

Overview of Female Sexual Function and Dysfunction

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Men and women initiate or agree to sexual activity for many reasons, including sharing sexual excitement and physical pleasure and experiencing affection, love, romance, or intimacy. However, women are more likely to report emotional motivations such as

- To experience and encourage emotional intimacy
- To increase their sense of well-being
- To confirm their desirability
- To please or placate a partner

Especially in established relationships, women often have little or no initial sense of sexual desire, but they access sexual desire (responsive desire) once sexual stimulation triggers excitement and pleasure (subjective arousal) and genital congestion (physical genital arousal). Desire for sexual satisfaction, which may or may not include one or multiple orgasms, builds as sexual activity and intimacy continue, and a physically and emotionally rewarding experience fulfills and reinforces the woman's original motivations.

A woman's sexual response cycle is strongly influenced by her mental health and by the quality of her relationship with her partner. Initial desire typically lessens with age but increases with a new partner at any age.

Physiology

Sexual response includes the following:

- Motivation (including desire)
- Subjective arousal
- Genital congestion
- Orgasm
- Resolution

Physiology of the female sexual response is incompletely understood but involves hormonal and CNS factors.

Estrogens influence sexual response. It is suspected but not proved that androgens are involved and act via androgen receptors and estrogen receptors (after intracellular conversion of testosterone to estradiol).

After menopause, ovarian estrogen production ceases, while ovarian androgen production varies. However, adrenal production of prohormones (eg, dehydroepiandrosterone sulfate [DHEAS]) that are converted to both androgens and estrogens in peripheral cells decreases starting in a woman's 30s. Ovarian production of prohormones also declines after menopause. Whether this decrease plays any role in diminishing sexual desire, interest, or subjective arousal is unclear. The brain produces sex hormones (neurosteroids) from cholesterol, and production may increase after menopause. Whether this documented increase is universal, whether it facilitates arousal as peripheral production decreases, and whether it is affected by exogenous hormone administration are all unknown.

Motivation

Motivation is the wish to engage in sexual activity. There are many reasons for wanting sexual activity, including sexual desire. Desire may be triggered by thoughts, words, sights, smells, or touch. Desire may be obvious at the outset or may

build once the woman is aroused.

Arousal

Brain areas involved in cognition, emotion, motivation, and organization of genital congestion are activated. Neurotransmitters acting on specific receptors are involved. Based on known actions of drugs and on animal studies, some neurotransmitters appear to be prosexual; they include dopamine, norepinephrine, and melanocortin. Serotonin is usually sexually inhibitory, as are prolactin and γ -aminobutyric acid (GABA).

Genital congestion

This reflexive autonomic response occurs within seconds of a sexual stimulus and causes genital engorgement and lubrication. The brain's appraisal of the stimulus as biologically sexual, not necessarily as erotic or subjectively arousing, triggers this response. Smooth muscle cells around blood spaces in the vulva, clitoris, and vaginal arterioles dilate, increasing blood flow (engorgement) and transudation of interstitial fluid across the vaginal epithelium (lubrication). Women are not always aware of congestion; genital tingling and throbbing are more typically reported by younger women. As women age, basal genital blood flow decreases, but genital congestion in response to sexual stimuli (eg, erotic videos) may not.

Orgasm

Peak excitement occurs; it is accompanied by contractions of pelvic muscles every 0.8 sec and is followed by slow release of genital congestion. Thoracolumbar sympathetic outflow tracts appear to be involved, but orgasm is possible even after complete spinal cord transection (when a vibrator is used to stimulate the cervix). Prolactin, ADH, and oxytocin are released at orgasm and may contribute to the sense of well-being, relaxation, or fatigue that follows (resolution). However, many women experience a sense of well-being and relaxation without experiencing any definite orgasm.

Resolution

Resolution is a sense of well-being, widespread muscular relaxation, or fatigue that typically follows orgasm. However, resolution can occur slowly after highly arousing sexual activity without orgasm. Many women can respond to additional stimulation almost immediately after resolution.

Classification

Female sexual dysfunction may involve decreased or increased sexual responsiveness. Classification is determined by symptoms. There are 5 major categories of decreased responsiveness and one of increased responsiveness (persistent genital arousal disorder).

Sexual desire/interest disorder is absence of or a decrease in sexual interest, desire, sexual thoughts, and fantasies and an absence of responsive desire.

Sexual arousal disorder is lack of subjective or genital arousal or both.

Orgasmic disorder involves orgasm that is absent, markedly diminished in intensity, or markedly delayed in response to stimulation despite high levels of subjective arousal.

Vaginismus is reflexive tightening around the vagina when vaginal entry is attempted or completed despite women's expressed desire for penetration and when no structural or other physical abnormalities are present.

Dyspareunia is pain during attempted or completed vaginal penetration or intercourse. Provoked vestibulodynia (PVD, formerly called vulvar vestibulitis), the most common type of superficial (introital) dyspareunia, is a chronic pain syndrome associated with altered immune function and sensitization of the nervous system.

Persistent genital arousal disorder involves excessive genital arousal.

A disorder is diagnosed when symptoms cause distress. Some women may not be distressed or bothered by decreased or absent sexual desire, interest, arousal, or orgasm.

Almost all women with sexual dysfunction have features of more than one disorder. For example, the chronic dyspareunia of PVD often leads to sexual desire/interest and arousal disorders; impaired arousal may make sex less enjoyable or even painful, decreasing the likelihood of orgasm and subsequent sexual motivation. However, dyspareunia due to impaired lubrication may occur as an isolated symptom in women with a high level of sexual desire, interest, and subjective arousal. Female sexual disorders may be secondarily categorized as lifelong or acquired; situation-specific or generalized; and mild, moderate, or severe based on the degree of distress it causes the woman.

Although research is limited, these disorders probably apply equally to women in heterosexual and homosexual relationships.

Etiology

The traditional separation of psychologic and physical etiologies is artificial; psychologic distress causes changes in hormonal and neurologic physiology, and physical changes may generate psychologic reactions that compound the dysfunction. There are often several causes of symptoms within and between categories of dysfunction, and the cause is often unclear.

Primarily psychologic factors

Mood disorders are closely correlated with low desire and arousal. In up to 80% of women with major depression and sexual dysfunction, sexual dysfunction becomes less severe when antidepressants effectively treat the depression. However, sexual dysfunction persists or worsens when antidepressants are ineffective. Women with an anxiety disorder are also more likely to have sexual dysfunction involving desire, arousal, and/or orgasm and to have PVD. Various fears—of letting go, of being vulnerable, of being rejected, or of losing control—and low self-esteem can contribute.

Previous experiences can affect a woman's psychosexual development, as in the following:

- Past negative sexual or other experiences may lead to low self-esteem, shame, or guilt.

- Emotional, physical, or sexual abuse during childhood or adolescence can teach children to control and hide emotions—a useful defense mechanism—but such inhibition can make expressing sexual feelings difficult later.

- Early traumatic loss of a parent or another loved one may inhibit intimacy with a sex partner for fear of similar loss.

Concerns about a negative outcome (eg, unwanted pregnancy, sexually transmitted diseases [STDs], inability to have an orgasm, sexual dysfunction in a partner) can also impair sexual response.

Contextual causes (those specific to a woman's current circumstances) include the following:

- Intrapersonal context: Low sexual self-image (eg, due to infertility, premature menopause, or surgical removal of a breast, the uterus, or another body part associated with sex)

- Relationship context: Lack of trust, negative feelings, or reduced attraction toward a sex partner (eg, due to the partner's behavior or to a growing awareness of a change in sexual orientation)

- Sexual context: For example, surroundings that are not sufficiently erotic, private, or safe

- Cultural context: For example, cultural restrictions on sexual activity

Distractions (eg, from family, work, or finances) can interfere with arousal.

Primarily physical factors

Various genital lesions, systemic and hormonal factors, and drugs may lead or contribute to dysfunction (see Table: [Some Physical Factors Contributing to Female Sexual Dysfunction](#)).

Some Physical Factors Contributing to Female Sexual Dysfunction

Category Factor

	Atrophic vaginitis
	Congenital malformations
	Genital herpes simplex
	Lichen sclerosus
Genital lesions	Postsurgical introital narrowing
	Radiation fibrosis
	Recurrent tearing of the posterior fourchette
	Vaginal infections
	Vulvar dystrophies
	Bilateral oophorectomy in premenopausal women
	Debility
Other physical factors	Fatigue
	Hyperprolactinemia
	Thyroid disorders, hypoadrenal states, hypopituitary states
	Nerve damage (eg, due to diabetes, multiple sclerosis, or spinal cord dysfunction)
	Alcohol
	Gonadotropin-releasing hormone agonists
Drugs	Anticonvulsants
	β-Blockers
	Certain antidepressants, particularly SSRIs

SSRIs are a particularly common drug cause.

Although in the future, androgens may be shown to influence women's sexual response, current evidence is weak. Some evidence suggests that testosterone supplementation may modestly benefit women who have low desire but are able to have satisfactory sexual experiences. Total androgen activity (measured as metabolites) is similar in women with or without desire.

Alcohol dependence can cause sexual dysfunction.

Diagnosis

Interview with both partners, separately and together

Pelvic examination, primarily to identify causes of dyspareunia

Diagnosis of sexual dysfunction and its causes is based on history and physical examination. Ideally, history is taken from both partners, interviewed separately and together; it begins by asking the woman to describe the problem in her own words and should include specific elements (see Table: [Components of the Sexual History for Assessment of Female Sexual Dysfunction](#)). Problematic areas (eg, past negative sexual experiences, negative sexual self-image) identified at the first visit can be investigated more fully at a follow-up visit.

Components of the Sexual History for Assessment of Female Sexual Dysfunction

Area	Specific Elements
Medical history (past and current)	General health (including physical energy, level of stress and anxiety, psychiatric history, and mood), drugs, pregnancies, pregnancy terminations, STDs, contraception, use of safe sex practices
Relationship with partner	Sexual orientation, emotional intimacy, trust, respect, attraction, communication, fidelity, anger, hostility, resentment
Current sexual context	Sexual function of partner, activities and behaviors during the hours before attempts at sexual activity, adequacy of sexual stimulation, adequacy of sexual communication, timing (eg, too late at night, too hurried), degree of privacy
Triggers of desire and arousal	Setting; visual, written and spoken sexual cues; activities (eg, showering together, dancing, listening to music); types of stimulation (nonphysical, physical nongenital, nonpenetrative genital)
Inhibitors of arousal	Fatigue, stress, anxiety, depression, negative past sexual experiences, fears about outcome (including loss of control, pain, unwanted pregnancy, and infertility), day-to-day distractions
Orgasms	Presence or absence, response to absence (whether the woman is distressed or not), differences in responses with partner and with self-stimulation
Outcome	Emotional and physical satisfaction or dissatisfaction
Quality and location of pain in dyspareunia	Burning, tearing, rubbing, stretching, or dull Superficial (introital) or deeper in pelvis
Timing of pain in dyspareunia	During partial or full entry, deep thrusting, penile movement, or the man's ejaculation; immediately after penetration; or during urination after vaginal penetration
Self-image	Self-confidence; feelings about desirability, body, genitals, or sexual competence
Developmental history	Relationship with caregivers and siblings, traumas, loss of a loved one, abuse (emotional, physical, or sexual), consequences of expressing emotions as a child, cultural or religious restrictions
Past sexual experiences	Type (whether desired, coercive, abusive, or a combination), subjective experience (how rewarding, varied, and pleasing), outcomes (positive or negative—eg, unplanned pregnancy, STDs, parental or societal disapproval, guilt due to religious teachings)
Personality factors	Ability to trust, comfort level with being vulnerable, suppressed anger causing suppression of sexual emotions, need to feel in control, unreasonable expectations of self, hypervigilance to self-harm (ie, worry about pain, which inhibits enjoyment), obsessiveness, anxiety, depressive tendencies

STDs = sexually transmitted diseases.

Physical examination is most important for determining causes of dyspareunia; the technique may differ slightly from that used in a routine gynecologic examination. Explaining what will occur during the examination helps the woman relax and should be continued throughout the examination. The woman should be asked whether she wants to sit up and view her genitals in a mirror during the examination; doing so may impart a sense of control.

Wet-preparation examination of vaginal discharge and Gram stain with culture or DNA probe to detect *Neisseria gonorrhoeae* and chlamydiae are indicated when history or examination suggests vulvitis, vaginitis, or pelvic inflammatory disease.

Although low estrogen activity may contribute to sexual dysfunction, measuring levels is rarely indicated. Low estrogen is detected clinically. Sexual function does not correlate with testosterone levels, regardless of how they are measured. If hyperprolactinemia is clinically suspected, the prolactin level is measured. If a thyroid disorder is clinically suspected, appropriate testing is done; it includes TSH if hypothyroidism is suspected, thyroxine (T₄) if hyperthyroidism is suspected, and sometimes other thyroid function tests.

Treatment

Explanation of the female sexual response to the couple

Correction of contributing factors

Substitution of other antidepressants for SSRIs or addition of bupropion

Psychologic therapies

Treatment varies by disorder and cause; often, more than one treatment is required because disorders overlap. Sympathetic understanding of the patient and careful evaluation may themselves be therapeutic. Contributing factors are corrected if possible. Mood disorders are treated. Explaining what is involved in the female sexual response may also help. Because SSRIs may contribute to several categories of sexual dysfunction, switching to an antidepressant that has fewer sexual adverse effects (eg, bupropion, moclobemide, mirtazapine, duloxetine) may be considered. Alternatively, some evidence suggests that adding bupropion to an SSRI may help.

Psychologic therapies are the mainstay of treatment. Cognitive-behavioral therapy targets the negative and often catastrophic self-view resulting from illness (including gynecologic disorders) or from infertility.

Mindfulness, an eastern practice with roots in Buddhist meditation, may help. It focuses on nonjudgmental awareness of the present moment. Its practice helps free women from distractions that interfere with attention to sexual sensations.

Mindfulness lessens sexual dysfunction in healthy women and in women who have pelvic cancer or provoked vestibulodynia. Women can be referred to community or Internet resources to learn how to practice mindfulness.

Mindfulness-based cognitive therapy (MBCT) combines an adapted form of cognitive-behavioral therapy with mindfulness. As in cognitive-behavioral therapy, women are encouraged to identify maladaptive thoughts, but then to simply observe their presence, realizing that they are just mental events and may not reflect reality. This approach can make such thoughts less distracting. MBCT is used to prevent recurrent depression and can be adapted to treat sexual arousal disorder and sexual desire/interest disorder as well as the chronic pain of provoked vestibulodynia.

Key Points

Psychologic and physical factors usually contribute to female sexual dysfunction; they may interact, worsening dysfunction.

Psychologic factors include mood disorders, effects of past experiences, concerns about a negative outcome, the woman's specific circumstances (eg, low sexual self-image), and distractions.

Physical factors include genital lesions, systemic and hormonal factors, and drugs (particularly SSRIs).

Interview both partners, separately and together.

Usually, use psychologic therapies (eg, cognitive-behavioral therapy, mindfulness, a combination of the two [MBCT]).

