MALE SEXUAL DYSFUNCTION

A guide for men and their partners

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Foreword

The world of male sexual dysfunction changed forever at the 1983 American Urological Association meeting in Las Vegas, when a British physiologist named Giles Brindley stepped from behind the podium and lowered his pants, revealing to his colleagues his phentolamine-induced erection. Said one pundit of this watershed event, "Farther down the Strip, Seigfried and Roy were making a white Bengal tiger disappear, and two circus aerialists–one sitting on the other's shoulders–were traversing a tightrope without a net. But even in Vegas they'd never seen a show like this." Thus was crystallized the enduring principle that penile erection is caused by smooth muscle relaxation in the corpora cavernosa. Few breakthroughs in medical history have been heralded with the dramatic impact of Brindley's moment in Nevada.

"It is like a firstborn son—you spend your life working for him, sacrificing everything for him, and at the moment of truth he does just as he pleases."

— Gabriel Garcia Marquez
Love In The Time of Cholera

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INTRODUCTION

Sexuality is a very important part of our human existence, both for purposes of procreation as well as pleasure. Healthy sexual function for a man involves a satisfactory libido (sex drive), the ability to obtain and maintain a rigid erection, as well as the ability to ejaculate and experience a climax. Although not a necessity for a healthy life, the loss or diminution of sexual function can result in loss of self-esteem, embarrassment, a sense of isolation and frustration, and even depression. Therefore, for many of us, it is vital that we maintain our *sexual health*.

Male sexual dysfunction is a term applied to disorders of male sexual function, ranging from lack of interest in sex, to inability to obtain or maintain an erection, to disorders of ejaculation.

Erectile Dysfunction (E.D.) is the persistent inability to achieve or maintain an erection sufficient for satisfactory sexual intercourse. It must be stressed that erectile dysfunction is the *persistent* inability to maintain or achieve an erection as a result of physical and/or psychological causes. Any man at one time or another may experience a *transient* or *situational* erection problem. This lasts for a brief period of time, after which normal function resumes. Situational erection problems may occur because of performance anxiety, stress, a change in occupation, a new baby, etc. Situational erection problems can often be worsened by mentally focusing on the difficulty, further decreasing the likelihood of a rigid erection and often creating a self-fulfilling prophecy of failure.

Erectile dysfunction must be differentiated from other problems of male sexual function, including the following:

Premature ejaculation: Ejaculation occurring shortly after vaginal penetration.

Retrograde ejaculation: “Dry” ejaculation caused by semen released into the bladder (common after prostate surgery and associated with certain medications).

Delayed ejaculation: Ejaculation occurring after a prolonged time period following vaginal penetration. Unfortunately, there are no simple solutions to this problem.

Loss of libido: The loss of sexual desire and interest. This may be associated with low levels of testosterone, although it may also be related to stress, fatigue, or a response to erectile dysfunction or ejaculation issues.

Anorgasmia: The inability to achieve an orgasm.

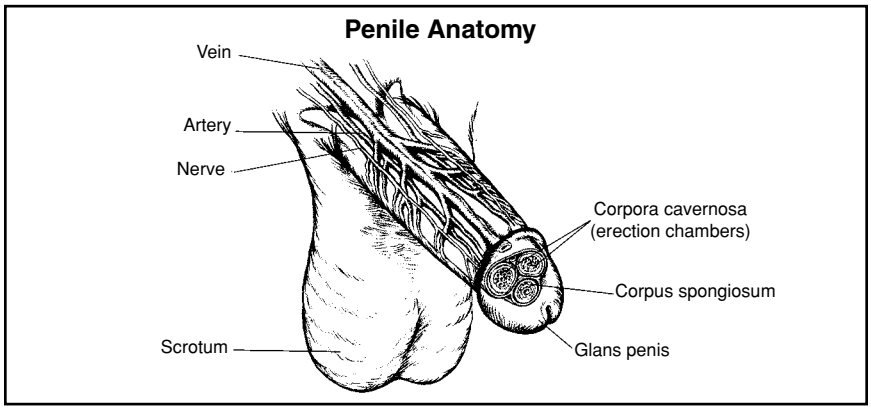
Erectile dysfunction is a common problem, occurring in millions of American men. About one third of the male population over age 60 is unable to achieve an erection suitable for intercourse. However, erectile dysfunction is NOT an inevitable consequence of the aging process as there are many elderly men who have intact sexual function.

E.D. can be a warning sign that an underlying medical problem exists. Good quality, rigid erections are often a sign of overall health, and conversely, the presence of E.D. can be a clue to poor health. For this reason, E.D. should be investigated with at least a basic medical evaluation.

Sexual dysfunction may be a sign of cardiovascular disease. In other words, the quality of erections can serve as a barometer of cardiovascular health. Essentially, sexual dysfunction may be considered the equivalent of a *genital stress* test and possibly be indicative of a cardiovascular problem that warrants an evaluation for arterial disease elsewhere in the body (heart, brain, aorta, peripheral blood vessels). The presence of sexual dysfunction may be considered as much of a predictor of cardiovascular disease as is a *strong family history of cardiac problems*, *tobacco smoking*, or *elevated cholesterol*. The British cardiologist Graham Jackson has expanded the initials E.D. (Erectile Dysfunction) to mean: *Endothelial Dysfunction* (endothelial cells being the type of cells that line the insides of arteries); *Early Detection* (of cardiovascular disease); and *Early Death* (if missed!). The bottom line: heart healthy is sexual healthy (and vice versa)!

In the past decade, a great deal of medical progress has been made in the diagnosis and treatment of erectile dysfunction. There have been great strides forward in understanding the anatomy and function of erections and ejaculation and virtually all patients with this problem can be helped regardless of the underlying cause.

ANATOMY AND FUNCTION OF THE PENIS



A few words on the embryology of our sex organs (the science of our anatomical development before we are born): You probably never realized that the male and female genitals are remarkably similar. In the first few weeks of existence as an embryo, the external genitals are the same—*consisting of a genital tubercle* (a midline swelling), *urogenital folds* (two vertically-oriented folds of tissue below the genital tubercle), and *labio-scrotal folds* (two vertically-oriented folds outside the urogenital folds). In the *presence* of testosterone (the male sex hormone), the genital tubercle becomes the penile shaft and head; the urogenital folds fuse and become the urethra and part of the penile shaft; and the labio-scrotal folds fuse and become the scrotum. In the female embryo, the *absence* of testosterone causes the genital tubercle to become the clitoris, the urogenital folds to become the inner lips (labia minora), and the labio-scrotal folds to become the outer lips (labia majora). Essentially then, the penis and the clitoris are the same structure, as are the scrotum and outer labia!

On a functional level, sexuality is a very complex event dependent upon a number of body systems, including the *endocrine system* (which produces sex hormones); the *central* and *peripheral nervous systems* (which provide nerve control); and the *vascular system* (which conducts blood flow). While all of these systems must function in a normal, coordinated fashion, a healthy sexual response is, at its physical essence, largely about *adequate blood flow* to the genital and pelvic area. Increased blood flow to the genitals from sexual stimulation is what is responsible for the erect penis. In a male,

blood flow to the penis is analogous to air pressure in a tire: if there is *not* enough air, thereby causing the tire to be improperly inflated, the tire works less optimally and may even suffer a flat!

The penis has a dual role as a *urinary* organ allowing directed urination that permits men to stand to urinate, and a *sexual* and *reproductive* organ that, when erect, allows the rigid penis the ability to penetrate the vagina and function as a conduit for release of semen into the vagina. No other organ in the body demonstrates such great versatility in terms of the physical changes between its "inactive" versus "active" states!

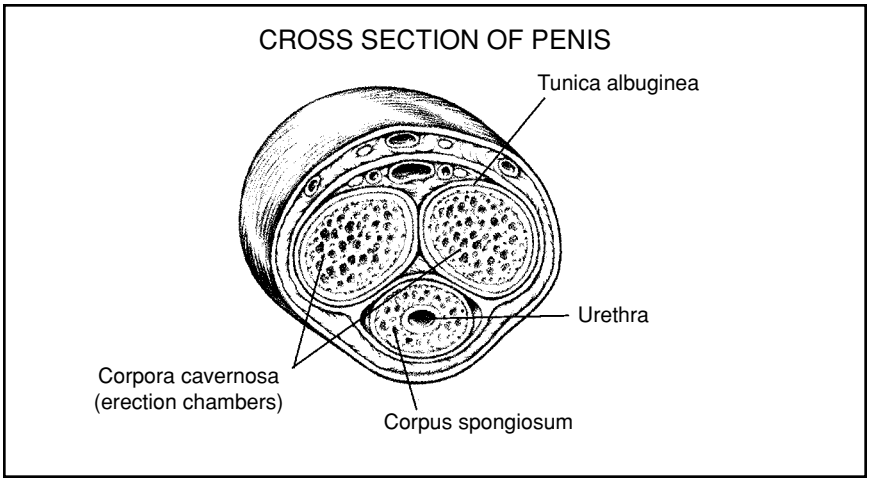
The penis consists of three cylinders: the solitary **corpus spongiosa** contains the urethra (the channel that conducts urine from the bladder); the other paired cylinders are called the **corpora cavernosa** (erectile bodies), that are anchored internally to the pubic bone and extend into the **glans** (head of the penis). These corpora cavernosa communicate with each other and are enclosed in a sheath called the **tunica albuginea**. The corpora contain **sinusoids** (spongy tissue) that are endowed with a very rich blood supply. The sinusoids receive blood flow via the **cavernosal arteries** which are branches of the **pudendal arteries**. When the corpora become engorged with blood, an erection results. The seemingly simple process of achieving an erection is actually a highly complex event requiring integrated functioning of the brain, nerves, blood vessels, and hormones.

When the penis is flaccid, there is only minimal arterial inflow, sufficient to maintain the basic nutritional demands of the penis. During this unerect state, the sinusoids are closed while the venules remain open. However, when the **cavernosal nerve** is stimulated by sexual activity, the smooth muscle of both the cavernosal arteries and the corporal bodies relaxes, allowing blood to fill the corpora. Furthermore, the swelling of the corpora obstructs the venous outflow to maintain the erection. The **pudendal nerve** enervates the **ischiocavernosus** and **bulbocavernosus** *muscles* that enhance penile rigidity, engorgement of the glans, and allow ejaculation and orgasm when these muscles contract rhythmically. So, for an erection to occur, 3 events need to happen—an increase in arterial flow to the corporal bodies, relaxation of smooth muscle, and a decrease in venous outflow.

What is actually happening on a chemical basis when one is involved in a sexually stimulating situation? The control center for erections

is the brain, where sensations of sexual arousal are experienced. The brain sends signals to the cavernosal nerves, which are also stimulated by direct sensory contact, such as foreplay or the act of sexual intercourse itself. During such sexual stimulation, the cavernosal nerves release a neurotransmitter, **nitric oxide**, which causes an increase of a chemical messenger known as **cGMP (cyclic guanosine monophosphate)** within the smooth muscle of the corporal bodies. This causes relaxation of the smooth muscle and enlarges the sinusoids, providing the space for the increased blood flow, causing **penile tumescence** or **turgidity** (lengthening and widening of the penis). This engorgement with blood causes compression of the veins directly under the tunica albuginea, trapping the blood within the penis. After ejaculation, an enzyme called **PDE (phosphodiesterase)** is released—this degrades cGMP resulting in a return to the flaccid state by a reversal of the aforementioned mechanisms. Viagra, Cialis, and Levitra work by inhibiting PDE.

THE MALE SEXUAL RESPONSE



There are four phases of the male sexual response including **excitement**, **plateau**, **orgasm**, and **resolution**. In the **excitement** phase, penile erection occurs as a result of an arousing sexual situation. Accompanying erection is thickening of the scrotal skin and elevation of the testicles. In the **plateau** phase, there is increasing engorgement of the corpora and the glans, increasing size and elevation of the testicles, and a pre-ejaculatory secretion that may occur at the tip of the penis as a result of discharge from the

bulbo-urethral gland. **Orgasm** actually consists of three phases: *emission,* in which seminal fluid and sperm from the **epididymis**, **vas deferens**, **seminal vesicles**, and **prostate** is deposited into the urethra; *ejaculation*, which is the forcible expulsion of semen from the urethral opening, resulting from contractions of the peri-urethral and pelvic floor muscles combined with relaxation of the external sphincter and urogenital diaphragm; and *orgasm*, which is defined as the intense emotional excitement and climax that accompanies ejaculation, with considerable subjective variation. Finally, in the **resolution** phase, there is loss of erection, the testicles decrease in size and drop down to the bottom position of the scrotum, and the scrotal skin regains its laxity.

CAUSES OF ERECTILE DYSFUNCTION

Aging is one of the major risk factors for erectile dysfunction. Men in their 40's have approximately a 40% chance of having some form of ED and this prevalence increases by about 10% in each succeeding decade. Generally speaking, diminished blood flow, most commonly on the basis of an accumulation of fatty plaque deposits within the walls of blood vessels, is often associated with the aging process. As we age, physiological and lifestyle factors combine to increase this plaque build-up, causing a significant narrowing of many of the body's blood vessels. The resultant diminution in blood flow to our organs negatively affects the functioning of all of our systems, since every cell in our body is dependent upon the vascular system for delivery of vital oxygen and nutrients and removal of metabolic waste products. Pelvic atherosclerosis, the accumulation of fatty deposits within the walls of the blood vessels that bring blood to the penis, will diminish blood flow and incite sexual dysfunction. Ironically, too, any loss of sexual function can lead to further progression of the problem: unfortunately, deficiency in genital blood flow, which may initiate sexual dysfunction, produces a state of poor oxygen levels (hypoxia) in the genital tissues. This, in turn, induces tissue scarring (fibrosis), which further compounds sexual dysfunction. So, interestingly enough, "use it or lose it" becomes a very relevant statement when it comes to sex and our continued activity!

CAUSES OF ERECTILE DYSFUNCTION

Psychological
- Stress
- Depression
- Performance anxiety
- Marital difficulties
- Financial difficulties

Organic
- Vascular
  1. Arterial
     a. Atherosclerosis
     b. Diabetes
     c. External radiation therapy to the pelvis
     d. Cigarettes
     e. Hyperlipidemia
  2. Venous leak

- Neurological
  1. Diabetes
  2. Alcohol abuse
  3. Multiple sclerosis
  4. Parkinson's disease
  5. Spina bifida
  6. Brain/spinal cord trauma
  7. Pelvic fracture or crush injuries
  8. External beam radiation therapy
- (Neurological cont'd)
  9. Radical pelvic surgery
     a. Radical cystectomy
     b. Radical prostatectomy
     c. Abdominal-perineal resection
     d. Vascular bypass

- Endocrine
  1. Low testosterone
     a. Castration
     b. Pituitary causes
     c. Testicular failure

- Medication induced

- Chronic medical disorders
  1. Kidney disease
  2. Liver disease
  3. Heart disease
  4. Emphysema

- Penile Issues
  1. Peyronie's disease
  2. Priapism
  3. Penile trauma

E.D. may be divided into **organic** (physical) causes and **psychological** causes. Clues to organic causes are the presence of a disease process or the use of a medication that is known to give rise to E.D., gradually deteriorating erections, or the loss of early morning and nocturnal erections. Clues to psychogenic causes are the presence of a psychological process (such as depression, stress, anxiety, breakup of a relationship, death of a loved one, etc.), sudden onset of erectile difficulty, intact early morning and nocturnal erections, and the ability to obtain an erection with masturbation although not with intercourse.

A simple system for classifying E.D. is on the basis of *failure to initiate*, *failure to fill*, or *failure to store*. "Failure to initiate" is on the basis of psychological, hormonal, or neurological causes. "Failure to fill" results from the inability to deliver blood to the erectile cylinders and is often caused by vascular or traumatic causes. "Failure to store" results from an inability to stop venous outflow and may be caused by disease of the erectile cylinders, in which the smooth muscle of

the cylinders is impaired or scarred as can happen in atherosclerosis, trauma, or priapism.

Vascular Causes

An erection requires a substantial increase in penile blood flow. If the **cavernosal arteries** (the arteries to the corpora cavernosa) are unable to increase the blood flow to the penis, vascular E.D. will occur.

If a person has generalized **atherosclerosis** (fatty deposits narrowing the caliber of their arteries) as evidenced by angina, heart attacks, strokes, and/or **claudication** (leg and buttock pain that occurs with exercise and is indicative of poor blood flow), there is a great likelihood of penile arterial involvement as well. Diabetes, for example, is well known to give rise to atherosclerosis. Radiation therapy to the pelvis can cause scarring and damage to the penile circulation, thus resulting in vascular E.D. Because cigarettes contain nicotine (which functions to constrict blood vessels), E.D. commonly occurs on the basis of chronic cigarette use.

In many men, the arterial supply to the penis is intact, but because of **venous leakage** (a condition in which the otherwise rigid corpora cavernosa soften prematurely due to loss of blood through the veins), an erection cannot be sustained for long. The blood flow simply drains away from the corpora, resulting in flaccidity of the penis and the inability to maintain an erection. This is the underlying cause in about 70% of patients who suffer from ED. It is due to the loss of corporal smooth muscle such that sufficient relaxation to achieve obstruction of venous outflow cannot occur. The blood in the sinusoids leaks back into the venous system draining the penis. It is similar to essential hypertension, which is due to the loss of smooth muscle within the arterial walls that leads to stiff vessels in which relaxation is impaired.

Neurologic Causes

Normal erectile function requires an intact brain, spinal cord, and peripheral nerve supply to the corpora cavernosa. Any interruption of the nervous system may result in E.D. since it is the nerve impulse to the cavernosal arteries that is the trigger for increased penile blood flow.

Diabetes, besides causing damage to penile circulation, causes a penile **neuropathy** (nerve damage) that commonly results in E.D.

Alcohol abuse similarly may give rise to a neuropathy accounting for E.D. In fact, any neurological disease process (including multiple sclerosis, Parkinson's disease, spina bifida, etc.) may result in E.D. Injury or trauma to the brain, spinal cord, or pelvis may cause E.D. on a neurogenic basis. A pelvic fracture may injure the nerve supply to the corpora cavernosa. Radiation therapy, besides causing damage to penile circulation, can damage the cavernosal nerve supply. Radical pelvic surgery (most commonly for bladder, prostate, or rectal cancers) may require removal of the cavernosal nerve supply, resulting in E.D.

Endocrine Causes

Testosterone is a **hormone** (chemical messenger) made by the testes that is responsible for libido (sexual drive) and for male secondary sexual characteristics (including facial and body hair, deep voice, and male pattern baldness). Abnormally low levels of testosterone can cause loss of libido and E.D. Low levels of testosterone may occur as a result of surgical **castration** (removal of the testes) or by certain medicines used to achieve this end such as treatment for cancer of the prostate. An abnormality in the **pituitary gland** (master gland located in the brain) or in the testes itself can result in low levels of testosterone.

Medication-Induced Causes

Many prescribed medications may have adverse effects on erections. The following classes of medication are most commonly implicated:

- Blood pressure medication, especially thiazide diuretics and beta-blockers
- Anti-depressants/ Major tranquilizers
- Peptic ulcer drugs
- Some cold and allergy medications
- Anti-arrythmic medication, especially digoxin, amiodarone and disopyramide
- Recreational drugs, including alcohol, cocaine, heroin, marijuana, and nicotine
- Hormonal agents including Lupron, Casodex, Proscar, Avodart

Chronic Medical Disorders

Systemic illness, such as heart, lung, kidney or liver disease, may result in E.D. The heart functions to pump blood and the lungs function to oxygenate the blood. Because augmented flow of well oxygenated blood is a prerequisite for an erection, heart or lung dysfunction may engender E.D. Both the kidneys and the liver function to remove waste products from the circulation. E.D. may occur because of chemical changes and imbalances caused by kidney or liver dysfunction.

Penile Issues

Peyronie's Disease is an inflammation and scarring that occurs in the sheath surrounding the erectile bodies of the penis. This is a disease of middle-aged men resulting in an acquired *plaque-induced* penile deformity. Scar formation on the *tunica* of the corpora cavernosa (outer sheath of the erectile body) can cause pain with erections, penile curvature during erections, the presence of a scar or plaque in the penis that can be felt as a hard lump on examination and result in a visual indentation often described as an *hour-glass* deformity, and failure of the corpora to properly fill with blood. Penile pain, curvature, and poor filling beyond the plaque all contribute to difficulty in having satisfactory intercourse. The angulation can vary from a very minor extent to a significant deformity that requires "acrobatics" to achieve vaginal penetration. The angulation results from the scarring of the tunica of the corpora, which upon engorgement with blood, expand asymmetrically. This situation is similar to placing a piece of cellophane tape on a balloon and then inflating it—where the tape (scar) is, the balloon cannot expand properly, resulting in an angulation at the point of the tape placement.

The prevalence of Peyronie's is 3.2% with a mean age of 57 years old. The underlying cause of Peyronie's is suspected to be penile trauma, perhaps associated with vigorous sexual intercourse. The *acute* phase is characterized by painful erections and an *evolving* scar, curvature and deformity. The later *chronic* phase is characterized by lack of pain, *stable* deformity, and possible erectile dysfunction. Peyronie's regresses spontaneously in 13% of men, progresses in 40% of untreated men, and remains stable in 47% of men.

Various treatment options include oral medications, topical agents, intra-lesional injections, shock wave therapy, and surgery. Upon initial diagnosis, most men are started on oral Vitamin E, 400 IU daily, as this has the potential to soften the scar tissue causing the plaque. Erectile dysfunction can be managed with an oral 5-PDE inhibitor including Viagra, Levitra, or Cialis. If there is no response to conservative management of erectile dysfunction, a penile implant may be appropriate—this can manage the dual problems of erectile dysfunction and penile angulation. If erections are adequate, but angulation precludes intercourse, options include tunical shortening procedures (Nesbit plication) or tunical lengthening procedures (plaque incision/excision and grafting). Nesbit plication is most appropriate in men with good erectile function, adequate penile length, and curvature less than 45 degrees. The tunical lengthening procedures are most appropriate in men with adequate erections, shorter penile length, curvature greater than 45 degrees, or an hour-glass deformity.

Priapism is a prolonged painful erection that occurs in the absence of sexual stimulation. It occurs with certain blood disorders including sickle cell disease, leukemias, and other blood cancers. As a result of blood clotting in the corpora cavernosa (thereby preventing fresh blood and oxygen supply), scarring may be the consequence, which in turn may lead to E.D.

Penile trauma may occur from a myriad of causes including pelvic crush injuries, sports trauma, or traumatic intercourse. Under rare circumstances, the corpora cavernosa of the penis can rupture (fracture) as a result of traumatic intercourse, with an acute audible popping sound, immediate pain, swelling, and loss of erection. If this situation is not addressed expeditiously with surgical repair, erectile dysfunction and penile deformity may result.

EVALUATION OF ERECTILE DYSFUNCTION

An accurate diagnosis of the cause of E.D. can virtually always be achieved. Not every patient will need an extensive workup—for many, a history, physical examination, and a few simple laboratory tests will suffice.

The starting point is a history. It may be helpful with speak to your spouse or sexual partner as well. The following important areas need to be investigated:

- Medical history
- Surgical history
- Psychological history
- Marital or relationship problems
- Genital trauma
- Current medications
- Cigarette or alcohol use
- Duration of the problem
- Onset of the problem: rapid or gradual
- Sex drive
- Quality of erections
- Premature loss of erections
- Pain with erections or penile angulation
- Premature ejaculation or delayed ejaculation
- Nocturnal/early morning erections
- Ability to achieve an erection with masturbation

A tailored physical examination is very important in the evaluation of E.D. and should include the following: examination of the testicles to evaluate their size and consistency, palpation of the penis for plaque, a rectal examination to check anal sphincter tone and the prostate, and examination of the peripheral pulses for intact blood flow.

It is important in the evaluation of E.D. to obtain certain laboratory studies. These will include a urinalysis to check the presence of protein in the urine that may indicate kidney disease, sugar in the urine that may indicate diabetes, and bacteria and white cells in the urine that may indicate a urinary infection. A chemistry screen is performed to check kidney function, liver function, and a lipid profile (cholesterol and triglycerides). A testosterone level is routinely checked and, if low, pituitary hormone levels are checked.

If indicated, more complex studies may need to be obtained to evaluate the cause of the E.D.:

- **Penile Prostaglandin Injections.** Prostaglandin is a **vasodilator** (allows blood vessels to enlarge) that, when injected into the corpora, will increase arterial blood flow and allow sinusoidal relaxation, thus causing an erection. No response to this injection is strongly suggestive of vascular E.D.; that is, if there is significant arterial blockage to the penis, no erection can occur. If an erection occurs but subsides rapidly, this may imply a venous leak.

- **Nocturnal Penile Tumescence Monitoring (NPT).** During a phase of sleep called REM (rapid eye movement), normally functioning men will have an erection. A good method of distinguishing between psychogenic and organic E.D. is to do NPT studies. In organic E.D., there will be no nocturnal erections but in psychological E.D., nocturnal erections will be registered on the monitor. There are many methods of NPT testing ranging in sophistication from a simple **snap gauge** (a gauge placed around the penis to measure the force of the erection) to a highly complex sleep laboratory study requiring a several-night stay to monitor the occurrence and rigidity of erections.
- **Ultrasound and Pulsed Doppler Study.** This test using sonography evaluates the penile blood vessels. The diameter, thickness, and pulsations of the cavernosal artery are measured before and after the administration of prostaglandin. An ultrasound of the corpora will show the presence of scarring, calcification, or plaque.
- **Cavernosography.** An X-ray study of the penis that is performed by the injection of dye into the corpora cavernosa documents their anatomy and can demonstrate the presence of venous leakage.
- **Cavernosometry.** A pressure test of the corpora in which saline infusion is used to document venous leakage.
- **Pudendal Angiogram.** Dye is injected into the pudendal artery (that supplies the cavernosal artery) before and after prostaglandin injection to demonstrate the anatomy of penile blood supply.

TREATMENT OF ERECTILE DYSFUNCTION

- **General good health measures.** A healthy lifestyle is of paramount importance towards the endpoint of achieving an optimal quality and quantity of life. Intelligent lifestyle choices, including proper eating habits, maintaining a healthy weight, engaging in exercise, adequate sleep, alcohol in moderation, avoiding tobacco and stress reduction are the initial approach to treating many of the diseases caused by poor health decisions. Sexual dysfunction is often in the category of a medical problem that is brought on by unwise lifestyle choices. It should come as no surprise that the initial approach to managing it is to improve lifestyle choices.

- **Psychological Counseling.** If erection dysfunction is deemed to be on a psychological basis, referral to a qualified psychiatrist, psychologist, or sexual counselor is warranted.
- **Hormone Replacement.** If the testosterone level is found to be low, a trial of replacement testosterone may be indicated. It is important that your urologist frequently check your prostate and liver chemistries as testosterone can stimulate prostatic growth and, on occasion, can cause an elevation of the liver enzymes.
- **Change/Elimination of Medications.** If erectile dysfunction has been caused by a new medication (often a blood pressure pill), it may be prudent to ask your internist if an alternative medication that has less adverse effects on erections can be tried. Stopping cigarette smoking will eliminate high levels of nicotine that can cause E.D. If erectile dysfunction is due to excessive alcohol consumption, moderation or elimination of alcohol intake can certainly be beneficial.
- **5-PDE Inhibitors**

  Viagra (Sildenefil). Viagra is an oral medication that has proven remarkably safe and effective in treating erectile dysfunction. It enables many men suffering from physical and/or psychological forms of this condition to achieve and maintain an erection. Viagra will not cause an erection on its own. It helps a man with E.D. get an erection only when he is sexually stimulated, by helping the penis fill with enough blood to expand and become rigid. After sex is over, the erection goes away.

  Viagra is available in three dosages: 25mg, 50mg, and 100mg. It does not need to be taken on a daily basis, only when anticipating sexual activity. Once swallowed, it will produce an erection in most men within 30-60 minutes if sexually stimulated and will remain potentially active for up to 8 hours, giving patients the opportunity for spontaneity and intimacy. In the absence of sexual stimulation, an erection will not occur. It is important to know that Viagra does not increase sexual desire and thus is not an aphrodisiac. **It should never be used by men who are taking medications that contain nitrates of any kind, at any time. This includes nitroglycerin, nitrostat, nitro patches, isordil, isorbide, imdur, etc. If you take Viagra with any nitrate preparations or recreational drugs containing nitrates (such as "poppers"), serious consequences may result: your blood pressure can drop**

precipitously to an unsafe level, causing dizziness, faintness, or even a heart attack or stroke.

The most common side effects of Viagra are headache (16%), facial flushing (10%), upset stomach (7%), and nasal stuffiness (4%). Less common side effects that may occur are temporary changes in color vision (such as trouble telling the difference between blue and green objects or seeing a blue color tinge to them), eyes being more sensitive to light, or blurred vision.

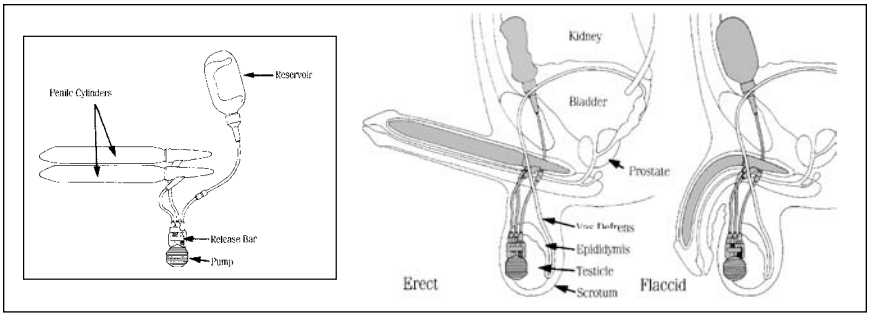
Levitra (Vardenefil). This is an oral medication similar to Viagra, available in 2.5mg, 5mg, 10mg, and 20mg doses. The effectiveness and side effect profile is similar to Viagra.

Cialis (Tadalafil). This is an oral medication similar to Viagra, available in 2.5mg, 5mg, 10mg, and 20mg doses. The effectiveness and side effect profile is similar to Viagra. It has a duration of action of approximately 36 hours, which has earned it the nickname of "the weekender" as it can be taken on Friday evening and remain effective for the duration of the weekend without the need for an additional dose. This affords a considerable advantage in terms of spontaneity.

- **Injectable Medication: Prostaglandin-E1.** An injection into the corpora bypasses the psychological, neurological, and hormonal influences and acts locally on the penile tissue. This will have an effect in patients with psychological, neurological, and hormonal causes of E.D. as well as men with a slight degree of vascular disease. Prostaglandin E1 results in increased blood flow to the corpora and hence an erection.

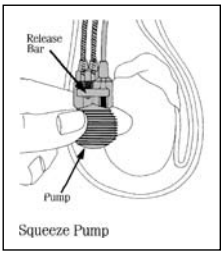
  Initially, your urologist will administer the medication using a very tiny needle injected directly into the penis. Very little discomfort is associated with this procedure. Some degree of penile tumescence (firmness) will occur before you leave the office or soon thereafter. After you leave, it is requested that your sexual partner be available to provide stimulation, or you may stimulate the penis by masturbation. You will then need to attempt intercourse to determine the effect of the drug. If you report effective sexual intercourse, you can then be taught to administer penile injections. Your partner may also be taught if you so desire. This procedure is very easy to learn and may be a simple and effective solution to erectile dysfunction. If you do not report successful intercourse, the dosage of the drug will need to be adjusted.

- **M.U.S.E. (*Medicated Urethral Suppository for Erection*)** A medicated (prostaglandin-containing) pellet is inserted into the urethra by means of an applicator. The success of this medication has been disappointing and many urologists rarely, if ever, prescribe it.
- **Actis Venous Constrictor Device.** For many patients with venous leak, the simplest therapy is a device placed around the base of the penis to reduce blood outflow. This easy to use, comfortable, and adjustable device is designed to slow blood flowing out of the penis, allowing the penis to stay fully erect.
- **Vacuum Suction Devices.** These are mechanical means of producing an erection. The penis is placed in a cylinder that draws blood into the corpora cavernosa by creating a vacuum within. The erection is maintained by a tension ring placed around the penile base.
- **Arterial Revascularization (surgical bypass of blocked artery).** In older men with atherosclerosis and narrowed or blocked arteries, this has not met with much success because of the generalized nature of the blockage (often throughout the body). It is best reserved for younger men with arterial insufficiency as a result of pelvic trauma.
- **Penile Prostheses (penile implants).** In many cases, the inflatable penile prosthesis provides the most dependable method of restoring sexual function. The inflatable penile prosthesis is a self-contained hydraulic system made of a supple yet durable biopolymer material. There are four parts: two penile cylinders, a pump, and a reservoir. Each part is interconnected by silicone tubing. Once the device is implanted, it is entirely within the body and is not visible. The penis appears relaxed and normal. The implant is surgically placed into the genitalia through a small incision. The penile implant is designed to closely mimic the characteristics of a normal erection. Instead of the heart pumping blood into the penis, the scrotal pump, when squeezed, transfers fluid from the reservoir into the penile cylinders. As the cylinders fill, an erection develops that can be maintained as long as desired. After the completion of sexual intercourse, by activating the release bar on the pump, the fluid in the cylinders will return to the reservoir where it is again stored. The penis will then return to its flaccid state.



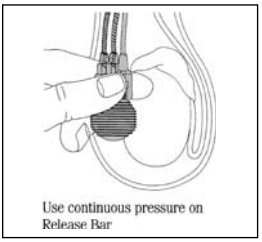
To obtain an erection: To transfer fluid to the cylinders, locate the pump in the scrotum. Squeeze the pump firmly a few times between the thumb and fingers until an erection is achieved.

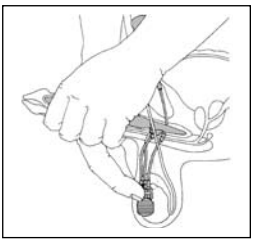
To return to a flaccid state: To return the fluid back to the reservoir, follow the top of the pump as it narrows until the protruding bars are felt.



Squeeze Pump

Position thumb and finger on the release bars above the pump. Place thumb on one bar and a finger on the opposite bar. Squeeze release bars with a firm and steady pressure. Continuous pressure is necessary.


Use continuous pressure on Release Bar



Note: to achieve a flaccid state more quickly, squeeze the penis gently with the other hand while squeezing the release bar.

PREMATURE EJACULATION

Premature ejaculation (P.E.) is defined as persistent or recurrent ejaculation with minimal sexual stimulation and climax occurring before, upon, or shortly after vaginal penetration, prior to a person's desire to do so, over which the sufferer has little voluntary control. P.E. typically causes the sufferer and partner extreme bother and distress.

This is a very common male sexual dysfunction, occurring in up to 30% of the male population, and affecting men of all ages, ethnicities, and socio-economic groups. P.E. can be devastating, causing embarrassment, frustration and loss of self-confidence for males, and negatively affecting their relationships with their partners. The basis of P.E. can be psychological and/or biological – with guilt, fear, and performance anxiety, but also genetics and certain medical disorders playing possible roles in its occurrence.

P.E. may be classified as either primary (lifelong) or secondary (acquired). Primary P.E. applies to men who have had the problem since becoming sexually active and is thought to have a strong biological component. Psychological or situational stressors may contribute to secondary P.E., but it is also associated with erectile dysfunction, prostatitis and urethritis.

Our society's cultural emphasis on ejaculation as the focal point of sexual intercourse tends to exacerbate the performance anxiety that can initiate the problem. The occurrence of P.E. has social and psychological consequences that tend to perpetuate the problem as fear of and mental preoccupation with P.E. can actually induce the unwanted ejaculation, creating an unfortunate vicious cycle. But males experiencing P.E. need to know that various types of help are available and that there is no need to suffer in silence. Treatments are varied, consisting of behavior modification techniques, physical and pharmacological interventions, and sexual counseling.

One method of attempting to prolong the time prior to ejaculation is to employ *mental diversionary tactics*—that is, filling your mind with thoughts other than ejaculating in order to prevent doing so. Baseball, work, counting backwards, etc., are examples of such thoughts. Unfortunately, these "de-erotization" techniques are rarely effective and diminish the pleasure of sexual activity and intimacy.

A more successful means of preventing P.E. is the *stop-start method* originated by Dr. Semans. This technique requires you to develop an enhanced awareness of the feelings and sensations surrounding the time leading up to ejaculation; by achieving such familiarity, you can learn to accurately predict when ejaculation will occur and how to gain control before the "point of no return." Recognizing imminent ejaculation and responding by *slowing the pace of pelvic thrusting* as well as varying the angle and depth of vaginal penetration may allow time for the feeling to dissipate. If slowing the tempo is not sufficient to prevent the occurrence of premature ejaculation, you may need to

stop thrusting completely while maintaining penetration in order for the urgency to go away. Once the sensation to ejaculate subsides, pelvic thrusting may be resumed.

Another option is the *squeeze technique* originated by Masters and Johnson. As ejaculation approaches, the penis is withdrawn from the vagina and the head of the penis is squeezed until the feeling of ejaculation passes, after which intercourse is resumed. The male or his partner may apply the squeeze.

Decreasing penile sensitivity can be helpful in the management of P.E. There are various means of accomplishing this, including the use of *extra thick condoms*, *topical creams that desensitize the penis*, and *increasing the frequency of ejaculation*, since P.E. tends to be more pronounced after prolonged periods of sexual abstinence. By masturbating prior to engaging in sexual intercourse, the ejaculatory latency period can be increased. Local anesthetics including Lidocaine (2.5%) or Lidocaine and Prilocaine (EMLA cream) applied 20-30 minutes prior to intercourse will diminish the sensitivity of the penis.

Medications are available that can substantially delay ejaculation. The familiar 5-PDE inhibitors (Viagra, Levitra and Cialis) that are commonly used for erectile dysfunction, may have a significant role in the treatment of P.E. in men with acquired P.E. secondary to erectile dysfunction.

Anti-depressants of the S.S.R.I. class (selective serotonin reuptake inhibitors) have been clearly demonstrated to delay ejaculation. These medications can have undesirable side effects such as decreased libido, sleepiness, insomnia, headache, nausea and dry mouth. You are generally started on a low dose for two weeks with an increase in dose if necessary for the next two weeks. Once an effective dosage is achieved, you can use the medication on a situational basis, 3-4 hours prior to sexual intercourse. The most commonly used medications are:

Anafranil (Clomipramine): 25-50mg
Paxil (Paroxetine): 20-40mg
Zoloft (Sertraline): 25-100mg
Prozac (Fluoxetine): 5-60mg

A new medication, Dapoxetine (30/60mg), is currently in investigational trials.

Insofar as most cases of P.E. have an underlying psychological basis, it may be beneficial to seek the aid of a sexual therapist who can help manage the problem with counseling sessions. This can be done in conjunction with some of the aforementioned techniques in order to bring about a quicker resolution.

CONCLUSION

Despite the prevalence of male sexual dysfunction, it is widely under-diagnosed and under-reported. Two reasons are that many practitioners remain uneducated about this condition and individuals are often too ashamed or embarrassed to seek professional help. It is important to stress, however, that sexual dysfunction is a treatable condition and that in the past few years great strides have been made with respect to the diagnosis and management of this disabling problem. The urologists at Bergen Urological Associates approach this delicate subject with sensitivity and compassion, and have significant expertise in the behavioral, pharmacological and surgical treatments of this condition.

About the Author

Dr. Andrew L. Siegel earned a Bachelor of Science degree magna cum laude from Syracuse University, Syracuse, New York, in 1977, and a medical degree from the Chicago Medical School, Chicago, Illinois, in 1981, where he was elected to the Alpha Omega Alpha Honor Medical Society.

He completed a two-year residency in general surgery at the North Shore University Hospital, Manhasset, New York, an affiliate of Cornell University School of Medicine. Dr. Siegel then went on to undertake residency training in urology at the University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania, from 1983 to 1987. Dr. Siegel completed a urological fellowship at the University of California School of Medicine, Los Angeles, California prior to joining Bergen Urological Associates in 1988.

Dr. Siegel is a diplomate of the American Board of Urology and the National Board of Medical Examiners. He is a member of the American Urological Association, the New York section of the American Urological Association, the American Medical Association, the Female Urology and Urodynamics Society, and the American Uro-Gynecological Society.

Dr. Siegel has authored chapters in urology textbooks including *Current Operative Urology* and *Interstitial Cystitis,* and has published articles in numerous professional journals including *Urology, Journal of Urology, Urologic Clinics of North America, Postgraduate Medicine, Neuro-Urology and Urodynamics* and *International Urogynecological Journal*. He has presented papers at professional meetings for many medical societies including the Philadelphia Urological Society, the American Academy of Pediatrics, and the American Urological Association, both nationally and internationally.

He is a Urological Surgeon at Hackensack University Medical Center and is an Assistant Clinical Professor of Urology at the University of Medicine and Dentistry of New Jersey. Additionally, Dr. Siegel is the Director of The Center for Continence Care at Bergen Urological Associates. Dr. Siegel has recently authored the book *Finding Your Own Fountain of Youth – The Essential Guide to Maximizing Health, Wellness, Fitness & Longevity.*

Resources

Dr. Siegel's educational videos available online.
(*all videos are less than 10 minutes in length*)

You can access his instructional videos at *www.youtube.com:*

Female Stress Urinary Incontinence:
Enter "*andrew siegel stress incontinence*" in the search box.

Cystocele:
Enter "*andrew siegel dropped bladder*" in the search box.

Overactive Bladder:
Enter "*andrew siegel overactive bladder*" in the search box.

Prostate Enlargement:
Enter "*andrew siegel prostate enlargement*" in the search box.

Post-prostatectomy Incontinence:
Enter "*andrew siegel post-prostatectomy incontinence*" in the search box.

Pelvic Floor Exercises (2 videos):
Enter "*andrew siegel - pelvic floor exercises*" in the search box.

Erectile Dysfunction (6 videos):
Enter "*andrew siegel erectile dysfunction*" in the search box.

For more information about his book, including excerpts and purchasing information, please go to the following website:

www.findingyourownfountainofyouth.com