

## SEXUAL MEDICINE REVIEWS

## Systematic Review of the Effectiveness of Physical Therapy Modalities in Women With Provoked Vestibulodynia

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## ABSTRACT

**Introduction:** Pelvic floor muscle physical therapy is recommended in clinical guidelines for women with provoked vestibulodynia (PVD). Including isolated or combined treatment modalities, physical therapy is viewed as an effective first-line intervention, yet no systematic review concerning the effectiveness of physical therapy has been conducted.

**Aim:** To systematically appraise the current literature on the effectiveness of physical therapy modalities for decreasing pain during intercourse and improving sexual function in women with PVD.

**Methods:** A systematic literature search using PubMed, Scopus, CINAHL, and PEDro was conducted until October 2016. Moreover, a manual search from reference lists of included articles was performed. Ongoing trials also were reviewed using [clinicaltrials.gov](http://clinicaltrials.gov) and ISRCTNregistry. Randomized controlled trials, prospective and retrospective cohorts, and case reports evaluating the effect of isolated or combined physical therapy modalities in women with PVD were included in the review.

**Main Outcome Measures:** Main outcome measures were pain during intercourse, sexual function, and patient's perceived improvement.

**Results:** The literature search resulted in 43 eligible studies including 7 randomized controlled trials, 20 prospective studies, 5 retrospective studies, 6 case reports, and 6 study protocols. Most studies had a high risk of bias mainly associated with the lack of a comparison group. Another common bias was related to insufficient sample size, non-validated outcomes, non-standardized intervention, and use of other ongoing treatment. The vast majority of studies showed that physical therapy modalities such as biofeedback, dilators, electrical stimulation, education, multimodal physical therapy, and multidisciplinary approaches were effective for decreasing pain during intercourse and improving sexual function.

**Conclusion:** The positive findings for the effectiveness of physical therapy modalities in women with PVD should be investigated further in robust and well-designed randomized controlled trials. **Morin M, Carroll M-S, Bergeron S. Systematic Review of the Effectiveness of Physical Therapy Modalities in Women With Provoked Vestibulodynia. Sex Med Rev 2017;X:XXX–XXX.**

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**Key Words:** Vulvodynia; Dyspareunia; Provoked Vestibulodynia; Genito-Pelvic Pain; Physical Therapy Modalities; Rehabilitation; Pelvic Floor

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## INTRODUCTION

Vulvodynia is a neglected chronic pain condition affecting up to 7% to 8% of women younger than 40 years.<sup>1</sup> According to a recent terminology consensus from leading international societies including the International Society for the Study of Women's Sexual Health,<sup>2</sup> vulvodynia can be categorized as provoked (eg, insertional, contact) or spontaneous or mixed (provoked and spontaneous). Provoked localized vulvodynia, more specifically provoked vestibulodynia (PVD), is recognized as the leading cause of premenopausal vulvodynia.<sup>3</sup> Women with PVD describe a sharp pain or burning sensation at the entry of the vagina during application of pressure or attempted vaginal

penetration.<sup>3</sup> Not only is PVD related to relationship difficulties and psychological distress,<sup>4</sup> it also is reported to disrupt personal lives, severely affect sexual function, and negatively affect quality of life.<sup>5,6</sup>

The etiology of PVD is hypothesized to be multifactorial and several pathophysiologic pathways have been suggested, including inflammatory, hormonal, congenital, genetic, neuroproliferative, and muscular factors.<sup>7</sup> Of these, involvement of the pelvic floor muscles (PFMs) has gained growing attention and has been demonstrated in several controlled studies.<sup>8–12</sup> Heightened PFM tone and decreased strength, speed of contraction, coordination, and endurance have been found in women with PVD.<sup>8–11</sup> Addressing these muscle alterations, PFM physical therapy is listed as first-line treatment by several clinical guidelines.<sup>13–15</sup> A survey conducted of vulvodynia experts also found that physical therapy is judged the most effective intervention.<sup>16</sup> Physical therapy treatment encompasses several modalities used in combination or isolation. According to Hartmann et al,<sup>17</sup> the most commonly used interventions include PFM exercises with or without biofeedback, manual therapy, education (removal of irritant, sexual function, and bowel and bladder retraining), electrotherapy, and dilators and insertion techniques. It should be emphasized that these modalities are not exclusively used by physical therapists and can be integrated in other health professionals' treatment approaches. Modalities were selected in this present review to represent the most accurate portrayal of current physical therapy practices. Physical therapy interventions aim at rehabilitating the PFMs by (i) increasing muscle awareness and proprioception; (ii) improving muscle relaxation and discrimination; (iii) normalizing muscle tone; (iv) increasing elasticity of the muscle and vaginal tissues and desensitizing the painful area, and (v) decreasing fear of vaginal penetration.<sup>18</sup> The goal of this review was to systematically appraise the current literature on the effectiveness of physical therapy modalities for decreasing pain during intercourse and improving sexual function in women with PVD.

## METHODS

### Search Strategy

This systematic review adhered to guidelines detailed in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.<sup>19</sup> A literature search of peer-reviewed journals was undertaken using PubMed, SCOPUS, which includes EMBASE, CINAHL, PEDRO, and EBMreview, from the earliest date to October 2016. Protocol registries (ie, [clinicaltrials.gov](http://clinicaltrials.gov) and ISRCTN) also were screened for upcoming trials. Search terms were *provoked vestibulodynia*, *vulvodynia*, *dyspareunia*, *vestibulitis*, *genito-pelvic pain/penetration disorder*, *physical therapy*, *physiotherapy*, *biofeedback*, *pelvic floor exercises*, *pelvic floor muscle training*, *manual therapy*, *electromyography*, *vaginal dilator*, *perineal massage*, *transcutaneous electrical nerve stimulation*, *electrical stimulation*, and *electrotherapy* (further

details on search strategy are provided in the [Appendix](#)). The reference lists of eligible studies and relevant systematic reviews also were searched for additional articles that had not been found in the main search.

### Eligibility Criteria

Randomized controlled trials (RCTs), prospective and retrospective cohorts, case reports, and study protocols involving women with PVD or superficial dyspareunia were included in the review. Studies selected had to report on the effectiveness of a physical therapy intervention, which could include any of the following modalities: education, PFM exercises with or without biofeedback, manual therapy, electrotherapy, and dilators or insertion techniques. The studies were considered eligible when including outcomes evaluating pain during intercourse, sexual function, and patient's perceived improvement. Studies were excluded if they were published in languages other than English and involved women with other pelvic pain conditions, such as chronic pelvic pain, endometriosis, sexually transmitted infections, other vulvovaginal infections, cancer, dermatologic conditions, atrophy, or deep dyspareunia.

### Data Collection and Analysis

Two authors (M.M. and M.S.C.) independently sorted all studies from the searches using titles and abstracts; disagreements were discussed until consensus. For each study, level of bias was evaluated using the Cochrane Risk of Bias criteria.<sup>20</sup> The following potential biases were evaluated as having a low, high, or unclear risk: selection bias (randomization method, allocation concealment), performance bias (blinding and equivalent care), detection bias (blinding of outcome assessment), attrition bias (dropout), reporting bias (selective reporting), and other bias (ie, lack of information on sample characteristics, outcome measurement not sensible to change, inappropriate statistic).

## RESULTS

### Study Characteristics and Study Quality Assessment

In total, 2,004 studies were retrieved from the search after removal of duplicates ([Figure 1](#) shows the flow of studies). Of these, 1,951 studies were excluded because they failed to meet the eligibility criteria. Fifty-three studies were read in full and 10 were excluded, resulting in 43 relevant studies included in this systematic review. The search yielded 7 RCTs, 19 prospective studies, 5 retrospective studies, 6 case reports, and 6 study protocols.

A summary of study designs, patient characteristics, sample sizes, interventions, outcome assessments, duration of follow-up, and findings is listed in [Table 1](#). The quality assessment undertaken indicated that most studies reviewed had a high risk of bias related to selection bias (no randomization in 31 of 38, no allocation concealment in 31 of 38, and unclear concealment in

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