

Erectile dysfunction

Dr. Joe King Chien Lee
Urologist
St. Joseph's Hospital, London, ON, Canada

What is erectile dysfunction?

Erectile dysfunction (or ED) happens when a man finds it difficult to get or keep an erection that is hard enough for him to have satisfying sexual intercourse. This may affect self-confidence or cause undue stress in your relationships.

What are the symptoms of ED?

- You may notice that your erections aren't as hard over time.
- You may find it more difficult to get an erection when you're sexually aroused.
- Your erections may take longer to happen and you may need much more stimulation than before.

When the erections are less hard, penetration may be impossible. Even if penetration is successful, you may find that you can't keep your erection hard until orgasm.

When this happens, you may lose confidence in your sexual ability and you may lose your desire for sex.

How do you get ED?

Psychology and biology play a role. Before we dive into the causes, we should understand how the penis works.

When you are sexually aroused, signals are sent from the brain, down the spinal cord and through the nerves to the penis. These signals increase the blood flowing into the penis and, at the same time, reduce the blood flowing out of the penis. The result is a penis that is fully rigid and engorged with blood.

We'll see how psychological and biological factors can affect arousal.

1. Psychological factors

When you are stressed, depressed or anxious, your level of sexual arousal can be affected. So, even if the structure of the penis is normal, the signals reaching it can be affected by your mental state and can affect the quality of your erection.

2. Biological Factors

Your biology can cause ED. We can divide this into different parts: blood vessel disorders, nervous system disorders, structural problems of the penis and medications.

- **Blood vessel disorders:** High blood pressure, high cholesterol, diabetes and heavy smoking can cause your blood vessels to narrow – which can cause ED. When the blood vessels bringing blood to the penis become narrower, it is more difficult for the penis to become engorged when you are aroused.

Studies have found that patients with ED have a higher risk of getting a heart attack because they are more likely to have narrow arteries of the heart as well.

- **Nervous system disorders:** Diabetes, previous surgeries or radiation for prostate cancer, spinal cord injuries, multiple sclerosis and Parkinson's disease affect the nerve supply of the penis. These can cause ED.
- **Structural problems of the penis:** Peyronie's disease, previous priapism (painful and prolonged erections) and testosterone deficiency can cause ED. These conditions disrupt the structural integrity of the penis. In venous leak (when the blood in the penis is compressed and cannot leave), the mechanism that helps to hold the blood within an erected penis is defective.
- **Medications:** Prescription medications used to treat high blood pressure, prostate conditions and mental conditions, such as anxiety, can cause ED.

How is ED diagnosed?

Understanding exactly what happens is crucial in the diagnosis of ED.

- You need to tell your doctor when the ED started and describe any medical problems you have.
- Does the ED happen all the time or just occasionally? Are you having more difficulty getting erections, keeping erections or both?
- Is the problem related to any medications you may have started taking?
- Do you still have nighttime erections?
- Do you notice any curve in the penis?

Check out The Sexual Health Inventory for Men (SHIM) – this questionnaire will help you and your doctor evaluate your specific case. *(Please see next page)*

To evaluate the extent of your ED, your doctor will need to understand how you and your partner are affected. Are you having relationship problems because of the ED?

A physical exam is done to rule out any structural abnormalities in the penis. Your doctor will check for any scarring, your general circulation and your nervous system.

You will get some blood tests done to see if you have low testosterone. If you haven't done so before, your doctor will look for diabetes, high cholesterol and other medical conditions.

SEXUAL HEALTH INVENTORY FOR MEN (SHIM)

PATIENT NAME: _____

TODAY'S DATE: _____

PATIENT INSTRUCTIONS

Sexual health is an important part of an individual's overall physical and emotional well-being. Erectile dysfunction, also known as impotence, is one type of very common medical condition affecting sexual health. Fortunately, there are many different treatment options for erectile dysfunction. This questionnaire is designed to help you and your doctor identify if you may be experiencing erectile dysfunction. If you are, you may choose to discuss treatment options with your doctor.

Each question has several possible responses. Circle the number of the response that **best describes** your own situation. Please be sure that you select one and only one response for **each question**.

OVER THE PAST 6 MONTHS:

1. How do you rate your confidence that you could get and keep an erection?		VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
		1	2	3	4	5
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration (entering your partner)?	NO SEXUAL ACTIVITY	ALMOST NEVER OR NEVER	A FEW TIMES (MUCH LESS THAN HALF THE TIME)	SOMETIMES (ABOUT HALF THE TIME)	MOST TIMES (MUCH MORE THAN, HALF THE TIME)	ALMOST ALWAYS OR ALWAYS
	0	1	2	3	4	5
3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?	DID NOT ATTEMPT INTERCOURSE	ALMOST NEVER OR NEVER	A FEW TIMES (MUCH LESS THAN HALF THE TIME)	SOMETIMES (ABOUT HALF THE TIME)	MOST TIMES (MUCH MORE THAN, HALF THE TIME)	ALMOST ALWAYS OR ALWAYS
	0	1	2	3	4	5
4. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?	DID NOT ATTEMPT INTERCOURSE	EXTREMELY DIFFICULT	VERY DIFFICULT	DIFFICULT	SLIGHTLY DIFFICULT	NOT DIFFICULT
	0	1	2	3	4	5
5. When you attempted sexual intercourse, how often was it satisfactory for you?	DID NOT ATTEMPT INTERCOURSE	ALMOST NEVER OR NEVER	A FEW TIMES (MUCH LESS THAN HALF THE TIME)	SOMETIMES (ABOUT HALF THE TIME)	MOST TIMES (MUCH MORE THAN, HALF THE TIME)	ALMOST ALWAYS OR ALWAYS
	0	1	2	3	4	5

Add the numbers corresponding to questions 1-5.

TOTAL: _____

The Sexual Health Inventory for Men further classifies ED severity with the following breakpoints:

1-7 Severe ED

8-11 Moderate ED

12-16 Mild to Moderate ED

17-21 Mild ED

The Sexual Health Inventory for Men (SHIM) questionnaire

A specialized ultrasound of the penis may be arranged to evaluate the blood supply of the penis and its structural integrity. During the ultrasound, a small injection of prostaglandin E1 is usually given into the flaccid penis to create an erection, so that abnormalities, such as poor blood supply and scarring, can be evaluated.

How is ED treated?

This depends on the cause of your ED.

If it is psychological, you will likely need psychotherapy or medication after consulting with your doctor or psychologist.

If you have medical conditions, such as diabetes, high blood pressure, high cholesterol or known impaired circulation issues (especially if these are poorly controlled), your family doctor or relevant specialists should be involved to make sure you get the best possible treatment.

If your ED is caused by biological factors, treatment can be broadly classified into 2 types:

1. **Medical therapy** which consist of oral medications, topical medications and penile injections.
2. **Non-medical therapy** which consist of vacuum erection devices, penile implants or blood vessel surgery.

Oral medications are usually given first and surgery is usually the last resort.

Medical therapy:

- **Oral medications**

This is the most common form of treatment for ED.

There are currently 3 medications available: sildenafil (Viagra), tadalafil (Cialis) and vardenafil (Levitra). All 3 work by enhancing the body's own nerve signaling pathway so that more blood can flow into the penis during sexual arousal. All 3 can improve erections when they are taken 30 minutes to 1 hour before each sexual intercourse.

- **Topical medications**

Alprostadil (Vitaros, Caverject, MUSE) works by increasing blood flow into the penis. It is available as a penis suppository, transdermal cream and an injection.

Penis suppository: Also called MUSE (medicated urethral system for erection). In this therapy, you use an applicator to insert a pellet into the opening of the penis. After about 10 minutes, the medication is absorbed, and you experience an erection. The erection typically subsides after 30 to 60 minutes. You may experience side effects, such as pain or burning feeling when you urinate. If the application is not done properly, mild bleeding can occur near the opening of the penis.

Transdermal cream: Vitaros is a cream that comes in a dispenser. It is applied over the tip and head of the penis. An erection is usually seen after 10 to 30 minutes and can last up to 2 hours. Some patients may experience side effects, such as pain or rashes.

- **Penile injections**

This is a self-administered therapy. About 10 to 30 minutes before sexual intercourse, you use a fine needle to inject medications into the side of the penis. The medication injected can be a single preparation or a concoction of up to 3 different types (alprostadil, phentolamine and papaverine). The erection typically subsides after about 1 hour after the injection. The pain from the fine needle injection is usually tolerable. You may experience side effects, such as bleeding at the injection site or scarring of the penis after long-term use. Caverject is one form of penile injection available.

Non-medical therapy:

- **Vacuum erection device**

This is a penis pump that is made up of a hollow tube with an attached pump on one end, which can be hand or battery-operated. You load a constrictive rubber band on the free end of the tube before cupping it over his penis. When the pump is activated, a vacuum is created within the tube which will draw blood into the penis, giving rise to an erection. With the tube still in place, you slip the constrictive rubber band onto the base of the penis, so as to keep the blood in the penis before removing the pump. After intercourse, you remove the constrictive rubber band and the penis will become flaccid again. To use this method, you need good hand dexterity or a supportive partner.

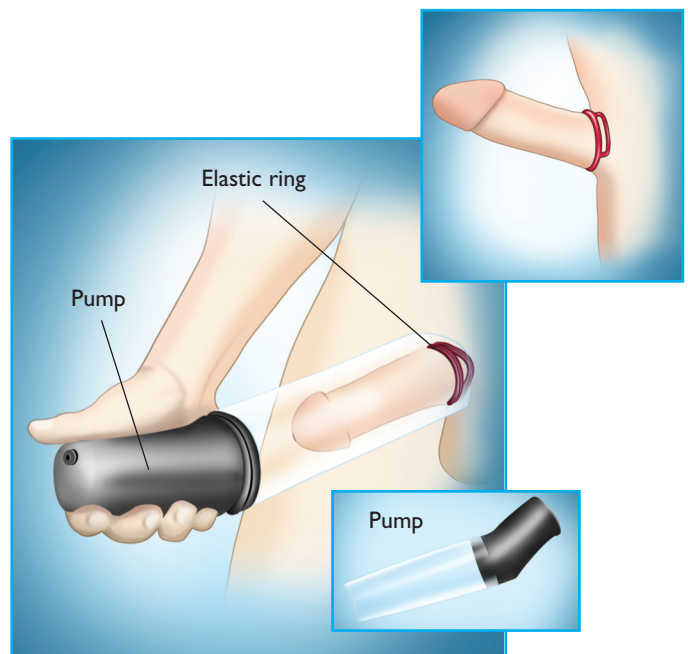


Figure 1. Vacuum device & implants

- **Penile implant**

This is usually the last resort. There are 2 main type prostheses: inflatable and non-inflatable prostheses.

The inflatable prostheses usually consist of 2 balloon-like cylinders which are connected to a reservoir. After the cylinders have been inserted into the penis, you can pump them up to get an erection and deflate them after use.

The non-inflatable prostheses are basically bendable rods that are inserted into the penis. You can straighten the rods when you are going to have sexual intercourse and bend it downwards after that. The choice of prosthesis is a personal decision. The main risk for this treatment is infection, which sometimes makes it necessary to remove the implant.

- ***Blood vessel surgery***

This is uncommon and is done only in very selected cases of venous leak.

How will ED affect me?

- You may experience low self-confidence or depression because of ED.
- ED can also lead to relationship problems if you or your partner is deeply troubled by an unsatisfactory sexual relationship.
- Fertility can be affected as natural conception requires adequate penetrations and ejaculation. In worst case scenarios, a couple may require assisted fertility.
- Although ED is not life-threatening, it could be a harbinger for other more dangerous conditions, such as blocked arteries to the heart, which can lead to a heart attack.

What do I do if I think I have ED?

Talk to your doctor for advice. Before starting you on any treatment, your doctor may evaluate you for underlying medical conditions that may not have been identified.

What are some common misconceptions about ED?

I lost my erections more than 5 years ago and it is too late to do anything now.

The duration of ED is not the main factor determining treatment success. There are many other considerations, such as the cause and the severity. If you have lived with ED for many years before finally seeing a doctor, you can still benefit from treatment.

The medications to treat ED start to fail because my body has developed tolerance, so a higher dose is needed now.

The medications used to treat ED do not cause tolerance or dependence. Most of the time, it is not that the medications are getting less effective, but your ED has become more severe over time. This can happen if the underlying causes of ED, such as high blood pressure and diabetes, are poorly controlled.