Physical therapy for premature ejaculation, erectile dysfunction and chronic pelvic pain syndrome

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There is limited knowledge about the exact role of the pelvic floor in male sexual functioning. Pelvic floor muscle function might be involved in the enhancement of blood flow to the penis, and evidence suggests an active role for the ischio- and bulbocavernosus muscles and other pelvic floor muscles in the initiation and maintenance of erection. Increased activity of pelvic floor muscles might also be preparatory to ejaculation. Studies have shown positive results after physical therapy for erectile dysfunction, premature ejaculation and chronic pelvic pain syndrome. However, the methodological quality of some of these studies is poor and further research validating specific physical therapies in the assessment and treatment of male sexual function is necessary. In this respect physical therapists have a potential role as integral members of healthcare teams involved in the improvement of male sexual health.

KEYWORDS
pelvic floor physiotherapy, erectile dysfunction, chronic pelvic pain syndrome, premature ejaculation, pelvic floor muscle

INTRODUCTION

The pelvic floor is important in providing support for the pelvic organs, and in maintaining continence by promoting voluntary closure of the urethral and anal sphincters. Adequate pelvic floor muscle (PFM) function is a necessary component of bladder and bowel control [1]. However, the exact role of the pelvic floor in male sexual function is not completely clear. Symptoms of PFM dysfunction have been divided into five groups by the ICS [2] (Appendix).

PELVIC FLOOR INVOLVEMENT IN MALE SEXUAL FUNCTIONING

Undoubtedly the pelvic floor of the male has an effect on sexual function, although its exact role is not yet completely clear. The phases of male sexual function include desire, erection, ejaculation and orgasm. Desire is a neurovascular event that relies on the interplay between the autonomic and somatic innervation of the penis, the smooth musculature within the cavernous bodies, the arterial inflow supplied by the paired pudendal arteries, and the PFM’s [3]. Erection is controlled by the sympathetic nervous system. Orgasm is a cortical sensory phenomenon in which the rhythmic contraction of the PFM’s is perceived as pleasurable.

PFM function might be involved in the enhancement of blood flow to the penis. There is evidence suggesting an active role of the ischio- and bulbocavernosus muscles in the initiation and maintenance of erection [4]. Not only the ischio- and bulbocavernosus but all PFM’s and sphincters show a significant increase in electromyographic (EMG) activity during the whole erectile period [5]. The increased activity probably acts to abort any urge to defecate or urinate, and to prevent leakage of urine, feces and flatus during erection, orgasm and ejaculation. In many people orgasm is associated with generalized skeletal muscle activity, so abdominal muscle contractions might be so forceful that they compress the urinary bladder and rectum, with possible leakage of their contents.

Increased pelvic floor activity might also be preparatory to ejaculation [6]. The puborectalis muscle embraces the prostate and the upper part of the anal canal. As it passes backward from its origin in the symphysis pubis, it gives rise to individual sphincters which comprise the prostatic and striated urethral as well as the deep external anal sphincter. The increased EMG activity of the puborectalis muscle during erection most likely involves its individual sphincters. This might result in compression of the prostate, the lower parts of the vasa ampullae and seminal vesicles, thus expressing their secretions into the posterior urethra, the so-called ‘emission’. Shafik [7] postulated that the puborectalis muscle acts in conjunction with contraction of the intrinsic musculature of the internal reproductive organs.

The precise function of the increased EMG activity in the levator ani during erection is not known. However, this muscle might also have a role during ejaculation. It is connected to the bladder neck by the hiatal ligament. Upon contraction the muscle is elevated and retracted laterally, resulting in elevation of the bladder neck and prostate. According to Shafik [5], the prostatic elevation might partly straighten the kink at the prostate-membranous urethra that occurs with penile elevation during erection, and which could interfere with semen expulsion. In addition, the rhythmic contractions of the striated urethral sphincter during expulsion might act as a ‘suction-ejection pump’. The sphincter, while relaxing after contraction, might create a negative pressure in the posterior urethra and ejaculatory duct which can help evacuation of the seminal vesicles and vasa ampullae. Upon contraction the sphincter ejects the semen collected in the posterior urethra into the bulbar part, followed by
expulsion to the exterior by the rhythmic bulbocavernous muscle contractions.

**PELVIC FLOOR EXERCISE AND BIOFEEDBACK FOR ERECTILE DYSFUNCTION (ED), PREMATURE EJACULATION (PE) AND CHRONIC PELVIC PAIN SYNDROME (CPPS)**

A randomized comparison of physical therapy administered as pelvic floor exercise, vs surgery, for the treatment of 150 patients with ED due to ‘venous leakage’ found that surgery was no better than pelvic floor exercises. Of those who received pelvic floor exercise, 42% were sufficiently satisfied with the outcome and refused surgery [8]. Investigations before treatment included hormonal testing (testosterone and prolactin), arterial diagnostics (Doppler ultrasonography or arteriography), venous diagnostics (dynamic cavernosography and cavernosometry), and pharmacological studies. The pelvic floor exercise programme consisted of at least five individual lessons in which patients were taught to isolate and identify the various muscles. They were instructed in a home programme of pelvic floor-strengthening exercises, varying in position and increasing in intensity. Patients were evaluated initially, and at 4 and 12 months later by history taking and pharmacological injection tests. In an Belgian study of 51 men with ED secondary to venous occlusion, 47% regained a normal erection after treatment with pelvic floor exercise, biofeedback and electrical stimulation [9]. In another study, 55 men with ED were randomized to an intervention group consisting of exercise and biofeedback, or a control group in which patients received advice on lifestyle changes [10]. At 3 months, compared with controls, the intervention group showed significant mean increases in the various erectile function domains. More studies have shown positive results after physical therapy for ED [11–13]. However, different pelvic floor exercise programmes were used and some studies had small samples (Table 1).

**PE**

Ejaculation is controlled by the sympathetic nervous system. The mechanism behind the control of the ejaculation reflex through the pelvic floor is not clearly understood. However, PFM exercises improve self-familiarity and body awareness, which might develop better self-confidence and sense of control. In addition, active PFM control could inhibit the ejaculation reflex through intentional relaxation of the bulb- and ischiocavernous muscles active during arousal. This might be facilitated by releasing the levator ani muscles through an active relaxation of the PFM with avoidance of the Valsalva manoeuvre. This is a learned technique that can be mastered using pelvic floor biofeedback.

Pelvic floor exercise has been reported in the treatment of PE [14]. In a study by La Pera and Nicastro [15], 11 (61%) of 18 patients with PE reported that they were better able to control the ejaculatory reflex after 15–20 sessions of pelvic floor rehabilitation. Their protocol included exercises, intra-anal electrostimulation, and biofeedback with an anal pressure probe. The exercise portion of the treatment consisted of basic pelvic floor isometric strengthening activities while supine and standing.

A new physiotherapeutic sexological treatment for PE was developed by de Carufel and Trudel [16]. Couples were taught to identify the body signals that indicate the various levels of male sexual excitement and to act accordingly. Men were instructed to move their body differently by focusing on their movements, to use their muscles in another way, to vary the speed of sexual activity, to breathe from the diaphragm and to use positions that require less muscular tension. Thirty-six couples were evenly divided in three groups; one followed the new functional treatment, one a behavioural treatment (including the ‘squeeze’ and ‘stop-and-start’ techniques) and a control group placed on a waiting list. After treatment there was a significant increase in the duration of intercourse for the two experimental groups; the duration of intercourse before treatment was <1 min and after treatment was >7 min.

**CPPS**

Male CPPS is associated with sexual dysfunction, including ED, PE, and painful erection and orgasm. In a Turkish study, of 66 patients with CPPS, 51 had PE (77%), and in 10 (15%) PE and ED occurred together [17]. Male pelvic pain has traditionally been associated with infectious causes or prostate gland inflammation. However, in many cases there is no evidence of a bacterial cause, while evidence of prostatic inflammation is conflicting and not specific. More plausible causes of prostatitis-like symptoms can include musculoskeletal pain, PFM dysfunction, myofascial pain syndromes, or functional somatic syndromes [18]. A recent study comparing PFM EMGs of men with CPP to normal subjects reported that men with CPP have PFM instability compared with normal men. The study concluded that PFM EMG might be a valuable screening tool to identify patients with CPPS who could benefit from therapies aimed at correcting PFM dysfunction [19]. Indeed, pelvic floor biofeedback has been studied and found to be effective in the treatment of men with CPPS [20,21]. Physical therapy that includes pelvic floor biofeedback and manual therapy techniques should also be considered in the treatment of male CPPS.

### CONCLUSION

Sexual dysfunction usually results from more than one factor, and several components, biological, psychosocial, and relational, can contribute. Among the many factors involved in sexual dysfunction, PFM appear to have an

### TABLE 1 Results of pelvic floor exercises in the treatment of ED

<table>
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<th>Study 4</th>
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important influence. Physical therapists skilled in pelvic rehabilitation possess skills and knowledge in an area that is relevant to both urologists and sexologists. They use a range of treatment tools, including manual therapy, therapeutic exercises, biofeedback, and electrical stimulation. Physical therapists have a potential role as integral members of the healthcare team involved in the improvement of male sexual health. However, there have been too few published studies on the use and effectiveness of specific physical therapies in the assessment and treatment of male sexual dysfunctions other than CPPS. For example, pelvic floor exercises for PE have been studied only minimally, and specific exercise protocols have not yet been established. The exercise instructions provided vary, and the type, amount of exercise, and whether the focus is on relaxation, strength, support, or control is not always clear. Clearly, further studies are necessary to validate the success of physical therapy interventions in male sexual dysfunction.

CONFLICT OF INTEREST

None declared.

REFERENCES


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Abbreviations: ED, erectile dysfunction; EMG, electromyography; PE, premature ejaculation; CPPS, chronic pelvic pain syndrome; PFM, pelvic floor muscle.

APPENDIX

Symptoms of PFM dysfunction

LUTS

• Urinary incontinence;
• Urgency and frequency;
• Slow or intermittent stream and straining;
• Feeling of incomplete emptying.

Bowel symptoms

• Obstructed defecation;
• Functional constipation;
• Fecal incontinence;
• Rectal/anal prolapse.

Vaginal symptoms

• Pelvic organ prolapse.

Sexual function

• In women: dyspareunia;
• In men: erectile and ejaculatory dysfunction;
• In both: orgasmic dysfunction.

Pain

• CPP;
• CPPS