

## **Physiotherapy Treatment of Sexual Pain Disorders**

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*Physiotherapists provide treatment to restore function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities of patients suffering from injuries or disease. Women with vulvar pain, dyspareunia, or vaginismus have limited ability to function sexually and often present with musculoskeletal and neurological findings appropriately addressed by a trained physiotherapist. Although pelvic floor surface electromyography (sEMG) biofeedback has been studied, the inclusion of physiotherapy in the team approach to treating women with sexual pain disorders is a relatively recent advancement, and its exact role is not widely understood by doctors, mental health professionals, or laypersons. This article will examine the supportive and often primary role of the physiotherapist in the overlapping conditions of vaginismus and dyspareunia.*

The term “*sexual pain*” implies a uniquely sexual quality to the experience of pain; in fact, it characterizes dyspareunia (Binik et al., 1999; Pukall, 2004), the presence of a painful condition that interferes with sexual function. Recently revised definitions of women’s sexual dysfunction avoid the term “*sexual pain*” and provide clarification for two separate dysfunctions: vaginismus and dyspareunia (Basson et al., 2004). Both vaginismus and dyspareunia are characterized by difficulty with vaginal penetration, with phobic avoidance and involuntary muscle contraction the main determinants of vaginismus and pain the main diagnostic criteria of dyspareunia. Both of these conditions, which often coexist clinically, are generally characterized by physical findings such as pelvic floor hypertonus, a condition that warrants the intervention of a physiotherapist. Although psychosexual approaches to sexual

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pain disorders are well documented, little research is available on the efficacy of treatments such as physiotherapy. Studies available on physiotherapy intervention for dyspareunia refer specifically to vulvodynia and vulvar vestibulitis syndrome (VVS). VVS is one of the leading causes of dyspareunia in premenopausal women (Bergeron et al., 1997; Goetsch, 1991; Harlow, 2001) and is characterized by severe pain on vestibular touch or attempted vaginal entry, tenderness to pressure localized within the vestibule, and physical findings confined to erythema of various degrees (Friedrich, 1988). Two retrospective studies reporting that 71% of patients rated themselves as much improved with physical therapy (Bergeron et al., 2002; Hartmann, 2001) point to promising potential outcomes. Studies have compared cognitive behavioral therapy (CBT) to surgery in the treatment of VVS (Weijmar Schultz et al., 1996) and compared CBT, biofeedback with a home trainer, and surgery (Bergeron et al., 2001). However, to date, the efficacy of a combined multidisciplinary approach to treatment is still to be examined. Furthermore, specific protocols do not exist for many treatments, and the differences among physiotherapy, biofeedback, and pelvic floor rehabilitation are poorly understood. This article will examine the therapeutic and often primary role of the physiotherapist in the overlapping conditions of vaginismus, VVS, and dyspareunia.

#### PHYSIOTHERAPY TREATMENT: COMPLEMENTARY OR COMPARTMENTAL

The role of the physiotherapist in the multidisciplinary treatment of sexual pain disorders has been addressed in the literature (Bergeron & Lord, 2003; Holland, 2003; Mariani, 2002). The multidisciplinary model implies that treatment of sexual pain disorders, understood to result from a combination of physiological, emotional, and relational factors, responds best to physiotherapy for the physical aspects and psychosexual treatment, including cognitive behavioral therapy, for the relational, emotional, and sexual aspects of the dysfunction. This simplistic and "compartmental" model, however, describes a noncohesive approach that lacks a wholistic view by any one practitioner and appears to break the individual patient down into her component parts, relegating only her vaginal muscles to the physiotherapist. Multidisciplinary treatment is best provided with a "complementary" approach best achieved through regular communication between the physiotherapist and other treating practitioners. Complementary treatment also is best achieved when the practitioners of the various disciplines are knowledgeable and aware of the type and nature of the treatments provided by the other disciplines. In reality, the multidisciplinary model is in itself overlapping. It is not uncommon for the sex therapist to provide instruction in pelvic floor muscle exercises, use of vaginal dilators, and, in the case of vulvar pain syndromes, to provide

suggestions regarding baths and applications of oils. Conversely, particularly if the physiotherapist is the primary treating practitioner, it falls upon him or her to educate the patient regarding her anatomy, empower her to overcome her fears, and provide suggestions regarding non intercourse-related sexual activities. More important, however, it is the hands-on treatment, an area considered taboo and off limits to mental health providers, that often is the trigger in revealing areas that require further intervention. Manifested behaviors that can be exhibited during the physiotherapy treatment session can range from a noted inability to relax, not only in the pelvic area but throughout the body, the need to control the direction and pace of the treatment, and, in many cases, a strong expressed desire to succeed in allowing penetration with extreme frustration displayed when anxiety prevents success. Often, the strong desire to succeed in order to please the practitioner is noted as well. Recognition of these traits may first occur during physiotherapy sessions, then may be communicated to and addressed with the sex therapist or psychotherapist on a cognitive and even psychodynamic level. A more ominous occurrence may include a somato-emotional release, crying, or recollection of a traumatic event such as an incident of childhood abuse or a painful medical procedure. Although such an event may be discovered through physiotherapy, this warrants further discussion and intervention with a trained social worker or psychologist or sex therapist.

Conversely, physiotherapists complement treatment to sex therapy by providing physical assurance that the patient is properly following through on her home program and doing the physical exercises correctly. A prime example is ensuring proper isolation and contraction of the pelvic floor muscles in performance of exercises commonly referred to as "kegels." Although sex therapists typically patient instruct verbally to perform these exercises, it has been determined that only approximately half of women who receive verbal instruction in pelvic floor exercises actually perform them properly (Bo et al., 1988; Bump et al., 1991). Sex therapists who experience frustration at the uncertainty of patients' correct performance of pelvic floor exercise may find that working together with a pelvic floor physiotherapist provides the necessary assurance that these exercises are being properly performed.

This applies to instruction in home use of dilators as well. The sex therapist has only verbal and audiovisual tools available to teach the patient, who often has poor awareness of her own anatomy to begin with, how exactly to find her vaginal opening and to properly insert the dilator and has no objective criteria by which to assess appropriate dilator size. Upon attempting to use the dilators at home, the patient may report poor follow up because of an inability to succeed independently. The physiotherapist fills this void by working together with the patient and helping allay her fears and anxieties in a safe and supportive setting. Furthermore, the sex therapist lacks the tools to assess the connective tissue integrity of the perineal area, the thickness of the patient's hymen, and to teach and apply techniques such as

stretching and massage, which are integral to increasing the flexibility of the vaginal introitus. This void is best filled by a physiotherapist who is familiar with these assessment and treatment techniques.

In her clinical approach to the treatment of VVS, Graziottin (2004) refers to physiotherapy and suggests “two sessions consisting of general relaxation and postural changes and eight sessions of levator ani surface EMG biofeedback with self insertion of a small single user sEMG sensor into the vagina.” Although a stated lack of available physiotherapists in Graziottin’s area may be a factor in the limited use of physiotherapy services suggested in this clinical approach, it also demonstrates a lack of differentiation between physiotherapy and biofeedback. Pelvic floor surface electromyography (sEMG) biofeedback is only one of the many tools available and commonly used by physiotherapists in the treatment of vulvar pain syndromes, and it has a role in the assessment and treatment of vaginismus, as well (Reissing, Binik, Khalifé, Cohen, & Amsel, 2004; van der Velde & Everaerd, 2001). Glazer (1998) was the first to demonstrate the findings of increased pelvic floor hypertonus and decreased pelvic floor muscle stability in vulvar pain syndromes. Several studies since have demonstrated at least 50% effectiveness in reducing VVS pain with pelvic floor biofeedback (Glazer et al., 1995; McKay et al., 2001). Although pelvic floor biofeedback is a critical tool available to physiotherapists in the treatment of various pelvic floor-related dysfunctions, *physiotherapy* which includes the application of various hands-on exercises and behavioral techniques and *biofeedback*, are not interchangeable.

The conceptual formula presented by Bergeron and Lord (2003) far better describes the role of the physiotherapist, although the tendency to designate only the physiological and musculoskeletal aspects of treatment to the physiotherapist is noted. They state that the main goals of physiotherapy are to (a) increase awareness and proprioception of the musculature, (b) improve muscle discrimination and muscle relaxation, (c) normalize muscle tone, (d) increase elasticity at the vaginal opening and desensitize painful areas, and (e) decrease fear of vaginal penetration. Fitzgerald and Kotarinos (2003) well describe physiotherapy assessment and treatment techniques in the management of conditions of hypertonus of the pelvic floor resulting in dyspareunia, including pelvic and vulvar pain syndromes and interstitial cystitis.

## PHYSIOTHERAPY EVALUATION OF VAGINISMUS AND DYSPAREUNIA

Vaginismus traditionally has been defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) as a reflexive spasm of the outer one third of the muscles of the vagina. Whether this refers to persistent spasm or a contractile response to attempted penetration remains unclear, however; the validity of the existence of vaginal

spasm has never been established (Reissing et al., 2004). Studies that have directly investigated vaginal and pelvic muscle activity in women with vaginismus found that women with vaginismus had more pelvic floor hypertonus but could not validate the presence of vaginal spasm as a diagnostic marker (Reissing et al., 2004; van der Velde & Everaerd, 2001).

Another factor complicating the understanding of the etiology and treatment of vaginismus is confirmation of diagnosis. There are few objective defining criteria by which to diagnose vaginismus, and one recent study found poor diagnostic agreement among physiotherapists and gynecologists (Reissing et al., 2004). Traditionally, a woman reporting inability to allow vaginal penetration who never underwent or succeeded in undergoing a vaginal exam would be diagnosed by a mental health professional with vaginismus based on the behaviors she described, such as inability to insert a tampon, with pain being a frequent but not necessary component. This diagnosis is supported as well by the recent recommendations of the International Consensus Development Conference on Female Sexual Dysfunction, which defined vaginismus as “the persistent or recurrent difficulties of the woman to allow vaginal entry of a penis, a finger, and/or any object despite the woman’s expressed wish to do so. There is often (phobic) avoidance and anticipation/fear of pain. Structural and/or other physical abnormalities must be ruled out and addressed” (Basson et al., 2004).

In order to fulfill the final criteria, the above definition necessitates that the patient undergo a vaginal examination by a physician or other health professional licensed to do so. The variation of responses by the patient to the practitioner and the variables present, such as patient’s level of anxiety and the gender, patience level, and manner of the examiner, all contribute to a lack of uniformity and protocol in diagnosis. Another complicating factor is the persistent conceptualization that vaginal spasm or contraction, more correctly referred to as “pelvic floor hypertonus” is necessarily a symptom of vaginismus. In fact, in the absence of patient anxiety or physical withdrawal during the examination, it is more likely associated with conditions such as VVS, pelvic pain, or dyspareunia. In clinical practice, therefore, it is not uncommon for a patient to be referred to physiotherapy with “severe vaginismus” who presents with significant levator muscle hypertonus but who was in fact quite cooperative for the exam and exhibited no distress other than positive findings of pain and tenderness in specific areas of palpation. Conversely, patients referred with diagnoses other than vaginismus can present to physiotherapy with significant anxiety, exhibiting behaviors of leg crossing or buttock lifting in order to avoid examination. Furthermore, variations among practitioners in the pressure applied to tender areas may produce varied subjective responses because hypersensitivity to touch and lowered pain thresholds may be present (Lowenstein et al., 2004; Pukall, Binik, & Khalifé, 2004).

Because of the lack of consensus regarding diagnosis, the variation in presentation, and the frequently overlapping of symptoms of vaginismus with other conditions such as vestibulitis (Abramov, Wolman, & David, 1994; de Kruiff, Ter Kuile, Weijnenborg, & van Lankveld, 2000), the physiotherapy rule of thumb in assessment and management is to treat the patient, not the diagnosis, and to address the findings. Even in cases of "pure" vaginismus, patient presentations are varied. Some women with vaginismus may report that they feel completely sexually uninhibited with their partner, have arousal and orgasms, and can enjoy themselves but are unable to allow penetration. In fact, they may demonstrate completely normative sexual behavior until the actual attempt to insert a finger or dilator into the vagina. On the other side of the spectrum are patients who have little experience with sexual activity, and recoil at any touch; clearly, fear of penetration is but one of the many anxieties they may contend with regularly.

Given the variation of sexual feelings, experiences, and backgrounds of women referred with vaginismus and its overlap with conditions of dyspareunia and vulvar pain syndromes, a very thorough medical and sexual history is integral to assessment, treatment, and determination of the influence of psychosexual, cultural, educational, and psychodynamic factors. The history includes gathering information regarding the patient's chief complaint with which she presents. In most cases, patients with vaginismus seek treatment when it becomes apparent that this condition interferes with sexual intercourse, and the ability to have sexual intercourse is the goal of treatment. However, the inability to allow penetration extends to other nonsexually related functional activities as well, such as inserting a tampon or undergoing a gynecological exam. Moreover, patients with a burning vulva may primarily be seeking relief of their symptoms and may or may not even be sexually active. Whether sexual activity is a goal of treatment is determined together with the patient.

When the presenting complaint is pain with penetration or attempted penetration, a thorough pain assessment is necessary. Location of pain and its characteristics are the strongest predictors of its organicity (Meana, Binik, Khalifé, & Cohen, 1997). The pain description (burning versus aching, diffuse versus local, spontaneous versus provoked) reflects its somatic, visceral, or neuropathic nature and will help determine direction for physical examination and treatment. It is important to determine at what point the pain occurs; if it is superficial or deep, if it occurs with arousal or orgasm, and if the pain can be alleviated and how. Comorbidity with vulvar pain syndromes has been reported with interstitial cystitis (IC), pelvic pain, and urinary urgency and frequency (Jamieson & Steege, 1996; Doggweiler-Wiygul & Wiygul, 2002; Gunter, 2000). These conditions are related to muscle hypertonus and muscle trigger point irritability and should be addressed concurrently (Travell & Simons, 1992).

## OBSERVATION AND MUSCULOSKELETAL EXAMINATION

The musculoskeletal exam consists of the following: (a) assessment of posture, mobility, and strength; (b) observation of the patient's movement and breathing; (c) palpation for areas of tightness and decreased mobility; (d) evaluation of the viscera to note hypomobile areas; (e) checking of spinal, sacral, and pelvic alignment; and (f) muscle testing for length, strength, and trigger points.

General observation reveals the patient's posture, breathing, and gait. Chronic anxiety, for example, is manifested by increased muscle tone of the abdominal oblique muscles, placing increased intraabdominal pressure on the pelvic floor and creating dyssynergic breathing patterns and pelvic floor muscle dysfunction. Careful assessment is made of the strength, length, and mobility of the pelvic and lumbar joints, as well as the surrounding musculature of the pelvis and hips. A typical musculoskeletal presentation of patients with vaginismus is tight hip flexors and adductors—muscles related to posture of “pulling in.” It is interesting to note that they are commonly found to present with weak, undeveloped pelvic floor muscles, which is revealed when they are asked to perform an active contraction.

## VULVAR AND PELVIC FLOOR EXAMINATION

The physiotherapist's assessment of the vulva differs from a gynecological examination. Both the external and internal exam focus on the mobility and integrity of the muscular, fascial, and connective tissue components. The vulvar and pelvic floor exam consists of the following: (a) observation of the vulva, perineum, and anus to note areas of redness, raised areas, scar tissue, or edema; (b) palpation to note areas of tenderness to touch; (c) internal exam to assess pelvic floor muscle tension and tightness, tone, range of motion, and hymenal presence and thickness; (d) assessment of internal muscle trigger points; (e) determination of the integrity of the pelvic organs and possible presence of prolapse of the bladder, uterus, or rectocele; and (f) anorectal internal exam.

Physiotherapists assess pelvic floor muscle tone with both manual examination and sEMG assessment with a vaginal probe. The presence of pelvic floor hypertonus and decreased resting and working level muscle stability, evidenced by a high standard deviation, has been associated with VVS (Glazer, 1998). Pelvic floor hypertonus has been associated with other dyspareunia-related conditions such as IC, levator ani syndrome, and proctalgia fugax (Kotarinos, 2003). Pelvic floor muscle assessment determines muscle tone at work and at rest, contractile amplitude, reaction times, and muscle stability.

## PHYSIOTHERAPY TREATMENT

Physiotherapists provide services that help restore function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities of patients suffering from injuries or disease. They restore, maintain, and promote overall fitness and health (U.S. Dept. of Labor, 2004). Physiotherapists treating patients suffering from illness or disease address the sensory, inflammatory, neurological, and musculoskeletal aspects of the disease and their effect on function. They choose specific techniques, guided by the findings of the history and examination. In conditions of pain due to local inflammation, reduced sensory pain threshold, neuropathic conditions, or a combination thereof, sensory rehabilitation provides relief of symptoms by raising the pain threshold and “accustomizing” the affected area to touch. In VVS, the vulvar vestibule has been found to have an increase in nociceptors and mast cells (Bohm Starke et al., 2001; Bornstein et al., 2002). Other studies have pointed to a decreased pain threshold and more acute pain perception in patients with VVS (Pukall, 2002; Granot, Friedman, Yarnitzsky, & Zimmer, 2002). Patients with VVS often demonstrate behaviors of avoidance regarding allowing direct touch or contact to the area, which hypersensitizes the area even more. Introduction of daily light touch by the patient herself with applications of vitamin E oil provide the therapeutic benefits of increasing proprioception and body awareness, and decreasing local tissue hypersensitivity.

Physiotherapists apply various hands-on techniques to treat musculoskeletal abnormalities, postural and skeletal asymmetries, and soft tissue immobility. Trigger points are discrete, focal, hyperirritable spots located in a taut band of skeletal muscle (Alvarez & Rockwell, 2002; Simons & Travell, 1983; Travell & Simons, 1992). They produce pain locally and in a referred pattern and often accompany chronic musculoskeletal disorders. The application of trigger point massage in the pelvic area and transvaginally has been described in the treatment of pelvic pain and IC (Weiss, 2001) and for the treatment of vulvar pain syndromes (Fitzgerald & Kotarinos, 2003). Additional techniques include massage and connective tissue and scar tissue release. Osteopathic techniques such as visceral and urogenital manipulation, taught to physiotherapists in advanced training courses, are effective techniques, as well (Baral, 1993). Other techniques, available to the physiotherapist treating musculoskeletal dysfunction associated with pelvic and vulvar pain include muscle energy, contract/relax, and passive and resisted stretching designed to normalize postural imbalances, improve blood circulation in the pelvic and vulvar area, and improve pelvic and vulvar mobility. Dilators are used not only to help overcome penetration anxiety but to stretch the introital opening. Perineal dilators, designed for predelivery perineal stretching in women hoping to avoid episiotomy, is useful for introitus and perineal stretching in women with introital tightness (Cohain, 2004).

Pelvic floor sEMG biofeedback for the treatment of VVS has been well studied (Glazer et al., 1995; Bergeron et al., 2001; McKay et al., 2001). The goals of sEMG biofeedback are to normalize pelvic floor muscle tone, decrease hypertonus, and improve contractile and resting stability. Other modalities available to the physiotherapist include pelvic floor electrical stimulation. Use of pelvic floor electrical stimulation has been studied in the treatment of levator ani hypertonus and pelvic pain (Fitzwater et al., 2003) and has been reported to successfully improve pelvic floor muscle strength and reduce pain in the treatment of VVS (Nappi et al., 2003). The use of perineal ultrasound—the application of deep heat produced by frequency waves—for the treatment of dyspareunia has also been reported in the literature (Hay-Smith, 2000).

## CONCLUSION

Sexual pain disorders are pain disorders that interfere with sexual activity. Conditions resulting in painful sexual intercourse are often multisystemic and respond well to a multidisciplinary approach to treatment (Graziottin, 2001). The systems involved, including the vascular, musculoskeletal, and neurological, are well addressed with physiotherapy, which includes a combination of hands-on techniques, exercises, behavioral approaches, biofeedback, and electrical and heat modalities. Although issues such as effect on the relationship, and lifelong or acquired low libido and arousal are best addressed in sex therapy, physiotherapists are in a unique position to provide adjunctive treatment for overcoming anxiety related to vaginal penetration. Physicians recognizing and treating women presenting with vaginismus, VVS, and dyspareunia should consider physiotherapists as vital members of the interdisciplinary team.

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