

## Erectile Dysfunction (Impotence)

Erectile dysfunction (impotence) is the inability to get and keep an erection firm enough for sex.

Having erection trouble from time to time isn't necessarily a cause for concern. If erectile dysfunction is an ongoing issue, however, it can cause stress, affect your self-confidence and contribute to relationship problems. Problems getting or keeping an erection also can be a sign of an underlying health condition that needs treatment and a risk factor for heart disease down the road.

If you're concerned about erectile dysfunction, talk to your doctor — even if you're embarrassed. Sometimes, treating an underlying condition is enough to reverse erectile dysfunction. In other cases, medications or other direct treatments might be needed.

Erectile dysfunction symptoms might include persistent:

- Trouble getting an erection
- Trouble keeping an erection
- Reduced sexual desire

### When to see a doctor

A family doctor is a good place to start when you have erectile problems. See your doctor if:

- You have concerns about your erections or you're experiencing other sexual problems, including ejaculatory dysfunction, such as premature or delayed ejaculation
- You have diabetes, heart disease or another known health condition that might be linked to erectile dysfunction
- You have other symptoms along with erectile dysfunction

Male sexual arousal is a complex process that involves the brain, hormones, emotions, nerves, muscles and blood vessels. Erectile dysfunction can result from a problem with any of these. Likewise, stress and mental health concerns can cause or worsen erectile dysfunction.

Sometimes a combination of physical and psychological issues causes erectile dysfunction. For instance, a minor physical condition that slows your sexual response might cause anxiety about maintaining an erection. The resulting anxiety can lead to or worsen erectile dysfunction.

### Physical causes of erectile dysfunction

In most cases, erectile dysfunction is caused by something physical. Common causes include:

- Heart disease
- Clogged blood vessels (atherosclerosis)
- High cholesterol
- High blood pressure
- Diabetes
- Obesity
- Metabolic syndrome — a condition involving increased blood pressure, high insulin levels, body fat around the waist and high cholesterol
- Parkinson's disease
- Multiple sclerosis
- Peyronie's disease — development of scar tissue inside the penis
- Certain prescription medications
- Tobacco use
- Alcoholism and other forms of substance abuse
- Sleep disorders
- Treatments for prostate cancer or enlarged prostate
- Surgeries or injuries that affect the pelvic area or spinal cord

## **Psychological causes of erectile dysfunction**

The brain plays a key role in triggering the series of physical events that cause an erection, starting with feelings of sexual excitement. A number of things can interfere with sexual feelings and cause or worsen erectile dysfunction. These include:

- Depression, anxiety or other mental health conditions
- Stress
- Relationship problems due to stress, poor communication or other concerns

As you get older, erections might take longer to develop and might not be as firm. You might need more direct touch to your penis to get and keep an erection. This might indicate underlying health conditions or be a result of taking medications

Various risk factors can contribute to erectile dysfunction, including:

- **Medical conditions**, particularly diabetes or heart conditions
- **Tobacco use**, which restricts blood flow to veins and arteries, can — over time— cause chronic health conditions that lead to erectile dysfunction
- **Being overweight**, especially if you're obese

- **Certain medical treatments**, such as prostate surgery or radiation treatment for cancer
- **Injuries**, particularly if they damage the nerves or arteries that control erections
- **Medications**, including antidepressants, antihistamines and medications to treat high blood pressure, pain or prostate conditions
- **Psychological conditions**, such as stress, anxiety or depression
- **Drug and alcohol use**, especially if you're a long-term drug user or heavy drinker
- **Prolonged bicycling**, which can compress nerves and affect blood flow to the penis, may lead to temporary or permanent erectile dysfunction

Complications resulting from erectile dysfunction can include:

- An unsatisfactory sex life
- Stress or anxiety
- Embarrassment or low self-esteem
- Relationship problems
- The inability to get your partner pregnant

For many men, a physical exam and answering questions (medical history) are all that's needed for a doctor to diagnose erectile dysfunction and recommend a treatment. If you have chronic health conditions or your doctor suspects that an underlying condition might be involved, you might need further tests or a consultation with a specialist.

Tests for underlying conditions might include:

- **Physical exam.** This might include careful examination of your penis and testicles and checking your nerves for sensation.
- **Blood tests.** A sample of your blood might be sent to a lab to check for signs of heart disease, diabetes, low testosterone levels and other health conditions.
- **Urine tests (urinalysis).** Like blood tests, urine tests are used to look for signs of diabetes and other underlying health conditions.
- **Ultrasound.** This test is usually performed by a specialist in an office. It involves using a wandlike device (transducer) held over the blood vessels that supply the penis. It creates a video image to let your doctor see if you have blood flow problems.

This test is sometimes done in combination with an injection of medications into the penis to stimulate blood flow and produce an erection.

- **Overnight erection test.** Most men have erections during sleep without remembering them. This simple test involves wrapping a special device around your penis before you go to bed.

This device measures the number and strength of erections that are achieved overnight. It can help to determine if your erectile dysfunction is related to psychological or physical causes.

- **Psychological exam.** Your doctor might ask questions to screen for depression and other possible psychological causes of erectile dysfunction.

## Diagnosis at Mayo Clinic

Mayo Clinic offers a full range of tools for evaluating erectile dysfunction. Doctors will likely perform a physical exam and blood and urine tests. They might also use a sexual health questionnaire to help understand your problem.

Some men might require specialized tests. Mayo Clinic provides both noninvasive and invasive testing for erectile dysfunction, which can include:

- Color duplex Doppler ultrasonography
- Injecting dye to see blood flow in arteries carrying blood to the penis (penile arteriography)
- Magnetic resonance imaging (MRI)
- Nocturnal penile erection monitoring

The first thing your doctor will do is to make sure you're getting the right treatment for any health conditions that could be causing or worsening your erectile dysfunction.

Depending on the cause and severity of your erectile dysfunction and any underlying health conditions, you might have various treatment options. Your doctor can explain the risks and benefits of each treatment and will consider your preferences. Your partner's preferences also might play a role in your treatment choices.

## Oral medications

Oral medications are a successful erectile dysfunction treatment for many men. They include:

- Sildenafil (Viagra)
- Tadalafil (Cialis)
- Vardenafil (Levitra, Staxyn)
- Avanafil (Stendra)

All four medications enhance the effects of nitric oxide — a natural chemical your body produces that relaxes muscles in the penis. This increases blood flow and allows you to get an erection in response to sexual stimulation.

Taking one of these tablets will not automatically produce an erection. Sexual stimulation is needed first to cause the release of nitric oxide from your penile nerves. These medications amplify that signal, allowing men to function normally. Oral erectile dysfunction medications are not aphrodisiacs, will not cause excitement and are not needed in men who get normal erections.

The medications vary in dosage, how long they work and side effects. Possible side effects include flushing, nasal congestion, headache, visual changes, backache and stomach upset.

Your doctor will consider your particular situation to determine which medication might work best. These medications might not fix your erectile dysfunction immediately. You might need to work with your doctor to find the right medication and dosage for you.

Before taking any medication for erectile dysfunction, including over-the-counter supplements and herbal remedies, get your doctor's OK. Medications for erectile dysfunction might not work or might be dangerous if you:

- Take nitrate drugs — commonly prescribed for chest pain (angina) — such as nitroglycerin (Minitran, Nitro-Dur, Nitrostat, others), isosorbide mononitrate (Monoket) and isosorbide dinitrate (Dilatrate-SR, Isordil)
- Have very low blood pressure (hypotension) or uncontrolled high blood pressure (hypertension)
- Have severe liver disease
- Have kidney disease that requires dialysis

## **Other medications**

Other medications for erectile dysfunction include:

- **Alprostadil self-injection.** With this method, you use a fine needle to inject alprostadil (Caverject Impulse, Edex) into the base or side of your penis. In some cases, medications generally used for other conditions are used for penile injections on their own or in combination. Examples include papaverine, alprostadil and phentolamine.

Each injection generally produces an erection that lasts about an hour. Because the needle used is very fine, pain from the injection site is usually minor.

Side effects can include bleeding from the injection, prolonged erection (priapism) and formation of fibrous tissue at the injection site.

- **Alprostadil urethral suppository.** Alprostadil intraurethral (Muse) therapy involves placing a tiny alprostadil suppository inside your penis in the penile urethra. You use a special applicator to insert the suppository into your penile urethra.

The erection usually starts within 10 minutes and lasts between 30 and 60 minutes. Side effects can include pain, minor bleeding in the urethra and formation of fibrous tissue inside your penis.

- **Testosterone replacement.** Some men have erectile dysfunction that might be complicated by low levels of the hormone testosterone. In this case, testosterone replacement therapy might be recommended as the first step.

## Penis pumps, surgery and implants

If medications aren't effective or appropriate in your case, your doctor might recommend a different treatment. Other treatments include:

- **Penis pumps.** A penis pump (vacuum erection device) is a hollow tube with a hand-powered or battery-powered pump. The tube is placed over your penis, and then the pump is used to suck out the air inside the tube. This creates a vacuum that pulls blood into your penis.

Once you get an erection, you slip a tension ring around the base of your penis to hold in the blood and keep it firm. You then remove the vacuum device.

The erection typically lasts long enough for a couple to have sex. You remove the tension ring after intercourse. Bruising of the penis is a possible side effect, and ejaculation will be restricted by the band. Your penis might feel cold to the touch.

If a penis pump is a good treatment choice for you, your doctor might recommend or prescribe a specific model. That way, you can be sure it suits your needs and that it's made by a reputable manufacturer. Penis pumps available in magazines and sex ads might not be safe or effective.

- **Penile implants.** This treatment involves surgically placing devices into both sides of the penis. These implants consist of either inflatable or semirigid rods. Inflatable devices allow you to control when and how long you have an erection. The semirigid rods keep your penis firm but bendable.

Penile implants are usually not recommended until other methods have been tried first. Implants have a high degree of satisfaction among men who have tried and failed more-conservative therapies. As with any surgery, there's a risk of complications, such as infection.

- **Blood vessel surgery.** Rarely, leaking or obstructed blood vessels can cause erectile dysfunction. In this case, surgical repair, such as vascular stenting or a bypass procedure, might be needed.

## Psychological counseling

If your erectile dysfunction is caused by stress, anxiety or depression — or the condition is creating stress and relationship tension — your doctor might suggest that you, or you and your partner, visit a psychologist or counselor.

For many men, erectile dysfunction is caused or worsened by lifestyle choices. Here are some steps that might help:

- **If you smoke, quit.** If you have trouble quitting, get help. Try nicotine replacement, such as over-the-counter gum or lozenges, or ask your doctor about a prescription medication that can help you quit.
- **Lose excess pounds.** Being overweight can cause — or worsen — erectile dysfunction.
- **Include physical activity in your daily routine.** Exercise can help with underlying conditions that play a part in erectile dysfunction in a number of ways, including reducing stress, helping you lose weight and increasing blood flow.
- **Get treatment for alcohol or drug problems.** Drinking too much or taking certain illegal drugs can worsen erectile dysfunction directly or by causing long-term health problems.
- **Work through relationship issues.** Consider couples or marriage counseling if you're having trouble improving communication with your partner or working through problems on your own.
  - Before using any supplement, check with your doctor to make sure it's safe for you — especially if you have chronic health conditions. Some alternative products that claim to work for erectile dysfunction can be dangerous. The Food and Drug Administration (FDA) has issued warnings about several types of "herbal viagra" because they contain potentially harmful drugs not listed on the label. The dosages might also be unknown, or they might have been contaminated during formulation.
  - Some of these drugs can interact with prescription drugs and cause dangerously low blood pressure. These products are especially dangerous for men who take nitrates.