



**HEALTHY MALE**  
ANDROLOGY AUSTRALIA

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# Prostate Enlargement

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Health information in this booklet describes PROSTATE ENLARGEMENT. Diagnosis and treatment options are described to help men and their families understand the health problem, make men aware of the available treatment options, and to help make talking with their doctor easier.

The information contained in this booklet is based on up-to-date medical evidence. It has been provided for educational purposes only. It is not intended to take the place of a clinical diagnosis or medical advice from a fully qualified health professional. Healthy Male urges readers to seek the services of a qualified health professional for any personal health concerns.

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# At a Glance

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## What is prostate enlargement (benign prostatic hyperplasia or BPH)?

BPH is a benign (non-cancerous) enlargement or growth of the prostate gland. As the prostate surrounds the top part of the urethra, enlargement of the prostate makes the urethra narrower and puts pressure on the base of the bladder. Narrowing of the urethra can affect the passing of urine in a number of ways. BPH is not usually life-threatening but symptoms can have a major effect on quality of life.

### How common is BPH?

BPH is the most common prostate condition. BPH usually starts after the age of 40 years and is more common in older men; it affects nearly all men at some time in their lives. Some men do not have any symptoms even though their prostate has grown larger. BPH usually becomes more of a problem over time, with symptoms getting worse if they are not treated.

### What are the symptoms of BPH?

A number of men with BPH do not have many or any symptoms. The men who do have BPH symptoms usually notice changes to their urination because BPH affects the part of the prostate that surrounds the top part of the urethra.

LUTS (lower urinary tract symptoms) is a common term used to describe a range of urinary symptoms. LUTS linked to BPH include a group of symptoms described as 'emptying' and/

or other symptoms described as 'storage'. Emptying symptoms include a delay or straining when starting to urinate, and slow or dribbling flow of urine. Storage symptoms include urgent or frequent urination during the day and night.

### How is BPH diagnosed?

If you have urinary symptoms, a doctor may do a number of things to find the cause, including: taking a medical history and description of symptoms, a physical examination, blood or urine tests, and sometimes biopsy or ultrasound. These tests are used to find out the type of prostate disease (to check if it is BPH, prostate cancer or prostatitis). BPH is more likely to be the cause of urinary problems than prostate cancer.

### How is BPH treated?

If you have LUTS linked with BPH, when deciding on the best treatment it's important to think about how much the symptoms are bothersome or affect your quality of life. In some cases of BPH, when the symptoms are mild, no treatment may be the best option. Oral medicines (tablets) can help men with moderate symptoms. Surgery is an option for men whose BPH symptoms are severe and have a major negative effect on their quality of life.

You should talk with your doctor and think carefully about the risks and benefits before making a decision, jointly with the doctor, about whether to have treatment, or the type of treatment.

### Can I do anything to prevent BPH?

As there are no known causes of BPH there are no known ways to prevent it. However, lifestyle changes may help to stop the symptoms of BPH getting worse and may even help to improve symptoms.

# The Prostate

## What is the prostate?

The prostate is a small but important gland (organ) in the male reproductive system. The main role of the prostate is to make fluid that protects and gives nutrients to sperm. The prostate makes about one third of the fluid that is ejaculated (released) from the penis at orgasm.

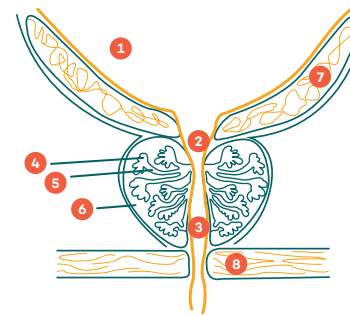
The prostate is made up of a number of small prostatic glands surrounded by supporting tissue called the stroma (the tissue or supporting framework of an organ). The prostatic glands in the prostate make the fluid. The prostate is surrounded by pelvic floor muscles, which contract during ejaculation to help move the fluid into the urethra.

## Where is the prostate?

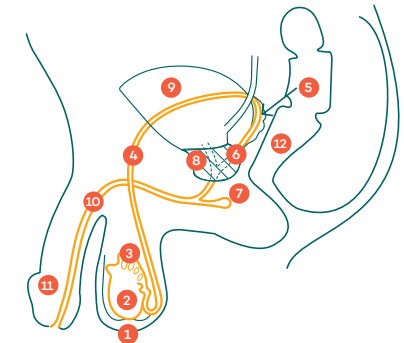
The male reproductive system is made up of many organs, glands and ducts (tubes). Some of these are on the outside of the body, such as the penis and the testicles inside the scrotum. Other organs and tubes are internal, including the epididymis, vas deferens, seminal vesicles and the **prostate gland**.

In young men the prostate is about the size of a walnut, but it gets bigger with age. The prostate sits underneath the bladder, and surrounds the top part of the urethra. Urine passes through the urethra on its way from the bladder to the penis.

The prostate rests on the pelvic floor muscles that stretch from one side of the pelvis to the other, and run from the tailbone at the back



- 1 Bladder
- 2 Internal sphincter
- 3 Urethra
- 4 Prostatic glands
- 5 Prostatic duct
- 6 Stroma (interspersed between prostatic glands)
- 7 Detrusor muscle
- 8 External sphincter muscle (pelvic floor muscles)



- 1 Scrotum
- 2 Testicle
- 3 Epididymis
- 4 Vas deferens
- 5 Seminal Vesicle
- 6 Ejaculatory duct
- 7 Cowper's gland
- 8 Prostate gland
- 9 Bladder
- 10 Urethra
- 11 Penis
- 12 Rectum

Cross-section of the prostate gland

The male reproductive system

to the pelvic bone at the front. The pelvic floor muscles support the bladder and the bowel and surround the urinary tract and rectum (back passage).

The prostate is located near the rectum. Growth of the prostate can be checked by a digital rectal examination (DRE) where a doctor places a gloved finger into the rectum to check the size, shape and feel of the prostate.

## What does the prostate do?

The main function of the prostate gland is to make and secrete fluid that protects the sperm and helps them move through the female reproductive tract. About 30% of the volume

# The Prostate

of the semen that is ejaculated comes from the prostate. The prostate contracts during ejaculation, helping to close the outlet of the bladder to prevent passage of urine, and forcing semen out through the penis.

Sperm are made in the testes and then pass along the highly coiled epididymis, through the vas deferens to the prostate. The prostate gland and other glands (the seminal vesicles and Cowper's gland) make the fluid that mixes with the sperm. Semen travels along the urethra to the tip of the penis where it is ejaculated (released) at orgasm.

To stop semen flowing backwards into the bladder during ejaculation, an internal sphincter (muscle) at the base of the bladder and the top of the prostate closes. An external sphincter (a pelvic floor muscle) at the end of the prostate relaxes to release the fluid from the prostate into the urethra.

## How does the prostate gland change with age?

The hormone testosterone makes the prostate grow in size. As men get older, the prostate grows larger. At puberty, testosterone levels in boys start to increase and the prostate grows to about eight times its size. It continues to grow, doubling in size between the ages of 21 and 50 years, and almost doubles again in size between the ages of 50 and 80 years. The reasons for this ongoing growth are not fully understood.



Childhood  
1-10 years  
1.4g



Puberty  
11-20 years  
10.8g



Adult  
21-50 years  
18.1g



Later Life  
71-80 years  
30.9g

Weight of the prostate at different ages

Most of the growth of the prostate happens in the central part of the prostate. There is an increase in both the number of the prostatic glands in the prostate, and the stroma.

## What is prostate disease?

Prostate disease is any medical problem that affects the prostate gland. Common prostate problems include:

- benign prostatic hyperplasia or hypertrophy (BPH): a benign (non-cancerous) enlargement of the prostate gland
- prostatitis: inflammation of the prostate gland, sometimes because of infection
- prostate cancer: a problem where cells within the prostate grow and divide abnormally so that a tumour forms.

Only prostate cancer and the uncommon condition acute bacterial prostatitis can be life-threatening. However, both inflammation and enlargement of the prostate can be very painful and have a major effect on quality of life.

# Prostate Enlargement-BPH

*BPH is a benign (non-cancerous) enlargement or growth of the prostate gland*

## What is BPH?

BPH refers to benign prostatic hyperplasia (increase in the number of cells).

BPH causes benign (non-cancerous) enlargement or growth of the prostate gland. As the prostate surrounds the top part of the urethra, enlargement of the prostate makes the urethra narrower and puts pressure on the base of the bladder. Narrowing of the urethra can affect the passing of urine.

BPH is not usually life-threatening but symptoms can have a major effect on quality of life.

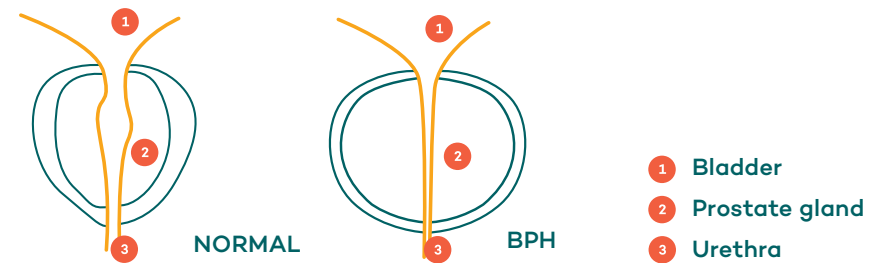
## How common is BPH?

BPH is the most common prostate disease. BPH usually starts after the age of 40 years and is more common in older men; it affects nearly all men at some time in their lives. Some men do not have any symptoms even though their prostate has grown larger. BPH usually becomes more of a problem over time, with symptoms getting worse if they are not treated.

In an Australian study, one in seven men aged over 40 years reported a diagnosis of prostate disease. About two out of three men over the age of 40 with prostate disease have treatment.

Normal

BPH



*Cross-section of a healthy prostate gland compared to a prostate with BPH*

*BPH is not usually life-threatening but symptoms can have a major effect on quality of life*

# Symptoms

## What are the symptoms of BPH?

A number of men with BPH may not have many or any symptoms. The men who do have BPH symptoms usually notice changes to their urination because BPH affects the part of the prostate that surrounds the top part of the urethra.

LUTS (lower urinary tract symptoms) is a common term used to describe a range of urinary symptoms. LUTS linked to BPH include a group of symptoms described as 'emptying' and/or other symptoms described as 'storage'.

BPH may also cause other symptoms. (see Table: Symptoms of BPH)

## SYMPTOMS OF BPH

Lower urinary tract symptoms – emptying or voiding symptoms

- Hesitancy – a longer than usual wait for the stream of urine to begin
- Weak and poorly directed stream of urine
- Straining to urinate
- Dribbling after urination has finished or an irregular stream
- Urinary retention – not all the urine is passed from the bladder causing a need to urinate more often
- Overflow or paradoxical incontinence – urine overflows from a full bladder uncontrollably even though normal urination cannot be started

Lower urinary tract symptoms – storage symptoms

- Urgency – an urgent feeling of needing to urinate
- Frequency – a short time between needing to urinate
- Nocturia – a need to pass urine two or more times during the night

Other symptoms

- Perineal pain – pain in the perineum (the area between the scrotum and the anus)
- Dysuria – painful urination
- Haematuria – blood in the urine

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# Symptoms

## **What are lower urinary tract symptoms (LUTS)?**

LUTS (lower urinary tract symptoms) is a term used to describe a range of symptoms related to problems of the lower urinary tract in men and women. LUTS in men can have many causes and one of the common causes is BPH. Other causes include changes in the bladder or urinary tract, some medicines, infection, an irritable or overactive bladder and neurological disease.

LUTS are broadly grouped into emptying symptoms or storage symptoms (see Table: Symptoms of BPH). A man may have mainly voiding symptoms, mainly storage symptoms, or a combination of both.

LUTS can be described as mild, moderate or severe, depending on how much the symptoms affect a man's quality of life, that is how 'bothersome' the symptoms are. Other issues not directly related to the urinary problems may make the symptoms more bothersome. For example, restricted physical movement because of age or other health problems can make it more difficult to get to the toilet in time.

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## **When should I see a doctor if I have urinary problems?**

See a doctor if you notice any changes to urination, particularly if the symptoms are affecting your quality of life or interfering with normal daily activities.

Many people think that urinary symptoms in men are a sign of prostate cancer. This is not true. Prostate cancer may sometimes be present with urinary symptoms but most often the symptoms are caused by BPH or other problems.

If needed, the doctor may refer you to a urologist (specialist doctor). A urologist specialises in diseases of the urinary tract in men and women, and the genital organs in men.

*It is important to talk to your doctor about any urinary symptoms so they can investigate the problem, discuss the possibility of prostate disease or prostate cancer, and make a correct diagnosis*



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# Causes and Prevention

*The causes of BPH are not well understood. Older age and the hormone testosterone are linked with BPH but may not be the cause*

## What causes BPH?

The causes of BPH are not well understood. Some research shows that there may be genetic links, as sons of men diagnosed with BPH are more likely to develop prostate disease.

Older age and the sex hormone testosterone are linked with BPH but may not be the cause. It is known that BPH only happens when testosterone, which is made in the testes, is present. An enlarged prostate becomes smaller after castration (the testes are surgically removed). However, castration is not recommended as a treatment for BPH. Testosterone is an important hormone in men for muscle strength and general health and well-being.

## Can I do anything to prevent BPH?

As there are no known causes of BPH there are no known ways to prevent it. However, lifestyle changes may help to stop the symptoms of BPH getting worse and may even help to improve symptoms.

Avoiding constipation (straining to pass stools can affect pelvic floor muscles, which are important for both bowel and bladder control), reducing body weight, and good control of diabetes and blood pressure may be helpful. Stopping smoking and increasing exercise levels may also help symptoms.

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# Diagnosis

## How is BPH diagnosed?

If you have urinary symptoms, a doctor may do a number of things to find the cause:

- a full personal and family medical history and description of symptoms
- a physical examination
- blood tests and sometimes biopsy or ultrasound – to find out the type of prostate disease (to check if it is BPH, prostate cancer or prostatitis).

BPH is more likely to be the cause of urinary problems than prostate cancer.

## What happens when a medical history is taken?

Doctors will often take a detailed personal and family medical history in order to diagnose the problem. Keeping a 'voiding diary' may also be helpful. This is where the details of voids (passing urine) over a period of one to three, or even up to seven days are recorded. The amount of urine emptied from the bladder, the time of each visit to the toilet and the fluid intake should be noted, as it may be useful information for the doctor.

The doctor may ask for details of any prescription and non-prescription medicines you are taking for other problems.

*Urination problems are not a usual symptom of prostate cancer*

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# Diagnosis

## Are the urinary symptoms bothersome?

The doctor may ask about how much the symptoms limit your daily living and activities, and affect your quality of life and well-being (this may be checked or scored using a questionnaire). This information will help the doctor understand how much the urinary symptoms bother you, and the best way to manage them.

## What happens in a physical examination?

A digital rectal examination (DRE) is the main part of a physical examination when checking for prostate disease. The doctor places a gloved finger into the rectum (back passage) to check the size, shape and feel of the prostate.

- If BPH is present, the doctor may feel an enlarged prostate gland that tends to feel smooth, firm and elastic.
- If prostatitis is present, the prostate may feel slightly larger than normal, tender, firm and warm
- If prostate cancer is present, the prostate gland may be larger than normal and its shape and hardness may be uneven. However, a prostate gland with cancer may also feel normal.

Other problems can also cause changes in the shape and feel of the prostate. For example, in a condition called 'chronic granulomatous prostatitis' the prostate may feel hard, is not tender when touched and can be irregular in shape when felt by a doctor, similar to a prostate gland with cancer.

## Are blood tests needed to diagnose BPH?

A blood test to measure the level of prostate specific antigen (PSA) in the blood is often done for prostate disease. PSA is a protein usually made in the prostate gland and low levels of PSA are normally present in the blood.

A high PSA level can occur when there is no BPH or cancer, so if your test comes back high, your doctor will have you repeat the test 2-3 months later to confirm the result.

A PSA test is mostly used as a marker of prostate cancer risk, but BPH can also raise PSA levels two to three times higher than normal.

Other blood tests (such as urea, creatinine and glucose) may also be done to check whether the kidneys are working normally.

## What other tests for BPH might be done?

To find out more about the problem, doctors sometimes do other tests.

**Urine tests** check for signs of infection or cancer in the urinary tract or kidneys.

**Urinary tract ultrasound** checks the health of the kidneys and can also show how well the bladder is emptying.

*Note that a normal PSA level does not rule out prostate disease, especially prostate cancer, which can still be present even with a normal PSA test*

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# Diagnosis

**Voiding (urinary) flow rate** involves urinating into a special measuring device to test how quickly the urine is flowing. Men with BPH often have a very slow flow rate that causes LUTS. Feeling a need to strain is a symptom of BPH and the pattern made by straining to urinate can be a sign that there is an obstruction (a blockage).

**Cystoscopy** is normally only needed if the type of prostate disease a man has is not clear or if there appears to be bleeding or repeated infection. Under anaesthetic, a cystoscope (a small video telescope) is inserted into the penis via the urethra. A small camera on the end of the tube takes an image of the bladder and urinary tract from the inside to check the cause of urinary blockage or blood in urine.

**Urodynamics** involves a series of internal pressure tests that look at the problem of blockages at the outlet of the bladder, also known as bladder outlet obstruction (BOO). These tests can be done in the urologist's office and involve passing a small catheter into the penis to measure pressure in the bladder during voiding (urinating). Urodynamics can be a useful test for some men to help understand the cause of their urinary problems and the best treatment options.

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## Could it be prostate cancer?

If you have an abnormal PSA results, prostate cancer may be present. The only way to confirm whether prostate cancer is present is by prostate biopsy. The biopsy removes small samples of tissue from the prostate and is usually done by a urologist. The samples are sent to a pathologist to be looked at under a microscope to see if cancer is present.

Specialist doctors (urologists) may order a prostate MRI before doing a prostate biopsy. Prostate MRI can give more information about whether a biopsy is necessary and can help to target the biopsy.

A transperineal ultrasound-guided biopsy of the prostate gland uses ultrasound, to visualise the prostate and guide the doctor in where to place the biopsy needles for collecting the tissue samples.

Biopsies usually need some form of anaesthesia; most men have minor symptoms for a day or two afterwards. The risk of infection with transperineal biopsy is close to zero.

*Men with benign prostate disease (including BPH) can still develop prostate cancer*

# Treatment

*Choosing the type of treatment will depend on a number of factors, including the benefits and risks of the different treatments and your individual health problem*

## How is BPH treated?

After the medical tests are completed and test results are available, your local doctor or a urologist will talk about the range of possible treatments for BPH. Not all treatment options will suit every case of BPH. If you have LUTS linked with BPH, when deciding on the best treatment it's important to think about how much the symptoms are bothersome or affect your quality of life.

Factors you might need to think about when deciding on treatment include: lack of sleep (because of repeated visits to the toilet during the night), the ability to work, and having to always be near a toilet. Other medical problems may also affect the way the BPH is managed.

You should talk with your doctor and think carefully about the risks and benefits before making a decision, jointly with the doctor, about whether to have treatment, or the type of treatment.

BPH is a disease that affects quality of life and may affect relationships; including partners in decision-making can be helpful.

## TREATMENT OPTIONS FOR BPH

No treatment	<ul style="list-style-type: none"><li>- Sometimes BPH does not need medical treatment as the symptoms do not affect the man's quality of life</li></ul>
Oral medicines (tablets)	<ul style="list-style-type: none"><li>- Alpha-blockers</li><li>- Combination therapy: alpha-blocker plus 5-alpha reductase inhibitor (Duodart®)</li><li>- Bladder relaxants</li><li>- 5-alpha reductase inhibitors alone (not common, used if the man can't tolerate alpha blockers)</li><li>- Phosphodiesterase-5 inhibitors (used when a man also needs treatment for erectile dysfunction)</li></ul>
Day procedure	<ul style="list-style-type: none"><li>- UroLift® system – a new treatment for BPH that is not available everywhere</li></ul>
Surgery	<ul style="list-style-type: none"><li>- Transurethral resection of the prostate (TURP)</li><li>- Transurethral incision of the prostate (TUIP)</li><li>- Open or retropubic prostatectomy</li></ul>
Laser surgery	<ul style="list-style-type: none"><li>- Holmium laser enucleation (HoLEP)</li><li>- Green light laser (PVP)</li></ul>
Other treatment options	<ul style="list-style-type: none"><li>- Natural or herbal treatments</li><li>- Prostate massage</li><li>- Pelvic floor muscles exercises (Kegel exercises)</li></ul>

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# Treatment

## **Is sexual function important when deciding on treatment?**

Sexual activity is an important part of most relationships. It is best to talk with a doctor about sexual health needs before treatment for BPH starts, as the side-effects from treatment may affect sexual function in some men.

Men who choose to have surgery to treat BPH may suffer erectile problems straight after having surgery, and in some cases erectile problems may last for several months. Erectile problems can be permanent in about 1 in 10 men. Men who have erectile problems before treatment are more likely to have ongoing erectile problems after surgery.

Another sexual problem that can happen after taking medicines or surgery for BPH is retrograde ejaculation (where semen flows backwards into the bladder during ejaculation). Retrograde ejaculation is not life-threatening but it can make couples infertile and may have an impact on the sexual experience.

## **Why is BPH sometimes not treated?**

In some cases of BPH when the symptoms are mild, no treatment may be the best option. In these cases, it is unlikely that anything will be gained from having treatment. Instead, lifestyle changes may be important such as planned visits to the toilet through the day or drinking less tea and coffee (caffeine may irritate the bladder).

Sometimes treating constipation can help. A bowel that is full and hard because of constipation can put pressure on the prostate. Straining to pass stools can also affect pelvic floor muscles, which are important for both bowel and bladder control.

Regular examinations will be needed to check for further growth of the prostate.

## **What are the tablet treatments for BPH?**

Tablet treatments are often the first treatment option for men with BPH. These oral medicines (tablets) have few side-effects and in many cases can greatly improve symptoms. There are several tablet medicines available in Australia to treat BPH (Table).

## **What are alpha-blockers?**

Alpha-blockers relax the muscles in the prostate gland, the bladder neck and urinary tract, which can reduce and sometimes stop some of the symptoms of BPH. If these medicines work, symptoms usually get better within one to two weeks. If one type of tablet does not make symptoms better, another type may be tried.

## **What are the side-effects of alpha-blockers?**

Alpha-blockers are also used to treat high blood pressure. Therefore, side-effects can include dizziness, tiredness, headaches, nasal congestion (or other cold-like symptoms) or low blood pressure. Sometimes, alpha-blockers cause 'retrograde ejaculation' (where semen flows backwards into the bladder during ejaculation). All these side-effects are usually reversed when the treatment is stopped.

*If you have side-effects when taking any medicine, it is important to tell your doctor*

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# Treatment

## What types of alpha-blockers are available?

Alpha-blockers currently available in Australia are:

- tamsulosin
- terazosin
- prazosin.

Tamsulosin is often the first medicine given to treat BPH. Tamsulosin and terazosin are longer-acting alpha-blockers and are taken once a day; one 400 mcg dose of tamsulosin, or a single 10mg dose of terazosin each night are the recommended doses. Side-effects happen in about 1 in every 10 men taking these medicines and may include dizziness especially in the first few days of treatment.

Prazosin is a shorter acting alpha-blocker that can be given to treat BPH. A standard starting dose for Prazosin is 0.5mg at night. This can gradually increase over two weeks to 2mg twice a day. Side-effects can include a sudden fall in blood pressure upon sitting or standing, headaches and retrograde ejaculation.

## What is combination therapy for BPH?

Often an alpha-blocker (tamsulosin) will be given together with another type of medicine called a 5-alpha reductase inhibitor (dutasteride). This 'combination' therapy (available in Australia as Duodart®) has been shown to slow the progression of urinary symptoms and is more helpful than either an alpha-blocker or 5-alpha-reductase inhibitor alone.

## What are bladder relaxants?

Bladder relaxants include 'anticholinergics' and 'antimuscarinics'. As the name suggests, bladder relaxants help to ease bladder contractions. Bladder relaxants are used to help storage symptoms or overactive bladder.

## What are 5-alpha reductase inhibitors?

A 5-alpha reductase inhibitor is usually given in combination with an alpha-blocker. However, if a man is not able to tolerate alpha-blockers, a 5-alpha reductase inhibitor alone may be prescribed.

5-alpha reductase inhibitors block the effect of the male sex hormone testosterone on the prostate so the prostate gland gets smaller. It may take six months for the symptoms of BPH to improve with this medicine.

If there is no improvement in symptoms after six to nine months, treatment should be stopped after talking with the doctor.

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# Treatment

*Treatment for BPH with alpha blockers, 5-alpha reductase inhibitors, or combination therapy has been shown to lower the chance of urinary retention and reduce the need for surgery in most clinical trials*

## What are the side-effects of 5-alpha reductase inhibitors?

As 5-alpha reductase inhibitors affect the cells that make PSA, the PSA levels are often reduced (usually halved) with this treatment.

In a small number of men, 5-alpha reductase inhibitors may lower sex drive and erections, and cause Gynecomastia (breast swelling) but these side-effects disappear if treatment is stopped.

5-alpha reductase inhibitors currently available in Australia are:

- finasteride
- dutasteride.

Finasteride has been shown to reduce the chance of developing prostate cancer. However, yearly prostate checks for men taking finasteride are still recommended.

## What other non-surgical treatments for BPH are available?

The 'UroLift® System' is a relatively new treatment for BPH that is being used by some urologists to treat troublesome LUTS. UroLift can be used instead of medicines or major surgery but is not suitable for all prostate conditions; assessment by a urologist is needed before having this treatment.



*Before: obstructed urethra*

*After: implants holding the urethra open*

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UroLift® involves placing retractors (like staples) to separate the lobes of the prostate allowing urine to flow more easily. It is thought to have less side-effects in the short-term and may have better outcomes for sexual function than surgical treatments.

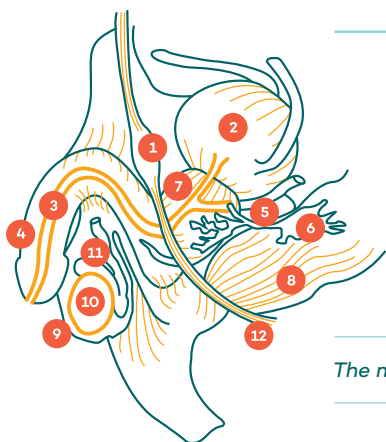
Long term outcomes of UroLift® are not yet known. Further research is needed to find out how long the effects of the procedure last and what proportion of men will go on to need other treatments in the following years.

# Treatment

## What are the surgical options for BPH?

Surgery is an option for men whose BPH symptoms are severe and have a major negative effect on their quality of life. Men whose symptoms are only moderately bothersome but do not wish to try tablet medicines, or have tried medicines without success, may also think about having surgery.

Surgery for BPH involves cutting through and taking out part of the prostate gland around the urinary tract (prostatectomy). Surgery can be done in different ways, either by endoscopic resection where a special instrument is passed up through the penis via the urethra to reach the prostate, or by an open operation through the abdomen.



- |                   |                        |
|-------------------|------------------------|
| 1 Pubic bone      | 7 Prostate             |
| 2 Bladder         | 8 Rectum               |
| 3 Urethra         | 9 Scrotum              |
| 4 Penis           | 10 Testis              |
| 5 Seminal vesicle | 11 Epididymis          |
| 6 Pelvic plexis   | 12 Pelvic floor muscle |

*The muscles and nerves lying close to the prostate*

## How is surgery for BPH done?

**Transurethral resection of the prostate (TURP)**, also known as a 'rebore', involves taking out part of the prostate in small pieces through the penis via the urethra. About nine in every ten prostatectomies are done by TURP. A small camera (endoscope) and device for cutting and taking out tissue from the body (resectoscope) is guided through the urethra to avoid cuts and wounds on the outside of the body. Either a local or a general anaesthetic is used and most men spend at least one night in hospital. About nine out of ten men report much fewer symptoms after a TURP procedure compared to other surgery for BPH.

**Transurethral incision of the prostate (TUIP)** is similar to TURP except that no prostate tissue is taken out. Between one and three cuts are made into the prostate near the bladder neck to release the 'ring' of enlarged tissue and make a larger opening around the urinary tract.

**Open or retropubic prostatectomy** is not a common treatment for BPH. It is normally only done when the prostate gland is too large to be removed via the urethra in a TURP operation. Open prostatectomy is sometimes chosen because of other medical problems (such as large bladder stones) or physical problems (such as not being able to put legs into stirrups for surgery).



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# Treatment

*Laser surgery is generally available in public and private hospitals across Australia but not all hospitals offer this treatment. Speak to your urologist about access to and the cost of laser treatments*

An open prostatectomy involves making an open cut in the lower abdomen and taking out most of the prostate gland from underneath the bladder. The chance of symptoms getting better is slightly higher than with TURP, but recovery after the operation takes longer.

## What are the laser surgery options?

While TURP is the most common surgical treatment, some newer less invasive treatments using laser can mean a shorter stay in hospital and a faster recovery. However, with these laser treatments there is a greater chance that the symptoms will come back and further treatment will be needed.

These treatments use laser to kill off, vaporise or dissolve (rather than cut) the enlarged part of the prostate. As a result, pathology testing of the tissue cannot always be done. If the doctor wants to check that the enlargement is not caused by cancer, these options may not be recommended.

Laser therapy uses heat to remove enlarged prostate tissue around the urethra to allow urine to flow more freely. Laser treatment usually has less bleeding than standard surgical treatments and is most often used for those men taking medicines that stop blood from clotting (anti-coagulants) such as warfarin or aspirin.

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The prostate tissue is removed with either Holmium laser or vaporised with green light laser (or PVP).

Holmium laser can use two methods which have both been shown to work well in reducing urinary symptoms:

- Holmium laser enucleation of the prostate (HoLEP)
- Holmium YAG laser resection of the prostate (HoLRP)

Green light laser (PVP), has shown the same results as TURP. However, because of the cost of the laser machine and the green light fibres, which are not reusable (approximately \$1,000 per fibre and often two fibres for each treatment), the treatment is not available in every hospital.

## How is surgery for BPH different from surgery for prostate cancer?

Surgery for the treatment of BPH, by either TURP, open prostatectomy or laser, only removes a part of the prostate gland; the section around the urethra which is blocking urine flow is removed. Prostate cancer is often treated by a radical prostatectomy where the whole prostate gland is removed. The risks and side-effects of surgery for BPH are lower than those for prostate cancer surgery.

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# Treatment

*It is important to talk about the risks of any operation in detail with the urologist doing the surgery*

## What are the risks of surgery for BPH?

You should talk with a urologist about the surgical options used to treat BPH before making a decision about treatment. Although most men have a great improvement in their symptoms and quality of life after these operations, there are also risks.

Many of the risks are similar for all types of surgery. Irritative urinary symptoms will also continue to happen after surgery in about one in five men.

A problem called TUR syndrome can also happen with TURP. This is where the body takes up the irrigating fluid used during and straight after the operation. This can cause mental confusion, high blood pressure, slow heartbeat, nausea and vomiting. In severe cases, it can also cause convulsions, coma or death. Medicines, known as diuretics are sometimes needed to remove this extra fluid from the body.

TURP can be done using bipolar electrodes where saline is used as the irrigating fluid. Using saline greatly lowers the risk of TUR syndrome.

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## RISKS LINKED WITH PROSTATE SURGERY FOR BPH

Heavy bleeding wound infection and development of blood clots	Heavy bleeding both during and after the operation (sometimes leading to the need for blood transfusions), wound infection and blood clots (which can cause deep venous thrombosis or DVT) are risks with all surgery.
Erectile dysfunction	About 1 in 10 men find it difficult to have a full erection after surgery for BPH.
Urinary incontinence	Leakage of urine (urinary incontinence) may happen after surgery.
Retrograde ejaculation	At least 3 in 4 men suffer retrograde ejaculation following surgery. Some men may also have loss of ejaculation.
Bladder neck contractions	Less than one in every 20 men suffer from bladder neck contractions, where scarring around the opening of the bladder causes urine to dribble rather than flow.
Urethral strictures	Scarring in and around the urethra (known as urethral strictures) can cause further blockages to urine flow. Urethral strictures can happen following both BPH surgery.
Urinary tract infections	Antibiotics can be given to treat any urinary tract infections that may happen following surgery.

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# Treatment

*It may be helpful for you to learn pelvic floor exercises before surgery so that you are familiar with them*

## **What other treatments for BPH are available?**

### **Prostate massage**

Massage can be used for chronic pelvic pain syndrome when medicines are not helpful and there is an excess of fluid in the prostate. A specialist doctor (urologist) massages the prostate through the rectum until the excess fluid in the prostate is pushed out. This technique can be very helpful when the prostate is swollen.

### **Pelvic floor muscle exercises**

Pelvic floor exercises (called 'Kegel exercises' when used by women) may help some men having prostate surgery. Men who have gone through different types of prostate surgery are often encouraged to do pelvic floor muscle exercises to help strengthen the muscles of their pelvic floor. Pelvic floor muscles support both the bladder and the bowel and they stretch from one side of the pelvis to the other.

For some men pelvic floor muscle exercises can help to control the bladder and stop urine leaking.

Pelvic floor exercises are generally recommended after prostate surgery because the urinary sphincter (the muscles that control the opening and closing of the bladder) can be affected during the operation. This often happens after a radical prostatectomy.

The pelvic floor muscles can be found when urinating by tightening up and trying to stop urine flow. Pulling up or lifting the muscles of the rectum (back passage) can sometimes help to locate the muscles. The correct muscles are found once urine flow is stopped. It should feel like the muscles are pulling inward and upward.

To exercise the pelvic floor muscles, squeeze and draw in the muscles of the urethra and the anus at the same time. Hold your muscles tight for eight seconds. You should feel a tightening and lifting when you squeeze and a feeling of letting the muscles go when you relax them. Repeat the squeezing motion 8 to 12 times. Try to do three sets of 8 to 12 squeeze-and-lifts (a total of 24 to 36 squeezes) every day.

### **Natural or herbal treatments**

Products that come from plants like soy or clover that are high in isoflavones, which are substances that are chemically similar to the hormone oestrogen, are often marketed for prostate disease.

While many men, particularly those with mild to moderate symptoms, believe they have major improvements when using natural treatments, these products have not gone through the same level of medically-controlled testing as prescribed medicines. How well natural treatments work for BPH, and their side-effects, are not yet known.

*Continence nurses or physiotherapists specially trained in pelvic floor muscle exercises can help men having difficulties with pelvic floor exercises*

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# Treatment

*It is important to talk to your doctor when thinking about using natural or herbal treatments*

## **Saw palmetto (also called Serenoa repens)**

Comes from the berries of the saw palm tree and is often taken to treat BPH. It contains substances that are thought to reduce the level of hormones in prostate cells, which might reduce the size of the prostate gland. However, a Cochrane review of clinical studies reported that Saw Palmetto did not give any improvement in mild or moderate urinary symptoms compared to placebo or medical treatments.

Other natural treatments promoted to treat BPH include African plum tree (*Pygeum africanum*), pumpkin seed (*Curcubita pepo*) and rye pollen (*Secale cereale*).

As natural treatments are made from plant extracts such as seeds, bark and fruit, it is often believed that these products are safe because they are natural. However, this has not been proven.

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## **Can the prostate grow back?**

The prostate can grow back after most of the treatments for BPH listed in this guide. The chance of needing repeated treatment varies. It can depend on the age when the first procedure took place and the type of treatment used. TURP is the most likely treatment to give long-term relief from symptoms. If a man has his first surgery in his 50s or 60s, he may need more treatment later in life.

## **Can men get prostate cancer after treatment for BPH?**

Having BPH does not increase the chance of getting prostate cancer. However, it is possible for men who have had treatment for BPH to still get prostate cancer. It is therefore important that men consider having PSA testing even if there are no urinary problems.

*The prostate can grow back after most forms of surgical treatment for BPH*

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# Lifestyle And Relationships

*Wearing clothes that are easy to remove or undo may help you get to the toilet more quickly*

## **Can changing your lifestyle reduce BPH symptoms?**

No studies have definitely shown that changes in lifestyle, diet or sexual activity will make symptoms of BPH better.

## **How does BPH affect relationships?**

BPH can have a major effect on relationships. Not only can the symptoms of BPH affect physical activity levels, but studies have shown that prostate disease can be a major worry for partners.

Bed-wetting or frequent visits to the toilet can interrupt sleep for you and your partner. Social life can also be limited by needing to have easy access to a toilet. Partners of men with prostate disease also report reduced sexual activity.

Your partner may also be concerned about your long-term health. Partners who do not understand the problem may think that the prostate disease is cancer.

*It is important that both you and your partner receive support when concerned about prostate disease*

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## **What support is available for your partner?**

Your partner's understanding of BPH can be helped by keeping them fully informed about your discussions with the doctor and the treatment plan. Realising that the problem is not life-threatening may ease their mind.

Awareness of what to expect after surgery can also prepare you and your partner, so that possible problems with toileting or erections can be managed together.

*Speaking with a doctor about health concerns is the first step towards improving your health and quality of life*

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# Support

This booklet gives information about benign prostatic hyperplasia (BPH) and may be helpful when talking with your doctor. For some men, it can be helpful to also talk with others who have similar problems, or to speak with trained therapists who work with men with BPH, to get further support. This can be especially helpful when trying to decide on the type of treatment or learning to cope with the effects of the symptoms of BPH on your life.

**Continence Foundation of Australia** runs the free National Continence Helpline which gives confidential advice on continence problems. Continence nurse advisors can give male specific information on bladder and bowel problems, post-surgery continence issues and pelvic floor exercises. They can also mail you fact sheets, flyers and brochures to you.

**Prostate Cancer Foundation of Australia (PCFA)** has a network of prostate support groups that operate throughout Australia, although these are mostly for men who have had prostate cancer.

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## Websites

**Healthdirect**  
[www.healthdirect.gov.au](http://www.healthdirect.gov.au)

**Healthy Male**  
[www.healthymale.org.au](http://www.healthymale.org.au)

**Continence Foundation of Australia**  
[www.continence.org.au](http://www.continence.org.au)

**Prostate Cancer Foundation of Australia**  
[www.prostate.org.au](http://www.prostate.org.au)

**SA Prostate Cancer Clinical Outcomes Collaborative**  
[www.prostatehealth.org.au](http://www.prostatehealth.org.au)

**Urological Society of Australia and New Zealand**  
[www.usanz.org.au](http://www.usanz.org.au)

*Please note that websites developed overseas may describe treatments that are not available or approved in Australia*

*If you have any questions about the information in these or other sources please talk with your doctor*

# Glossary

## acute bacterial prostatitis-

An infection in the prostate gland that causes fever, severe pain in the lower back and genital area and burning, urgent and frequent urination. It is quite rare and can usually be successfully treated with antibiotics

## benign-

Non-cancerous

## biopsy-

An operation to remove a small sample of tissue or cells from a part of the body for testing and examination under a microscope

## cancer-

Disease in which abnormal cells divide without control. Cancer cells can spread to nearby tissues and through the blood and lymphatic systems to other parts of the body

## cystoscope-

A small video telescope inserted into the penis via the urethra to take images of the bladder and urinary tract from the inside

## DRE (Digital Rectal Examination)-

A physical examination where the doctor places a gloved finger into the man's rectum (back passage) to check the size, shape and feel of the prostate

## dysuria-

Pain or problems with passing urine

## endoscope-

A piece of equipment used to see inside the body. It is usually made up of a thin tube with a light and camera at one end. This tube is inserted into the patient and sends pictures from inside the body to a monitor or television screen, for the doctor to examine more closely

## erectile dysfunction-

Inability to get or keep an erection that allows sexual activity with penetration

## green light laser (or PVP)-

A form of laser therapy for treatment of BPH that has been shown to have the same results as TURP

## holmium laser-

A form of laser therapy for BPH that has been shown to work well in reducing urinary symptoms

## hyperplasia-

An increase in the number of normal cells in an organ or tissue

## incontinence-

Uncontrolled leakage of urine

## laser therapy-

Uses heat to remove enlarged prostate tissue around the urethra to allow urine to flow more freely

## nocturia-

A need to pass urine more than twice during the night

## open or retropubic prostatectomy-

Removal of the prostate gland through a cut made in the lower abdomen

## perineum-

A part of the body between the scrotum and the anus

## prostate cancer-

A problem in which cells within the prostate grow and divide abnormally so that a tumour forms

## prostatectomy-

An operation to remove the prostate gland that uses an incision or cut in the abdomen to go behind the pubic bone and take out the enlarged part of the prostate (in the case of BPH) or all of the prostate (in the case of prostate cancer)

## PSA (Prostate Specific Antigen)-

A substance produced by the prostate that may be found in increased amounts in the blood of men who have prostate cancer, benign prostatic hyperplasia, or infection or inflammation of the prostate

## radical prostatectomy-

An operation to remove the whole prostate gland, usually once prostate cancer has been diagnosed

## rebore-

See TURP

## rectum-

Often known as the 'back passage', this part of the body includes the last 10 to 15cm of the large intestine leading to the anus

## resectoscope-

A device for cutting and taking out tissue from the body

## retrograde ejaculation-

A problem where the semen flows backwards into the bladder rather than out of the penis during ejaculation

## semen-

Fluid that is ejaculated (released) from the penis during sexual activity; it contains sperm and other fluids from the testes, prostate and seminal vesicles

## stroma-

The tissue or supporting framework of an organ

## TUIP (Transurethral Incision of the Prostate)-

A surgery for the treatment of BPH where between one and three cuts are made into the prostate near the bladder neck to release the 'ring' of enlarged tissue and make a larger opening

tumour-

Abnormal lump of cells that grows in the body. It can be benign (non-cancerous) or can spread to other parts of the body

TURP (Transurethral Resection of the Prostate)-

Also known as a 'rebore', this operation involves taking out small pieces of prostate using a small camera (endoscope) and device for cutting tissue (resectoscope) that are inserted into the penis via the urethra. No external cuts or wounds are needed with this operation

urethra-

The tube that takes urine from the bladder out of the body via the penis

urinary tract-

The series of organs that takes urine from the kidneys to outside the body, including the ureters, bladder and urethra

urologist-

A doctor who specialises in diseases of the urinary tract in men and women, and the genital organs in men

void-

Release of urine

## Expert reviewer

### **Associate Professor Peter Royce**

MBBS, FRACS (Urol), FACS

A/Professor Peter Royce is Director of Urology, Alfred Hospital, Senior Consultant Urologic Surgeon at The Alfred and Cabrini Hospitals in Melbourne and Adjunct Clinical Associate Professor, Department of Surgery, Monash University. He was awarded Fellow Royal Australasian College of Surgeons (Urology) 1986 and Fellow American College of Surgeons in 1993. Peter is co-founder of Melbourne Prostate Institute/Brachytherapy Prostate Cancer Clinic at The Alfred. He specialises in treatment of genitourinary cancers and has extensive experience with radical prostatectomy, prostate brachytherapy and high intensity focused ultrasound for the treatment of localised prostate cancer.

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**UROLOGICAL SOCIETY  
OF AUSTRALIA  
AND NEW ZEALAND**





If you would like more information about a range of male reproductive and sexual health issues, visit the Healthy Male website at [healthymale.org.au](https://healthymale.org.au).

You can also download or order resources on male reproductive and sexual health issues from the Healthy Male website.



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For more information,  
go to **[healthymale.org.au](http://healthymale.org.au)**

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