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Erectile & Ejaculatory Disorders

Definition & Prevalence.

Erectile Dysfunction and Ejaculatory Disorders

Ejaculation disorders and erectile dysfunction (abbreviated as ED) are the most common sexual problems in men[1].

The spectrum of clinical presentations for an altered ejaculation includes: premature ejaculation, retarded ejaculation, anejaculation, and retrograde ejaculation. Premature ejaculation is the most common ejaculatory dysfunction, affecting up to 70% of normal men at some point in their active sexual life.

ED, also called impotence, is defined as the inability to attain or maintain penile erection for satisfactory sexual intercourse, is a global health problem with increasing recognition.

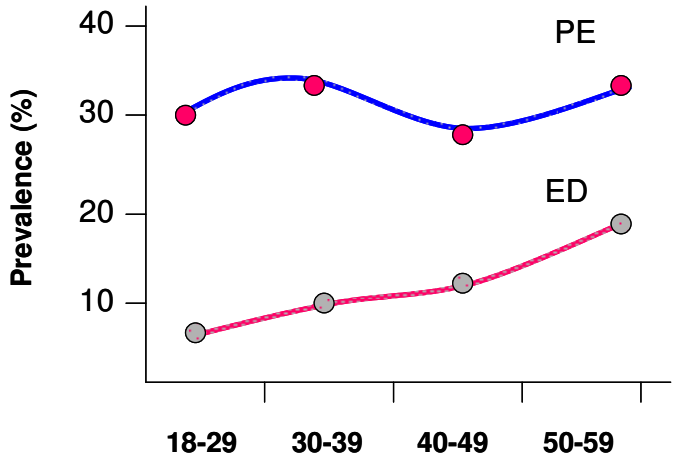
How common are these disorders presented?

One in 10 men in the world has erectile dysfunction (30 million in USA), and the likelihood increases with age: 39% at age 40, and 65% over the age of 65. But male sexual dysfunction is not a natural part of aging.

Approximately 10% of men attending sexual dysfunction clinics complain about problems with ejaculation rather than any difficulty with erections. Ejaculatory difficulty might be the explanation to the lack of fertility in some couples.

Premature ejaculation is the most common ejaculatory disorder. Approximately 20-30% of men have premature ejaculation. It is more common in young men (under 40 year-old) and in sexually inexperienced men. In general, ED has a real negative impact in the quality of life in male population.

Prevalence of PE and ED with Age



Erectile & Ejaculatory Disorders

Male Reproduction System: Anatomy and Function.

Anatomy of the Male Reproduction System

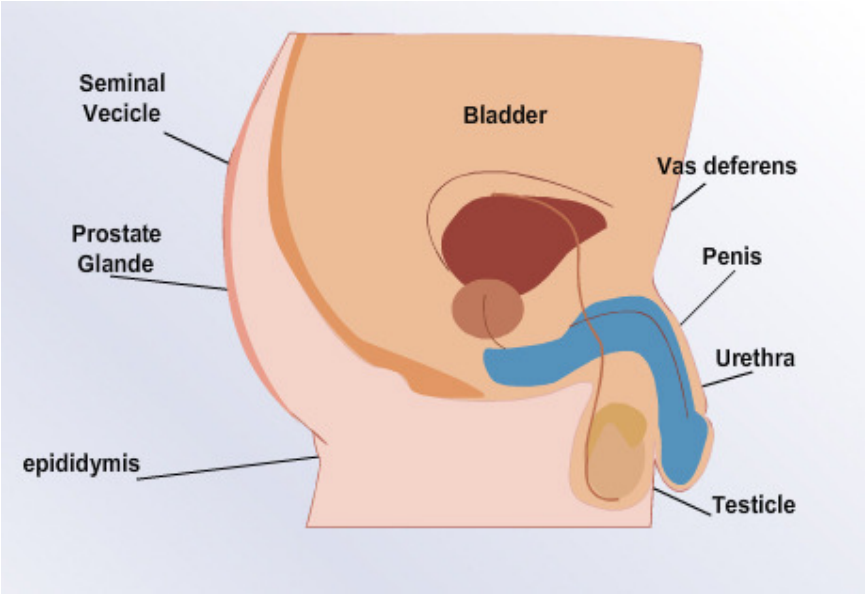
The penis and the urethra are part of the urinary and reproductive systems. The scrotum, testes, vas deferens, prostate gland and seminal vesicles comprise the rest of the reproductive system[2].

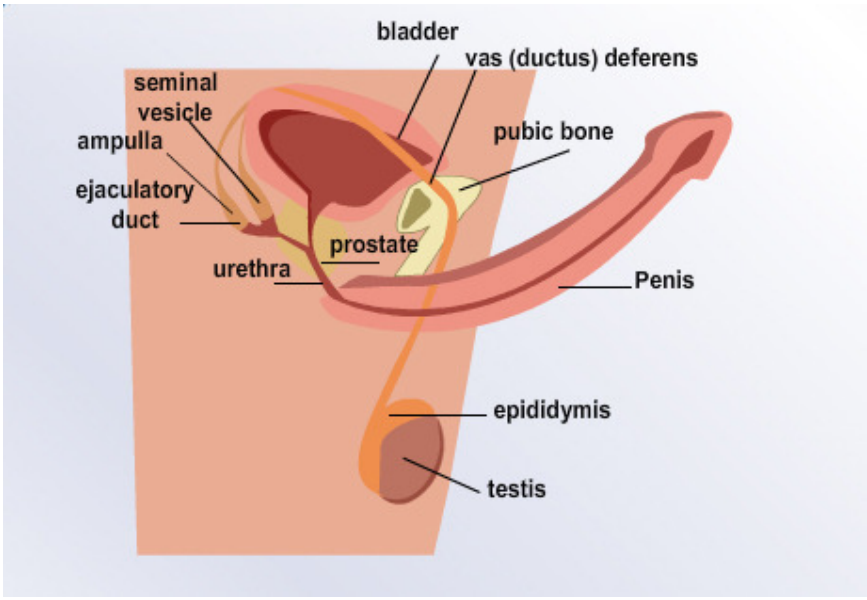
The penis consists of the root (which is attached to the abdominal wall), the body (the middle portion), and the glans penis (the cone-shaped end). The opening of the urethra (the channel that transports semen and urine) is located at the tip of the glans penis. The base of the glans penis is called the corona. In uncircumcised males, the foreskin (prepuce) extends from the corona to cover the glans penis. The penis also serves as part of the urinary tract in the male.

The testes are oval bodies that have two primary functions: producing sperm and testosterone (the primary male sex hormone). The epididymis is a coiled tube that collects sperm from the testis and provides the space and environment for sperm to mature. One epididymis lies against each testis.

The vas deferens is a firm duct that transports sperm from the epididymis. One such duct travels from each epididymis to the back of the prostate and joins with the seminal vesicle. In the scrotum, other structures, such as blood vessels and nerves, also travel along with each vas deferens and together form an intertwined structure, the spermatic cord.

The prostate gland is a small organ about the size of a walnut, and it forms part of the male reproductive system. It is located in front of the rectum, and lies below the urinary bladder (storage of urine) in the lowest part of the abdomen. The prostate also surrounds the urethra, the tube through which urine is transported out of the body. The urethra also carries semen from the sex glands out through the penis. The seminal vesicles, located above the prostate, join with the vas deferens to form the ejaculatory ducts. The prostate and the seminal vesicles produce fluid that nourishes the sperm. This fluid provides most of the volume of semen, the secretion in which the sperm is expelled during ejaculation.





Erectile & Ejaculatory Disorders

Male Reproduction System: Anatomy and Function.

How does the male reproduction system work?

The commonly recognized order of male sexual response following sexual stimulation is erection, and ejaculation (emission and expulsion) accompanied by orgasm.

- Erection

During sexual activity, the penis becomes erect, enabling penetration during sexual intercourse. Erection results from a complex interaction of neurological, vascular, hormonal, and psychological actions. Pleasurable sensation causes the brain to send nerve signals through the spinal cord to the penis. The arteries supplying blood to the penis get dilated and notably increase blood flow to erectile areas. At the same time, muscles around the veins that normally drain blood from the penis tighten, slowing the outflow of blood and elevating blood pressure in the penis. This combination of increased inflow and decreased outflow is what causes the penis erection: blood engorgement and increase in length, diameter, and stiffness.

- Ejaculation

Ejaculation is the emission of semen to the exterior, resulting from the contraction of muscles surrounding the male internal urogenital ducts. Ejaculation is a reflex mediated by the spinal cord, which coordinates autonomic and motor outflow, integrating these with the excitatory and inhibitory effects from descending cerebral pathways.

The normal male ejaculatory response comprises two phases: emission and expulsion, which are under autonomic and somatic control, respectively. During emission, smooth muscles of the vas deferens, the seminal vesicles and the prostate, as well as their secretions, are involved. At the end, the mixture of spermatozoa from the epididymis and the vas deferens, together with the secretions of the seminal vesicles, represents about 50% of the ejaculate; and the prostate, which secretes nearly the other half of the semen, is made available in the prostatic (posterior) urethra. Orgasm is caused when friction on the glans penis and other stimuli send signals to the brain and spinal cord. Orgasm generally accompanies the expulsion phase, which occurs once an ejaculatory 'point of no return' has been reached. Nerves stimulate muscle contractions along the seminal vesicles, prostate, and the ducts of the epididymis and vas deferens. These contractions force semen into the urethra. Contraction of the muscles around the urethra further propels the semen through and out of the penis. The neck (base) of the bladder also constricts to keep semen from flowing backward into the bladder.

Once ejaculation takes place the arteries constrict and the veins relax, and causing the penis to become limp (detumescence). After detumescence, erection cannot be obtained for a period of time (refractory period), commonly about 20 minutes in young men.

Erectile & Ejaculatory Disorders

Etiology.

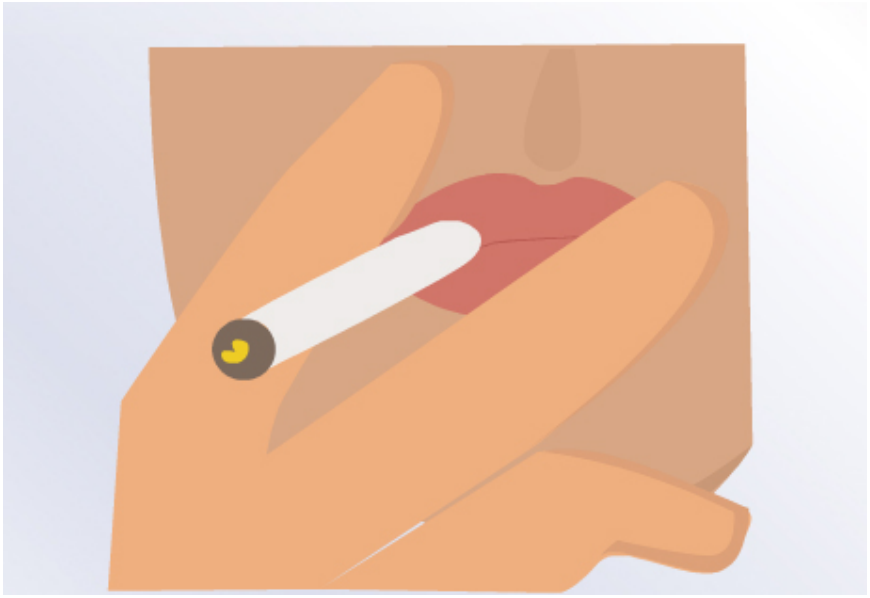
Causes of ED

While thoughts and emotions always play a role in getting an erection, erectile dysfunction is usually caused by something physical, such as a chronic health problem or the side effects of a medication. Sometimes a combination of things causes erectile dysfunction[3].

The primary causes of erectile dysfunction are health problems; many of which require treatment to help prevent complications more serious than ED itself. Damage to nerves, arteries, smooth muscles, and fibrous tissues, often as a result of disease, is the most common cause of erectile dysfunction. Diseases such as diabetes, kidney disease, chronic alcoholism, multiple sclerosis, atherosclerosis, vascular disease, and neurological disease account for about 70 % of ED cases. Lifestyle choices that contribute to heart disease and vascular problems also raise the risk of ED. Smoking, being overweight, and avoiding exercise are also possible causes of erectile dysfunction.

Main causes of erectile dysfunction may include the following:

- Hypertension and high levels of cholesterol can injury the arteries that supply blood to the penis
- Diabetes injure blood vessels and the nervous that control erections
- Unhealthy habits (smoking, overeating, lack of exercise)
- Therapies for prostate cancer, including radiation and prostate removal (TURP)
- Reduced levels of the male hormone (testosterone)
- Psychological factors such as stress, anxiety, guilt, depression, low self esteem, and fear of sexual failure cause 10 to 20 percent of ED cases.



Erectile & Ejaculatory Disorders

Continuación de Etiology.

Causes of Ejaculatory Disorders

There are several ways in which the ejaculatory process can become dysfunctional, leading to a partial or complete loss of ejaculation[4]. These may be of either psychogenic or organic origin, and several drugs are also implicated.

Types of Ejaculatory Disorders and their Possible Causes:

- Never any ejaculate: Congenital structural disorder or acquired (radical prostatectomy, post-infectious state, posttraumatic, spinal cord neuropathy)

- Retrograde ejaculation: Transurethral resection of the prostate (25%). Surgery on the neck of the bladder, or extensive pelvic surgery. Retroperitoneal lymph node dissection for testicular cancer (also may produce failure of emission). Neurologic disorders (e.g., multiple sclerosis) and some drugs.

- Retarded ejaculation: Rarely may be caused by an underlying painful disorder (e.g., prostatitis, seminal vesiculitis). May be psychogenic as part of erectile dysfunction. Sympathectomy (e.g., spinal cord injury). Some drugs may impair ejaculation (e.g., certain analgesics, antidepressants, NSAIDs, opiates, alcohol).

- Premature ejaculation: Sexual inexperience. High level of sexual arousal and/or long interval since last ejaculation. Anxiety, guilty feelings about sex, or interpersonal maladaptation (e.g., marital problems, unresponsiveness of partner). Lack of privacy.

Causes of other ejaculatory disorders

Retarded ejaculation - Certain antidepressants - Trauma - Psychological and sensory Neurological disorders	**Painful ejaculation** - Inflammation or obstruction - Prostatitis, epididymitis,urethritis - After a vasectomy
Ejaculatory anhedonia - Testicular failure	**Situational ejaculation** - Psychologial disorders
Retrograde ejaculation - Diabetic neuropathy - After abdominal, bladder neck and prostate operations - Certain medications	**Anejaculation** - Certain medications (e.g. anxiolytics) - Spinal cord injuries - Retroperiotoneal lymph node dissection

Erectile & Ejaculatory Disorders

Epidemiology: Population at risk

Who is at risk to experience erectile and ejaculatory disorders?

Some people appear to be more likely than the others to develop erectile dysfunction:

- Getting older: Many men begin to notice changes in sexual function as they get older. Erections may take longer to develop, may not be as rigid or may take more direct touch to the penis to occur. Older people are more likely to have underlying health conditions or take medication that may interfere with erection.
- Having a chronic health disease: Diseases of the lungs, liver, kidneys, heart, nerves, arteries or veins can lead to erectile dysfunction.
- Medication: some drugs (antihistamines, antidepressants, medication to treat arterial hypertension, pain and prostate cancer) may either uncouple nervous control or blood flow to the penis.
- Certain Surgeries: Injuries in the pelvic area or the spinal cord can damage the nerves that control erection. Surgery procedures such as those to treat bladder, rectal or prostate cancer can increase your risk of ED.
- Alcohol, smoking or drug abuse: Chronic use of alcohol and/or drugs often causes ED and decrease sexual drive. Smoking can cause erectile dysfunction because it restricts blood flow to veins and arteries
- Endocrine disorders: metabolic syndrome, which courses with insuline resistance, hypertension and belly fat, higher levels of unhealthy cholesterol and triglycerides. Men who are obese are much more likely to have erectile dysfunction than are men at a normal weight.
- Psychological conditions: stress, anxiety or depression may also contribute to ED.

There is a group of risk factors associated with ejaculatory disorders:

- Erectile dysfunction: there is an increased risk of, for example, premature ejaculation when showing trouble at time to maintain a firm erection.

- Prostatitis: Ejaculatory disorders will be experienced in most men who are treated for localized prostate cancer.

- Poor/Fair health: A medical concern that causes you to feel anxious during sex, such as a heart problem, may cause you to unknowingly rush to ejaculate.

- Commonly associated conditions: neurologic, psychologic and interpersonal disorders. Feeling of inferiority, anxiety, depression, and the shame of not satisfying the

partner are indeed psychological risk factor that take part of the emotional burden of some ejaculatory disorders.

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Erectile & Ejaculatory Disorders

Symptoms

The symptoms of impotence

Symptoms of erectile dysfunction are the inability to have an erection or inability to sustain an erection long enough to finish having sex.

An occasional difficulty may be considered as normal, but frequent episodes or prolonged problems lasting more than a couple of weeks may require further evaluation by a physician. Without a doubt, ongoing erection problems are a sign of erectile dysfunction and should be evaluated. In some cases, erectile dysfunction is the first sign of another underlying health condition that needs treatment.

Types and symptoms of ejaculatory disorders

Ejaculatory dysfunction is one of the most common male sexual disorders, yet it is still frequently misdiagnosed or overlooked as a result of numerous patient and physician barriers. The wide spectrum ranges from premature or rapid ejaculation, through delayed ejaculation, to a complete inability to ejaculate—otherwise known as anejaculation— and includes retrograde ejaculation and painful ejaculation[5].

Premature Ejaculation (PE)

Also known as rapid ejaculation, it is the condition whereby a patient ejaculates with minimal sexual stimulation and before he wishes it to occur. It can be life-long (primary) or secondary (acquired). This is believed to be the most common sexual dysfunction in males with almost 30% of men of all ages suffering from this condition. It could be inferred that PE and ED share a vicious cycle, in which a man trying to control his ejaculation instinctively reduces his level of excitation (which can lead to ED), and a man trying to achieve an erection attempts to increase his excitation (which can lead to PE).

Delayed Ejaculation and Anejaculation

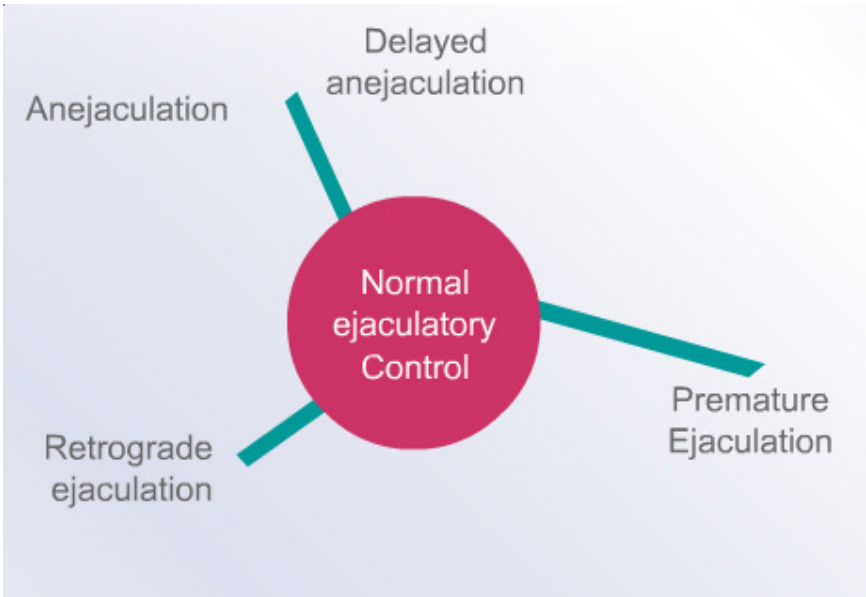
Also known as retarded orgasm, it is a very difficult sexual disorder to treat. This condition involves the inability of the patient to achieve orgasm (ejaculation) in a timely manner and in severe cases men fail to achieve orgasm on any occasion (anejaculation). Given that most sexually functional men ejaculate within about 3–8 min following intromission, men with latencies beyond 20–30 min and consequent distress or men who simply cease sexual activity due to exhaustion or irritation qualify for a diagnosis of delayed ejaculation.

Retrogade Ejaculation (RE)

It is the process whereby the semen is passed in a retrograde fashion into the bladder as opposed to out the urethra. Patients are orgasmic with anejaculation, as there is failure of the bladder neck to close during ejaculation. RE can be congenital or more commonly acquired after prostate or bladder surgery.

Painful Ejaculation

Painful ejaculation is when painful, burning sensations are felt during or following ejaculation. Pain can be felt in the perineum (the area between the anus and the genitals) and the urethra (a tube that runs from the bladder to the end of the penis). This is an uncommon problem that may have psychological or organic causes, e.g. acute or chronic prostatitis (inflammation of the prostate gland), and urethritis (inflammation of the urethra), an infection that may inflame the area around the penis, blockages in the ejaculatory duct, or nerve damage to the penis.The condition can cause discomfort in the testes and interfere with sexual pleasure.



Erectile & Ejaculatory Disorders

Tests & Diagnosis

In addition to a detailed interview about your sex life, your doctor will want to know about your health history and may perform a general physical exam[6].

Your doctor may refer you to an urologist who specializes in sexual dysfunction or to a mental health professional to help make the diagnosis.

What Tests Are Used to Evaluate Male Sexual Problems?

- Blood Test

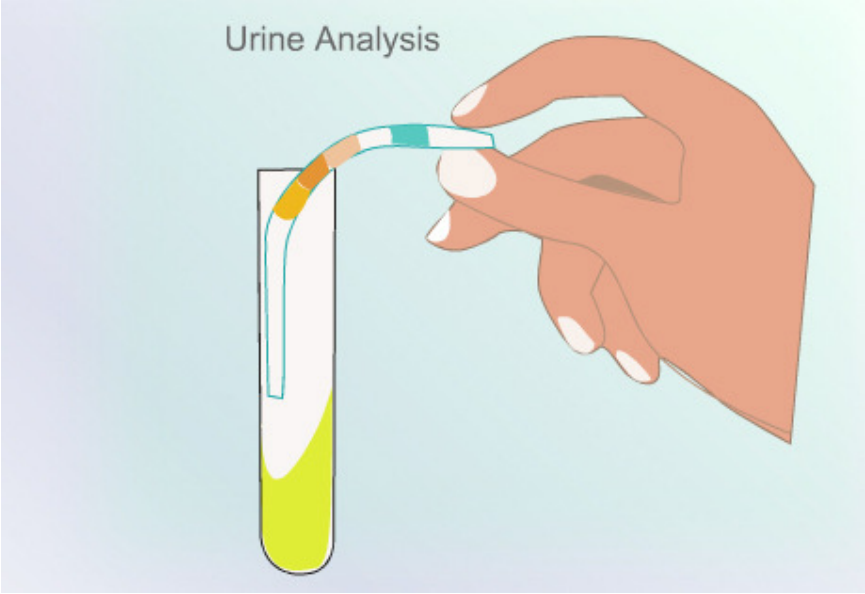
If you have both premature ejaculation and trouble getting or maintaining an erection, your doctor may order blood tests to check your male hormone (testosterone) levels or other tests. Lower levels of testosterone can diminish libido. Whole blood count may give your doctor an idea about a possible anemia or a more recent infectious state. Cholesterol levels are very important since they may contribute to reduce the blood flow to the penis. Liver and kidney diseases can create hormonal imbalances as well.

➢ Thyroid Function Test

Thyroid hormones regulate metabolism and the production of sex hormones; a deficiency may contribute to impotence.

➢ Urine Analysis

Urine is analyzed for protein (albumin), sugar (glucose), and hormone (testosterone) levels that may indicate diabetes mellitus, kidney dysfunction, and testosterone deficiency.



Erectile & Ejaculatory Disorders

Continuación de Tests & Diagnosis

➢ Erectile Function Tests

Advance testing of ED assesses erectile function and examines the blood vessels, nerves, muscles, and other tissues of the penis and pelvic region[5].

- Nocturnal penile tumescence (NPT). It is normal for a man to have five to six erections during sleep. These erections occur about every 90 minutes and last for about 30 to 60 minutes. Though decreases with age, their absence may indicate a problem with nerve function or blood supply in the penis. It can be evaluated by measuring changes in penile rigidity and circumference during nocturnal erection.
- Duplex ultrasound. It is used to evaluate blood flow, venous leak, signs of artherosclerosis, and scarring or calcification of erectile tissue. Erection is externally induced by injecting prostaglandin, a hormone-like stimulator produced in the body. Ultrasound is then used to see vascular dilation and measure penile blood pressure (which may also be measured with a special cuff). Measurements are compared to those taken when the penis is flaccid.

- Penile nerve function. Tests such as the bulbocavernosus reflex test are used to determine if there is sufficient nerve sensation in the penis. The physician squeezes the gland of the penis, which immediately causes the anus to contract if nerve function is normal. The latency between squeeze and contraction is measured.

- Penile biothesiometry. This test uses electromagnetic vibration to evaluate sensitivity and nerve function in the glands and shaft of the penis. A decreased perception of vibration may indicate nerve damage in the pelvic area, which can lead to impotence.

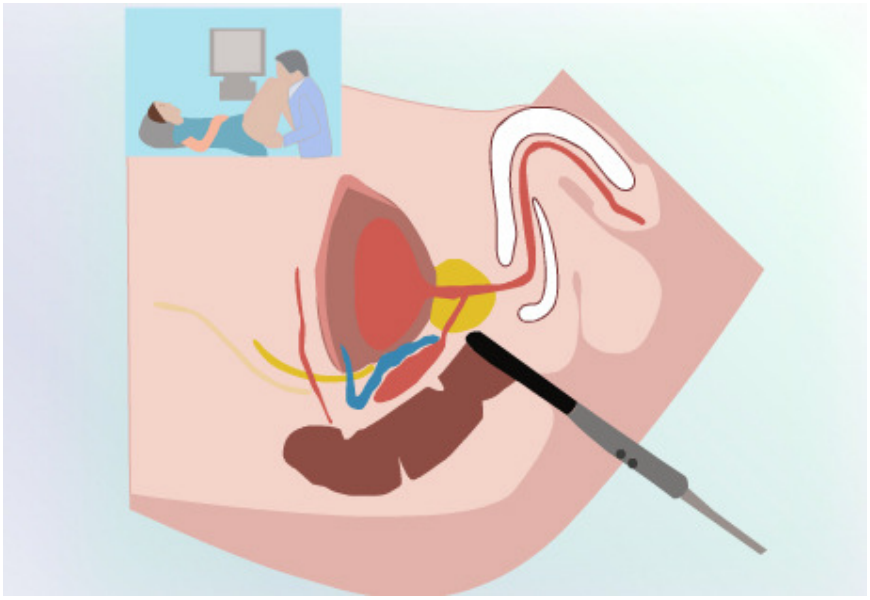
➢ Diagnostic aspects of ejaculatory disorders

- The major objective when diagnosing **premature ejaculation** is to quantify the length of time between penetration and ejaculation[6]. Your doctor will ask you to complete a special questionnaire to gather all related information.

- A medical examination and patient history are crucial for the diagnostic evaluation of **delayed ejaculation or anejaculation**, as these might uncover physical anomalies, pathophysiologies and/or induced conditions (e.g. treatment with antihypertensive, antipsychotic or antidepressant drugs, surgical procedures such as retroperitoneal

lymphadenectomy or aortoiliac or colorectal surgery) associated with delayed or absent ejaculation.

- Often, a diagnosis of **retrograde ejaculation** can be made by taking an accurate history of previous surgical procedures and drug consumption. The diagnosis of RE is confirmed by the presence of spermatozoa and fructose in a urine sample after orgasm, and supplemented by transrectal ultrasonography (TRUS) confirmation of an open bladder neck at rest.



Erectile & Ejaculatory Disorders

Treatment of Erectile Dysfunction

Lifestyle changes to improve ED

One way to improve ED is to make some simple lifestyle changes, such as quitting smoking, doing some regular exercise, and reducing stress. These might be in some cases all needed to find relief. However, there are men who require a more intensive treatment[7].

Treatments & Drugs for ED

➢ Oral Medication

Selective phosphodiesterase inhibitors (sildenafil, vardenafil HCl, tadalafil and yohimbine) improve partial erection by inhibiting the enzyme that facilitates their reduction, increases levels of cyclic guanosine monophosphate (cGMP, a chemical factor in metabolism), and enhances the effect of nitric oxide, a compound that relaxes the smooth muscle of the penis, enabling the blood to flow into the corpora venosa.

If you are taking nitrate drugs (indicated in chest pain), or blood-thinning (anticoagulant) medication, or α-blockers (high blood pressure, benign prostate hypertrophy), you should not take selective enzyme inhibitors to palliate your impotency. In case of any previous vascular accident, please ask your doctor first, to find the right treatment and dose.

➢ Prostaglandin E (Alprostadil)

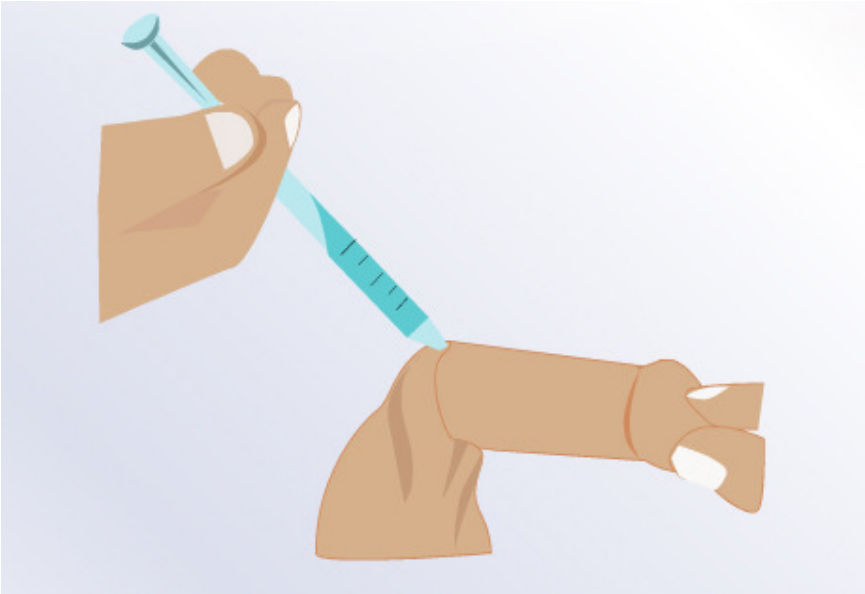
Alprostadil is a synthetic version of the hormone prostaglandin E, which helps relax muscle tissue in the penis, and therefore activates the blood-flow needed for an erection. There are two ways to pose the medication: 1) through a fine-needle injection of alprostadil into the base or side of the penis; and 2) using self-administered intraurethral therapy through a disposable applicator to introduce a tiny alprostadil suppository into the tip of the penis.

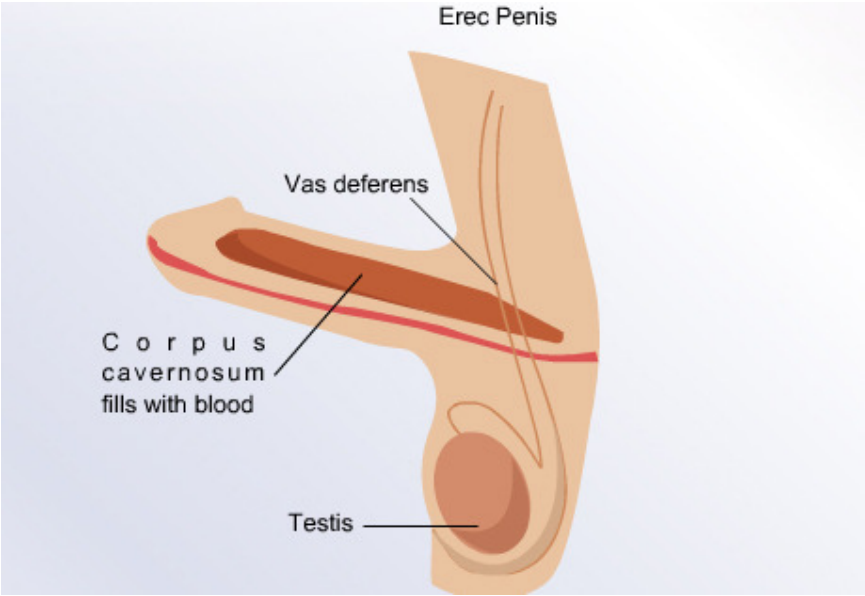
➢ Hormone therapy

Hormone replacement therapy with testosterone could be an option for a minor proportion of patients.

➢ Penis pumps

Specially designed vacuum devices to produce erections have been used successfully for many years. A hollow tube is placed over the penis so that air is pumped out, causing partial vacuum, which draws blood into the penis and creates an erection. A tension ring acts like a tourniquet to keep the blood in the penis to maintain the erection during the sexual intercourse.





Erectile & Ejaculatory Disorders

Continuación deTreatment

➢ Penile implants

In the past, the placement of a prosthetic device (also called a penile implant) within the penis was the only effective therapy for a man with an organic (having to do with a bodily organ or organ system) cause of erectile dysfunction.

Now, a penile implant is the last option considered. Nonsurgical treatment options are always tried before resorting to surgical options. Nevertheless, a penile implant remains a reliable form of therapy in highly motivated men when other treatments are unsuccessful.

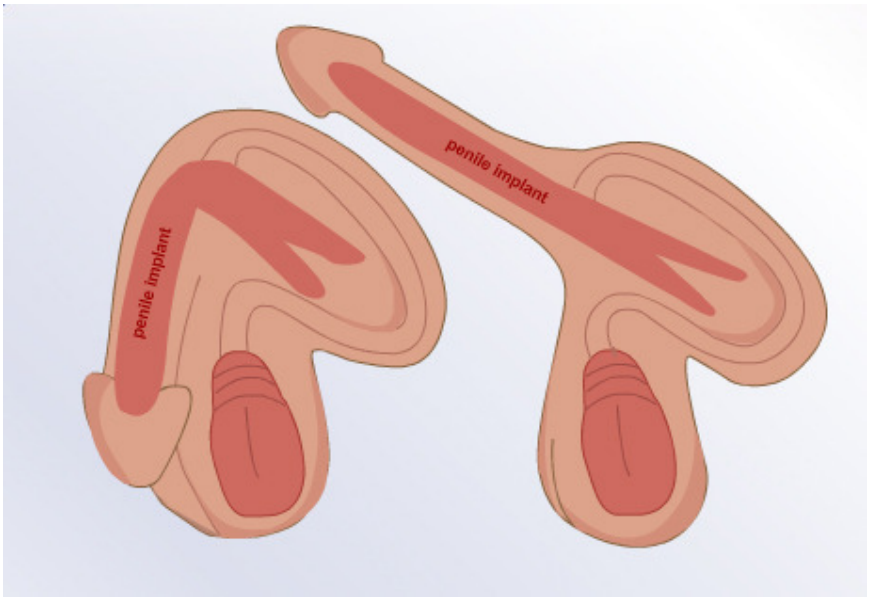
Your doctor will discuss the benefits and risks of a penile implant with you and your sexual partner.

- Nearly 100% of men with penile implants express satisfaction.
- Part of this enthusiasm is related to the failure of other therapies and highly motivated users.

Two types of penile implants are available: a semirigid or malleable rod implant and an inflatable implant. Either of these treatments involves surgically placing a device into the two sides of the penis, allowing erection to occur as often and for as long as desired. The inflatable device allows you to control when and how long you have an erection, the semirigid rods keep the penis in a rigid state all the time.

➢ Psychological Counseling and Sex Therapy

If stress, or anxiety, or depression is the cause of the ED, your specialist will ask you to visit a psychologist or a counsellor with experience in treating sexual problems (sex therapist). To go with your partner is going to be extremely advantageous for you to succeed.



Erectile & Ejaculatory Disorders

Treatment of Ejaculatory Disorders

Ejaculation disorders can be treated with a wide range of drugs and physical stimulation trials with a high percentage of efficacy. Treatment options include sexual therapy, medications and psychotherapy. For many men, and for each type of disease, a combination of these treatments works best[8].

➢ Psychotherapy

When the ejaculatory disorder is psychogenic, the most important thing is that they should undergo a preliminary psychological evaluation to avoid any severe subsequent psychological reaction.

This approach involves talking with a mental health provider about your relationships and experiences, to help you reduce performance anxiety or find effective ways of coping with stress and solving problems.

Men suffering from delayed or inhibited ejaculation, when organic or pharmacologic causes are excluded, can benefit from a psychological approach. Preliminary psychosexual counselling is required before the psychotherapist can choose a therapy and it should be oriented to a better sex education.

➢ Medication Drugs

Certain antidepressants and topical anesthetic creams are used to treat premature ejaculation. A side effect of certain antidepressants is delayed orgasm. Doctors suggest that men who

have premature ejaculation can take antidepressants to benefit from this specific side effect. Treatment with serotonergic antidepressants has been shown to be very effective.

Drug treatment for anejaculation due to lymphadenectomy and neuropathy is not very effective.

➢ Sperm Retrieval Techniques

In order to achieve fertility for a patient who experiences anejaculation or retrograde ejaculation, sperm retrieval is possible via vibrostimulation. Vibrostimulation requires an intact lumbosacral spinal cord segment. If this method is not successful, electroejaculation, in which the periprostatic nerves are stimulated by a probe inserted into the rectum (generally under anesthesia), might be of benefit. If ejaculation does not occur using the aforementioned techniques, surgical sperm retrieval is the treatment of choice.\

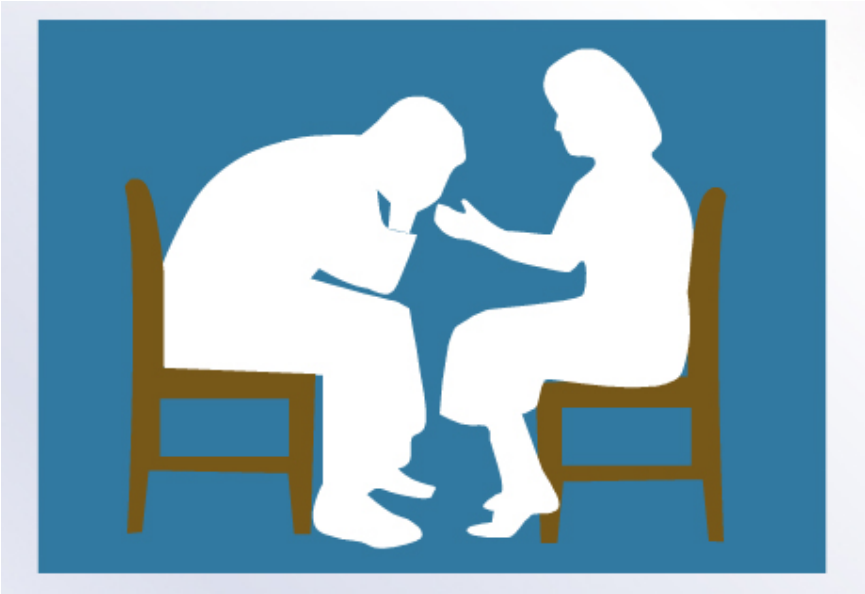
Erectile & Ejaculatory Disorders

Prevention

Can male sexual disorders be prevented?

Although most men can experience episodes of a sexual problem from time to time, dealing with the underlying causes of the dysfunction can help you better understand and cope with the problem when it happens. There are several things you can do to help maintain good sexual conditions[9]:

- Follow your doctor's plan for any medical or health conditions (heart disease, diabetes, etc.)
- Avoid an excessive alcohol intake
- Quit smoking
- Exercise regularly
- Deal with mood conditions: stress, anxiety, depression
- Open up communication with your partner



Erectile & Ejaculatory Disorders

Conclusions

Many men experience a problem with sexual function from time to time. However, when the problems are persistent, they can cause distress for the man and his partner, and have a negative impact on their relationship. If you consistently experience sexual function problems, see your doctor for evaluation and treatment.

The success of treatment for sexual dysfunction depends on the underlying cause of the problem. The outlook is good for dysfunction that is related to a treatable or reversible physical condition. Mild dysfunction that is related to stress, fear, or anxiety often can be successfully treated with counselling, education, and improved communication between partners.

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