Hormones play an integral role in the female sexual response as well. Adequate estrogen and testosterone must be available for the brain to sense incoming arousal stimuli. Research indicates that estrogen preserves the vascular function of female sex organs and affects genital sensation. Estrogen receptors are located in the reproductive organs as well as the urethra and bladder neck. The hormone is believed to promote blood flow to these areas and to assist with lubrication and thickening of the vaginal epithelium, characteristics that make intercourse more comfortable. In addition, estrogen influences the central nervous system during sexual excitement by mediating the expression of vaginal and clitoral nitric oxide synthase.

Much less has been determined about the impact of testosterone on female sexual function, but many studies have linked decreased levels in testosterone to diminished libido. Testosterone’s specific role in female sexual response is unclear. Some researchers have hypothesized that it is the hormone of sexual desire in women and claim that it has an additional effect on general well-being. Pharmaceutical companies are paying particular attention to testosterone, with the hope that a synthetic androgen will provide the same sexual boost for women that it has for men.

Causes of Low Libido

There are multiple and complex reasons why postmenopausal women might be less inclined to engage in or enjoy sexual activity. These can be viewed in the framework of biological, motivational-affective and cognitive domains. Assessing patients in this manner allows you to more clearly identify the cause of libido changes, as well as the direction and goal of treatment.

Biological Causes

Whether menopause occurs naturally or surgically, its associated physiologic changes have a significant impact. Age and the presence or lack of intact ovaries distinguishes these patients and helps determine treatment goals.

Biological changes can be divided into physical and hormonal alterations. Physical changes after menopause are most significant in women who have reached menopause naturally. About half of these women report some degree of urogenital atrophy, vaginal dryness and dyspareunia. Changes in the levator ani muscle and perineal membrane may also lead to painful intercourse or anorgasmia. These changes are believed to be the result of aging as well as decreased estrogen production. Younger postmenopausal women typically report fewer symptoms.

Hormonal changes play a significant role in postmenopausal women as well. A decrease in estrogens — and, more importantly, androgens — can deprive a woman of the ingredients needed to maintain a healthy sex drive. These hormones appear to act on the central and peripheral nervous systems to enhance reaction to sexual stimuli and the quality of sexual responses.

Ovarian androgen production comprises 50% of the total testosterone level in women. This level drops dramatically after oophorectomy, diminishing the neurobiological aspects of the sexual response. Decreased muscle strength and fatigue have also been linked with decreased androgen levels, further hindering libido.

The ovary continues secreting androgens after menopause. Therefore, after naturally induced menopause, women experience only a slight, gradual decline in androgen levels and typically experience fewer sexual problems than women who have had oophorectomy.

Decreased estrogen levels can influence a woman’s sexual function as well. Delayed clitoral reaction, decreased vaginal lubrication, diminished circulatory response during sexual stimulation, and reduced contractions during orgasm have all been linked to decreases in circulating estrogen. These symptoms can be reversed with hormone replacement therapy, further supporting estrogen’s influence on sexual function.

Motivational Causes

Many factors motivate a woman to engage in sexual activity. Androgen status or biological shifts may be less important than psychosocial factors and health status. Stress and poor physical health have been identified as predictors of sexual dysfunction. Some experts suggest that a woman’s sexual desire may originate in her response to her partner’s interest rather than from a spontaneous sexual reaction. For women, sexuality extends far beyond hormones and neurotransmitters.

Randomly assigned to a treatment group. Research confirms that arousal is often influenced more by thoughts and emotions than by genital feedback.

Motivational, affective and cognitive alterations can be rooted in depression, anxiety, stress or relational conflicts that interfere with nervous system pathways involved in arousal. Alcohol or drug dependence, outside relationships, personal distress, partner abuse or poor coping skills can influence feelings of sexual desire.

In addition, treatments and procedures such as chemotherapy or mastectomy can influence self-image and interest in sexual contact.

Many patients report complex cognitive and motivational issues that need to be addressed before a healthy sex drive can be achieved. Assessment of these factors is critical to planning treatment and setting reasonable, attainable goals.

Recognizing Low Libido

To ensure that sexual issues are discussed, questions about libido should be a routine part of each well woman visit (Table 2). Answers will lead to further evaluation, including the use of an appropriate assessment tool such as the Female Sexual Function Index (FSFI), the Profile of Female Sexual Function (PFSF), the Sexual Function Questionnaire (SFQ-V1), or an independently developed algorithm.

The FSFI, a brief self-report instrument consisting of 19 items, has been validated as an appropriate screening tool. Nevertheless, it cannot determine the onset or duration of sexual dysfunction or the presence of maintaining or etiologic factors, limiting it to initial collection of data and periodic comparative analysis of treatment efficacy.

The PFSF is one of the newer instruments specifically designed to assess loss of sexual desire and associated symptoms in postmenopausal women with low libido. It is a self-administered, multinational, psychometrically validated instrument that includes the assessment of personal distress as it relates to sexual dysfunction.

Developed primarily for use in clinical trials, the SFQ-V1 has strong validity and reliability in determining the presence of FSD. This brief questionnaire contains items that have been judged clinically relevant by an external panel of providers. One achievement unique to this instrument is its specificity. Anxiety, depression and other aspects of life satisfaction were not reflected in scores, suggesting that the SFQ independently reports changes in sexual function.

In addition to direct questioning, you can encourage patients to initiate discussion about sexuality by providing litera-

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**Table 1**

**Definition and Classification of Female Sexual Dysfunction**

<table>
<thead>
<tr>
<th>I. Sexual desire disorders</th>
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<tbody>
<tr>
<td>a. Hypoactive sexual desire disorder</td>
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<tr>
<td>b. Sexual aversion disorder</td>
</tr>
<tr>
<td>II. Sexual arousal disorder</td>
</tr>
<tr>
<td>III. Orgasmic disorder</td>
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<tr>
<td>IV. Sexual pain disorders</td>
</tr>
<tr>
<td>a. Dyspareunia</td>
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<tr>
<td>b. Vaginismus</td>
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<tr>
<td>c. Noncoital sexual pain disorder</td>
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