

BPH - Prostate enlargement

Introduction

About the prostate

The prostate is located in the pelvis, between the penis and bladder, and surrounds the urethra (the tube that carries urine from the bladder to the penis).

The prostate is involved in the production of semen. It produces a thick, white fluid that is made into a liquid by a protein called prostate-specific antigen (PSA). The liquid is then mixed with sperm, produced by the testicles, to create semen.

Prostate enlargement, also known as benign prostatic hyperplasia, is a common condition that affects older men. It is usually not a serious threat to health.

The prostate is a small gland found only in men, located between the penis and bladder (see [About the prostate](#) on this page).

If the prostate becomes enlarged, it can place pressure on the bladder and urethra, the tube through which urine passes. This can affect how you pass urine, because it may cause:

difficulty starting urination

a frequent need to urinate

difficulty fully emptying the bladder

These symptoms can range from mild to severe. See [symptoms of prostate enlargement](#).

Many men worry that having an enlarged prostate means that they have an increased risk of developing prostate cancer. This is not the case. Men with prostate enlargement do not have a higher risk of prostate cancer compared to men without an enlarged prostate.

How common is prostate enlargement?

Prostate enlargement is a common condition associated with ageing. Around 60% of men who are aged 60 or over have some degree of prostate enlargement.

The cause of prostate enlargement is unknown, but most experts agree that it is linked to changes in hormone levels in a man's body due to ageing (see causes of prostate enlargement for more information).

Outlook

Prostate enlargement is not usually a serious threat to a man's health.

In some men, the symptoms are mild and do not require treatment. In others, symptoms can be very troublesome and have a major impact on their quality of life.

Complications of prostate enlargement can include urinary tract infections (UTIs) or acute urinary retention (AUR) but serious complications are rare.

There are several treatments available for prostate enlargement, including:

lifestyle changes, such as avoiding alcohol and caffeine

medication

surgery

Symptoms of prostate enlargement

The symptoms of prostate enlargement are caused by the enlarged prostate placing pressure on the bladder and urethra (which carries urine from the bladder to the penis).

This can affect urination in the following ways:

making it difficult for you to start urinating

weaken the flow of urine, or cause "stopping and starting"

cause you to strain to pass urine

cause you to frequently need to urinate

cause you to wake up frequently during the night to urinate

cause a sudden urge to urinate, which can result in incontinence if you cannot find a toilet quickly enough

cause you to not be able to empty your bladder fully

cause blood in the urine (haematuria)

In late stages, prostate enlargement can cause urine retention and other complications like bladder stones, bladder infections and damage to the kidneys.

When to seek medical advice

See your DOCTOR if you notice any problems with or changes to your usual pattern of urination. Even if the symptoms are mild, they could be caused by a condition that needs to be investigated.

Any blood in the urine must be investigated by your DOCTOR, to rule out other more serious conditions.

Causes of prostate enlargement

The exact cause of prostate enlargement is unknown, but research suggests that hormones probably play an important role in the development of the condition.

Hormones are a group of powerful chemicals that can have a wide range of effects on the cells of the body.

One theory is that as some men get older, the levels of a type of hormone called dihydrotestosterone (DHT) increases, which may stimulate the growth of the prostate.

Another theory suggests that prostate enlargement may be due to two hormones, testosterone and oestrogen. Younger men produce high levels of testosterone and much smaller levels of oestrogen. However, as men get older, their levels of testosterone decrease, which means they then have a higher proportion of oestrogen in their body. It has been suggested that the relative increase in oestrogen may stimulate prostate growth.

Risk factors

Research has shown that rates of prostate enlargement are higher among men who have high blood pressure and diabetes. However, as both diabetes and high blood pressure are also associated with the natural ageing process, there may not be a direct connection between the three conditions.

Diagnosing prostate enlargement

Your DOCTOR will first need to determine whether your symptoms match the usual pattern of symptoms for people with prostate enlargement.

International Prostate Symptom Score (IPSS)

The next stage of the assessment is to calculate your International Prostate Symptom Score (IPSS).

This involves completing a questionnaire to assess your symptoms. Each question has five possible answers that carry a score and your overall score is used to assess the severity of your symptoms.

The checklist includes the following questions.

Over the past month:

How often have you had the sensation of not completely emptying your bladder after urinating?

How often have you had to urinate again less than two hours after finishing urinating?

How often have you found that you stopped and started again when urinating?

How often have you found it difficult to postpone urination?

How often have you had a weak stream of urine?

How often have you had to push or strain to begin urinating during the course of one night?

How often have you had to get up during the night to urinate?

After your DOCTOR has assessed how severe your symptoms are, they will aim to rule out other conditions with similar symptoms through certain tests.

Ruling out other conditions

Ruling out other conditions is particularly important because the symptoms of prostate enlargement are similar to those of prostate cancer. Your DOCTOR has to be completely sure that your symptoms are not caused by cancer.

Urine tests

A urine test can be used to check if your symptoms are caused by an infection in your urinary system, such as a kidney or bladder infection.

Rectal examination

Your DOCTOR may carry out a rectal examination to check if you might have prostate cancer. Prostate cancer can cause the prostate gland to become hard and bumpy.

Your DOCTOR will put a glove on one hand and use a gel to lubricate one of their fingers. They will then gently push the finger into your anus and then up into your rectum. Because the rectum is close to the prostate gland, they will be able to check whether the surface of the gland has changed. The procedure will feel a little uncomfortable but it is not usually painful.

Prostate cancer does not always cause changes to the gland, so you will probably need to have some further tests to rule out prostate cancer.

Prostate-specific antigen (PSA) test

A blood test can be used to measure the amount of the prostate-specific antigen (PSA) protein that is produced by the prostate.

A raised PSA level indicates enlargement of the prostate and a significantly raised level may indicate prostate cancer. However, as with the rectal examination, a PSA test cannot give a definitive diagnosis of prostate cancer.

Transrectal ultrasound (TRUS)

A transrectal ultrasound (TRUS) is a type of ultrasound scan specifically designed to study the prostate and the surrounding area.

An ultrasound probe is placed into your rectum and uses soundwaves to build a detailed image of your prostate.

A TRUS measures the size of your prostate and can be used to either confirm or rule out a diagnosis of prostate cancer.

Intravenous urography (IVU)

An intravenous urography (IVU) is an X-ray used to study the urinary tract (kidneys, bladder and tube through which urine passes).

An IVU can be used to check for blockages in your urinary system that could be causing your symptoms, such as a kidney or bladder stone. An IVU can also detect any damage caused to the urinary tract.

During an IVU, you will be injected with a harmless radioactive dye, which will appear on the X-rays. After 30 to 60 minutes, the dye should have passed into your urinary tract and a series of X-rays will be taken. In some cases, you may be asked to pass urine before the final X-ray is taken.

Voiding charts

A voiding chart is a urination diary, which you may be asked to keep for 24 hours. You will be asked to record how often you urinate, as well as details about how you urinate – for example, whether your urination is stopping and starting or whether it is difficult to start urinating.

A voiding chart is a good way to find out more information about your symptoms and can be used to determine the type of treatment that would be most effective in controlling your symptoms.

Uroflowmetry

Uroflowmetry measures the pressure of your bladder and how well your bladder works when you urinate.

You will be given a local anaesthetic and a small flexible tube (catheter) will be inserted into your urethra and moved up into your bladder.

Water will then be injected through the catheter and into your bladder. A computer connected to the catheter measures the pressure inside your bladder and can assess how well your bladder is working.

As with voiding charts, uroflowmetry is a good way of determining what type of treatment will help control your symptoms.

Treating prostate enlargement

If you have an enlarged prostate, your treatment plan will be determined by how severe your symptoms are.

If your symptoms are mild to moderate, you will receive no immediate medical treatment but will be given regular check-ups to carefully monitor your prostate. This is often referred to as "watchful waiting".

You will probably also be advised to make changes to your lifestyle to see if they improve your symptoms. These lifestyle changes are explained below, along with the training and treatments that can later be tried, if necessary.

Lifestyle changes

You may be advised to:

Stop drinking any liquids for one to two hours before going to bed. This will help to prevent nocturia (waking up during the night to pass urine).

If you've been prescribed medication (see below), experiment with the time you take this. For example, taking it at 7pm may help prevent nocturia.

Stop drinking alcohol and caffeine, or limit your consumption of them. They can irritate your bladder and make your symptoms worse.

Exercise regularly. Research has shown that moderate exercise, such as walking for 30 to 60 minutes a day, can improve symptoms (although it is unclear exactly why this is). Read more information on ways to get regular exercise.

Join a patient support group (your doctor should be able to recommend one), which may help you manage mild symptoms without the need for medication.

Bladder training

Bladder training is an exercise programme to increase the time between urination and to increase the amount of urine your bladder can hold.

You will be given a target, such as waiting for at least two hours between each time you urinate. It's a good idea to use a bladder training chart, which allows you to record each time you pass urine and record the volume of urine passed (you'll need a plastic jug to measure this). Your doctor should give you a chart to take home.

You will also be taught a number of exercises, such as breathing, relaxation and muscle exercises, to help take your mind off the need to urinate.

Over time, your target time will be increased and at the end of the programme you should find that you are able to go for longer without urinating.

Bladder training should only be tried under medical supervision.

Medication

Medication, in combination with the lifestyle changes above, is usually recommended to treat moderate to severe symptoms of prostate enlargement.

Finasteride or dutasteride

Finasteride and dutasteride are widely used to treat prostate enlargement. They block the effects of a hormone called DHT (see causes of prostate enlargement) on the prostate gland, which can reduce the size of the prostate and improve your associated symptoms.

If you are prescribed one of these medications, you may experience an immediate improvement in symptoms. However, you'll need to take it for at least six months to get the maximum benefit, and your doctor will need to monitor you every year.

Use condoms if you are sexually active, because both finasteride and dutasteride can have an adverse affect on your sperm. If you get a woman pregnant, there is a risk the baby could develop birth defects.

Side effects can also include:

impotence (inability to get an erection)

little or no sperm when you ejaculate

In many cases, these side effects will improve as your body gets used to the medication. See your DOCTOR if the side effects are troubling you.

Research has shown long-term use of finasteride or dutasteride have both benefits and risks in relation to prostate cancer.

The benefit is that taking the medication will lower your risk of getting prostate cancer. The risk is that if you do develop prostate cancer, it may be a more aggressive form of the disease.

Your DOCTOR can give you more information about the risks and benefits of finasteride.

Alpha blockers

Alpha blockers help relax the muscles of your bladder, making it easier to pass urine.

You may be given alpha blockers as your primary treatment or in combination with finasteride.

Tamsulosin and alfuzosin are two alpha blockers commonly used to treat prostate enlargement. Side effects of tamsulosin and alfuzosin are uncommon and usually mild. They include:

dizziness

headaches

weakness

little or no sperm when you ejaculate

You should only begin taking alpha blockers over a restful weekend when you're not planning to drive, as there's a risk these could cause low blood pressure and fainting.

Generally, if you experience dizziness while on this medication, avoid driving or operating heavy machinery until it has passed.

Surgery

Surgery is usually only recommended for moderate to severe symptoms of prostate enlargement that have failed to respond to medication.

Trans-urethral resection of the prostate (TURP)

Trans-urethral resection of the prostate (TURP) is a surgical procedure where excess prostate tissue is removed to reduce the pressure on your bladder.

The surgeon will insert a small instrument into your urethra (the tube through which urine passes). An electric wire loop heated by radio waves is moved across to slice away excess tissue.

TURP is not painful because it is performed using either a general anaesthetic (where you are asleep) or a regional anaesthetic (where you are awake, but the lower half of your body is numbed).

Most men are well enough to leave hospital two to three days after the operation.

A common complication of TURP is that you will no longer produce semen when you ejaculate. This is known as retrograde ejaculation. It results in sperm going into your bladder rather than out of your penis during ejaculation.

However, you will still experience the physical pleasure associated with ejaculation (the climax).

Alternative techniques

There are a number of newer surgical techniques that may lead to fewer side effects, or a quicker recovery, than a TURP.

However, as these treatments are still fairly new they may not be available and their long-term effectiveness is not always clear.

These alternative techniques are explained below.

Bipolar transurethral resection of the prostate - different instruments are used to perform the procedure, which allow saline water to be pumped into the urethra rather than a fluid called glycine. This is thought to lead to a lower risk of TURP syndrome (see risks of a TURP).

Holmium laser enucleation of the prostate - a laser is used to remove excess prostate tissue using a similar route to a TURP. The procedure has shown good results in medium-term follow up (five to seven years) and is emerging as a promising alternative. It does not use glycine and hence there is no risk of TURP syndrome.

KTP laser vaporisation - a small tube known as a cystoscope is inserted into your urethra. The cystoscope fires pulses of laser energy to burn away prostate tissue.

Open prostatectomy

This procedure may be more effective than a TURP if you have severe prostate enlargement.

However, open prostatectomy is now very rarely used, even for larger prostates, due to the development of other techniques such as holmium laser enucleation of the prostate (see above).

The procedure carries a higher risk of complications, such as erectile dysfunction and urinary incontinence. There is also a greater chance these complications will become permanent than if they occur following a TURP.

During an open prostatectomy, an incision is made in your abdomen and the outer portion of your prostate is removed.

Preventing prostate enlargement

There is evidence to suggest that eating a diet high in protein and vegetables and low in red meat and fat may reduce your risk of developing an enlarged prostate.

Foods that are a good source of protein include:

eggs

milk

soya

tofu

fish

cheese

chicken

Complications of prostate enlargement

Prostate enlargement can sometimes lead to complications such as a urinary tract infection or acute urinary retention. Serious complications are rare.

Urinary tract infections

If you are unable to empty your bladder properly, there is a risk that bacteria in your urinary system will not get flushed out and will instead spread through the urine to cause a urinary tract infection (UTI).

Symptoms of a UTI include:

cloudy, bloody or bad-smelling urine

pain in your lower abdomen

nausea

vomiting

shaking and chills

a high temperature of 38°C (100.4°F) or more

UTIs can be treated with antibiotics. While a single UTI is not usually serious, repeated UTIs can damage your kidney and bladder. If you have a history of repeated UTIs, you may need to have surgery.

Acute urinary retention (AUR)

Acute urinary retention (AUR) is the sudden inability to pass any urine. AUR should be treated as a medical emergency because, without prompt treatment, urine may be passed back up into the kidneys, which can damage them.

Symptoms of AUR include:

the sudden inability to pass urine

severe pain in the lower tummy

swelling of the bladder that you can feel with your hands

If you or someone you know experiences the symptoms of AUR, call 999 and ask for an ambulance.

AUR can be treated using a thin tube (catheter) to drain the urine out of your bladder. In very serious cases, surgery may be required to empty the bladder.