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EFFECTS OF DIFFERENT EXERCISE INTERVENTIONS ON WOMEN WITH PREMENSTRUAL SYMPTOMS: AN OVERVIEW

Marcela Figueiredo Martins, Monica Andrade Oliveira, Maria Luiza Caires Comper
Universidade Estadual de Santa Cruz (UESC), Ilhéus, BA, Brazil

Background: Premenstrual symptoms are highly prevalent in women of reproductive age. Growing evidence suggests that physical exercise can alleviate these symptoms; however, it remains unknown what is the best exercise intervention for this alleviation.

Objectives: In this context, the present systematic review of systematic reviews intends to reply to two questions: (a) What do systematic review findings conclude about the effects of different exercise interventions on premenstrual symptoms? (b) Which intervention is most effective in improving premenstrual symptoms?

Methods: To be included in this study, a systematic review should have analyzed the effect of an exercise intervention in comparison to a non-exercise intervention, no intervention, or usual care on women's (in reproductive age) Premenstrual Syndrome. Searches for systematic reviews were conducted in the following databases: Cochrane Database of Systematic Reviews (CENTRAL), EBSCOhost (EBSCO), Excerpta Medica Database (EMBASE), Medical Literature Analysis and Retrieval System Online (MEDLINE), PsycINFO, and Web of Science, with no restrictions on language or publication date. Two independent reviewers carried out the study selection process and evaluated the systematic review quality with the AMSTAR-2 tool.

Results: After screening 286 records, 31 studies were evaluated in full text for inclusion in the systematic review. Twelve studies published between 2017 and 2024 that included between five and 436 randomized controlled trials (RCT) were eligible. The total number of women of reproductive age included in each systematic review (i.e., summing the participants included by the RCTs summarized by the systematic review) ranged from 492 to 11,590 participants. The interventions provided by the RCTs included in the systematic reviews varied considerably, encompassing yoga, aerobic exercise, diverse physical exercises, and physiotherapy. Many outcomes were evaluated by these RCTs including, pain, work absenteeism, functional status, well-being, depression, and premenstrual symptoms. Collectively, the findings of the systematic reviews support that physical exercise interventions can reduce significantly premenstrual symptoms, anxiety, depressive symptoms, and improve pain and work productivity. Most systematic reviews focused on Yoga, so, the larger part of the evidence supports this kind of exercise. Moreover, results from subgroup analyses of a systematic review suggested that aerobic exercises promote greater health benefits than other types of physical exercise. Nonetheless, some systematic reviews also identified a high risk of bias and heterogeneity in RCTs.

Conclusion: Overall, systematic reviews support the benefit of physical exercise interventions (e.g., Yoga, aerobic exercise, and physiotherapy), especially Yoga and aerobic exercise, to improve women's health by reducing the impact of premenstrual symptoms and enhancing work productivity. Nevertheless, there is a need for a lower risk of bias RCTs to increase confidence in these findings.

Implications: Physical exercise interventions such as Yoga and aerobic exercise can be considered as a strategy to improve the well-being of women who suffer from premenstrual symptoms. Though more high-quality research is important, policy makers' and practitioners' efforts to increase women's engagement in physical exercise may improve their health and work productivity.

Keywords: Exercise, Premenstrual symptoms, Systematic review

Conflict of interest: The authors declare no conflict of interest.

Funding: Not applicable.

Ethics committee approval: CAAE: 77566824.4.0000.5504.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101395>

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CORRELATION BETWEEN PELVIC FLOOR MUSCLE FUNCTION AND TONE AND PAIN COMPLAINTS DURING SEXUAL INTERCOURSE IN WOMEN WITH GENITO-PELVIC PAIN/PENETRATION DISORDER

Luana Silva Moreira Martins, Lyana Belém Marinho, Leticia Rodrigues Silva, Vanessa Santos Pereira Baldon
Curso de Graduação em Fisioterapia da Faculdade de Educação Física e Fisioterapia da Universidade Federal de Uberlândia (UFU), Uberlândia, MG, Brazil

Background: Genito-pelvic pain/penetration disorder (GPPPD) is the term used to define female sexual disorders that encompass conditions such as dyspareunia, vaginismus and vulvodynia, significantly affecting women's quality of life. GPPPD is associated with changes in the pelvic floor muscles (PFM), including increased tone and muscle spasms, which may contribute to pain during sexual intercourse. However, there are still few studies that directly evaluate the relationship between PFM muscle tone and strength and the intensity of muscle pain in women with GPPPD.

Objectives: Evaluate the correlation between pelvic floor muscle tone and strength and pain intensity in women with GPPPD.

Methods: This is a cross-sectional study that included women over 18 years of age who had already had sexual intercourse and who had genito-pelvic pain/penetration before, during or after sexual intercourse. The assessment of the participants included a physical examination of the PFM with measurement of tone using the Reissing Scale, muscle strength using the modified Oxford Scale and tender points using the Pain Map, using the Visual Analogue Scale (VAS). To assess tender points, points in the region of the right and left obturator internus muscles and the right and left levator ani muscles were palpated. Statistical analysis was performed using the JASP software, with the Shapiro-Wilk test to verify data normality and the Spearman correlation test ($p < 0.05$).

Results: Sixty-two women participated in the study (age: 28.26 ± 9.36 years; BMI: 23.67 ± 4.90 kg/m²). The PFM muscle strength was 3.26 ± 1.03 and tone, 0.50 ± 0.74 . Correlation analysis showed no relationship between tone and muscle strength and pain intensity in the right and left obturator internus and right and left levator ani muscles ($p > 0.05$). However, there was a moderate positive correlation between pain in the right obturator internus and levator ani ($p < 0.001$, $r = 0.61$), as well as between the first one and the left obturator internus ($p < 0.001$, $r = 0.49$). Positive correlations were also observed between pain in the right and left levator ani ($p < 0.001$, $r = 0.63$) and between the left obturator internus and the left levator ani ($p < 0.001$, $r = 0.64$).

Conclusion: The results indicate that there is no correlation between the tone and strength of the PFM being directly associated with the complaint of pain in women with GPPPD. However, the pain appears to be distributed in different muscles of the pelvic floor, suggesting that its origin may be multifactorial, involving not only muscular aspects, but also other intrinsic factors and biopsychosocial factors.

Implications: A comprehensive clinical approach is needed in the assessment and treatment of pain in women with PGD, going beyond the isolated analysis of muscle tone. Future studies should explore other intrinsic and extrinsic factors involved in this condition.

Keywords: Sexual dysfunction, Pain, Sexuality