

## Fact sheet: Surgical treatments for an enlarged prostate



Many men over the age of 50 will be familiar with the problem: A frequent urge to urinate, having to go to the toilet several times a night, but never really feeling relieved. The flow of urine may not be as strong as it used to be, and you may feel like your bladder never empties properly. About 1 in 3 men develop urinary problems as they get older, and they are usually caused by a benign enlarged prostate.

A lot of the time, men who have prostate problems cope well without treatment. But if the symptoms become so severe that their quality of life is affected, treatment can help. Prescription drugs are often used, and some men who have very severe symptoms consider surgery. But surgical treatment is only rarely necessary. Benign enlarged prostate generally does not require immediate medical attention, so it is nearly always possible to carefully weigh up the pros and cons of different treatments. This is particularly important when deciding whether or not to have surgical treatment.

You can read more about the prostate, typical symptoms and possible ways to cope in everyday life here ([URL: http://www.informedhealthonline.org/index.440.en.html](http://www.informedhealthonline.org/index.440.en.html)) . If you would like to find out more about the medication that is used, click here ([URL: http://www.informedhealthonline.org/index.441.en.html](http://www.informedhealthonline.org/index.441.en.html)) . This fact sheet focuses on the different surgical procedures and may help you to decide what kind of treatment is right for you. You will find more information about the research on surgical procedures here ([URL: http://www.informedhealthonline.org/index.439.en.html](http://www.informedhealthonline.org/index.439.en.html)) .

## What is an enlarged prostate?

The prostate lies directly underneath the bladder and surrounds part of the urethra, which is the canal through which urine passes from the bladder into the penis and then out of the body. As an important part of a man's sexual organs, its main function is to make the fluid in semen. In young men it is about as big as a walnut. As they get older, it continues to grow a little, and in 1 out of 5 men it starts to grow quite a lot after the age of 50.

The medical term for an enlarged prostate is benign prostatic hyperplasia or hypertrophy (BPH). "Benign" means that, although it is a growth, it is not cancerous. "Hyperplasia" means enlargement. Sometimes the symptoms that are associated with this condition are collectively called benign prostatic syndrome or lower urinary tract symptoms (LUTS). An enlarged prostate can

press on the bladder and urethra, which interferes with the flow of urine and the function of the muscles underneath the bladder. This can cause several problems affecting urination. But that does not mean that there is always a direct relationship between the size of the prostate and the symptoms. Some men have a greatly enlarged prostate but few symptoms, while others have only a small enlargement but major symptoms.

The severity of the symptoms is critical to the decisions around whether or not to have treatment and, if so, which kind of treatment to choose. With milder symptoms, it may not be necessary to do more than wait and see how things develop. Medication can help relieve mild to moderate symptoms.

## When is surgery considered, and when is it necessary?

Surgery is usually only considered if the man is finding it too difficult to cope with the symptoms, if complications arise, or if medication does not work or cannot be used. It may also be considered if the prostate problems become so severe that they could lead to other medical problems. Surgery is only necessary if, for instance, the man keeps getting urinary tract infections or if bladder stones develop because the bladder can no longer be emptied properly.

Unlike prostate cancer, which is rare, BPH is generally not dangerous. Immediate surgery is only needed if the prostate obstructs the urethra so much that the man can hardly urinate any more, or not at all. This rare complication is called urinary retention.

Some men have other illnesses or risks which mean that surgical treatment is not an option, or not advisable. For example, general anaesthetics may be too risky or too difficult in some people.

If there is no medical need for you to have surgical treatment, you can take your time to consider whether the possible benefits of such treatment are important enough for you to accept the potential adverse effects. You can read about other treatment options in our fact sheets on self-management ([URL: http://www.informedhealthonline.org/index.440.en.html](http://www.informedhealthonline.org/index.440.en.html)) and medications ([URL: http://www.informedhealthonline.org/index.441.en.html](http://www.informedhealthonline.org/index.441.en.html)) for BPH.

## What happens during surgical treatment?

Surgical treatment of enlarged prostates does not usually involve completely removing the prostate, but reduces its size so that it no longer puts pressure on the bladder and urethra. Most of the procedures are done by inserting miniature instruments down the urethra to either remove prostate tissue or widen the urethra. "Open surgery", where an incision (cut) is made in the skin of the abdominal wall, is only rarely necessary, for instance if the prostate is very large.

There are many different surgical techniques used to treat benign prostate enlargement. A lot of instruments and devices have been developed to cut away or destroy excess prostate tissue in various ways after being inserted into the urethra. Not every specialist and every hospital will use every single technique, however, which means that a man's decision to have a certain technique done will also depend on the medical facilities available. As with any surgical intervention, the surgeon's level of experience with a certain approach and the hospital's area of specialisation are particularly important.

A procedure called transurethral resection of the prostate (TURP) is considered to be the standard surgical approach used to remove excess prostate tissue. In the other forms of non-open surgery the tissue is destroyed or "vaporised" using lasers, microwaves or other sources of energy. Some approaches are more invasive than others.

### **The potential consequences of surgery**

Prostate surgery could lead to ejaculation problems, erection problems, urinary tract infections and temporary loss of bladder control (incontinence). And - like with any operation - there is a risk of bleeding that may need treating. A urinary catheter is usually required for a few days after treatment. We explain what this means below. During this time the man may have painful bladder spasms. In rare cases, surgery can cause narrowing of the urethra and permanent incontinence.

A common adverse effect of prostate surgery is "dry orgasm" or "dry climax" (retrograde ejaculation), where no semen or much less than usual is discharged from the penis during ejaculation - instead, it flows backwards into the bladder. This can happen if the muscles that close the entrance of your bladder during ejaculation are damaged. Although retrograde ejaculation is harmless and usually does not affect men's sensation of orgasm during sex, it reduces their fertility. It is not clear how common this adverse effect of various surgical procedures is. The results

of trials on surgical treatments for BPH have not provided any reliable answers to this question - for example, because the participants may have already been sexually inactive before the surgery, or this topic had not been approached in a way that allowed reliable conclusions to be drawn.

But even men who do not want to have children in the future may be concerned about the effects prostate surgery could have on their sex lives and worried that they could develop erection problems afterwards. Research suggests that surgery only rarely leads to permanent erection problems. How well you recover from surgery also depends on how healthy you were beforehand. The same is true regarding erectile function, although this may take longer to return to normal compared to other things.

### **What approach is considered to be standard surgery?**

The most commonly performed, and best researched, surgical procedure is called transurethral resection of the prostate (TURP) and variations thereof, like transurethral electrovaporisation (TUEVP) and transurethral vaporisation (TUVRP) of the prostate. Along with open surgery, TURP is still considered to be the most widespread and best studied treatment for the long-term relief of BPH symptoms, such as having to get up at night to urinate or having problems emptying your bladder.

This procedure involves inserting an instrument called a resectoscope into the urethra and guiding it through to the prostate. The thin tube is equipped with a tiny camera (endoscope) with a light, an electrical loop to mechanically remove bits of tissue as well as seal off blood vessels with the heat it produces, and valves for controlling the fluid used to flush the tissue out. The operation is done under local or general anaesthetic and takes about 90 minutes.

Most of the men (3 out of 4) who have TURP only have mild symptoms nine months after the operation. The others still benefit from TURP, but the effect is smaller. However, adverse effects are common with this procedure.

The main adverse effect of TURP is retrograde ejaculation. TURP can also cause so-called "TUR syndrome", which is associated with temporary nausea, vomiting or confusion. This rare but potentially life-threatening adverse effect can occur when some of

the fluid that is used to wash away the prostate tissue removed during surgery gets into the bloodstream. In rare cases TUR syndrome can lead to heart or circulation problems, and there is a small risk of heavy bleeding. You can read more about the research on TURP here (URL: <http://www.informedhealthonline.org/index.439.en.html>) .

Another surgical procedure, transurethral incision of the prostate (TUIP), involves relieving the pressure on the urethra rather than removing prostate tissue. "Incision" means cut. TUIP is carried out by inserting an instrument into the urethra and making one or two small cuts where the bladder meets the prostate. This widens the narrow urethra a little, and can relieve moderate symptoms. Adverse effects such as retrograde ejaculation are less common with this approach.

### What other techniques are used?

The surgical procedures used nowadays other than the standard approaches mainly differ from TURP in terms of the instruments and energy sources that are used to remove or destroy the prostate tissue. Some of these use lasers, others use heat. Treatment approaches that use heat are called thermotherapy. Like with TURP, the instruments are inserted into the urethra and guided to the prostate.

Although the different procedures may appear to be very different, some of them may have the same goal as TURP. In particular, holmium laser treatment is just as invasive as standard surgery.

It is not exactly certain how well these treatments work in the long term. Most techniques have not been clearly shown to relieve BPH symptoms as well as TURP does. But some approaches, like holmium laser treatment, may be just as effective or even more effective. Major adverse effects, such as bleeding and problems affecting sexual function, seem to be more likely to occur after TURP than after other procedures, and the patients recover a little sooner. You can read more about that here (URL: <http://www.informedhealthonline.org/index.439.en.html>) .

The laser treatments include:

- holmium laser enucleation of the prostate (HoLEP)
- holmium laser resection of the prostate (HoLRP)
- visual laser ablation of the prostate (VLAP)
- contact laser ablation of the prostate (CLAP)

In thermotherapy (heat therapy) the prostate tissue is heated to temperatures between 40°C and 80°C and destroyed. Thermotherapy that uses radio waves is called transurethral needle ablation (TUNA) and thermotherapy that uses microwaves is called transurethral microwave thermotherapy (TUMT). Both of these approaches can be carried out as an outpatient procedure, without the need for a hospital stay.

### Standard surgery and other procedures: what are the pros and cons?

Before deciding in favour of a certain kind of treatment, it is important to weigh up the pros and cons of the different options and discuss them with your doctor. Your options will depend on personal factors like your age, how healthy you are in general, and how big your prostate is.

### TURP

TURP is still considered to be the treatment with the best proven long-lasting effect in relieving symptoms associated with BPH. So if you want to be as sure as possible that your treatment will improve your urinary problems in the long term, TURP may be the most suitable option for you. Compared to some other approaches, a further operation is less likely to be necessary with TURP.

The disadvantages of TURP are:

- It takes longer to recover from TURP than it does to recover from other less invasive procedures.
- You may have to stay in hospital for two to four days.
- Serious adverse effects - including retrograde ejaculation, erection problems, incontinence and narrowing of the urethra - may be more common after TURP than they are after one of the other procedures. TURP can lead to "TUR syndrome", a rare but potentially life-threatening condition.
- Although TURP is usually successful, there is no guarantee that the symptoms will disappear after surgery.

### Other procedures

There is some evidence that four other procedures have a benefit too. These are transurethral microwave thermotherapy (TUMT), visual laser ablation (VLAP) and

the two holmium laser treatments, HoLEP and HoLRP. The holmium laser techniques could possibly be as effective as TURP.

A lot of men only have mild symptoms after having these operations. However, it is not possible to say for sure how many patients can expect a clear improvement in their symptoms or which other treatments may be as effective as, or even more effective than, TURP.

Some of the less invasive approaches can be carried out as an outpatient procedure, under local anaesthetic. They are associated with fewer and less serious adverse effects than TURP or open surgery. For example, some laser and other treatments are less likely to cause heavy bleeding. This could be an important decision factor for men who are taking blood-thinning medication. If they would like to have children in the future, some less invasive approaches that are associated with a lower risk of retrograde ejaculation would probably be more appropriate than TURP or a holmium laser treatment.

The disadvantages of non-standard surgical procedures include:

- Some procedures may be less effective than TURP. In other words, they may provide less relief from the symptoms.
- The long-term effects of these procedures have not been carefully studied and so not that much is known about them.
- A further operation is more likely to be needed than after TURP - either because the symptoms have not improved enough or because they start to return after a while.
- Patients usually have to have a catheter for longer than they do after TURP.
- Urinating may be painful for one or several weeks after treatment.

## What can I expect after the treatment?

Most kinds of prostate surgery are carried out in hospital. The amount of time you will have to stay in hospital will depend on the exact type of treatment you have and how quickly you recover. People often only have to stay in for one to two days. To prevent the healing wound from coming into contact with urine, a urinary catheter is required for a few days after treatment. The urine leaves the

body via the catheter, a thin plastic tube which leads from the bladder through the urethra to the outside. The catheter is held in the bladder with a small water-filled balloon. This can lead to bladder spasms, mainly in the first few hours and days. You may be given antibiotics to avoid infection.

During the first two days after treatment, particularly after TURP, there may be blood or small blood clots in the urine. It is important to drink a lot of water in the first few days in order to rinse the bladder and speed up the healing process. Mild bleeding may also occur later too, for example when the scabs break away and are flushed out.

Even if you no longer have any pain, it will take some time for the wound to heal completely. That is why it is important to take care in the first few weeks: strenuous physical activity, sudden movements and lifting heavy objects increase the risk of disturbing the wound. It is a good idea to speak to your doctor about what you can do in everyday life to recover more quickly.

It can take months to recover completely. During this time you may experience urinary problems, such as a frequent urge to urinate or temporary loss of bladder control. Your organs need some time to adjust to the changes and start to work normally again. Patience will be required. A good doctor can help you to cope with the problems that arise during the healing process.

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## Glossary

### antibiotics

Antibiotics are medicines that can be used for bacterial and some fungal infections. Antibiotics do not work against viruses. Well-known antibiotics include penicillin, tetracycline and chloramphenicol.

### endoscope

With an endoscope, a doctor can look inside parts of the body that have openings, like the bowel, lungs, vagina or bladder. Endoscopes usually have a little light and a camera. Depending on the type of examination, an endoscope could be a short, stiff pipe that enables inspection of the bladder or vagina. Or it can be a long flexible tube that can be inserted into, for example, the stomach or bowel.

### evidence

Evidence is what we call scientific proof from well-conducted, good-quality scientific trials that have been carefully designed to answer specific questions. Depending on the types of questions, different scientific research methods (types of study) are most appropriate to find reliable answers to these questions. Randomized controlled trials (RCTs), for example, are the best way to get reliable evidence on the effectiveness of medical treatments (interventions). This type of study, however, is not the best form of evidence for all possible questions, and does not provide the best answers to all kinds of questions, either. Epidemiological studies, for example, are very suitable for establishing well-founded proof for the spreading of a disease in the population.

### bladder

The urinary bladder is the organ that collects urine before it is released from the body through the urethra. The urine passes from the kidneys to the bladder by travelling through tubes called ureters. An adult bladder can hold between 0.5 and 1 liter of urine (about 17 to 34 ounces), but the urge "to go" is usually already felt when there are smaller amounts of urine. The bladder can change in size depending on how much urine it is holding thanks to the muscles surrounding it. The urine is held back by sphincter muscles. When we urinate, the muscles of the bladder contract and the sphincter muscles relax, causing the bladder to open.

### infection

In medicine, we speak of an infection when a person has caught a germ (an infectious agent). This germ can be a bacterium, a virus, a fungus or a worm. The germ multiplies and then either spreads throughout the body or only attacks one particular organ. As long as there are no signs of a disease, this is called an asymptomatic infection. When the body shows a reaction to the germ in the form of symptoms, this is called a symptomatic infection (an infectious disease). The period between the moment the germs enter the body and the moment the first symptoms of the disease appear, is called the incubation period. It may last a few hours or days, or even many years. An infection does not necessarily have to lead to the onset of a disease.

### catheter

Catheter is the medical term for a thin tube inserted into a body cavity that usually remains there for a longer period of time. Medication catheters can be used to administer painkillers or anesthetics in specific parts of the body, for example. Other catheters may be used for letting fluids out of the body.

### incontinence

Incontinence is the medical term for not having voluntary control over holding in stool or urine. The term is usually used to refer to urinary incontinence, where bladder control is impaired. There are different types of incontinence: Involuntary loss of urine when someone coughs or sneezes is called stress incontinence. This is mostly caused by a weak bladder outlet, as can happen in women who have weak pelvic floor muscles, for example. Neurological conditions such as multiple sclerosis or dementia, but also an enlarged prostate gland in men, may cause what is called urge incontinence: this is where only small amounts of urine can be stored in the bladder before the urge to urinate is felt. Damage to the spinal cord, for example in people with paraplegia, affects the bladder's sphincter muscle directly. This is referred to as reflex incontinence.

## Sources

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You can find a list of the evidence and other scientific literature on which this information is based at **[www.informedhealthonline.org](http://www.informedhealthonline.org)**

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