Cancer Council

CANCER TYPE
fact sheet

Understanding
Testicular Cancer

A guide for people affected by cancer

This fact sheet has been prepared to help you understand more about cancer that develops in a testicle. It will help you, your family and friends understand how testicular cancer is diagnosed and treated.

About the testicles

The testicles (also called testes) are part of the male reproductive system, which also includes the penis and prostate (see diagram right). They are 2 small egg-shaped glands that sit in the scrotum.

The testicles make and store sperm. They also make the hormone testosterone, which is responsible for the development of male characteristics, such as facial hair, a deeper voice and sex drive (libido).

What is testicular cancer?

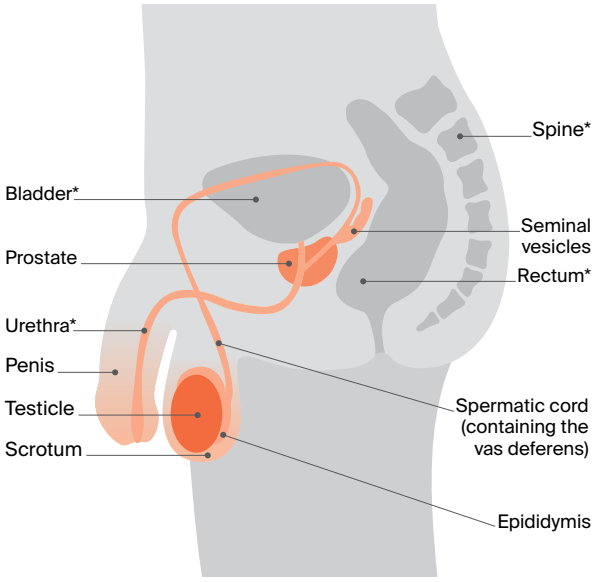
Cancer that starts in the cells of a testicle is called testicular cancer or cancer of the testis (which means one testicle). Usually, it affects only one testicle, but sometimes both are affected.

As testicular cancer grows, it can spread to lymph nodes in the abdomen (belly) or to other parts of the body, such as other lymph nodes, lungs or liver. It does not spread to the other testicle.

How common is it?

Testicular cancer is not common overall, but it is the most common cancer diagnosed in men aged 20–39 (apart from skin cancers). About 1026 people in Australia are diagnosed with testicular cancer each year, which is about 1% of all cancers in men.[1] Anyone with a testicle can get testicular cancer, including men, transgender women, non-binary people and people with intersex variations.

The male reproductive system



Epididymis – a tube behind each testicle that stores immature sperm

Spermatic cord – contains blood vessels, nerves, lymph vessels and the vas deferens

Vas deferens – a long tube that carries mature sperm to the urethra to prepare for ejaculation

Scrotum – a pouch of skin that holds the testicles

Seminal vesicles – glands that produce fluid that carries sperm

Prostate – a gland that produces fluid that helps nourish and protect sperm

Urethra* – a tube that runs from the bladder and through the prostate to take urine (pee) out of the body

** Not part of the reproductive system*

What types are there?

The most common testicular cancers are called germ cell tumours. There are 2 main types, seminoma and non-seminoma.

Germ cell tumours	
seminoma	• tends to develop more slowly than non-seminoma cancers • usually occurs between the ages of 25 and 45, but can occur at older ages
non-seminoma	• tends to develop more quickly than seminoma cancers • more common in late teens and early 20s • there are 4 main subtypes: teratoma, choriocarcinoma, yolk sac tumour and embryonal carcinoma

A testicular tumour can also include a mix of seminoma and non-seminoma cells, or a combination of the different types of non-seminoma cells. This is called a mixed germ cell tumour and is treated the same as non-seminoma cancer.

A small number of testicular tumours start in cells that make up the supportive (structural) and hormone-producing tissue of the testicles. These are called stromal tumours. The 2 main types are Sertoli cell tumours and Leydig cell tumours. They are usually benign (not cancer) and are removed by surgery.

What is GCNIS?

Most testicular cancers begin as a condition called germ cell neoplasia in situ (GCNIS). In GCNIS, the cells are abnormal, but they haven't spread outside the area where the sperm cells develop. GCNIS is not cancer, but it may develop into cancer. GCNIS has similar risk factors to testicular cancer and is hard to diagnose because there are no symptoms. It can only be diagnosed by testing a tissue sample. Some GCNIS cases will be carefully monitored (this is called active surveillance), while other cases will be treated with radiation therapy or surgery to remove the testicle.

What are the risk factors for testicular cancer?

The causes of testicular cancer are largely unknown, but certain factors may increase your risk of developing it.

Talk to your doctor if you are concerned about any of the following risk factors:

- **having germ cell neoplasia in situ (GCNIS)** – see below left
- **diagnosed with testicular cancer previously** – if you previously had cancer in one testicle, you are slightly more at risk of developing cancer in the other
- **undescended testicles** – having undescended testicles at birth increases the risk
- **family history** – if your father or brother has had testicular cancer, you are slightly more at risk (2%) of developing testicular cancer
- **infertility**
- **HIV or AIDS**
- **hypospadias** – a condition when the opening of the urethra is on the underside of the penis. People born with this condition have a slightly higher risk of developing testicular cancer
- **intersex variations** – some types of intersex variations, such as partial androgen insensitivity syndrome, can increase the risk of developing testicular cancer.

What are the symptoms?

In some people, testicular cancer does not cause any noticeable symptoms, and it may be found during tests for other conditions. When there are symptoms, the most common ones are:

- a lump or swelling in the testicle (often painless)
- a change in the size or shape of the testicle.

Less common symptoms include a feeling of heaviness in the scrotum or unevenness between the testicles; a pain or ache in the lower abdomen, testicle or scrotum; swollen or tender breast tissue; back pain; or stomach-aches.

Not everyone with these symptoms has testicular cancer. However, it is important to have any lump in your testicles or any ongoing symptoms checked by your doctor.

Diagnosis

You are likely to have some of the following tests:

Physical examination – A doctor will examine your testicles, scrotum and groin for a lump or swelling.

Ultrasound – This is an accurate way to tell the difference between benign fluid-filled cysts and solid tumours that might be cancer. An ultrasound can show if a tumour is present and how large it is. A gel is spread over your scrotum, and a small device called a transducer is moved over the area. An ultrasound scan is painless.

Blood tests – Samples of your blood will be taken and tested for tumour markers, which are proteins made by some cancer cells. If your blood test results show an increase in the levels of certain tumour markers, you may have testicular cancer.

Surgery to remove the testicle

The only way to be sure of the diagnosis is to surgically remove the affected testicle and examine it in a laboratory. This surgery, called an orchidectomy or orchiectomy (see right), is usually done by a specialist called a urologist.

In the laboratory, a specialist doctor called a pathologist looks for cancer cells and works out what type of testicular cancer it is and whether it has spread. This helps doctors plan treatment.

Doctors don't usually perform a biopsy of the testicle (taking a small amount of tissue to check) because there is a small risk that making a cut through the scrotum can cause cancer cells to spread.

Further tests

If the pathology report on the removed testicle and other test results show that you have cancer, you may have one or more imaging scans. These scans will check whether the cancer has spread to other parts of your body, such as the lymph nodes or other organs.

These tests will usually include a CT scan and possibly an MRI or PET-CT scan. To find out more about imaging scans, visit your local Cancer Council website or call Cancer Council 13 11 20.

Tumour markers and testicular cancer

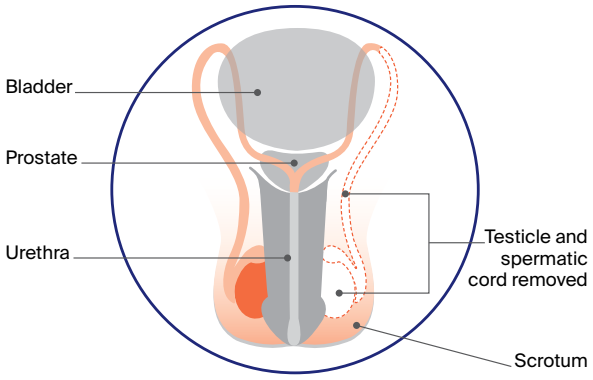
Tumour marker levels are often higher in people with testicular cancer. But sometimes, these levels stay normal even when cancer is present. Other health problems, like liver or blood diseases, can also cause tumour marker levels to go up.

Doctors use tumour marker levels to help plan treatment. The levels will be checked during treatment and as part of follow-up appointments. Tumour marker levels will drop if your treatment is successful. If the levels go up, it may mean you cancer is still there or has come back, and you may need more treatment.

Having an orchidectomy

An orchidectomy is done under a general anaesthetic to confirm a diagnosis of testicular cancer. It is also the main treatment for testicular cancer.

- The urologist will make a small cut (incision) in the groin above the pubic bone.
- The whole testicle is pulled up and out of the scrotum through this cut.
- The spermatic cord is removed as it contains blood and lymph vessels that could help cancer spread to other areas of the body.
- The scrotum is not removed but, after surgery, it will no longer contain a testicle.
- The surgery takes about an hour. You can usually go home the same day, but you may need to stay in hospital overnight. See *What to expect after an orchidectomy* on the next page.
- Some people choose to have the removed testicle replaced with a prosthesis. This can be done during the orchidectomy or later (see page 7).



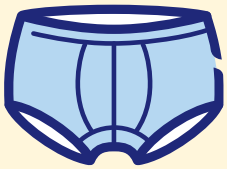
What to expect after an orchidectomy

Your body needs time to heal after the surgery. The information below is a general overview of what to expect. If you have any questions about your recovery and how best to look after yourself when you get home, ask the doctors and nurses caring for you.

Pain relief

You will have some pain and discomfort for several days after surgery, but this can be managed with pain medicines. Let your doctor or nurse know if the pain worsens – don't wait until it's severe before asking for more pain relief.

Underwear



For the first couple of weeks, it's best to wear underwear that provides cupping support for the scrotum. This provides comfort and protection as you recover, and can also reduce swelling. You can buy scrotal support underwear at most pharmacies. Avoid wearing loose-fitting underwear such as boxer shorts.

Daily activities

You will need to take care while you recover. Try to do some gentle exercise, such as walking. It will be some weeks before you can lift heavy things, exercise vigorously, drive or resume sexual activity. You will also be advised to take time off work. Ask your doctor how long you should wait before attempting any of these activities.

Fertility

As long as the other testicle is healthy, losing one testicle is unlikely to affect your ability to have children. However, some people may have fertility problems that may or may not be linked with testicular cancer. Talk to your urologist about whether you should store some sperm at a sperm-banking facility before the surgery, in case you have fertility problems in the future (see page 7).

Stitches and bruising

You will have a few stitches to close the incision. These will usually dissolve after several weeks. There may be some bruising around the wound and scrotum. The scrotum can become swollen if blood collects inside it (intrascrotal haematoma). If this occurs, the swelling may make it feel like the testicle hasn't been removed. Both the bruising and the swelling will disappear over time.

How you might feel

After your testicle is removed, you may feel sad, depressed, embarrassed or anxious. Usually, these feelings will get better in time, but it may help to talk about how you are feeling with someone you trust, such as a partner, friend or counsellor (see page 7).

Sex and intimacy

Your ability to get an erection and experience orgasm should not be affected by the removal of a testicle. Some people find that it takes time to adjust to the changes to their body and this may affect how they feel about sex and intimacy (see page 7).

Staging

There are several staging systems for testicular cancer, but the most commonly used is the TNM system (below). Based on the TNM scores and the levels of tumour markers in the blood, the doctor then works out the cancer's overall stage from stage 1 to stage 3:

- **stage 1** – cancer is found only in the testicle (early-stage cancer)
- **stage 2** – cancer has spread outside the testicle to nearby lymph nodes in the abdomen or pelvis
- **stage 3** – cancer has spread to lymph nodes outside the abdomen or pelvis (e.g. in the chest) or other areas of the body.

TNM system for testicular cancer

Testicular cancer is often staged using the TNM system. In this system, letters and numbers are used to describe the cancer, with higher numbers indicating larger size or spread.

T (tumour)	describes whether the cancer is only in the testicle (T1) or has spread into nearby blood vessels or tissue (T2, T3, T4)
N (nodes)	describes whether the cancer has spread to nearby lymph nodes in the abdomen – N0 means it has not and N1–3 means it has
M (metastasis)	describes whether the cancer has spread to distant lymph nodes, organs or bones – M0 means it has not and M1 means it has

Treatment

Most people have an orchidectomy to remove the affected testicle, and this is usually done to confirm a diagnosis. If the cancer has not spread, this may be the only treatment needed. After surgery, you will need regular check-ups and tests to monitor for any signs that the cancer has come back. This is called active surveillance.

If the cancer has spread, after an orchidectomy you may have chemotherapy or more surgery to remove lymph nodes in the abdomen (retroperitoneal lymph node dissection or RPLND), or radiation therapy.

Radiation therapy is not used very often to treat testicular cancer. It may be used instead of chemotherapy or surgery to treat cancer that has spread to lymph nodes in the abdomen.

▸ See our *Understanding Radiation Therapy* booklet.

Chemotherapy

Chemotherapy uses drugs to kill or slow the growth of cancer cells. Chemotherapy may be used at different stages of testicular cancer:

To reduce the risk of cancer coming back – If you have early testicular cancer that has not spread (stage 1), you may be offered chemotherapy after surgery. This is called adjuvant chemotherapy. Adjuvant chemotherapy usually consists of 1–2 cycles of chemotherapy, and is followed by 5–10 years of active surveillance.

To treat cancer that has spread – Chemotherapy may be recommended after surgery to destroy any cancer cells that have spread. This usually involves 3–4 cycles of chemotherapy. Your doctor will discuss the treatment plan with you. Depending on how you respond to the treatment, you may need more surgery or chemotherapy. You will then have active surveillance for 5–10 years.

Before surgery (neoadjuvant) – Rarely, when the cancer has spread to other parts of the body, chemotherapy may be given before surgery to help control the spread and reduce symptoms.

How chemotherapy is given

Chemotherapy is generally given through a drip inserted into a vein (intravenously) but some drugs may be given by injection into a muscle (intramuscularly). Usually, you have chemotherapy during day visits to a hospital or treatment centre. For some types of chemotherapy, you may need to go to hospital several days in a row.

Side effects of chemotherapy

Everyone reacts differently to chemotherapy. Some people do not experience any side effects, while others have a few. Most side effects are temporary, and there are medicines that can help reduce your discomfort. Talk to your doctor or nurse about any side effects you have and ways to manage them.

Common side effects include fatigue, nausea, hair loss and tingling in the hands and feet. You may experience erection problems and bowel issues.

It is important to tell your treatment team if you have a cough that won't go away, or are experiencing shortness of breath, as chemotherapy can affect the lungs. Chemotherapy can also affect your fertility (see page 7).

About a week after a treatment session, your white blood cell levels may drop, making you more likely to get infections. If you feel unwell or have a temperature of 38°C or higher, call your treatment team or go to a nearby hospital emergency department.

Longer-term side effects of chemotherapy

Chemotherapy for testicular cancer can sometimes lead to other long-term side effects, including:

Heart and blood vessels problems – Chemotherapy can increase the risk of heart disease, stroke or blood circulation problems. Ask your doctor if you need regular heart checks after treatment.

Risks of other cancers – People who have chemotherapy for testicular cancer are at a slightly higher risk of developing leukaemia, which is a blood cancer. Having chemotherapy may also increase the risk of developing a new unrelated cancer.

Low testosterone levels – Having chemotherapy after surgery can increase the risk of developing low testosterone levels (hypogonadism). Low testosterone levels may cause symptoms such as tiredness, muscle loss and reduced sex drive. Testosterone levels will be checked as part of follow-up care, and some people may need testosterone replacement therapy.

You'll probably be advised you to use barrier contraception (condom, female condom or dental dam) during chemotherapy and for a time after. This protects your partner from any chemotherapy drugs that may still be in your body fluids. You will also be advised to use contraception to prevent pregnancy, as chemotherapy drugs can damage sperm.

Surgery to remove lymph nodes

If testicular cancer spreads, it most commonly spreads to the lymph nodes at the back of the abdomen (retroperitoneum). In some cases, an operation called retroperitoneal lymph node dissection (RPLND or lymphadenectomy) is done to remove these lymph nodes.

An RPLND is a long and complex operation, which should be performed by an experienced surgeon in a specialist centre. Sometimes, an RPLND is done instead of chemotherapy.

There are 2 ways to perform an RPLND:

- **open surgery** – a surgeon makes a large cut from the breastbone to below the bellybutton. The surgeon then removes the lymph nodes and any remaining cancer from the back of the abdomen.
- **robotic surgery** – this is a keyhole surgery where a surgeon inserts surgical instruments through several small cuts in the abdomen with help from a robotic system.

Side effects from RPLND

It can take many weeks to recover from an RPLND. At first, you will probably be very tired and may not be able to do as much as you're used to. Other side effects include:

Pain – It is common to have pain and tenderness in the abdomen. Your doctor can prescribe pain medicines to make you more comfortable.

Ejaculation changes – RPLND can sometimes damage the nerves that help with ejaculation. This means semen might not come out of the penis during orgasm (called anejaculation or "dry orgasm"). It's not harmful, but it can affect fertility. Some surgeons can use a special method called nerve-sparing surgery to try to protect these nerves, but it's not always possible. If you may want to have children in the future, talk to your surgeon about storing sperm before the surgery.

Fluid build-up in abdomen (belly) – Called chylous ascites, lymphatic fluid can build up in the abdomen after an RPLND. You may feel bloated or your belly could feel swollen. Sometimes, the fluid will need to be drained. Your doctor will advise you.

"Before having one of my testicles removed, I went to the sperm bank as a safeguard. But after 2 years, I was able to father a child normally." DJ

How treatment affects fertility

Most men who have had one testicle removed can have children naturally. However, if you have anejaculation after RPLND, you won't be able to conceive naturally. You may be given medicine to help the semen come out of the penis, or you may be able to have sperm extracted.

Both chemotherapy and radiation therapy treatments can decrease sperm production and cause unhealthy sperm. These effects may be temporary or permanent. It may take one or more years before there are enough healthy sperm to conceive a child.

Before cancer treatment starts, you may be able to collect and store some sperm. The sperm is frozen until needed. Sperm can be frozen for many years. Although there is a cost involved, most sperm banks have payment plans to make it more affordable. Ask your cancer specialist to refer you to a fertility specialist so you can find out about your options.

- See our *Fertility and Cancer* booklet or call Cancer Council 13 11 20.

Changes to sex and intimacy

Treatment for testicular cancer may affect your sex life, feelings of pleasure, and intimacy.

Surgery – Removing one testicle will not stop you from having erections or orgasms but can affect testosterone levels. RPLND may damage nerves, causing anejaculation (see page 6). This still feels like an orgasm, but no semen will come out.

Chemotherapy – Your ability to get and keep an erection may be affected for a few weeks after chemotherapy. This is usually temporary. You may also find you have a lower sex drive (libido).

Radiation therapy – Radiation therapy to the abdomen may temporarily stop you making semen. You will still feel the sensations of an orgasm but will ejaculate little or no semen. In most cases, semen production returns to normal after a few months.

- See our *Sex, Intimacy and Cancer* booklet or call Cancer Council 13 11 20.

How you might feel

If you had a testicle removed, it may affect how you feel about yourself. You may feel less confident and less sexually desirable. Some men adjust quickly to having one testicle, while others find that it takes some time. If you had an RPLND, you may feel self-conscious about the scar across your abdomen.

Any type of cancer treatment can change the way you feel about yourself (your self-esteem). You may feel less sure of who you are and what you can do, particularly if your body has changed physically.

Some men find that their sense of identity or masculinity is affected by their cancer experience. You may find it helpful to talk to a psychologist if you are having trouble adjusting to any changes – ask your general practitioner (GP) for a referral.

Give yourself time to get used to any changes to your body. Talk to other people who have had a similar experience. Call Cancer Council 13 11 20 to find out about peer support programs or visit the Cancer Council Online Community.

Replacing the testicle with a prosthesis

You may decide to replace the removed testicle with a testicular prosthesis to improve how the scrotum looks. A prosthesis is a silicone implant similar in size and shape to the removed testicle. Prostheses come in different sizes and shapes.

Deciding whether or not to have a prosthesis is a personal choice. If you want a prosthesis, it can be placed into the scrotum at the same time as the orchidectomy (page 3) or at a later time. Ask your urologist for more information about your options.

Follow-up appointments

After your treatment ends, you will have regular appointments to monitor your health, manage any long-term side effects and check that the cancer hasn't come back. Active surveillance for testicular cancer usually continues for 5–10 years.

During the check-ups, you will usually have a physical examination and you may have blood tests to monitor tumour markers, x-rays or scans.

It is important to go to your follow-up appointments, as tests can find any return of the cancer early, when it is easier to treat. Regularly looking at and feeling your remaining testicle to know what's normal can also help find cancer in that testicle early. If you develop any symptoms or health problems between follow-up appointments, let your doctor know immediately.

Will testicular cancer come back?

Treatment for testicular cancer usually has a good outcome and most people will be cured, even if the cancer has spread. Only about 2–5% of people who have had cancer in one testicle get cancer in the other testicle.

Sometimes testicular cancer does come back after treatment. This is why active surveillance is important. Treatment will depend on where it has spread to and what type of testicular cancer it is. People with cancer that comes back may have surgery, chemotherapy, radiation therapy or a combination of treatments.

Where to get help and information

Call Cancer Council 13 11 20 for more information about testicular cancer. Our experienced health professionals can listen to your concerns, put you in touch with services and send you our free booklets. You can also visit your local Cancer Council website.

ACT	**actcancer.org**
NSW	**cancercouncil.com.au**
NT	**cancer.org.au/nt**
QLD	**cancerqld.org.au**
SA	**cancersa.org.au**
TAS	**cancer.org.au/tas**
VIC	**cancervic.org.au**
WA	**cancerwa.asn.au**
Australia	**cancer.org.au**

Other useful websites

ANZUP Clinical Trials Group	**anzup.org.au**
Healthy Male	**healthymale.org.au**
Macmillan Cancer Support (UK)	**macmillan.org.uk**
MensLine Australia	**mensline.org.au**
Movember	**au.movember.com**
Orchid (UK)	**orchid-cancer.org.uk**
Testicular Cancer Society (US)	**testicularcancersociety.org**

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Note to reader
Always consult your doctor about matters that affect your health. This fact sheet is intended as a general introduction and is not a substitute for professional medical, legal or financial advice. Information about cancer is constantly being updated and revised by the medical and research communities. While all care is taken to ensure accuracy at the time of publication, Cancer Council Australia and its members exclude all liability for any injury, loss or damage incurred by use of or reliance on the information provided in this fact sheet.

References
1. Australian Institute of Health and Welfare (AIHW), *Cancer Data in Australia 2024*, viewed 1 May 2025, available from aihw.gov.au/reports/cancer/cancer-data-in-Australia.

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Cancer Council acknowledges Traditional Custodians of Country throughout Australia and recognises the continuing connection to lands, waters and communities. We pay our respects to Aboriginal and Torres Strait Islander cultures and to Elders past, present and emerging.

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