

Erectile dysfunction (impotence)

Introduction

Erectile dysfunction (ED), also known as impotence, is the inability to get and maintain an erection that is sufficient for satisfactory sexual intercourse.

Read more about the symptoms of erectile dysfunction.

ED is a very common condition, particularly in older men. It is estimated that half of all men between the ages of 40 and 70 will have it to some degree.

Why does erectile dysfunction happen?

ED can have a range of causes that can be both physical and mental (psychological). Physical causes include:

narrowing of the blood vessels going to the penis – commonly associated with high blood pressure (hypertension), high cholesterol or diabetes

hormonal problems

surgery or injury

Psychological causes of ED include:

anxiety

depression

relationship problems

Diagnosis

Although you may be embarrassed, it is important that a healthcare professional diagnoses ED so that the cause can be identified.

ED can usually be diagnosed after a consultation with your DOCTOR. This will involve answering questions about your symptoms, as well as a physical examination and some simple tests.

How is erectile dysfunction treated?

ED is primarily treated by tackling the cause of the problem, whether this is physical or psychological.

The narrowing of the arteries (called atherosclerosis) is one of the most common causes of ED. In these cases your DOCTOR may suggest lifestyle changes, such as losing weight, to try to reduce your risk of cardiovascular disease. This may help to relieve your symptoms as well as improving your general health. You may also be given medication to treat atherosclerosis, such as cholesterol-lowering statins and drugs to reduce your blood pressure.

There are several treatment options that have proved very successful for ED. Medication, such as sildenafil (sold as Viagra), can be used to successfully manage it in at least two-thirds of men. Vacuum pumps that encourage blood to flow to the penis and cause an erection are also successful in 90% of cases.

Psychological treatments include cognitive behavioural therapy (CBT) and sex therapy.

Overall, treatments for ED have improved significantly in recent years. These days most people are eventually able to return to successful intercourse.

Symptoms of erectile dysfunction

The main symptom of erectile dysfunction (ED) is the inability to get and maintain an erection for satisfactory intercourse.

ED should not be confused with ejaculation problems such as premature ejaculation, which is a condition where the process of arousal, orgasm and ejaculation occurs very rapidly.

Inability to get an erection

Sometimes ED only occurs in certain situations. For example, you may be able to get an erection during masturbation, or you may find that you sometimes wake up with an erection but you are unable to get an erection with your sexual partner.

In these circumstances, it is likely that the underlying cause of ED is primarily psychological (stress related). However, if you are unable to get an erection under any circumstances, it is likely that the underlying cause is primarily physical.

Seek medical advice

See your DOCTOR if ED persists for more than a few weeks. They will assess your general state of health because the condition can be the first sign of more serious health conditions, such as heart disease (when the heart's blood supply is blocked or interrupted).

Many websites offer treatments for ED but their use is not recommended. The medications that are offered by these sites could be fake and may be dangerous. Even if the medications are genuine, they may not be suitable for you.

It is important that you only take medication for ED that your DOCTOR has prescribed for you.

Causes of erectile dysfunction

Erectile dysfunction (ED) can have many causes, such as other medical conditions, certain medications and stress related (psychological) issues.

To understand more about the possible causes of erectile dysfunction (ED) it is useful to understand how erections occur.

Erections

When a man becomes sexually excited (aroused), his brain sends signals to the nerves in his penis. The nerves increase the blood flow to the penis, causing the tissue to expand and harden. Therefore, anything that interferes with the nervous system or the blood circulation could lead to ED.

Anything that affects libido (level of sexual desire) can also cause ED because a reduced libido makes it more difficult for the brain to trigger an erection. Psychological conditions, such as depression, can reduce libido, as can changes in hormone levels (chemicals that are produced by the body).

Physical causes

There are four main types of health conditions that can cause physical problems resulting in ED. These are:

vasculogenic – conditions that affect the flow of blood to your penis

neurogenic – conditions that affect your nervous system, which is made up of your brain, nerves and spinal cord

hormonal – conditions that affect your hormone levels

anatomical – conditions that affect the physical structure of your penis

Vasculogenic conditions

Examples of vasculogenic conditions that can cause ED include:

cardiovascular disease – a disease of the heart or blood vessels, such as atherosclerosis (hardening of the arteries)

high blood pressure (hypertension)

diabetes – a condition that is caused by too much sugar (glucose) in the blood. This can affect both the blood supply and the nerve endings in your penis, so it is also a neurogenic condition.

ED is strongly associated with cardiovascular disease. For this reason, it may be one of the first causes that your DOCTOR considers when making your diagnosis and planning your treatment.

Neurogenic conditions

Examples of neurogenic conditions that can cause ED include:

multiple sclerosis – a condition that affects the body's actions and activities, such as movement and balance

Parkinson's disease – a condition that affects the way that the brain coordinates body movements, including walking, talking and writing

a spinal injury or disorder

a stroke – a serious medical condition that occurs when the blood supply to the brain is interrupted

Hormonal conditions

Examples of hormonal conditions that can cause ED include:

hypogonadism – a condition that affects the production of the male sex hormone, testosterone, causing abnormally low levels

an overactive thyroid gland (hyperthyroidism) – where too much thyroid hormone is produced

an underactive thyroid gland (hypothyroidism) – where not enough thyroid hormone is produced

Cushing's syndrome – a condition that affects the production of a hormone called cortisol

Anatomical conditions

Peyronie's disease, which affects the tissue of the penis, is an example of an anatomical condition that can cause ED.

Medicinal causes

In some men, certain medicines can cause ED, including:

diuretics – medicines that increase the production of urine and are often used to treat high blood pressure (hypertension), heart failure and kidney disease

antihypertensives – medicines, such as beta-blockers, that are used to treat high blood pressure

fibrates – medicines that are used to lower cholesterol levels

antipsychotics – medicines that are used to treat some mental health conditions, such as schizophrenia

antidepressants – medicines that are used to treat depression and some types of pain

corticosteroids – medication that contains steroids, which are a type of hormone

H2-antagonists – medicines that are used to treat stomach ulcers

anticonvulsants – medicines that are used to treat epilepsy

antihistamines – medicines that are used to treat allergic health conditions, such as hay fever

anti-androgens – medication that suppresses androgens (male sex hormones)

cytotoxics – medication used in chemotherapy to prevent cancer cells from dividing and growing

Speak to your DOCTOR if you are concerned that a prescribed medicine is causing ED. Alternative medication may be available. However, it is important never to stop taking a prescribed medicine unless you are advised to do so by your DOCTOR or another qualified healthcare professional who is responsible for your care.

Psychological causes

Possible psychological causes of ED include:

depression – feelings of extreme sadness that last for a long time

anxiety – a feeling of unease, such as worry or fear

ED can often have both physical and psychological causes. For example, if you have diabetes, it may be difficult for you to get an erection, which may cause you to become anxious about the situation. The combination of diabetes and anxiety may lead to an episode of ED.

There are many emotional issues that may also affect your physical ability to get or maintain an erection. These include:

relationship problems, such as being unable to talk openly about any problems that you have

lack of sexual knowledge

past sexual problems

past sexual abuse

being in a new relationship

Other causes

Other possible causes of ED include:

excessive alcohol intake

tiredness

using illegal drugs, such as cannabis, heroin or cocaine

Diagnosing erectile dysfunction

Erectile dysfunction (ED) can often be diagnosed by your DOCTOR. They will talk to you about your situation and may carry out a physical examination.

Some things your DOCTOR may ask you about include:

your symptoms

your overall physical and mental health

your alcohol consumption

whether you take drugs

whether you are currently taking any medication

Sexual history

Your DOCTOR will also need to ask you detailed questions about your sexual history. Try not to be embarrassed because ED is a common problem. You can request a male DOCTOR at your surgery if you prefer.

Your DOCTOR may ask about:

your previous and current sexual relationships

what your sexual orientation is

how long you have been experiencing ED

whether you can get any degree of erection with your partner, on your own or when you wake up in the morning

whether you have been able to ejaculate or orgasm

your libido (your level of sexual desire)

ED that occurs all the time may suggest an underlying physical cause. If ED only occurs when you are attempting to have sex with your partner it may suggest that there is an underlying psychological (mental) cause.

Assessing your cardiovascular health

An important cause of ED is narrowed blood vessels. These are also linked with cardiovascular disease (conditions that affect the heart and blood flow). Your DOCTOR may therefore assess your cardiovascular health by seeing if you

have any of the symptoms of cardiovascular disease. If you do, it is likely to be causing your ED.

Your DOCTOR may:

measure your blood pressure to see if you have high blood pressure (hypertension)

listen to your heart rate to check for any abnormalities

measure your height, weight and waist circumference to see if you are a healthy weight for your height

ask you about your diet and lifestyle, for example, how much exercise you do

test a sample of your blood for glucose (sugar) and lipids (fatty substances), as high levels can indicate conditions affecting your heart or blood vessels

Physical examinations and tests

Your DOCTOR may carry out a physical examination of your penis to rule out anatomical causes (conditions that affect the physical structure of your penis).

If you are over the age of 50, your DOCTOR may suggest that you have a digital rectal examination (DRE). This involves your DOCTOR wearing gloves and inserting a finger into your anus (back passage). A DRE can be useful for diagnosing problems with the prostate (the small gland between the penis and the bladder), such as prostate cancer.

Blood tests may also be used to check for possible underlying health conditions. For example, measuring the levels of hormones such as testosterone can rule out hormonal conditions, such as hypogonadism (an abnormally low level of testosterone).

Further testing

In some cases you may be referred to a specialist for further testing, although this is usually only required if you are unusually young to be experiencing ED. This is because ED is relatively rare in men who are under 40.

If it is thought that your ED is related to cardiovascular disease, these tests are rarely necessary.

Intracavernous injection test

An intracavernous injection test involves injecting a man-made (synthetic) hormone into your penis to increase the blood flow. This may be used to assess any abnormalities in your penis to help plan surgery.

If the injection fails to produce an erection it may indicate that there is a problem with the blood supply to your penis. If you do get an erection during an intracavernous injection test, it is still possible that there is a problem with your blood vessels. You may, therefore, need an ultrasound scan as well.

Arteriography and dynamic infusion cavernosometry or cavernosography

These are specialised tests that involve injecting dye into the blood vessels of your penis and studying the dye on a scanner. These are only likely to be used if you are being considered for surgery or if a problem has been detected with your blood vessels.

Psychological assessment

If there may be an underlying psychological cause for your ED, your DOCTOR may refer you for a psychological assessment. This could be with:

a psychologist – a healthcare professional who specialises in the assessment and treatment of mental health conditions

a psychiatrist – a qualified medical doctor who has received further training in treating mental health conditions

Treating erectile dysfunction

Counselling may be required if the underlying cause of your erectile dysfunction is psychological

Managing ED on the internet

As erectile dysfunction (ED) can be an embarrassing problem, some men are tempted to look for treatment on their own. It is possible to buy ED medication over the internet, but you should always exercise caution as there are many sites that offer counterfeit medicines. These medications are not regulated and the amount of active ingredients in them can vary. They could cause unpleasant side effects or they may not be suitable for you.

It is also possible that an underlying health condition may be causing your ED and getting this diagnosed and treated may resolve your symptoms. Therefore, always see your DOCTOR if you have ED for a full check-up.

Compare your options

Take a look at a simple guide to the pros and cons of different treatments for erectile dysfunction

Read more about the treatment options for erectile dysfunction

If you have erectile dysfunction (ED) the treatment that you will receive will depend on the underlying cause of the condition.

The treatment options for ED are explained below.

Treating underlying conditions

If your ED is caused by an underlying health condition, such as heart disease or diabetes, that condition may need to be treated first before treatment for ED can begin. In some cases, treating the underlying cause may also resolve the problem of ED.

If you are taking a medication that can cause ED and there is an alternative medicine available, your DOCTOR will discuss this with you. It is important never to stop taking a prescribed medication unless you are advised to do so by your DOCTOR or another qualified healthcare professional who is responsible for your care.

Lifestyle changes

The symptoms of ED can often be improved by making changes to your lifestyle. You can reduce your risk of ED by:

- losing weight if you are overweight
- giving up smoking
- moderating your alcohol consumption
- not taking illegal drugs
- exercising regularly
- reducing stress

As well as helping to improve your ED, these types of changes can also improve your general health. For example, losing weight may help to reduce your risk of cardiovascular disease (conditions that affect your heart and blood vessels).

Phosphodiesterase-5 (PDE-5) inhibitors

Phosphodiesterase-5 (PDE-5) inhibitors are one of the most widely used and effective types of medication for treating ED. They work by temporarily increasing the blood flow to your penis.

In England, three PDE-5 inhibitors are available for treating ED. They are:

- sildenafil – sold under the brand name Viagra
 - tadalafil – sold under the brand name Cialis
 - vardeafil – sold under the brand name Levitra
- Sildenafil, tadalafil and vardeafil

Sildenafil and vardeafil work for about eight hours and they are designed to work 'on demand'. Tadalafil lasts for up to 36 hours and is more suitable if you require treatment for a longer period of time, for example, over a weekend.

Depending on the type of PDE-5 inhibitor you are taking and the dose, it should take about 30-60 minutes before it starts to work. With sildenafil and vardeafil,

you should be able to have sex from one to 10 hours after taking the medicine. After taking tadalafil, the effects will last for up to 36 hours.

It may take longer to notice the effects of the tablet if it is taken with food, so you should take your PDE-5 inhibitor on an empty stomach. You can then eat after an hour without affecting the medicine.

Only take one tablet within a 24-hour period.

You may have the choice of which PDE-5 inhibitor to take as sildenafil, tadalafil and vardenafil are likely to be equally effective. Your DOCTOR should explain the benefits of each medication and how it works. The choice may depend on:

how often you are sexually active

whether you have tried any of the medications before

There have been many studies to test the effectiveness of sildenafil, tadalafil and vardenafil. In general, at least two-thirds of men report having improved erections after taking one of these medicines.

If you do not find that PDE-5 inhibitors are effective it may be because:

you have not waited long enough after taking the dose

you have waited too long after taking the dose

the dose is not high enough

you have not had enough sexual stimulation

These medications are triggered by sexual stimulation, so you also need to be aroused for the medication to work.

Warnings

PDE-5 inhibitors should be used with caution in men who have cardiovascular disease, such as coronary heart disease (when your heart's blood supply is blocked or interrupted). However, sexual activity is also likely to be beneficial for your cardiovascular health. Your DOCTOR should discuss the risks and benefits with you and will prescribe PDE-5 inhibitors if you are fit enough.

PDE-5 inhibitors should also be used with caution in men who have anatomical problems with their penis, such as Peyronie's disease (a condition that affects

the tissue of the penis). However, this will also depend on your individual circumstances and, in some cases, PDE-5 inhibitors will be safe to use.

PDE-5 inhibitors should also be used with caution in men who:

are at risk of priapism – a painful erection that lasts for several hours

are also taking long lasting alpha-blockers – a medication that is used to treat a number of conditions, such as high blood pressure (hypertension)

Do not take PDE-5 inhibitors if you are also taking medicines or recreational drugs that contain nitrates. The combination of the two substances can have a dangerous effect on your heart.

Organic nitrates are often used to treat angina, and butyl nitrate is a recreational drug that is more commonly known as 'poppers'.

You are also warned not to take PDE-5 inhibitors if you:

have been advised not to take part in sexual activity or in activities that widen your blood vessels

have low blood pressure (hypotension)

have recently had a stroke – a medical emergency that occurs when the blood supply to the brain is interrupted

have unstable angina – an underlying heart condition that causes symptoms such as chest pain

have had a heart attack – a medical emergency where the blood supply to the heart is suddenly blocked

have a history of non-arteritic anterior ischaemic optic neuropathy – an eye condition that causes a sudden loss of vision

In some cases, PDE-5 inhibitors can still be used even if you are affected by one of these conditions. For example, after they have consulted an expert, your DOCTOR may advise that PDE-5 inhibitors are safe three to six months after a heart attack.

Side effects

PDE-5 inhibitors can cause some side effects, including:

headaches and migraines

flushing (redness)

indigestion

nausea (feeling sick)

vomiting (being sick)

a blocked or runny nose

back pain

vision disturbances

muscle pain

See the medicines information for erectile dysfunction.

Vacuum pumps

A vacuum pump is another treatment method for ED. It consists of a clear plastic tube that is connected to a pump, which is either hand or battery operated. You place your penis in the tube and pump out all of the air. This creates a vacuum that causes the blood to fill your penis, making it erect. You then place a rubber ring around the base of your penis in order to keep the blood in place, allowing you to maintain an erection for around 30 minutes.

It may take several attempts to learn how to use the pump correctly, but they are usually very effective. After using a vacuum pump, nine out of 10 men are able to have sex, regardless of the cause of their ED.

Considerations

You should not use a vacuum pump if you have a bleeding disorder or if you are taking anticoagulant medicines, which reduce the ability of your blood to clot.

Side effects of vacuum pumps include pain or bruising, although these occur in less than a third of men.

The Sexual Advice Association produces a number of factsheets, including one on vacuum pumps that provides details of companies that supply them.

Alprostadil

If your ED does not respond to treatment, or you are unable or unwilling to use PDE-5 inhibitors or a vacuum pump, you may be given a medicine called alprostadil. This is a synthetic (man-made) hormone that helps to stimulate blood flow to the penis.

Alprostadil is available as:

an injection directly into your penis – this is called an intracavernosal injection

a small pellet placed inside your urethra (the tube that carries urine from your bladder to the tip of your penis) – this is called urethral application

You may be trained in how to correctly inject or insert alprostadil. If your partner is pregnant, use a condom during sex if you are inserting alprostadil into your urethra.

Alprostadil will usually produce an erection after five to 15 minutes. How long the erection lasts will depend on the dose.

In men who did not respond to PDE-5 inhibitors, alprostadil injections were successful in 85 out of 100 men. Alprostadil that is inserted into the urethra is successful for up to two-thirds of men.

Warnings

Alprostadil should not be used:

in men at risk of priapism (a painful erection that lasts for several hours) – for example, those with sickle cell anaemia

alongside other ED medications

if you have a penile implant or if you have been advised to avoid sexual activity

Urethral application may also not be used in:

some men who have anatomical problems with their penis (conditions that affect the physical structure of the penis)

men who have infections of their penis, such as balanitis (inflammation of the head of the penis)

Side effects

Alprostadil can cause some side effects including:

changes in your blood pressure

dizziness

headache

pain in your penis

urethral burning or bleeding

reactions at the site of the injection, such as swelling

See the Alprostadil medicines information for more information about this medicine.

Hormone therapy

If a hormonal condition is causing ED, you may be referred to an endocrinologist. An endocrinologist is a healthcare professional who specialises in the treatment of hormonal conditions.

Hormones are chemicals produced by the body. Many hormonal conditions can be treated using injections of synthetic (man-made) hormones to restore normal hormone levels.

Surgery

Surgery for ED is usually only recommended if all other treatment methods have failed. It may also be considered in:

younger men who have experienced trauma (serious injury) to their pelvic area – for example, in a car accident

men with a significant anatomical problem with their penis

In the past, surgery was used if there was clear evidence of a blockage to the blood supply of the penis. The surgeon could unblock the blood vessels to restore a normal supply of blood. However, research now suggests that the long-term results of this type of surgery are poor, so it is unlikely to be used.

Penile implants

Penile implants are a type of surgery that may be considered. These can be:
semi-rigid implants – which may be suitable for older men who do not have sex regularly

inflatable implants – which consist of two or three parts that can be inflated to give a more natural erection

Complications

As with all types of surgery, having penile implants inserted carries a risk of infection. If you take preventative antibiotics (medicines to treat bacterial infections), the rate of infection is around two or three in 100. Mechanical problems with the implants may occur within five years in five per cent of cases.

Psychological treatments

If your ED has an underlying psychological cause then you may benefit from a type of treatment called sensate focus.

If conditions such as anxiety or depression are causing your ED, you may benefit from counselling (a talking therapy).

Sensate focus

Sensate focus is a type of sex therapy that you and your partner complete together. It starts with you both agreeing not to have sex for a number of weeks or months. During this time, you can still touch each other, but not in the genital area (or a woman's breasts).

Set aside a time when it is just the two of you. Massage, touch or stroke each other, with or without clothes on. The idea is to explore your bodies knowing that you will not have sex.

After the agreed period of time has passed, you can begin touching each other's genital areas. You may want to spend several weeks gradually increasing the amount of time spent touching the genital areas. You can also begin to use your mouth to touch your partner, for example, licking or kissing, them. This can build up to include penetrative sex.

Psychosexual counselling

Psychosexual counselling is a form of relationship therapy where you and your partner can discuss any sexual or emotional issues that may be contributing to your ED. By talking about the issues, you may be able to reduce any anxiety that you have and overcome your ED.

The counsellor can also provide you with some practical advice about sex, such as foreplay techniques and how to make effective use of other treatments for ED in order to improve your sex life.

Psychosexual counselling may take time to work and the results achieved have been mixed.

Cognitive behavioural therapy (CBT)

Cognitive behavioural therapy (CBT) is another form of counselling that may be useful if you have ED. CBT is based on the principle that the way you feel is partly dependent on the way you think about things. CBT helps you realise that your problems are often created by your mindset. It is not the situation itself that is making you unhappy, but how you think about it and react to it.

Your CBT therapist can help you to identify any unhelpful or unrealistic thoughts that may be contributing to your ED – for example, to do with:

your self-esteem (the way you feel about yourself)

your sexuality

your personal relationships

Your CBT therapist will be able to help you to adopt more realistic and helpful thoughts about these issues.

Pelvic floor muscle exercises

Some studies have suggested that, in a few cases, it may be beneficial to exercise your pelvic floor muscles. These are a group of muscles around the underside of the bladder and rectum, as well as at the base of the penis.

Pelvic floor muscle exercise involves strengthening and training the muscles used to control the anus (back passage) and urinate. If your DOCTOR feels this type of exercise could be beneficial, then you may want to discuss it with a physiotherapist in order to learn it correctly.

By strengthening and training these muscles, you may be able to reduce the symptoms of ED.

Complementary therapies

Some complementary therapies, such as acupuncture, have claimed to treat ED. However, there is little evidence that they are useful.

In some cases, they may even include ingredients that could interact with other medications and cause side effects.

Always speak to your DOCTOR before using any complementary therapies.