

# Musculoskeletal Pain and Sexual Function in Women

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## ABSTRACT

**Introduction.** Sexual pain disorders refer to conditions of genital pain that interfere with intercourse. They often have a musculoskeletal component related to the pelvic floor and are included in the DSM-IV as sexual dysfunctions. Musculoskeletal pain (MP) that is not essentially genitally based often interferes with sex as well yet is not considered a distinct sexual dysfunction. MP is generally addressed by psychiatrists, orthopedists, and rheumatologists who are not traditionally trained in sexual medicine, and therefore, the sexual concerns of women with MP often go unaddressed.

**Aim.** The purposes of this review article were to describe how MP is perceived in the literature as affecting sexual function, illustrate how specific MP conditions prevalent in women may affect sexual function, and offer recommendations for clinical practice.

**Methods.** PubMed and Medline searches were performed using the keywords “musculoskeletal pain and sex,” “lower back pain and sex,” “arthritis and sex,” and “fibromyalgia and sex”.

**Main Outcome Measure.** Review of the peer-reviewed literature.

**Results.** Most studies cite fatigue, medication, and relationship adjustment as affecting sexuality much as chronic illness does. While musculoskeletal contributors to genital sexual response and pain are considered relevant to sexual function, little is understood about how MP syndromes specifically affect sexual activity.

**Conclusion.** Lack of mobility and MP can restrict intercourse and limit sexual activity, and gender differences are noted in response to pain. Sexual and relationship counseling should be offered as a component of rehabilitative treatment. Physical therapists are uniquely qualified to provide treatment to address functional activities of daily living, including sexual intercourse, and offer advice for modifications in positioning. **Rosenbaum TY. Musculoskeletal pain and sexual function in women. J Sex Med \*\*;\*\*:\*\*\_\*\*.**

**Key Words.** Musculoskeletal Pain; Sexual Dysfunction; Physical Therapy; Fibromyalgia; Arthritis; Low Back Pain

## Introduction

Among the numerous physiological and psychological aspects of female sexual function, little attention has been paid to the musculoskeletal system. What is typically considered to be the most relevant in the context of this system is the relationship of the pelvic floor with genital responses [1]. This includes the role of the pelvic floor in facilitating genital arousal and orgasm and more significantly, the findings of causal or reactive hypertonic pelvic floor muscles in vaginismus and dyspareunia [2–4]. While the pelvic floor is an important component of genital and sexual function [5], a broader view of the effect of musculo-

skeletal problems on contributing to both physiological and psychological elements of sexual functioning is essential. Sexual activity requires a functional level of physical well-being, and engaging in satisfying and enjoyable sexual activity presumes the ability to feel, touch, and move comfortably. While decreased genital circulation and genital pain affect sexual function, physical presentations that may limit sexual activity also include decreased trunk and/or extremity mobility, neck, back and joint pain, and related alterations in sensation and comfort.

Musculoskeletal conditions such as fibromyalgia (FM), arthritis, and orthopedic injury are associated with chronic pain and disability, and

therefore, the challenges to sexuality in this patient population are similar to those that exist in patients with chronic pain including cancer pain, neuropathic conditions, neurological disabilities, and chronic illness. These challenges are physical, relational and psychosocial and they include, although are not limited to the following: effects of medications, fatigue and emotional stress, depression and anxiety, alterations in role identity and body image, and relationship adjustment. While these factors are often accounted for in quantifying the sexual parameters of frequency, desire, arousal, orgasm and sexual pain, little research is available on how particular musculoskeletal conditions limiting mobility and strength actually affect sexual activity. Reports in the literature have looked specifically at the effects of musculoskeletal presentations on genital pain [6], including the potential vascular and neurological consequences of entrapment of the pudendal nerve [7–9]. However, both systemic and local musculoskeletal conditions are associated with specific challenges to sex such as decreased ability to provide sexual stimulation to one's partner or to comfortably position oneself for sexual intercourse.

Clinically, musculoskeletal conditions are managed by physical medicine specialists, rheumatologists, orthopedists, pain specialists, and physical and occupational therapists. Many fail to routinely address sexual concerns. A study of orthopedic physicians reported that 80% of surgeons reported they rarely or never discuss sexual activity with their patients who have had hip replacement surgery. Of surgeons who stated they did discuss this topic, 96% spent 5 minutes or less on the subject [10]. This is notwithstanding the fact that hip joint replacement carries a risk of dislocation that can occur when the hip is flexed past 90 degrees, or when rotated [11]. Physical therapists rarely discuss sex with their patients either, citing embarrassment and lack of proper training to address issues of a sexual nature, as well as mistaken assumptions that sexuality is not a concern because of advanced age, disability, or marital status [12]. In this review, musculoskeletal conditions will be considered as they apply specifically to the sexual concerns of women and their partners. Specifically, the conditions of FM, rheumatoid arthritis, (RA) and lower back pain (LBP) will be emphasized.

### **Musculoskeletal Problems and Women**

A review of the literature reveals that gender differences exist between men and women in the

prevalence, presentation, consequences, and coping mechanism of musculoskeletal pain (MP). Many studies report a female predominance in the prevalence of chronic MP [13]. Women suffer disproportionately from clinical pain conditions such as FM, lupus, and RA [14]. Women more frequently report multiple pain locations than men [15], and pain perception in women appears to be greatly influenced by hormonal status [16]. Women with any MP report more health-care utilization and use of analgesics than men [17]. Compared with male patients, women report more disability, more work strain, higher levels of post-traumatic stress reactions, a lower self-esteem, and poorer coping capacity [18]. These findings illustrate overall poorer adjustment to pain in women than in men and may help explain the distinct effects of pain on the sexual response of women.

Age, smoking, parity, and occupation are factors associated with musculoskeletal conditions in women [19]. Women may be mechanically and hormonally prone to musculoskeletal dysfunction throughout the life cycle, and this may have a significant influence on sexual comfort and desire. Hormonal changes, particularly an increase in estrogens and relaxin facilitate softening of the ligamentous tissues that provide stability to the bony pelvis [20]. This increases the risk in women for back pain and knee injury as well [21]. These effects are particularly significant during pregnancy and often persist past menopause [22]. Women with a history of chronic pain are more likely to complain of pelvic pain related to pregnancy and childbirth [23]. Ligamentous laxity combined with abdominal and pelvic floor weakness resulting from mechanical stretch compromises pelvic stability. This frequently contributes to sacroiliac joint dysfunction or pubic symphysis separation. These conditions significantly limit pelvic and extremity movements typical to sexual activity including bilateral hip abduction, pelvic tilting, and rocking and may be most problematic in the third trimester of pregnancy. Hormonal and mechanical changes during pregnancy and the postpartum period also increase risk in women for injuries such as carpal tunnel syndrome. Extremity pain and hypersensitivity to touch may affect a woman's ability to weight bear during sexual activity or use her arms and hands to touch her partner. Increased edema during pregnancy may strain the thoracic outlet, causing symptoms of upper extremity pain and paresthesias, which may cause hypersensitivity to touch at the chest region, thereby inhibiting sexual activity. Women at

midlife are prone to musculoskeletal problems as well. Osteoporosis is associated with skeletal fracture and deformation, musculoskeletal discomfort, decreased trunk and extremity strength, decreased endurance, and fatigue [23]. Frailty and fear of injury should be considered additional components to reduced sexual functioning in aging women [24].

### Systemic Rheumatologic Disorders

#### FM

FM is one of the most common chronic MP disorders and is defined as chronic ( $\geq 3$  months) widespread pain and pain on palpation of at least 11 of 18 tender point sites throughout the body [25,26]. A recent review of the association between FM and sexual dysfunction in women reported results of five studies that compared sexual function in women with FM versus healthy controls [27]. The parameters measured in all questionnaires, included masturbation and intercourse frequency, desire, arousal, orgasm, and sexual pain, relating specifically to vaginal pain with intercourse. Results of the review reported that based on the findings of these five studies, sexual desire and arousal were the most affected in women with FM. The pain measures in these studies were limited to genital pain. The limitation of this in regard to MP syndromes is the failure to measure the experience of widespread muscle and joint pain and impaired mobility that potentially affect all aspects of sexual function. Multifactorial factors certainly play a role in decreased sexual functioning of women with FM. FM is a chronic pain condition and is associated with fatigue, anxiety, and depression. These symptoms are frequently addressed with selective serotonin reuptake inhibitors, which may decrease pleasurable sensations and delay or inhibit orgasm [28]. However, at least one study has demonstrated that female patients with FM have distinct sexual dysfunction compared with healthy controls but that coexistent major depression had no additional negative effect on sexual function [29].

While FM is primarily a musculoskeletal disorder, evidence points to a central nervous system association with alterations in central processing [30]. This may partially explain its comorbidity with vulvodynia and other conditions such as irritable bowel syndrome, headache and temporomandibular joint pain [31,32]. Additional theories linking the FM to the symptomatology of vulvar pain, urinary urgency, frequency, and bowel disor-

ders point to the presence of myofascial trigger points that refer pain to the visceral organs and affect their functioning [33]. While the sexual restrictions related to vulvodynia are obvious, practitioners should be aware of other limitations to sexual activity related to these comorbid conditions. The author's clinical experience based on frequent patient reports is that pelvic and abdominal pain may be worsened by pressure on the abdomen. This may prevent prone positions, as well as supine with pressure from partner on top. Deep penetration may cause rectal pressure when abdominal symptoms of gas and bloating are present. Tactile or pressure stimuli at points on the body that are tender to touch may limit sexual fondling while even light touch may be perceived intolerably when there is hypersensitivity to touch. Facial pain and decreased oral mobility may prevent or restrict kissing and oral lovemaking.

#### RA

Multiple factors have been implicated in contributing to decreased sexual activity and decreased sexual function in women with RA [34]. More than 60% of female RA patients experience variable degrees of sexual disability, and diminished sexual desire and satisfaction [35]. As in FM, when clinically addressing sexuality, it is helpful to determine which causes are related to psychosocial outcome of chronic disease, and which are inherent to the specific disease. People with RA are twice as likely to suffer from depression compared with the general population and may therefore be prone both to sexual affects of this depression as well as the treatment thereof [36]. Careful assessment is necessary, however, as not all patients with arthritis have depression and even in those who do, this may not be primarily causal to sexual dysfunction. The disease takes an unpredictable course and is marked by exacerbations and remissions that may adversely affect marital and sexual relationships. Joint deformities may impact a woman's self esteem and self image. However, a careful review of the literature reveals that physical aspects of the disease are more frequently correlated with difficulties in sexual functioning, specifically pain, joint stiffness, and fatigue. Blake et al in a randomized controlled trial found that perceived physical unattractiveness, loss of partner interest, and concerns regarding sexual drive were as common among people without arthritis as in those with arthritis. The main difference between the two groups was a greater loss of sexual satisfaction over time, with joint symptoms and fatigue cited as major influ-

ences on sexual satisfaction [37]. Kraaijaat et al. reported that physical disability and pain was found to chiefly contribute to the intrusiveness of RA on sexuality [34]. In a more recent investigation, 56% of patients with RA found that fatigue and pain placed the greatest limitations on sexual intercourse [38]. An additional component linking sexual dysfunction with RA is the finding of low androgen concentration linked to RA [39]. Low androgen levels may be an additional factor contributing to sexual dysfunction in this population, and this requires further study. The peak incidence of RA in women coincides with the perimenopausal age, suggesting a connection with hormonal alterations [40]. Genital effects of the disease should be considered as well. Sjogren's syndrome, for example, a type of rheumatoid disease, is associated with drying of the mucous membranes, including the vaginal mucosa [41]. Vaginal dryness is frequently associated with dyspareunia and may affect all other sexual parameters as well.

These findings suggest the need to treat sexual function problems in the population of rheumatologic patients in a broader context that includes providing treatment to address the specific factors most often related to sexual problems, i.e., pain, stiffness, and fatigue. Assisted devices, splints, positioning advice, and exercises designed specifically to improve joint mobility and strength, reduce fatigue, and increase endurance are commonly prescribed by physical therapists to RA patients with the goal of improving function and enhancing the quality of activities of daily living (ADL). Including sexual relations in the context of ADLs should be considered when treating this population.

### **LBP**

Up to 85% of people suffer at least one episode of LBP during their lifetime and within 10 years, 80% report recurrences [42,43]. Sexual activity is adversely affected in 46% of LBP patients [44]; however, a paucity of literature is available to describe the determinants of sexual problems in this population. In a 1980 study by Sjogren and Fugl-Meyer, 35 male and 25 female patients with back pain were investigated and compared [45]. Markedly less sexual dysfunction was reported in male than female patients leading the authors to conclude that back pain may serve to legitimize previously latent sexual dysfunction.

When sexual dysfunction is defined as a problem in one or more of the linear physiological phases of desire, arousal, and orgasm, this conclusion is plausible. However, newer models of female

sexual function have suggested that women are often motivated to engage in sexual activities in order to achieve emotional intimacy, rather than because of spontaneous physiological desire, and that lack of desire or arousal should be explored in a multifactorial context [46]. This view of female sexual function may consider the LBP contextually as an important precipitating and perpetuating factor in the attribution of sexual dysfunction. It is the author's conclusion, that the LBP may be viewed as yet another variable that decreases a woman's motivation for intimacy, particularly when intimacy, physical and emotional satisfaction can be achieved without intercourse. Differences in sexual motivation and activity between men and women with LBP were noted in a 2001 French study as well. In a study comparing men and women with LBP or neck pain, patients with LBP reported more interference than patients with neck pain, and women with LBP were more affected than men. Compared with the other groups, women with LBP had a greater reduction in frequency of intercourse, more marked discomfort during intercourse, and more interference in their sexual lives [47]. This study concluded that while psychological factors such as pain catastrophizing and fear appear to be more relevant in women than men, the actual triggering of pain with intercourse was the major cause of sexual impairment.

These results point to the need to recognize not only pain-related sequelae but also the characteristics of back pain and their effect on sex. For example, sexual positions such as man on top, rear entry, and side lying face-to-face all involve moderate to significant back extension, which is a typically painful position for women with LBP. While no one sexual position is universally comfortable, these women may be able to enjoy the back to front side lying position (spooning). Furthermore, the etiology of back pain varies and positions should be recommended accordingly. While pure lumbar flexion or pure extension positions were once recommended based on whether the etiology of LBP was mechanical or disk-related, current approaches to exercises and positioning suggest patients with LBP should be trained in exercise and positions that match their directional preference [48].

### **Orthopedic Surgery**

Patients who undergo joint replacement do so in order to improve their quality of life, and they anticipate changes in their ability to function in all

areas of life [49]. A few older studies have addressed the role that total hip replacement (THR) plays in improving sexual function in women [50–52]. A more recent study concluded, based on a questionnaire filled out by 135 patients, that THR is associated with an improvement in sexual relations and that the frequency of relations is increased in significantly more women than men [53]. Postoperatively, mobility restrictions are associated with joint replacement surgery, yet few resources are available delineating when patients may resume sexual activity, and few recommendations are made available to these clients. This scant attention to sex is not restricted to elderly populations. A study of women in their childbearing years undergoing THR demonstrated that 80% of women and their partners felt that the information they received regarding sexual activities was inadequate [54]. In this study, 72% of women reported decreased hip pain during sexual intercourse and 38% reported improved mobility during intercourse. However, only 33% of the women reported an increase in the overall quality of sexual relations. This emphasizes that whereas elimination of pain may ultimately improve sexual life, additional factors must be considered in assessing the quality of sexual relations and points to the need for sexual counseling in this population. Expectations of resumed, improved, or more frequent sexual relations with the ensuing disruption of the relational and familial status quo may well be an unspoken and potential source of anxiety. Open and honest communication around the subject of sexuality should be encouraged and specific suggestions provided.

### *Clinical Suggestions*

Patients with MP often present with issues that are in many ways similar to those with mental and physical illness, yet they also present with challenges that are unique, including difficulty with sexual acts because of stiffness and pain. These above findings suggest the need to treat sexual function problems in the population of MP patients in a broader context that includes providing treatment to address the specific factors most often related to sexual problems, i.e., pain, stiffness, and fatigue. Assisted devices, splints, positioning advice, and exercises designed specifically to improve joint mobility and strength, reduce fatigue, and increase endurance are commonly prescribed by physical therapists to RA patients with the goal of improving function and enhancing

the quality of ADLs. Including sexual relations in the context of ADLs should be considered when treating this population.

As with all patients, the following variables should be addressed: general health, age, the effects of medication, issues of anxiety, depression and body image, fatigue, and relationship factors. Following the PLISSIT (P: permission LI: limited information SS: specific suggestions and IT: intensive therapy) model commonly used by sexual therapists and counselors, providing basic anatomical and physiological information, and specific suggestions may be sufficient in empowering couples to achieve sexual satisfaction [55]. Specific suggestions may follow an overall theme for empowering couples that may include acceptance, reframing, adapting, and developing new sexual scripts. Teaching clients to map and chart their symptoms helps provide a sense of body awareness that will allow them to time and plan sexual activity optimally in accordance with medication, levels of fatigue, and physical and emotional stress. Reframing of sexual activity may be suggested by encouraging new and different ways to enjoy sex, while respecting the clients' and couples' wishes to continue to engage in intercourse if possible.

The concept of ascribing meaning to sexual activity is useful in reframing the meaning of sex for couples who are dissatisfied with their intimate lives. An example of exploring the meaning of sex is evident in the "Good-Enough Sex" model for couple sexual satisfaction, introduced by Metz and McCarthy [56]. The authors suggest that sex at times is experienced as pleasure, stress relief, mature playfulness, and on occasions, as a spiritual union. Intimate couples can value multiple purposes for sex and use several styles of arousal. Good-Enough Sex recognizes that among satisfied couples, the quality of sex varies from day to day and from very good to mediocre, or even dysfunctional. Reasonable expectations are an important feature of sexual satisfaction and protect the couple from disappointment and sexual problems in the future. This model may be of particular value when dealing with conditions in which pain, stiffness and fatigue may be variable and inconsistent.

Reframing sex as therapeutic ascribes an additional "meaning" to sex in the realm of analgesia and pain relief. Several studies have linked sexual activity with pain relief. Sexual activity has been reported to relieve chronic pain including LBP [57]. Laboratory studies have demonstrated the alleviation of pain through genital stimulation, which resulted in an increased threshold of pain

detection and tolerance [58,59]. Additional research found that pressure stimulation of the anterior vaginal wall and pleasurable self-stimulation of the clitoris also had an analgesic effect, concluding that stimulation resulting in orgasm produced the greatest increase in pain threshold [60]. Sexual arousal and orgasm have been attributed to increased levels of endorphins and corticosteroids that raise pain thresholds, ease discomforts associated with arthritis, menstrual cramps, migraine, and other conditions [61].

Exercise is beneficial in decreasing pain, improving joint mobility, and increasing strength, stability and endurance [62].

Therapeutic exercises are regularly prescribed by physiotherapists as part of rehabilitation to improve performance of ADLs [63]. Exercises geared to enhance sexual activity in the population of women with MP should include range of motion (ROM), strengthening, and endurance exercises. ROM is the normal amount a joint can be moved in various directions. ROM exercises may improve and maintain overall joint mobility and may be passively performed by another person, keeping the muscles around the joint relaxed in a technique known as passive range of motion (PROM). This may be particularly useful during an arthritic exacerbation. Active ROM is performed independently by the patient utilizing active muscle contraction to the joint to the end range. Strengthening exercises may be assisted, active without resistance, active with resistance, or isometric, which involves limited movement. Isometric exercise is useful in achieving co-contraction of muscles around a joint and improving joint and trunk stability, allowing greater ability to weight bear during sexual activity. Painful intercourse has been associated with trunk and pelvic floor weakness and LBP [64]. In cases of trunk weakness or instability, such as with pubic symphysis separation, sacroiliac dysfunction, or LBP, strengthening exercises should focus on the stabilization of the "core" muscles, including the pelvic floor, diaphragm, transverse abdominals and multifidus [65,66]. Endurance exercises involve cardiovascular and aerobic activity designed to improve stamina and reduce fatigue. Aerobic exercise, along with discontinuation of tobacco, illicit drugs, and alcohol consumption encourages improved tissue oxygenation, increased metabolism, reduces body mass indices and promotes endorphin release, enhancing the sexual response [67].

Suggestions regarding sexual positions require an understanding of the biomechanics of the trunk

and extremity joints. Painful starting positions of sexual intercourse should be avoided as well as repetitive motions. Weight bearing for painful joints should occur in the neutral position and extremes of joint motion should be avoided. For example, if weight bearing on wrists is painful, patients may be advised to make fists and keep wrists in neutral. Painful elbows, hips, and knees can be supported using pillows. Patients with RA with neck involvement, or any condition of neck spondylosis should avoid lying supine on pillows or forward flexing the neck in supine. Restriction of hip flexion, abduction, and external rotation is common in women with hip arthritis, or sacroiliac joint dysfunction. This position limits the missionary position and in these cases rear entry or side lying facing away may be appropriate.

Knee restrictions are common not only in arthritis patients, but in healthy athletic women with knee injury, and they may be advised to attempt positions where knees remain extended. In addition, assisted devices may be helpful. Sexual aids, such as vibrators, may be recommended to assist with providing stimulation where repetitive motion may be difficult.

## Conclusion

Healthy sexuality is a positive and life-affirming part of being human. The capacity to experience optimal comfort and satisfaction in sexual expression also requires basic physical abilities. Essentially, these include intact sensory and motor processes, and the ability to move with ease. While "sexual pain" refers to genital pain and is a recognized sexual dysfunction, little is known about how widespread MP affects sex in women. Practitioners who treat women with MP are encouraged to question their patients about sexual concerns and provide counseling related to physical and functional aspects of sexual activity. Rehabilitation that focuses specifically on the ADL of sex should employ a team approach and include sexual counseling, therapeutic exercise, and advice regarding sexual positions. The treatment provided by physical therapists may help decrease pain, and facilitate greater self-awareness, self-confidence, and improved body image, all of which encourage and affirm optimal sexual health [68].

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### Statement of Authorship

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