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# Erectile Dysfunction

*by Dr. Alexander Krakovsky*

Anatomically, the human penis consists of three major structures: the urethra, and two erectile bodies. The purpose of the urethra is to conduct urine. The urethra ends at the tip of the glans of the penis, and the glans is formed from a thick, spongy cylinder that surrounds the urethra. The erectile bodies are two long cylinders located next to each other inside the penis. They are situated above, and parallel to, the urethra; they are covered with fascia (Buck's fascia); and they contain blood. During erection, the amount of blood inside the cylinders increases. While inflow increases, outflow decreases, and the cylinders are filled to the limit with blood. As a result, they stand upright, causing erection of the penis.

## **Definition of Erectile Dysfunction (Impotence)**

Erectile Dysfunction, or impotence, is the chronic inability to achieve or maintain an erection that is firm enough for vaginal penetration or sexual intercourse. The word "impotence" may also be used to describe other problems that interfere with sexual intercourse and reproduction, such as lack of sexual desire, and difficulties achieving ejaculation or orgasm. More specifically, Erectile Dysfunction, or ED, can be a total inability to achieve erection; an inconsistent ability to do so; or a tendency to sustain only brief erections.

### **Causes of Erectile Dysfunction (Impotence)**

In older men, ED usually has a physical cause, such as disease, injury, or as a side effect of drugs. Any disorder that causes injury to the nerves, or that impairs blood flow in the penis, can cause ED. The incidence of ED increases with age. About 5% of 40-year-old men, and 15% to 25% of 65-year-old men, experience ED.

The most common cause of ED is damage to nerves, arteries, smooth muscles, and fibrous tissues, often as a result of disease. Diseases such as diabetes, kidney disease, chronic alcoholism, multiple sclerosis, atherosclerosis, vascular disease, and neurological disease account for about 70% of ED cases. Between 35% and 50% of men with diabetes experience ED. Heart disease and vascular problems also raise the risk of Erectile Dysfunction. Smoking, obesity, and lack of exercise are other possible causes of ED. Smoking affects blood flow, and can cause hormonal abnormalities, such as inadequate levels of testosterone. In addition, ED can be a side effect of many common medicines, such as blood pressure drugs, antihistamines, antidepressants, tranquilizers, appetite suppressants, and cimetidine (an ulcer drug).

Surgery (especially radical prostate and bladder surgeries for cancer) can injure nerves and arteries near the penis, causing ED. Injury to the penis, spinal cord, prostate, bladder, and pelvis can lead to ED if the nerves, smooth muscles, arteries, or fibrous tissues of the corpora cavernosa are damaged during surgery.

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Experts believe that psychological factors, such as stress, anxiety, guilt, depression, low self-esteem, and fear of sexual failure, cause 10% to 20% of ED cases. Men whose ED has a physical cause also frequently experience these same types of psychological reactions (stress, anxiety, guilt, and depression).

### **Commonly Prescribed Erectile Dysfunction (Impotence) Treatments**

ED is treatable at any age. As a result of improved, successful treatments for ED, more men have been seeking help for this condition and returning to normal sexual activity. The most publicized advance in ED treatment was the introduction of the oral drug, sildenafil citrate (Viagra), in March of 1998.

When prescribing treatments, most physicians prefer to begin with the least invasive approach. For some men, making a few healthy lifestyle changes solves the problem. Quitting smoking, losing excess weight, and increasing physical activity may help some men regain sexual function.

If these remedies do not have the desired effect, the physician will usually cut back on any drugs that can cause harmful side effects. For example, drugs for high blood pressure can produce a variety of side effects. If the patient suspects that a particular drug may be causing problems with erection, he should report this to his doctor and ask whether a different class of blood pressure medicine can be substituted.

Psychotherapy and behavior modification are considered next, if indicated, followed by oral or locally-injected drugs, vacuum devices, and surgically implanted devices. In rare cases, surgery involving veins or arteries may be considered.

### **New Approach to Erectile Dysfunction (Impotence)**

Recently, a new form of ED treatment has been patented. This patent describes a small electronic device, about the size of a cardiac pacemaker, that manages ED by sending electrical impulses to nerves regulating the erection process. The device can improve erection, and is capable of maintaining an erection firm enough for vaginal penetration and sexual intercourse. This device is implanted inside the body, and is programmable and controllable from outside the body. Pressing a button generates an electronic signal that stimulates both an erection in males and an orgasmic sensation in females.

The electrical conductor (electrodes) for this device is positioned in the epidural space. It stimulates the nerves, causing dilatation of the penile (male) and clitoral (female) arteries. This results in an erection in men and a pre-orgasmic sensation in women. In the female, stimulation of the sacral part of the spinal cord increases sexual desire and escalation to the level of orgasm.

*Alexander Krakovsky, M.D., Ph.D., Dr.Sc., is among a select group of surgeons who have attained the highest level of achievement in cosmetic, plastic and reconstructive penile surgery. He is a dynamic and caring physician, with the finest surgical training and experience. Dr. Krakovsky's patients also appreciate his warm and caring personality. He provides exceptional care with integrity, honesty and confidentiality, from the very first consultation to the last follow-up visit, in state-of-the-art facilities.*

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