Review protocol for review question: What is the effectiveness of pelvic floor muscle training (including Kegel exercises, biofeedback, weighted vaginal cones, and electrical stimulation) for improving symptoms of pelvic floor dysfunction?

Table 4: Review protocol

ID	Field	Content
0.	PROSPERO registration number	CRD42020166705
1.	Review title	Pelvic floor muscle training for women with pelvic floor dysfunction
2.	Review question	What is the effectiveness of pelvic floor muscle training (including Kegel exercises, biofeedback, weighted vaginal cones, and electrical stimulation) for improving symptoms of pelvic floor dysfunction?
3.	Objective	The objective of this review is to determine whether pelvic floor muscle training 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 Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE Searches will be restricted by: • Date: Limit to 1980 (see section 10 for justification) • Language or publication: English language only • Human studies only Other searches: • Inclusion lists of potentially relevant systematic reviews 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.

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		The searches will be re-run 6 weeks before final submission of the review and further studies retrieved for inclusion.
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: • Women with the following symptoms that are not 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. 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 the ages of 12 years

7.	Intervention/Exposure/Test	The following pelvic floor training interventions will be considered:
		• Pelvic floor muscle exercises / Kegel exercise, to include:
		  ○ Pelvic floor muscle contraction exercises
		  ○ Pelvic floor muscle strengthening exercises
		  ○ Pelvic floor muscle training
		  ○ Pelvic floor muscle retraining
		  ○ Knack
		• Pelvic floor muscle relaxation exercises / relaxation retraining
		• Biofeedback training (for example transperineal ultrasound, EMG biofeedback, pressure perinometry, digital biofeedback)
		• Weighted vaginal cones
		• Electrical stimulation (for example transcutaneous stimulation, percutaneous stimulation, intravaginal stimulation)
		• Neuromuscular stimulation

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		• Magnetic stimulation • Transcutaneous sacral nerve stimulation * • Transcutaneous posterior tibial nerve stimulation * • Percutaneous posterior tibial nerve stimulation * • Any of the above interventions in combination with Botox • Any of the above interventions in combination with Duloxetine *these are used within conservative management, and are generally considered minimally invasive, and are therefore included
8.	Comparator/Reference standard/Confounding factors	• Any of the above in isolation and combination • No treatment/usual care • Duloxetine (only where Duloxetine is used in combination, as listed above) • Botox (only where botox is used in combination, as listed above)
9.	Types of study to be included	• Systematic reviews of RCTs • Sytematic reviews of other study designs ○ These will be included in order of hierarchy: that is, if no systematic reviews of RCTs are identified we will include systematic reviews of non-RCT data • RCTs published since the systematic reviews will be included if they report outcomes covered by the reviews, or interventions not covered by the reviews Note: For further details, see the algorithm in appendix H, Developing NICE guidelines: the manual.
10.	Other exclusion criteria	• Conference abstracts will be excluded because these do not typically provide sufficient information to fully assess risk of bias • 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 • 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/PMC2 815805/ • Percutaneous sacral nerve stimulation (also known as sacral neruomodulatoin) will be excluded as this is an invasive technique which involves an incision to the skin (in comparison to a puncture to the skin, for example in transcutaneous posterior tibial nerve stimulation which is included)
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

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		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
		• Health related QOL
		
		[To note: Any outcome not identified in the included SR will not be searched for separately. We will only extract outcome data as reported in the eligible and included SRs].
		
		For 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)	• Satisfaction with intervention • Adherence to intervention • Anxiety and depression (only validated scales will be included) • Adverse events leading to withdrawal/discontinuation Outcomes are in line with those described in the core outcome set …..
14.	Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into STAR and de-duplicated. Duplicate screening will not be undertaken for this question. 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.

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		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. Standard information from each SR will include: aim number of participants, number of primary studies, intervention, comparator, search dates, and overall ROBIS quality score. We will include all non-overlapping SRs. For groups of overlapping SRs we will create a table to map out the primary studies contained within each review, in line with the Cochrane guide to Overview of Reviews (https://training.cochrane.org/handbook/current/chapterv#_Ref524428160)
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 Each potentially relevant SR will be assessed using the ROBIS tool, an initial assessment using the "relevance" section will be carried out to ensure the SR meets the PICO of this review. Only those that meet the relevance criteria will be included, and full ROBIS assessment will be conducted. The quality assessment will be performed by one reviewer and this will be quality assessed by a senior reviewer.
16.	Strategy for data synthesis	Depending on the availability of the evidence, the findings will be summarised narratively or quantitatively. <u>Data Synthesis</u> • An overview of each included SR will be presented to provide the descriptive characteristics of the included SRs (see section 14). • Outcome data of the included SR and RCTs will be summarised; the data contained within each study (including effect sizes and 95% confidence intervals) will be presented narratively. • Data will be summarised by interventions and by symptoms associated with PFD. <u>Heterogeneity</u> Heterogeneity of each included SR will be extracted and reported where studies have been pooled. <u>Minimal important differences (MIDs)</u> MIDs will be used to aid interpretation of the findings of the included SRs and RCTs. 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.

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		• 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 (metaanalysed): the MID is calculated by ranking the studies in order of SD in the control arms. The MID is calculated as +/- 0.5 times median SD. ○ For studies that have been pooled using SMD (meta-analysed): +0.5 and -0.5 in the SMD scale are used as MID boundaries. <u>Validity</u> The confidence in the findings across all available evidence will be evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: http://www.gradeworkinggroup.org/ An adapted GRADE format will be used where metaanalysis has been conducted within the included SR, taking into account all GRADE domains. Where only narrative summaries are presented in the SR, GRADE will not be possible.	
17.	Analysis of sub-groups	Stratification All data will initially be pooled for analysis; however, if data is available, separate analysis will also be conducted on: • Women who are pregnant or women after pregnancy • Women before and after gynaecological surgery • Women aged 65 or older • Women with physical disabilities • Women with cognitive impairment • Women who are in perimenopause or postmenopause • According to those who do not identify themselves as women, but who have female pelvic organs 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

ID	Field	Content		
		☐	Service Delivery	
		☐	Other (please specify)	
19.	Language	English		
20.	Country	England		
21.	Anticipated or actual start date			
22.	Anticipated completion date	August 2021		
23.	Stage of review at time of this submission	Review stage	Started	Completed
		Preliminary searches	☐	☐
		Piloting of the study selection process	☐	☐
		Formal screening of search results against eligibility criteria	☐	☐
		Data extraction	☐	☐
		Risk of bias (quality) assessment	☐	☐
		Data analysis	☐	☐
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.		

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27.	Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.	
28.	Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: [NICE guideline webpage].	
29.	Other registration details		
30.	Reference/URL for published protocol	https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=166705	
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	• Pelvic floor muscle training • 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	

CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; DARE: Database of Abstracts of Reviews of Effects; GRADE: Grading of Recommendations Assessment, Development and Evaluation; HTA: Health Technology Assessment; MID: minimally important difference; NGA: National Guideline Alliance; NHS: National health service; NICE: National Institute for Health and Care Excellence; RCT: randomised controlled trial; RoB: risk of bias; SD: standard deviation