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Radical prostatectomy

This fact sheet is for men who are thinking about having, or have been recommended, surgery to treat their prostate cancer. It is one of several fact sheets that have been written to help you decide which treatment is best for you. It describes the operation to remove the prostate gland (radical prostatectomy), which can be done as open surgery through the abdomen (retropubic) or through the area between the testicles and the back passage (perineal). It also describes the keyhole operation which can be done by hand (laparoscopic) or with the help of a robot (robot-assisted).

Who can have radical prostatectomy?

Radical prostatectomy is a treatment option for fit, healthy men with cancer that is thought to be contained within the prostate gland (localised prostate cancer). It may not be suitable for you if you have other health problems, such as significant heart disease, as these increase the risks of surgery.

Alternative treatments for localised prostate cancer include:

- active surveillance
- external beam radiotherapy
- brachytherapy
- watchful waiting.

Other treatment options include High Intensity Focused Ultrasound (HIFU) and cryotherapy, which may be available as part of a clinical trial or national study. These treatments are newer than the ones listed above and we do not yet know how they affect quality of life and long term survival. You can find out more about all of the treatments mentioned here by reading our other Tool Kit fact sheets or by calling our free and confidential Helpline on 0800 074 8383.

When you discuss possible treatments with your specialist team, they will take into account your individual medical history and personal wishes. You should have an opportunity to discuss all of your treatment options with several specialists before making your final choice. A key worker or specialist nurse may give you their contact details so that you can ask questions about your treatment at any time.

How does radical prostatectomy treat prostate cancer?

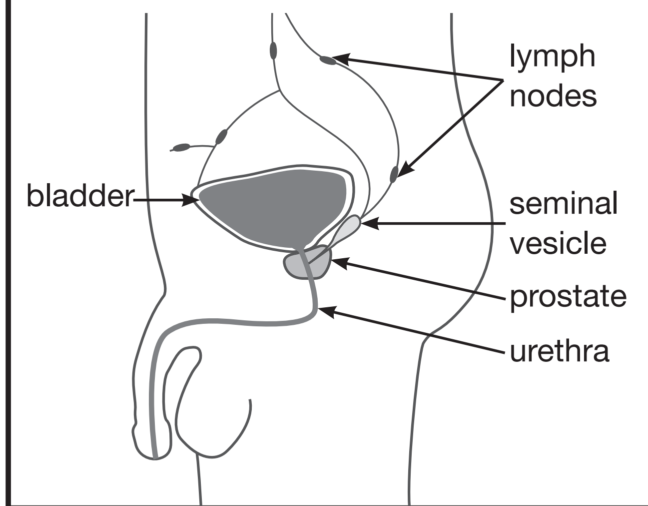
The aim of surgery is to take out the cancer, as long as it is contained within the prostate gland, and stop it spreading to other parts of the body. This is done by removing the whole prostate gland and the seminal vesicles, which make some of the fluid of semen.

Your surgeon may also remove the lymph nodes if there is a risk the cancer has spread there. The lymph nodes are part of the immune system and help the body fight disease and infection. However, surgeons no longer routinely remove them because many cancers are detected early when the risk of spread into the lymph nodes is very low.

THE PROSTATE CANCER CHARITY

Your surgeon should discuss this with you before your operation.

The surgeon removes the prostate, the seminal vesicles and possibly the lymph nodes



There are several ways of removing the prostate gland:

Open prostatectomy
This is the most common method. There are two types of open surgery:

- Retropubic prostatectomy
  This is done through an opening in the abdomen. Most open prostatectomies are done this way.
- Perineal prostatectomy
  This is done through the area between the testicles and back passage. This method is less common than the retropubic operation.

Keyhole prostatectomy
This is also called a laparoscopic prostatectomy. This involves accessing the prostate gland through five or six small openings, rather than one large one. There are two ways of doing this type of operation:

- By hand
- With the help of a robot.
  The robot-assisted operation is relatively new and is only available in a few centres in the UK.

What are the advantages and disadvantages?

The advantages and disadvantages of all types of prostate surgery depend on your age, health and stage of disease. Your surgeon should discuss your individual situation and options with you.

Advantages

- If no cancer cells have escaped from the prostate gland, surgery can completely remove the cancer.
- You and your doctor will find out exactly how aggressive the cancer is (Gleason grade) and how far it has spread (stage).
- It will also treat BPH (non-cancerous enlargement of the prostate) and its symptoms.
- It is easy to measure the success of the surgery by monitoring the PSA level. If the surgery is successful, the PSA should drop to less than 0.1 ng/ml within four weeks of the operation.
- If the PSA starts to rise after surgery, further treatment with radiotherapy may be possible. However, if the PSA rises after treatment with radiotherapy, further treatment with surgery is not usually possible.

Disadvantages

- Prostate surgery carries the same risks as any major operation such as:
  - bleeding and the need for a blood transfusion
  - injury to nearby tissues and nerves
  - blood clots in the lower leg that could travel to the lung
  - wound infection
- Treatment involves a stay in hospital and a period of recovery afterwards.
- If the cancer has broken out of the prostate gland, the surgeon may not be able to remove all of it and some cancer cells may be left behind. These can be treated at a later date with radiotherapy, hormone therapy or a combination of both if the PSA starts to rise.
- There is a risk of erectile dysfunction and stress incontinence – read page 7 for more details.

Advantages and disadvantages of different types of surgery

Type of surgery	Advantages	Disadvantages
Open prostatectomy - retropubic	• Widely available across the UK • Lymph nodes can be removed if necessary	• Can be more difficult to access the prostate gland than in the perineal operation • You are more likely to need a blood transfusion than in the other methods
Open prostatectomy - perineal	• Easier to access the prostate gland than in the retropubic method • You are less likely to need a blood transfusion than in the retropubic method	• Less common than retropubic method • Not possible to remove the lymph nodes • Not suitable for removing large prostate glands
Keyhole (laparoscopic) prostatectomy	• Less time spent in hospital and quicker recovery than open surgery • The wounds are smaller so you may have less pain than after open retropubic surgery • Is as effective as open prostatectomy at treating prostate cancer • Lymph nodes can be removed if necessary • You are less likely to need a blood transfusion and less likely to get a wound infection than in the retropubic method	• Not yet widely available • Needs to be done by a specially trained surgeon • Is a new method so surgeons will need time to gain experience and improve their technique, although some surgeons have already gained a lot of experience
Robot-assisted prostatectomy	• Recovery is quicker than after open surgery • Is as effective as open and laparoscopic prostatectomy at treating prostate cancer • Lymph nodes can be removed if necessary • You are less likely to need a blood transfusion than in the retropubic method	• Not widely available as there are only a few robots in the UK • Needs to be done by a specially trained surgeon • Is a new method, so surgeons will need time to gain experience and improve their technique, although some surgeons have already gained a lot of experience

There are some specific advantages and disadvantages to the different types of surgery. These are described in the table above.

What does treatment involve?

Before the operation

To make sure you are fit for the anaesthetic you may have blood tests, a heart tracing (ECG), chest X-ray and physical examination. This is called a pre-assessment visit and is a good time to ask any remaining questions you may have about the operation.

You will be admitted to the hospital ward on the day of your operation, or the day before. The nurses and doctors will introduce themselves and answer any questions you may have. The specialist who is responsible for your pain relief during and after the operation (anaesthetist) will explain how your pain relief will work. Your doctor or nurse will ask you to sign a consent form to state that you have been fully informed of all your treatment options, that you understand the advantages and disadvantages of surgery and that you wish to go ahead with the operation.

You will not be able to eat or drink for about six hours before the operation. If you need to take regular medication, ask the nursing or medical staff for advice. You will have some medication to speed up your bowel movements (an enema or laxative) to ensure that your bowels are empty before your surgery.

You will be given some elastic stockings to wear, which reduce the chance of blood clots forming in your legs from inactivity during and after the operation. You will keep these on until you are moving around normally again.

The operation

The surgeon may try to use nerve-sparing surgery that avoids damaging the bundles of nerves that control your erections. However, this is not always possible because the nerves are attached to the back of the prostate, which is the most likely place for prostate cancer to grow outside the prostate. You may wish to ask your specialist team about this before you have surgery.

Open prostatectomy

The operation takes two to three hours. You will have a general anaesthetic so you will be asleep during the whole process and will not feel anything. You may need to be given donated blood (blood transfusion) during the operation.

If you are having a retropubic prostatectomy, the surgeon will make a vertical or horizontal cut in your lower abdomen, below the belly button. If you are having a perineal prostatectomy, the surgeon will make a cut in the area between your testicles and back passage (perineum). The type of operation you have will depend on your surgeon's preference. Speak to your specialist team about which operation they recommend.

Keyhole prostatectomy

The operation will normally take between two and three hours. You will have a general anaesthetic so you will be asleep during the whole operation. You may need to have a blood transfusion but this is less likely than with retropubic prostatectomy because there is usually less blood loss.

The surgeon will make five small cuts (less than 1cm or half an inch long) in your abdomen. They will insert a small camera through one of the cuts so that they can see the prostate gland. The surgeon uses the other four cuts to insert the instruments to carry out the operation. For the robot-assisted operation, the surgeon makes six small cuts.

In rare cases (less than one per cent) the surgeon may need to switch to an open retropubic technique if the operation is taking longer than expected or if there is a lot of bleeding.

The robot-assisted operation uses the same technique as the keyhole operation but the surgeon uses two or three robotic arms to move the surgical instruments. The surgeon sits in the operating theatre, away from the operating table. He or she moves the surgical instruments by controlling the robotic arms through a computer.

After the operation

You will be taken to the recovery room until you are fully awake before going back to the ward. You will have a number of tubes in place when you wake up:

- You may have a small tube running through your nose into your stomach to allow any extra fluid to be drained from your stomach while the anaesthetic is wearing off. This helps to prevent sickness. This will be the first tube to be removed.
- A drip, usually placed in your arm or hand, to give you fluid while you are not allowed to drink. This will be removed once you are eating and drinking normally.

- A small tube (drain) in your wound to drain away any fluid. This tube will be removed before you go home.
- A catheter to drain urine from your bladder, through your penis to a bag which hangs on the side of your bed, or which can be carried around with you. Most men go home with the catheter in place, attached to a bag that can be worn inside your trousers, strapped to your thigh. During this time, you may be asked to take a low dose of an antibiotic every day to prevent infection. The catheter is usually removed after one to two weeks.

Open prostatectomy
For the first few days in hospital after the operation, you will be given a continuous painkiller either into the spine (epidural), or into a vein in your arm (intravenous). Painkillers given into the vein use a patient controlled analgesia (PCA) pump so that you can top up your pain relief yourself if you need to. You will be shown how to use this.

Once you are able to eat and drink normally you will be given painkilling tablets instead, which you can continue to take at home. Let your nurse know if you are in any pain so that they can find the right type and amount of pain relief for you. You may find that it hurts when you move around, cough or laugh. Some men find it helps to hold a folded towel or pillow over the wound at these times.

The length of time you spend in hospital depends on your doctor's advice and your recovery but is usually between four and six days.

Your stitches or clips will be removed after seven to 14 days, usually by a community (practice or district) nurse once you have gone home. You can safely shower about five to six days after the operation. After washing, dry the wound by patting it gently with a towel as the skin may not have healed firmly at this stage. You may have swelling in your scrotum and penis but this should go down after a few days. You may find the tighter fit of underpants more supportive and comfortable than boxer shorts.

Keyhole prostatectomy
For a short time after the operation, you may have a patient controlled analgesia (PCA) pump. You may need to take painkillers for several days after the operation. Your nurse will find the right type and amount of pain relief to suit you, so it is important to tell them if you are in any pain.

You will have plasters or a type of glue to cover the cuts from the operation. These will be removed after a couple of days. You will have stitches, which will either dissolve or will be removed by a community nurse once you have gone home. You should be able to have a shower after two days. Dry the wounds by patting gently with a towel. You may find that loose clothing is most comfortable to wear while the wounds heal. You will be encouraged to get out of bed as soon as you can after the operation and start to move around.

You will be able to go home one to three days after the operation, depending on your recovery and your doctor's advice.

What happens afterwards?

Care of your catheter

Before you leave hospital, the nurse will show you how to look after your catheter.
You may have a smaller bag than you had in hospital, which can be strapped to your leg so that you can move around easily. It is important that the urine drains freely into the bag and that the catheter is not closed off with a tap or valve. If urine is allowed to build up in the bladder, it can put pressure on the wound and the stitches.

You may be referred to a community nurse who will keep an eye on how your wound is healing and help you to look after your catheter. Tell the nurse if you notice any urine leaking from the outside of the catheter.

It is important to keep the tip of your penis clean to prevent irritation, infection and redness. Use plain mild soap and water to remove any crusting and make sure the foreskin, if present, is moved forward again after cleaning.

You may notice some bloody fluid seeping out around the catheter when you open your bowels or pass wind. This is normal, but if there is a lot of bleeding you should contact your surgical team at the hospital or your GP.

Going for a short walk every day with a friend or family member will help speed up your recovery. Try to increase the distance you walk each day. Avoid going up or down stairs more than a couple of times a day and make sure that nothing tugs on the catheter. In the unlikely event that the catheter gets blocked or falls out once you are home, you should let the hospital ward or your key worker know immediately, and they will contact the surgical team.

A personal experience
'While I had my catheter, I found it more comfortable to sleep with a pillow between my knees'.

Before you go home, your specialist team will give you details of where and when your catheter will be removed. This is usually at an outpatient appointment one or two weeks after the operation. You may find this uncomfortable but it is not painful. You will need to visit the hospital for several hours so that the medical staff can make sure you can pass urine without any problems. You may find that you leak anything from a few drops to a larger amount of urine, and this can continue for a few months. You may want to buy some continence pads from the chemist and take these with you when the catheter is removed, along with a clean pair of underpants. Loose fitting trousers or jogging bottoms may be more practical during this time.

Your wound

The scar from the operation will shrink and fade over time. The muscle and tissue inside your body also has to heal and this may take several months. A healthy diet helps the wound healing process. Get plenty of rest in the first couple of weeks. After this time, gentle exercise, such as a short walk every day, will help you recover but avoid climbing too many stairs, lifting heavy objects or doing manual work for eight weeks after the operation.

Constipation

You may have no bowel movements for several days after surgery, but if this carries on you may need a laxative. Ask your specialist team or GP for advice. To prevent constipation eat high fibre foods such as bran, prunes or apples. Drink at least eight glasses of non-alcoholic fluid each day until your catheter is removed to help prevent infection.

Your follow-up appointment

You will have a follow-up appointment around six to 12 weeks after your operation. This is an opportunity for you to discuss any problems you are having, such as continence problems or erectile dysfunction.

You should get the result of your first PSA test after the operation at this appointment. If the surgery has been successful the PSA level will drop to the lowest possible reading (usually less than 0.1 ng/ml).

If the results of the surgery show that the cancer has spread outside the prostate gland, you may be offered treatment with radiotherapy or hormone therapy. You can find out more about these treatments by reading our other Tool Kit fact sheets.

You will have regular appointments every six to 12 months to monitor your PSA level and any side effects.

Your PSA level may start to rise months or years after your surgery. If your PSA continues to rise, you may be offered further treatment such as radiotherapy or hormone therapy. You may also wish to consider taking part in a clinical trial. You can find out more about this by reading our Tool Kit fact sheet, called **A guide to clinical trials.**

Waiting for PSA test results can be stressful and you may need support from friends and family. If you would like to speak to a specialist nurse, you can call our free and confidential Helpline on 0800 074 8383. The Helpline nurses can offer you support and answer any questions you may have.

Going back to work

Most men return to work within six to eight weeks if they have had open surgery and

two to four weeks if they have had keyhole surgery. This will depend on how much physical effort your work involves. If you do work, ask your doctor for advice on how much time you will need to take off.

Driving

You will be able to sit in a car as a passenger while your catheter is still in. You may wish to avoid long journeys for the first two weeks after the catheter is removed to give yourself a chance to deal with any continence problems with confidence.

Most men are able to drive a car after four weeks. Check with your insurance company how soon after surgery you are insured to drive and whether you can drive while you are taking pain relieving tablets.

Sexual activity

You will need to avoid full sexual intercourse for the first six to eight weeks after open surgery while the wound is healing. However, masturbation and night-time erections are safe during this time.

If you have had keyhole surgery, you may feel like having sex sooner than this. However, you may not be able to get an erection while you are recovering from the operation.

When you are ready, regular sexual activity may help to improve your erections over time. Treatments are available to help you get an erection and you may find that lubricants help.

Soon after the surgery, your doctor may recommend tablets to help you gain erections even if you are not ready to start any sexual activity yet. You may also need other treatment, such as injections or a vacuum device, to help you get a strong enough erection for intercourse.

You can find out more about regaining sexual function and the possible effect on your relationships by reading our Tool Kit fact sheet on **Sexuality and prostate cancer.** Your specialist team can also give you support and answer any questions you may have before or after the surgery.

What are the side effects?

The most common side effects of surgery are urinary incontinence and erectile dysfunction. Your risk of getting side effects depends on your overall health, your cancer and your surgeon's skill and experience. Your risk will also be affected by other treatments that you may have, such as hormone therapy or radiotherapy.

Men who have the keyhole operation are able to get back to their normal day to day activities more quickly than men who have open surgery. However, the risks of side effects from all types of prostate surgery are similar.

You may wish to ask your surgeon for more information on the risk of side effects. He or she should be willing to show you their results and to put you in touch with other patients. You can also call our Helpline on 0800 074 8383.

Erectile dysfunction

About half (50 per cent) of men will have problems getting and keeping an erection (erectile dysfunction) after surgery. However, the reported rates of erectile dysfunction vary so ask your surgeon for his or her results.

Your surgeon may try to save the nerves that control erections but even if this is possible, there is no guarantee that it will prevent erection problems. You may be able to improve your chance of getting erections back by taking tablets called 'PDE5 inhibitors' in the first few weeks after surgery. Ask your specialist team for more information about this.

Your erections should improve with time but this will depend on how strong they were before surgery. You are also less likely to regain erections if you have high blood pressure, diabetes or if you smoke. At first, most men find it difficult to get an erection strong enough for intercourse and it can take anything from a few months to a couple of years for erections to return. Erections are often not as good as they were before surgery and some men will never get back the ability to maintain an erection without the help of artificial methods such as vacuum pumps or tablets.

You can find out more about erectile dysfunction and its treatment by reading our fact sheet on **Sexuality and prostate cancer** and by calling the Sexual Dysfunction Association on 0870 774 3571.

Infertility

The prostate gland and seminal vesicles, which produce and store some of the fluid in semen, are removed during the operation. You will still be able to experience orgasm (climax) but you will not ejaculate any semen. This is called a 'dry' orgasm and means that you will be infertile after the operation. If you are planning to have children, you may be able to store your sperm before the operation for use in IVF (In Vitro Fertilisation). If this is important to you, ask your surgeon if this option is available locally.

Urinary incontinence

Continence problems range from drips of urine to leaking larger amounts of urine, which can be managed with continence pads. Continence will improve with time and most men will fully recover three to six months after surgery. A small number of men (less than five per cent) will have long term problems and may not have any control over their urine flow. These men may need treatment with further surgery to help.

The risk of urinary incontinence is similar for both open (retropubic and perineal) and keyhole (laparoscopic and robot-assisted) surgery.

If you have continence problems, try to avoid alcohol and drinks containing caffeine, such as tea, coffee and cola, as these can irritate the bladder.

You may wish to practice pelvic floor exercises before and after the operation. These may improve your chances of regaining control of your bladder more quickly, but more research is needed before we can know for certain. Your doctor will advise you on this. Some doctors recommend that pelvic floor exercises are not done while the catheter is in place, while others advise that they can be done with care. You will need to keep doing the exercises for several weeks or months.

For details of pelvic floor exercises and the devices available to help you manage continence problems, read our Tool Kit fact sheet on **Urinary continence and prostate cancer**. You can also call our free and confidential Helpline on 0800 074 8383 or call Incontact on 0870 770 3246.

Bladder neck obstruction

A small number of men have problems passing urine after surgery due to the build up of scar tissue around the neck of the bladder. Contact your specialist team if your flow of urine is not as strong as usual, you have difficulty starting to pass urine or you need to strain to empty your bladder. The scar tissue can be 'stretched', or released under a short general anaesthetic. Occasionally this may need to be repeated a few times, but is usually successful in the long term. Contact your specialist team if you have these symptoms.

When to call your specialist team

You should contact your specialist team as soon as possible if you experience any of the following. They may ask you to come into the department or they may advise you to visit the Accident & Emergency (A&E) department at your hospital.

- Urine stops draining out of the catheter and your bladder feels full
- Your urine contains blood clots or turns red
- Your catheter falls out
- Your wound edges become red, swollen or painful. This can be a sign of infection
- You get pain or swelling in your legs
- You have a temperature of more than 38°C or 101°F
- You feel sick (nauseous) or vomit
- You get cramps in your stomach that will not go away

Questions to ask your specialist team

- What type of surgery do you recommend – retropubic, perineal, laparoscopic or robotic?
- How many of these operations have you done and how many do you do a year? (Each treatment centre should do more than 50 a year but these may be done by more than one surgeon)
- Will you try to do nerve-sparing surgery if possible?
- How many of your patients need extra treatment for cancer after surgery?
- How many of your patients develop incontinence and erectile dysfunction?

- How long should I expect to be in hospital?

- What pain relief will I get after the operation?

- If I have continence or erectile problems after surgery, who should I contact for help?

- How soon will we know whether the operation has been a success?

- How often will my PSA level be checked?

Notes

More information

The Prostate Cancer Charity
This fact sheet is part of the Tool Kit. Call our Helpline on **0800 074 8383** or visit our website at **www.prostate-cancer.org.uk** for more Tool Kit fact sheets, including an **A to Z of medical words** which explains some of the words and phrases used in this sheet.

The Bladder and Bowel Foundation (B&BF) (Formerly Incontact and the Continence Foundation)
www.bladderandbowelfoundation.org
Nurse Helpline 0845 345 0165 ~
SATRA Innovation Park, Rockingham Road, Kettering, Northants, NN16 9JH
For support and information on continence problems.

Sexual Dysfunction Association
www.sda.uk.net
Helpline 0870 774 3571
Suite 301, Emblem House, London Bridge Hospital, 27 Tooley Street, London SE1 2PR
For support and information on erectile dysfunction.

National Institute for Health & Clinical Excellence (NICE)
www.nice.org.uk
Produce an information leaflet on laparoscopic radical prostatectomy. To order a copy, call 0870 1555 455 and quote reference number N1137.

The Prostate Cancer Charity makes every effort to make sure that its services provide up-to-date, unbiased and accurate facts about prostate cancer. We hope that these will add to the medical advice you have had and will help you to make any decisions you may face. Please contact your doctor if you are worried about any medical issues.

The Prostate Cancer Charity funds research into the causes of, and treatments for, prostate cancer. We also provide support and information to anyone concerned about prostate cancer. We rely on charitable donations to continue this work. If you would like to make a donation, please call us on 020 8222 7666.

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* Calls are free of charge from UK landlines. Mobile phone charges may vary. Calls may be monitored for training purposes. Confidentiality is maintained between callers and The Prostate Cancer Charity.

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References to sources of information used in the production of this fact sheet are available on our website.

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