Physiology and disturbances of sexual functions

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SEXUALITY

Sexuality is a central aspect of being human throughout life and encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction.

Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviours, practices, roles and relationships. While sexuality can include all of these dimensions, not all of them are always experienced or expressed.

Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious and spiritual factors.
DEFINITION OF SEXUAL HEALTH (WHO 1975)

Sexual health is the integration of the somatic, emotional, intellectual, and social aspects of sexual being, in ways that are positively enriching and that enhance personality, communication, and love. Fundamental to this concept are the right to sexual information and the right to pleasure.

The concept of sexual health includes three basic elements:

1. a capacity to enjoy and control sexual and reproductive behaviour in accordance with a social and personal ethic,

2. freedom from fear, shame, guilt, false beliefs, and other psychological factors inhibiting sexual response and impairing sexual relationship,

3. freedom from organic disorders, diseases, and deficiencies that interfere with sexual and reproductive functions.
WHAT IS SEXUAL HEALTH?

PROBLEMS WITH THE DEFINITION

The WHO definitions have repeatedly been criticized as tautological and, in any case, as ideological. Indeed, they formulate an ideal developed in the course of the 20th century by the middle classes in Western industrialized countries. They cannot claim universal validity for all world regions or all periods of history, differences in culture, religion and economic status.
Sexual health is a state of physical, emotional, mental and social well-being related to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled.
PHYSIOLOGY OF SEXUAL INTERCOURSE:
Stages of sexual intercourse

Excitement phase - initial rapid rise in the level of sexual arousal.
Plateau phase - sexual arousal is maintained at a high level.
Orgasmic phase - sexual arousal crosses the threshold, resulting in orgasm.
Resolution phase - the fall in sexual arousal following the cessation of coitus; physical and behavioral changes revert to normal.
SEXUAL DYSFUNCTION

The term “sexual dysfunction” includes any process that interferes with a normal sex life. This can be caused by stress or physical or mental illness, but the majority of conditions result from ignorance, embarrassment, or poor communication between sexual partners.
SEXUAL DYSFUNCTION: Reduced libido

Inhibited sexual desire (ISD), sometimes called frigidity, sexual aversion, sexual apathy or hypoactive sexual desire, refers to a low level of libido manifested by a failure to initiate or be responsive to a partner's initiation of sexual activity. It is less common in men than women.

It may be a primary condition (where the person has never felt much sexual desire or interest), or secondary (where the person used to possess sexual desire, but no longer has interest).

It can be caused by psychological reactions to a deteriorating relationship, traumatic sexual experience or depression. It can also be caused by physical conditions, including systemic illness (hypogonadism), medications (antiandrogens in men), and a decrease in testosterone levels in men and estrogens in women with age (late onset of hypogonadism/menopause).
SEXUAL DYSFUNCTION: Reduced libido

It may also be either *situational* to the partner (where he/she has interest in other persons, but not toward the partner), or it may be general (where he/she has a lack of sexual interest in anyone). In the extreme form of sexual aversion, the person not only lacks sexual desire, but may also find sex repulsive, revolting, and distasteful.

Sometimes, rather than being inhibited, there may simply be a *discrepancy in sexual interest* levels between two partners, both of whom have interest levels within the normal range. Occasionally, someone may claim that his or her partner has ISD, when in fact the individual may have *hyperactive libido* and be very demanding sexually.
Anorgasmia is a form of sexual dysfunction, where the patient cannot achieve orgasm, even with "adequate" stimulation.

It is more frequently recognised in women, because the majority of women require more time and greater stimulation to achieve orgasm than men. Often related to premature ejaculation in males. It is not the same condition as infrequent orgasms.

It may be congenital or caused by medical problems such as diabetic neuropathy, multiple sclerosis, pelvic trauma, hormonal imbalances, total hysterectomy, spinal cord injury and cardiovascular disease. A common cause is the use of antidepressants, particularly the selective serotonin reuptake inhibitors (SSRIs).
FEMALE SEXUAL DYSFUNCTION: Apareunia

This is the inability of the vagina to accept penile penetration. It can be caused by congenital malformations of the vagina or severe vaginal infections, but most commonly it is caused by vaginismus.
FEMALE SEXUAL DYSFUNCTION: Vaginismus

This is involuntary contraction of vaginal muscle upon attempted penetration, causing apareunia or dyspareunia. It is a common psychological condition caused by fear of penetration, sometimes resulting from previous dyspareunia or traumatic sexual experience.
MALE SEXUAL DYSFUNCTION:
Premature ejaculation

The definition of premature ejaculation depends on the expectations and desires of both partners. In severe cases, ejaculation may occur prior to penetration.

Johnson & Johnson Study (2004)
Time from intromission of penis into vagina

1. Persons satisfied
   - 1.9% <1 min.
   - 5.4% <2 min.

2. Persons dissatisfied
   - 10.5% >6 min.
   - 5.8% >8 min.
MALE SEXUAL DYSFUNCTION:
Erectile dysfunction (Impotence)

Impotence is the inability to maintain an erection suitable for vaginal penetration despite normal sexual desire.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Examples</th>
<th>Mechanism</th>
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</thead>
<tbody>
<tr>
<td>Psychological</td>
<td>Performance anxiety, stress</td>
<td>Stress inhibits the parasympathetic nervous system that maintains erection</td>
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<td>Alcohol</td>
<td>Brewer’s droop</td>
<td>Acutely inhibits sensory nerves, chronically damages liver raising estrogen levels</td>
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<td>Medications</td>
<td>Antihypertensives</td>
<td>Reduce blood flow to the penis</td>
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<td>Antidepressants and antipsychotics</td>
<td>Antagonize sexual arousal in the CNS</td>
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<td>Metabolic</td>
<td>Diabetes</td>
<td>Long-term complications can damage the nerves and blood vessels of the penis</td>
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<td>Vascular disease</td>
<td>Atherosclerosis</td>
<td>Prevents sufficient blood reaching the penis to maintain erection</td>
</tr>
<tr>
<td>Neurological</td>
<td>Multiple sclerosis</td>
<td>Inhibits sexual arousal in the CNS</td>
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<tr>
<td>Endocrine</td>
<td>Hypogonadism</td>
<td>Inhibits libido, sexual arousal in the CNS and neural mechanisms responsible for erection</td>
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ERECTION DYSFUNCTION: Peyronie’s disease

The disease is characterized by a localized and often progressive fibrosis at the borderline between cavernosal tissue and the tunica albuginea. Clinical signs are: pain during erection, penile deviation, insufficient engorgement of the distal corpora cavernosa with reduced rigidity and consequently inability to perform intercourse.

Soft tissue X-Ray of the penis in the mammography technique with extensive ectopic calcifications.
MALE SEXUAL DYSFUNCTION:

Erectile dysfunction

Causes of impotence (%)

Age (years)

psychogenic vascular neurogenic hormonal mixed
Any therapy should involve **both partners** and **encourage discussion** and **intimacy**.

1. **Somatic therapy**
2. **Behavioural therapy**
3. **Psychoanalysis**
4. **Hypnosis**
5. **Couple therapy**
6. **Group psychotherapy**
7. **Other short therapies.** These include, on the one hand, psychotherapy with a psychodynamic orientation emphasizing the verbalization of emotions, and on the other hand a number of methods aimed at increasing "body awareness" (sensory relaxation, massage, vibrators, etc.).
ERECTILE DYSFUNCTION: Oral therapy

Phosphodiesterase 5 inhibitors:
- Sildenafil Citrate (Viagra)
- Vardenafil (Levitra)
- Tadalafil (Cialis)

Dopamine receptor agonist:
- Apomorphine SL (Uprima)

Selective competitive alpha2-adrenergic receptor antagonist:
- Yohimbine
ERECTILE DYSFUNCTION: Oral therapy

Following stimulation NO activates the guanylyl cyclase and cGMP is released causing relaxation of smooth muscle. Phosphodiesterase deactivates cGMP. Inhibition of the phosphodiesterase by sildenafil leads to increased cGMP levels and thereby erection is enhanced.

Mechanism of action of sildenafil
ERECTILE DYSFUNCTION:
Technique of intracavernosal injection

The intracavernosal application of vasoactive substances (phentolamine, papaverine, PGE1) becomes established for diagnostic purposes and for therapy.

Injection therapy can be offered to all patients, especially those with normal and pathological arterial inflow but with intact cavernosal occlusion mechanism.
ERECTILE DYSFUNCTION:
Principle of vacuum devices

The devices consist of a plastic cylinder which is placed over the penis. A vacuum is established in the cylinder with a manual or battery power pump which leads to increasing engorgement of the penis. To prevent premature flow out of blood from corpora cavernosa and therefore to allow sexual intercourse, a penile ring or restricting rubber band is placed at the penis base after full tumescence has been achieved.
ERECTILE DYSFUNCTION:
Classification of penile implants

Penile protheses

- Semirigid
  - Flexible
    - Jonas
    - AMS 600
    - Acu-Form
  - Mechanical
    - Omniphasse
    - Duraphase

- Hydraulic
  - 1-piece
    - Hydroflex
    - Flexiflate
  - 2-piece
    - Mentor Mark II
    - Uniflate
  - 3-piece
    - AMS 700 CX
    - Ultrex
    - Mentor Alpha1/Excel
ERECTILE DYSFUNCTION:

General function of 3-piece hydraulic implants in flaccid state and erection

By means of a scrotal pump fluid is transferred from the intraperitoneal or extraperitoneal paravesical reservoir into a plastic device in corpora cavernosa.