# CLINICAL PROCEEDINGS®

ASSOCIATION OF REPRODUCTIVE HEALTH PROFESSIONALS
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## *Women's Sexual Health in Midlife and Beyond*

*This issue is a component of* **Nurture Your Nature: Inspiring Women's Sexual Wellness,** *a collaboration between the National Women's Health Resource Center and the Association of Reproductive Health Professionals*

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CLINICAL PROCEEDINGS®

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# *Women's Sexual Health in Midlife and Beyond*

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## *A New View of Women's Sexual Health in Midlife and Beyond*

The health care profession has entered a new era of interest in sexuality, particularly for women. Talk about sexuality is ubiquitous and mainstream in our society today—the most prominent hallmarks being television shows like "Sex and the City," magazines like *Cosmopolitan, Glamour, Playboy,* and *Maxim,* sexually evocative advertising, and the thousands of titles published in book form. Women are concerned about their sexual functioning and health, and about the health of their male or female partner, and are searching for ways to improve their sex lives.

Although everyone is talking about sex, healthy sexuality and sexual problems remain areas of controversy, especially in regard to midlife and older women. The reasons are numerous and include an early, incorrect assumption by Masters and Johnson that the female sexual response proceeds in much the same linear way as the male sexual response, as well as a dearth of data, and extrapolation of much of the existing data from research findings in men. Other reasons include the absence of objective, sensitive, and reliable criteria for evaluating female sexual response and a prevailing belief that older adults lose their interest in sex.

The advent of pharmacological treatments for erectile dysfunction has had a significant impact on male and female sexual functioning and is now bringing older women into the provider's office complaining of sexual issues (e.g., low desire, lack of lubrication, and pain with intercourse). Yet, many patients are reticent to discuss sexual issues, and many providers feel ill equipped to respond to sexual complaints. It is time to encourage providers to talk about sexuality as part of the routine patient encounter and to help providers and patients feel more comfortable discussing these issues with the goal of enhancing patients' quality of life.

This *Clinical Proceedings* is part of the *Nurture Your Nature* initiative, a joint program of ARHP and the National Women's Health Resource Center (NWHRC) to raise awareness about sexuality as a natural and valued aspect of American women's lives, with a focus on menopausal women. This issue provides a review of the research and theories compiled to date, the variables affecting female sexual function, the evolving definitions, classifications, and treatments for female sexual disorders, and techniques for improving your skills in talking with patients about sexuality issues. We hope you find it of use in your practice.

*Wayne C. Shields*
President and CEO
Association of Reproductive Health Professionals

*Amy Niles*
President and CEO
National Women's Health Resource Center

## LEARNING OBJECTIVES

After completing this *Clinical Proceedings*, participants will be able to:

1. Describe healthy female sexuality and two models of female sexual response.
2. Incorporate assessment of sexual function into the routine health care of women in midlife and beyond.
3. Develop three communication skills to talk about sexuality with women in midlife and beyond.
4. List four changes in female sexual function that occur with aging, menopause, and disease.
5. Name three ways to provide appropriate treatment, counseling, or referral to patients experiencing problems with sexuality.

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# Introduction

Healthy sexuality is a topic that is coming to the forefront in our society. After decades of being closeted as taboo subjects, sexual issues and difficulties are now commonly discussed in the medical and research communities, as well as among the general public and in the mainstream media. With the approval of sildenafil (Viagra®) to treat erectile dysfunction in 1998, research into male sexuality has surged. The little blue pill brought sexuality out of the closet in much the same way that the birth control pill and the sexual revolution did in the 1960s.

Interest in male and female sexuality has increased in the past decade, particularly as pharmaceutical companies race to bring a new drug to support women's sexual function to the marketplace. Analysts expect the market for therapies to improve women's sexual function to grow 10 percent between 2004 and 2008,[1] with growth impeded by factors such as the regulatory approval process and unexpected research outcomes. Yet women's sexuality—particularly for midlife and older women—remains less studied and less understood than male sexuality, and many of the theories and beliefs we have about female sexuality appear to be inaccurate.

Epidemiologic data from the National Health and Social Life Survey (NHSLS) suggest that sexual problems affect 43 percent of women in the United States (compared with 31 percent of men).[2] This figure has helped spur interest in the development of pharmacologic treatments for women's sexual problems and is often referenced in discussions of women's sexuality, yet the percentage has been assailed for a number of reasons, not the least of which is that the lead author was a consultant to Pfizer Inc. in the development of Viagra® at the time the paper was published. The statistic has also been called into question because it emerged from a reanalysis of data from 1,749 women and 1, 410 men aged 18 to 59 years old who responded to the 1992 NHSLS, a probability sample study of sexual behavior. Women who reported any sexual difficulty—lack of desire, difficulty in becoming aroused, inability to experience orgasm, anxiety about sexual performance, reaching orgasm too rapidly, pain during intercourse, or failure to derive pleasure from sex—were considered to have a sexual disorder. Unfortunately, the researchers did not inquire about the respondents' levels of distress about these problems, which is now believed to be a key component of the diagnosis of a sexual disorder.

Despite the controversy over the veracity of this figure, it appears that women perceive themselves to have more sexual difficulties than men.[2] Yet there is far less literature on functioning and treatment for females than for males: a Medline search yields approximately 5,000 references for female sexual disorders and 14,000 references for male sexual disorders (and 9,000 and 17,000, respectively, when the word "dysfunction" is used in place of "disorders"). The assessment of sexual problems in women has often been neglected in clinical trials due to the lack of sensitive and reliable outcome measures, because there is no defining physical event to measure arousal and orgasm as there is for men with penile erection.[3] On a more basic level, female sexual problems have been overlooked due to the lack of clear agreement on the definition of terms such as "desire," "satisfaction," and "orgasm." Sexual functioning has also often been an "add-on" element of trials rather than a direct focus.

This, too, is changing. Researchers and providers now recognize that women are very different from men in terms of their sexual response. They are challenging existing beliefs about female sexual response, and several models have been proposed to elucidate that response. These models are the subject of some discussion and controversy because female sexual functioning involves not only physiologic mechanisms (e.g., genital vasocongestion) but psychosocial mechanisms (e.g., feelings about the interpersonal relationship).[4–6] Amidst the confusion, it is clear that female sexuality is a complex and evolving area of interest and discovery, and existing paradigms do not apply to all women. Female sexual problems must be approached with a focus on the individual and an emphasis on whether a particular problem causes distress to the individual woman.[7] This focus must extend beyond physical issues to encompass the emotional and relationship milieu in which the problem exists.

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## Challenging Existing Beliefs About Women's Sexual Response[8]

Recently, a group of international experts from multiple disciplines was gathered by the American Foundation for Urologic Disease to review data on women's sexuality and reconceptualize some of the existing beliefs about female sexual response. Their reasoning and proposed modifications acknowledge the evolving understanding of female sexual function and incorporate a female-centric view of sexuality. Below is a recap of the prevailing beliefs the panel members identified and the corresponding changes they proposed.

**Belief 1:** Organic sexual problems can be separated from psychogenic problems.

**Challenge:** Sexual disorders in women may involve multiple psychological, interpersonal, and biologic/organic causes, and these influences are not always separate entities.

**Belief 2:** The primary reason women engage in sexual behavior is conscious or subliminal awareness of sexual desire (e.g., sexual thoughts or sexual fantasies).

**Challenge:** Women appear to be motivated to have sex for highly complex and varied reasons. Women in new relationships are more likely to experience spontaneous desire—in the form of sexual thoughts and fantasies—than are women in established relationships, who may infrequently think of sex.

**Belief 3:** Sexual desire always precedes sexual arousal.

**Challenge:** It is now recognized that arousal often occurs *before* desire for women, or that women may experience desire and arousal simultaneously. Again, desire is not the only reason that women engage in sexual activity; they have a wide variety of other motives, including a wish to be intimate with their partner.

**Belief 4:** Women's sexual arousal can be characterized by genital vasocongestion, vaginal lubrication, and an awareness of genital throbbing and tingling.

**Challenge:** Recent experience suggests that many women who have genital signs of arousal don't feel subjectively aroused—and many women may not even be aware of the physiological changes that occur in their bodies when they are aroused. Even if they are aware of genital and breast vasocongestion, the changes may not correlate with increased vaginal engorgement as measured by vaginal photoplethysmography. Still, vaginal lubrication typically occurs even when women don't desire or enjoy sexual stimulation.

**Belief 5:** The sexual response of women remains stable over time and circumstance.

**Challenge:** The sexual response of women varies naturally over the lifespan and is influenced by a host of factors, including the context of sexual interactions, pregnancy and menopause, medical conditions, and psychological factors (most notably the interpersonal relationship). Research suggests that a normative, gradual decline in sexual interest and response occurs with aging and natural menopause.

**Belief 6:** Women feel distress when they experience changes in their sexual response.

**Challenge:** Many women do not feel distress when they lose interest in sex or experience a lack of response. Unless women do feel distress, these problems are not really problems and are of little clinical relevance.


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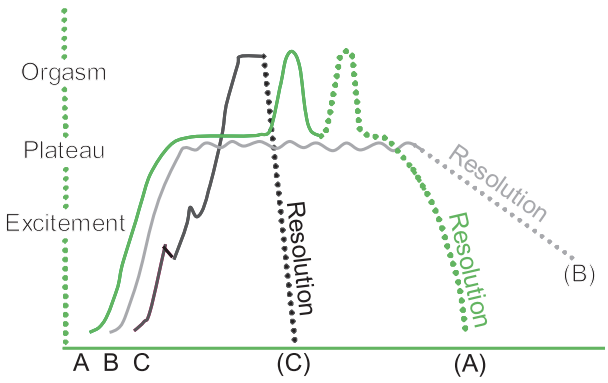
# Female Sexual Response

## Linear Model

In 1966, Masters and Johnson published their groundbreaking book, *Human Sexual Response.*[1] They proposed a linear model of sexual response for both men and women composed of four stages, beginning with excitement/arousal and proceeding to plateau, orgasm, and resolution (see **Figure 1**). In 1979, Kaplan added the concept of desire to the model and condensed the response into three phases: desire, arousal, and orgasm.[2,3] Over the past decade, this framework has been called into question for women for a number of reasons:

**FIGURE 1**. Female Sexual Response Model Developed by Masters and Johnson[1]



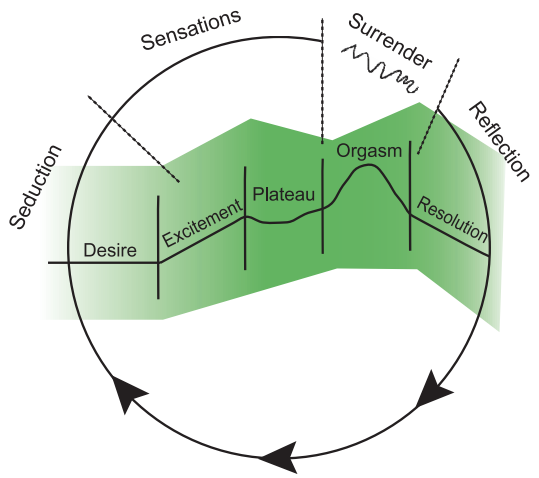

This model reflects the different responses different women may have or an individual woman may have on different occasions. For instance, Woman A has a smooth transition from excitement to plateau to orgasm to resolution and has multiple orgasms on this occasion. Woman B (or Woman A on a different occasion) has a smooth transition up to plateau but doesn't experience an orgasm. This is not a problem if it is an occasional occurrence (e.g., it is Woman A, who sometimes experiences orgasm) but would be diagnosed as a sexual disorder if this occurs every time Woman B has a sexual experience. Woman C has a different pattern of transition from excitement through orgasm and resolution than either A or B—again possibly reflecting the same woman on another occasion or three different women.

1. It assumes that men and women have similar sexual responses, and in so doing may pathologize normal behavior in women.[4,5]
2. Many women do not move progressively and sequentially through the phases as described. According to sex educator and researcher Beverly Whipple, PhD, RN, FAAN, professor emerita at Rutgers University, women may not even experience all of the phases—for example, they may move from sexual arousal to orgasm and satisfaction without experiencing sexual desire, or they can experience desire, arousal, and satisfaction but not orgasm.[5] This thinking was alluded to by Masters and Johnson and is echoed by Rosemary Basson, MB, FRCP, of the University of British Columbia, who posits that much of female sexual desire is actually responsive rather than spontaneous—for instance, a reaction to a partner's sexual interest rather than a spontaneous stirring of her own libido.[6]
3. As a largely biologic model, the Masters and Johnson and Kaplan framework has been criticized because it does not take into account non-biologic experiences such as pleasure and satisfaction[7] or place sexuality in the context of the relationship.[4]

## Circular Model

In 1997, armed with the recognition that not all women conform to the linear model of sexual response, Whipple and Brash-McGreer proposed a circular sexual response pattern for women.[7] This concept is built on the Reed model, which comprises four stages (see **Figure 2**): Seduction (encompassing desire), sensations (excitement and plateau), surrender (orgasm), and reflection

**FIGURE 2**. Circular Model of Female Sexual Response Developed by Whipple and Brash-McGreer[5]




Whipple and Brash-McGreer's circular model of female sexual response shows how pleasure and satisfaction during one sexual experience can lead to the seduction phase of the next sexual experience.

(resolution). By making Reed's model circular, Whipple and Brash-McGreer demonstrate that pleasant and satisfying sexual experiences may have a reinforcing effect on a woman, leading to the seduction phase of the next sexual experience. If, during reflection, the sexual experience did not provide pleasure and satisfaction, the woman may not have a desire to repeat the experience.

## Non-linear Model

Basson has also constructed a new model of female sexual response that incorporates the importance of emotional intimacy, sexual stimuli, and relationship satisfaction (see **Figure 3**).[6] This model acknowledges that female sexual functioning proceeds in a more complex and circuitous manner than male sexual functioning and that female functioning is dramatically and significantly affected by numerous psychosocial issues (e.g., satisfaction with the relationship, self-image, previous negative sexual experiences).

According to Basson, women have many reasons for engaging in sexual activity other than sexual hunger or drive, as the traditional model suggests. Although many women may experience spontaneous desire and interest while in the throes of a new sexual relationship or after a long separation from a partner, most women in long-term relationships do not frequently think of sex or experience spontaneous hunger for sexual activity. In these latter cases, Basson suggests that a desire for increased emotional closeness and intimacy or overtures from a partner may predispose a woman to participate in sexual activity. From this point of sexual neutrality—where a woman is receptive to being sexual but does not initiate sexual activity—the desire for intimacy prompts her to seek ways to become sexually aroused via conversation, music, reading or viewing erotic materials, or direct stimulation. Once she is aroused, sexual desire emerges and motivates her to continue the activity. On the road to satisfaction, there are many points of vulnerability that may derail or distract a woman from feeling sexually fulfilled. The Basson model clarifies that the goal of sexual activity for women is not necessarily orgasm but rather personal satisfaction, which can manifest as physical satisfaction (orgasm) and/or emotional satisfaction (a feeling of intimacy and connection with a partner).[6,8]

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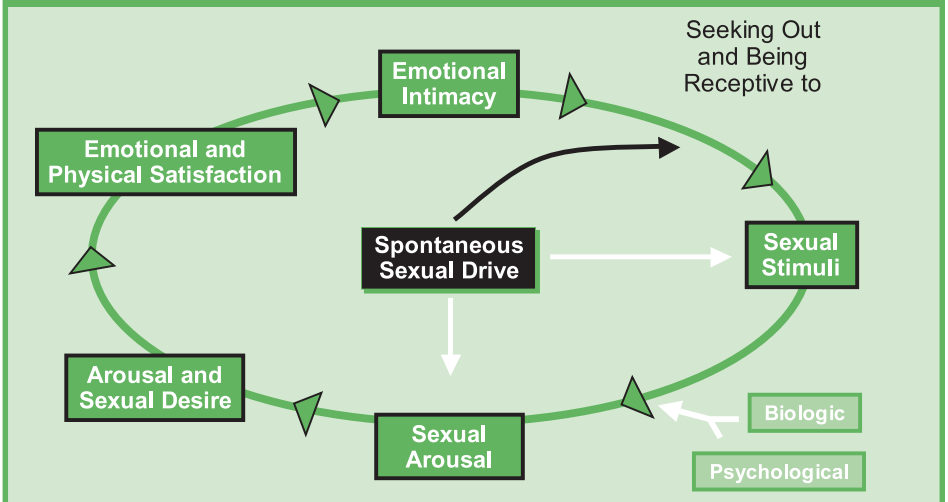
**FIGURE 3.** Non-linear Model of Female Sexual Response Developed by Basson[6]




Basson's non-linear model acknowledges how emotional intimacy, sexual stimuli, and relationship satisfaction affect female sexual response.

# Anatomic and Physiologic Changes During Female Sexual Response

The female sexual anatomy consists of the outer genitalia or vulva—the labia, interlabial space, clitoris, and vestibular bulb—and the inner genitalia—the vagina, uterus, fallopian tubes, and ovaries.[1]

## *Arousal, Orgasm, and Resolution*

When a woman is sexually aroused, an increase in blood flow to the genitals results in swelling of the labia and vaginal wall (see **Table 1**).[1–6] Lubricating secretions produced by the uterine glands and transudate from the subepithelial vasculature coat the walls of the vagina, and it lengthens and dilates to accommodate the penis, while the uterus rises over the levator plate.[1–5] The outer third of the vagina, which is more sensitive to sensation than the inner two-thirds, tightens and narrows, and the introitus is exposed as a result of labial engorgement and opening.[3,4]

When stimulated, the clitoris, an erectile organ similar to that of the penis, also becomes engorged with blood and increases in length and diameter.[1,3] Unlike the penis, the clitoris does not become rigid because it lacks a mechanism for trapping blood within the organ.[1,3] Although the clitoris has been described in the past as a "small knob of tissue," we now know that it is a complex organ that extends deep into the pelvic structure, comprises 18 different (and many hidden) components, and contains 8,000 nerve fibers (twice as many as the penis).[1,4] Its sole purpose appears to be to produce sexual pleasure, and the majority of women require stimulation of the clitoris in order to experience orgasm.[4] Less than one-third of women regularly have orgasms during sexual intercourse alone.[4]

**TABLE 1**. Physiologic and Anatomic Changes Occurring During the Three-Phase Female Sexual Response Model Introduced by Kaplan[1-6]

| |
|---|
| **During Arousal** |
| Variety of neurotransmitters (nitric oxide, acetylcholine, vasoactive intestinal peptide) and hormones (oxytocin) that cause vasodilation and increased blood flow to the genitals are released |
| Vasocongestion occurs in pelvis and breast |
| Vagina lubricates |
| Vagina lengthens and dilates |
| Uterus rises over levator plate |
| Other third of vagina tightens and narrows |
| With clitoral stimulation, clitoris engorges with blood and lengthens and widens |
| **During Orgasm** |
| Serotonin, oxytocin, and other contraction-producing agents are released |
| Levator ani, vaginal, and uterine muscles contract |
| **During Resolution** |
| Structures and hemodynamics return to unaroused state (although multiple orgasms are possible with continuing stimulation before resolution) |

Perry and Whipple have identified the Grafenberg or "G" spot as a site that can lead to orgasm when stimulated.[7] They describe the G spot as a sensitive area that can be felt through the anterior vaginal wall halfway between the back of the pubic bone and the cervix, along the course of the urethra. Whipple and colleagues conclude that this area may be the female prostate gland.[8] The existence of the G spot is controversial, and some researchers contend that it actually represents the roots of the clitoris rather than a separate pleasure zone.[5]

During orgasm, the levator ani muscles contract approximately eight to 12 times, followed by the vaginal and uterine muscles.[3] If stimulation is continued, multiple orgasms may occur. During resolution, the anatomy returns to its normal, unaroused state.[3]

## Female Physiology

Along with the anatomical changes that occur during arousal, orgasm, and resolution, a host of physiologic and biochemical events unfold involving the central and peripheral nervous systems. The senses relay sexual images and impulses to the brain, which releases a variety of neurochemicals and neuropeptides, including serotonin, dopamine, epinephrine, norepinephrine, histamine, opioids, gamma-aminobutyric acid, oxytocin, nitric oxide, and vasoactive intestinal peptide.[1,2]

The brain is so central to female sexual response that imagery alone may be enough to produce orgasm. One study suggests that women may experience a state that appears to be an orgasm via fantasy, without self-stimulation of the genitals.[9] In this study, physiologic measurements did not differ between orgasms experienced through fantasy versus masturbation.

The sex hormones estrogen and testosterone also play critical roles in maintaining the health and vitality of the sexual organs and in promoting the libido.[2]

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# Variables Affecting Female Sexual Function

Sexuality for women extends far beyond the release of neurotransmitters, the influence of sex hormones, and vasocongestion of the genitals. A number of psychological and sociological variables may affect female sexual function, as may the aging process, menopause, the presence of diseases, and the use of certain medications.

## Effect of Psychosocial Variables on Female Sexual Response

Among the psychosocial variables, perhaps the most important is the relationship with the sexual partner. John Bancroft, MD, and colleagues at the Kinsey Institute for Research in Sex, Gender, and Reproduction suggest that a reduction in libido or sexual response may actually be an adaptive response to a woman's relationship or life problems (rather than a disorder).[1] According to Basson, emotions and thoughts have a stronger impact on a woman's assessment of whether or not she is aroused than does genital congestion.[2]

Other emotional factors that may have an impact on female sexual functioning are listed in **Table 2.**

**TABLE 2**. Psychological Factors Affecting Female Sexual Function

| |
|---|
| Relationship with sexual partner |
| Past negative sexual experiences or sexual abuse |
| Low sexual self-image |
| Poor body image |
| Lack of feeling of safety |
| Negative emotions associated with arousal |
| Stress |
| Fatigue |
| Depression or anxiety disorders |

## Effects of Aging on Female Sexual Response

Contrary to popular belief, aging does not mean the end of sexual interest, particularly today when many men and women are coupling, uncoupling, and recoupling again, leading to renewed interest in sex due to the novelty of a new sexual partner. Many older women find themselves at a psychologically satisfying sexual peak because of their maturity, knowledge of their body and its workings, ability to ask for and accept pleasure, and their greater comfort with themselves.[3]

In the past, much of our information about sexuality at perimenopause and beyond has been based on anecdotal complaints from a small, self-selecting group of symptomatic women who presented to providers.[4,5] Today we have large population-based studies that offer a more accurate picture.[5–7]

Although many studies do show that there is a normative, gradual decline in sexual desire and activity with age, research also indicates that the majority of men and women who are healthy and have partners will remain interested in sex and engage in sexual activity well into midlife, later life, and until the end of life.[5] An informal survey conducted by the consumer magazine *More* of 1,328 readers of the magazine (which is targeted to women over age 40) bears out this new thinking: 53 percent of women in their 50s said their sex life was more satisfying than it was in their 20s; 45 percent said they use vibrators and sex toys; and 45 percent would like a medication for women that enhances sexual desire and activity.[8]

Several factors appear to affect the ability to continue to be sexually active, most notably the availability of a willing sexual partner and a woman's health status (including the presence of a sexual disorder). The Duke

**TABLE 3.** Effects of Aging on Female Sexual Function[3,12,13]

| |
|---|
| Decreased muscle tension |
| *May increase time from arousal to orgasm, lessen intensity of orgasm, and lead to a more rapid resolution* |
| Distention of the urinary meatus |
| Lack of breast-size increase with stimulation |
| Clitoral shrinkage, decrease in perfusion, diminished engorgement, and delay in clitoral reaction time |
| Decreased vascularization and delayed or absent vaginal lubrication |
| Decreased vaginal elasticity |
| Decreased congestion in outer third of vagina |
| Fewer, occasionally painful, uterine contractions with orgasm |
| Genital atrophy |
| Thinning of vaginal mucosa |
| Increase in vaginal pH |
| Decreased sex drive, erotic response, tactile sensation, capacity for orgasm |

Longitudinal Study of 261 white men and 241 white women between the ages of 46 and 71 found that sexual interest declined significantly among men because they were unable to perform (40 percent).[7,9,10] For women, sexual activity declined because of the death or illness of a spouse (36 percent and 20 percent, respectively), or because the spouse was unable to perform sexually (18 percent). Regression analysis showed that age was the primary factor leading to a reduction in sexual interest, enjoyment, and frequency of intercourse among men, followed by present health. For women, marital status was the primary factor, followed by age and education. Health was not related to sexual functioning in women, and postmenopausal status was identified as a small contributor to lower levels of sexual interest and frequency but not to enjoyment.[7]

A number of changes that occur with aging have effects on sexual response (see **Table 3**). Despite these changes, most current studies do not show an appreciable rise in sexual problems as women age.[1,2,5,11] For instance, baseline data from the Study of Women's Health Across the Nation (SWAN) suggest that sexual function and practices remain unchanged for premenopausal and perimenopausal women.[6] The study investigated the sexual behavior of 3,262 women without hysterectomy aged 42 to 52 who were not using hormones. Although early perimenopausal women reported more frequent dyspareunia than did premenopausal women, there were no differences between the two groups in regard to sexual desire, satisfaction, arousal, physical pleasure, or the importance of sex. Seventy-nine percent had engaged in sex with a partner within the past 6 months. Seventy-seven percent of the women said that sex was moderately to extremely important to them, although 42 percent reported a desire for sex infrequently (0–2 times per month), prompting the authors to note that a "lack of frequent desire does not appear to preclude emotional satisfaction and physical pleasure with relationships."

John Bancroft, lead author of the 1999–2000 national survey of 987 women that found emotional well-being and the quality of a relationship with a partner had more of an effect on sexuality than aging, suggests that aging affects genital response more in men than women, and sexual interest more in women than men.[1] German researcher Uwe Hartmann, PhD, and colleagues support this view but note that: "there is a greater variability of virtually all sexual parameters with higher age, indicating that the sexuality of midlife and older women, in comparison with that of younger women, is more dependent on basic conditions like general well-being, physical and mental health, quality of relationship, or life situation. It is these factors that determine whether the individual woman can retain her sexual interest and pleasure in sexual activity."[5]

Many researchers suggest that the quality and quantity of sexual activity with aging are also dependent on the quality and quantity of sexual activity during earlier years.[2,5]

## Effects of Perimenopause/Menopause on Female Sexual Response

Although menopause symptoms can indirectly affect sexual responsitivity (see **Table 4**), as with aging, menopause does not represent an end of sex.[5] Declining estrogen and testosterone levels may be associated with a flagging sex drive, but in light of Basson's recent model of the sexual response pattern, this may not be as important an occurrence as once thought.[14] If desire is not the motivating force for sexual activity for many women, as Basson contends, then the loss of spontaneous desire may not have very much impact on a woman's sexual life at all if her partner is still interested in engaging in sex.[2,3]

**TABLE 4**. Possible Changes in Sexual Function at Menopause

| |
|---|
| Decline in desire |
| Diminished sexual response |
| Vaginal dryness and dyspareunia |
| Decreased sexual activity |
| Dysfunctional male partner |

Recent studies suggest that the hormonal changes that occur during menopause have less of an effect on a woman's sexual life and response than do her feelings about her partner, whether her partner has sexual problems, and her overall feelings of well-being.[4,5] For instance, analysis of data from 200 premenopausal, perimenopausal, and postmenopausal women with an average age of 54 from the Massachusetts Women's Health Study II (MWHS II) showed that menopause status had less of an impact on sexual functioning than health, marital status, mental health, or smoking.[4] Satisfaction with their sex life, frequency of sexual intercourse, and pain during intercourse didn't vary by women's menopausal status. Postmenopausal women did self-report significantly less sexual desire than premenopausal women ($p<0.05$) and were more likely to agree that interest in sexual activity declines with age. Perimenopausal and postmenopausal women also reported feeling less aroused compared with when they were in their 40s than premenopausal women ($p<0.05$). Interestingly, the presence of vasomotor symptoms was not related to any aspect of sexual functioning.

### *Declining Estrogen Levels*

The loss of ovarian production of estradiol at menopause can result in vaginal dryness and urogenital atrophy, which can affect sexuality.[15] In the MWHS II, vaginal dryness was associated with dyspareunia or pain after intercourse (OR=3.86) and difficulty experiencing orgasm (OR=2.51).[4] On the other hand, a study by Van Lunsen and Laan found that sexual symptoms after menopause might be related more to psychosocial issues than to age- and menopause-induced changes in the genitals.[16] These authors suggest that some postmenopausal women who complain of vaginal dryness and dyspareunia may be having sexual intercourse while unaroused, perhaps a longstanding practice (linked to their unawareness of genital vasocongestion and lubrication) before menopause. They may not have noticed the dryness and pain because their estrogen production was high enough that it masked a lack of lubrication.

Moodiness or depression associated with the hormonal changes of menopause also can lead to loss of interest in sex, and changes in body configuration can be inhibiting.[15]

### *Declining Testosterone Levels*

By age 50, testosterone levels are reduced by half in women compared with age 20.[16,17] As women enter menopause, the levels remain stable or may even increase slightly.[18] In women undergoing removal of the ovaries (oophorectomy), testosterone levels also drop by 50 percent.[18]

The role of testosterone in causing sexual problems in women is unclear. In one study, premenopausal women with complaints of sexual disorders had lower adrenal androgen precursors and testosterone than age-matched controls with no sexual complaints.[19] Although this finding suggests a role for low testosterone levels in causing sexual problems, it is not well understood what constitutes an androgen deficiency or normal ranges of androgens in women.[3,20]

**TABLE 5**. Medical Conditions That Can Affect Female Sexuality[21,26]

| |
|---|
| **Neurologic Disorders** |
| Head injury |
| Multiple sclerosis |
| Psychomotor epilepsy |
| Spinal cord injury |
| Stroke |
| **Vascular Disorders** |
| Hypertension and other cardiovascular diseases |
| Leukemia |
| Sickle-cell disease |
| **Endocrine Disorders** |
| Diabetes |
| Hepatitis |
| Kidney disease |
| **Debilitating Diseases** |
| Cancer |
| Degenerative disease |
| Lung disease |
| **Psychiatric Disorders** |
| Anxiety |
| Depression |
| **Voiding Disorders** |
| Overactive bladder |
| Stress urinary incontinence |

## Effects of Disease on Female Sexual Response

Although psychosocial factors are the focus of much discussion today in the pathogenesis of sexual disorders, physical factors remain important and cannot be dismissed (see **Table 5**). A variety of medical conditions can directly or indirectly affect female sexual functioning and satisfaction. For instance, through lack of adequate blood flow, a vascular disease such as hypertension or diabetes might inhibit the ability to become aroused.[21] Depression, anxiety, and conditions such as cancer, lung disease, and arthritis that cause a lack of physical strength, agility, energy, or chronic pain also can affect sexual functioning and interest.[3,14]

In the MWHS II, depression was negatively associated with sexual satisfaction and frequency, and psychological symptoms were related to lower libido.[4] Hartmann et al. also showed that women who suffer from depression are more likely to indicate low sexual desire than those without depression.[5]

Procedures such as hysterectomy and mastectomy also may have a physical, as well as an emotional, impact on sexuality. Removing or altering female reproductive organs may lead to discomfort during sexual encounters (e.g., dyspareunia) and leave women feeling less feminine, sexual, and desirable.[22] In recent years, however, studies have suggested that elective hysterectomy may actually result in an improvement in rather than a deterioration of sexual functioning.[23,24] Oophorectomy, on the other hand, leads to a deterioration of functioning, at least initially, because of the sudden cessation of sex hormone production and the onset of premature menopause.[25]

## Effects of Medications on Female Sexual Response

A wide array of pharmaceutical agents may cause sexual difficulties (see **Table 6**). Perhaps the most commonly acknowledged medications are the selective serotonin reuptake inhibitors (SSRIs) prescribed to treat depression and anxiety disorders, which can diminish sex drive and cause difficulty in experiencing orgasm.[26,27] Antihypertensive agents are also notorious for causing sexual problems, and antihistamines may reduce vaginal lubrication.[26,27]

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**TABLE 6**. Medications That Can Cause Female Sexual Problems[28]

**Medications that cause disorders of desire**

*Psychoactive Medications*

- Antipsychotics
- Barbiturates
- Benzodiazepines
- Lithium
- Selective serotonin reuptake inhibitors
- Tricyclic antidepressants

*Cardiovascular and Antihypertensive Medications*

- Antilipid medications
- Beta blockers
- Clonidine
- Digoxin
- Spironolactone

*Hormonal Preparations*

- Danazol
- GnRh agonists
- Oral contraceptives

*Other*

- Histamine H2-receptor blockers and pro-motility agents
- Indomethacin
- Ketoconazole
- Phenytoin sodium

**Medications that cause disorders of arousal**

*Anticholinergics*

*Antihistamines*

*Antihypertensives*

*Psychoactive medications*

- Benzodiazepines
- Monoamine oxidase inhibitors
- Selective serotonin reuptake inhibitors
- Tricyclic antidepressants

**Medications that cause orgasmic disorders**

*Amphetamines and related anorexic drugs*

*Antipsychotics*

*Benzodiazepines*

*Methyldopa*

*Narcotics*

*Selective serotonin reuptake inhibitors*

*Trazodone*

*Tricyclic antidepressants**

**Also associated with painful orgasm.*

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# Predictors of Problems with Female Sexual Response

The National Health and Social Life Survey looked at variables that may be predictive of female sexual problems.[1] Surprisingly, sexual problems were more common among younger women than older women; the authors suggested this was due to inexperience, the lack of a steady partner, and periods of sexual inactivity. Unmarried women were also more likely to have sexual problems than married women. Women with poor health had an increased risk of sexual pain disorders, and those with urinary tract symptoms were at greater risk for arousal and pain disorders. Low sexual activity or interest was predictive of a desire or arousal disorder. Deteriorating economic status was positively associated with a modest elevation in the risk of all categories of sexual problems. Finally, arousal problems were highly associated with negative sexual experiences (such as sexual harassment and assault). Emotional and stress-related problems also increased the risk of sexual difficulties.

In the Massachusetts Women's Health Survey II, health and marital status were the most consistent predictors of continuing sexual activity among 200 premenopausal, perimenopausal, and postmenopausal women.[2] The better a woman's health, the more likely she was to have interest in sex and to have sex. Marriage had the opposite effect: married women had lower libidos and were more likely to say that interest in sex declines with aging and to report that they were less aroused now than when they were in their 40s.

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# Classification of Female Sexual Disorders

The classification of female sexual disorders has undergone several revisions and continues to evolve as knowledge expands. Several useful classification systems have been created, but no one system stands as the hard-and-fast rule or gold standard. The following section discusses two of the most widely known and used classifications.

## *DSM-IV* Classification

The American Psychiatric Association's *DSM-IV: Diagnostic and Statistical Manual*, 4th edition, published in 1994, as well as the World Health Organization's *International Statistical Classification of Diseases and Related Health Problems-10* (*ICD-10*), published in 1992, contains a classification system for female sexual disorders that is based on the Masters and Johnson and Kaplan linear model of the female sexual response.[1,2] The *DSM-IV*, which focuses on psychiatric disorders, defines a female sexual disorder as a "disturbance in sexual desire and in the psychophysiological changes that characterize the sexual response cycle and cause marked distress and interpersonal difficulty." This classification system has increasingly come under scrutiny and criticism, not the least of which is because it focuses only on the psychiatric component of sexual disorders.[3,4]

The *DSM-IV* categorizes female sexual disorders as follows:

- Sexual desire disorders
  - a. Hypoactive sexual desire
  - b. Sexual aversion disorder
- Sexual arousal disorders
- Orgasmic disorders
- Sexual pain disorders
  - a. Dyspareunia
  - b. Vaginismus
- Sexual dysfunction due to a general medical condition
- Substance-induced sexual dysfunction
- Sexual dysfunction not otherwise specified

The psychiatric diagnostic manual also provides subtypes to assist in diagnosis and treatment of sexual disorders: whether the disorder is lifelong or acquired, generalized or situational, and due to psychological factors or combined psychological/medical factors.

## American Foundation for Urologic Disease Consensus-Based Classification of Female Sexual Dysfunction (CCFSD)

In 1999, an international multidisciplinary panel of 19 experts in female sexual disorders was convened by the Sexual Function Health Council of the American Foundation for Urologic Disease to evaluate and revise the existing definitions for female sexual disorders from the *DSM-IV* and the *ICD-10* in an attempt to provide a well-defined, broadly accepted diagnostic framework for clinical research and the treatment of female sexual problems.[5] The conference was supported by educational grants from several pharmaceutical companies.*

Like previous classifications, the Consensus-Based Classification of Female Sexual Dysfunction (CCFSD) is based on the Masters and Johnson and Kaplan linear model of the female sexual response, which is problematic. However, the CCFSD classification represents an advance over the older systems because it incorporates both psychogenic and organic causes of desire, arousal, orgasm, and sexual pain disorders (see **Table 7**). The diagnostic system also has a "personal distress" criterion, indicating that a condition is considered a disorder only if a woman is distressed by it.

**TABLE 7.** 1999 Consensus Classification System[5]

| | |
|---|---|
| I. | Hypoactive sexual desire disorder |
| | a. Hypoactive sexual desire |
| | b. Sexual aversion disorder |
| II. | Sexual arousal disorder |
| III. | Sexual orgasmic disorder |
| IV. | Sexual pain disorders |
| | a. Dyspareunia |
| | b. Vaginismus |
| | c. Other sexual pain disorders |

The four general categories from the *DSM-IV* and *ICD-10* classifications were used to structure the CCFSD system, with definitions for diagnoses as described as follows.

* Affiliated Research Centers, Eli Lilly/ICOS Pharmaceuticals, Pentech Pharmaceuticals, Pfizer Inc., Procter & Gamble Pharmaceuticals, Inc., Schering-Plough, Solvay Pharmaceuticals, TAP Pharmaceuticals, and Zonagen.

- Sexual desire disorders are divided into two types. Hypoactive sexual desire disorder is the persistent or recurrent deficiency (or absence) of sexual fantasies/thoughts, and/or desire for or receptivity to sexual activity, which causes personal distress. Sexual aversion disorder is the persistent or recurrent phobic aversion to and avoidance of sexual contact with a sexual partner, which causes personal distress.
- Sexual arousal disorder is the persistent or recurrent inability to attain or maintain sufficient sexual excitement, causing personal distress, which may be expressed as a lack of subjective excitement, or genital (lubrication/swelling) or other somatic responses.
- Orgasmic disorder is the persistent or recurrent difficulty, delay in, or absence of attaining orgasm following sufficient sexual stimulation and arousal, which causes personal distress.
- Sexual pain disorders are also divided into three categories: Dyspareunia is the recurrent or persistent genital pain associated with sexual intercourse. Vaginismus is the recurrent or persistent involuntary spasm of the musculature of the outer third of the vagina that interferes with vaginal penetration, which causes personal distress. Non-coital sexual pain disorder is recurrent or persistent genital pain induced by non-coital sexual stimulation.

Disorders are further subtyped according to medical history, laboratory tests, and physical examination as lifelong versus acquired, generalized versus situational, and of organic, psychogenic, mixed, or unknown origin.

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# Provider/Patient Communication About Sexuality Issues

Patient sexuality issues can be difficult and daunting for a provider to explore, but accurate diagnosis and effective treatment hinge on good communication between provider and patient, as well as between the patient and her sexual partner. Given the increasing emphasis on sexuality in our society, the continuing sexual activity of midlife and older women and their partners, the aging of Americans, and the growing awareness of sexual disorders, the chances are good that most providers will encounter patients who inquire about their sexuality.

Many providers say they don't broach sexuality issues because they lack training and skills to deal with human sexuality concerns, feel personal discomfort with the subject, fear offending the patient, have no treatments to offer, or believe that sexual interest and activity naturally decline with age.[1,2] They also may avoid the topic because of concerns about time constraints,[2] although initial general assessments need not take an inordinate amount of time. Follow-up appointments or referrals can be made to perform more complete assessments. Sometimes, a brief discussion about sexual issues can reveal that education is needed more than treatment. For instance, many patients may not know about the ways in which aging can affect their and their partner's sexual function.

Many patients are unaware that it is appropriate to discuss sexual issues with their providers or are concerned about embarrassing those providers. According to Marwick, 68 percent of patients surveyed cited fear of embarrassing a provider as a reason for not broaching sexuality issues.[3] In the same survey, 71 percent of the respondents believed their providers would simply dismiss their sexual concerns. And in a survey conducted by the American Association of Retired Persons of 1,384 Americans aged 45 or older, only 14 percent of women had ever visited a provider for problems related to sexual function.[4] In a Web-based survey of 3,807 women, 40 percent of women said they did not seek

help from a provider for sexual function problems they experienced, but 54 percent said they wanted to see a provider.[1] Those who did seek help did not rank the attitude or services provided by their providers highly.

In contrast, a recent survey revealed that only 14 percent of Americans age 40 or older have been asked by their providers over the past 3 years whether they're having sexual difficulties.[5]

Because of the many interpersonal variables that come into play in creating sexual problems, it is important for the provider to approach a sexual disorder as a couple's problem rather than just one female partner's problem. Providers also should be open and non-judgmental about the types of sexual activities patients are engaging in (including masturbation and same-sex partnerships) and should not make assumptions that all patients are involved in heterosexual relationships. Finally, they should be aware that midlife patients may not all be in long-standing relationships.

**Table 8** lists skills that all providers can develop to communicate with patients about sexuality issues.

**TABLE 8**. Communicating with Patients About Sexuality

| |
|---|
| Be a sympathetic listener |
| Reassure the patient |
| Educate the patient |
| Address sexual problems as a couples issue |
| Provide literature |
| Schedule a follow-up visit to focus on sexuality issues |
| Make a referral as necessary |

Concomitant medical and psychological approaches to sexual problems are often warranted. In fact, Sheryl Kingsberg, PhD, a clinical psychologist specializing in sexuality at Case Western Reserve University, suggests that if a provider ignores psychosocial issues related to sexual disorders, medical interventions can be sabotaged and destined to fail.[6]

As a provider, you may not feel comfortable or prepared to offer extensive counseling to patients with sexual problems. Partnering with a psychologist, psychiatrist, sex therapist, or other professional with expertise in this area who offers couples therapy, sex therapy, training in communication techniques, anxiety reduction, or cognitive-behavior approaches is often beneficial to the patient, so that both medical and psychological etiologies are managed.[2]

## The Impact of Male Sexual Functioning on Midlife Women

For many midlife women, sexual activity is dependent on the health of their male partner. The Duke Longitudinal Study of men and women aged 46 to 71 found that sexual activity for women often declined as they aged because of the death or illness of a male spouse (36 percent and 20 percent, respectively) or because the spouse was unable to perform (18 percent).[7-9]

In the National Health and Social Life Survey, 31 percent of men between the ages of 18 and 59 years suffer from a sexual dysfunction, most notably erectile dysfunction (ED), premature ejaculation, and lack of desire for sex (which is often related to performance issues).[10] A more recent international survey of 27,500 men and women 40 to 80 years of age found that 14 percent of male respondents suffer from early ejaculation, and 10 percent suffer from ED.[11] ED tends to increase with age and become more severe: The Massachusetts Male Aging Study found that 40 percent of men age 40 suffer from some degree of ED, a figure that jumps to 70 percent by age 70.[12]

According to Whipple, some women feel that ED is their fault, suggesting they are no longer attractive to their partner or that he is having an affair. Some welcome the cessation of sexual activity and feel that it is better to avoid sexual encounters that can't be taken to completion of sexual intercourse so as not to embarrass their partner.[13,14] Others may find that sex becomes mechanical and boring, or focused on maintaining or prolonging a man's erection, rather than on mutual pleasure.[14]

The advent of phosphodiesterase type 5 (PDE-5) inhibitor treatment of ED has changed sex in America for midlife couples. Many couples that were not engaging in sexual activities are now attempting to have intercourse and encountering female sexual problems caused by the previous cessation of intercourse and the effects of aging on the vagina. Common complaints of midlife women resuming sexual intercourse after abstinence due to their partner's ED include vaginal dryness, dyspareunia, vaginismus, urinary tract infections, and lack of desire.

Three oral PDE-5 inhibitors are currently available: sildenafil (Viagra®), vardenafil (Levitra®), and tadalafil (Cialis®).[15,16] The three represent the current standard of care for ED and have different durations of action.[15,16] As a group, the PDE-5 inhibitors have similar efficacy rates[15,16]—although 30 to 40 percent of men with ED are resistant to the drugs.[17] According to Sheryl Kingsberg, the 36-hour duration of tadalafil may offer some psychological advantages to couples.[14] For men, it decreases the pressure to perform immediately after pill-taking and allows for more sexual spontaneity. For women, it decreases the perception of "sex on demand."

Sharing this type of information with couples can be the first step to putting them back on the path to a mutually satisfying sex life. These women and their partners need education and counseling about the changes their bodies have undergone since they last were having sexual intercourse on a regular basis, and possibly psychological counseling and other medical treatment as well.[14]

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# Taking a Sexual History

Given that women now live approximately one-third of their lives after menopause and continue to be sexually active beyond the cessation of reproductive functioning, the sexual history should now be a routine component of the annual clinical visit of the woman in midlife and beyond.[1] Kingsberg suggests that pre- and postsurgical visits (for uterine prolapse, hysterectomy, oophorectomy, mastectomy, etc.), as well as those related to menopause, chronic illnesses, and depression, also lend themselves to inclusion of assessment for sexual disorders.[2]

## Starter Questions

Kingsberg suggests that a general sexual assessment needn't take an inordinate amount of time.[2] Begin the assessment by asking the patient the following questions to convey your willingness to discuss sexual issues:

- Are you currently involved in a sexual relationship?
- Do you have sex with men, women, or both?
- Are you or your partner having any sexual difficulties or concerns at this time, or do you have any questions or concerns about sex?

### Contraception and Risk of Unintended Pregnancy and STIs in Perimenopausal and Menopausal Women

Women over the age of 40 have the second highest proportion of unintended pregnancies, so the need for effective contraception continues into midlife until menopause.[3] No contraceptive method is contraindicated by age, and certain methods, such as oral contraceptives (OCs) and other hormonal methods, may stabilize hormone levels and ease the transition through menopause.[3,4] The decision about which method to use should be guided by patient preference, lifestyle, behaviors (e.g., cigarette smoking), and medical history.[3,4] Safe-sex practices should be discussed with all patients regardless of their age or sexual orientation.

For further information, refer to previous ARHP publications or visit the ARHP Web site (www.arhp.org), or the American Social Health Association Web site (www.ashastd.org).

More extensive questioning can include the following:

- Are you satisfied with your current sexual relations?
- Do you have any sexual concerns you would like to discuss?

**TABLE 9**. Gynecologic Causes of Female Sexual Disorders and Method of Examination[5]

| Examination | Condition |
|---|---|
| ***Assess External Genitalia*** | |
| Assess muscle tone | Vaginismus |
| Assess skin color and texture | Vulvar dystrophy, dermatitis |
| Assess skin turgor and thickness | Atrophy |
| Assess pubic hair amount and distribution | Atrophy |
| Expose clitoris | Clitoral adhesions |
| Assess for ulcers | Herpes simplex virus |
| Perform cotton swab test of vestibule | Vulvar vestibulitis |
| Palpate Bartholin glands | Bartholinitis |
| Assess posterior forchette and hymenal ring | Episiotomy scars, strictures |
| ***Perform "Monomanual" Exam (one or two fingers in the vagina, the other hand off of the abdomen so as not to confuse the source of discomfort)*** | |
| Palpate rectovaginal surface | Rectal disease |
| Palpate levator ani | Levator ani myalgia, vaginismus |
| Palpate bladder/urethra | Urethritis, interstitial cystitis, urinary tract infection |
| Assess for cervical motion tenderness | Infection, peritonitis |
| Assess vaginal depth | Postoperative changes, postradiation changes, stricture |
| ***Perform Bimanual Exam (one or two fingers in the vagina, other hand on patient's abdomen)*** | |
| Palpate uterus | Retroversion, fibroids, endometritis |
| Palpate adnexa | Masses, cysts, endometriosis, tenderness |
| Perform rectovaginal exam | Rule out endometriosis |
| Obtain guaiac test | Bowel disease |
| ***Insert Speculum*** | |
| Evaluate discharge, pH | Vaginitis, atrophy |
| Evaluate vaginal mucosa | Atrophy |
| Perform Pap test | Human papillomavirus, cancer |
| Assess for prolapse | Cystocele, rectocele, uterine prolapse |

If a patient responds with answers suggesting she has concerns and wants to discuss them, you might then proceed as follows:

- "Tell me about your sexual history—your first sexual experiences, masturbation, how many partners you've had, any sexually transmitted infections or past sexual problems you've had, and any past sexual abuse or trauma. "
- "How often do you engage in sexual activity?"
- What kinds of sexual activities do you engage in?
  - Depending on the sexual orientation of the patient, ask about the specific forms of sex, including penis in mouth, vagina, or rectum; mouth on vulva.
  - If the woman is a lesbian, ask if she has ever had penetrative sex with a man, to assess her risk of cervical cancer and sexually transmitted infections.
- "Do you have difficulty with desire, arousal, or orgasm?"
  - If the woman is peri- or postmenopausal, preface these questions with information that many women often experience vaginal dryness and changes in sexual desire around the time of menopause.

Along with sexual activity questions, a standard menstrual and obstetric history should be obtained, inquiring about the age of onset of menses, last menstrual period, characteristics of menstrual periods, problems associated with menses in the past, pregnancy-related problems, and perimenopausal/menopausal symptoms.[2]

## Physical Examination

A comprehensive physical examination should be conducted to detect potential contributors to or causes of sexual problems. This examination, which should be conducted with close monitoring and input from the patient to isolate potentially painful areas, should also be used to educate the patient about her reproductive anatomy and sexual functioning.[5]

## Diagnosis

Basson has developed an algorithm (see **Figure 4**) to help providers establish a diagnosis of sexual problems in women. This algorithm incorporates both physical and psychosocial elements of sexual functioning (such as whether a woman is distressed about a change in her sexual functioning).[2,6]

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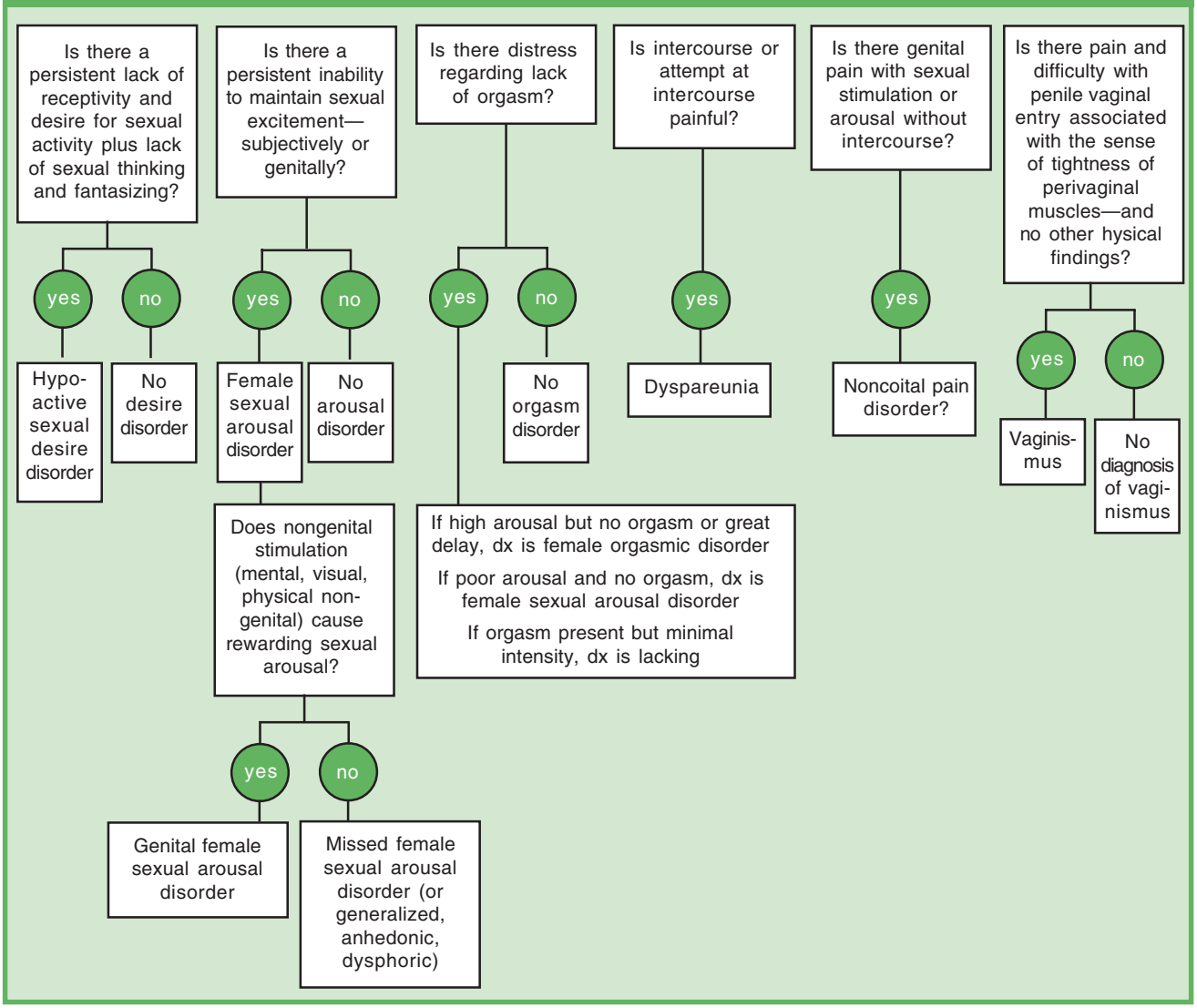
**FIGURE 4**. Establishing a Diagnosis of a Sexual Disorder[6]



# Female Lack of Desire

Loss of sexual desire, or hypoactive sexual desire disorder (HSDD), is the most common complaint of women reporting a female sexual disorder. In the National Health and Social Life Survey, approximately 33 percent of women between 18 and 59 years of age reported a loss of desire for at least a few months over the last year.[1] The prevalence increases with age, particularly after age 60, and is linked to age more than menopause status.[2,3]

## Diagnostic Criteria

The definition of female lack of desire, as most recently described by experts on sexuality gathered by the American Foundation for Urologic Disease and led by Basson, is "absent or diminished feelings of sexual interest or desire, absent sexual thoughts or fantasies, and a lack of responsive desire."[4] The reasons for becoming sexually aroused are few and far between or absent, and "the lack of interest is considered to be beyond a normative lessening with life cycle and relationship duration," and causes distress to the woman. One of the key concepts present in this definition from Basson and colleagues is that spontaneous desire (the biologic drive to have sex) is often missing as a reason for women to engage in sexual activity (hence, the addition of the word "interest"). A lack of desire in a responsive context becomes critical, then, to the diagnosis.

The Massachusetts Women's Health Study II suggests a number of characteristics of women experiencing decreased sexual desire, including being married, having psychological symptoms, being a current cigarette smoker, and being in perimenopause.[5]

Causal factors in the etiology of desire disorders, which can be assessed during the sexual history, include interpersonal issues (reduced physical attractiveness of the patient or partner, boring sexual routines, situational disturbances, or marital adjustment problems), medical illness (depression, diabetes, hypertension, hypothyroidism, hyperprolactinemia), use of certain medications (such as selective serotonin reuptake inhibitors, antihypertensives, estrogen therapies, and corticosteroids), and a sudden drop in testosterone levels as occurs with surgical menopause.[3,6,7]

When diagnosing disorders of desire, it is important to inquire about the duration and nature of low desire for sex. Kingsberg suggests that the following questions be asked:[6]

- How would you describe your loss of desire in your own words?
- How long have you had concern with respect to your desire?
- Is it always a problem, or only at certain times or in certain situations?
- Do you have sexual thoughts, daydreams, or fantasies?
- Has the problem changed over time? If so, how?
- Does anything appear to improve your desire (such as taking a romantic vacation or having sexual relations with a different partner)? Does anything make it worse?
- How is your emotional intimacy with your partner?

## Treating Disorders of Desire

There are no drugs specifically indicated for the treatment of any female sexual disorder, including disorders of desire.[6] A number of therapies are in clinical trials.[6] Because loss of desire is often related to interpersonal problems rather than biologic factors, relationship, psychological, and situational issues should be evaluated and managed before pharmacotherapy is considered (see **Table 10**).[8]

**TABLE 10**. Treatment of Disorders of Desire

| |
|---|
| Evaluate and manage relationship, psychological, and situational issues |
| Treat underlying medical problems, depression, and/or anxiety |
| Change medications if necessary (e.g., SSRIs) |
| Prescribe estrogen and/or testosterone when appropriate |
| Counsel or refer both the patient and her partner |

## Androgens

Testosterone therapies, in transdermal patch, gel, and oral formulations, are in clinical trials and appear to be effective in the treatment of female sexual disorders, specifically low libido, alone or in combination with estrogen/progestin therapy.[9–11] Shifren and colleagues published a placebo-controlled study of transdermal testosterone therapy (150 mcg or 300 mcg per day) in a group of 75 surgically menopausal women between 31 and 56 years of age who were experiencing decreased libido.[11] The subjects also received conjugated equine estrogens (0.625–1.25 mg daily) and had been in a stable sexual relationship for 1 year or more. At baseline, testosterone levels were <30 ng/dl and free testosterone was <3.5 pg/ml. Although an "appreciable" placebo response was observed, the 300-mcg dose produced further increases in scores for frequency of sexual activity and pleasure-orgasm (p=0.03 for both comparisons versus placebo) compared with the 150-mcg dose and placebo. The percentage of women who had sexual fantasies, masturbated, or had sexual intercourse at least once a week also increased two to three times over baseline on the higher testosterone dose. No differences were observed between the placebo and testosterone groups in relation to acne, hirsutism, liver function, cholesterol parameters, or hematocrit.

A second randomized, double-blind, multicenter trial of the 300-mcg testosterone patch, delivered twice weekly in 562 surgically menopausal women with a mean age of 49 years, found significant increases in the frequency of satisfying sexual activity and sexual desire score compared with baseline and placebo.[12] The testosterone patch was well-tolerated, and adverse event reports were similar between the drug and placebo groups.

Despite these results, in late 2004 an advisory committee to the Food and Drug Administration voted not to recommend a new drug application for the transdermal testosterone patch, citing the need for data on long-term health risks.[13] In the interim, testosterone products indicated for men are sometimes prescribed to treat low libido in women.[6] There is also an oral combination estrogen/testosterone product available for women, which in one trial increased sexual desire significantly over estrogen alone.[9]

A recent review of double-blind randomized controlled trials of postmenopausal testosterone therapy on female sexual functioning found that "certain types of testosterone therapy added to the estrogen-replete woman further improve frequency of sexual activity, satisfaction with that frequency of sexual activity, interest, enjoyment, desire, thoughts and fantasies, arousal, responsiveness, and pleasure."[14] The extent of improvement in these parameters was unclear, as was the optimal dose, type of preparation, route of administration, and long-term safety. The same review found that "certain types of estrogen therapies are associated with increased frequency of vaginal activity, enjoyment, desire, arousal, fantasies, satisfaction, vaginal lubrication, and feeling physically attractive, and reduced dyspareunia, vaginal dryness, and sexual problems." The authors noted that the interplay between the two hormones in improving sexual function remains unclear.

Possible risks of testosterone therapy include hirsutism, acne, liver dysfunction, lowering of voice, adverse lipid changes, and potentially the risks of estrogen therapy (because androgens are aromatized to estrogens).[15,16]

## Dehydroepiandrosterone Supplements

A review study showed that in women with adrenal androgen deficiency syndrome, dehydroepiandrosterone (DHEA) at a dose of 50 mg/day increased levels of DHEA, testosterone, dihyrotestosterone, androstenedione, and androstenediol glucuronide, leading to increased sexual thoughts and fantasies.[17] Some experts are concerned about the quality and potency of DHEA because of the minimal regulation of over-the-counter products.[18]

The American College of Obstetricians and Gynecologists has advised caution in prescribing testosterone and DHEA therapies to manage low libido in women because safety and efficacy data are incomplete and the available results lack consistency.[19]

## Bupropion

A placebo-controlled double-blind trial of 42 patients with a sexual disorder induced by selective serotonin reuptake inhibitors (SSRIs) found extended-release bupropion produced an increase in the desire to engage in sexual activity and in the frequency of engaging in sexual activity compared with placebo.[20] A trial of bupropion might be appropriate for patients who complain of SSRI-related sexual side effects.

## Nutritional Remedies

The efficacy of alternative remedies remains uncertain because there are few data to support their use.[21] However, a placebo-controlled study of ArginMax™, a nutritional supplement consisting of extracts of ginseng, gingko, and damiana, L-arginine, vitamins, and minerals, was conducted with 77 subjects over the age of 21.[22] After 4 weeks, 73.5 percent of the active group reported improved satisfaction with their overall sex life, compared with 37.2 percent of the placebo group. Notable improvements also were observed in sexual desire, reduction of vaginal dryness, frequency of sexual intercourse, orgasm, and clitoral sensation.

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# Female Sexual Aversion Disorder

Sexual aversion disorder is typically classified as a subcategory of hypoactive sexual desire disorder (HSSD) and is often confused with a lack of sexual desire.[1,2] Many experts consider it a phobia or anxiety disorder, although its sexual context also classifies it as a sexual disorder. It also may be a dual disorder encompassing sexual anxiety and panic disorder.[1,3]

## Diagnostic Criteria

The second international multidisciplinary group gathered by the American Foundation for Urologic Disease defines the problem as "extreme anxiety and/or disgust at the anticipation of/or attempt to have any sexual activity."[3] As with other sexual disorders, whether or not the disorder causes personal distress is critical to the diagnosis.[1] The *DSM-IV-TR* published in 2000 describes sexual aversion disorder as "the persistent or recurrent extreme aversion to, and avoidance of, all (or almost all) genital sexual contact with a sexual partner; the disturbance causes marked distress or interpersonal difficulty, and the sexual dysfunction is not accounted for by another Axis I disorder (except another sexual dysfunction)."[4]

Little is known about the etiology, prevalence, or treatment of the disorder, except that it is a lifelong or acquired conditioned response that is frequently associated with a history of sexual trauma or abuse, and it affects more women than men.[1,2] Aversion to sexual activity is rarely an initial presenting complaint, because patients often seek to avoid any genital contact, even in the context of a gynecologic examination. They also may avoid talking about their aversion to sex in a therapeutic setting. It is important to rule out HSDD because there is some overlap of symptoms, and some women with aversion disorder have intact libidos and even report pleasure on the rare occasions when they engage in sexual activity.[1]

Kingsberg and Janata have proposed revising the current *DSM-IV-TR* diagnoses and criteria in order to better distinguish between primary (lifelong) and secondary (acquired) sexual aversion disorder (see **Table 11**).[1]

## Treating Sexual Aversion Disorder

As with diagnosis, treatment of sexual aversion disorder is difficult, largely because patients are often resistant to discussing the disorder. At this time, treatment consists of referral to a psychologist or sexologist for desensitization therapy.[1]

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**TABLE 11**. Proposed Revision of Sexual Aversion Disorder Classification[1]

| Diagnosis | Current *DSM-IV-TR* Criteria | Proposed Revised Criteria |
|---|---|---|
| Primary sexual aversion | Lifelong anxiety, fear, or disgust to sexual stimuli | Acquisition of anxiety or disgust **before** the development of healthy sexual interactions with a partner |
| Secondary sexual aversion | Acquired anxiety, fear or disgust to sexual stimuli | Acquisition of fear, anxiety or disgust **after** the development of healthy sexual interactions with a partner |

# Female Sexual Arousal Disorders

The diagnosis and treatment of arousal disorders are complicated by the multiplicity of psychological/cultural/relationship variables that can interfere with arousal, and by the lack of correlation between women's objective and subjective feelings of arousal. As previously discussed, many studies show that women who demonstrate genital swelling and lubrication with stimulation may not be aware they are physically aroused.[1,2]

## Diagnostic Criteria

In the National Health and Social Life Survey, approximately 20 percent of women reported a lack of vaginal lubrication during sexual stimulation.[3] Women often require more time and stimulation to become aroused as they age.[4] Menopause-associated vulvar atrophy can also lead to decreased sensation with decreased arousal, while medical conditions can lessen sensation.[4]

The American Foundation for Urologic Disease consensus panel led by Basson that recently reconsidered definitions and categories of female sexual disorders divides these disorders into the following categories:[1]

### *Subjective Sexual Arousal Disorder*

The panel defines this disorder as the "absence or markedly diminished feelings of sexual arousal (sexual excitement and sexual pleasure) from any type of sexual stimulation. Vaginal lubrication or other signs of physical response still occur." The group created this new category based on data that suggest most women who complain of arousal problems demonstrate genital vasocongestion comparable with that seen in women who don't complain of a loss of subjective arousal.

### *Genital Sexual Arousal Disorder*

This disorder is described as "Absent or impaired genital sexual arousal. Self-report may include minimal vulval swelling or vaginal lubrication from any type of sexual stimulation and reduced sexual sensations from caressing genitals. Subjective sexual excitement still occurs from nongenital stimuli." This clinical diagnosis pertains mostly to women with autonomic nerve damage and estrogen deficiency who don't demonstrate vasocongestion (although there may or may not be a demonstrable physical pathology). Women who complain of genital arousal disorder report being aroused by sexual stimulation but have a marked loss of intensity of any genital response, including orgasm.

### *Combined Genital and Subjective Arousal Disorder*

"Absence or markedly diminished feelings of sexual arousal (sexual excitement and sexual pleasure) from any type of sexual stimulation as well as complaints of absent or impaired genital sexual arousal (vulval swelling, lubrication)." The panel noted that this is the most commonly seen clinical presentation for female arousal disorders. The patient usually also complains of a lack of libido. This diagnosis can be distinguished from genital arousal disorder based on the lack of both subjective and genital excitement from any type of sexual stimulation.

### *Persistent Sexual Arousal Disorder*

"Spontaneous, intrusive, and unwanted genital arousal (e.g., tingling, throbbing, pulsating) in the absence of sexual interest and desire. Any awareness of subjective arousal is typically but not invariably unpleasant. The arousal is unrelieved by one or more orgasms and the feelings of arousal persist for hours or days." The panelists reported that this syndrome is poorly understood, but it may not be as rare as previously believed. This is a provisional definition offered to facilitate research into its prevalence and etiology.

## Treating Sexual Arousal Disorders

Some of the same therapeutic approaches may be recommended for disorders of desire and arousal, and therapy needs to focus on both partners in a couple, whether heterosexual or homosexual, and not just the patient with the problem. Addressing psychosocial and relationship issues is critical to successful treatment. For example, couples need to be educated that as they age, both men and women require more focused, direct, and lengthy stimulation to become sufficiently aroused. New and stimulating sexual routines may need to be implemented to make sex interesting again to long-standing partners, because repetitive, boring, and short routines may lead to lack of interest and arousal. Anxiety and inhibitions that can affect arousal also may need to be addressed.[4,5]

### *Vaginal Lubricants*

A variety of lubricants are available over the counter to reduce vaginal irritation during stimulation and intercourse.[4] Regular penetration also appears to increase vaginal lubrication in and of itself.[4]

### *Vaginally Administered Estrogen*

Estrogen therapy can be of benefit to postmenopausal women who experience a lack of lubrication and genital vasocongestion.[2,4] Treating atrophy with estrogen may increase sensation, but the Women's Health Initiative findings about the increased risks of cardiovascular events and breast cancer associated with hormone therapy make recommendation of oral estrogen therapy controversial.[6] Estrogen delivered vaginally (in which case it is minimally absorbed systemically) appears to be as effective as oral estrogen therapy to relieve menopause-related vaginal symptoms.[4]

### *Phosphodiesterase Inhibitors*

Sildenafil (Viagra®) has been investigated for the treatment of female sexual arousal disorders. Although sildenafil increases the vasocongestive response to sexual stimulation, studies have produced inconsistent results in terms of subjective arousal, solidifying the idea that women may demonstrate physical signs of arousal but not feel aroused emotionally.[4,7–11] Pfizer Inc. announced in 2004 that it would not pursue Food and Drug Administration (FDA) approval of the drug for use in women.[12] Sildenafil may still have a role in treating selective serotonin reuptake inhibitor-induced sexual problems.[13,14]

### *Mechanical Devices*

The EROS™ Clitoral Therapy device is the only FDA-approved device currently available to treat female arousal disorders. The prescription-only device produces clitoral vascular engorgement using a vacuum system and can be used during masturbation and partnered sexual activity. A small trial showed significant improvement in all symptoms of female sexual arousal disorder in women with and without the disorder.[15] Another trial of seven subjects with sexual arousal disorder showed that EROS therapy was associated with significant increases in clitoral engorgement; all subjects also reported either slight-to-moderate pleasure or orgasm.[16]

## Alternative Treatments

### *Zestra™*

A botanical feminine massage oil formulated to enhance female sexual pleasure and arousal when applied to the vulva, Zestra was compared in a randomized, double-blind, crossover study with placebo oil in 10 women with and 10 women without female sexual arousal disorder (FSAD). Both women with and without FSAD showed statistically significant improvements compared with placebo in levels of arousal and desire, satisfaction with arousal, genital sensation, the ability to have orgasms, and sexual pleasure. A greater response was found in women with the disorder compared with women who did not complain of arousal problems.[17]

### *ArginMax™*

An herbal supplement, ArginMax has been shown in a small study to improve clitoral sensation and other parameters of sexual arousal and well-being.[18] (See section on desire disorders for further information.)

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# Female Sexual Orgasmic Disorders

Anorgasmia is a common problem that affects between 24 percent and 37 percent of women.[1] It can be divided into primary orgasmic disorder, in which a woman has never experienced orgasm through any means of sexual stimulation, and secondary orgasmic disorder, in which a woman is anorgasmic after a period of time when she was orgasmic. The latter can be classified as situational (e.g., when a woman can reach orgasm via masturbation but not with a partner) or generalized.

## Diagnostic Criteria

The second American Foundation for Urologic Disease panel defines female sexual orgasmic disorder as follows: "Despite the self-report of high sexual arousal/excitement, there is either lack of orgasm, markedly diminished intensity of orgasmic sensations, or marked delay of orgasm from any kind of stimulation."[2] The panelists felt that previous definitions of orgasmic disorder were lacking because they often ignored the criterion of "high" or "adequate" sexual arousal. This definition clarifies that the patient has no problem becoming aroused. As before, the lack of ability to achieve orgasm is a disorder only if the patient is distressed by the problem.

With aging, the duration of orgasm may be shorter and less intense than when a woman was younger.[3] There is no evidence that problems experiencing orgasm increase with age as long as arousal is sufficient.[4]

Difficulties with orgasm have been associated with interpersonal and marital distress, psychological distress, psychiatric disorders, and use of antidepressants, particularly selective serotonin reuptake inhibitors (SSRIs).[5,6] Other sexual disorders, such as sexual arousal disorders and sexual pain disorders, also may preclude sufficient arousal and orgasm.

## Treating and Managing Orgasmic Disorders

Management of orgasmic disorders focuses primarily on teaching women and their partners about appropriate arousal techniques (see **Table 12**). For many women, sociocultural influences may lead to inhibitions about receiving pleasurable sexual stimuli, which can be overcome with education about how women become aroused, the amount of time needed for arousal, and the types of stimulation commonly needed for orgasm to occur. Most women are unable to experience orgasm from intercourse alone and require extended clitoral stimulation.[7,8]

**TABLE 12**. Treatment of Orgasmic Disorders

| |
|---|
| Encourage/educate about appropriate arousal techniques and duration |
| If SSRIs are associated with problem, consider alternative medications |
| Treat dyspareunia |
| Counsel or refer for: |
| Step-wise masturbation therapy |
| Sensate focus |
| Systematic desensitization |
| Sex therapy |
| Relationship therapy |

Women who are suffering from sexual side effects from SSRIs may benefit from a change to a medication such as bupropion.[5] All women can be helped by pelvic-floor muscle exercises such as Kegels. Older women can be helped by the use of vaginal weights, pelvic-floor physical therapy, vaginal lubricants or topical estrogen therapy, and treatments for dyspareunia, as appropriate, to make intercourse more pleasurable.[5]

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# Female Sexual Pain Disorders

Female sexual pain disorders are divided into three main categories: dyspareunia, vaginismus, and other pain-related disorders.

## Diagnostic Criteria

Dyspareunia has most recently been defined as "persistent or recurrent pain with attempted or complete vaginal entry and/or penile-vaginal intercourse."[1] This definition now includes pain during penetration, not just during attempts at penetration. A woman's decision not to have intercourse should not change the diagnosis, according to the panelists gathered by the American Foundation for Urologic Disease. Vaginismus is defined as "persistent difficulties to allow vaginal entry of a penis, a finger, and/or any object, despite the woman's expressed wish to do so. There is variable involuntary pelvic muscle contraction, (phobic) avoidance, and anticipation/fear/experience of pain. Structural or other physical abnormalities must be ruled out/addressed." The panelists revised this definition because they noted that vaginal spasm has never been documented, despite the inclusion of spasm in earlier definitions. Rather, they preferred the definition to specify that involuntary contractions may occur. They noted that vaginismus typically prevents the full entry of a penis, etc., but that vaginal entry still may occur and cause discomfort and pain. Other pain-related sexual disorders can be related to a host of anatomic abnormalities, inflammatory conditions, infections, vestibulitis, genital mutilation or trauma, surgery for prolapse or incontinence, and endometriosis.[2] Dyspareunia also can be a common occurrence after a long period without sexual intercourse, as may occur when a male partner is successfully treated for long-standing erectile dysfunction.[3]

Dyspareunia is estimated to affect 14.4 percent of women annually, according to the National Health and Social Life Survey,[4] and vaginismus affects 15 percent to 17 percent of women presenting to a sex therapy clinic.[2,5] The most common cause of sexual pain disorders among middle-aged and older women is atrophic vaginitis. For instance, in a postmenopausal population in the Netherlands, 27 percent of the women surveyed reported vaginal dryness, soreness, and dyspareunia.[2,6] It can be difficult to differentiate between the two disorders because symptoms can overlap (e.g., pain can both prevent penetration and cause muscle contractions). The cause of the disorders is unknown but can be related to medical conditions—dyspareunia is the only female sexual disorder in which organic factors figure largely—as well as the ubiquitous psychological and relationship factors.[2]

Examination of the genitals needs to be approached with gentleness and constant interaction with the patient about painful areas. Examination with a speculum may be difficult or impossible at first, because patients may involuntarily contract their pelvic-floor muscles in anticipation of pain.[2]

## Treating Sexual Pain Disorders

Vaginal or oral estrogen and lubricants can be prescribed to enhance comfort with penetration for women with vaginal atrophy. In light of the Women's Health Initiative findings, hormone therapy is indicated in the short-term management of menopausal symptoms at the lowest possible dose.[8] This has complicated therapy, requiring that each woman make the decision about the risks and benefits of hormone therapy for herself in consultation with her provider.

Beyond treatment of medical conditions such as atrophic vaginitis and endometriosis, patients suffering from sexual pain disorders may benefit from psychological counseling and education. Instruction in progressive muscle relaxation, use of vaginal dilators to increase vault caliber, and regular penetration (if and when possible) also may be warranted.[7,9]

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# Summary and Recommendations

Female sexuality at midlife and beyond is a burgeoning area of interest for providers, patients, researchers, and pharmaceutical companies. Much work needs to be done to gain a clearer understanding of the issues surrounding female sexuality. Below, you'll find some recommendations for bringing sexuality issues into the routine patient encounter and offering education, counseling, and referrals, with the goal of improving quality of life and well-being for women in midlife and beyond.

## Recommendations for Health Care Providers

- Place literature about sexual and marital concerns (e.g., brochures from The Women's Sexual Health Foundation, www.twshf.org, or the National Women's Health Resource Center's April 2005 issue of the *National Women's Health Report: Menopausal Women & Sexual Health,* available at www.healthywoman.org) in your waiting and exam rooms, to indicate to patients that you are open to and available for discussing sexual problems.
- Reassure patients that sexual concerns are common.
- Include inquiries and assessment of sexual concerns in routine patient examinations (e.g., annual, menopause, and postsurgical visits, as well as when treating depression or chronic illnesses).
- Recognize that a woman's sexual response is circuitous and complex, involving physiological and psychological components, and help the patient understand these issues.
- Recognize that loss of desire or other sexual problems may not need treatment unless they cause distress to the woman.
- Adopt a nonjudgmental attitude to patients' sexual disclosures and activities and reassure patients that their activities are common and normal.
- Don't assume that all patients are involved in long-term relationships with heterosexual partners. Many patients may be in same-sex relationships or new relationships, and whether coupled or uncoupled, engaging in masturbation.
- If a woman is in a relationship, view her sexual concerns as a couple's problem, not just the woman's problem.
- Educate and inform patients about common sexual problems that can occur with aging (e.g., vaginal dryness, loss of desire, dyspareunia), as well as with use of certain medications or the presence of some diseases or after surgery.
- Offer advice on techniques for enhancing sexual communication, arousal (e.g., extended clitoral stimulation), relieving boredom, and coping with a partner's sexual disorders (such as erectile dysfunction) and the resumption of sexual activity after a period of abstinence.
- Partner with other health professionals, such as psychologists, sex educators, sexologists, physical therapists specializing in sexuality, and sex therapists, to provide a comprehensive approach to female sexual disorders. Certified sex educators, counselors, and therapists can be found through the American Association of Sex Educators, Counselors, and Therapists at www.aasect.org.

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INSPIRING WOMEN'S SEXUAL WELLNESS

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# *Women's Sexual Health in Midlife and Beyond*

## Post-Test

Please circle the single most appropriate answer below.

1. According to the National Health and Social Life Survey, what percentage of women suffer from a sexual disorder?
   a. 12 percent
   b. 23 percent
   c. 35 percent
   d. 43 percent

2. The American Psychiatric Association's *DSM-IV* classification system for female sexual disorders has been criticized because:
   a. it includes sexual aversion as a sexual disorder rather than a phobia
   b. it fails to include a criterion for the disorders to cause distress
   c. it is based on Masters and Johnson and Kaplan's linear model of female sexual response
   d. it combines male and female sexual disorders into general categories

3. According to the latest understanding of female sexual function:
   a. desire always precedes arousal
   b. arousal always precedes desire
   c. excitement always precedes desire
   d. arousal can occur in the absence of desire

4. When aroused, women are:
   a. always aware of genital vasocongestion
   b. always aware of breast swelling
   c. always aware of genital throbbing or pulsing
   d. none of the above

5. Among psychosocial variables affecting the female sexual response, perhaps the most important is:
   a. concomitant medical illnesses
   b. the relationship with the sexual partner
   c. sexual self-image
   d. stress

6. Of the following, which is NOT an effect of aging on female sexual function?
   a. decreased muscle tension
   b. decreased vaginal pH
   c. thinning of vaginal mucosa
   d. clitoral shrinkage

7. In the Massachusetts Women's Health Study II, the most consistent predictors of continuing sexual activity were:
   a. health and marital status
   b. age and menopause status
   c. age and economic status
   d. absence of depression and cigarette smoking

8. The most common complaint of women reporting a female sexual disorder is:
   a. hypoactive sexual desire disorder
   b. subjective sexual arousal disorder
   c. anorgasmia
   d. dyspareunia

9. FDA-approved pharmacologic agents indicated for the treatment of female sexual disorders include:
   a. phosphodiesterase-5 inhibitors
   b. testosterone
   c. estrogen
   d. all of the above
   e. none of the above

10. The class of medications that can cause painful orgasm are:
    a. selective serotonin reuptake inhibitors
    b. tricyclic antidepressants
    c. antihypertensives
    d. benzodiazepines

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1. Extent to which stated program objectives are met.
   a. Describe healthy female sexuality and two models of female sexual response.
      5 4 3 2 1
   b. Incorporate assessment of sexual function into the routine health care of women in midlife and beyond.
      5 4 3 2 1
   c. Develop three communication skills to talk about sexuality with women in midlife and beyond.
      5 4 3 2 1
   d. List four changes in female sexual function that occur with aging, menopause, and disease.
      5 4 3 2 1
   e. Name three ways to provide appropriate treatment, counseling, or referral to patients experiencing problems with sexuality.
      5 4 3 2 1
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   5 4 3 2 1
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