



# Benign Prostatic Enlargement

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This leaflet is part of EAU Patient Information on BPE. It contains general information about benign prostatic enlargement. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

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# Benign Prostatic Enlargement

Prostate diseases are usually associated with older age. They can cause bothersome symptoms in the lower urinary tract in men over the age of 50. These symptoms may be caused by an enlargement of the prostate, a condition which is known as benign prostatic enlargement (BPE). Other conditions can also cause these symptoms and your doctor might take this into account.

Benign prostatic enlargement is a common condition. It is related to hormonal changes which happen as men

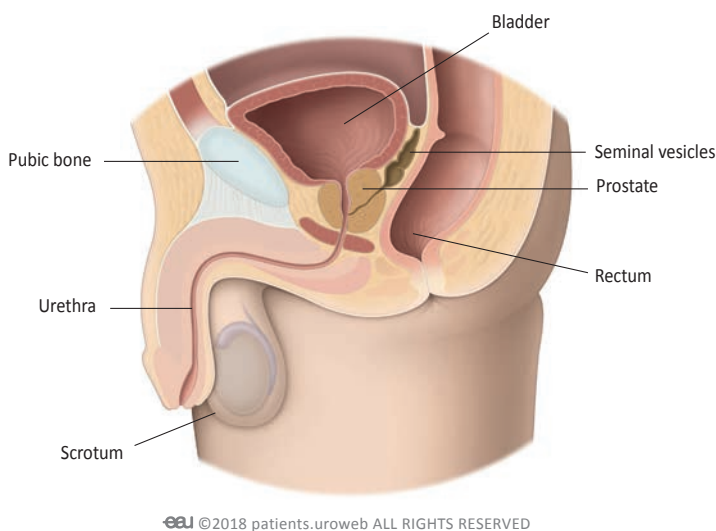


Fig. 1: A healthy prostate in the lower urinary tract.

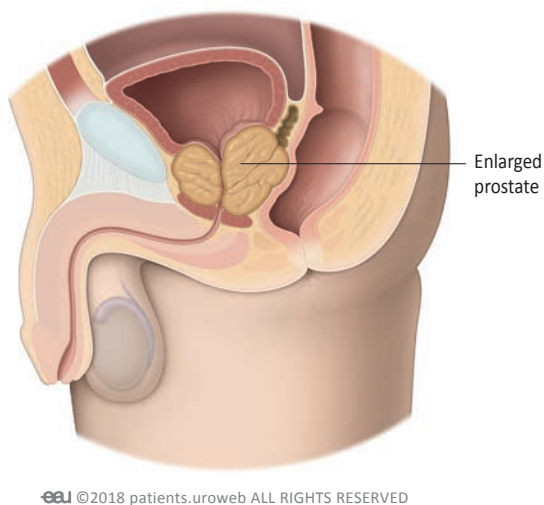


Fig. 2: An enlarged prostate compressing the urethra and bladder.

grow older. Prostate diseases can be very worrying but it is important to know that BPE is not prostate cancer. BPE does not become prostate cancer, even if it is left untreated. However, both benign prostatic enlargement and prostate cancer may develop with age. Some people may have both diseases. You should consult your doctor to discuss any of your concerns.

## What is the prostate?

The prostate is a gland located in the lower urinary tract, under the bladder and around the urethra (Fig. 1). Only men have a prostate. It produces the fluid which carries semen. The prostate has smooth muscles which help to push out the semen during ejaculation.

A healthy prostate is about the size of a large walnut and has a volume of 15-25 millilitres (ml). The prostate slowly grows as men grow older.

## Symptoms

Benign prostatic enlargement (BPE) can affect the way you normally urinate. This happens because the enlarged prostate puts pressure on the urethra at the outlet of the bladder (Fig. 2).

Sometimes the symptoms are mild. For example, you may need to urinate more often or find it more difficult to empty your bladder completely. These mild symptoms are a normal part of the aging process – just like decline in mobility, memory, or flexibility. It is possible that your doctor will not recommend treatment for mild symptoms.

Sometimes the symptoms are very bothersome and can have a negative effect on your quality of life. In this case you may benefit from treatment.

The symptoms which are often called lower urinary tract symptoms (LUTS) may be caused by BPE and may be due to other conditions which affect the urinary system.

## Types of symptoms

In men with BPE, the symptoms can affect urination in different ways:

- The way you hold the urine in the bladder (storage)
- The way you urinate (voiding)
- How you feel after you urinate (post-micturition)

Storage symptoms include:

- The need to urinate more often than usual
- The need to wake up at night to urinate
- The sudden need to urinate and having trouble holding it
- Any involuntary loss of urine (incontinence)

Voiding symptoms include:

- A weak stream of urine
- Splitting or spraying of the urine stream
- The flow of urine starts and stops (intermittent)
- Straining when urinating
- It takes a while before the urinary flow starts
- It takes longer to finish urinating
- In rare cases acute or chronic urinary retention

Post-micturition symptoms include:

- The feeling that the bladder is not completely empty
- Involuntary loss or dribbling of urine into your underwear shortly after leaving the toilet

## Diagnosis

The doctor and nurses do a series of tests to understand what causes your symptoms. This is called a diagnosis.

The symptoms listed in the previous section can point to many diseases and not only BPE. This is why you may need to take several tests before the doctor can make a diagnosis.

First, the doctor or nurse will take your medical history and do a physical examination. Then they may do urine and blood tests, take images of your bladder and prostate, and perform other tests if needed.

This section offers general information about diagnosis and situations can vary in different countries and hospitals.

## Medical history

The doctor will take a detailed medical history and ask questions about your symptoms. Your doctor might also ask questions about your erectile function. You can help your

doctor by preparing for the consultation:

- Make a list of any previous surgeries
- Make a list of the medication you are taking
- Mention other diseases you suffer from
- Describe your lifestyle (exercising, smoking, alcohol, and diet)
- Describe your current symptoms
- Note how long you have had the symptoms for

The doctor may also ask you to fill out a questionnaire to understand your symptoms, how often they happen, and how much they affect your quality of life.

## Physical examination

Your doctor or nurse will do a general physical examination.

They will be looking for:

- A distended bladder (your bladder may stretch if it does not empty completely)
- Skin damage on the penis and scrotum (the pouch of skin that contains your testes), this can be a sign of urinary incontinence
- Discharge from the urethra, at the end of the penis (a sign of infection)
- Abnormalities in the penis, scrotum, and testicles

In addition, your doctor might do a rectal examination with a finger to feel the size, shape, and consistency of the prostate (**Fig. 3**). This test is known as digital rectal examination (DRE).

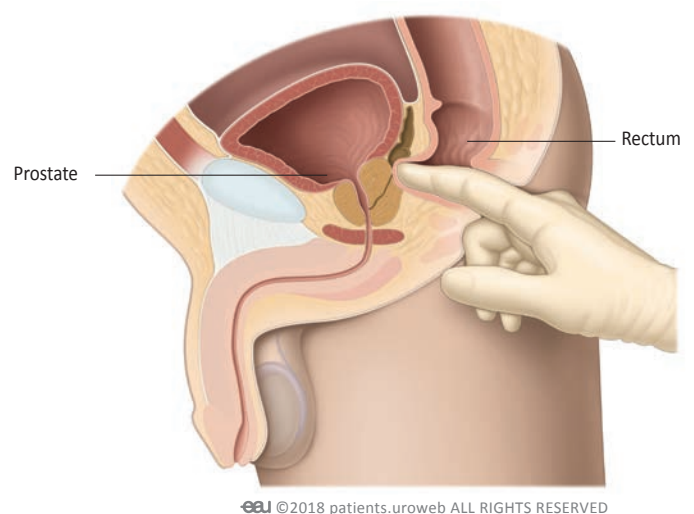


Fig. 3: Digital rectal examination to feel the size, shape, and consistency of the prostate.

## Urine test

You will need to give some of your urine for testing. The test will show if you have a urinary tract infection or if there are traces of blood in the urine. It may also show glucose which could be a sign of diabetes mellitus.

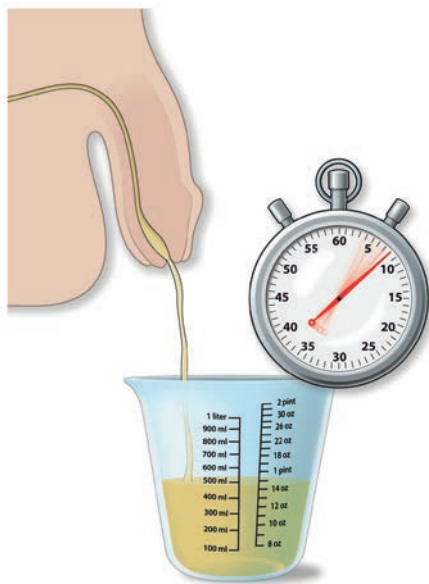
## Blood test

As part of making the diagnosis your doctor may do a blood test to check your kidney function. The doctor may also recommend to check if your blood has higher levels of prostate-specific antigen (PSA). PSA is a protein produced by the prostate and it may increase in men with a benign prostatic enlargement, prostatic inflammation, or prostate cancer. The doctor will explain the possible consequences of this test before making this recommendation.

## Bladder diary

Your doctor may ask you to keep a bladder diary for the duration of at least three days. Here you will note down how much you drink, how often you urinate, and how much urine you produce by measuring the volume of urine at home with the help of a measuring jug. The bladder diary is important because it helps your doctor to understand your symptoms better.

You may use a stopwatch to record the time it took you to urinate. Note down the amount of urine (in millilitres) and the time (in seconds) (Fig. 4).



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Fig. 4: Measuring urine flow rate at home.

## Uroflowmetry

This is a simple test which electronically records the flow of urine. It is easily done in privacy at the hospital or clinic. You will urinate in a container, called a uroflowmeter (Fig. 5). This test helps your doctor to check if the enlarged prostate causes a blockage in the lower urinary tract.

What measuring your urine flow rate at home can tell you:

- Normal urine flow is above 15 millilitres per second.
- If your flow of urine is 10 millilitres per second or less and you experience symptoms, you should see your urologist.

Measuring at home is never as accurate as at the hospital or clinic. Make sure to consult your doctor about your urine flow rate if you have any concerns.

## Imaging of the urinary tract

You may get an ultrasonography (also known as ultrasound), which uses high-frequency sounds to create an image of your bladder and your prostate.

The doctor or nurse will scan your bladder using ultrasound to check how much urine is left in the bladder after urinating. This information helps to see if your symptoms are caused by chronic urinary retention, which can occur in men with BPE.



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Fig. 5: A common type of uroflowmetry container for men and women.

An ultrasound may also be used to measure the size of prostate volume. This may help to select the best treatment option for you.

## Urodynamic evaluation

A urodynamic test is done to get more information about your urination cycle and how your bladder muscles work. During the test, your doctor or nurse inserts catheters in your urethra and rectum to measure the pressure in your bladder and abdomen.

The bladder is slowly filled with sterile fluid through the catheter in the urethra. In this way, the filling of the bladder with urine is simulated. When the bladder is full, you will urinate into a uroflowmeter.

The test results are shown on a screen which is connected to the catheters. Sometimes the test has to be repeated to get accurate results but the catheters will already be in place for the second test.

Your doctor may decide to give you this test if:

- You have a neurological dysfunction
- You have had pelvic or prostate surgery
- You have too much urine left in the bladder after urination
- BPE is uncommon in your age group
- More information is needed to understand the cause of your symptoms

## Treatment options

### Watchful Waiting

If you have benign prostatic enlargement (BPE) with mild/moderate bothersome lower urinary tract symptoms (LUTS), you may not need drugs or surgery for your condition. Instead, the urologist will explain your condition to you, how it can develop, and how you can adjust your lifestyle to reduce your symptoms and cope with them. The urologist will closely observe your condition over the following months or years and will start active treatment when needed. This is called Watchful Waiting.

Watchful Waiting is a good option if your symptoms are mild/moderate and if you feel that your quality of life has not declined. Despite how it may feel, this is not a passive approach because it includes regular check-ups to make sure your condition does not get worse.

Most men with BPE are offered a period of watchful Waiting before starting any treatment. It is widely recommended because severe complications during this time are very rare. In fact, some symptoms can improve on their own while others may remain stable for years.

A Watchful Waiting programme includes:

- Evaluation of your symptoms
- A physical examination
- Blood and urine tests
- Education about your condition
- Support and reassurance
- Lifestyle and self-management advice

### Lifestyle advice

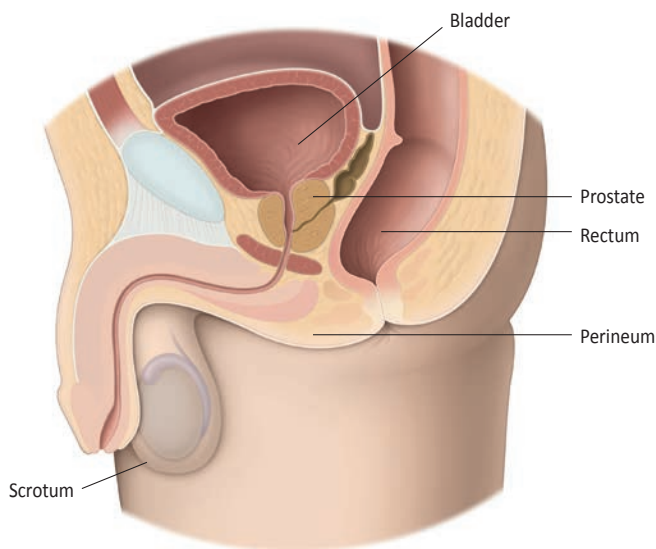
- Drink at least 1 litre every day and discuss with your doctor if you can drink more
- Drink more if you live in a hot climate or do a lot of physical exercise
- Drink less before and during long trips
- Drink less in the evening to avoid getting up at night to urinate
- Avoid alcohol and caffeine because they increase urine production and irritate the bladder
- Try to exercise 2 or 3 times a week. Lack of movement can make it more difficult to urinate and cause urinary retention
- Have a balanced and varied diet
- Always try to keep your lower abdomen dry and warm. If you go swimming, bring an extra set of dry clothes and change as soon as you are out of the water. Dampness and cold may increase the need to urinate and can cause a urinary infection
- Sometimes urine sprays and it can wet the toilet seat or the bathroom floor. Some men prefer to sit down when urinating to avoid this, while others prefer to urinate in a cup and empty it in the toilet

### Self-management

Apart from following general lifestyle advice you can actively manage the symptoms caused by BPE in your everyday life. Self-management can reduce symptoms and keep your condition stable.

- Completely empty your bladder each time you urinate. It may help if you sit down.
- If you feel your bladder is not empty after urinating, try again after 5 minutes

- Use a small pad to catch involuntary urine loss
- After urinating, press under the scrotum with your fingers onto the urethra and then slide your fingers from the base to the tip of the penis to squeeze out the last drops of urine. This will help to avoid wetting your underwear.
- Use breathing exercises to distract yourself from the feeling of urgency
- Apply pressure to your penis or perineum (**Fig. 6**) to divert your attention from urination
- Encourage yourself to “hold on” longer when you feel the urgency to urinate. This will train your bladder to keep more urine so that you will urinate less often.
- Avoid constipation by adapting your diet
- Avoid sudden exposure to cold weather and always try to keep your lower abdomen warm
- Keep a bladder diary



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Fig. 6: The male lower urinary tract.

## Treatment for LUTS in men with BPE

### Drug treatment

You have been diagnosed with benign prostatic enlargement (BPE) and your doctor recommends drug treatment. This treatment is advised when the symptoms are bothersome and affect your quality of life. This section describes different drug treatments, which you should discuss with your doctor. Together you can decide which approach is best for you.

Factors which influence this decision include:

- Your symptoms
- The size of your prostate
- Your medical history
- Drugs available in your country
- Your personal preferences and values

There are several groups of drugs to treat the symptoms caused by BPE:

- Beta-3 agonist
- Alpha-blockers
- 5alpha-reductase inhibitors (5ARIs)
- Muscarinic receptor antagonists (MRAs)
- Phosphodiesterase 5 inhibitors (PDE5Is)
- A combination of drugs
- Herbal drugs

Each group of drugs works in a different way and can have different results and side effects.

## Surgical treatment of LUTS in men with BPE formation

You have been diagnosed with benign prostatic enlargement (BPE) and your doctor recommends surgery. This section describes different treatment options, which you should discuss with your doctor. Together you can decide which approach is best for you.

Factors which influence this decision include:

- Your symptoms and quality of life
- The size of your prostate
- Your medical history
- The kind of treatment available at your hospital and the expertise of your doctor. Ask your urologist about his or her experience with the recommended treatment option. You have the right to know the complication rate of the surgeon who will do the operation.
- Your personal preferences and values. There is no single treatment which is ideal for all patients.

## When should I consider surgery?

- When your symptoms get worse, even if you already receive drug treatment
- When you have complications of BPE or if you are at risk of getting them. Complications include:
  - Kidney failure
  - Dilatation of your kidneys
  - Inability to urinate (urinary retention)
  - Recurring urinary tract infection
  - Recurring blood in the urine
  - Bladder stone
- If you do not tolerate drug treatment very well
- If you prefer surgery over drug treatment
- 

During surgical treatment the doctor will remove the enlarged part of your prostate (also known as adenoma).

There are different types of surgical procedures, but all of them aim to relieve your symptoms and improve the flow of urine.

The main procedures are:

- Transurethral resection of the prostate (TURP)
- Transurethral incision of the prostate (TUIP)
- Open prostatectomy
- Laser treatment
- Prostate stents
- Transurethral needle ablation (TUNA)
- Transurethral microwave therapy (TUMT)

This section also discusses ethanol and botulinum toxin injections. Research on the effects of these procedures is still on-going and their use is experimental. Each procedure has its own advantages and disadvantages. The choice of treatment depends on your individual situation and preference.

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

## Intra-prostatic ethanol and botulinum toxin injections

Today, ethanol and botulinum toxin injections are explored as possible treatment options for BPE. They may become accepted in the future, but today they are still experimental and are usually used in clinical trials.

## Intra-prostatic ethanol injections

Ethanol, which is pure alcohol, is injected through the urethra or the rectum into the prostate tissue. The aim is to reduce the size of the prostate and improve the flow of urine.

## Intra-prostatic botulinum toxin injections

Botulinum toxin is widely known by one of its trade names Botox. It is a strong toxic substance which is used in cosmetic surgery. In BPE treatment it blocks nerve endings and relaxes the smooth muscle in the prostate. Botulinum toxin reduces the size of the prostate and improves the flow of urine. It can be injected through the urethra, the rectum, or the perineum. Recent studies do not support the use of botulinum toxin for the treatment of lower urinary tract symptoms in men with BPE.

## Living with BPE

Many men with BPE have to deal with lower urinary tract symptoms (LUTS) as they grow older. For some, this causes a lot of unhappiness and bother, while others experience only mild discomfort.

What's more, different people can experience the same symptoms differently. For example, one man can suffer greatly from waking up at night to urinate while another may hardly be affected by it. That is why your personal experience and your quality of life should not be underestimated. They are as important as diagnostic tests and treatment results.

Quality of life involves both physical and psychological health. It is important not only to feel healthy but also to feel free of the psychological pressure of living with BPE. There are many ways to keep the symptoms under control. They should not stop you from being happy in your relationships and participating in all aspects of your life. Seek help if your symptoms bother you: consult your family doctor, general practitioner, or a urologist.

## Effects on your social life

Symptoms associated with BPE, such as urgency or the need to urinate often, can have a negative effect on your social life. Some men suffer so much from these symptoms that they avoid all social activities. They are afraid to find themselves in a situation where there is no toilet nearby. Furthermore, losing sleep because of the need to urinate at night may lower



energy levels and make it more difficult to maintain daily activities.

Avoiding social activities may seem the easiest way to deal with the problem, but it can lead to isolation and prevent you from fully enjoying your social life. Get professional advice from your urologist, who can help you to deal with your symptoms.

## Personal relationships and sex

Symptoms caused by BPE can have a negative effect on your personal relationships and sex life. It can be difficult to feel attractive and confident or be intimate with your partner when you do not always feel in control of your body. Episodes of incontinence or urgency can be embarrassing and lower your self-esteem. Side effects of drug treatment such as lack of sexual drive or erectile dysfunction can also add to these feelings.

These changes can be very difficult to deal with because for most men sexuality remains important throughout their whole life. Some men may even go into denial or suffer from depression. That is why the effect of BPE on the quality of life should not be underestimated.

Living with BPE is not only challenging for you but also for your partner. Your intimacy as well as your daily interaction may be affected. Your partner may suffer without saying much, so it is very important that you openly discuss the best way to cope with this condition.

It may be uncomfortable to discuss your sex life with a urologist, but it is the most effective way to deal with your concerns. Together with your partner and your urologist you can identify what is important in your sex life and choose the best treatment option. There are many ways to relieve your symptoms and improve your sex life, which will make it easier to live with BPE.

## Seeking help

Lower urinary tract symptoms (LUTS), especially if they are very bothersome, are a very intimate and private condition. Many men choose not to discuss it with anybody or not to go to their doctor because they:

- Are afraid they may have an incurable disease
- Are worried about a wrong diagnosis
- Do not have easy access to a doctor
- Have had a negative experience in the hospital
- Have friends or relatives who had a negative experience

when treated for a similar condition

- Do not know about possible treatment options
- Have financial issues
- Feel isolated because of their age or condition

While these reasons may seem convincing, they should not prevent you from seeking help and improving your quality of life. Do not let a prostate condition rule your life.

## Questions to ask your doctor

You may have a lot of questions about your condition. EAU Patient Information on BPE covers many of these questions but it does not deal with your personal situation. Your urologist is the best person to discuss this with and you should not feel embarrassed about addressing any of your concerns.

Here are some of the questions you may ask your doctor:

- What are my test results and what do they mean?
- Do I have cancer?
- Why is this happening to me?
- What will happen in the next months and years if I don't get treatment?
- What will happen in the next months and years if I do get treatment?
- Why do you recommend this treatment option for me?
- What can I expect from that treatment?
- Will it cure my condition?
- How long will I need to be treated for?

# Glossary of terms

## Adenoma

The enlarged part of the prostate (see also Prostate)

## Anaesthesia (general, spinal, or local)

Before a procedure you will get medication to make sure that you don't feel pain. Under general anaesthesia you are unconscious and unaware of what is happening to you. Under spinal or local anaesthesia you will not feel pain in the part of your body where the procedure is done. Anaesthesia wears off gradually after the procedure.

## Bladder

Organ which collects urine from the kidneys

## Contraindications

Symptoms or conditions which makes a certain treatment option undesirable

## Cystoscope

A type of endoscope which is used in the urethra (see also Endoscope, Urethra)

## Endoscope

A tube-like instrument to examine the inside of the body. Can be flexible or rigid.

## Erectile dysfunction

The inability to get or keep an erection

## Indwelling catheter

A tube placed in the urethra and bladder to help you urinate

## LUTS

Lower urinary tract symptoms. A term used for the symptoms caused by BPE which can also point to other diseases affecting the urinary tract (see also Urinary tract).

## Micturition

Urination

## Minimally invasive procedure

A surgical procedure where there is no need to make an incision in the body. An endoscope is used to reach the part of the body that needs to be treated through the urethra (see also endoscope).

## Physical

Having to do with or affecting the body

## Prostate

The gland which produces the fluid which carries semen. It is located in the male lower urinary tract, under the bladder and around the urethra (see also Bladder, Lower urinary tract, Urethra).

## PSA (prostate-specific antigen)

A protein produced by the prostate which may increase in men with a benign prostatic enlargement, prostatic inflammation, or prostate cancer

## Psychological

Having to do with or affecting the mind

## Resectoscope

A type of endoscope used for minimally invasive treatment of BPE

## Retrograde ejaculation

A condition when semen can no longer go through the urethra during orgasm but goes into the bladder instead. The semen later leaves the body during urination.

## Ultrasonography

Imaging technique that uses high-frequency sounds to make an image of the inside of the body

## Ultrasound

see Ultrasonography

## Urethra

The tube which carries urine from the bladder and out of the body

## Urgency

The sudden need to urinate

## Urinary incontinence

Involuntary loss of urine

## Urinary retention

When you are unable to urinate. This condition can be chronic.

# Glossary of terms

## **Urinary tract**

The organ system which produces and transports urine through and out of the body. It includes two kidneys, two ureters, the bladder and the urethra. The urinary tract is similar in men and women, only men have a longer urethra.

## **Urination**

Urination is the release of urine from the urinary bladder through the urethra to the outside of the body.

## **Urologist**

A doctor specialised in health and diseases of the urinary tract and the genitals

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