 2010 also)
Wing 2010 RCT USA	See Subak 2009	18 month follow-up after the initial 6 month intervention from Subak 2009 and then a 12 month maintenance programme for skill-based maintenance or motivational maintenance for the intervention arm	See Subak 2009	• Body weight change at 18 months • Total, stress and urge UI episodes/week at 18 months • 24hr involuntary urine loss at 18 months

CRADI: colorectal anal distress inventory; IIQ: incontinence impact questionnaire; IPSS: International Prostate Symptom Score; OAB-Q: Overactive Bladder Questionnaire; PFDI: Pelvic Floor Distress Inventory; POP: pelvic organ prolapse; POPDI: pelvic organ prolapse distress inventory; SF-36: short form of the quality of life questionnaire; UDI: urinary distress inventory; UI: urinary incontinence.

See the full evidence tables in appendix D and 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 interventions recommended were unlikely to have a significant resource impact.

Brief summary of evidence

Weight loss interventions

- Very low to moderate quality evidence showed that weight loss interventions were effective in reducing weight when compared to control.
- Very low to moderate quality evidence showed that weight loss was associated with a clinically important reduction in urinary symptoms but not in POP symptoms.

Rationale and impact

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 specifically target the management of these symptoms. Anxiety and depression were considered important outcomes as many women report the psychological impact that pelvic floor dysfunction has on their lives. Other important outcomes were adherence to the intervention, adverse events and weight change 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, with most of the evidence being of low quality. The main concerns with the quality of the evidence for the included outcomes was due to the risk of bias (where all

studies had methodological issues related to assignment, adherence, missing data and selective reporting) and imprecision.

No evidence was identified for the following outcomes: emptying disorders of the bladder, faecal incontinence, emptying disorders of the bowel, sexual dysfunction, chronic pelvic pain syndromes, adherence, anxiety and depression.

Benefits and harms

The evidence presented showed that weight loss interventions were effective in significantly reducing weight of women as compared to control. In one study body weight remained significantly lower in the intervention arm at 18 months when compared to the control arm.

The evidence also showed weight loss significantly reduced urinary incontinence episodes (including both stress and urge incontinence) as compared to control. The committee discussed based on experience that weight exacerbates urinary incontinence symptoms because of the intra-abdominal pressure it puts on the pelvic floor muscles and organs, so weight loss will be beneficial. All the evidence presented was based on women with a BMI greater than 30kg/m^2; as such the recommendations are based on this cut-off. However, the committee discussed that in practice very few women come into practice with a BMI that is lower than 25kg/m^2, and are considered overweight. Therefore, these recommendations may also be relevant for these women, but since there was no direct evidence in this group they did not make a recommendation for women with a lower BMI than 30kg/m^2. There was no evidence that weight loss was detrimental to their pelvic floor symptoms, and therefore women should be supported to lose weight.

All of the included interventions were based on "*supported weight loss programmes*"; therefore, the committee discussed how women should not simply be told to "lose weight" but should be referred to an appropriate programme. The committee acknowledged that healthcare professionals should follow the NICE obesity management guideline to help women lose weight and decided to cross reference a range of possible guidance related to this.

The evidence did not show any effect of weight loss on symptoms of pelvic organ prolapse (POP); the committee however, noted that this differs according to the stage of POP. The committee noted that this lack of effect was potentially related to different stages of POP. For women in late stage, weight loss is likely to have no effect, but weight loss could help considerably for women with early stage POP. They decided that a reduction of intra-abdominal pressure through weight loss may be beneficial in the early stages of pelvic organ prolapse because less weight would press on the pelvic organs and this could improve symptoms. Nonetheless, there was no evidence to support this, so the committee recommended it generally for POP (because of other beneficial health effects) rather than specifically by the stage of POP.

The committee noted that no evidence was identified that specifically studied women explicitly stated as having 'pelvic floor dysfunction,' or evidence for any other symptoms of pelvic floor dysfunction other than urinary incontinence, overactive bladder and pelvic organ prolapse. They therefore decided to make a research recommendation to encourage future research which would inform future guidance. If weight loss were an effective intervention, some women may be able to avoid surgery and other invasive interventions.

The committee agreed that although weight loss may help with some symptoms of pelvic floor disorder there is no reason to delay other effective management options while waiting for weight to be lost. This is because weight loss alone is unlikely to be effective for all women and it may be difficult to achieve quickly.

Cost effectiveness and resource use

The recommendation that certain women should be advised that weight loss can help with symptoms has negligible costs as that advice can occur in contacts and consultations that would be happening as part of the management of women's pelvic floor dysfunction, although a little more time may be necessary to discuss options. The guideline cross refers to other UK clinical and public health guidance for guidance and support for weight loss. Whilst no formal economic analysis was undertaken the committee considered their recommendations were likely to be cost-effective given their low cost of implementation and the potential of weight loss to prevent or mitigate symptoms of pelvic floor dysfunction.

Other factors the committee took into account

The committee agreed that weight loss recommendations should be in line with the NICE guidelines on obesity management: Obesity: identification, assessment and management [CG189], and Weight management before, during and after pregnancy [PH27]. The committee also referred to relevant NICE guidance for weight management interventions: Weight management: lifestyle services for overweight or obese adults [PH53] and Weight management: lifestyle services for overweight or obese children and young people [PH47].

Recommendations supported by this evidence review

This evidence review supports recommendations 1.6.5 to 1.6.8 and a research recommendation on weight loss to reduce symptoms of pelvic floor dysfunction in the NICE guideline.

References

Breyer 2018

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Subak 2009

Subak, L. L., Wing, R., West, D. S., Franklin, F., Vittinghoff, E., Creasman, J. M., Richter, H. E., Myers, D., Burgio, K. L., Gorin, A. A., Macer, J., Kusek, J. W., Grady, D., Pride Investigators, Weight loss to treat urinary incontinence in overweight and obese women, New England journal of medicine, 360, 481-90, 2009

West 2011

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Wing 2010

Wing, R. R., West, D. S., Grady, D., Creasman, J. M., Richter, H. E., Myers, D., Burgio, K. L., Franklin, F., Gorin, A. A., Vittinghoff, E., Macer, J., Kusek, J. W., Subak, L. L., Program to Reduce Incontinence by, Diet, Exercise, Group, Effect of weight loss on urinary incontinence in overweight and obese women: results at 12 and 18 months, Journal of urology, 184, 1005-10, 2010

Appendices

Appendix A – Review protocol

Review protocol for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Table 3: Review protocol

ID	Field	Content
0.	PROSPERO registration number	Not registered
1.	Review title	Weight loss interventions
2.	Review question	What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?
3.	Objective	The objective of this review is to determine whether weight loss interventions can effectively improve symptoms (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) associated with pelvic floor dysfunction.
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

ID	Field	Content
		The full search strategies for MEDLINE database will be published in the final review. 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 under 12 years old
7.	Intervention/Exposure/Test	Any intervention with the aim of weight loss will be considered, for example, but not exclusively: • Calorie restricted weight loss diets (to include liquid based diets) • Weight loss physical activity programmes • Combined diet and exercise plans for weight loss • Social support groups for weight loss • Behavioural weight loss programmes

ID	Field	Content
		Combined interventions (those with a mixture of those listed above) will only be included if the primary aim is weight loss All weight loss interventions included in this review, will fall under those described as "l*ifestyle*", "*behavioural*", "*dietary"* or "*physical activity*" interventions for weight loss, as described in NICE guideline CG189: https://www.nice.org.uk/guidance/cg189/chapter/1-Recommendations
8.	Comparator/Reference standard/Confounding factors	• Any of the above • No treatment/usual care
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 • Comparative 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 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 physical activity. Appropriate adjustment for these confounders within the included studies will be considered during the GRADE process.

ID	Field	Content
		Note: For further details, see the algorithm in appendix H, Developing NICE guidelines: the manual.
10.	Other exclusion criteria	• Weight loss surgery • Pharmaceutical weight loss drugs (for example orlistat) • We will only include studies where women are classified as overweight at study start (defined as BMI ≥25kg/m^2), or where sub-group analysis for these women has been reported • Studies with a mixed population (that is 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 • Conference abstracts will be excluded because these do not typically provide sufficient information to fully assess risk of bias • 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 measure of 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

ID	Field	Content
		• 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 • Anxiety and depression (only validated scales will be included) • Adverse events leading to withdrawal/discontinuation • Weight loss (as reported in the study for example: change in BMI, percentage weight loss or total weight loss)
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.

ID	Field	Content
16.	Strategy for data synthesis	Depending on the availability of the evidence, the findings will be summarised narratively or quantitatively. Data Synthesis 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. Heterogeneity Heterogeneity in the effect estimates of the individual studies will be assessed using the I^2 statistic. I^2 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 1. According to risk of bias of individual studies 2. According to socioeconomic status of population included 3. 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 Minimal important differences (MIDs) 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.

ID	Field	Content	
		Validity 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 • Women who successfully lost weight during the intervention and those that did not *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	

ID	Field	Content		
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** 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.		

ID	Field	Content	
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	[Give the citation and link for the published protocol, if there is one.]	
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	Weight loss Pelvic floor dysfunction	
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; BMI: body mass index; 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; QOL: quality of life; RCT: randomised controlled trial; RoB: risk of bias; SD: standard deviation: UDI: Urinary distress index

Appendix B – Literature search strategies

Literature search strategies for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Clinical Search

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: 2 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	exp Urinary Incontinence/ use ppez
2	Urinary Bladder, Overactive/ use ppez
3	Nocturia/ use ppez
4	exp Enuresis/ use ppez
5	exp urine incontinence/ use emczd
6	overactive bladder/ use emczd
7	bladder instability/ use emczd
8	nocturia/ use emczd
9	exp enuresis/ use emczd
10	((stress$ or mix$ or urg$ or urin$) adj5 incontinen$).tw.
11	(bladder$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$ or incontinen$)).tw.
12	(detrusor$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$)).tw.
13	((urgency adj2 frequency) or (frequency adj2 urgency)).tw.
14	((urin$ or bladder$) adj2 (urg$ or frequen$)).tw.
15	(nocturia$ or enuresis$).tw.
16	(SUI or OAB).tw.
17	or/1-16
18	exp Pelvic Organ Prolapse/ use ppez
19	exp pelvic organ prolapse/ use emczd
20	Rectocele/ use ppez
21	rectocele/ use emczd
22	(pelvic$ adj3 organ$ adj3 prolaps$).tw.
23	(urinary adj3 bladder adj3 prolaps$).tw.
24	((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$).tw.
25	(splanchnoptos$ or visceroptos$).tw.
26	(hernia$ adj3 (pelvi$ or vagin$ or urogenital$ or uter$ or bladder$ or urethr$ or viscer$)).tw.
27	(urethroc?ele$ or enteroc?ele$ or sigmoidoc?ele$ or proctoc?ele$ or rectoc?ele$ or cystoc?ele$ or rectoenteroc?ele$ or cystourethroc?ele$).tw.
28	or/18-27
29	Fecal Incontinence/ use ppez
30	feces incontinence/ use emczd
31	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat$ or defaecat$) adj5 (incontinence or incontinent or urge$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).tw.
32	or/29-31
33	Urinary Retention/ use ppez
34	Dysuria/ use ppez
35	urine retention/ use emczd
36	dysuria/ use emczd
37	(urin$ adj3 (retention$ or retain$)).tw.
38	dysuria$.tw.
39	(voiding adj (disorder$ or dysfunction$ or problem$)).tw.
40	(empty$ adj disorder$ adj3 (bowel$ or bladder$ or vesical$ or stool$)).tw.
41	((urogeni$ or anorec$ or ano-rec$ or ano rec$) adj3 dysfunction$).tw.
42	defecation disorder/ use emczd
43	*Constipation/ use ppez

#	Searches
44	*constipation/ use emczd
45	Fecal Impaction/ use ppez
46	Feces Impaction/ use emczd
47	constipat$.ti.
48	((difficult$ or delay$ or irregular$ or infrequen$ or pain$) adj3 (defecat$ or defaecat$ or stool$ or faecal or fecal or faeces or feces or fecally or faecally or bowel movement$)).tw.
49	coprostasis.tw.
50	(obstruct$ adj3 (defecat$ or defaecat$)).tw.
51	((defecat$ or defaecat$ or evacuat$) adj3 (disorder$ or dysfunction$)).tw.
52	outlet$ dysfunction$ constipa$.tw.
53	(dys?ynerg$ adj (defecat$ or defaecat$)).tw.
54	(pelvi$ adj3 dyskines$).tw.
55	pelvi$ outlet$ obstruct$.tw.
56	anismus$.tw.
57	puborectal$ contract$.tw.
58	((rectal or rectum) adj3 urge$).tw.
59	or/33-58
60	female sexual dysfunction/ use emczd
61	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
62	Dyspareunia/ use ppez
63	dyspareunia/ use emczd
64	(sex$ adj3 pain$).tw.
65	(dyspareun$ or anodyspareun$).tw.
66	(obstruct$ adj3 intercourse).tw.
67	(vagin$ adj3 laxity$).tw.
68	(vagin$ adj wind).tw.
69	orgasm disorder/ use emczd
70	(female adj orgasm$ adj (disorder$ or deficienc$ or dysfunction$ or problem$)).tw.
71	anorgasm$.tw.
72	Vaginismus/ use ppez
73	vaginism/ use emczd
74	vaginismus$.tw.
75	(vagin$ adj penetrat$ adj disorder$).tw.
76	Vulvodynia/ use ppez
77	vulvodynia/ use emczd
78	vulvodynia$.tw.
79	(vagin$ adj dry$).tw.
80	hypoactive sexual desire disorder/ use emczd
81	hypoactiv$ sex$ desire$.tw.
82	sexual arousal disorder/ use emczd
83	(sex$ adj arous$ adj disorder$).tw.
84	(genitourin$ adj syndrom$ adj5 menopaus$).tw.
85	or/60-84
86	Pelvic Pain/ use ppez
87	pelvic pain/ use emczd
88	((pelvi$ or lumbopelvi$ or lumbo-pelvi$ or genito-pelvi$ or genitopelvi$) adj3 pain$).tw.
89	(pubi$ adj3 (pain$ or dysfunction$)).tw.
90	(pudend$ adj3 neuralg$).tw.
91	proctalgia$.tw.
92	(tension$ adj myalgia$).tw.
93	or/86-92
94	Pelvic Floor/ use ppez
95	Pelvic Floor Disorders/ use ppez
96	pelvis floor/ use emczd
97	pelvic floor disorder/ use emczd
98	(pelvi$ 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$)).tw.
99	(pelvi$ 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$)).tw.
100	or/94-99
101	Weight Loss/ use ppez
102	Weight Reduction Programs/ use ppez
103	weight reduction/ use emczd
104	*body weight loss/ use emczd
105	body weight control/ use emczd
106	body weight change/ use emczd
107	weight loss program/ use emczd

#	Searches
108	(weight adj2 (los$ or reduc$) adj3 (modif$ or therap$ or intervention$ or strateg$ or program$ or management or scheme$ or group$ or pathway)).tw.
109	(weight adj management).tw.
110	((calori$ or hypocalori$) adj2 (restrict$ or diet$)).tw.
111	or/101-110
112	(17 or 28 or 32 or 59 or 85 or 93 or 100) and 111
113	limit 112 to english language
114	limit 113 to yr="1980 -Current" [General Exclusions filter applied]

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: 2 February 2021

#	Search
#1	MeSH descriptor: [Urinary Incontinence] explode all trees
#2	MeSH descriptor: [Urinary Bladder, Overactive] this term only
#3	MeSH descriptor: [Nocturia] this term only
#4	MeSH descriptor: [Enuresis] explode all trees
#5	(((stress* or mix* or urg* or urin*) NEAR/5 incontinen*)):ti,ab,kw
#6	((bladder* NEAR/5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*))):ti,ab,kw
#7	((detrusor* NEAR/5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*))):ti,ab,kw
#8	(((urgency NEAR/2 frequency) or (frequency NEAR/2 urgency))):ti,ab,kw
#9	(((urin* or bladder*) NEAR/2 (urg* or frequen*))):ti,ab,kw
#10	((nocturia* or enuresis*)):ti,ab,kw
#11	((SUI or OAB)):ti,ab,kw
#12	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR| #7 OR #8 OR #9 OR #10 OR #11
#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,ab,kw
#16	((urinary NEAR/3 bladder NEAR/3 prolaps*)):ti,ab,kw
#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,ab,kw
#18	((splanchnoptos* or visceroptos*)):ti,ab,kw
#19	((hernia* NEAR/3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*))):ti,ab,kw
#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,ab,kw
#21	#13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20
#22	MeSH descriptor: [Fecal Incontinence] this term only
#23	(((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,ab,kw
#24	#22 OR #23
#25	MeSH descriptor: [Urinary Retention] this term only
#26	MeSH descriptor: [Dysuria] this term only
#27	((urin* NEAR/3 (retention* or retain*))):ti,ab,kw
#28	(dysuria*):ti,ab,kw
#29	((voiding NEXT (disorder* or dysfunction* or problem*))):ti,ab,kw
#30	((empty* NEXT disorder* NEAR/3 (bowel* or bladder* or vesical* or stool*))):ti,ab,kw
#31	(((urogeni* or anorec* or ano-rec* or ano rec*) NEAR/3 dysfunction*)):ti,ab,kw
#32	MeSH descriptor: [Constipation] this term only
#33	MeSH descriptor: [Fecal Impaction] this term only
#34	(constipat*):ti
#35	(((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
#36	(coprostasis):ti,ab,kw
#37	((obstruct* NEAR/3 (defecat* or defaecat*))):ti,ab,kw
#38	(((defecat* or defaecat* or evacuat*) NEAR/3 (disorder* or dysfunction*))):ti,ab,kw
#39	(outlet* dysfunction* constipa*):ti,ab,kw
#40	((dys?ynerg* NEXT (defecat* or defaecat*))):ti,ab,kw
#41	((pelvi* NEAR/3 dyskines*)):ti,ab,kw
#42	(pelvi* outlet* obstruct*):ti,ab,kw
#43	(anismus*):ti,ab,kw
#44	(puborectal* contract*):ti,ab,kw
#45	(((rectal or rectum) NEAR/3 urge*)):ti,ab,kw
#46	#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

#	Search
#47	((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*))):ti,ab,kw
#48	MeSH descriptor: [Dyspareunia] this term only
#49	((sex* NEAR/3 pain*)):ti,ab,kw
#50	(dyspareun* or anodyspareun*):ti,ab,kw
#51	((obstruct* NEAR/3 intercourse)):ti,ab,kw
#52	((vagin* NEAR/3 laxity*)):ti,ab,kw
#53	((vagin* NEXT wind)):ti,ab,kw
#54	((female NEXT orgasm* NEXT (disorder* or deficienc* or dysfunction* or problem*))):ti,ab,kw
#55	(anorgasm*):ti,ab,kw
#56	MeSH descriptor: [Vaginismus] this term only
#57	(vaginismus*):ti,ab,kw
#58	((vagin* NEXT penetrat* NEXT disorder*)):ti,ab,kw
#59	MeSH descriptor: [Vulvodynia] this term only
#60	(vulvodynia*):ti,ab,kw
#61	((vagin* NEXT dry*)):ti,ab,kw
#62	(hypoactiv* NEXT sex* NEXT desire*):ti,ab,kw
#63	((sex* NEXT arous* NEXT disorder*)):ti,ab,kw
#64	((genitourin* NEXT syndrom* NEAR/5 menopaus*)):ti,ab,kw
#65	#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
#66	MeSH descriptor: [Pelvic Pain] this term only
#67	(((pelvi* or lumbopelvi* or lumbo-pelvi* or genito-pelvi* or genitopelvi*) NEAR/3 pain*)):ti,ab,kw
#68	((pubi* NEAR/3 (pain* or dysfunction*))):ti,ab,kw
#69	((pudend* NEAR/3 neuralg*)):ti,ab,kw
#70	(proctalgia*):ti,ab,kw
#71	((tension* NEXT myalgia*)):ti,ab,kw
#72	#66 OR #67 OR #68 OR #69 OR #70 OR #71
#73	MeSH descriptor: [Pelvic Floor] this term only
#74	MeSH descriptor: [Pelvic Floor Disorders] this term only
#75	((pelvi* adj (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*))):ti,ab,kw
#76	((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*))):ti,ab,kw
#77	#73 OR #74 OR #75 OR #76
#78	MeSH descriptor: [Weight Loss] this term only
#79	MeSH descriptor: [Weight Reduction Programs] this term only
#80	((weight NEAR/2 (los* or reduc*) NEAR/3 (modif* or therap* or intervention* or strateg* or program* or management or scheme* or group* or pathway))):ti,ab,kw
#81	((weight NEXT management)):ti,ab,kw
#82	(((calori* or hypocalori*) NEAR/2 (restrict* or diet*))):ti,ab,kw
#83	#78 OR #79 OR #80 OR #81 OR #82
#84	(#12 OR #21 OR #24 OR #46 OR #65 OR #72 OR #77) AND #83

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

Date of last search: 2 February 2021

Line	Search
1	MeSH DESCRIPTOR Urinary Incontinence EXPLODE ALL TREES IN DARE,HTA
2	MeSH DESCRIPTOR Urinary Bladder, Overactive IN DARE,HTA
3	MeSH DESCRIPTOR Nocturia IN DARE,HTA
4	MeSH DESCRIPTOR Enuresis EXPLODE ALL TREES IN DARE,HTA
5	(((stress* or mix* or urg* or urin*) NEAR5 incontinen*)) IN DARE, HTA
6	((bladder* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex* or incontinen*))) IN DARE, HTA
7	((detrusor* NEAR5 (overactiv* or over activ* or over-activ* or instabilit* or hyper-reflex* or hyperreflex* or hyper reflex*))) IN DARE, HTA
8	(((urgency NEAR2 frequency) or (frequency NEAR2 urgency))) IN DARE, HTA
9	(((urin* or bladder*) NEAR2 (urg* or frequen*))) IN DARE, HTA
10	((nocturia* or enuresis*)) IN DARE, HTA
11	((SUI or OAB)) IN DARE, HTA
12	MeSH DESCRIPTOR Pelvic Organ Prolapse EXPLODE ALL TREES IN DARE,HTA
13	MeSH DESCRIPTOR Rectocele IN DARE,HTA
14	((pelvic* NEAR3 organ* NEAR3 prolaps*)) IN DARE, HTA
15	((urinary NEAR3 bladder NEAR3 prolaps*)) IN DARE, HTA
16	(((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
17	((splanchnoptos* or visceroptos*)) IN DARE, HTA

Line	Search
18	((hernia* NEAR3 (pelvi* or vagin* or urogenital* or uter* or bladder* or urethr* or viscer*))) IN DARE, HTA
19	((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
20	MeSH DESCRIPTOR Fecal Incontinence IN DARE,HTA
21	(((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
22	MeSH DESCRIPTOR Urinary Retention IN DARE,HTA
23	((urin* NEAR3 (retention* or retain*))) IN DARE, HTA
24	(dysuria*) 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 Constipation IN DARE,HTA
29	MeSH DESCRIPTOR Fecal Impaction IN DARE,HTA
30	(constipat*):TI IN DARE, HTA
31	(((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
32	(coprostasis) IN DARE, HTA
33	((obstruct* NEAR3 (defecat* or defaecat*))) IN DARE, HTA
34	(((defecat* or defaecat* or evacuat*) NEAR3 (disorder* or dysfunction*))) IN DARE, HTA
35	(outlet* NEXT dysfunction* NEXT constipa*) IN DARE, HTA
36	((dys?ynerg* NEXT (defecat* or defaecat*))) IN DARE, HTA
37	((pelvi* NEAR3 dyskines*)) IN DARE, HTA
38	(pelvi* NEXT outlet* NEXT obstruct*) IN DARE, HTA
39	(anismus*) IN DARE, HTA
40	(puborectal* contract*) IN DARE, HTA
41	(((rectal or rectum) NEAR3 urge*)) IN DARE, HTA
42	((female NEXT sex* NEXT (dysfunct* or satisf* or problem* or symptom* or arous* or activit* or disorder*))) IN DARE, HTA
43	MeSH DESCRIPTOR Dyspareunia IN DARE,HTA
44	((sex* NEAR3 pain*)) IN DARE, HTA
45	((dyspareun* or anodyspareun*)) IN DARE, HTA
46	((obstruct* NEAR3 intercourse)) IN DARE, HTA
47	((vagin* NEAR3 laxity*)) IN DARE, HTA
48	((vagin* NEXT wind)) IN DARE, HTA
49	((female NEXT orgasm* adj (disorder* or deficienc* or dysfunction* or problem*))) IN DARE, HTA
50	(anorgasm*) IN DARE, HTA
51	MeSH DESCRIPTOR Vaginismus IN DARE,HTA
52	(vaginismus*) IN DARE, HTA
53	((vagin* NEXT penetrat* NEXT disorder*)) IN DARE, HTA
54	MeSH DESCRIPTOR vulvodynia IN DARE,HTA
55	(vulvodynia*) IN DARE, HTA
56	((vagin* NEXT dry*)) IN DARE, HTA
57	(hypoactiv* NEXT sex* NEXT desire*) IN DARE, HTA
58	((sex* NEXT arous* NEXT disorder*)) IN DARE, HTA
59	((genitourin* NEXT syndrom* NEAR5 menopaus*)) IN DARE, HTA
60	MeSH DESCRIPTOR Pelvic Pain IN DARE,HTA
61	(((pelvi* or lumbopelvi* or lumbo-pelvi* or genito-pelvi* or genitopelvi*) NEAR3 pain*)) IN DARE, HTA
62	((pubi* NEAR3 (pain* or dysfunction*))) IN DARE, HTA
63	((pudend* NEAR3 neuralg*)) IN DARE, HTA
64	(proctalgia*) IN DARE, HTA
65	((tension* NEXT myalgia*)) IN DARE, HTA
66	MeSH DESCRIPTOR Pelvic Floor IN DARE,HTA
67	MeSH DESCRIPTOR Pelvic Floor Disorders IN DARE,HTA
68	((pelvi* adj (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*))) IN DARE, HTA
69	((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*))) IN DARE, HTA
70	#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 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #64 OR #65 OR #66 OR #67 OR #68 OR #69
71	MeSH DESCRIPTOR Weight Loss IN DARE,HTA
72	MeSH DESCRIPTOR Weight Reduction Programs IN DARE,HTA
73	((weight NEAR2 (los* or reduc*) NEAR3 (modif* or therap* or intervention* or strateg* or program* or management or scheme* or group* or pathway))) IN DARE, HTA
74	((weight NEXT management)) IN DARE, HTA

Line	Search
75	(((calori* or hypocalori*) NEAR2 (restrict* or diet*))) IN DARE, HTA
76	#71 OR #72 OR #73 OR #74 OR #75
77	#70 AND #76

Database(s): EMCare – OVID interface

Date of last search: 2 February 2021

#	Searches
1	exp urine incontinence/
2	overactive bladder/
3	bladder instability/
4	nocturia/
5	enuresis/
6	exp enuresis/
7	((stress$ or mix$ or urg$ or urin$) adj5 incontinen$).tw.
8	(bladder$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$ or incontinen$)).tw.
9	(detrusor$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$)).tw.
10	((urgency adj2 frequency) or (frequency adj2 urgency)).tw.
11	((urin$ or bladder$) adj2 (urg$ or frequen$)).tw.
12	(nocturia$ or enuresis$).tw.
13	(SUI or OAB).tw.
14	or/1-13
15	exp pelvic organ prolapse/
16	rectocele/
17	(pelvic$ adj3 organ$ adj3 prolaps$).tw.
18	(urinary adj3 bladder adj3 prolaps$).tw.
19	((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$).tw.
20	(splanchnoptos$ or visceroptos$).tw.
21	(hernia$ adj3 (pelvi$ or vagin$ or urogenital$ or uter$ or bladder$ or urethr$ or viscer$)).tw.
22	(urethroc?ele$ or enteroc?ele$ or sigmoidoc?ele$ or proctoc?ele$ or rectoc?ele$ or cystoc?ele$ or rectoenteroc?ele$ or cystourethroc?ele$).tw.
23	or/15-22
24	feces incontinence/
25	((faecal or fecal or faeces or feces or fecally or faecally or anal or anally or stool or stools or bowel or double or defecat$ or defaecat$) adj5 (incontinence or incontinent or urge$ or leak or leaking or leakage or soiling or seeping or seepage or impacted or impaction)).tw.
26	24 or 25
27	urine retention/
28	dysuria/
29	(urin$ adj3 (retention$ or retain$)).tw.
30	dysuria$.tw.
31	(voiding adj (disorder$ or dysfunction$ or problem$)).tw.
32	(empty$ adj disorder$ adj3 (bowel$ or bladder$ or vesical$ or stool$)).tw.
33	((urogeni$ or anorec$ or ano-rec$ or ano rec$) adj3 dysfunction$).tw.
34	defecation disorder/
35	*constipation/
36	feces impaction/
37	constipat$.ti.
38	((difficult$ or delay$ or irregular$ or infrequen$ or pain$) adj3 (defecat$ or defaecat$ or stool$ or faecal or fecal or faeces or feces or fecally or faecally or bowel movement$)).tw.
39	coprostasis.tw.
40	(obstruct$ adj3 (defecat$ or defaecat$)).tw.
41	((defecat$ or defaecat$ or evacuat$) adj3 (disorder$ or dysfunction$)).tw.
42	outlet$ dysfunction$ constipa$.tw.
43	(dys?ynerg$ adj (defecat$ or defaecat$)).tw.
44	(pelvi$ adj3 dyskines$).tw.
45	pelvi$ outlet$ obstruct$.tw.
46	anismus$.tw.
47	puborectal$ contract$.tw.
48	((rectal or rectum) adj3 urge$).tw.
49	or/27-48
50	female sexual dysfunction/
51	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
52	dyspareunia/
53	(sex$ adj3 pain$).tw.
54	(dyspareun$ or anodyspareun$).tw.

#	Searches
55	(obstruct$ adj3 intercourse).tw.
56	(vagin$ adj3 laxity$).tw.
57	(vagin$ adj wind).tw.
58	orgasm disorder/
59	(female adj orgasm$ adj (disorder$ or deficienc$ or dysfunction$ or problem$)).tw.
60	anorgasm$.tw.
61	vaginism/
62	vaginismus$.tw.
63	(vagin$ adj penetrat$ adj disorder$).tw.
64	vulvodynia/
65	vulvodynia$.tw.
66	(vagin$ adj dry$).tw.
67	hypoactive sexual desire disorder/
68	hypoactiv$ sex$ desire$.tw.
69	sexual arousal disorder/
70	(sex$ adj arous$ adj disorder$).tw.
71	(genitourin$ adj syndrom$ adj5 menopaus$).tw.
72	or/50-71
73	pelvic pain/
74	((pelvi$ or lumbopelvi$ or lumbo-pelvi$ or genito-pelvi$ or genitopelvi$) adj3 pain$).tw.
75	(pubi$ adj3 (pain$ or dysfunction$)).tw.
76	(pudend$ adj3 neuralg$).tw.
77	proctalgia$.tw.
78	(tension$ adj myalgia$).tw.
79	or/73-78
80	pelvis floor/
81	pelvic floor disorder/
82	(pelvi$ 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$)).tw.
83	(pelvi$ 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$)).tw.
84	or/80-83
85	weight reduction/
86	*body weight loss/
87	body weight control/
88	body weight change/
89	weight loss program/
90	(weight adj2 (los$ or reduc$) adj3 (modif$ or therap$ or intervention$ or strateg$ or program$ or management or scheme$ or group$ or pathway)).tw.
91	(weight adj management).tw.
92	((calori$ or hypocalori$) adj2 (restrict$ or diet$)).tw.
93	or/85-92
94	(14 or 23 or 26 or 49 or 72 or 79 or 84) and 93
95	limit 94 to (english language and yr="1980 -Current") [General Exclusions filter applied]

Database(s): PsycINFO 1806 to January Week 4 2021 **– OVID interface**

Date of last search: 2 February 2021

#	Searches
1	exp Urinary Incontinence/
2	((stress$ or mix$ or urg$ or urin$) adj5 incontinen$).tw.
3	(bladder$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$ or incontinen$)).tw.
4	(detrusor$ adj5 (overactiv$ or over activ$ or over-activ$ or instabilit$ or hyper-reflex$ or hyperreflex$ or hyper reflex$)).tw.
5	((urgency adj2 frequency) or (frequency adj2 urgency)).tw.
6	((urin$ or bladder$) adj2 (urg$ or frequen$)).tw.
7	(nocturia$ or enuresis$).tw.
8	(SUI or OAB).tw.
9	(pelvic$ adj3 organ$ adj3 prolaps$).tw.
10	(urinary adj3 bladder adj3 prolaps$).tw.
11	((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$).tw.
12	(splanchnoptos$ or visceroptos$).tw.
13	(hernia$ adj3 (pelvi$ or vagin$ or urogenital$ or uter$ or bladder$ or urethr$ or viscer$)).tw.
14	(urethroc?ele$ or enteroc?ele$ or sigmoidoc?ele$ or proctoc?ele$ or rectoc?ele$ or cystoc?ele$ or rectoenteroc?ele$ or cystourethroc?ele$).tw.
15	exp Fecal Incontinence/

#	Searches
16	((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)).tw.
17	(urin$ adj3 (retention$ or retain$)).tw.
18	dysuria$.tw.
19	(voiding adj (disorder$ or dysfunction$ or problem$)).tw.
20	(empty$ adj disorder$ adj3 (bowel$ or bladder$ or vesical$ or stool$)).tw.
21	((urogeni$ or anorec$ or ano-rec$ or ano rec$) adj3 dysfunction$).tw.
22	exp Constipation/
23	constipat$.ti.
24	((difficult$ or delay$ or irregular$ or infrequen$ or pain$) adj3 (defecat$ or defaecat$ or stool$ or faecal or fecal or faeces or feces or fecally or faecally or bowel movement$)).tw.
25	coprostasis.tw.
26	(obstruct$ adj3 (defecat$ or defaecat$)).tw.
27	((defecat$ or defaecat$ or evacuat$) adj3 (disorder$ or dysfunction$)).tw.
28	outlet$ dysfunction$ constipa$.tw.
29	(dys?ynerg$ adj (defecat$ or defaecat$)).tw.
30	(pelvi$ adj3 dyskines$).tw.
31	pelvi$ outlet$ obstruct$.tw.
32	anismus$.tw.
33	puborectal$ contract$.tw.
34	((rectal or rectum) adj3 urge$).tw.
35	exp Female Sexual Dysfunction/
36	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
37	exp Dyspareunia/
38	(sex$ adj3 pain$).tw.
39	(dyspareun$ or anodyspareun$).tw.
40	(obstruct$ adj3 intercourse).tw.
41	(vagin$ adj3 laxity$).tw.
42	(vagin$ adj wind).tw.
43	(female adj orgasm$ adj (disorder$ or deficienc$ or dysfunction$ or problem$)).tw.
44	anorgasm$.tw.
45	exp Vaginismus/
46	vaginismus$.tw.
47	(vagin$ adj penetrat$ adj disorder$).tw.
48	vulvodynia$.tw.
49	(vagin$ adj dry$).tw.
50	exp Inhibited Sexual Desire/
51	hypoactiv$ sex$ desire$.tw.
52	(sex$ adj arous$ adj disorder$).tw.
53	(genitourin$ adj syndrom$ adj5 menopaus$).tw.
54	((pelvi$ or lumbopelvi$ or lumbo-pelvi$ or genito-pelvi$ or genitopelvi$) adj3 pain$).tw.
55	(pubi$ adj3 (pain$ or dysfunction$)).tw.
56	(pudend$ adj3 neuralg$).tw.
57	proctalgia$.tw.
58	(tension$ adj myalgia$).tw.
59	(pelvi$ 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$)).tw.
60	(pelvi$ 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$)).tw.
61	or/1-60
62	exp Weight Loss/
63	weight control/
64	(weight adj2 (los$ or reduc$) adj3 (modif$ or therap$ or intervention$ or strateg$ or program$ or management or scheme$ or group$ or pathway)).tw.
65	(weight adj management).tw.
66	((calori$ or hypocalori$) adj2 (restrict$ or diet$)).tw.
67	or/62-66
68	61 and 67
69	limit 68 to (english language and yr="1980 -Current") [General Exclusions filter applied]

1
2

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
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.
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.

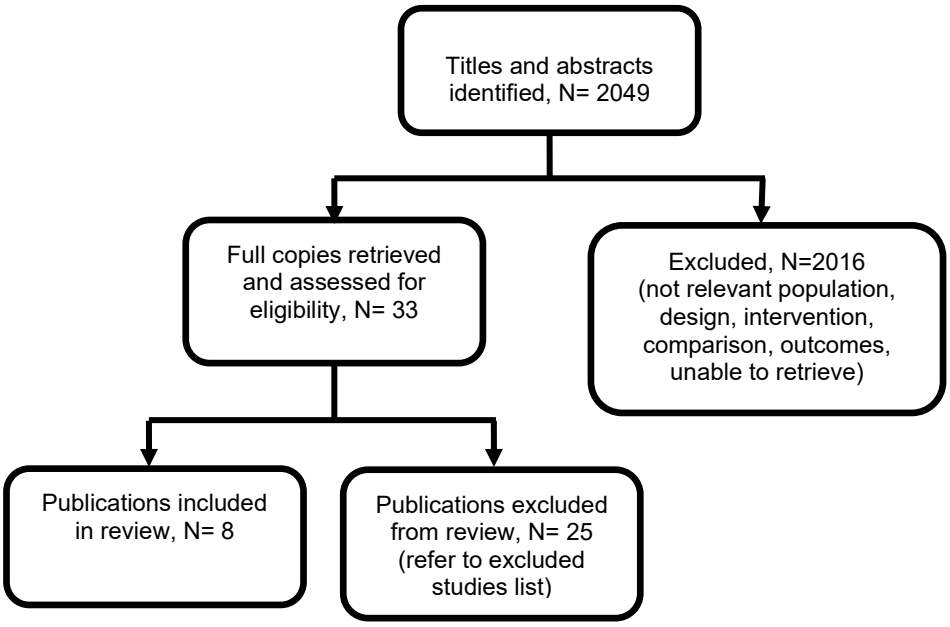
#	Searches
51	anismus$.tw.
52	puborectal$ contract$.tw.
53	((rectal or rectum) adj3 urge$).tw.
54	or/35-53
55	female sexual dysfunction/ use emczd
56	(female adj sex$ adj (dysfunct$ or satisf$ or problem$ or symptom$ or arous$ or activit$ or disorder$)).tw.
57	(obstruct$ adj3 intercourse).tw.
58	(vagin$ 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 is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Figure 1: Study selection flow chart



Appendix D – Evidence tables

Evidence tables for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Table 4: Evidence tables

Study details	Participants	Interventions	Methods	Outcomes	Comments
Full citation Breyer, B. N., Creasman, J. M., Richter, H. E., Myers, D., Burgio, K. L., Wing, R. R., West, D. S., Kusek, J. W., Subak, L. L., Pride,, A Behavioral Weight Loss Program and Nonurinary Incontinence Lower Urinary Tract Symptoms in Overweight and Obese Women with Urinary Incontinence: A Secondary Data Analysis of PRIDE, Journal of urology, 199, 215-222, 2018 **Ref Id** 1118105 **Country/ies where the study was carried out** USA **Study type** Randomised controlled trial	**Sample size** See Subak 2009 **Characteristics** See Subak 2009 **Inclusion criteria** See Subak 2009 **Exclusion criteria** See Subak 2009	**Interventions** See Subak 2009	**Details** Non-UI lower urinary tract storage symptoms (LUTS), including daytime urinary frequency, nocturia, and urinary urgency, were measured by a participant-completed 7-day voiding diary and self-report questionnaires completed at baseline and 6 months. The International Prostate Symptom Score (IPSS), which has been validated for use in women, was administered to obtain the composite outcome of non-UI LUTS.	**Results** **Outcomes at baseline and after 6months** <u>Daytime Frequency:</u> Pre: Intervention 109/214 (48%); Control 63/90 (56%) Post: Intervention 93/214 (43%); Control 47/90 (52%) <u>Nocturia</u> Pre: Intervention 112/214 (50%); Control 61/90 (54%) Post: Intervention 83/214 (38%); Control 47/90 (48%) <u>Urinary Urgency</u> Pre: Intervention 138/214 (61%); Control 71/90 (63%) Post: Intervention 89/214 (40%); Control 46/90 (47%) <u>International Prostate Symptom Score (IPSS) Score ≥8</u>	**Limitations** See Subak 2009 **Other information** See Subak 2009

Study details	Participants	Interventions	Methods	Outcomes	Comments
Aim of the study See Subak 2009 **Study dates** See Subak 2009 **Source of funding** See Subak 2009				Pre: Intervention 137/214 (61%); Control 72/90 (64%) Post: Intervention 76/214 (35%); Control 40/90 (41%)	
Full citation Gozukara, Y. M., Akalan, G., Tok, E. C., Aytan, H., Ertunc, D., The improvement in pelvic floor symptoms with weight loss in obese women does not correlate with the changes in pelvic anatomy, International Urogynecology Journal, 25, 1219-25, 2014 **Ref Id** 541434 **Country/ies where the study was carried out** Turkey **Study type** Randomised Controlled Trial **Aim of the study**	**Sample size** n=378 **Characteristics** Age: Intervention 44.1 (8.6) years; Control 43.8 (9.7) years; BMI: Intervention 32.7 (4.1) kg/m2; Control 32.3 (3.6) kg/m2 Parity: Intervention3.1 (2.0); Control 2.9 (1.9) Vaginal birth: Intervention 139 (85.3%); Control 132 (83.5%) Postmenopausal: Intervention 51 (31.3%); Control 48 (30.4%) Stress UI: Intervention 66 (40.5%); Control 62 (39.2%)	**Interventions** 6-month behavioural weight loss program (intervention) or a structured education program (control) Intervention group: a calorie and fat restricted diet of 1,200–1,800 kcal daily, depending on initial weight, with less than 30 % of calories from fat, and was designed to produce an average loss of 7–9 % of initial body weight within 6 months. Participants met monthly for 6 months in groups of 15–20 for 1-h sessions that were led by an internist in nutrition, exercise, and behaviour change. Participants were provided with sample meal plans, encouraged to gradually increase physical activity, and self-	**Details** Pelvic anatomy was assessed in all participants before interventions and at the end of the study period with the POP-Q system. UI was assessed with a 3-day voiding diary. The Pelvic Floor Distress Inventory-20 (PFDI-20) assessed the impact of pelvic floor disorders on quality of life (QOL)	**Results** Study completed by n=163 women in the intervention group and n=158 women in the control group Body weight (kg): Pre: Intervention 85.1 (9.7); Control 85.9 (9.6) Post: Intervention 78.3 (10.4); Control 86.4 (11.7) **PFDI Scores (mean (SE)):** Urinary Distress Inventory (UDI)-6: Pre: Intervention 14.5 (1.4); Control 14.6 (2.4) Post: Intervention 13.0 (2.4); Control 14.7 (2.9) Colorectal-Anal Distress Inventory (CRADI)-8 Pre: Intervention 10.8 (2.1); Control 10.6 (1.5) Post: Intervention 10.1 (2.1); Control 10.0 (1.6)	**Limitations** Cochrane risk of bias (Version 2.0) Domain 1: Randomisation: Low risk 1.1: Yes, patients were randomly allocated to treatments 1.2: Yes, randomisation used tamper proof envelopes 1.3: No, no significant differences between groups at baseline 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: No information whether there were any deviations from the intended intervention

Study details	Participants	Interventions	Methods	Outcomes	Comments
To investigate the effects of weight loss on urinary incontinence episodes and pelvic floor anatomy **Study dates** June 2008 and December 2008 **Source of funding** None reported	Urge UI: Intervention 34 (20.9%); Control 40 (25.3%) Stress + Urge UI: Intervention 63 (38.7%); Control 56 (35.4%) POP-Q stage 0-I: Intervention 116 (71.2%); Control 108 (68.45%) POP-Q stage II-IV: Intervention 47 (28.8%); Control 50 (31.6%) **Inclusion criteria** Having five or more episodes of any UI in a-3-day voiding diary and a BMI over 25 kg/m2. **Exclusion criteria** Women who had used medical therapy for incontinence or made any attempt at weight loss within the previous month and women with urinary tract infection, pregnancy, or parturition in the previous 6 months and previous genitourinary surgery. Patients with UI due to neurological or functional origins, or with significant systemic and	monitoring of diet and exercise.		Pelvic Organ Prolapse Distress Inventory (POPDI)-6 Pre: Intervention 19.9 (2.9); Control 18.5 (1.6) Post: Intervention 14.5 (3.1); Control 17.4 (1.8) PFDI total Pre: Intervention 45.3 (4.4); Control 43.6 (2.8) Post: Intervention 37.3 (3.9); Control 42.1 (3.2) **UI episodes (mean (SE)):** Stress incontinence Pre: Intervention 7.96 (0.17); Control 7.08 (0.15) Post: Intervention 3.11 (0.13); Control 7.03 (0.13) Urge Incontinence Pre: Intervention 2.85 (0.11); Control 2.74 (0.09) Post: Intervention 1.08 (0.08); Control 2.48 (0.08)	Domain 3: Missing outcome data: Low risk 3.1: Probably no, 14% of the intervention group and 16% in the control group were lost to follow-up 3.2: Probably no, no evidence that the results were not biased by missing outcome data 3.3: Probably no, missing-ness of the outcome was not dependent on its true value Domain 4: Measurement of the outcome: Low risk 4.1: Probably no, outcomes clearly defined, but some information on how they were assessed and by whom 4.2: Probably no, outcomes unlikely to differ between treatment arms 4.3: No, outcome assessors were blinded Domain 5: Selection of the reported result: Some concerns 5.1: No, no pre-panned analysis or protocol available 5.2: No, descriptive data presented 5.3: No, data presented as expected Domain 6: Overall judgment of bias: Some concerns

Study details	Participants	Interventions	Methods	Outcomes	Comments
	genitourinary medical conditions, and women who required assistance during their daily activities. Patients who were using any medication that potentially affects urinary continence (e.g., cholinergic and anticholinergic agents, certain antihypertensives, diuretics, opioids, and certain psychotropic drugs)				
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 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	**Sample size** n=93 **Characteristics** Age (mean, SD): Intervention group 26.7 (4.8); Control 26.9 (4.9) years 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)	**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 change their movement and physical activities other than 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)	**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 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)	**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) **Weight (mean, SD; kg; final score; 10 weeks)** Intervention (n=34): 61.8 (1.6) Control (n=36): 66.9 (1.7) **BMI (mean, SD; kg/m2; final score; 10 weeks)** Intervention (n=34): 23.2 (0.6) Control (n=36): 25 (0.6)	**Limitations** Limitations Cochrane risk of bias (Version 2.0) 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

Study details	Participants	Interventions	Methods	Outcomes	Comments
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	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, urinary tract infection, oncological and neurological urinary tract disease, incomplete questionnaires and refusal to participate in the study	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.			programme in the experimental group, and 11 did not appear for examination in the control group. 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 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

Study details	Participants	Interventions	Methods	Outcomes	Comments
					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 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 Myers, D. L., Sung, V. W., Richter, H. E., Creasman, J., Subak, L. L., Prolapse symptoms in overweight and obese women before and after weight loss, Female Pelvic Medicine & Reconstructive Surgery, 18, 55-9, 2012 **Ref Id** 541569 **Country/ies where the study was carried out**	**Sample size** See Subak 2009 **Characteristics** See Subak 2009 **Inclusion criteria** See Subak 2009 **Exclusion criteria** See Subak 2009	**Interventions** See Subak 2009	**Details** See Subak 2009	**Results** **Change in baseline for 'Any POP Symptoms' at 6 months** <u>Cured</u> Post: Intervention 73/NR (68%); Control 35/NR (71%) (Estimated by NGA team to be 73/107 vs 35/49 for the purpose of data analysis) <u>Improved bother or cured</u> Post: Intervention 82/NR (77%); Control 38/NR (78%) (Estimated by NGA	**Limitations** See Subak 2009 **Other information** The number of participants for each outcome was calculated by the NGA team as these were not reported in the paper

Study details	Participants	Interventions	Methods	Outcomes	Comments
USA **Study type** Randomised controlled trial **Aim of the study** See Subak 2009 **Study dates** See Subak 2009 **Source of funding** See Subak 2009				team to be 82/107 vs 38/49 for the purpose of data analysis) <u>New report of the symptoms</u> Post: Intervention 35/NR (16%); Control 20/NR (21%) (Estimated by NGA team to be 35/214 vs 20/94 for the purpose of data analysis)	
Full citation Subak, L. L., Wing, R., West, D. S., Franklin, F., Vittinghoff, E., Creasman, J. M., Richter, H. E., Myers, D., Burgio, K. L., Gorin, A. A., Macer, J., Kusek, J. W., Grady, D., Pride Investigators, Weight loss to treat urinary incontinence in overweight and obese women, New England journal of medicine, 360, 481-90, 2009 **Ref Id** 1118467	**Sample size** n=338 **Characteristics** Age: Intervention 53 (11) years; Control 53 (10) years; BMI: Intervention 36 (6) kg/m2; Control 36 (5) kg/m2 Race - White: Intervention 171 (75.7%); Control 91 (81.2%) Race - Black: Intervention 47 (20.8%); Control 17 (15.2%)	**Interventions** All participants were given a self-help behavioural-treatment booklet for improving bladder control. Incontinence was not discussed further in either the control group or the weight-loss group. **Control group:** participated in four education sessions at months 1, 2, 3, and 4. During these 1-hour group sessions, which included 10 to 15 women, general information was presented about weight loss, physical activity, and healthful eating habits,	**Details** Participants were randomly assigned at a 2:1 ratio to an intensive 6-month behavioural weight-loss program (intervention group) or to a structured four-session education program (the control group). Demographic characteristics, medical and behavioural history, and history of incontinence was collected. The participants were trained to complete a 7-day diary of voiding, and interviewers reviewed the	**Results** Study completed by n=226 women in the intervention group and n=112 women in the control group. Unless stated, data provided on n=214 intervention and n=90 control <u>Body weight (kg) (n=221 intervention and n=97 control):</u> Pre: Intervention 98 (17); Control 95 (16) Post: Intervention 90 (17); Control 94 (17) <u>Any incontinence (no./wk)</u> Pre: Intervention 24 (18); Control 24 (16)	**Limitations** Cochrane risk of bias (Version 2.0) Domain 1: Randomisation: Low risk 1.1: Yes, patients were randomly allocated to treatments 1.2: Yes, randomisation used tamper proof envelopes 1.3: No, no significant differences between groups at baseline Domain 2: Deviations from intended interventions: Some risk

Study details	Participants	Interventions	Methods	Outcomes	Comments
Country/ies where the study was carried out USA **Study type** Randomised Controlled Trial **Aim of the study** The aim of the Program to Reduce Incontinence by Diet and Exercise (PRIDE), was to determine whether a behavioural weight-reduction intervention for overweight and obese women with incontinence would result in greater reductions in the frequency of incontinence episodes at 6 months as compared with a control group. **Study dates** July 2004 to April 2006 **Source of funding** Supported by grants from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) (U01 DK067860, U01 DK067861, and U01 DK067862) and from the	Race - Other: Intervention 12 (3.6%); Control 4 (3.5%) Parity: Intervention 2 (1); Control 2 (1) Postmenopausal: Intervention 115/209 (55%); Control 62/107 (57.9%) Hysterectomy: Intervention 70/225 (31.1%); Control 29/112 (25.9%) Stress UI: Intervention 8 (3.5%); Control 10 (8.9%) Urge UI: Intervention 33 (14.6%); Control 8 (7.1%) Stress predominant: Intervention 36 (15.9%); Control 21 (18.8%) Urge predominant: Intervention 71 (31.4%); Control 37 (33.0%) Mixed incontinence with no predominant type: Intervention 78 (34.5%); Control 36 (32.1%) **Inclusion criteria** Women who were at least 30 years of age, had a BMI of 25 to 50, and at baseline reported 10 or	according to a structured protocol. **Intervention group:** The weight-loss program was designed to produce an average loss of 7 to 9% of initial body weight within the first 6 months of the program. The participants in the weight-loss program met weekly for 6 months in groups of 10 to 15 for 1-hour sessions that were led by experts in nutrition, exercise, and behaviour change and were based on a structured protocol. The participants were given a standard reduced-calorie diet (1200 to 1500 kcal per day), with a goal of providing no more than 30% of the calories from fat. To improve adherence, the participants were provided with sample meal plans and were given vouchers for a meal-replacement product (Slim-Fast) to be used for two meals a day during months 1 to 4 and for one meal a day thereafter. The participants were encouraged to gradually increase physical activity (brisk walking or activities of similar intensity) until they were active for at least 200 minutes each week. Behavioural skills, including self-monitoring,	diaries with the participants to answer questions and reconcile inconsistencies. For the purposes of analysis, each woman was then classified as having stress-only incontinence, stress-predominant incontinence (that is, at least two thirds of the total number of episodes were stress episodes), urge-only incontinence, urge-predominant continence (that is, at least two thirds of the total number of episodes were urge episodes), or mixed incontinence (that is at least two types were reported, but no type constituted two thirds of the total number of episodes).	Post: Intervention 13 (15); Control 17 (19) <u>Stress incontinence (no./wk)</u> Pre: Intervention 9 (11); Control 10 (10) Post: Intervention 4 (7); Control 7 (9) <u>Urge incontinence (no./wk)</u> Pre: Intervention 14 (14); Control 13 (15) Post: Intervention 8 (11); Control 10 (15)	2.1: Yes, participants not blinded 2.2: Yes, carers and people delivering the interventions not blinded 2.3: No information whether there were any deviations from the intended intervention Domain 3: Missing outcome data: Low risk 3.1: Probably no, 5% of the intervention group and 24% in the control group were lost to follow-up or did not complete all measures 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 Domain 4: Measurement of the outcome: Low risk 4.1: Probably no, outcomes clearly defined and some information on how they were assessed and by whom (women's self-reported following training and clinical assessment) 4.2: Probably no, outcomes unlikely to differ between treatment arms 4.3: No, outcome assessors were blinded

Study details	Participants	Interventions	Methods	Outcomes	Comments
Office of Research on Women's Health.	more urinary-incontinence episodes in a 7-day diary of voiding. Willing and able to monitor their food intake and physical activity for 1 week, to be able to walk unassisted for two blocks (approximately 270 m) without stopping, and to agree not to initiate new treatments for incontinence or weight reduction for the duration of the study. Previous medical therapy for incontinence or obesity did not affect eligibility. **Exclusion criteria** The use of medical therapy for incontinence or weight loss within the previous month, current urinary tract infection or four or more urinary tract infections in the previous year, a history of incontinence of neurologic or functional origin (due to factors not involving the lower urinary tract, such as chronic impairment of physical or cognitive functioning), previous surgery for incontinence or urethral surgery, major medical or genitourinary tract conditions, pregnancy or parturition in the previous 6 months,	stimulus control, and problem-solving, were emphasised.			Domain 5: Selection of the reported result: Some concerns 5.1: No, no pre-panned analysis or protocol available 5.2: No, descriptive data presented 5.3: No, data presented as expected Domain 6: Overall judgment of bias: Some concerns **Other information** Linked studies: Breyer 2018 - additional data on daytime frequency, nocturia, urinary urgency and IPSS Score ≥8 Huang 2009 - additional data on sexual function of the women with UI, data not relevant Myers 2012 - additional data on POP symptoms of the women with UI, data not relevant West 2011 - additional data on the 12 month maintenance programme for skill-based maintenance or motivational maintenance Wing 2010 - additional data on improvements in UI based on % weight loss. Data merged for

Study details	Participants	Interventions	Methods	Outcomes	Comments
	type 1 or type 2 diabetes mellitus requiring medical therapy that increased the risk of hypoglycaemia, and uncontrolled hypertension.				both intervention and control groups Wing 2010 - additional data on the 12 month maintenance programme for skill-based maintenance or motivational maintenance
Full citation Subak,L.L., Whitcomb,E., Shen,H., Saxton,J., Vittinghoff,E., Brown,J.S., Weight loss: A novel and effective treatment for urinary incontinence, Journal of Urology, 174, 190-195, 2005 **Ref Id** 144400 **Country/ies where the study was carried out** USA **Study type** Randomised Controlled Trial **Aim of the study** To evaluated the effect of weight loss on urinary incontinence (UI) in overweight and obese women	**Sample size** n=48 **Characteristics** Age (median, range): Intervention 50.5 (46-54) years; Control 57.5 (50-62) years BMI (median, range): Intervention 34 (32-40) kg/m2; Control 36 (32-38) kg/m2 Parity (median, range): Intervention 1 (0-2); Control 1 (0-2) No. menopausal: Intervention 8 (40%); Control 13 (65%) Urge UI alone: Intervention 3 (12%); Control 2 (9%) Mixed, urge predominate UI: Intervention 9 (38%); Control 11 (48%) Stress UI: Intervention 3 (12%); Control 0 (0)	**Interventions** A 3-month intensive group based medical and behavioural weight loss program. Participants were placed on a standard low calorie liquid diet (800 kcals per day or less), encouraged to increase physical activity gradually until they were exercising 60 minutes daily, and were taught standard cognitive and behavioural skills to assist in modifying eating and exercise habits. Participants met weekly in group sessions led by a nutritionist, exercise physiologist or behavioural therapist and followed a structured protocol	**Details** Women were then randomised to either immediate (immediate intervention, 20) or delayed (wait-list control, 19) enrolment in the weight reduction program. Women in the immediate intervention group began the weight reduction program and continued for 3 months. Women in the wait-list control group had no intervention for 3 months and then entered the weight reduction program. Women were followed for 6 months after completing the weight reduction program. A 7-day voiding diary was used to measure the primary outcome of percent change in number of weekly urinary incontinent episodes. Quality of life measures included the Incontinence Impact Questionnaire (IIQ), Urogenital Distress Inventory (UDI) and Short	**Results** **Data are median (IQR)** <u>Body weight</u> Pre: Intervention 99 (86-109); Control 94 (80-101) Post: Intervention 84 (71-91); Control 96 (82-102) <u>Stress incontinent episodes/wk</u> Pre: Intervention 8 (2-13); Control 8 (3-15) Post: Intervention 0 (0-4); Control 8 (1-15) <u>Urge incontinent episodes/wk</u> Pre: Intervention 8 (4-20); Control 7 (2-13) Post: Intervention 2 (0-10); Control 5 (3-14) <u>IIQ Score</u> Pre: Intervention 109 (53-143); Control 99 (72-164) Post: Intervention 37 (11-86); Control 89 (56-139) <u>UDI Score</u>	**Limitations** Cochrane risk of bias (Version 2.0) Domain 1: Randomisation: Low risk 1.1: Yes, patients were randomly allocated to treatments 1.2: Yes, randomisation used sealed opaque consecutively numbered envelopes 1.3: Probably no, participants significantly older in the control group 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: No information whether there were any deviations from the intended intervention Domain 3: Missing outcome data: Low risk

Study details	Participants	Interventions	Methods	Outcomes	Comments
Study dates January 1999 to March 2000 **Source of funding** Supported by research awards from Mount Zion Health Services, Inc. and the University of California, San Francisco Academic Senate, Committee on Research.	Mixed, stress predominate UI: Intervention 9 (38%); Control 10 (43%) **Inclusion criteria** Women 18 to 80 years old with BMI between 25 and 45 kg/m2, urinary incontinence for at least 3 months and at least 4 incontinent episodes in a 7-day urinary diary. Prior incontinence therapies (including surgery) were not exclusions from study eligibility. Participants currently using incontinence therapy were included in the study but were asked to not change treatment during study. **Exclusion criteria** Pregnancy, urinary tract infection, significant medical condition, pelvic cancer, neurological condition possibly associated with incontinence, interstitial cystitis or potential inability to complete the study.		Form 36 (SF-36).12,13 The IIQ assesses incontinence specific quality of life and the UDI quantifies incontinence symptom bother. Both measures are scored on a continuous scale (IIQ range 0 to 400, UDI range 0 to 300) with higher scores indicating greater effect on quality of life. Urodynamic evaluation included cystometrogram (sitting at 45 degrees of recline), urethral pressure profile and pressure flow voiding studies. Measurements conformed to the recommendations of the International Continence Society	Pre: Intervention 158 (142-192); Control 200 (128-233) Post: Intervention 104 (67-122); Control 195 (156-228) <u>SF-36 physical component</u> Pre: Intervention 46 (42-51); Control 47 (44-51) Post: Intervention 55 (49-58); Control 47 (41-50) <u>SF-36 mental component</u> Pre: Intervention 48 (45-50); Control 48 (45-54) Post: Intervention 48 (46-49); Control 51 (48-54)	3.1: Probably no, 20% of the intervention group and 13% 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 Domain 4: Measurement of the outcome: Low risk 4.1: Probably no, outcomes clearly defined and some information on how they were assessed and by whom (women's self-reported and blinded clinical assessment) 4.2: Probably no, outcomes unlikely to differ between treatment arms 4.3: No, outcome assessors were blinded Domain 5: Selection of the reported result: Some concerns 5.1: No, no pre-panned analysis or protocol available 5.2: No, descriptive data presented 5.3: No, data presented as expected

Study details	Participants	Interventions	Methods	Outcomes	Comments
					Domain 6: Overall judgment of bias: Some concerns
Full citation West, D. S., Gorin, A. A., Subak, L. L., Foster, G., Bragg, C., Hecht, J., Schembri, M., Wing, R. R., Program to Reduce Incontinence by, Diet, Exercise Research, Group, A motivation-focused weight loss maintenance program is an effective alternative to a skill-based approach, International journal of obesity, 35, 259-69, 2011 **Ref Id** 1118299 **Country/ies where the study was carried out** USA **Study type** Randomised Controlled Trial **Aim of the study** See Subak 2009 **Study dates** See Subak 2009	**Sample size** See Subak 2009 **Characteristics** See Subak 2009 **Inclusion criteria** See Subak 2009 **Exclusion criteria** See Subak 2009	**Interventions** See Subak 2009 and Wing 2010	**Details** See Subak 2009	**Results** See Subak 2009 and Wing 2010	**Limitations** See Subak 2009 **Other information** See Subak 2009

Study details	Participants	Interventions	Methods	Outcomes	Comments
Source of funding See Subak 2009					
Full citation Wing, R. R., West, D. S., Grady, D., Creasman, J. M., Richter, H. E., Myers, D., Burgio, K. L., Franklin, F., Gorin, A. A., Vittinghoff, E., Macer, J., Kusek, J. W., Subak, L. L., Program to Reduce Incontinence by, Diet, Exercise, Group, Effect of weight loss on urinary incontinence in overweight and obese women: results at 12 and 18 months, Journal of urology, 184, 1005-10, 2010 **Ref Id** 1118193 **Country/ies where the study was carried out** USA **Study type** Randomised controlled trial **Aim of the study** See Subak 2009	**Sample size** See Subak 2009 **Characteristics** See Subak 2009 **Inclusion criteria** See Subak 2009 **Exclusion criteria** See Subak 2009	**Interventions** Following the initial 6 months follow up from Subak 2009, women were asked if they wished to continue with a 12 month maintenance approach. Women in the intervention group (n=226) were randomised into either a novel motivation-focused weight maintenance programme (n=113) or a skill-based maintenance program (n=113). Women in the control group, remained in the control group.	**Details** Urinary incontinence was assessed with a 7-day voiding diary which participants were trained to use. 24-hour involuntary urine loss was measured using a standardised pad test. Participants were also asked whether, compared to baseline, incontinence episodes were less frequent (yes, no, uncertain), leakage was smaller (yes, no, uncertain) and whether leakage was improved (5-point scale), and were asked to rate overall satisfaction with changes in incontinence (5-point scale).	**Results** **Data given as percent change and 95% CI - Data for Intervention groups merged (skills based maintenance and motivation based maintenance)** Body weight (kg) change, (n=201 intervention motivation focused and intervention skill based and n=91 control): Baseline to 18 months: Intervention -5.5 (-6.7, -4.3); Control -1.6 (-3.4, 0.7) Total UI episodes/wk, (n=197 intervention motivation focused and intervention skill based and n=90 control): Baseline to 18 months: Intervention -62 (-67, -55); Control -55 (-65, -43) Stress UI episodes/wk, (n=197 intervention motivation focused and intervention skill based and n=90 control): Baseline to 18 months: Intervention -69 (-76, -61); Control -62 (-73, -48)	**Limitations** See Subak 2009 **Other information**

Study details	Participants	Interventions	Methods	Outcomes	Comments
Study dates See Subak 2009 **Source of funding** See Subak 2009				Urge UI episodes/wk, (n=197 intervention motivation focused and intervention skill based and n=90 control): Baseline to 18 months: Intervention -56 (-64, -46); Control -49 (-64, -28) 24hr involuntary urine loss, (n=197 intervention motivation focused and intervention skill based and n=90 control): Baseline to 18 months: Intervention -55 (-62, -46); Control -52 (-65, -35)	

CRADI: colorectal anal distress inventory; IIQ: incontinence impact questionnaire; IPSS: International Prostate Symptom Score; PFDI: Pelvic Floor Distress Inventory; POP: pelvic organ prolapse; POPDI: pelvic organ prolapse distress inventory; SF-36: short form of the quality of life questionnaire; UDI: urinary distress inventory; UI: urinary incontinence.

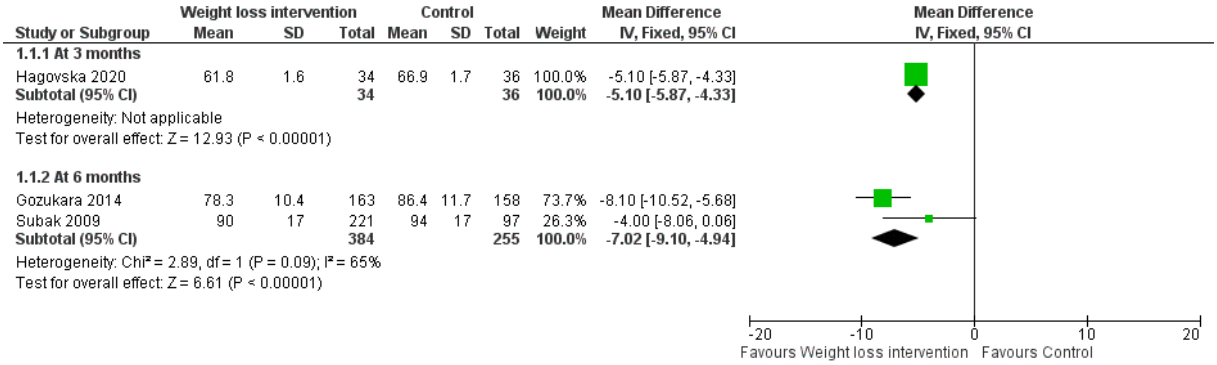
4 Appendix E – Forest plots

5 Forest plots for review question: What is the effectiveness of weight loss 6 interventions for improving symptoms of pelvic floor dysfunction?

7 This section includes forest plots only for outcomes that are meta-analysed. Outcomes from
8 single studies are not presented here; the quality assessment for such outcomes is provided
9 in the GRADE profiles in appendix F.

10 **Figure 2: Weight loss at 3 and 6 months for women with urinary incontinence**

11



12

Appendix F – GRADE tables

GRADE tables for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Table 5: Clinical evidence profile for weight loss interventions vs control

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Weight loss	Control (UI population)	Relative (95% CI)	Absolute		
Body weight (kg) (follow-up 3 months; Better indicated by lower values)												
1 Hagovska 2020	randomised trials	very serious[14]	no serious inconsistency	no serious indirectness	no serious imprecision	none	53	56	-	MD 5.10 kg lower (4.33 to 5.87kg lower)	LOW	CRITICAL
Body weight (kg) (follow-up 3 months; Better indicated by lower values)												
1 Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 12kg lower. Median(IQR) Intervention 84 (71-91); Control 96 (82-102)	LOW	CRITICAL
Body weight (kg) (follow-up 6 months; Better indicated by lower values)												
2[2]	randomised trials	serious[1]	serious[3]	no serious indirectness	serious[4]	none	384	255	-	MD 7.02 lower (9.1 to 4.94 lower)	VERY LOW	CRITICAL
Body weight (% change) (follow-up 18 months; Better indicated by lower values)												
1 Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	201	91	-	MD 4.03 lower (4.26 to 3.8 lower)	MODERATE	CRITICAL
Total UI episodes/wk (follow-up 6 months; Better indicated by lower values)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[5]	none	214	90	-	MD 4 lower (8.41 lower to 0.41 higher)	VERY LOW	CRITICAL
Total UI episodes/wk (% change) (follow-up 18 months; 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	Weight loss	Control (UI population)	Relative (95% CI)	Absolute		
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	197	90	-	MD 7.01 lower (8.26 to 5.76 lower)	MODERATE	CRITICAL
24hr involuntary urine loss (% change) (follow-up 18 months; Better indicated by lower values)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[6]	none	197	90	-	MD 3.51 lower (5.21 to 1.81 lower)	LOW	CRITICAL
PFDI-20 total (follow-up 6 months; Better indicated by lower values, scale from 0-300)												
Gozukara 2014	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[7]	none	163	158	-	MD 4.8 lower (5.58 to 4.02 lower)	VERY LOW	CRITICAL
Stress incontinence per 3 days (follow-up 6 months; Better indicated by lower values)												
Gozukara 2014	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	163	158	-	MD 3.92 lower (3.95 to 3.89 lower)	MODERATE	CRITICAL
Urge incontinence per 3 days (follow-up 6 months; Better indicated by lower values)												
Gozukara 2014	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	163	158	-	MD 1.4 lower (1.42 to 1.38 lower)	MODERATE	CRITICAL
Stress incontinence episodes/wk (follow-up 3 months; Better indicated by lower values)												
Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 8 fewer. Median(IQR) Intervention 0 (0-4); Control 8 (1-15)	LOW	CRITICAL
Stress incontinence episodes/wk (follow-up 6 months; Better indicated by lower values)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[8]	none	214	90	-	MD 3 lower (5.08 to 0.92 lower)	LOW	CRITICAL
Urge incontinence episodes/wk (follow-up 3 months; 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	Weight loss	Control (UI population)	Relative (95% CI)	Absolute		
1 Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 3 fewer. Median(IQR) : Intervention 2 (0-10); Control 5 (3-14)	LOW	CRITICAL
Urge incontinence episodes/wk (follow-up 6 months; Better indicated by lower values)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[10]	none	214	90	-	MD 2 lower (5.43 lower to 1.43 higher)	VERY LOW	CRITICAL
IIQ score (follow-up 3 months; Better indicated by lower values, scale from 0-400)												
Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 52 lower. Median(IQR) Intervention 37 (11-86); Control 89 (56-139)	LOW	CRITICAL
UDI score (follow-up 3 months; Better indicated by lower values, scale from 0-300)												
Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 91 lower. Median(IQR) Intervention 104 (67-122); Control 195 (156-228)	LOW	CRITICAL
SF-36 Physical component (follow-up 3 months; Better indicated by higher values, scale from 0-100)												
Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 8 higher. Median(IQR) : Intervention 55 (49-58); Control 47 (41-50)	LOW	IMPORTANT
SF-36 Mental component (follow-up 3 months; Better indicated by higher values, scale from 0-100)												
Subak 2005	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[13]	none	19	20	-	Median 3 lower. Median(IQR) : Intervention 48 (46-49); Control 51 (48-54)	LOW	IMPORTANT

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Weight loss	Control (UI population)	Relative (95% CI)	Absolute		
Daytime frequency (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[11]	none	93/214 (43.5%)	47/90 (52.2%)	RR 0.83 (0.65 to 1.07)	89 fewer per 1000 (from 183 fewer to 37 more)	LOW	CRITICAL
Nocturia (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[11]	none	83/214 (38.8%)	47/90 (52.2%)	RR 0.74 (0.57 to 0.96)	136 fewer per 1000 (from 21 fewer to 225 fewer)	LOW	CRITICAL
Urinary urgency (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[11]	none	89/214 (41.6%)	46/90 (51.1%)	RR 0.81 (0.63 to 1.05)	97 fewer per 1000 (from 189 fewer to 26 more)	LOW	CRITICAL
IPSS score >8 (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[11]	none	76/214 (35.5%)	40/90 (44.4%)	RR 0.8 (0.6 to 1.07)	89 fewer per 1000 (from 178 fewer to 31 more)	LOW	CRITICAL
POP symptoms – number of people reporting cure (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[12]	none	73/107 (68.2%)	35/49 (71.4%)	RR 0.96 (0.77 to 1.19)	29 fewer per 1000 (from 164 fewer to 136 more)	VERY LOW	CRITICAL
POP symptoms – number of people reporting improved bother or cure (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[12]	none	82/107 (76.6%)	38/49 (77.6%)	RR 0.99 (0.82 to 1.19)	8 fewer per 1000 (from 140 fewer to 147 more)	VERY LOW	CRITICAL
POP symptoms – number of people reporting new symptom (follow-up 6 months)												
Subak 2009	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[12]	none	35/214 (16.4%)	20/94 (21.3%)	RR 0.77 (0.47 to 1.26)	49 fewer per 1000 (from 113 fewer to 55 more)	VERY LOW	CRITICAL
OAB symptoms – OAB-Q symptom score (follow up 3 months)												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Weight loss	Control (UI population)	Relative (95% CI)	Absolute		
1 Hagovska 2020	randomised trials	very serious[14]	no serious inconsistency	no serious indirectness	no serious imprecision	none	34	36	-	MD 10.9 lower (11.53 to 10.27 lower)	LOW	CRITICAL
OAB symptoms – OAB-Q quality of life score (follow up 3 months)												
1 Hagovska 2020	randomised trials	very serious[14]	no serious inconsistency	no serious indirectness	no serious imprecision	none	34	36	-	MD 7 higher (6.58 to 7.42 higher)	LOW	CRITICAL
BMI (follow up 3 months)												
1 Hagovska 2020	randomised trials	very serious[14]	no serious inconsistency	no serious indirectness	serious[15]	none	34	36	-	MD 1.8 lower (2.11 to 1.49)	VERY LOW	CRITICAL

CI: confidence interval; BMI: body mass; IIQ; Incontinence Impact Questionnaire; MID: minimal important difference; MD: mean difference; OAB: overactive bladder; PISQ: Pelvic organ prolapse/urinary incontinence sexual questionnaire; POPQ: Pelvic organ prolapse quantification system; POP-SS: Pelvic organ prolapse symptom score; POP: Pelvic organ; QOL: quality of life; SD: standard deviation SF-36: short form 36; UI: urinary incontinence; UDI: Urinary distress index

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

2 Subak 2009 and Gozukara 2014

3 Serious heterogeneity unexplained by subgroup analysis

4 95% CI crosses 1 MID (0.5x control group SD, MID=7.2)

5 95% CI crosses 2 MIDs (0.5 x control group SD, MID = 9.5)

6 95% CI crosses 1 MID (0.5x control group SD, MID=3.9)

7 95% CI crosses 2 MIDs (50 points - Ma 2019)

8 95% CI crosses 1 MID (0.5x control group SD, MID=4.5)

9 95% CI crosses 1 MID (0.5x control group SD, MID=1.6)

10 95% CI crosses 2 MIDs (0.5x control group SD, MID=7.5)

11 95% CI crosses 1 MID (0.8 or 1.25)

12 95% CI crosses 2 MIDs (0.8 and 1.25)

13 Subjective assessment of imprecision

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

15 95% CI crosses 1 MID (0.5x control group SD, MID=2.1)

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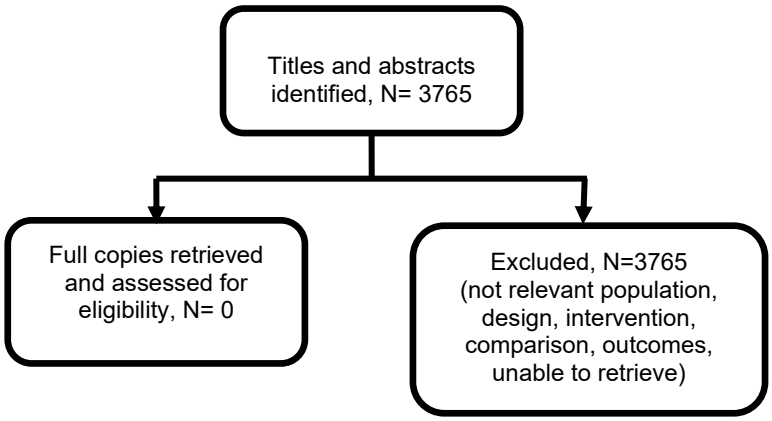
Appendix G – Economic evidence study selection

Economic evidence study selection for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

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

Figure 3: Study selection flow chart



Appendix H – Economic evidence tables

Economic evidence tables for review question: What is the effectiveness of weight loss interventions for improving 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 is the effectiveness of weight loss interventions for improving 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 is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

No economic analysis was conducted for this review question.

Appendix K – Excluded studies

Excluded studies for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Clinical studies

Table 6: Excluded studies and reasons for their exclusion

Study	Reason for exclusion
Allahdin,S., Oo,N., An overview of treatment of overactive bladder syndrome in women, Journal of Obstetrics and Gynaecology, 32, 217-221, 2012	Literature review
Aversa, A., Bruzziches, R., Francomano, D., Greco, E. A., Violi, F., Lenzi, A., Donini, L. M., Weight Loss by Multidisciplinary Intervention Improves Endothelial and Sexual Function in Obese Fertile Women, Journal of Sexual Medicine, 10, 1024-1033, 2013	Population does not have PFD
Ballard,A.C., Richter,H.E., Impact of obesity and weight loss on urinary and bowel incontinence symptoms in women, Sexuality, Reproduction and Menopause, 9, S1-S7, 2011	Literature review
Brandt, L. J., Prather, C. M., Quigley, E. M. M., Schiller, L. R., Schoenfeld, P., Talley, N. J., Systematic review on the management of chronic constipation in North America, American Journal of Gastroenterology, 100, S5-S22, 2005	Systematic review - included studies checked for relevance and none found
Cameron,A.P., Haraway,A.M., The treatment of female stress urinary incontinence: An evidenced-based review, Open Access Journal of Urology, 3, 109-120, 2011	Literature review
Cheskin, L. J., Burnett, A. L., A behavioural weight-loss programme was better than an education programme for urinary incontinence in overweight and obese women, Evidence-Based Medicine, 14, 118, 2009	Abstract
de Oliveira, M. C. E., de Oliveira de Lima, V. C., Pegado, R., Silva-Filho, E. M., Fayh, A. P. T., Micussi, M. T., Comparison of pelvic floor muscle training isolated and associated with weight loss: a randomized controlled trial, Archives of gynecology and obstetrics, 300, 1343-1351, 2019	No usable results
Gomelsky,A., Dmochowski,R.R., Treatment of mixed urinary incontinence in women, Current Opinion in Obstetrics and Gynecology, 23, 371-375, 2011	Literature review
Greer,W.J., Richter,H.E., Bartolucci,A.A., Burgio,K.L., Obesity and pelvic floor disorders: A systematic review, Obstetrics and Gynecology, 112, 341-349, 2008	Systematic review - included studies checked for relevance
Huang, A. J., Stewart, A. L., Hernandez, A. L., Shen, H., Subak, L. L., Program to Reduce Incontinence by, Diet, Exercise,, Sexual function among overweight and obese women with urinary incontinence in a randomized controlled trial of an intensive behavioral weight loss intervention, Journal of urology, 181, 2235-42, 2009	Linked to Subak 2009, no useable data
Hill, J. E., Christian, D., Shaw, K., Clegg, A., Weight loss interventions as an option for a lifestyle treatment in urinary incontinence, British Journal of Community NursingBr J Community Nurs, 25, 616-619, 2020	Incorrect study design: commentary on a review.
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 checked for relevance
Kolotkin, R. L., Zunker, C., Ostbye, T., Sexual functioning and obesity: A review, Obesity, 20, 2325-2333, 2012	Literature review

Study	Reason for exclusion
Moore,K.N., Saltmarche,A., Query,B., Urinary incontinence. Non-surgical management by family physicians, Canadian Family Physician, 49, 602-610, 2003	Literature review
Norton, C., Whitehead, W. E., Bliss, D. Z., Harari, D., Lang, J., Management of fecal incontinence in adults, Neurourology and urodynamics, 29, 199-206, 2010	Literature review
Nct,, Effect of Pelvic Floor Muscle Training on Urinary Incontinence Reports in Obese Women Undergoing a Low Calorie Diet Prior to Bariatric Surgery, https://clinicaltrials.gov/show/NCT04159467, 2019	Incorrect intervention/comparison
Olivera, C. K., Meriwether, K., El-Nashar, S., Grimes, C. L., Chen, C. C. G., Orejuela, F., Antosh, D., Gleason, J., Kim-Fine, S., Wheeler, T., McFadden, B., Balk, E. M., Murphy, M., Nonantimuscarinic treatment for overactive bladder: A systematic review, American Journal of Obstetrics and Gynecology, 215, 34-57, 2016	Systematic Review - all included studies checked for relevance
Pomian, A., Lisik, W., Kosieradzki, M., Barcz, E., Obesity and Pelvic Floor Disorders: A Review of the Literature, Medical Science Monitor, 22, 1880-6, 2016	Literature review
Qaseem, A., Dallas, P., Forciea, M. A., Starkey, M., Denberg, T. D., Shekelle, P., Clinical Guidelines Committee of the American College of, Physicians, 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	Guidance based on a systematic review - included studies checked for relevance
Schumacher, L., Wing, R., Thomas, J. G., Pavlovic, J., Digre, K., Farris, S., Steffen, K., Sarwer, D., Bond, D., Does sexual functioning improve with migraine improvements and/or weight loss?-A post hoc analysis in the Women's Health and Migraine (WHAM) trial, Obesity Science and Practice., 2020	Incorrect population, incorrect comparison group
Tantawy, S. A., Kamel, D. M., Abdelbasset, W. K., Elgohary, H. M., Effects of a proposed physical activity and diet control to manage constipation in middle-aged obese women, Diabetes, Metabolic Syndrome and Obesity Targets and TherapyDiabetes Metab Syndr Obes, 10, 513-519, 2017	Constipation is not relevant
Vissers, D., Neels, H., Vermandel, A., De Wachter, S., Tjalma, W. A., Wyndaele, J. J., Taeymans, J., The effect of non-surgical weight loss interventions on urinary incontinence in overweight women: a systematic review and meta-analysis, Obesity Reviews, 15, 610-7, 2014	Systematic review - included studies checked for relevance
Wing, R. R., Creasman, J. M., West, D. S., Richter, H. E., Myers, D., Burgio, K. L., Franklin, F., Gorin, A. A., Vittinghoff, E., Macer, J., Kusek, J. W., Subak, L. L., Program to Reduce Incontinence by, Diet, Exercise,, Improving urinary incontinence in overweight and obese women through modest weight loss, Obstetrics & GynecologyObstet Gynecol, 116, 284-92, 2010	No relevant data
Yamada,B.S., Govier,F.E., Does weight loss improve urinary incontinence in overweight and obese women?, Nature Clinical Practice Urology, 3, 16-17, 2006	Commentary paper
Yazdany, T., Jakus-Waldman, S., Jeppson, P. C., Schimpf, M. O., Yurteri-Kaplan, L. A., Ferzandi, T. R., Weber-LeBrun, E., Knoepp, L., Mamik, M. M., Viswanathan, M., Ward, R. M., American Urogynecologic, Society, American Urogynecologic Society Systematic Review: The Impact of Weight Loss Intervention on Lower Urinary Tract Symptoms and Urinary Incontinence in Overweight and Obese Women [Erratum 2020; 26(&): 466], Female Pelvic Medicine & Reconstructive SurgeryFemale pelvic med, 26, 16-29, 2020	Review, checked for references

Economic studies

No economic evidence was identified for this review.

Appendix L – Research recommendations

Research recommendations for review question: What is the effectiveness of weight loss interventions for improving symptoms of pelvic floor dysfunction?

Research question

Can weight loss reduce symptoms of pelvic floor dysfunction in women who are overweight or who have obesity?

Why this is important

In women with a BMI >30, weight loss is effective at improving urinary incontinence and urgency. It is unclear as to the role of weight loss in improving other symptoms (and signs) of pelvic floor dysfunction (PFD), such as prolapse. If weight loss were an effective intervention, some women may be able to avoid surgery and other invasive interventions.

Table 7: Research recommendation rationale

Research question	Does weight loss reduce symptoms of PFD in women who are overweight or have obesity?
Why is this needed	
Importance to 'patients' or the population	Weight loss is often suggested to people with pelvic floor dysfunction. However, there is very limited evidence to guide whether weight loss is associated with symptomatic improvement for Pelvic Organ Prolapse (POP) and whether this advice would benefit particular groups of individuals. Without this information, people may modify their weight 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 weight loss for POP 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	Weight loss 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 advice.
National priorities	Being overweight is a key predictor of ill health is a key national priority.
Current evidence base	There is current evidence regarding weight loss for PFD, but limited evidence regarding its effectiveness for POP, or for whether weight loss advice can be followed by all groups of individuals (for example those with comorbid psychological issues may struggle with such advice).
Equality	Can weight loss advice be followed by all groups of individuals (for example those with co-morbid psychological issues, those with learning disabilities)?
Feasibility	Can the appropriate weight loss advice be routinely offered as part of primary and secondary care consultations regarding PFD? Or does it require extra training/resources?
Other comments	None

PFD, pelvic floor dysfunction; POP, pelvic organ prolapse

Table 8: Research recommendation modified PICO table

Criterion	Explanation
Population	Women with a BMI of 25-30 and women with a BMI >30
Intervention	Weight loss program
Comparator	Structured education program

Outcomes	• Weight loss
	• POP symptoms:
	  ○ change in POP-Q
	  ○ change in other symptoms of pelvic floor dysfunction
	• Anxiety and depression

Study design	RCT
Timeframe	2-5 years
Additional information	Include analysis of any predictors of the effectiveness such as psychological conditions.

BMI, body mass index; POP, pelvic organ prolapse; POP-Q, pelvic organ prolapse quantification system; RCT, randomised controlled trial