

SYSTEMATIC REVIEW OF THE EFFICACY OF SUPERVISED PELVIC FLOOR MUSCLE TRAINING IN THE TREATMENT OF FEMALE URINARY INCONTINENCE

Hypothesis / aims of study

Physical exercises form part of the conservative treatment of female urinary incontinence (UI), in particular training of the pelvic floor muscles (PFM), which improves the pressure, strength, resistance, and relaxation of this musculature. Our hypothesis was that supervised PFM training would be more effective than unsupervised training and no training. The aim of this study was to conduct a systematic review of the literature to evaluate the efficacy of supervised training of PFM in the treatment of UI in women.

Study design, materials and methods

This is a systematic review of randomized controlled trials. We performed this review according to the Cochrane Handbook for Systematic Reviews of Interventions. General and adaptive search strategies were created for the electronic databases in the health area; Embase (1989-2014), Pubmed (1968-2014), LILACS and Central COCHRANE (Central Register of Controlled Trials of the Cochrane Collaboration - CENTRAL) (1982-2014). There were no restrictions on language or year of entry. For the construction of the strategy, the following descriptors and their respective synonyms were used: Urinary Incontinence, Lifestyle Change, Exercise, and Randomized Clinical Study. We included randomized trials in which women with UI were assigned to participate in supervised training of the PFM (intervention group) or not to perform any physical activity, or to perform the same exercises but without supervision (control group). The primary outcomes were cure of UI, frequency and amount of involuntary loss of urine, PFM strength, and quality of life. The homogeneous endpoints with the same unit of measure in at least two studies were plotted in a meta-analysis using Review Manager 5.3 software. The statistical methods used were the inverse variance method to weight the estimates of effect of the continuous variables and the Mantel-Haenszel method for the dichotomous variables. The inconsistency between the results of the included studies was ascertained through visual inspection of the forest plot (absence of overlapping CI around the effect estimates of the individual studies) and by the Higgins or I² inconsistency test in which I² > 50% indicates a moderate probability of heterogeneity. The quality of evidence was generated in accordance with the Grading of Recommendations Assessment, Development, and Evaluation (GRADE).

Results

In total, 3,221 references were identified and two reviewers independently read the titles and abstracts of the articles. Of the 33 potentially eligible studies, 18 were included and 15 were excluded as they did not meet the eligibility criteria. A total of 1,079 women were randomized to the intervention or control groups. Eleven studies which evaluated UI remission were plotted in the meta-analysis, in five studies the cure criterion was according to the negativity of the absorbent test, and in six remission was reported by the patient. In each subgroup as well as in the final analysis there was a significant difference favoring the intervention group (RR: 5.49 [2.74; 11], I² = 0%, RR: 4.22 [1.87; 9.53], I² = 64%, RR: 4.63 [2.65; 8.09], I² = 47%, respectively). We also separately plotted the results of UI cures in the four studies in which the control group received the same training of the PFM, but to be performed at home without supervision; the result was also significant in favor of the intervention (RR: 4.48 [2.06; 9.73], p = 0.0002, I² = 0%). The meta-analysis also showed a significant difference in favor of the intervention group in the one-hour absorbent test, the three- and seven-day voiding diary, the strength of the PFMs through the Oxford scale, and four domains of the quality of life questionnaire King's Health Questionnaire – KHQ (RR: -3.11 [-5.55; -0.67], I² = 0%; RR: -1.38 [-2.75; -0.01], I² = 50%; RR: -5.82 [-9.65; -2], I² = 65%; RR: 1.02 [0.58; 1.56], I² = 82%; RR: -19.51 [-36.77; -2.25], I² = 70%; RR: -11.75 [-20.43; -3.07], I² = 0%; RR: -8.97 [-17.57; -0.36], I² = 0%; RR: -10.74 [-18.98; -2.50], I² = 0%, respectively). The evaluation of the quality of evidence of the intervention estimates in the primary outcomes according to the GRADE was moderate for remission of UI and urinary loss assessed using the 3-day voiding diary. The quality of evidence was low for the outcomes urinary loss, PFM strength, and in the quality of life domains impact of UI, physical limitations, emotions, sleep/energy, and severity measures (assessed by the KHQ). The quality of evidence for muscle strength outcomes and the quality of life domains, general health, limitations of daily activities, social limitations, and personal relationships (also assessed by the KHQ) were very low.

Interpretation of results

Data from 16 studies were able to be plotted in the meta-analysis. This was significant in favor of the intervention group in the outcomes remission of UI, urinary loss, PFM muscle strength, and in some quality of life domains. Regarding the quality of the evidence of the findings of this systematic review, for the majority of outcomes it was necessary to reduce the risk of bias one level, as in some included studies the randomization process was undetermined or high risk. The same was true for the allocation concealment, blinded analysis of outcomes, and losses. It was also necessary to reduce the quality of evidence due to the presence of inconsistencies in the results generated by the meta-analysis in the outcomes PFM muscular strength, evaluated by the perineometer, and the KHQ domains general health, limitation of daily activity, social limitations, and personal relationships. Despite heterogeneity (I² > 50%) in some outcomes, the level was not lowered, since the results were in the same direction in favor of the intervention (urinary loss evaluated by the 7-day diary, muscle strength assessed by the Oxford scale and perineometer, the impact of UI domains, limitations of daily activities, and personal relationships assessed by the KHQ). With the exception of the cure outcome, for the other results it was necessary to reduce the evidence one level for imprecision, since the number of patients studied by outcome was small (<400).

Concluding message

In women with UI, supervised training of PFMs is effective in curing UI, reducing involuntary loss of urine, and improving some domains of quality of life.

Disclosures

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