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Treatment for ED

The underlined terms are listed in the glossary.

Erectile dysfunction (ED) is a common condition. Although it is not life threatening, it can negatively affect your quality of life. Because it can be related to other conditions, such as heart disease, it is important that you get the right treatment. There are various treatment options for ED, discuss with your doctor which option is best for your individual situation.

This section offers general information about treatment options and situations can vary in different countries.

Education and couple assessment

An important part of treatment is understanding the condition and the consequences it may have on your intimate relationships. Your doctor will often recommend a combination of physical and psychological approaches to treat ED. In the past doctors focused mainly on treating the physical aspect of ED. Nowadays, psychological and emotional aspects of the condition are also dealt with.

Treatment that includes psychological approaches has proved to be more effective than treating only the

physical symptoms. This approach has also shown to be effective in single patients, or in cases when the partner is not involved.

If you are in a committed relationship, it benefits your treatment if your partner agrees to the type of treatment, is aware of how it works, and you are able to talk about it.

Keep in mind that treatment is based on your individual situation and what may be helpful for others is not always helpful for you.

If you have other conditions that may be related to ED, your doctor will discuss referring you to a specialist for assessment and further treatment.

Lifestyle advice

Improving your general health could help improve your symptoms. Your doctor will advise you to stop smoking, drink less alcohol, and exercise regularly.

Depending on your individual situation, your doctor may recommend that you adapt your diet. It is important to discuss this with the doctor first. As a general rule, try to have a varied diet which is low on sugar, salt, and fatty foods.

Phosphodiesterase 5 inhibitors

Phosphodiesterase 5 inhibitors (PDE5Is) are a group of drugs used for the treatment of ED. These drugs relax smooth muscle in the vessels in the penis to increase blood flow. They do not cause an erection without sexual stimulation.

There are 4 approved types of PDE5Is:

- Sildenafil
- Tadalafil
- Vardenafil
- Avanafil

PDE5Is are the most commonly prescribed treatment for ED. All types of PDE5Is can be equally effective. Which drug is best for you depends on how often you want to have sexual activity, and your personal experience.

Because of the success of PDE5Is in treating ED, there are many fake pills on the market. These drugs are not approved for sale, they may be toxic and may damage your health. Always talk to your doctor or healthcare provider before using or buying medication for ED.

Sildenafil

Sildenafil is the oldest available PDE5I and is available as a pill. It comes in doses of 25, 50, and 100 mg. The dosage can be adjusted according to your needs. You can feel the effects of the drug 30-60 minutes after taking it. They may last for up to 12 hours. If you eat a fatty meal right before taking sildenafil, the drug is less effective.



Interesting Fact

Sildenafil, best known by its brand name Viagra®, is the oldest and best known drug for ED. Although new drugs have been developed, it still accounts for more than 40% of all PDE5Is sales.

Tadalafil

Tadalafil is available as a pill. It comes in doses of 5, 10, and 20 mg. The dosage can be adjusted according to your needs. You will start to feel the effects of the drug 30 minutes after taking it. It is most effective after 2 hours. The effects may last for up to 36 hours. In contrast to other PDE5Is, food has no effects on the working of tadalafil.

Vardenafil

Vardenafil is available as a pill, or as a dissolvable tablet. It comes in doses of 5, 10, and 20 mg. The dosage can be adjusted according to your needs. You will start to feel the effects of the drug 30 minutes after taking it. If you eat a fatty meal right before taking vardenafil, the drug is less effective.

Avanafil

Avanafil is the most recent PDE5I to become available. It comes in doses of 50, 100, and 200 mg. The dosage can be adjusted according to your needs. You can feel the effect of the drug 15-30 minutes after taking it. Taking the pill with any food can delay its effects.

Side effects

PDE5Is can cause headaches, flushing of the skin, heartburn, a stuffy nose, and dizziness. Vardenafil can cause changes in vision, and tadalafil and avanafil could cause back and muscle pain. All these side effects stop when you stop taking the pill.

When are PDE5Is not recommended?

The use of PDE5Is is not recommended if you are taking medication with a nitrate basis, or if you take alpha blockers. They could lead to a sudden decrease in blood pressure. If you have any concerns, discuss with your doctor.

What if PDE5Is don't work?

If you believe that PDE5Is are not working for you, it is important to figure out the cause. For that, you need to answer the following questions:

- Did you use the medication at least four different times?

- Have you used the maximum dose of the drug?
- Have you used the sexual stimulation when you took the drug?
- Did you wait long enough for the drug to take effect?
- Did you wait too long before starting sexual stimulation?

If with the highest dose and correct use PDE5Is are still not effective, discuss other possible treatment options with your doctor.

Vacuum erection device

What is a VED?

The vacuum erection device (VED), is a cylinder-shaped device that comes with a rubber or silicon constrictive ring that tightens around the penis. A VED makes it possible to get and maintain an erection.

When should I consider a VED?

You should consider a VED if PDE5Is are not effective. A VED is also an alternative treatment option if you cannot use PDE5Is or if you do not want to take medication for ED.

How does a VED work?

By placing the cylinder over your penis, you create a vacuum with a manual or an electronic pump which removes the air from the cylinder. This process draws blood into the penis, so that it gets swollen and then erect (**Fig. 1**).

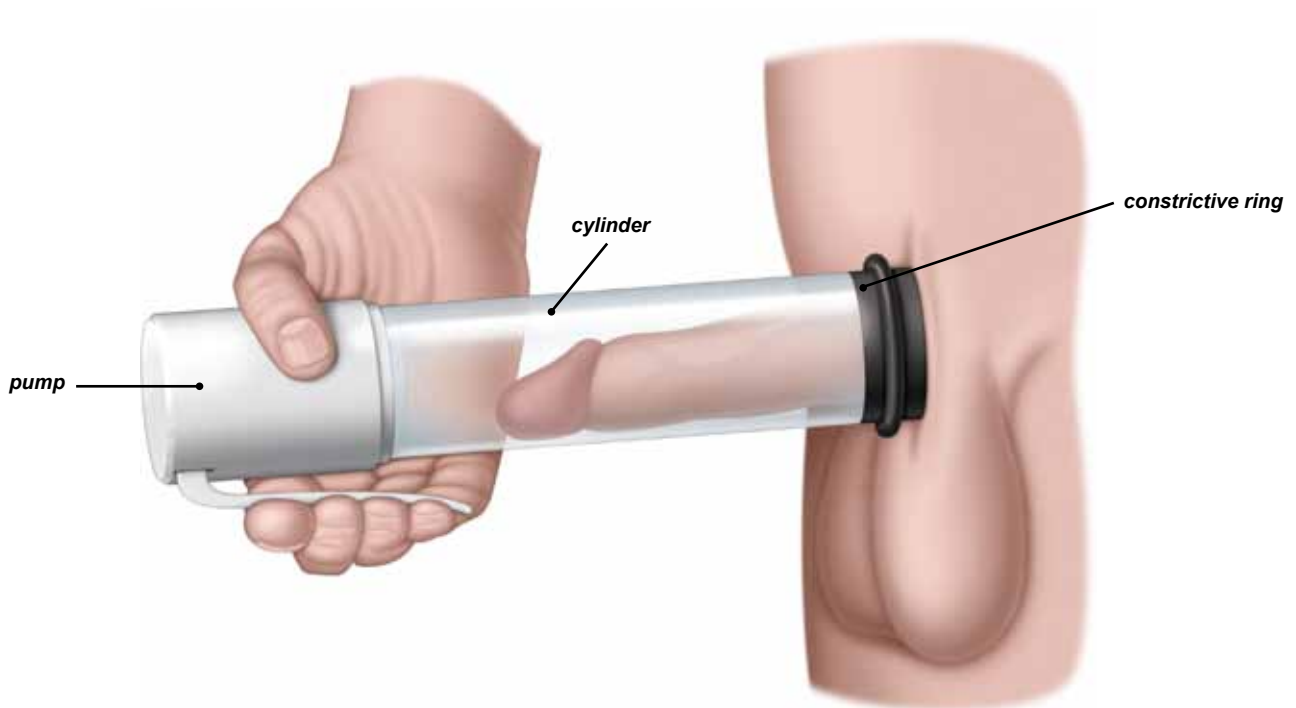


Fig. 1: A common type of vacuum erection device (VED).

After removing the pump you need to place the rubber or silicon ring around the base of the penis, to keep an erection. Never leave the ring on for more than 30 minutes.

It is important to be aware that the blood drawn into the penis is dark in colour. As a result, your penis feels colder to the touch and looks slightly blue once the band is in place. Some people do not mind, but if this makes you or your partner uncomfortable, make sure to discuss your concern with each other, and your doctor.

It is very important to know that the ring should be removed after 30 minutes. The blood drawn into the penis is low in oxygen, and the lack of oxygen can damage the skin in the penis.

If you choose to use a constrictive ring without a VED, make sure that it is made of flexible material like silicone or rubber. Never use rigid materials such as steel or hard plastic because they may be difficult to remove.

When is the VED not recommended?

VEDs are not recommended if you take medication to prevent blood clotting, or if you have a bleeding disorder.

What are the side effects of VEDs?

VEDs can cause some discomfort, difficulty with ejaculation during orgasm, bruising of the skin of the penis, and numbness. Leaving the constrictive ring for more than 30 minutes can cause severe skin damage to the penis.

Shockwave therapy

What is shockwave therapy?

Extracorporeal Shock-Wave Therapy (ESWT) is a therapy in which short pulses of focussed shock waves with a very low intensity are directed at the penis to improve erectile function. It consists of several sessions, and it can be repeated if necessary.

ESWT is being researched as a new treatment option for ED. It is not a standard treatment option. Specific ESWT devices are necessary to treat ED. Discuss with your doctor if ESWT is the right treatment for you and if it is available in your hospital.

When should I consider ESWT?

If you have mild ED and you cannot or do not want to take PDE5Is, your doctor may recommend ESWT. Keep in mind that ESWT is currently no standard option for the treatment of ED.

How does it work?

ESWT causes minor damage to penile tissue. During the healing process new blood vessels are formed, which increase the blood flow to the penis. This may result in improved ability to get and maintain an erection.

Intracavernous injections

What are intracavernous injections?

Intracavernous injections are a treatment option for ED where you inject drugs into the spongy tissue in the penis to open the blood vessels.

When should I consider intracavernous injections?

Intracavernous injections are a treatment option if previous treatments such as lifestyle changes or PDE5Is were unsuccessful. Although many men will be scared by the idea of placing a needle into their penis, most men who choose injection therapy quickly realize that the benefits of the injection far outweigh a little pinprick.

How do intracavernous injections work?

The drugs in intracavernous injections relax smooth muscle in the vessels in the penis to increase blood flow. This results in an erection 10-15 minutes after the injection, even without sexual stimulation.

The most common drug used for intracavernous injections is alprostadil. In some cases your doctor may

recommend a combination of drugs to improve the effect or reduce the side effects. Common drugs include: papaverine, phentolamine, vaso-active intestinal peptide, atropine and forskolin. Dosages may vary and can be adjusted as needed. Keep in mind that not all drugs are available in all countries.

How do I perform an intracavernous injection?

You will receive an in-office training from your urologist to learn how to inject yourself. In some cases your partner may receive training as well. During the training the urologist will also discuss the correct dosage with you.

The location of the injection is important. Make sure to inject at the base of the penis, and between 2 and 4 'o clock, or 8 to 10 'o clock positions in order not to damage the urethra or the nerves and blood vessels in the penis (**Fig. 2**). Then, gently apply pressure for 2-5 minutes at the injection site to prevent bruises. If the correct dosage is injected, you will have an erection within 10-15 minutes.

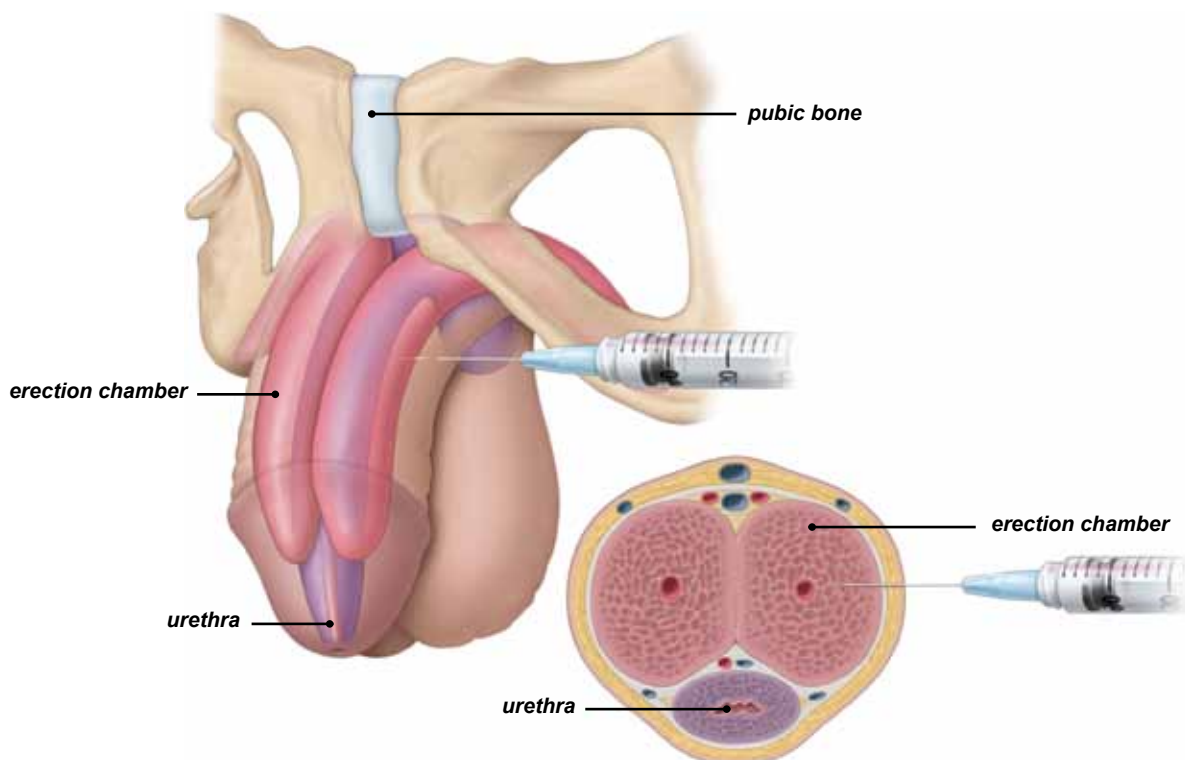


Fig. 2: Intracavernous injections are a treatment option for ED.

When are intracavernous injections not recommended?

You should not use intracavernous injections when you are hypersensitive to any ingredients in the drug, when you are at risk for priapism, or when you take medications to prevent blood clotting. Your urologist can give you more in-depth information on these contraindications and discuss your individual situation.

What are the side effects?

The most common side effects of injections is pain in the penis during erection. This happens in about 1 out of 10 injections and the pain usually stops when the erection ends. Another minor side effect is bruising at the injection site.

The most serious side effect is priapism. This means that an erection lasts longer than 4 hours, and is painful. Priapism may damage the smooth muscle cells in the penile vessels, and can worsen ED. It is very important to contact your doctor if you have an erection that lasts longer than 2-3 hours. Generally priapism can be treated effectively with the injection of an antidote.

Penile Implants

What is a penile implant?

A penile implant, also called a penile prosthesis, is a medical device which is surgically implanted into the erection chambers of the penis in case of severe ED.

When should I consider penile implant surgery?

A penile implant is an option if you have tried PDE5Is and intracavernous injections and both had little effect on ED. It may also be recommended if you cannot use PDE5Is or the drugs in the injections. If you have tried PDE5Is and injections, but are unhappy with the results and you want a permanent solution, a penile implant may be an option for you.

How does a penile implant work?

There are two types of penile implants: semirigid, noninflatable implants and inflatable implants.

Semirigid implants consist of two bendable rods that are implanted in the erection chambers of the penis. They can be bent into position during sexual activity. With this type of implant the penis is always semi-rigid, which may be difficult to conceal.

Inflatable penile implants are devices filled with fluid which consist of two inflatable cylinders placed in the erection chambers of the penis, a hand-controlled pump placed in the scrotum, and a reservoir which stores fluid when the penis not erect. The device is inflated by squeezing the pump several times to move the fluid from the reservoir to the cylinders. Afterwards, the pump is also used to move the fluid back to the reservoir (**Fig. 3**).

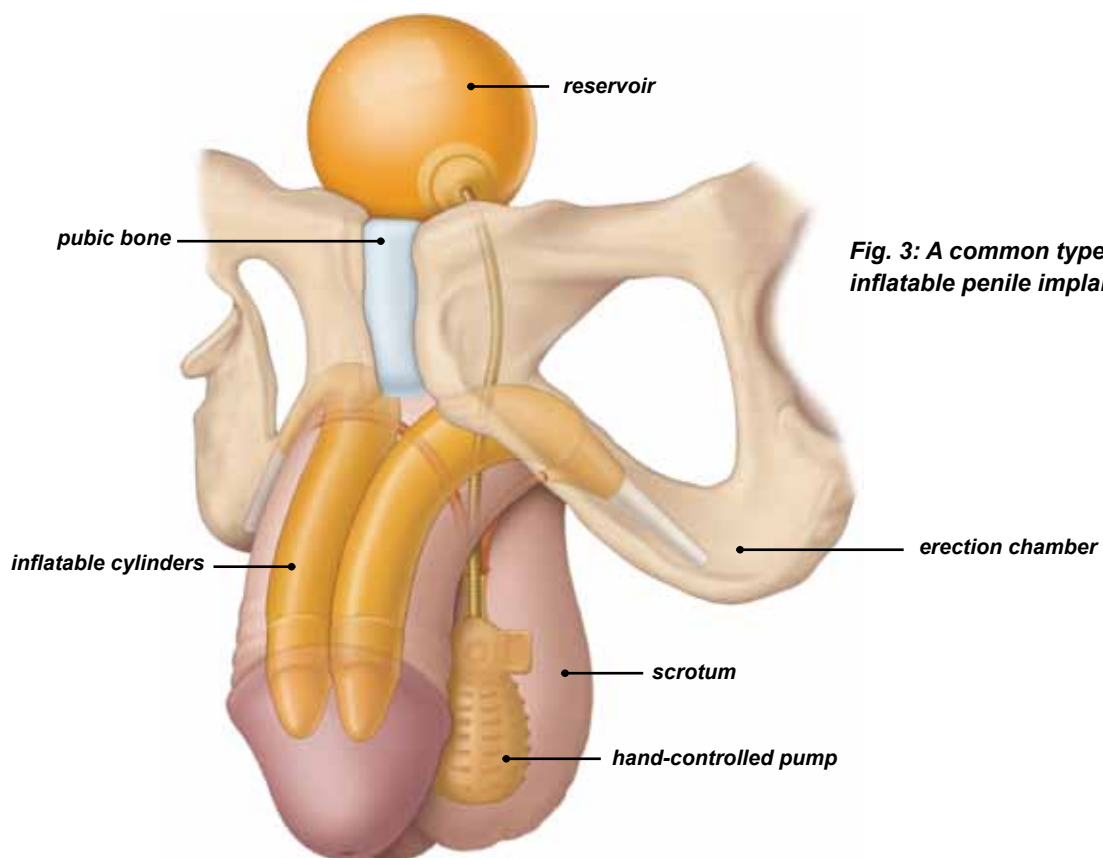


Fig. 3: A common type of inflatable penile implant.

You need surgery for both types of implants. Both types of implants are placed completely inside the body. Inflatable implants are used more often because they result in a more natural situation. In complicated cases, semi-rigid implants may be more suitable. Discuss the choice between the two implants with your urologist.

How do I prepare for the procedure?

Your doctor will advise you in detail about how to prepare for the procedure. You must not eat, drink, or smoke for 6 hours before surgery to prepare for the anaesthesia. If you are taking any prescribed medication, discuss it with your doctor. You may need to stop taking it several days before surgery.

How is penile implant surgery performed?

For penile implant surgery, you will receive either general or spinal anaesthesia. You will also get a urinary catheter, which can be removed the day after surgery. Once you are under anaesthesia, the doctor will make a small incision either just above the penis or between the penis and the scrotum. The incision exposes the erectile chambers, and the surgeon measures them to place a penile implant of the correct length.

Once the cylinders are in place, the reservoir is placed behind the abdominal wall, and the pump is placed in the scrotum between the testicles to conceal the pump.

Finally, all elements of the implant are connected and the incision is sutured. The wounds are cleaned and a compressive bandage is applied. Most surgeons choose to leave the penile implant inflated for one day. Some surgeons prefer to leave a drain which is then usually removed one day after the procedure.

How long will it take me to get back to my daily activities?

Usually you can leave the hospital the day after surgery, when the compressive bandage has been removed and the implant has been deflated by your doctor. You may experience pain or soreness and

swelling of the penis and scrotum in the first few days and up to several weeks after surgery. This is normal, and can be treated with analgesics and cold packs. In the first 2-3 days after surgery there may be a small amount of discharge from the incision. There is no need to treat this because it usually stops on its own.

For 4-6 weeks after the surgery:

- Do not lift anything heavier than 5 kilograms
- Do not do any heavy exercise and avoid bike riding
- Do not take thermal baths or go to the sauna
- Discuss any prescribed medication with your doctor

Your doctor will schedule an appointment to inflate the implant for the first time. This is done once the swelling and soreness have gone, about 4-6 weeks after the procedure. After the appointment you may start having sexual activity.

Please notify your urologist if:

- The swelling is severe or not improving
- You have discharge of a large amount of fluid each day
- The pain gets worse or does not improve
- You notice increased redness or tenderness around the incision site
- You have a fever

Advantages

- Low rate of mechanical failure
- It is possible to inflate the device discreetly
- Inflatable implants are easy to conceal
- No risk of priapism
- Highest level of satisfactory outcome out of all possible treatments
- Highest level of patient satisfaction of all ED therapies, if the patients and their partners are informed correctly about what to expect from the implant

Disadvantages

- The surgery is definitive
- In case the device is removed there is no return to erectile function
- Low risk of infection
- Low risk of device failure. Generally, inflatable implants last 10-15 years. It is possible to replace them in the case that the device fails.
- Very low risk of uncontrolled bleeding after the surgery and need for reoperation
- Very low risk of scar tissue formation
- Very low risk of erosion requiring removal
- The glans does not enlarge during erection
- Penile implants do not enlarge the penis or correct previous length loss due to radical prostatectomy, radiation, ageing, weight gain, or long-term ED

This information was updated in May 2015.

This leaflet is part of EAU Patient Information on Erectile Dysfunction. It contains general information about this condition. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider. No leaflet can replace a personal conversation with your doctor.

This information was produced by the European Association of Urology (EAU) in collaboration with the EAU Section of Andrological Urology (ESAU) and the Young Academic Urologists (YAU).

The content of this leaflet is in line with the EAU Guidelines.

You can find this and other information on urological diseases at our website: <http://patients.uroweb.org>

Series contributors:

Dr. Maarten Albersen	Leuven, Belgium
Dr. Eduardo García-Cruz	Barcelona, Spain
Prof. Dr. Kostas Hatzimouratidis	Thessaloniki, Greece
Prof. Dr. Markus Margreiter	Vienna, Austria
Dr. Ege Can Serefoglu	Istanbul, Turkey
Dr. Chaira Simonelli	Rome, Italy
Prof. Dr. Wolfgang Weidner	Giessen, Germany