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Female sexual dysfunction

Background

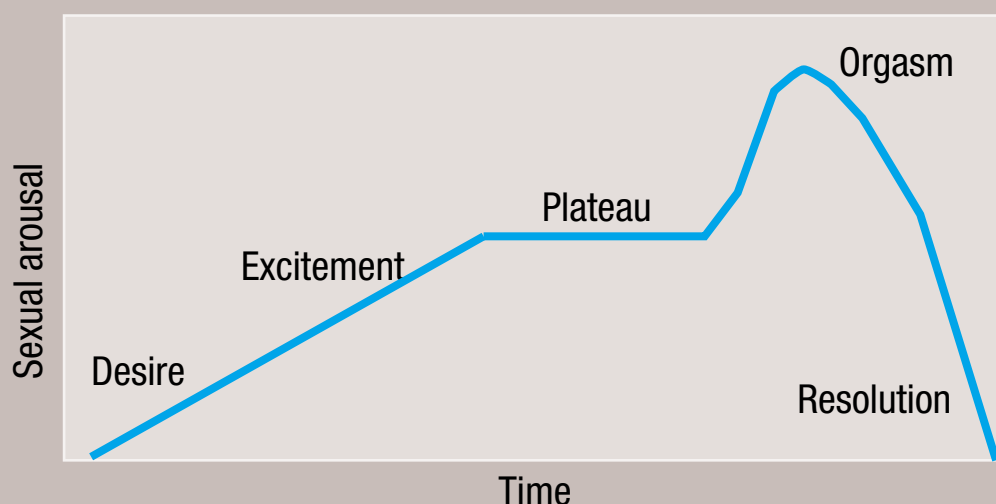
FEMALE sexual dysfunction is an umbrella term used to describe female disorders related to sexual desire, arousal, orgasm and pain. The diagnostic categories, aetiologies and treatments are controversial, reflecting a lack of standardised definitions and a lack of dependable population-based data using standardised measurements.

Initially regarded as mainly psychological in aetiology and treatment, the recognition of female sexual dysfunction as a biophysical entity has changed over time. With increasing understanding of the role of the neuro-endocrine influences both centrally and peripherally, there is a developing role for medical input to understand and treat these conditions.

In 1966, Masters and Johnson described, from their pioneering research into human sexuality, the human sexual response cycle. In 1970, they published their groundbreaking book *Human Sexual Inadequacy* and described female orgasmic dysfunction, vaginismus and dyspareunia. The current diagnostic categories of female sexual dysfunction are still linked to the phases of the sexual response cycle as described by Masters and Johnson in 1966 (see figure 1).

From a medical perspective,

Figure 1: The sexual response cycle.



Sources: Masters WH, Johnson VE. *Human Sexual Response*. Little, Brown and Co, Boston, 1966.
Kaplan HS. *Disorders of Sexual Desire and Other New Concepts and Techniques in Sex Therapy*. Brunner/Hazel Publications, New York, 1979.

female sexual dysfunctions were first described in DSM-II in 1968. The language regarding these disorders has remained largely psychological since.

Recently, however, there have been a number of studies looking at the physiology of female sexual arousal and response. For example, the use of neuroimaging has significantly

improved our knowledge of central mechanisms involved in sexual desire, arousal and function.

Similarly, research on peripheral pathways and the interaction between central and peripheral mechanisms has also provided a better understanding.

There is also a developing aware-

ness of the interaction between anatomical, physiological, neurobiological and endocrine mechanisms and their influence on female sexual function. This has encouraged practitioners to consider female sexual dysfunction from a “biopsychosocial” paradigm.

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The authors



DR LESLEY YEE

sexual health physician, Australian Centre for Sexual Health, St Leonards, NSW.



DR KENDRA SUNDQUIST

director, Health Program Consultants, Wahroonga, NSW.

Physiology of female sexual function

THE importance of biological mechanisms in regulating reproduction is seen in many species. It is probably more important in animals than in humans.

Sexual behaviour in animals occurs only in oestrous, when the female is 'in season' or 'on heat'. In human females, sexual behaviour can occur across the whole reproductive cycle. It is important for the GP to have some understanding of the central, peripheral and hormonal influences on female sexual function.

Central pathways

Sexual behaviour in human females involves a complex set of behaviours, and each component involves multiple brain regions (see box, above right). Disruption at any of these steps will interfere with female sexual function in a given individual.

Animal studies have been the mainstay of research into the core differences between male and female brains in sexual behaviour. It is questionable as to whether this is valid; however, it would appear from these studies that multiple mechanisms are involved in differentiating the male from the female brain.

There is growing interest in neuro-imaging techniques to understand the role of the cerebral cortex in female sexual response. Studies frequently use visual erotic stimuli to elicit an arousal response. In general, there is greater neural activation in the hypothalamus and the amygdala in men than in women. This supports the concept that men have a more instinctive sexual response whereas women have a more considered or process-oriented response.

Awareness of the role of centrally acting neurotransmitters on libido is also increasing. For example, serotonin is an inhibitor of sexual activity and dopamine augments sexual activity. There is also new research and interest in centrally acting agents in treating female sexual dysfunction, but to date there are no new medications on the market for this purpose.

Peripheral pathways

The female genitalia are richly innervated from both the autonomic and somatic nervous systems. During sexual stimulation in women, a sexual response is elicited by sensory stimulation as well as central nervous activation, resulting in increased blood flow to the genitals.

When consulting with a woman with female sexual dysfunction, practitioners need to keep in mind whether there is likely to be any disturbance of the nerve supply peripherally, and conduct an appropriate neurological examination, or refer to a neurologist for further examination or testing, if relevant.

After the successful launch of sildenafil, trials were conducted in women to assess the role of peripherally acting agents that enhance genital vasocongestion response to sexual stimuli in the female sexual response. These were largely unsuccessful and the marketing of these products to women has not progressed.²

Hormonal influences

Hormonal fluctuations during the menstrual cycle influence mood,

Central behavioural steps in sexual behaviour

- Motivation to seek partners
- Evaluation of critical stimuli
- Motor execution of the behaviour
- Rewarding physiological processes that reinforce the behaviour¹

Drugs affecting sexual function

Antiepileptics: Lamotrigine Gabapentin Topiramate	Oestrogen: Hormonal contraceptives
Antidepressants: SSRIs TCAs MAO inhibitors	Antihypertensives: Beta blockers Ganglion blockers Niacin Fibrates Clonidine Spironolactone
Antipsychotics: Olanzapine Risperidone	Diuretics: Thiazides
Mood stabilisers: Lithium	Antiparkinsonian
Neuroleptics: Dopamine agonists	Anticholinergics
Cimetidine	Antihistamines Steroids
Alcohol	Recreational drugs: marijuana cocaine heroin methadone

Table 1: Medical conditions affecting female sexual function

Condition	Effect on female sexual dysfunction
Diabetes	Impaired arousal and orgasm
Hypothyroidism	Decreased desire
Cardiovascular disease	Impaired blood flow and arousal response
Neurological disease (eg, Parkinson's disease, MS, injury)	Impaired arousal and orgasm
Decreased androgens (eg, age)	Decreased desire
Decreased oestrogens (eg, menopause, chemotherapy)	Vaginal atrophy and dryness
Hyperprolactinaemia (eg, prolactinoma, medications)	Decreased arousal and orgasm
Pelvic floor weakness or injury	Decreased arousal and orgasm

Source: Basson R, Schultz WW. *Lancet* 2007; 369:409-24.

Female testosterone levels decline with age, with a halving of levels at age 40 compared with age 20, and a gradual decline through the menopause.

trogen by converting testosterone to oestrogen. Most testosterone is bound to body proteins, in particular to sex hormone binding globulin (SHBG) so that only 1-2% of testosterone circulates in the free form.

Testosterone levels vary during the menstrual cycle, with a peak mid cycle at ovulation, and higher levels in the morning. This may theoretically enhance female libido at ovulation. Female testosterone levels decline with age, with a halving of levels at age 40 compared with age 20, and a gradual decline through the menopause.

Effects of medications and drugs

For women presenting with female sexual dysfunction, practitioners need to take a full history of all medications, including the use of recreational drugs (see the box on drugs, above). Alcohol and illicit drugs will diminish libido in many cases.

Many prescription medications will also impact upon libido due to central effects on dopamine and serotonin, and peripheral effects on the availability of free testosterone.

Effects of medical conditions

Certain medical conditions will impact on female sexual function (see table 1). In general, female sexual responses require an intact endocrine, neurological and vascular system. Any abnormalities or diseases of these may affect sexual response.

cognition, memory, arousal and sexual interest. The major hormone influencing libido and sexual function in men and women is testosterone.

In young women, the ovaries produce oestrogen, progesterone and testosterone. It is also produced by the adrenal glands, and by body fat and skin. The ovaries make oes-

Psychology of female sexual function



SEVERAL psychological issues need to be considered in assessing sexual function and dysfunction in women.

- Poor body image and genital image. The way a woman feels about the size, shape, odour and function of her genitals will influence female sexual function.
- Negative emotions associated with intercourse. Shame, guilt, anxiety, distress, detachment and withdrawal are correlated with female sexual dysfunction.
- Relationship issues and lack of communication. Studies have shown that women value intimacy and connection with their partner, and that this is an important factor for an arousal response to be present for many women. Women will often report that time spent promoting communication, non-sexual intimacy and affection will result in a more positive sexual response. The GP can often assess the quality of the relationship informally in the consultation, and encourage intimacy exercises where possible.

Open communication about specific sexual likes and dislikes is also important between partners. For example, studies have found anorgasmic women find it more difficult communicating with a partner about clitoral stimulation techniques. These women also

tend to have negative attitudes towards sex and masturbation, and feel guilt following sexual activities.

- History of past sexual abuse.
- Personality types and psychiatric conditions. Studies have suggested introversion, emotional instability, depression and anxiety are associated with higher levels of female sexual dysfunction. Comorbid mental illness and psychotropic treatments used should be considered with women presenting with the condition.
- Cultural/religious background. There are widely varying beliefs regarding the expression of female sexuality among different cultures and religions. GPs working in areas with multicultural populations will be aware that it is important not to make assumptions regarding what may be seen as acceptable or normal in female sexual function and dysfunction.
- Age at first intercourse. Older age at first intercourse is associated with a higher rate of female sexual dysfunction. Higher rates of female sexual dysfunction are associated with age at first intercourse. In younger women it may be associated with inexperience and a lack of assertiveness. In older women it may be influenced by social norms regarding appropriate age-related sexual desire and activity.

Categories of dysfunction

FEMALE sexual dysfunction is considered to be a multifactorial phenomenon rarely caused by a single factor, although one may predominate. Anatomical, physiological, biological and psychological factors all need to be considered.

As previously mentioned, the categories of dysfunction are based on the sexual response cycle described by Masters and Johnson in 1966 and Helen Kaplan in 1978. For each function, a dysfunction was described and these form the basis for the diagnostic categories for female sexual dysfunction today (see table 2).

Table 2: Categories of female sexual dysfunction

Sexual desire disorders	Hypoactive sexual desire disorder Sexual aversion disorder
Sexual arousal disorder	Female sexual arousal disorder
Sexual orgasmic disorder	Female sexual orgasm disorder
Sexual pain disorders	Dyspareunia Vaginismus Non-coital sexual pain disorders

Clinical presentations

COMMON presentations of female sexual dysfunction in an Australian population are listed in the box, right. Computer-assisted telephone interviews were completed by a representative sample of 9134 women aged 16-59. Respondents were asked about their agreement with nine attitude statements.

Although these diagnostic categories are listed separately, in clinical practice there is considerable overlap between the disorders (see figure 2). Theoretically it would be useful to treat the primary disorder first. However, it is often difficult to work out exactly what is primary or secondary.

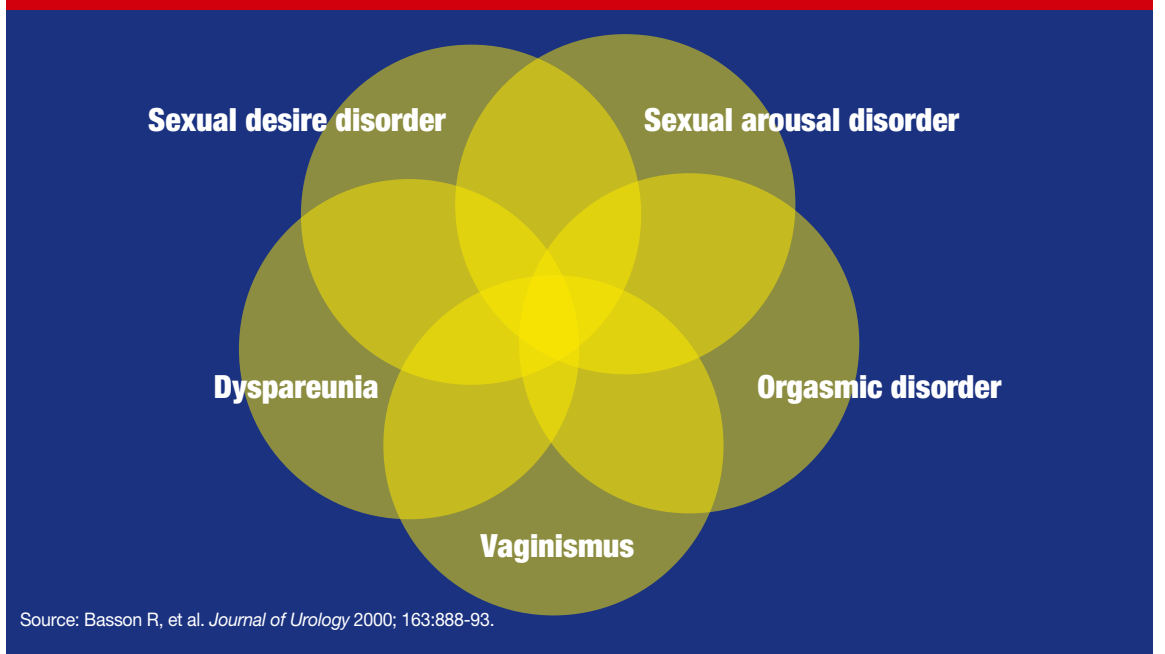
It is sometimes more useful to ask the woman what her order of priority is. It is usually more realistic for GPs to address physical issues first before looking into psychological issues.

Common problems in female sexual dysfunction

- 54.8%: lack of interest in having sex
- 28.6%: unable to orgasm
- 27.3%: not finding sex pleasurable
- 20.3%: physical pain with intercourse
- 35.9%: worrying during sex that their body does not look attractive

Source: Richters J, et al. Sex in Australia: Sexual difficulties in a representative sample of adults. *Australian and New Zealand Journal of Public Health* 2003; 27:164-70.

Figure 2. Overlap of female sexual dysfunctions.



Source: Basson R, et al. *Journal of Urology* 2000; 163:888-93.

Sexual desire disorders

THE most common problems for women are lack of interest in having sex and inability to reach orgasm.³ These are the most common categories of female sexual dysfunctions encountered in clinical practice, but also prove some of the most treatment resistant. This is because there are so many determinants of sexual desire. Both the biological underpinnings for sexual function and psychological factors will impact on libido. Approaches to treatment have followed three separate lines: hormonal, psychotherapeutic and pharmacological. By using a holistic approach the GP can combine all these approaches.

Hypoactive sexual desire disorder

Hypoactive sexual desire disorder is defined as “the persistent or recurrent extreme aversion to, absence of, and avoidance of, all, or almost all, genital sexual contact with a sexual partner” (DSM-IV). Synonyms include frigidity, inhibited sexual desire, sexual apathy and sexual anorexia.

There is usually an element of personal distress noted by the patient. It should be remembered that there are certain times when a change in sexual function may be considered a normal response. These include pregnancy loss, menopause, infertility, post-partum, breastfeeding, post oophorectomy, grief and other major psychological stressors. It is important to reassure the patient that her response to the situation is normal, so that she is not treated for a dysfunction when none exists.

Data on the prevalence of



hypoactive sexual desire disorder are inconsistent and depend on how long the disorder has been present, the age of the patient, the presence of a partner and other situational issues. The prevalence of women reporting frequent problems with libido is estimated to be between 6% and 14%.

Aetiology is varied and ranges from physiological to psychological, and often a mixture of both. Addressing one aspect without the other will not produce a successful outcome in most cases. The GP should aim to treat the organic and physiological causes first, with treatment based on the underlying aetiology. A careful history must be taken, looking for causative medical conditions, and taking note of any medications that may impact on sexual function.

If the woman’s partner is also distressed by this problem, then it may

be useful to consider the situation from the couple perspective, as a “desire discrepancy disorder”, in order to avoid blaming the woman for her low libido. This will encourage the couple to work together to resolve the issues.

Hormonal treatment

Hormonal treatment has to date relied on the use of androgen therapies. This started in the 1950s and there are now a number of studies supporting the use of testosterone for low libido in post-menopausal women.

Unfortunately there are no long-term studies on safety, and androgenising short-term side effects such as acne, facial hair growth, alopecia, clitoramegaly and voice deepening remain problematic.

Concerns about possible long-term risks have also limited the widespread use of testosterone

therapies in women. These include potential increased risk of breast cancer and cardiovascular disease. Individual use with careful counselling may be an option. In Australia, there is only one product available specifically marketed for women. It is applied as a transdermal cream, which should minimise short-term side effects. The product is only available in WA, so patients need to send their prescription to a pharmacy in that state.

There is limited data on the long-term safety of using testosterone in premenopausal women. Although a few studies of short-term use have demonstrated an elevated libido in premenopausal women with testosterone use, it is not possible to reassure the patient about long-term safety.

Postmenopausal changes in women will cause vaginal dryness and lack of lubrication, which often means continued sexual activity is painful and unpleasant. This in turn leads to lack of desire. It is common for sexual frequency to decline following menopause. Tibione is a synthetic HRT that has a mildly androgenic action. This is often the first choice for postmenopausal women who have libido problems and who wish to use HRT. Those women who do not wish to use HRT may benefit from the use of vaginal oestrogen preparations, which will address postmenopausal vaginal atrophy and the resultant dyspareunia.

Pharmacological treatment

Research into pharmacological therapies has involved the phos-

phodiesterase type 5 (PDE-5) inhibitors and alpha-adrenergic blockers. After the successful launch of sildenafil, several companies ran trials to see if these drugs would be helpful for hypoactive sexual desire disorder in women. In general these have been unsuccessful in reversing female sexual dysfunctions.

In 2004, Pfizer announced several large-scale placebo-controlled studies including 3000 women showed inconclusive results on the efficacy of sildenafil for hypoactive sexual desire disorder.

None of these compounds are being investigated further for use in women, although there is probably a small place for their use in women whose sexual dysfunction is a product of diminished genital blood flow with arousal. This may include women with diabetes, cardiovascular disease, or those taking SSRIs.

Psychotherapeutic treatment

Various therapy modalities have been tried with mixed success, and there are no well-controlled studies demonstrating the efficacy of one approach over another. Usually a mix of supportive counselling, with behavioural suggestions to enhance a positive frame around sexual arousal, will be suggested. Negative thinking and behaviours (including avoidance) around sexuality may be challenged empathically. However, there are many social, cultural, religious and political values that can influence an individual’s sexual identity, and these are not necessarily open to change.

Sexual aversion disorder

THIS is defined in DSM-IV 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)”.

It is often confused with hypoactive sexual desire disorder because there is a large amount of symptom overlap. In fact, the first part of the definition is near identical for each. However, it is more extreme in its presentation, with expressions of disgust and symptoms of distress such as crying,

screaming or pushing partners away.

It is frequently associated with a history of sexual trauma or abuse, and it affects women more than men. It is considered a phobia or anxiety disorder, and treatment usually consists of desensitisation therapy. It is difficult to discuss with patients and difficult to treat.

Psychological treatment is often required. Usually refractory to behavioural modifications due to the strong emotional impact of the aversion response, it is common to find an associated vaginismus. These cases are often best referred to experienced practitioners.

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Sexual arousal disorders

LACK of arousal in women does not necessarily preclude sexual activity, unlike in men, where lack of arousal results in erectile dysfunction. This may make it more difficult to distinguish between desire and arousal disorders in women than men.

Due to the overlap in presentation and the difficulty for women in distinguishing between desire and arousal, arousal disorders and desire disorders frequently co-exist and should be treated together. The box below lists the main arousal disorders.

Sexual arousal disorders

Subjective sexual arousal disorder

Genital sexual arousal disorder; for example, menopause

Combined genital and subjective arousal disorder

Persistent sexual arousal disorder: spontaneous, intrusive and unwanted genital arousal in the absence of sexual interest or desire

Sexual orgasm disorder

FEMALE orgasmic capacity varies greatly, ranging from women who have never experienced orgasm to women who are multi-orgasmic or who can achieve orgasm during non-genital stimulation (eg, breast, visual or fantasy).⁴ The current definition in DSM-IV is “a persistent or recurrent delay in, or absence of, orgasm following a normal sexual excitement phase”.

The diagnosis of female orgasmic disorder is based mainly on the clinician’s judgment that a woman’s orgasmic capacity is less than would be considered reasonable for her age, sexual experience and the adequacy of sexual stimu-

lation she receives. The lack of adequate sexual stimulation needs to be considered because it can be the cause of delayed or absent orgasm.

Assessment

When assessing the cause for anorgasmia or delayed orgasm in women, a comprehensive history looking at biopsychosocial factors needs to be taken. The biological factors associated with female sexual dysfunctions need to be considered, and any underlying medical causes addressed. Similarly, it may be useful to re-evaluate or change any medications.

Treatment

Treatments that are marketed to enhance female orgasm include natural therapies and devices that use vacuum stimulation of the clitoris, or electronic nerve stimulation. There are no large-scale studies evaluating the efficacy of these treatments, making it difficult to advocate their use.

There may be a place for off-label use of the PDE5 inhibitors for anorgasmia secondary to SSRI use or secondary to blood-flow disturbances with diseases such as diabetes mellitus or atherosclerosis.

Sexual pain disorders

WHILE these disorders are not as common as desire disorders or orgasm disorders in surveys of female sexual dysfunction, they are probably the disorders most commonly seen by the GP. DSM-IV incorporates the following different entities for these disorders.

- **Dyspareunia:** Genital pain associated with sexual intercourse.
- **Vaginismus:** 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:** Genital pain induced by non-coital sexual stimulation.

Current research does not support the concept of dyspareunia as a single entity, or its inclusion as a sexual dysfunction, and it is probable there are different syndromes of dyspareunia. However, it is difficult to differentiate dyspareunia from vaginismus clinically.⁵ A new category of “genito-pelvic pain/penetration disorder” has been proposed for the DSM-5, to cover the three definitions above.

While there is a significant somatic and psychosomatic overlap in the clinical presentation of sexual pain disorders, practitioners need to identify and address the physical components of these, while keeping a holistic frame of mind.

Dyspareunia

This can occur anywhere from the external genitalia (superficial dyspareunia) to the abdomen (deep dyspareunia). It encompasses many types of genital/pelvic pain problems, and significantly interferes with all phases of the sexual response cycle.

Many practitioners focus their examination on the vagina, as this is often the language used by patients. This is often incorrect, as the most common cause of dyspareunia in premenopausal women is vulvodynia/vulvar vestibulitis syndrome, with a prevalence of almost 12%.

Vulvodynia is marked by chronic recurrent pain elicited by pressure on the vulvar vestibule or attempted vaginal penetration. Examination must include careful inspection of the vulva, and the vagina if possible, noting any discharge present. This may not be possible at the first visit if the patient demonstrates an aversive

Taking a history of sexual pain

Have you had any unpleasant sexual experiences in the past?

What sort of relationship did your parents have? Did they provide a positive or negative sexual role model for relationships for you?

Do you have particular religious or cultural beliefs about intercourse that may have influenced your experiences?

Are you a generally anxious person? Do you try to relax yourself in other ways prior to intercourse?

What happens when you try to have intercourse?

Were you surprised that it was so painful/difficult?

When is it most painful?

Have you tried to use a tampon?

Have you or your partner tried inserting a finger into your vagina?

Is the pain always present? Does it change from time to time?

Do you have a history of recurrent UTIs/back spasm?



response to the prospect of examination. A low vaginal swab may be helpful, and any underlying causes, such as acute or chronic monilia, dermatitis, lichen sclerosis, HPV, hypersensitivity or vulval pathology, need to be treated.

Pelvic and vaginal disease are more commonly associated with deep dyspareunia. If this is present, a pelvic examination and ultrasound may be helpful in excluding underlying pathology. A high vaginal swab and tests for chlamydia and STIs may help rule out infectious causes.

Vaginismus

DSM-IV defines vaginismus as: “Recurrent or persistent involuntary spasm of the vaginal muscles that interferes with sexual intercourse. It

must cause significant distress and not be due to a medical condition or another disorder.”

Primary vaginismus is that which is present from the first attempt at intercourse. Typically the partner is unable to achieve penetration. These couples often have limited foreplay and sexual knowledge, and there are frequently associated psychological issues. DSM-IV points out: “There is a relationship of this disorder with victims of rape and sexual abuse, strict religious upbringings, and issues of control.”

For the clinician seeing a woman with a history of being unable to achieve penetrative intercourse, it is important to exclude underlying obstruction to intercourse such as an imperforate hymen or

The most common cause of dyspareunia in premenopausal women is vulvodynia/vulvar vestibulitis syndrome, with a prevalence of almost 12%.

Treatment of vaginismus

The mainstay of treatment is the use of vaginal trainers or dilators in a focused desensitisation program. Other treatments can include sex therapy, the use of plentiful lubrication, massage and learning to relax the muscles. Concurrent psychological treatment may look at any underlying issues.

Treatment often requires a multidisciplinary approach. This might include gynaecologists, family doctors, psychologists, sex therapists or physiotherapists, and all have been found to be helpful.⁶

Vaginal trainers in gradually increasing sizes are effective tools in retraining pelvic floor muscles in vaginismus. They provide a substitute means to intercourse to trigger pelvic muscle tightness. The GP can teach women how to use the trainers to override the involuntary contractions, relaxing the pelvic floor so it responds correctly to sexual penetration.

Many women with vaginismus are unfamiliar with their vulval and vaginal anatomy, and are uncomfortable with self-touch and self-exploration. An empathic GP who understands the involuntary nature of the muscle spasm inherent in vaginismus can provide useful direction about the insertion of the vaginal trainers, with appropriate pelvic floor relaxation techniques. These graduated vaginal insertion exercises allow women to comfortably transition to the stage where they are ready for intercourse without pain or fear.

The recent use of botulinum toxin injection into the pelvic floor muscles to paralyse the muscle spasm in vaginismus offers another option for treatment. It appears to work directly on the muscles. There are now several published studies that suggest it is an additional option to treatment-resistant vaginismus and dyspareunia. There may be an initial exacerbation of pain, and a temporary worsening of pre-existing incontinence. It is also expensive, and lasts for several months only.

It is used at the present time when conventional therapies have failed. It must also be used with ongoing pelvic floor physiotherapy, and possibly ongoing counselling. It is best to refer to a multidisciplinary team, if this therapeutic modality is considered.

taut hymenal band, before diagnosing vaginismus. If the woman is averse to this examination being conducted, then an examination under anaesthesia may be necessary.

Secondary vaginismus occurs when a woman experiences tightness, pain or penetration difficulties after previously experiencing pain-free intercourse. This will frequently be secondary to a medically treatable condition such as menopause, childbirth trauma, vulval problems, vaginal infections, post-gynaecological surgery or post-radiation treatment to the pelvic/vaginal region. Psychological issues are less prevalent, and secondary vaginismus typically has a more successful treatment outcome.

Ageing, chronic illness and female sexual function

THE 2007/08 Australian Bureau of Statistics results estimated that 83% of persons aged 65 years and over had three or more of the following chronic conditions: cardiovascular disease, osteoarthritis, diabetes, stroke and respiratory disease.⁷ There is also an increasing prevalence in the older population of cancer, depression and obesity. All these conditions can be associated with decreased desire and frequency of sexual activity. Fatigue, chronic pain, and disfigurement after surgery also affect sexual function and body image.

Multiple factors determine female sexuality and sexual functioning. Chronic illness, disease and surgery interfere indirectly with sexual function by impacting on relationships, dependency and self-image. These factors may result in a "desire discrepancy", where one partner wants more sexual activity than the other. Studies indicate that, in general, while there is an overall decline in sexual activity and interest in both

Normal changes in sexual function for women with ageing

- Decreased clitoral engorgement
- Decreased vaginal lubrication
- Decreased breast swelling and sensitivity
- Decreased vasovaginal congestion
- Decreased preorgasmic sweating
- Decreased orgasm intensity

genders with ageing and the conditions associated with it, men report a continued higher sexual interest than women.⁸

Ageing

For women, there is a clear change in sexual interest at menopause, with many studies indicating women report lower sexual interest and also more physical discomfort with intercourse at this time. Physical changes that occur include genital atrophy, urinary frequency, uterine prolapse, loss of

skin tone, loss of energy and mood changes.

There are also changes in female sexual function (see box above) that, together with the physical changes at this age and stage of life, make continued sexual activity problematic.

A full physical examination of the urogenital system will help assess the extent of any physical changes. The GP can assist women who wish to continue a regular sexual relationship after menopause and into older age, with advice about appropriate

use of lubricants, topical oestrogen replacement therapy options, or the use of HRT where relevant and safe.

Other factors that increase the likelihood of female sexual dysfunction at this time are previous levels of sexual function, losing or gaining a sexual partner, feelings toward a partner, oestradiol levels, cultural background, lower education level and psychosocial stress.⁹

Chronic illness

Chronic illnesses will necessitate visits to the GP for ongoing monitoring and review. The time of initial diagnosis is usually not when sexual issues will surface, but they may be a concern several months or years later when acute treatment has been completed. Cancer survivors are a good example of this.

In 2008, cancer was the leading contributor to the overall burden of disease among Australians (19%).¹⁰ In 2007 the most

commonly diagnosed cancers in women were breast cancer followed by bowel cancer, melanoma of the skin, lung cancer and lymphoid cancers.

Sexual dysfunction is a major source of distress for cancer survivors. GPs need to consider both the psychological and psychosocial sequelae of cancer on female sexual function for women.¹¹

Infertility issues may be of significant concern in younger women diagnosed and treated with cancer, and studies have indicated that more than two-thirds of women with gynaecological cancers express concerns about this.

Women with cancer are at higher risk of sexual dysfunction if they are younger, not in a committed relationship, or if sexual attractiveness is a crucial area of self-esteem. Those with a history of concerns about sexuality, multiple partners, sexual abuse, or previous sexual dysfunctions are also more likely to report problems.¹²

Partner issues

PARTNERS are often frustrated with the situation in female sexual dysfunction, and women will commonly present because of fears of disappointing a partner or feeling guilty about the lack of sexual activity in their relationship. However, sometimes partners may be extremely supportive, and they may have close and connected relationships in other ways.

It is not uncommon for the couple to be having a sexually intimate relationship using "outercourse" options if they are not engaging in penetrative intercourse. In these situations, it is not unusual to find that the dysfunction has been present for a long period of time, and women will often present when they wish to become pregnant.

Many couples adapt to their situation as best they can, because of the depth of their relationship. There may also be cultural and social imperatives that make it difficult for the couple to separate. It is common for partners to feel the problem lies at least partly with them. Many partners feel rejected or undesirable in response to the woman's female sexual dysfunction.

When treating the woman, it is important not to leave the partner out of the consultation room. On occasion, the partner may be colluding with the dysfunction, as it covers for some issues of his or her own. There is also the possibility of a male partner developing erectile dysfunction with ongoing problems with intercourse and sexual activity. It is helpful to



see the partner on at least one occasion in treating female sexual dysfunctions to assess the issues and to educate him or her about the aetiology of the dysfunction.

It is surprising how often lack of sexual understanding can be corrected by factual

education around sexual matters. Many dysfunctions are the product of ignorance, myths or misinformation about sexual issues. The GP is well placed to educate the patient and their partner in this situation.

Future directions

NON-HORMONAL pharmacological agents have been studied as a new treatment approach for female sexual dysfunctions. Drugs that deplete serotonin or augment dopamine will have a pro-sexual activity.

Examples include apomorphine, a non-specific dopaminergic agonist, and quinelorane, a dopamine 2 agonist. Both these drugs elicit increased levels of oxytocin. Neither drug is advancing to market due to minimal efficacy in clinical trials, but it is likely companies may continue to search for dopamine agonists as treatments for female sexual dysfunctions.

Drugs that inhibit serotonin have not

been any more successful. Flibanserin, a drug with 5HT₂ antagonism and 5HT₁ agonism, failed to receive US Food and Drug Administration approval last year for hypoactive sexual desire disorder. Bupropion, which is a noradrenaline dopamine reuptake inhibitor marketed in the US as an antidepressant, has a slightly pro-sexual effect in clinical use. It provides an alternate choice of antidepressant where sexual side effects are distressing for patients on other antidepressant medication. Unfortunately, its use is limited in Australia, as it is available only on private prescription where its use is off-label for sexual issues.

Conclusion

At the present time there are no approved agents for the treatment of female sexual dysfunction. Some hormonal and non-hormonal preparations are used off label, but there is an absence of clear guidelines concerning indications and safety for the use of non-approved agents.

This means that practitioners dealing with female sexual dysfunction in the consulting room must employ a holistic approach, dealing appropriately with the organic and physiological issues, and referring as needed for further psychological treatment.

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Online resources

- ASSERT NSW. Australian Society of Sex Educators, Researchers and Therapist: www.assertnsw.org.au
- Family Planning NSW: www.fpnsw.org.au
- Jean Hailes Foundation for Women's Health: www.jeanhailes.org.au
- Australasian Menopause Society: www.menopause.org.au
- Cancer Australia. Psychosexual care of women affected by gynaecological cancer: modules. cancerlearning.gov.au/psgc
- Think GP Online Learning Module. Cancer – let's talk about Sex: thinkgp.com.au/education/content/5258

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Case study

MARION is a 50-year-old woman who has been married to Bob for 25 years. They have two children, 20 and 16 years old, both still living at home. Marion comes to see you as she finds she no longer has any libido at all.

When they first met, Marion had a libido that she describes as “normal”. This has steadily declined for the past 10 years, but definitely got worse over the past two years when she noticed the onset of mild dyspareunia. She tells you she has never had an orgasm but this has not been a problem for her.

Bob has been patient, but now they are beginning to argue about this and Marion is feeling guilty as she believes this to be all her fault. She tells you Bob just wants her to be “like the woman he first met”. Bob has recently talked about having an affair to relieve the situation for him so he does not need to bother Marion any longer.

Marion wants to know if there is anything she can take to increase her libido.



Comment

Marion has several issues that need to be addressed, and these cannot all be covered in detail in an initial consultation.

The initial steps for the GP are to manage the medical aspects of her presentation. First, Marion can be reassured by explaining that the decline in spontaneous

libido with her age and stage of life is normal. It will also be worth explaining that these changes do not happen as markedly with men, so that she and Bob will have different perspectives from their own experiences.

A medical discussion on what hormonal changes occur with menopause or perimenopause is warranted, as is a routine Pap smear (if due). A PV examination and vulval inspection should be performed to assess the mild dyspareunia that Marion has noted recently. A vaginal swab may be performed to rule out pathology and for Marion’s reassurance. Any pathology should be noted and treated.

Hormone levels will not be particularly useful as Marion is perimenopausal and these will reflect this status. It may be worthwhile to order them to confirm this, particularly if testosterone use is being considered. The results will not necessarily change the options for management in Marion’s case.

Marion should be subsequently

followed up for the results, which will hopefully be normal. This subsequent appointment will afford the opportunity to then address further issues. It would be reasonable to discuss HRT, topical oestrogen use, and testosterone use at this time.

It is also worth noting the other psychosocial issues that are relevant in Marion’s situation at this follow-up visit. Depending on practitioner expertise and confidence, additional appointments may be arranged to address these issues or Marion can be referred to a psychologist experienced in sexual matters. The relationship issue with Bob is causing Marion a great deal of distress, and this may be best handled separately from the clinical issues.

The successful use of some local or systemic hormones may be compromised if these psychosocial issues are not addressed. For example, Marion has adult children living at home, which may limit opportunities for intercourse. And Marion may have some feel-

ings of resentment and anger with Bob at his solution to their problem, which she tells you she finds unacceptable.

Bob’s expectation that she will have the same spontaneous libido as when they first met should be explained as unreasonable given the changes in hormone levels that Marion has experienced. This may be explained and explored with both Bob and Marion present.

Marion’s question regarding whether she can take something for low libido warrants the explanation that the only therapeutic agent for use for increased libido in women is registered in WA. It is a testosterone cream, and arrangements must be made for its procurement in other states. Its long-term use requires careful counselling about risks and side effects, and follow-up with regular review and hormone levels.

It is important at this point to stress the multifactorial aspect of libido to Marion, and that there is not a simple solution to her problem.



How to Treat Quiz

Female sexual dysfunction
— 21 September 2012

INSTRUCTIONS

Complete this quiz online and fill in the GP evaluation form to earn 2 CPD or PDP points. We no longer accept quizzes by post or fax.

The mark required to obtain points is 80%. Please note that some questions have more than one correct answer.

ONLINE ONLY

www.australiandoctor.com.au/cpd/ for immediate feedback

1. Which TWO statements about the physiology of female sexual function are correct?

- a) Biological mechanisms for regulating reproduction are probably equally important in humans as in animals, as reflected in the similarities in female sexual behaviour across species
- b) Important centrally acting neurotransmitters include serotonin, which inhibits sexual activity, and dopamine, which augments sexual activity
- c) Peripheral nervous supply, mediated by the autonomic and somatic nervous systems, plays an important role in mediating sensory and vascular responses to sexual stimulation
- d) The most important hormone influencing female libido and sexual function is oestrogen, which accounts for fluctuations in sexual interest during the menstrual cycle

2. Which of the following TWO medications are likely to affect female sexual function?

- a) Olanzapine
- b) Corticosteroids
- c) Vitamin D supplements
- d) Insulin

3. Which of the following TWO statements about the impact of medical conditions on sexual function are correct?

- a) Hypothyroidism can affect female sexual function, causing reduced desire
- b) Neurological disease such as Parkinson’s disease or MS can lead to reduced blood flow and vaginal dryness
- c) Hyperprolactinaemia can lead to increased

sexual arousal and heightened orgasm

- d) Pelvic floor weakness or injury can lead to decreased arousal and orgasm

4. Which of the following TWO statements about psychosocial factors in female sexual dysfunction are correct?

- a) The negative impact of poor body image on sexual function is limited to patients with body dysmorphic disorders
- b) Shame, guilt, anxiety, distress and detachment associated with intercourse correlate with symptoms of female sexual dysfunction
- c) Extroversion and emotional stability are associated with higher levels of female sexual dysfunction
- d) It is important not to make assumptions regarding what may be seen as acceptable or normal in female sexual function and dysfunction in women from diverse cultural or religious backgrounds

5. Which of the following TWO statements about the management of sexual desire disorders are correct?

- a) Before commencing treatment for sexual desire disorder, it is important to exclude normal causes of reduced sexual function, including pregnancy loss, menopause, breastfeeding and grief
- b) Testosterone has been demonstrated to be an effective treatment in pre- and postmenopausal women, but the benefits must be weighed against the known short-term, and unknown long-term, risks
- c) There is little role for HRT for sexual desire disorders in postmenopausal women

- d) Cognitive behavioural therapy alone is consistently very effective for sexual desire disorders, as there are many modifiable psychosocial factors involved in the evolution of the disorder

6. Which of the following TWO statements about sexual aversion, arousal and orgasm disorders are correct?

- a) Sexual aversion disorder is a phobia or anxiety disorder involving extreme psychological symptoms including disgust and distress, and warrants treatment by an experienced practitioner
- b) Sexual arousal disorders exclusively involve a reduction in arousal, due to subjective and/or genital factors
- c) Expected orgasmic capacity for patient age and sexual experience, and adequacy of sexual stimulation all need to be considered when diagnosing female orgasmic disorder
- d) Natural therapies and devices to promote clitoral stimulation have a proven role in treating women with anorgasmia or delayed orgasm

7. Which of the following TWO causes of sexual dysfunction may benefit from a trial of phosphodiesterase type 5 (PDE-5) inhibitors?

- a) Low libido
- b) Anorgasmia secondary to SSRIs
- c) Sexual aversion disorder
- d) Atherosclerosis

8. Which ONE of the following is the most common cause of dyspareunia in

premenopausal women?

- a) Vaginal infections
- b) Sexual aversion disorder
- c) Vulvodynia/vulvar vestibulitis
- d) The combined oral contraceptive pill

9. Which of the following TWO statements about the impact of ageing and chronic illness on female sexual function are correct?

- a) With ageing, male sexual activity interest is maintained at a consistent level, while women experience a decline
- b) Female sexual dysfunction in menopause is more likely in women who gain or lose a sexual partner, have a lower education level and are experiencing psychological stress
- c) Sexual issues are usually evident at the outset in patients with chronic illnesses and cancer
- d) Risk factors for sexual dysfunction in women with cancer include younger age, having multiple partners and not being in a committed relationship

10. Which TWO statements are most important to consider when reviewing the partner of a patient with female sexual dysfunction?

- a) The partner may have sexual issues of their own
- b) The partner may be taking medication that is compounding the problem
- c) It is an opportunity to educate the partner about female sexual dysfunction
- d) The partner will probably need counselling

CPD QUIZ UPDATE

The RACGP requires that a brief GP evaluation form be completed with every quiz to obtain category 2 CPD or PDP points for the 2011-13 triennium. You can complete this online along with the quiz at www.australiandoctor.com.au. Because this is a requirement, we are no longer able to accept the quiz by post or fax. However, we have included the quiz questions here for those who like to prepare the answers before completing the quiz online.

NEXT WEEK Twenty-five years ago, *Clostridium difficile*-associated diarrhoea was a very rare cause of infective diarrhoea. But over the past decade, there has been a worrying increase in both the frequency and the severity of *C. difficile*-associated diarrhoea, coupled with a significant number of deaths. Next Week’s How to Treat looks at the causes and treatment of this condition. The authors are **Dr Katie Ellard**, a gastroenterologist in private practice, St Leonards, NSW, and **Dr Nemes Sandanayake**, consultant physician and gastroenterologist at Royal North Shore Hospital, North Shore Private Hospital, St Leonards, and The Mater Hospital, Crows Nest, NSW.

Australian
Doctor
Education

HOW TO TREAT Editor: Dr Barbara Tink
Email: barbara.tink@reedbusiness.com.au