



# *X-Plain*™ *Erectile Dysfunction* **Reference Summary**

Impotence is a common condition. A man who is impotent is persistently unable to achieve or maintain an erection for satisfactory sexual intercourse.

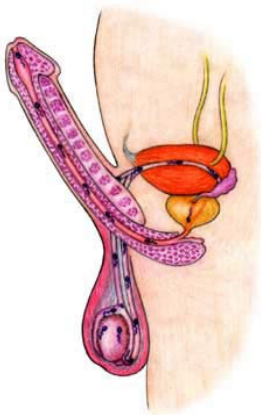
About 30 million men in the U.S. have erectile dysfunction or ED. Erectile dysfunction is the medical term for impotence.

Most men experience erectile dysfunction during their sexual life. Professional help is needed when erectile dysfunction becomes a persistent problem.

This reference summary will explain the causes and treatment options for erectile dysfunction. It also discusses the ED oral medications Viagra, Levitra, and Cialis.

## **Anatomy**

This is a cross section of an erect penis. Three main tube-like structures can be seen. Two of these are long tubes known as “corpora cavernosa,” one on each side of the penis.



The third tube-like structure is the “corpus spongiosum,” located between the two corpora cavernosa. It contains the urethra.

The urethra is the tube through which urine and semen exit the body. It does not play a role in forming or maintaining an erection.

When the penis is flaccid (or not erect), the corpora cavernosa are not filled with blood.

Sexual stimulation, both physical and mental, causes the brain, nerves, blood vessels, and hormones to send orders to relax the muscles around the corpora cavernosa.

As the muscles around the corpora cavernosa relax, the corpora cavernosa fill up with blood. When the corpora cavernosa trap the blood, they expand and the penis becomes firm and elongated. This results in an erection.

After orgasm, the blood empties from the corpora cavernosa through the veins of the penis. The penis becomes soft or flaccid.

Testosterone is a sex hormone secreted by the testicles, and is important in regulating the frequency and magnitude of a penile erection.

The younger the patient, the easier it is to achieve and keep an erection. Erectile dysfunction is more common among older men. However, erectile dysfunction is not an inevitable consequence of aging.

About 1 in 4 men above the age of 65 are affected by erectile dysfunction.

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## Symptoms and Their Causes

A man who has erectile dysfunction is persistently unable to achieve or maintain an erection for satisfactory sexual intercourse.

Erectile dysfunction can be caused by many disorders. It can be caused by medications, psychological factors, or physical factors.

Medications are a leading cause of erectile dysfunction. Some medications taken for depression or high blood pressure could cause erectile dysfunction.

Some causes of erectile dysfunction are psychological. A man's failure to achieve an erection could have originated from his abuse of alcohol, cigarettes, or recreational drugs. If the man continues to fear not being able to have an erection, he may develop persistent psychological impotence.

Stress and other psychological factors can cause erectile dysfunction. When erectile dysfunction is caused by psychological factors, the male can achieve spontaneous erections when sleeping or early in the morning before going to the bathroom but cannot achieve an erection when making love.

Marital or job stress, alcohol or drug abuse, performance anxiety, financial problems, and other factors can all play a role in starting, maintaining, or worsening erectile dysfunction.



Physical impotence is caused by a disease, injury, or operation.

Examples of diseases that can cause impotence are:

- diabetes,
- high blood pressure,
- cholesterol deposits in the blood vessels,
- nephritis,
- and liver disease.

Examples of injuries that can cause erectile dysfunction are injuries to the:

- penis,
- pelvis,
- spinal cord,
- and brain.

Examples of surgeries that can cause erectile dysfunction are:

- operations in the pelvis,

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- surgical removal of the prostate gland, bladder or rectum due to cancer,
- radiation therapy to the pelvis.

Hormones are substances produced by the body to control body functions. The lack or excess of hormones could also cause erectile dysfunction.

### Diagnosis

Your doctor will evaluate your condition in order to determine the specific cause of erectile dysfunction. He or she will prescribe the best treatment for you.

The evaluation usually includes a medical history, a detailed sexual history, a physical examination, and other basic tests. The doctor tries first to determine if the causes are psychological or physical.

If no erection can be achieved during sexual activity, special devices can be fixed on the base of the penis at bedtime to monitor whether an erection has occurred during sleep.

If that test shows that an erection has occurred, there is a good chance that the erectile dysfunction could be caused by psychological factors.

### Treatment Options For Erectile Dysfunction

The treatment of erectile dysfunction depends on the cause or causes. For instance, if the erectile dysfunction is caused by medications you are taking, changing some of the medications or their dosages may help.

If erectile dysfunction is caused by severe clinical depression, antidepressant drugs may be the first course of treatment.

In very rare cases, erectile dysfunction is caused by lack of hormones. Hormone replacement therapy could help in these cases. The use of pills or injections usually will restore

normal erections in such rare cases of hormone-related impotence.

If erectile dysfunction is caused by psychological reasons, counseling or sex therapy may be recommended.

There are several other treatment options that your doctor can recommend. These include oral medications such as Viagra®, Levitra®, and Cialis®. Other treatment options include urethral suppositories, injections in the penis, vacuum devices, and surgery.

Viagra, Levitra, and Cialis are oral medication cleared by the Food and Drug Administration (FDA), for treating erectile dysfunction. The usage of these drugs is explained in the next section.

In one medical treatment option, the patient pushes a urethral suppository into the urethra with a special applicator. The medication dissolves in the urethra and is absorbed into the penis. After about 5 minutes, an erection is achieved.

This treatment helps many men achieve an erection.

Another treatment option for erectile dysfunction is the use of a vacuum pump and a tension ring.

A plastic tube is placed over the penis and the patient uses the pump to draw blood into the penis by removing air from the cylinder. In most patients, an erection is produced in one to two minutes.

A rubber constriction ring is then placed at the base of the penis to keep the blood in the penis and maintain the erection. The vacuum tube is then removed.

The ring should be taken off within 30 minutes or in case of pain, severe discoloration, or cooling of the penis. Leaving the ring in place

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longer than 30 minutes could cause damage to the penis.

Another treatment option for erectile dysfunction is injections of special medications by the patient himself directly in the penis. This may help achieve an erection.

Through a small needle, a special medication that allows the blood to be trapped in the corpora cavernosa may be injected directly in the penis five to fifteen minutes before intercourse. This usually gives an erection that can last up to one hour. The injection is given with a very thin needle.



If you and your doctor choose this option, you will be taught how to administer the injections yourself.

If none of the previous treatments are helpful or practical, surgery may be recommended.

The most common surgical alternative to help erectile dysfunction is to place an implant inside the penis to help achieve an erection.

In rare cases, vascular surgery is recommended if the blood vessels of the penis are causing the erectile dysfunction.

There are several types of implants to choose from. These implants differ in the manner they are operated, how natural the erection feels, the number of components implanted, and the possibility of mechanical malfunction. The following is a brief description of some implants.

A malleable implant consists of two rods that are inserted into the corpora cavernosa of the penis. The rods may either be positioned up for intercourse or down for everyday activities.

This is a simple implant and is easy to use. It has few parts and is durable. However, the patient will always have a rigid penis.

Another type of implant consists of self-contained inflatable cylinders. To produce an erection, the patient pumps the top of the cylinders to force fluid into the cylinders making the penis stiffer. To make the penis soft again, the patient simply bends the penis.

This is a simple implant and is easy to use.

Another type of implant is more complex mechanically. However, it allows the implant to be pumped into a more solid erection. It can then be deflated. Prior to intercourse, the patient inflates the device by squeezing the pump. The pump can be placed in the scrotum. This implant is slightly more complex to place and operate.

### **Viagra, Levitra, & Cialis**

A man achieves an erection when the muscles of the penis relax, allowing blood to flow and pool in the corpora cavernosa of the penis.

Viagra, Levitra, and Cialis are medications that work by relaxing the smooth muscles of the penis allowing the corpora cavernosa to fill with blood.

Viagra, Levitra, and Cialis vary in how they are taken, when they begin to work and how long their effect last. There are also differences in their side effects, which are explained in the next section. Your doctor will tell you when to take your ED medication and how long to expect it to work.

Remember that for all of these 3 medications to work, sexual stimulation is necessary. These medications do not cause an erection if there is

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no sexual stimulation. The sexual stimulation can be physical or mental.

Most patients are satisfied with the improved quality of the erection and with the ability to maintain the erection for satisfactory sexual intercourse. These medications do not increase the libido (sex drive) and do not affect the orgasm.

### **History**

Viagra was approved in 1998. Levitra and Cialis were approved in 2003. The longer a medicine has been in use, the more we know about its side effects. In general, all 3 medications are effective in a majority of patients. The rate of improvement also depends on the cause of the erectile dysfunction.

### **Dosage**

All 3 medications are available in different dosages. Your doctor may need to adjust your dosage level for the medication to work or to decrease the side effects.

Viagra is better taken without food on an empty stomach. Levitra and Cialis can be taken with or without food.

### **When They Begin Working**

Viagra works 30 to 60 minutes after it is taken. So does Levitra. Cialis works 30 minutes after the pill is taken.

### **How Long They Last**

Viagra lasts up to 4 hours. Levitra lasts four hours too. Cialis on the other hand can last from 24 to 36 hours, which is why it is called "Le weekender".

When we say "an erection may occur up to 4 hours after taking the oral ED medication", it does NOT mean that the erection will last for 4 hours! It means it can occur any time within 4 hours of taking the pill.

### **Side Effects**

- All 3 medications may produce headache and indigestion.
- Viagra and Levitra can also produce flushing, stuffy nose and upset stomach.
- Viagra may produce diarrhea and a blue-tinge vision .
- Levitra may produce dizziness.

Your doctor will discuss with you the dosage of these medications as well as their side effects and risks.

### **Contraindications**

Viagra, Levitra, and Cialis may be very dangerous when taking with other medications. Your physician will tell you what medications you can and cannot take with these medications.

Viagra, Levitra and Cialis should not be taken with nitrate medications. They may increase the effectiveness of nitrates. Nitrates are medications used to decrease the blood pressure in patients with hypertension and heart disease such as angina.

The use of these medications with nitrates can cause a lower than expected blood pressure. This extra lowering of blood pressure could potentially be fatal and therefore contraindicates the use of Viagra, Levitra, and Cialis. The patient and his physician should look for another treatment option for erectile dysfunction in patients taking nitrates.

This is one of the major reasons that you should inform all of your doctors about the use of ED medications prior to starting any new drugs.

Patients who share their prescribed ED pills with their friends may endanger the lives of their friends who may be taking medications that are not compatible with the pill they are given.

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The dosage of your ED medication may need to be adjusted when taken with other medications. Make sure to tell all of your doctors and pharmacists about all the medications you use.

If you have had a heart attack, a stroke, a serious abnormal heart beat in the last six months; do not take Viagra, Levitra, or Cialis. Check with your doctor.

If you have any side effect, you should let your doctor know. He or she may want to adjust your dosage.

It also is very important to remember that Viagra, Levitra, and Cialis do NOT protect against sexually transmitted diseases such as AIDS.

Viagra, Levitra and Cialis do NOT prevent conception or pregnancy.

## **Summary**

Erectile dysfunction is a common condition. Thanks to recent advances in medicine and pharmacology, there are many ways to treat it.

Many men experience improvement in erectile function after taking Viagra, Levitra, or Cialis. Check with your doctor if Viagra, Levitra, or Cialis are acceptable for you. He or she will tell you what medications you can and cannot take with your prescription.

Knowing about your ED treatment options, the benefits, and the risks and complications associated with these options will help you make a more informed choice.

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