

## Patient information from the BMJ Group

# Testicular cancer

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## Testicular cancer

It can be frightening to hear your doctor talk about cancer. But you're more likely to recover from testicular cancer than almost any other kind of cancer. With treatment, most men do recover. And most men can still have sex and father children after treatment.

We've brought together the best research about testicular cancer and weighed up the evidence about how to treat it. You can use our information to talk to your doctor and decide which treatments are best for you.

## What is testicular cancer?

Testicular cancer is cancer that starts in one of your testicles. (It is rare to get cancer in both.) Cancer is when some of your cells start to grow out of control, invading and destroying other cells. It can be devastating to be told you have cancer. But of all the different types of cancer, testicular cancer is one of the easiest to treat. Most men make a complete recovery.

Even so, being told you have testicular cancer will be a shock. You may be worried because you've heard that you will need an operation to remove the affected testicle. And you'll probably have questions about whether treatment for testicular cancer will affect your sex life or your ability to have children.

## Key points about testicular cancer

- Most men recover from testicular cancer. It's one of the easiest kinds of cancer to treat.
- The standard treatment for testicular cancer is an operation to remove the affected testicle. Cancer in both testicles is rare. So you're unlikely to need both testicles removed.
- You may also be treated with anti-cancer drugs ( **chemotherapy** ) and **radiotherapy** . And you may need an operation to remove cancer cells that have spread to other parts of your body.

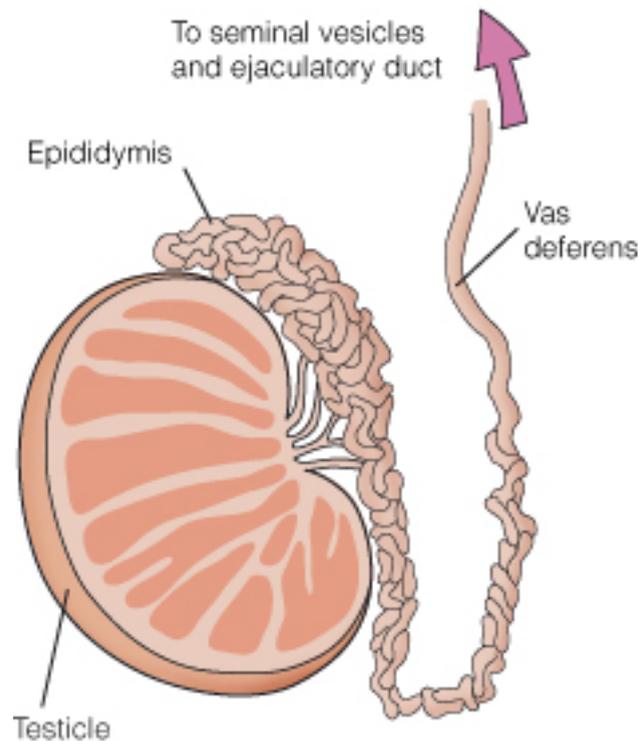
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- Most men don't have any problems with their sex life once they've recovered from testicular cancer. But going through a serious illness may affect how you feel about sex for a while.
- After being treated for testicular cancer, many men don't have any problems having children. But some treatments can affect your fertility. Your doctor will recommend having some of your sperm frozen if you want to have children in the future.

### Your testicles

Your testicles are part of your reproductive system. Your reproductive system includes all the parts of you that are involved in having sex and fathering children.

Your testicles are underneath your penis, in a bag called your scrotum. They are egg-shaped, and feel firm and smooth through the skin of your scrotum. For most men, one testicle hangs slightly lower than the other.



Your testicles make sperm and the hormone testosterone.

Your testicles have two jobs. <sup>[1]</sup>

- They make sperm.
- They make hormones. The main hormone your testicles make is the sex hormone testosterone. <sup>[2]</sup>

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Testosterone causes men to have male characteristics, such as a deep voice and hair on their face. It also plays a big part in giving men their sex drive.

Inside each of your testicles are lots of tightly-coiled tubes. Their job is to make sperm. Behind each of your testicles is a long, tightly coiled tube called the **epididymis**. This tube stores and protects new sperm. Sperm spend about two weeks here while they mature.<sup>[1]</sup> The far end of the epididymis connects to another tube called the **vas deferens**. When you **ejaculate**, this tube carries sperm from your testicles to your penis.

The skin and other tissues in your scrotum contain blood vessels. These carry nutrients and oxygen to your testicles. The tissues in your scrotum also contain lymph vessels. To read more about these, see [What is my lymphatic system?](#)

### What happens if I have testicular cancer?

Testicular cancer causes the cells in your testicle to grow too quickly and form a lump called a tumour. Cancer cells are different from normal, healthy cells. The cells in your body usually grow in an orderly way. They grow and divide to form new cells as your body needs them. When old cells die, new cells take their place.

Sometimes this process breaks down. If cells become cancerous, they begin to grow out of control. They grow and divide quickly and chaotically. Extra cells grow when your body doesn't need them. And these cells don't stop growing or die when they should. The extra cells grow on top of each other to form the tumour.

Cancer cells can break off from the first tumour and travel around your body. They move around in your bloodstream or your lymph vessels. (To read more about lymph vessels, see [What is my lymphatic system?](#)) Cancer cells from your testicle can start growing in another part of your body, such as your lungs.<sup>[3]</sup> When cancer moves from one part of your body to another, doctors call it **metastasis**.

However, it's rare for cancer to spread from one of your testicles to the other. Within your scrotum, each testicle is enclosed inside muscle and other tissue.<sup>[1]</sup> This usually stops cancer cells from getting through. It is possible to get cancer in both testicles, but it's not common.

Cancer cells are put into groups depending on how they look under a microscope. There are two main types of testicular cancer. They are:<sup>[4]</sup>

- **Seminomas.** About half of all testicular cancers are seminomas. You're most likely to get this type between the ages of 35 and 40
- **Non-seminomas.** You're more likely to get a non-seminoma in your 20s. Non-seminomas are divided into teratomas, yolk sac tumours, embryonal carcinomas, and choriocarcinomas. A tumour can contain more than one kind of these cancer cells.

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Some tumours are mixed. They contain some seminoma cells and some non-seminoma cells.<sup>[3]</sup> <sup>[4]</sup> The kind of cancer cells that make up the tumour will affect the treatment you need.

All men with testicular cancer need surgery to remove the tumour. For more information, see [Surgery](#) . If it's likely that cancer cells have spread outside your testicle, you may be given a treatment that affects your whole body.

Chemotherapy with anti-cancer drugs is one treatment that affects your whole body. Or you may be given radiotherapy to your abdomen to kill any cancer cells that have spread there.

Seminomas are very sensitive to radiation.<sup>[5]</sup> They're often treated with surgery and radiotherapy. Non-seminomas are often treated with surgery and chemotherapy.<sup>[6]</sup>

### What stage is my testicular cancer?

When doctors talk about the stage of your cancer, they're talking about how far the cancer has spread outside your testicle and into other parts of your body. One common way of doing this is to use numbers. Stage 1 means that cancer cells haven't spread outside your testicle. Stage 2, 3, or 4 mean that cancer cells have spread further.

Doctors also use something called **the TNM system** to describe the stage of testicular cancer. Again, numbers are used to describe how much the cancer has spread.

For more information, see [Staging testicular cancer](#) .

It might be worrying to hear your doctor talking about cancer cells spreading in your body. But testicular cancer is much easier to treat than most other types of cancer. Even men whose cancer is at a late stage stand a good chance of being cured.<sup>[3]</sup>

### Testicular cancer: why me?

It's often impossible to say that a particular thing caused your cancer. Instead, doctors talk about **risk factors**. Risk factors aren't causes of a disease exactly. But if you have a particular risk factor for a disease, your chance of getting the disease is higher.

Even if some of these things apply to you, they don't mean you'll definitely get testicular cancer. It's a rare condition, and even with several of these risk factors, your overall chance of getting it may still be very low.

The main risk factors for testicular cancer are:<sup>[8]</sup> <sup>[9]</sup>

- Your age. Unlike most other cancers, testicular cancer tends to affect men at a fairly young age. You're most likely to get it in your 20s or 30s
- Having a testicle that didn't descend properly when you were a baby

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- Your ethnic group. White men are more likely to get testicular cancer than men from other groups.

### Age

Testicular cancer is very rare before **puberty**.<sup>[8]</sup> But after going through puberty, younger men are more likely to get testicular cancer than older men. It's most common in men around age 30, and very rare in anyone over 60.<sup>[8]</sup>

In the UK, testicular cancer is most common in men between about 30 and 39. But the number of men who get it is still fairly low. Out of all UK men in their 30s, about 2 in 10,000 get testicular cancer each year.<sup>[10]</sup>

Testicular cancers are divided into **seminomas** and **non-seminomas** depending on what the cancer cells look like under a microscope. You're more likely to get a kind of testicular cancer called seminoma between the ages of 35 and 40.<sup>[8]</sup> You're more likely to get a non-seminoma from around 25 to 30. (For more information about types of testicular cancer, see [What is testicular cancer?](#) )

### A testicle that doesn't descend

When a male baby is growing in the womb, its testicles are inside its body. But as the baby grows, the testicles move downwards. When the baby is born, the testicles are normally outside the body, in the scrotum.

In some boys, the testicles stay inside the body. This can happen to one or both testicles. A testicle that doesn't descend normally can cause problems later. It may not be able to grow properly or make sperm. Boys with this problem will usually have an operation to move the testicle into their scrotum.

Having an undescended testicle, or having had an operation to cure one, can mean you have a higher risk of getting testicular cancer.<sup>[8]</sup> <sup>[9]</sup> Having an operation to cure an undescended testicle at a younger age may reduce the risk.<sup>[8]</sup>

Some studies have shown that having an **abdominal hernia** may increase your risk of testicular cancer. An abdominal hernia happens when a piece of your bowel pokes out through a weak spot in the muscles of your abdomen. But it may just be that hernias are more common in men who've had a testicle that didn't descend properly.

### Ethnic group

Testicular cancer is more common among white men than black or Asian men.<sup>[8]</sup> <sup>[3]</sup> <sup>[11]</sup> One study in the US found that about 5 in 100,000 white men got testicular cancer. This compared with only 1 in 100,000 black men.<sup>[8]</sup>

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## Other risk factors

There are quite a few other things that might affect your chances of getting testicular cancer.<sup>[8]</sup> <sup>[9]</sup> <sup>[3]</sup> We look at some of them here.

- **Your hormones.** Testicular cancer hardly ever affects boys before puberty. So, the hormones your body starts making at this time may play a part in causing testicular cancer. Going through puberty at a young age may increase your risk.
- **The conditions in your mother's womb.** High amounts of the hormone oestrogen in your mother's body when you were in the womb may affect your risk of testicular cancer. Lots of things in the environment can affect the conditions in your mother's womb. And if your mother smoked while she was pregnant, this may also increase your risk.
- **Conditions that affect your testicles.** Medical conditions that mean your testicles don't grow properly as you get older may increase your risk of testicular cancer. If your testicles don't develop properly, it's called **gonadal dysgenesis**. Having a condition called **Klinefelter's syndrome** may also increase your risk. Klinefelter's syndrome is a condition you're born with. It can mean your testicles don't grow properly.
- **Birth weight.** Being a low weight or a high weight when you're born may increase your risk.
- **Your job.** Aircraft mechanics, men who work with petrol or metal, and men who work for printing and leather companies are all more likely to get testicular cancer. This is probably because of the chemicals you're likely to come in contact with if you do these jobs.
- **Your genes.** An increased risk of testicular cancer may run in families. Your risk is higher if your father or brother have had testicular cancer. The risk may also come from the fact that people from the same family usually grow up in a similar environment.
- **The food you eat.** Some studies suggest that eating lots of fatty foods, milk, and cheese may increase your risk. Not eating enough fruit and vegetables may also mean you have a higher risk.
- **An infection.** Some doctors think an infection with a virus could play a part in causing testicular cancer. Having mumps can cause inflammation of the testicles, and some studies show this may increase your risk. Men with HIV or AIDS also have a higher risk. This may be because AIDS damages your body's ability to fight infections.
- **Having had testicular cancer before.** If you've had testicular cancer in the past, it can increase your chance of getting it again in your other testicle. But it's not

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common for testicular cancer to come back after treatment, especially if you're treated early.

### Things that don't increase your risk

Men who have trouble fathering children are more likely to be diagnosed with testicular cancer.<sup>[9]</sup> <sup>[12]</sup> However, it's probably not true to say that fertility problems in men cause testicular cancer.<sup>[9]</sup> It might just be that fertility problems and testicular cancer are caused by similar things. Or having testicular cancer could damage your sperm and make it harder to have children.

Some studies suggest that a blow or injury to your testicles may increase your risk of testicular cancer.<sup>[8]</sup> However, you're more likely to examine your testicles after an injury. So, it may be that men tend to find a pre-existing lump soon after they've had an injury.

### Staging testicular cancer

Doctors put cancer into categories, depending on how far cancer cells have spread in your body. This is called staging the cancer. There are two main ways of doing this.

#### The TNM system

One way of staging cancer is called the TNM system.<sup>[4]</sup>

- T stands for **tumour**. This tells you how big the first lump of cancer cells has got.
- N stands for **nodes**. Cancer cells can start to travel round your body in a network of tiny vessels called your lymphatic system. For more information, see [What is my lymphatic system?](#) If cancer cells reach a **lymph node** (a collection of cells that are part of your immune system), the cancer cells can start to grow there and make the lymph node swollen.
- M stands for **metastasis**. This tells you whether cancer cells have spread to another part of your body.

Here's what the different TNM classifications for testicular cancer mean.<sup>[4]</sup>

	TNM category	What it means
T (tumour)	Tis	The tumour is only in one of your testicles. Cancer cells haven't spread any further. This is called cancer in situ.
	T1	Cancer cells are only found in one of your testicles and the network of tiny tubes just above it (the epididymis).
	T2	Cancer cells are found in one of your testicles and the epididymis. Cancer

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		cells have also spread to nearby blood vessels or lymph vessels.
	T3	Cancer cells have spread to the tube that carries sperm from your testicles to your penis.
	T4	Cancer cells have spread to your scrotum (the bag of skin that holds your testicle).
N (lymph nodes)	N0	Cancer cells haven't spread to your lymph nodes.
	N1	Cancer cells have spread to some of your lymph nodes, making them get bigger. Stage N1 means that five or fewer lymph nodes have got bigger, and they're all less than 2 centimetres (just under an inch) across.
	N2	More than five of your lymph nodes have got bigger. They're between 2 centimetres and 5 centimetres (between about 1 and 2 inches) across.
	N3	One or more lymph nodes have grown to 5 centimetres (2 inches) across or bigger.
M (metastasis)	M0	Cancer hasn't spread from one of your testicles to another part of your body.
	M1	Cancer cells have spread to the lymph nodes in a part of your body a long way from your testicles. Or cancer cells have spread to your lungs.
	M2	Cancer cells have spread to some of your body's other organs, such as your liver.

Most types of cancer are divided into stages using just these three categories, T, N, and M. But if you have testicular cancer, you may have higher-than-normal levels of some chemicals in your blood. These chemicals are sometimes called **tumour markers**.

You can have a blood test to check for raised levels of these chemicals. The amount of these chemicals in your blood is described using a number, from S0 to S3. The higher the number, the higher the level of these chemicals in your blood.

However, not all men with testicular cancer have high levels of these chemicals. And it's possible to have higher levels of tumour markers in your blood without having testicular cancer. <sup>[4]</sup>

### Stages 1 to 4

Another system of describing how far testicular cancer has spread is called the **Royal Marsden Hospital staging system**. It uses a number to say how far cancer cells have spread. Stage 1 is the earliest stage of cancer. Stage 4 is the most advanced.

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## Stage 1

- Stage 1 means there's no sign that your cancer has started to spread.
- Stage 1M means that a blood test has shown you have higher levels of chemicals called tumour markers in your blood. But there's no sign from any other tests that your cancer has spread from the testicle that is affected.

## Stage 2

- Stage 2A means none of your lymph nodes have swollen to more than 2 centimetres (just under an inch) in size.
- Stage 2B means that some of your lymph nodes have swollen to between 2 and 5 centimetres (between about 1 and 2 inches) across.
- Stage 2C means that some of your lymph nodes have swollen to 5 centimetres (2 inches) across or bigger.

## Stage 3

- Cancer cells have spread to some of the lymph nodes in your chest or higher up. These could be the lymph nodes in your armpit or above your collarbone.

## Stage 4

- Cancer cells have spread to other organs in your body. They may have spread to your lungs, your liver, your brain, or your bones.

In general, the further cancer has spread, the more serious it is. But testicular cancer is easier to treat than most other kinds of cancer. Even men whose cancer has spread have a good chance of recovering.<sup>[3]</sup> For more information, see [What will happen to me?](#)

## What are the symptoms of testicular cancer?

If you notice any of the symptoms of testicular cancer, **it is important that you see a doctor.**

The most common symptom of testicular cancer is a lump or swelling in one testicle.<sup>[3]</sup> The lump will usually feel hard. Lumps range from only a few millimetres in size to several centimetres (one centimetre is just under half an inch).<sup>[4]</sup>

But testicular cancer doesn't always feel like a lump. Some men find that one testicle has got bigger or smaller.<sup>[3]</sup> Some find that one testicle feels firmer than the other.

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When you examine your testicles, you'll be able to feel a soft cord or tube at the back of each testicle.<sup>[1]</sup> And one testicle will probably hang slightly lower than the other. These things are normal and nothing to worry about.

Some men don't get any pain from the lump in their testicle.<sup>[4]</sup> So, you shouldn't ignore a lump just because it doesn't hurt. But some men get pain, or an aching or "dragging" feeling.<sup>[3]</sup> <sup>[4]</sup> You might feel the ache in your testicles, or get a more general ache in the lower part of your body.

There are several other conditions that can cause lumps or swelling in your testicles. But there's always a chance that a lump in your testicle could be cancer. Make sure you see a doctor and get it checked out. Lots of men feel embarrassed about problems that affect their sexual health.<sup>[13]</sup> This shouldn't put you off seeing a doctor. Your doctor will be used to dealing with similar problems. The sooner you get treated for any kind of cancer, the better.<sup>[13]</sup> But even the later stages of testicular cancer can be successfully treated, so it's never too late to get help.

There are some other symptoms you may get if you have testicular cancer. But other, less serious conditions can cause these things too. See a doctor to get your symptoms checked, but remember that they don't necessarily mean you have cancer.

These are some of the symptoms you may get.

- **Enlarged breasts.** This can happen on one or both sides of your chest. It happens because testicular cancer can affect the balance of hormones in your body.<sup>[14]</sup>
- **Backache.** You may get pain in your back if cancer cells have spread to the lymph nodes in your abdomen. You get backache because these nodes are just in front of your spine.<sup>[3]</sup>
- **Breathlessness.** You may be short of breath if cancer cells have spread to your lungs.<sup>[3]</sup>
- **Infertility.** Some men find out they have testicular cancer when they see their doctor because of difficulties getting their partner pregnant.<sup>[8]</sup>

### How do doctors diagnose testicular cancer?

The first thing most men notice is a lump in their testicle. Quite often, it's a man's partner who spots the change. Some men, but not all, get an ache in their testicle or lower abdomen. It's important to see a doctor if you notice any of these things.

### Examining yourself

You may have read somewhere, or been told by your doctor or practice nurse, that you should examine your testicles every so often. A good place to do this is in a warm bath

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or shower, so the skin around your testicles will be relaxed. You're looking for any lumps, swellings, or changes in the size of your testicles. However, it's normal to feel a soft cord or tube at the back of each testicle. It may feel a bit tender. This isn't a lump. The cord stores sperm and carries them from your testicles to your penis. It's nothing to worry about.

One testicle usually hangs slightly lower than the other. But apart from this, most men's testicles are pretty much the same. So, if you're not sure whether something is wrong, you can always compare one of your testicles with the other.

Occasionally, men notice other problems that can be a sign of testicular cancer. For more information, see [What are the symptoms of testicular cancer?](#)

There hasn't been much research on examining yourself regularly.<sup>[27]</sup> We don't know whether it makes a difference to how soon you spot a lump, so don't feel too bad if you haven't been doing it. The important thing to know is that there's a chance that a lump could be cancer. So, if you do find a lump, see a doctor as soon as you can.

### Seeing your doctor

Your doctor will examine your lump to see whether it could be cancer. Some men don't like to see a doctor if they think their problem might not be serious. You may worry about wasting your doctor's time. Or you may feel embarrassed. Men sometimes wait and hope that their lump will go away on its own. But cancer is a disease that can spread through your body over time. Don't wait for your symptoms to get worse. It's important to get any sort of lump checked, and the sooner the better.

If you're not registered with a GP, you should be able to register and make an appointment at the same time. Or, if you live in a large town or a city, there may be an NHS walk-in centre nearby. You can drop in without needing to make an appointment.

Your doctor will examine you. He or she may shine a light on your scrotum to see if light passes through your lump. If the lump is cancer, light won't pass through it. Your doctor will ask you some questions, such as when you first noticed the lump. You'll also be asked about your health in general.

If your doctor thinks there's a chance your lump could be cancer, he or she will refer you to a specialist for more tests.

Guidelines for doctors say that all men with suspected testicular cancer should be seen by a specialist.<sup>[28]</sup> <sup>[17]</sup> You should be able to see a specialist quickly, within a couple of weeks at the most.<sup>[28]</sup>

### Test you might have

You'll have several tests, including blood tests and **x-rays**. These are used to help find out whether or not your lump is cancer.

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If your lump is cancer, tests can tell you how far it has spread. This is called the stage of your cancer. For more information, see [Staging testicular cancer](#) . The stage of your cancer will affect the treatment you need.

### Blood tests

If you have testicular cancer, you may have higher-than-normal amounts of several chemicals in your blood. These are called tumour markers. The chemicals are: <sup>[4]</sup>

- Alpha-fetoprotein (AFP)
- Human chorionic gonadotrophin (HCG)
- Lactase dehydrogenase (LDH).

Tests for these chemicals can help your doctor find out what type of testicular cancer you have: **seminoma** or **non-seminoma**. For example, if you have seminoma, you'll have normal levels of AFP. If you have a non-seminoma, such as teratoma, you may have raised levels of AFP.

However, a blood test on its own isn't enough for your doctor to say for certain you have cancer. Not all men with testicular cancer have high levels of these chemicals. And it's possible to have increased levels of tumour markers in your blood without having testicular cancer. <sup>[4]</sup>

You'll have more blood tests as you go on with your treatment. If the level of these chemicals in your blood drops, it's a sign that your treatment is working.

### An ultrasound

An **ultrasound** uses soundwaves to look inside your body. You'll have a gel put on your groin and scrotum. A handheld sensor will be put against your scrotum, and a screen will show an image of the inside of your body. An ultrasound can be useful if it's difficult to tell from a physical examination whether your lump is cancer or another kind of swelling. <sup>[29]</sup>

Occasionally, an ultrasound will be used to look inside your abdomen. <sup>[29]</sup> If you're quite thin, an ultrasound may get a better picture than a CT scan.

### A CT scan

A computed tomography, or CT, scan is a very detailed x-ray. It uses x-rays taken from several different angles to build a picture of your body. A CT scan can be used to look for swollen **lymph nodes** in your abdomen. If your cancer had spread outside your testicle, these nodes are usually the first place it spreads to. (For more information, see [What is my lymphatic system?](#) ) A CT scan can find out whether you'll need treatment to kill any cancer cells in these nodes. <sup>[29]</sup>

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## A chest x-ray or CT scan

It's possible for testicular cancer to spread to your lungs. This is more likely if you have a kind of testicular cancer called teratoma.<sup>[17]</sup> (For more information about the types of testicular cancer, see [What is testicular cancer?](#) ) You'll have an x-ray or CT scan of your lungs to check for this. Most doctors now think that a CT scan gives a better picture than an ordinary x-ray.<sup>[29]</sup>

## An MRI scan

If your doctor thinks your cancer may have spread to your brain, you'll have an MRI scan.<sup>[6]</sup> MRI stands for magnetic resonance imaging. You are put inside a machine that uses a magnetic field to make a detailed scan of your brain.

You may also have an MRI scan if an x-ray or CT scan doesn't give a clear picture.

## An operation to remove your testicle

If you do have testicular cancer, you'll need an operation to remove the affected testicle. For more information, see [Surgery](#) . Strictly speaking, this operation is also part of having your cancer diagnosed.

Your doctor can't be totally sure you have testicular cancer until you have surgery. But your doctor won't recommend an operation unless he or she is convinced that you need it.

When your testicle has been removed, it will be examined under a microscope. This will show the kind of testicular cancer you have. This affects the treatment you'll need. For more information, see [What is testicular cancer?](#)

## A biopsy

You may have heard of a test for cancer called a biopsy. This takes away a small number of cells so they can be checked for cancer. Doctors don't usually like to do a biopsy on the main lump (tumour) in your testicle. There's a risk that it could break off some cancer cells. These could then spread around your body.

Doctors occasionally recommend a biopsy of your other testicle (the one without the tumour).<sup>[28]</sup> But this isn't done very often in the UK. Your doctor may suggest a biopsy if he or she thinks there's a risk of cancer in your other testicle. But it isn't common to get cancer in both testicles.

If you have a biopsy, you'll be given a **local anaesthetic** to numb the area around your testicles. There are two main ways of doing a biopsy. A doctor can use a needle to take some cells from your testicle. Or you can have it done through a small cut in your scrotum. A small part of your testicle is taken away. The cut in your scrotum can then be closed with a single stitch.

### How common is testicular cancer?

Testicular cancer is rare. But it is becoming more common in the UK.

- In the UK, about 2,200 men get testicular cancer each year.<sup>[10]</sup> That's about 7 in every 100,000 men.
- About 70 to 80 men die of testicular cancer in the UK each year.<sup>[10]</sup>

Of all the men who get some kind of cancer during their lives, only about 1 in 100 will get testicular cancer.

Most types of cancer are more common in older people. But testicular cancer is different. It's most common in men in their 20s and 30s.<sup>[3] [15]</sup> Of all the men in their 30s, about 18 in 100,000 get testicular cancer each year.<sup>[10]</sup>

In the UK, more men are getting testicular cancer than before. In Great Britain, about 3 in 100,000 men got testicular cancer in 1975. This rose to 8 in 100,000 men in 2010.<sup>[10]</sup>

We're not sure exactly why testicular cancer is becoming more common. Men born at about the same time all seem to have a similar risk of testicular cancer. But the risk varies from country to country.<sup>[16]</sup> This may mean that something in the environment affects men's risk of testicular cancer. It's also possible that the environment could affect the conditions in your mother's womb before you're born. This may also affect your risk.

The good news is that, even though testicular cancer is becoming more common, you're more and more likely to be cured. Treatments are getting better all the time. About 10 in a million men died of testicular cancer in 1975.<sup>[10]</sup> By 2008, that number had fallen to about 2 in a million.

White men are more likely to get testicular cancer than men from other ethnic groups.<sup>[10] [3] [11]</sup> Doctors don't know why this is.

### What treatments work for testicular cancer?

Testicular cancer is one of the easiest types of cancer to treat. You stand a very good chance of being completely cured. The first step will usually be an operation to remove the affected testicle. You may also need treatment to kill any cancer cells that might have spread to other parts of your body.

The treatment you have for testicular cancer will depend on several things. These include:

- What type of cancer cells make up the lump in your testicle
- The stage of your cancer (this tells you how far the cancer has spread)
- Your preferences about what treatment you should have.

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Even if cancer cells have spread to other parts of your body, treatments for testicular cancer work very well. Most men make a complete recovery.

### Key points about treating testicular cancer

- You'll almost certainly have an operation to remove the affected testicle. This gets rid of the cancer cells there. After your affected testicle has been removed, your remaining testicle can make all the sperm and testosterone you need. Having cancer in both testicles isn't common.
- You'll be offered an implant to replace the testicle you have removed. So you'll look the same as you did before the operation. The scar will be on your groin or lower abdomen, not your scrotum.
- There's no reason why you shouldn't be able to have sex and have children after having one testicle removed.
- In rare cases, men need to have both testicles removed. If this happens, hormone treatment can help you keep your sex drive.
- You may need chemotherapy or radiotherapy to kill any cancer cells that were missed during the operation or that have spread to other parts of your body.
- If cancer cells have spread to the lymph nodes in your abdomen, you may need an operation to remove them.
- Cancer cells can spread to other parts of your body if you don't get treatment. So it's important to see a doctor as soon as possible if you notice a lump. But treatments still work well even if your testicular cancer has spread to other parts of your body.

### Treatments for testicular cancer

The treatment you need will depend on how far the cancer has spread in your body. This is called your cancer stage. Stage 1 is the earliest kind of testicular cancer. Stage 2, 3, or 4 means the cancer has spread further around your body. (For more information, see [Staging testicular cancer](#) .) All stages of testicular cancer can be treated successfully.

- [Treatments for stage 1 testicular cancer](#) : This is cancer that hasn't spread outside your testicle. You'll need surgery, and you may also need chemotherapy or radiotherapy. But some men with stage 1 cancer will be cured by surgery on its own. [More...](#)
- [Treatments for testicular cancer later than stage 1](#) : The first treatment you need will be an operation to remove the affected testicle. You'll also need another treatment to kill the cancer cells that have spread around your body. You'll probably have chemotherapy, although some men have radiotherapy. [More...](#)

### Treatment Group 1

#### Treatments for stage 1 testicular cancer

Stage 1 testicular cancer hasn't spread outside the affected testicle. It's the easiest type of testicular cancer to treat. Nearly all men with stage 1 testicular cancer get cured.

#### Key points about treating stage 1 testicular cancer

- Lots of men notice the lump in their testicle while it's still at stage 1. About three-quarters of men with a kind of cancer called seminoma have stage 1 cancer when they see their doctor.
- The first treatment you have will be surgery to remove your testicle. Having chemotherapy or radiotherapy can kill any cancer cells that were left behind after surgery. But chemotherapy and radiotherapy have side effects.
- There are two main types of testicular cancer: seminoma and non-seminoma. Treatment is similar for both types of cancer. The main difference is that doctors usually recommend radiotherapy for seminoma and chemotherapy for non-seminoma.
- Some men don't need any more treatment after surgery. If x-rays and blood tests show there's only a small risk of your cancer coming back, you may choose to have regular check-ups with your doctor instead of more treatment. This is called watchful waiting.
- You may wish to talk to your doctor about whether you need more treatment after surgery. Watchful waiting will mean regular check-ups at hospital for several years. And there's a higher chance of your cancer coming back and needing further treatment. But if your cancer doesn't come back, you'll avoid the side effects of chemotherapy and radiotherapy.

#### Which treatments work for stage 1 testicular cancer?

Which treatments work best? We've looked at the research and given each treatment a rating according to how well it works.

For help deciding which treatment is best for you, see [How to use research to support your treatment decisions](#).

#### Treatments for stage 1 testicular cancer

##### Usual treatment

- [Orchidectomy](#) : The first treatment you have will be an operation to remove the testicle that has cancer. [More...](#)

# Testicular cancer

## Treatments that work

- [Lower dose radiotherapy](#) : Having a lower dose of radiotherapy may work just as well as a higher dose. And the side effects will probably be less severe. [More...](#)

## Treatments that work, but whose harms may outweigh benefits

- [Watchful waiting](#) : Having surgery might get rid of your cancer completely. By keeping a close check on you (watchful waiting), your doctor can treat you quickly if your cancer does come back. And if it doesn't, you'll avoid the side effects of radiotherapy and chemotherapy. [More...](#)
- [Radiotherapy](#) : This treatment uses high-energy x-rays to kill any cancer cells that weren't removed during surgery. [More...](#)
- [Chemotherapy](#) : Anti-cancer drugs can be used to kill any cancer cells that weren't removed during surgery. [More...](#)

## Treatment Group 2

### Treatments for testicular cancer later than stage 1

If you have testicular cancer that's later than stage 1, it means that cancer cells have spread outside of the affected testicle. You may need more treatment than someone with stage 1 disease, but treatment is still very likely to be successful. The majority of men make a full recovery.

### Key points about treating testicular cancer later than stage 1

- Treatment usually starts with an operation to remove the affected testicle. But some men have chemotherapy first, to shrink the tumour before surgery.
- You'll also need treatment to kill the cancer cells that have spread to other parts of your body. This is often chemotherapy, but you may have radiotherapy if your cancer hasn't spread very far.
- Doctors have tried several different combinations and doses of chemotherapy drugs to find which works best. A combination of three drugs seems to work better than two.
- Chemotherapy is given in several doses, called cycles. Some studies have found that having three cycles works just as well as having four. And you'll probably have fewer side effects if you have three cycles.
- If the lymph nodes in your abdomen are still swollen after other treatments, you may need surgery to remove them.

### Which treatments work for testicular cancer later than stage 1?

Doctors describe testicular cancer that's later than stage 1 according to what they think the chance of recovering is. Most of the studies we found looked at men whose chance of recovering was good. So, we can't say how well these treatments work for men who doctors think have an intermediate or poor chance of recovering. There isn't enough research to tell us.

However, **the majority of men with testicular cancer have a good chance of recovering.** <sup>[33]</sup> About 9 in 10 men with the kind of testicular cancer called **seminoma** have a good chance of recovering. And about 6 in 10 men with **non-seminoma** have a good chance of recovering. To read more about the different kinds of cancer, see [What is testicular cancer?](#)

Which treatments work best? We've looked at the research and given each treatment a rating according to how well it works.

For help in deciding which treatment is best for you, see [How to use research to support your treatment decisions.](#)

### Treatments for testicular cancer later than stage 1

#### Usual treatment

- [Orchidectomy for cancer later than stage 1](#) : The first treatment you have will usually be an operation to remove the testicle that has cancer. [More...](#)

#### Treatments that are likely to work

- [Chemotherapy](#) : A combination of chemotherapy drugs is used to kill cancer cells that have spread from the affected testicle to other parts of your body. [More...](#)
- [Radiotherapy](#) : This treatment uses high-energy x-rays to kill the cancer cells that have spread outside the affected testicle. [More...](#)

#### Treatments that need further study

- [Higher doses of chemotherapy](#) : Some doctors think higher doses of chemotherapy might work better than lower doses. [More...](#)

#### Other treatments

We haven't looked at the research on this treatment in the same detail we have for the other treatments we cover. (To read more, see [Our method.](#)) But we've included some information because you may be interested in it.

## Testicular cancer

- [Lymph node surgery](#) : If cancer cells have spread to the lymph nodes in your abdomen and made them swollen, you'll probably need an operation to remove them. [More...](#)

### What will happen to me?

Hearing your doctor say you have cancer can be frightening. But treatments for testicular cancer work extremely well. Most men make a complete recovery. It's very likely that you'll need an operation to remove the affected testicle. But it's perfectly possible to have sex and father children with just one testicle.

You're more likely to recover from testicular cancer than almost any other kind of cancer.

When doctors talk about people who've had treatment for cancer, they don't usually say people are cured. This is because, in theory, there's always a chance the cancer could come back. So, doctors tend to talk about **five-year survival** instead. This means that someone is alive and free from cancer five years after being diagnosed.

In practice, if you've been treated for testicular cancer and you're alive after five years, it's pretty much the same as being cured.

With treatment, nearly all men recover from testicular cancer and are alive five years after being diagnosed. If you'd like to read the statistics, see [Survival rates for testicular cancer](#) .

### Will I need to have my testicle removed?

Yes. If you have testicular cancer, you'll need an operation to remove the affected testicle. <sup>[3]</sup> <sup>[17]</sup>

It isn't common to get cancer in both testicles at once. <sup>[18]</sup> <sup>[19]</sup> There's a barrier in your scrotum between your testicles, which usually stops cancer from spreading from one to the other. <sup>[19]</sup> So, most men only need one of their testicles removed. The other testicle can take over the job of the missing testicle, so most men will be able to have sex and father children without any problems.

A small number of men get cancer in both testicles at once. In one study, only about 1 in 500 men with cancer in one testicle turned out to have cancer in their other testicle at the same time. <sup>[19]</sup> If this happens, you'll need to have both testicles removed.

About 2 in 100 men go on to get cancer in their remaining testicle in the years after treatment. <sup>[19]</sup> This can mean you need a second operation to remove your other testicle.

If you have both testicles removed, you'll need to take hormone treatments to keep your sex drive. And you'll need to have your sperm frozen before the operation if you want to have children.

## Testicular cancer

You might be concerned about how your body will look if you have a testicle removed. It's possible to have an implant in your scrotum to make your testicles look the same as before the operation. For more information, see [Surgery](#) .

### Will I be able to have sex?

You can have a perfectly normal sex life after treatment for testicular cancer. One study found that about 70 in 100 men had no problems having sex.<sup>[7]</sup> Although you'll have had the affected testicle removed, your remaining testicle can make all the sperm and testosterone you need.

However, testicular cancer is a serious illness. You'll probably be worried about the future. You might need several types of medical treatment. Treatment can be tiring and may continue for several weeks. All these things can affect your attitude to life, including how you feel about sex. But you'll probably feel more optimistic about the future once you start having treatment.<sup>[20]</sup>

Some men do get problems having sex after being treated for testicular cancer. The problems men got were:<sup>[21]</sup>

- Not feeling like having sex as often (this happened to about 2 in 10 men)
- Not enjoying sex as much (this happened to about 2 in 10 men)
- Having difficulty getting an erection (this happened to about 1 in 10 men)
- Problems ejaculating, such as ejaculating too soon or taking too long (this happened to about 4 in 10 men)
- Difficulty having an orgasm (this happened to about 2 in 10 men).

But the doctors who found these figures said there were some problems with the research. Men were asked to fill in a questionnaire about their sex lives. Researchers think that men who had problems were more likely to reply. So, sexual problems might be less common than these numbers suggest. Any problems you get will also depend on the particular treatments you have.

Some types of testicular cancer can affect the levels of **hormones** in your body. Hormones control all sorts of things, including your sex drive. The levels of hormones in your body get back to normal between three and six months after treatment for testicular cancer.<sup>[22]</sup> So, if there have been changes in your sex life, they might get back to normal after this time. When men do get sexual problems after being treated for testicular cancer, they don't usually last longer than two years.<sup>[22]</sup>

# Testicular cancer

## Dry climax

Some men find they can't ejaculate after being treated for testicular cancer. You may hear your doctor call this dry climax or **retrograde ejaculation**. It doesn't mean you can't have an orgasm. It means that when you do orgasm, no semen (or much less semen than before) comes out of your penis.

You're most likely to get this problem if you have an operation to remove some of the lymph nodes in your abdomen.<sup>[21]</sup> <sup>[23]</sup> But surgical techniques are getting better all the time. It used to be that nearly 9 in 10 men had dry climax after an operation to remove some of their lymph nodes.<sup>[23]</sup> But more modern types of surgery mean that fewer men get this problem.<sup>[22]</sup> <sup>[23]</sup> With keyhole surgery, the risk may be lower than 2 percent.<sup>[24]</sup> To read more about the different types of operation, see [Surgery to remove lymph nodes](#)

If you have dry climax, you'll still get erections and you'll still have the feeling of ejaculation during sex. So, you should be able to enjoy sex. But you'll be unlikely to have children naturally if you have dry climaxes.

If you want to have children, you should tell your doctor before you have treatment for testicular cancer. You can consider having your sperm samples frozen and stored in a sperm bank.<sup>[17]</sup>

If you have dry climax, even though you don't ejaculate when you have sex, your testicle will still make sperm. You can have a small operation where a doctor takes sperm directly from your testicle using a needle. You may be able to have children this way. For more information, see [ICSI and IVF](#) in our section on [Fertility problems](#).

## Sex and chemotherapy

If you have chemotherapy, you'll be advised to use condoms during sex while you're being treated.<sup>[25]</sup> This is because the drugs used in chemotherapy could harm the baby if your partner got pregnant. There's also a small chance that traces of the drugs could get into your partner's body in your semen. Chemotherapy drugs can be poisonous, so it makes sense to use condoms to protect your partner, just in case.

## Will I be able to have children?

Many men go on to father children after being treated for testicular cancer. One study looked at men who'd had one testicle removed and an operation to remove some of their lymph nodes.<sup>[23]</sup> Three-quarters of the men were able to have children after they'd had their cancer treated.

Testicular cancer itself can make it harder to have children. Roughly half of men with testicular cancer have lower-quality sperm.<sup>[23]</sup> So, having treatment may make it more likely that you'll be able to have children.

## Testicular cancer

However, some treatments for testicular cancer can reduce your chances of being able to father children.<sup>[23]</sup>

- Chemotherapy can damage the quality of your sperm. How serious the problem is will depend on how much chemotherapy you have.
- Radiotherapy to the area around your groin or pelvis can also damage your sperm. This damage may go away in time.
- An operation to remove your lymph nodes can stop sperm coming out of your penis when you ejaculate (dry climax). But this problem is less common now, as surgical techniques are getting better. For more information, see [Surgery to remove lymph nodes](#) .
- If you're one of the few men who need both testicles removed, you won't be able to father children after your operation. Talk to your doctor about having your sperm frozen before you have surgery.

Before you have treatment for testicular cancer, your doctor should offer you the chance to have your sperm frozen.<sup>[17]</sup> If your doctor doesn't mention this, be sure to ask about it. However, having sperm frozen may not help if your cancer has damaged the quality of your sperm.

If you've had chemotherapy or radiotherapy and intend to have children, your doctor will probably advise you not to get your partner pregnant for some time after your treatment finishes. You may be asked to wait six months or a year. That's because there could be a risk of birth defects in the baby if your sperm have been damaged. Waiting for a while gives your sperm time to get back to normal.

If you're having problems getting your partner pregnant after being treated for testicular cancer, fertility treatments may help. For more information, see [Fertility problems](#) .

### Heart problems

Some studies have found that men who've been treated for testicular cancer are slightly more likely to develop heart problems.<sup>[26]</sup> Experts say it's best not to smoke if you've been treated for testicular cancer, as smoking makes it even more likely you'll get heart problems. If you smoke and would like to give up, see our information on [Smoking](#) .

### Questions to ask your doctor

If you've been diagnosed with testicular cancer, you may want to talk to your doctor to find out more.

Here are some questions you might want to ask:

- Are you sure it's cancer? Do I need some more tests?

## Testicular cancer

- What tests will I need? How long till I get the results?
- What stage is my cancer?
- What kind of cancer cells are in the tumour? Will it affect the treatment I need?
- What kind of operation will I need?
- What will happen during an operation to remove the affected testicle?
- When I have the affected testicle removed, will I be able to have an implant to replace it? Will it feel the same as a real testicle?
- Is there a chance I could need both testicles removed? If this happens, what treatment will I need to have a normal sex life?
- Will I need surgery on my lymph nodes?
- How long will I need to spend in hospital?
- How long will it take me to recover from the operation?
- Will I need chemotherapy or radiotherapy after surgery?
- Will I need to stay in hospital for chemotherapy or radiotherapy? Or can I go home after each session?
- Will my treatment affect whether I can have children?
- Can I have my sperm frozen before I start treatment?
- Will treatment affect my sex life?
- Could my cancer come back in my other testicle or somewhere else in my body?
- Should I examine my remaining testicle regularly in case the cancer comes back there?
- Will I need to have regular check-ups?

### Survival rates for testicular cancer

On this page, we look at the number of men who recover from testicular cancer. We've included these numbers because lots of men are interested in them. But remember that you are not a statistic. We can say that a certain percentage of men recover from testicular

## Testicular cancer

cancer, and that a small percentage die of it. But no-one can say for certain what will happen to you. Everyone is an individual.

Another thing to remember is that treatments for testicular cancer are getting better all the time. So, your chances of being cured now are probably better than when these statistics were collected. The percentage of men who recover from early-stage testicular cancer is getting close to 100 percent. <sup>[3]</sup> <sup>[30]</sup>

The statistics look at the number of men who are still alive five years after being diagnosed. In practice, if you've been treated for testicular cancer and you're alive after five years, it's the same as being completely cured.

A man's chance of recovering is slightly different depending on whether he has a kind of testicular cancer called **seminoma**. Types of testicular cancer are divided up based on what the cancer cells look like under a microscope. For more information, see [What is testicular cancer?](#)

### Seminoma

Men who have a type of testicular cancer called seminoma have a **very good chance of being cured**.

The statistics look at groups of men separately depending on how far their cancer has spread. For more information, see [Staging testicular cancer](#) .

- More than 86 in 100 men whose seminoma has spread only to the lymph nodes or the lungs, but not anywhere else, are alive five years after being diagnosed. <sup>[31]</sup>
- About 72 in 100 men whose seminoma has spread beyond the lung or lymph nodes to other parts of the body, such as the brain or liver, are alive five years after being diagnosed. <sup>[31]</sup>

Doctors have worked out a system to predict how likely men with seminoma are to recover. They say there's either a **good chance** or an **intermediate chance** of recovering. <sup>[32]</sup>

About 9 in 10 men with seminoma will have a good chance of recovering. About 86 in 100 men who doctors say have a good outlook are alive five years later.

For about 1 in 10 men, doctors will say their outlook is intermediate. Doctors say this if a man's cancer has spread to his liver, bones, or brain. But most of these men will still be cured. About 72 in 100 men with an intermediate outlook are alive five years later.

### Non-seminomas

The outlook is also **very positive** for men with testicular cancer that isn't seminoma (such as teratoma).

## Testicular cancer

About 6 in 10 men with this kind of cancer have what doctors call a **good outlook**. About 92 in 100 of these men are alive five years later. <sup>[32]</sup>

Doctors say you have a good outlook if:

- The main tumour is in one of your testicles or in the area behind your bowels
- The cancer hasn't spread to any of your organs except your lungs
- You have small amounts of several chemicals in your blood. These are chemicals that your body may make more of if you have testicular cancer. For more information, see [How do doctors diagnose testicular cancer?](#)

About 3 in 10 men have an **intermediate outlook**. About 80 in 100 of these men are alive five years later.

Doctors say you have an intermediate outlook if: <sup>[32]</sup>

- The main tumour is in one of your testicles or in the area behind your bowels
- The cancer hasn't spread to any of your organs except your lungs
- You have moderate amounts of chemicals in your blood called tumour markers.

Slightly over 1 in 10 men will be described as having a **poor outlook**. Even so, about half of these men recover and are alive after five years.

You'll only be described as having a poor outlook if any of the things below have happened.

- A large tumour has formed in the space between your lungs, near your heart.
- The cancer has spread to your organs, such as your liver or brain.
- You have high amounts of chemicals in your blood called tumour markers.

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## Treatments:

### Orchidectomy for stage 1 testicular cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

## Testicular cancer

This information is for men who have stage 1 testicular cancer. It tells you about surgery to remove the testicle that has cancer. It is based on the best and most up-to-date research.

### Does it work?

Yes. If you have testicular cancer, you'll need surgery to remove the testicle that contains the cancer cells.<sup>[34]</sup> <sup>[35]</sup> Removing the tumour helps stop the cancer from spreading and increases your chance of being cured.

An operation to remove one of your testicles is called an **orchietomy** or **orchidectomy**.

You'll need this operation whatever stage your cancer is. Your cancer stage describes how far cancer cells have spread around your body. For more information, see [Staging testicular cancer](#) . The stage of your cancer will affect the treatment you need after your operation.

Many men will need another treatment after surgery. This is to kill any cancer cells that might have spread outside your testicle to another part of your body. You might have [chemotherapy](#) or [radiotherapy](#) .

But for some men with stage 1 testicular cancer, an operation will be the only treatment they need.<sup>[36]</sup> If you have early testicular cancer, and your doctor thinks there's a low risk of your cancer coming back, he or she may just recommend keeping a close check on your symptoms. For more information, see [Watchful waiting](#) .

### What is it?

A doctor will remove the affected testicle in an operation. You'll need to go to hospital. Before surgery, you'll be given a **general anaesthetic** to make you sleep. So, you won't feel any pain.

The doctor carrying out the operation will make a cut low down on your abdomen, near your groin.<sup>[34]</sup> Your testicles and the cords that attach them to your penis begin in your abdomen. So, the doctor will be able to reach your testicles through this cut.

The doctor will remove the whole of your testicle, including the cord that carries sperm from that testicle towards your penis.<sup>[34]</sup> This is to make sure that all the cancer cells have been removed.

In theory, it might sometimes be possible to remove just the lump of cancer cells (the tumour) and leave the testicle. But most doctors agree that this would be too risky. There would be a much higher chance of the cancer coming back. One testicle can make all the sperm and hormones you need to have sex and father children. So, leaving the affected testicle in your body would create a big risk and wouldn't have much benefit.

Your doctor will check the testicle that's been removed under a microscope. This will let him or her see what kind of cancer cells make up the tumour. For more information, see

## Testicular cancer

[What is testicular cancer?](#) The type of cancer you have may affect the kind of treatment you need after your operation.

Your doctor won't usually need to make any cuts in your scrotum. So, it won't be scarred after your operation, but one side will be empty where your testicle has been removed.

You can have an **artificial testicle** put into your scrotum to make it look the same as before. Artificial testicles are usually made of silicone. They come in several sizes to match your other testicle. You can have one put in at the same time as having your testicle removed. An artificial testicle is sometimes called a **prosthesis**.

Because testicular cancer usually affects young men, you'll probably be in a good position to recover from your operation. Younger people tend to heal more quickly. Even so, you'll need to spend a couple of days in hospital. And you'll probably have some pain. You should be given painkillers to help. If you are in pain, don't try to put up with it. Pain can slow down your recovery. Tell your doctor or nurse, and they'll be able to give you a stronger painkiller.

After you go home, it will take you a few weeks to get back to normal. You should try to allow three or four weeks of recovery time. You may be told to avoid exercising or lifting heavy objects.

### How can it help?

Surgery to remove the affected testicle plays a big part in getting rid of your cancer. On its own or combined with other treatments, surgery gives you a good chance of being cured.

There isn't any research comparing men who've had this operation with men who haven't. That's because doctors have known for a long time that this operation helps. All men with testicular cancer have surgery.

We do know that some men with early (stage 1) testicular cancer are totally cured after their operation. They don't need any more treatment.<sup>[37]</sup>

But many men will need another treatment on top of surgery. This is because cancer cells might already have spread from the tumour by the time it's removed. Most men are treated with a combination of surgery, radiotherapy and chemotherapy. Having some or all of these treatments helps most men recover completely from testicular cancer.

### How does it work?

Cancer cells grow quickly. Without treatment, the tumour in your testicle would carry on growing, and cancer cells could break off and spread to other parts of your body. Cutting out the tumour in an operation stops this happening.

### Can it be harmful?

All operations can have side effects. After having surgery to remove a testicle, you could get:

## Testicular cancer

- An **allergic reaction** to the **anaesthetic**
- An **infection** in the cut
- Bleeding
- A bad bruise called a **haematoma**
- Nerve damage. This could cause a numb feeling in your groin.

There isn't enough research to give exact figures on how often these happen, but they're not common.

You may be worried about how your scrotum will look after the operation. You can have an **artificial testicle** implanted to make it look the same as before. This can be done in the same operation or later on.

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## Lower dose radiotherapy for stage 1 testicular cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on lower dose radiotherapy for stage 1 testicular cancer?](#)

This information is for men who have stage 1 testicular cancer. It tells you about having a lower dose of radiotherapy, which may mean you get fewer side effects. It is based on the best and most up-to-date research.

### Does it work?

Yes. If you have stage 1 testicular cancer, of the type called seminoma, having a lower dose of radiotherapy may work just as well as a higher dose. And you'll probably get milder side effects.

Doctors don't use radiotherapy for types of stage 1 testicular cancer that aren't seminoma. If you have another kind of testicular cancer, you're more likely to have [chemotherapy](#) or just have regular check-ups after surgery ( [watchful waiting](#) ) instead.<sup>[38]</sup> <sup>[39]</sup> To read more about the different kinds of cancer, see [What is testicular cancer?](#)

### What is it?

The first treatment for testicular cancer is always an [operation](#) to remove the testicle that has cancer. Radiotherapy uses high-energy x-rays to kill any cancer cells that weren't removed during surgery.

You'll need to go to hospital for treatment. Radiotherapy uses a large machine that generates the x-rays. Having radiotherapy doesn't hurt.

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Radiotherapy for testicular cancer is directed at your abdomen. The area that's treated runs in a strip down the middle of your abdomen. Sometimes, the treated area also includes your groin on the side you had your testicle removed.<sup>[40]</sup> Treating your abdomen with radiotherapy aims to destroy any cancer cells that have spread outside your testicles to the lymph nodes near the bottom of your spine. For more information, see [What is my lymphatic system?](#)

Your overall dose of radiation will be split into several smaller doses. You'll have short bursts of treatment five days a week for two or three weeks. The aim is to destroy any cancer cells, while causing as little damage as possible to the normal, healthy cells around them.

The dose of radiation given during radiotherapy is carefully measured. Radiation doses are measured in rads. Rad stands for **radiation absorbed dose**. One Gray (or Gy, for short) is equal to 100 rads.

The total dose of radiation is divided into smaller doses, or fractions. Giving it in this way makes it more effective in killing cancer cells while sparing your normal cells.

The standard dose of radiotherapy for testicular cancer is 30 Gy divided into 15 fractions. But doctors sometimes recommend a lower dose to stop you getting as many side effects.

### How can it help?

Using a lower dose of radiotherapy seems to work just as well as a higher dose. And you may avoid some of the side effects.

Radiotherapy for testicular cancer has often used a dose of 30 Gy divided into 15 fractions. But doctors have tested a lower dose of 20 Gy in 10 fractions.<sup>[41]</sup> The researchers looked at about 600 men who'd had an operation to remove one of their testicles. All the men had a type of cancer called seminoma. After five years:<sup>[42]</sup>

- About 10 men treated with a higher dose got cancer again
- About 11 men treated with the lower dose got cancer again
- One man treated with the lower dose died.

Small differences between groups can happen by chance. So, the researchers think that a lower dose works just as well. And men who had the higher dose were more likely to get side effects.<sup>[40]</sup> <sup>[42]</sup>

### How does it work?

Radiotherapy works by damaging the DNA in cancer cells. DNA is a chemical that cells need to reproduce.

## Testicular cancer

Cells reproduce by dividing. When a cell divides, it makes a copy of its DNA. The x-rays used during radiotherapy damage the DNA, so cancer cells can't grow and replace each other.

Radiotherapy does some damage to healthy cells too. That's why you get side effects. Having a lower dose of radiotherapy will kill fewer healthy cells. So, you'll get fewer side effects. And as long as you get enough radiation to kill the cancer cells, you'll be just as likely to be free from cancer after treatment.

### Can it be harmful?

Having a lower dose of radiation means you're less likely to get side effects. Four weeks after treatment, men who were given a dose of 20 Gy instead of 30 Gy were less likely to: <sup>[40]</sup> <sup>[42]</sup>

- Feel very tired
- Feel sick and vomit
- Need as long off work
- Get another kind of cancer.

About two-thirds of men taking the lower dose went back to work within four weeks of stopping treatment. Only half of men taking the higher dose were back at work. <sup>[40]</sup>

Of the men who had a higher dose, 2 in 10 got another kind of cancer in the next five years. None of the men taking a lower dose got another type of cancer. <sup>[42]</sup>

To read more about side effects, see [Radiotherapy for stage 1 testicular cancer](#) .

### How good is the research on lower dose radiotherapy for stage 1 testicular cancer?

There's good research showing that a lower dose of radiotherapy after surgery works just as well as a higher dose. And you're less likely to get side effects.

We found one good-quality study (a randomised controlled trial ). Researchers looked at about 600 men with a type of cancer called seminoma. They were all treated with radiotherapy after surgery. Half the men had a dose of 20 Gy. The other half had 30 Gy. The study showed the lower dose works as well to prevent men getting cancer again. And men who had the lower dose were less likely to get side effects. <sup>[43]</sup> <sup>[44]</sup> <sup>[45]</sup>

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## Watchful waiting for stage 1 testicular cancer

In this section  
[Does it work?](#)  
[What is it?](#)

# Testicular cancer

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on watchful waiting for stage 1 testicular cancer?](#)

This information is for men who have stage 1 testicular cancer. It tells you about watchful waiting, a wait-and-see approach that can spare you the side effects of chemotherapy or radiotherapy. It is based on the best and most up-to-date research.

## Does it work?

If you have stage 1 testicular cancer, [surgery](#) is often the only treatment you'll need. If your doctor thinks you're likely to have been totally cured by your operation, he or she may suggest watchful waiting. This is when you have regular check-ups rather than more treatment.

This means you avoid the side effects of radiotherapy and chemotherapy. But you do run a higher risk of your cancer coming back. However, if your cancer does come back, you'll still be able to have treatment to get rid of it.

It may be more important for you to avoid the side effects of radiotherapy and chemotherapy. Or you may be more concerned about making sure your cancer doesn't come back. Your doctor will be able to give you advice, but the final decision will be yours. It may help to remember that men who have regular check-ups, and more treatment later if they need it, **live just as long** as men who have more treatment straight away.

If you have stage 1 cancer, it means that cancer cells haven't spread outside the affected testicle. For more information, see [Staging testicular cancer](#) .

## What is it?

If you have testicular cancer, you'll need surgery to remove the affected testicle. If you have cancer at an early stage, and no cancer cells have spread outside the affected testicle, surgery may get rid of your cancer completely.

Some men have radiotherapy or chemotherapy after surgery, just to be safe. But if there's a low chance of your cancer coming back, you may be able to have regular check-ups with your doctor instead of more treatment. This means you won't have to put up with the side effects of radiotherapy or chemotherapy.

Your doctor will do several tests to find out the risk of your cancer coming back. These will include blood tests and a type of x-ray called a **CT scan** . For more information, see [How do doctors diagnose testicular cancer?](#)

Your doctor may be more likely to recommend watchful waiting if you have a kind of testicular cancer called **teratoma**.<sup>[46]</sup> <sup>[47]</sup> For more information, see [What is testicular cancer?](#)

You'll have check-ups every few months at first, then maybe once or twice a year. You may need to have check-ups **for as long as 10 years**. You'll have x-rays and blood tests to keep track of your condition. If you do get cancer again, it will be spotted quickly and

## Testicular cancer

treated. And if you don't, you'll avoid the side effects you would have got from radiotherapy or chemotherapy.

Whether you chose watchful waiting will depend partly on how likely it is that your cancer will come back. But it will also depend on your thoughts about your treatment. You might prefer to be free of the harmful effects of radiotherapy or chemotherapy. But some men don't like the idea of their cancer coming back, and would rather have treatment straight away than wait and see. Talk to your doctor about how you feel. He or she will help you find the treatment that suits you.

### How can it help?

With watchful waiting, you'll avoid the side effects of radiotherapy or chemotherapy. Some of these side effects can be serious. For example, both radiotherapy and chemotherapy can increase your risk of getting another kind of cancer in the future. <sup>[48]</sup>  
<sup>[28]</sup>

Some of the other side effects you'll avoid while you have watchful waiting are: <sup>[49]</sup> <sup>[50]</sup>

- Sickness
- Diarrhoea
- Indigestion
- Problems getting an erection
- Fertility problems (such as a low sperm count).

And you'll probably be able to go back to work sooner if you have watchful waiting.

To read more about side effects, see [Chemotherapy](#) and [Radiotherapy](#) .

### How does it work?

If you have stage 1 testicular cancer, the tumour is only in the affected testicle. It's unlikely that cancer cells have spread to other parts of your body. So an operation to remove the affected testicle might get rid of your cancer completely.

By not having any more treatment you'll avoid the side effects of radiotherapy and chemotherapy. Having regular check-ups means that, if your cancer does come back, your doctor will spot it quickly. You'll be able to have more treatment straight away. So your overall chance of being cured is likely to be just as good.

### Can it be harmful?

With watchful waiting, you don't get the side effects of [chemotherapy](#) or [radiotherapy](#). But you'll have to see a doctor for regular check-ups, possibly for as long as ten years. And you'll need regular blood tests and x-rays.

There's also a bigger risk of your cancer coming back if you have watchful waiting.<sup>[51]</sup> Even if your cancer comes back, you still have an excellent chance of being cured with more treatment.

In a study of 471 men that lasted for five years:<sup>[51]</sup>

- Testicular cancer came back for 16 in 100 men who had watchful waiting
- This compared with 6 in 100 men who were treated with radiotherapy.

Another study looked at 224 men who'd had surgery.<sup>[52]</sup> After five years:

- About 2 in 100 men who had chemotherapy got cancer again
- About 5 in 100 men treated with radiotherapy got cancer again
- About 27 in 100 men who had watchful waiting got cancer again.

If your cancer does come back, you'll need to have radiotherapy or chemotherapy. This still gives you a very good chance of being cured.<sup>[47]</sup> One study found that men who have watchful waiting live just as long on average as men who have more treatment.<sup>[49]</sup>

### How good is the research on watchful waiting for stage 1 testicular cancer?

It's hard for researchers to find out whether men live longer after watchful waiting or more treatment. (Watchful waiting means you have regular check-ups after surgery.) This is because most men recover from stage 1 testicular cancer, whichever treatment they have.

We found a review of the research that compared watchful waiting with radiotherapy or chemotherapy. It found that your cancer is more likely to come back with watchful waiting.

<sup>[51]</sup> If your cancer does come back, you'll need more treatment.

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## Radiotherapy for stage 1 testicular cancer

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[What is it?](#)

[How can it help?](#)

[How does it work?](#)

# Testicular cancer

[Can it be harmful?](#)

[How good is the research on radiotherapy for stage 1 testicular cancer?](#)

This information is for men who have stage 1 testicular cancer. It tells you about radiotherapy, a treatment used for testicular cancer. It is based on the best and most up-to-date research.

## Does it work?

Yes. If you have stage 1 testicular cancer, and it's the type called **seminoma**, having radiotherapy after surgery can make it less likely that your cancer will come back.

Doctors don't use radiotherapy for types of stage 1 testicular cancer that **aren't seminoma**. If you have another kind of testicular cancer, you're more likely to have [chemotherapy](#) or just have regular check-ups after surgery ( [watchful waiting](#) ) instead. <sup>[53]</sup> <sup>[54]</sup> To read more about the different kinds of cancer cells, see [What is testicular cancer?](#)

Radiotherapy has side effects. If your doctor thinks that there's a very low chance of your cancer coming back, he or she may suggest watchful waiting instead of radiotherapy. This way, you avoid the side effects. But you'll need more treatment if your cancer comes back in the future.

## What is it?

The first treatment you'll have for testicular cancer is [an operation](#) to remove the affected testicle. Radiotherapy uses high-energy [x-rays](#) to kill any cancer cells that might be left after surgery.

You'll need to go to hospital for treatment. A large machine is used to generate the x-rays. Having radiotherapy doesn't hurt.

Radiotherapy for testicular cancer is directed at your abdomen. The area that's treated runs in a strip down the middle of your abdomen. Sometimes, the treated area also includes your groin on the side you had your testicle removed. <sup>[55]</sup> The aim is to destroy any cancer cells that have spread outside your testicle to the lymph nodes near the bottom of your spine. For more information, see [What is my lymphatic system?](#)

Your overall dose of radiation will be split into several smaller doses. You'll have short bursts of treatment five days a week for two or three weeks. The aim is to destroy any cancer cells, while causing as little damage as possible to the normal, healthy cells around them.

The standard dose of radiotherapy for testicular cancer is 30 Gy divided into 15 fractions. But doctors sometimes recommend a lower dose to stop you getting as many side effects.

# Testicular cancer

## How can it help?

Radiotherapy is a good treatment for testicular cancer. With surgery and radiotherapy, plus emergency chemotherapy if the cancer comes back, nearly all men are completely cured. <sup>[53]</sup> <sup>[56]</sup>

Two studies have found that men treated with radiotherapy after surgery are less likely to have their cancer come back than men who have regular check-ups with their doctor. <sup>[56]</sup> <sup>[57]</sup> One study looked at 471 men with stage 1 testicular cancer. They all had a type of cancer called seminoma. After five years: <sup>[56]</sup>

- About 6 in 100 men treated with radiotherapy got cancer again
- About 16 in 100 men who had regular check-ups after surgery got cancer again. One of the men died.

Several studies have compared radiotherapy with anti-cancer drugs ( [chemotherapy](#) ). <sup>[57]</sup> Radiotherapy and anti-cancer drugs seem to work about as well as each other.

## How does it work?

Radiotherapy works by damaging the DNA in cancer cells. DNA is a chemical that cells need to reproduce.

Cells reproduce by dividing. When a cell divides, it makes a copy of its DNA. The x-rays used during radiotherapy damage the DNA, so cancer cells can't grow and replace each other.

Radiotherapy does some damage to healthy cells too. That's why you get side effects. But it does the most damage to cells that are dividing. Cancer cells grow and divide very quickly, so radiotherapy damages them much more than healthy cells.

You'll have several doses of radiotherapy over a few weeks. Having lots of doses increases the chance that the radiation will hit the cancer cells when they're dividing. Normal cells rest for longer before dividing, so are less likely to be destroyed.

## Can it be harmful?

One of the most common side effects of radiotherapy is feeling very tired. <sup>[58]</sup> <sup>[59]</sup> <sup>[42]</sup> In one study, a quarter of men said they felt tired. <sup>[58]</sup> Some men also feel sick when they have radiotherapy. <sup>[57]</sup> <sup>[59]</sup> <sup>[42]</sup> Your doctor may suggest drugs to help stop you feeling sick.

Having a [lower dose](#) of radiation can mean you're less likely to get side effects.

## Testicular cancer

One study found that men who had radiotherapy were slightly more likely to get cancer in their other testicle than men who had chemotherapy.<sup>[58]</sup> But the risk was fairly small for both treatments. After about four years:<sup>[58]</sup>

- About 11 in 1,000 men who'd had radiotherapy went on to get a tumour in their other testicle
- About 3 in 1,000 men who'd had chemotherapy with a drug called carboplatin got a tumour in their other testicle.

The researchers tried to explain this difference. They think that chemotherapy given for the main tumour may have also attacked early-stage cancer in the men's other testicle, before anyone knew it was there.<sup>[58]</sup> They don't think that radiotherapy caused the second tumour.

Men who've had radiotherapy may be more likely to get cancer somewhere else in their body later in their lives. One study looked at 547 men who'd had radiotherapy.<sup>[60]</sup>

- About 5 in 100 men went on to get cancer somewhere else in their bodies.
- Of men who haven't had radiotherapy, doctors would expect about 2 in 100 to 3 in 100 to get cancer.

Some men encounter problems having sex after treatment for testicular cancer. Of men who've had one of their testicles removed and radiotherapy:<sup>[61]</sup>

- About 1 in 10 are less interested in sex
- About 2 in 10 don't enjoy their orgasms as much
- About 4 in 10 had problems ejaculating (either ejaculating too soon or taking too long)
- About 2 in 10 to 3 in 10 have problems getting an erection.

Men who have other treatments get some of these problems too.<sup>[61]</sup> So, the problems may not be caused by radiotherapy. The problems might happen because of surgery, or even because men are worried about their cancer and don't think about sex as much.

Men who have radiotherapy are more likely to get erection problems than men who have other treatments for testicular cancer.<sup>[61]</sup> If you do have problems getting an erection, there are treatments that can help. To learn more, see our information on [Erection problems](#) .

## Testicular cancer

Radiotherapy can affect your fertility.<sup>[62]</sup> Most men will have radiotherapy after an operation to remove one of their testicles. You'll be given a shield to protect your remaining testicle, but some radiation will still get through. Between 8 in 10 and 9 in 10 men have a low sperm count after radiotherapy. But this will get better in time. More than 9 in 10 men have a normal sperm count three years after treatment.<sup>[62]</sup> If you want to try for children sooner than this, ask your doctor about having your sperm frozen before treatment.

Men who have radiotherapy to their groin as well as their abdomen are more likely to have a low sperm count.<sup>[59]</sup> They are also more likely to feel sick, vomit, or have a low amount of white blood cells. White blood cells are part of your immune system. They help to fight infections.

It's worth remembering that having testicular cancer can also lower your sperm count. About half of men with testicular cancer experience problems having children before being treated.<sup>[62]</sup>

If you intend to have children, your doctor will also probably advise you not to get your partner pregnant for some time after your treatment finishes. You may be asked to wait six months or a year. That's because there could be a risk of birth defects in the baby if your sperm have been damaged. Waiting for a while gives your sperm time to get back to normal.

### **How good is the research on radiotherapy for stage 1 testicular cancer?**

It's hard for researchers to find out whether men live longer after radiotherapy for stage 1 testicular cancer. This is because most men recover from stage 1 testicular cancer, whichever treatment they have.

Doctors think that having radiotherapy after surgery can make it less likely that your cancer will come back. If your cancer comes back, you may need more treatment, such as chemotherapy.

We found two studies that compared radiotherapy with watchful waiting or chemotherapy.<sup>[63]</sup> <sup>[58]</sup> The studies showed men were less likely to have cancer again if they had radiotherapy instead of watchful waiting. And radiotherapy seemed to work about as well as chemotherapy.

One study looked at 471 men with stage 1 testicular cancer. They all had a type of cancer called seminoma. After five years:<sup>[63]</sup>

- About 6 in 100 men treated with radiotherapy got cancer again
- About 16 in 100 men who had regular check-ups ( [watchful waiting](#) ) got cancer again. One of the men died.

## Testicular cancer

The largest study we found looked at 1,447 men with stage 1 testicular cancer.<sup>[58]</sup> They all had a type of cancer called seminoma. After three years:

- About 96 in 100 men who'd had radiotherapy were still free of cancer
- About 95 in 100 men who'd had chemotherapy with a drug called carboplatin were still free of cancer.

So, radiotherapy and chemotherapy seem to be about as good as each other.

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## Chemotherapy for stage 1 testicular cancer

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[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy for stage 1 testicular cancer?](#)

This information is for men who have stage 1 testicular cancer. It tells you about chemotherapy, a treatment used for testicular cancer. It is based on the best and most up-to-date research.

### Does it work?

Yes. If you have stage 1 testicular cancer, having chemotherapy after [surgery](#) makes it less likely your cancer will come back.

Chemotherapy has side effects. If your doctor thinks that there's a very low chance of your cancer coming back, he or she may suggest you have regular check-ups instead of chemotherapy. This way, you avoid the side effects of chemotherapy. But you'll need more treatment if your cancer comes back in the future. For more information, see [Watchful waiting](#) .

### What is it?

The first treatment you'll have for testicular cancer is an operation to remove the affected testicle. Chemotherapy uses anti-cancer drugs to kill any cancer cells that may have been left in your body after surgery.

In the UK, a combination of three drugs is often used.<sup>[64]</sup> These are:

- bleomycin
- etoposide
- cisplatin.

## Testicular cancer

This combination is sometimes called **BEP chemotherapy**.

Some other chemotherapy drugs used for testicular cancer are cyclophosphamide, dactinomycin, and ifosfamide.

If you have stage 1 testicular cancer, and the cancer cells are a type called seminoma, you may just be given one drug. The one that's normally used is called carboplatin.

Chemotherapy drugs are usually given as a drip into a vein. This is sometimes called an **intravenous infusion** or IV. You'll need to go to hospital for treatment.

Each dose of chemotherapy is called a **cycle**. It's given over a few days. The number of cycles you need depends on how far your cancer has spread. For stage 1 cancer, you may only need one or two cycles. <sup>[65]</sup>

You're more likely to be offered chemotherapy if your testicular cancer is a type called non-seminoma. <sup>[66]</sup> For more information, see [What is testicular cancer?](#)

### How can it help?

Chemotherapy drugs make it less likely that your cancer will come back after surgery. One study looked at 224 men with a type of testicular cancer called seminoma. <sup>[67]</sup> After five years:

- About 2 in 100 men who had chemotherapy got cancer again
- About 5 in 100 men treated with radiotherapy got cancer again
- About 27 in 100 men who had regular check-ups got cancer again.

We don't know which chemotherapy drug, or combination of chemotherapy drugs, works best. There isn't any research to tell us. <sup>[65]</sup>

One study looked at men with stage 1 seminoma. <sup>[68]</sup> It found that one cycle of chemotherapy worked just as well as two. But we need more research to be sure how many cycles of chemotherapy men need.

Chemotherapy and radiotherapy both seem to work about as well as each other. <sup>[67]</sup> <sup>[58]</sup>

One study found that men who had chemotherapy were slightly less likely to get cancer in their other testicle than men who had radiotherapy. <sup>[58]</sup> But the risk was fairly small for both treatments. After about four years: <sup>[58]</sup>

- About 11 in 1,000 men who'd had radiotherapy went on to get a tumour in their other testicle
- About 3 in 1,000 men who'd had chemotherapy with a drug called carboplatin got a tumour in their other testicle.

## Testicular cancer

The researchers tried to explain this difference. They think that chemotherapy given for the main tumour may have also attacked early-stage cancer in the men's other testicle, before anyone knew it was there.<sup>[58]</sup> So the second tumour never got a chance to grow and cause a problem.

### How does it work?

Chemotherapy drugs damage cancer cells and stop them growing. Some drugs work by damaging the DNA of cancer cells. DNA is a chemical all cells need to copy themselves. Once they've been damaged by chemotherapy drugs, cancer cells can't reproduce and eventually die.

### Can it be harmful?

Chemotherapy has side effects. A study looking at men after they'd had two cycles of chemotherapy for testicular cancer found that:<sup>[67]</sup>

- Half the men felt sick
- About 1 in 10 got diarrhoea
- About 1 in 10 had trouble having children
- About 2 in 10 got indigestion.

Men who only had one cycle of chemotherapy were less likely to get these side effects.<sup>[67]</sup>

If you want to have children, talk to your doctor before you start treatment. You'll be able to have your sperm frozen.

One study found that about one-third of men didn't have sex as often after treatment with chemotherapy.<sup>[69]</sup>

Having chemotherapy may increase your risk of getting another type of cancer in the future. Men who have treatment with etoposide may be more likely to get a type of cancer called leukaemia.<sup>[70]</sup> But there isn't enough research to be certain.

Chemotherapy with cisplatin can cause hearing loss or kidney problems. But this is rare. BEP chemotherapy can occasionally cause problems with the blood flow to your hands.

Bleomycin can cause scarring of the lungs. This can make you breathless. In rare cases, it can be bad enough to kill you.<sup>[71]</sup>

### How good is the research on chemotherapy for stage 1 testicular cancer?

It's hard for researchers to find out whether men live longer after chemotherapy. That's because most men recover from stage 1 testicular cancer, whichever treatment they have.

We found one study that compared what happened to men having chemotherapy, men having radiotherapy, and men having regular check-ups ( [watchful waiting](#) ). There were 224 men in the study.<sup>[72]</sup> Men who had chemotherapy after surgery were less likely to have their cancer come back, compared with watchful waiting. There was no difference between chemotherapy and radiotherapy.

The largest study we found looked at 1,447 men with stage 1 testicular cancer.<sup>[58]</sup> They all had a type of cancer called seminoma. After three years:

- About 96 in 100 men who'd had radiotherapy were still free of cancer
- About 95 in 100 men who'd had chemotherapy with a drug called carboplatin were still free of cancer.

So, radiotherapy and chemotherapy seem to be about as good as each other.

Another study found that one cycle of chemotherapy works just as well as two.<sup>[73]</sup> Researchers looked at men with stage 1 seminoma. After two years, 91 in 100 men who'd had either treatment were still free of cancer. But we need more research to be sure how many cycles of chemotherapy men need.

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## Orchidectomy for testicular cancer later than stage 1

In this section

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[Can it be harmful?](#)

This information is for men who have testicular cancer that's later than stage 1. It tells you about surgery to remove the testicle that has cancer. It is based on the best and most up-to-date research.

### Does it work?

Yes. If you have testicular cancer, you'll need surgery to remove the testicle that contains the cancer cells.<sup>[34]</sup> <sup>[35]</sup> Removing the tumour helps stop the cancer from spreading and increases your chance of being cured.

An operation to remove one of your testicles is called an **orchietomy** or **orchidectomy**.

## Testicular cancer

You'll need this operation whatever stage your cancer is. Your cancer stage describes how far cancer cells have spread around your body. For more information, see [Staging testicular cancer](#). The stage of your cancer will affect the treatment you need after your operation.

Many men will need another treatment after surgery. This is to kill any cancer cells that might have spread outside your testicle to another part of your body. You might have [chemotherapy](#) or [radiotherapy](#).

### What is it?

A doctor will remove the affected testicle in an operation. You'll need to go to hospital. Before surgery, you'll be given a **general anaesthetic** to make you sleep. So, you won't feel any pain.

The doctor carrying out the operation will make a cut low down on your abdomen, near your groin.<sup>[34]</sup> Your testicles and the cords that attach them to your penis begin in your abdomen. So, the doctor will be able to reach your testicles through this cut.

The doctor will remove the whole of your testicle, including the cord that carries sperm from that testicle towards your penis.<sup>[34]</sup> This is to make sure that all the cancer cells have been removed.

In theory, it might sometimes be possible to remove just the lump of cancer cells (the tumour) and leave the testicle. But most doctors agree that this would be too risky. There would be a much higher chance of the cancer coming back. One testicle can make all the sperm and hormones you need to have sex and father children. So, leaving the affected testicle in your body would create a big risk and wouldn't have much benefit.

Your doctor will check the testicle that's been removed under a microscope. This will let him or her see what kind of cancer cells make up the tumour. For more information, see [What is testicular cancer?](#) The type of cancer you have may affect the kind of treatment you need after your operation.

Your doctor won't usually need to make any cuts in your scrotum. So, it won't be scarred after your operation, but one side will be empty where your testicle has been removed.

You can have an **artificial testicle** put into your scrotum to make it look the same as before. Artificial testicles are usually made of silicone. They come in several sizes to match your other testicle. You can have one put in at the same time as having your testicle removed. An artificial testicle is sometimes called a **prosthesis**.

Because testicular cancer usually affects young men, you'll probably be in a good position to recover from your operation. Younger people tend to heal more quickly. Even so, you'll need to spend a couple of days in hospital. And you'll probably have some pain. You should be given painkillers to help. If you are in pain, don't try to put up with it. Pain can slow down your recovery. Tell your doctor or nurse, and they'll be able to give you a stronger painkiller.

## Testicular cancer

After you go home, it will take you a few weeks to get back to normal. You should try to allow three or four weeks of recovery time. You may be told to avoid exercising or lifting heavy objects.

### How can it help?

Surgery to remove the affected testicle plays a big part in getting rid of your cancer. Combined with other treatments, surgery gives you a good chance of being cured.

There isn't any research comparing men who've had this operation with men who haven't. That's because doctors have known for a long time that this operation helps. All men with testicular cancer have surgery.

We do know that some men with early (stage 1) testicular cancer are totally cured after their operation. They don't need any more treatment.<sup>[37]</sup> However, men with later stage cancer will need other treatments on top of surgery. This is because cancer cells will have spread from the tumour by the time it's removed. Most men are treated with a combination of surgery, radiotherapy and chemotherapy. Having some or all of these treatments helps most men recover completely from testicular cancer.

### How does it work?

Cancer cells grow quickly. Without treatment, the tumour in your testicle would carry on growing, and cancer cells could break off and spread to other parts of your body. Cutting out the tumour in an operation stops this happening.

### Can it be harmful?

All operations can have side effects. After having surgery to remove a testicle, you could get:

- An allergic reaction to the anaesthetic
- An infection in the cut
- Bleeding
- A bad bruise called a haematoma
- Nerve damage. This could cause a numb feeling in your groin.

There isn't enough research to give exact figures on how often these happen, but they're not common.

You may be worried about how your scrotum will look after the operation. You can have an **artificial testicle** implanted to make it look the same as before. This can be done in the same operation or later on.

# Chemotherapy for testicular cancer later than stage 1

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[Can it be harmful?](#)

[How good is the research on chemotherapy with two or three drugs for testicular cancer later than stage 1?](#)

This information is for men who have testicular cancer that's later than stage 1. It tells you about chemotherapy, a treatment used for testicular cancer. It is based on the best and most up-to-date research.

## Does it work?

Yes. If you have later stage testicular cancer, chemotherapy after surgery can help stop your cancer coming back. It can also help you live longer. In the UK, chemotherapy is the usual treatment for most men with testicular cancer that's later than stage 1. <sup>[74]</sup> <sup>[26]</sup>

Doctors have looked at several combinations of chemotherapy drugs. Taking three different drugs seems to work best.

## What is it?

If you have testicular cancer, you'll need an operation to remove the affected testicle. This gets rid of the main lump of cancer cells (the tumour). If you have later stage testicular cancer, it means cancer cells have spread from your testicle to other parts of your body. Chemotherapy uses anti-cancer drugs to kill these cells and stop your cancer from coming back.

To read more about the different stages of cancer, see [Staging testicular cancer](#) .

There are lots of different chemotherapy drugs. In the UK, doctors usually recommend a combination of three. These are: <sup>[74]</sup>

- bleomycin
- cisplatin
- etoposide.

This combination is sometimes called **BEP chemotherapy**.

Some other chemotherapy drugs used for testicular cancer are cyclophosphamide, dactinomycin, ifosfamide, and vinblastine.

Chemotherapy drugs are usually given as a drip into a vein. This is sometimes called an **intravenous infusion** or IV. You'll need to go to hospital for treatment.

## Testicular cancer

Each dose of chemotherapy is called a cycle. It's given over a few days. If you have later stage testicular cancer, you'll probably need three or four cycles.

### How can it help?

Chemotherapy can help stop your cancer coming back. Researchers have looked at lots of combinations of chemotherapy drugs to see which ones work best.

Several studies looked at the drugs bleomycin, cisplatin, and etoposide. One study found that having these three drugs together worked best. After four years:<sup>[75]</sup>

- About 90 in 100 men who had all three drugs were free of cancer
- About 77 in 100 men who just had cisplatin and etoposide were free of cancer.

Men who took all three drugs were also likely to live longer.<sup>[75]</sup>

Each dose of chemotherapy is called a cycle. Men with testicular cancer that's later than stage 1 are usually given three or four cycles. Three cycles are likely to work just as well as four cycles, and you'll probably have fewer side effects.<sup>[76] [77] [78] [79]</sup> But some men with more aggressive types of cancer may be advised to have four cycles.<sup>[48]</sup>

Two studies looked at men who kept on having chemotherapy, even after their cancer had disappeared.<sup>[80] [81]</sup> For example, in one study, men kept on having chemotherapy once a month for six months.<sup>[82]</sup> Doctors thought that the extra treatment might make it less likely that cancer would come back. But the research found that carrying on continuing with chemotherapy didn't make any difference. Men were just as likely to be cured without the extra treatment.

### How does it work?

Chemotherapy drugs damage cancer cells and stop them from growing. Some drugs work by damaging the DNA of cancer cells. DNA is a chemical all cells need to copy themselves. Once they've been damaged by chemotherapy drugs, cancer cells can't reproduce and eventually die.

There are lots of chemotherapy drugs. They work in different ways. One chemotherapy drug might kill cancer cells that another drug would miss. So having a combination of drugs is better than just one drug on its own.

### Can it be harmful?

Chemotherapy drugs have side effects. Having a larger dose or taking several chemotherapy drugs at once can make it more likely that you'll get side effects.<sup>[75] [82] [83] [84]</sup>

## Testicular cancer

Most men feel nauseous during chemotherapy.<sup>[82]</sup> Some of the other side effects are:  
<sup>[82]</sup> <sup>[84]</sup>

- **Inflammation** in your mouth
- Hair loss
- **Anaemia** (this is when you don't have enough red blood cells, and it makes you feel tired)
- Your blood not clotting as it normally would (this can mean it takes a long time to stop bleeding if you get cut)
- Not having enough **white blood cells** in your blood (white blood cells help your body fight infections).

Chemotherapy can cause fertility problems in some men. You may have a low sperm count after treatment.<sup>[85]</sup> The higher your dose of chemotherapy, the more likely you are to have problems fathering children. Talk to your doctor if you want to have children in the future. You'll be able to have your sperm frozen before you start treatment.

If you intend to have children, your doctor will also probably advise you not to get your partner pregnant for some time after your treatment finishes. You may be asked to wait six months or a year. That's because there could be a risk of birth defects in the baby if your sperm have been damaged. Waiting for a while gives your sperm time to get back to normal.

One study found that about one-third of men didn't have sex as often after treatment with chemotherapy.<sup>[86]</sup>

Having chemotherapy may increase your risk of getting another type of cancer in the future. But this risk is likely to be very small. Having treatment with etoposide may increase your risk of getting a type of cancer called **leukaemia**.<sup>[87]</sup> In 1 study, around 1 in 100 men treated with etoposide developed leukemia.<sup>[88]</sup>

Chemotherapy with cisplatin can cause hearing loss or kidney problems. But this is rare. BEP chemotherapy can occasionally cause problems with the blood flow to your hands.

Bleomycin can cause scarring of the lungs.<sup>[71]</sup> This can make you breathless. In rare cases, it can be bad enough to kill you.

### **How good is the research on chemotherapy with two or three drugs for testicular cancer later than stage 1?**

There's good research showing that having chemotherapy as well as surgery can help if you have later stage testicular cancer. Doctors have known for a long time that this

## Testicular cancer

treatment works, so most of the research compares different combinations of chemotherapy drugs.

We found a summary of the research (a [systematic review](#) ) that looked at several good-quality studies ( [randomised controlled trials](#) ).<sup>[89]</sup>

One study found that a combination of the chemotherapy drugs etoposide and cisplatin works better than etoposide plus carboplatin.<sup>[90]</sup> Another found that adding bleomycin to etoposide and cisplatin works better than taking these two drugs on their own.<sup>[91]</sup> A third study compared a combination of etoposide and cisplatin with a combination of five drugs. Both combinations worked just as well.

The systematic review also looked at whether three or four cycles of chemotherapy work best.<sup>[89]</sup> Two studies found that three cycles work just as well as four.<sup>[92]</sup> <sup>[93]</sup> And one study found that three cycles actually worked better.<sup>[94]</sup>

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## Radiotherapy for testicular cancer later than stage 1

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on radiotherapy for testicular cancer later than stage 1?](#)

This information is for men who have testicular cancer that's later than stage 1. It tells you about radiotherapy, a treatment used for testicular cancer. It is based on the best and most up-to-date research.

### Does it work?

Yes. If you have a type of testicular cancer called seminoma and it has only just started to spread, doctors think radiotherapy is likely to help you.

If you have a type of testicular cancer that isn't seminoma, or it has spread further in your body, [chemotherapy](#) is a better treatment. For more information about the different kinds of cancer cells, see [What is testicular cancer?](#)

### What is it?

The first treatment you'll have for testicular cancer is usually [surgery](#) to remove the affected testicle. If you have testicular cancer that's later than stage 1, cancer cells have spread outside your testicle to other parts of your body. Radiotherapy uses high-energy x-rays to kill these cancer cells.

You'll need to go to hospital for treatment. A large machine is used to generate the x-rays. Having radiotherapy doesn't hurt.

## Testicular cancer

Radiotherapy for testicular cancer is directed at your abdomen. The area that's treated runs in a strip down the middle of your abdomen. Sometimes, the treated area also includes your groin on the side you had your testicle removed. Treating your abdomen with radiotherapy should destroy any cancer cells that have spread outside your testicles to the lymph nodes near the bottom of your spine. For more information, see [What is my lymphatic system?](#)

Your overall dose of radiation will be split into several smaller doses. You'll have short bursts of treatment each day. For testicular cancer that's later than stage 1, you'll probably have radiotherapy five times a week for three or four weeks. The aim is to destroy any cancer cells, while causing as little damage as possible to the normal, healthy cells around them.

### How can it help?

Doctors think that radiotherapy can help men with a type of cancer called seminoma, as long as it's only just started to spread. It can stop your cancer coming back and help you live longer.

There haven't been any studies comparing radiotherapy with chemotherapy for men with cancer that's later than stage 1. <sup>[95]</sup> So we can't say exactly how well radiotherapy works.

Doctors think that radiotherapy has fewer side effects than chemotherapy. But it may not always be as good. In the UK, you may be given radiotherapy if you have a type of cancer called seminoma at stage 2A, or possibly stage 2B. <sup>[96]</sup> (For more on stages, see [Staging testicular cancer](#) .)

For seminoma at any stage later than 2B, or for testicular cancer that isn't seminoma, [chemotherapy](#) is the usual treatment. <sup>[96]</sup> <sup>[97]</sup>

Some men have treatment with a chemotherapy drug called carboplatin as well as radiotherapy.

### How does it work?

Radiotherapy works by damaging the DNA in cancer cells. DNA is a chemical that cells need to reproduce.

Cells reproduce by dividing. When a cell divides, it makes a copy of its DNA. The x-rays used during radiotherapy damage the DNA, so cancer cells can't grow and replace each other.

Radiotherapy damages healthy cells too. That's why you get side effects. But it does the most damage to cells that are dividing. Cancer cells grow and divide very quickly, so radiotherapy damages them much more than healthy cells.

You'll have several doses of radiotherapy over several weeks. Having lots of doses increases the chance that the radiation will hit the cancer cells when they're dividing. Normal cells rest for longer before dividing, so are less likely to be destroyed.

## Testicular cancer

### Can it be harmful?

There's no good research that looks at radiotherapy for men with testicular cancer that's later than stage 1. This information on side effects comes from studies that looked at men with stage 1 cancer.

One of the most common side effects of radiotherapy is feeling very tired. <sup>[59]</sup> <sup>[98]</sup> <sup>[58]</sup> In one study, a quarter of men said they felt tired. <sup>[58]</sup> Some men also feel sick when they have radiotherapy. <sup>[59]</sup> <sup>[98]</sup> <sup>[99]</sup> Your doctor may suggest drugs to help stop you feeling sick.

One study found that men who had radiotherapy were more likely to go on to get cancer in their other testicle than men who had chemotherapy. <sup>[58]</sup> But the risk was fairly small for both treatments. About four years after having treatment: <sup>[58]</sup>

- About 11 in 1,000 men who had radiotherapy went on to get a tumour in their other testicle
- About 3 in 1,000 men who had chemotherapy with a drug called carboplatin got a tumour in their other testicle.

Men who've had radiotherapy may be more likely to get cancer somewhere else in their body, later in their lives. One study looked at 547 men who'd had radiotherapy. <sup>[100]</sup>

- About 5 in 100 men went on to get cancer somewhere else in their bodies.
- Of men who haven't had radiotherapy, doctors would expect about 2 in 100 or 3 in 100 to get cancer.

Some men get problems with sex after treatment for testicular cancer. Of men who've had surgery and radiotherapy: <sup>[101]</sup>

- About 1 in 10 are less interested in sex
- About 2 in 10 don't enjoy their orgasms as much
- About 4 in 10 had problems ejaculating (either ejaculating too soon or taking too long)
- Between 2 in 10 and 3 in 10 have problems getting an erection.

Men who have other treatments get some of these problems too. <sup>[101]</sup> So, they may not be caused by radiotherapy. They might happen because of surgery, or even because men are worried about their cancer and don't think about sex as much.

## Testicular cancer

Men who have radiotherapy are more likely to get erection problems than men who have other treatments for testicular cancer.<sup>[101]</sup> If you do have problems getting an erection, there are treatments that can help. To learn more, see our information on [Erection problems](#) .

Radiotherapy can affect your fertility.<sup>[102]</sup> Most men will have radiotherapy after an operation to remove the affected testicle. While you'll be given a shield to protect your other testicle, some radiation will still get through. Between 8 in 10 and 9 in 10 men have a low sperm count after radiotherapy. But your sperm count will get better in time. More than 9 in 10 men have a normal sperm count three years after treatment.<sup>[102]</sup> If you want to try for children sooner than this, ask your doctor about having your sperm frozen before treatment.

Men who have radiotherapy to their groin as well as their abdomen are more likely to have a low sperm count.<sup>[103]</sup> They are also more likely to feel sick, vomit, or have a low amount of white blood cells. White blood cells are part of your immune system. They help to fight infections.

It's worth remembering that having testicular cancer can damage your sperm count. About half of men would struggle to father children before being treated.<sup>[102]</sup>

If you intend to have children, your doctor will also probably advise you not to get your partner pregnant for some time after your treatment finishes. You may be asked to wait six months or a year. That's because there could be a risk of birth defects in the baby if your sperm have been damaged. Waiting for a while gives your sperm time to get back to normal.

### **How good is the research on radiotherapy for testicular cancer later than stage 1?**

We didn't find any research on radiotherapy after surgery for later stage testicular cancer. But doctors think that it works for men with the type of cancer called seminoma, as long as it had only just started to spread.

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## **Higher doses of chemotherapy for testicular cancer later than stage 1**

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on higher doses of chemotherapy for testicular cancer later than stage 1?](#)

This information is for men who have testicular cancer that's later than stage 1. It tells you about higher doses of chemotherapy, a treatment for testicular cancer. It is based on the best and most up-to-date research.

## Testicular cancer

### Does it work?

We don't know. There's not enough research to tell us. But higher doses may be better for men with very severe testicular cancer. Higher doses of chemotherapy may work better for men whose cancer has spread to their bones, caused large lumps in their lungs and **liver**, and spread to **lymph nodes** throughout their body.

We do know that chemotherapy after **surgery** helps men with testicular cancer. But the research doesn't always show which combinations or doses of chemotherapy drugs work best, especially for men with very severe testicular cancer.

### What is it?

The first treatment you'll have for testicular cancer is usually an operation to remove the affected testicle. This removes the main lump of cancer cells (the tumour). If you have testicular cancer that's later than stage 1, cancer cells have probably spread from your testicle to other parts of your body. Chemotherapy uses anti-cancer drugs to kill these cells and stop your cancer from coming back.

To read more about the stages of cancer, see [Staging testicular cancer](#).

In the UK, a combination of three drugs is often used.<sup>[104]</sup> These are:

- bleomycin
- cisplatin
- etoposide.

This combination is sometimes called **BEP chemotherapy**.

Some other chemotherapy drugs used for testicular cancer are cyclophosphamide, dactinomycin, and ifosfamide.

Chemotherapy drugs are usually given as a drip into a vein. This is sometimes called an **intravenous infusion** or IV. You'll need to go to hospital for treatment.

Each dose of chemotherapy is called a **cycle**. It's given over a few days. If you have testicular cancer that's later than stage 1, you'll probably need three or four cycles.

If you have severe testicular cancer, and cancer cells have spread to other parts of your body, your doctor may recommend a higher dose of chemotherapy drugs.

### How can it help?

We're not certain if higher doses of chemotherapy are better than lower doses. Different studies say different things.

## Testicular cancer

One study looked at men taking a combination of two chemotherapy drugs, vinblastine (which isn't used much any more), and bleomycin.<sup>[105]</sup> They also took either a low or high dose of cisplatin. Men who took the higher dose were more likely to be free of cancer after a year.

- About 43 in 100 men taking the lower dose were free of cancer.
- About 63 in 100 men taking the higher dose were free of cancer.

The higher dose was especially helpful for men who had **advanced stage 4 testicular cancer**. These men had cancer that had spread to their bones, caused large lumps in their lungs and liver, and spread to lymph nodes throughout their body.

Another study didn't find any difference between a higher and lower dose of vinblastine.<sup>[106]</sup> But vinblastine isn't used much for testicular cancer any more. Other drugs, such as etoposide, work better.

A third study compared men taking a standard combination of bleomycin, etoposide, and cisplatin with men taking these three drugs plus carboplatin. But the men who took the extra drug didn't do any better than the men taking the standard three drugs. They were no more likely to be free of their cancer.<sup>[107]</sup>

### How does it work?

Chemotherapy drugs damage cancer cells and stop them from growing. Some drugs work by damaging the DNA of cancer cells. DNA is a chemical all cells need to copy themselves. Once they've been damaged by chemotherapy drugs, cancer cells can't reproduce and eventually die.

A higher dose of chemotherapy drugs may kill more cancer cells than a lower dose. So, you may be more likely to recover. However, higher doses also cause more side effects.

### Can it be harmful?

Chemotherapy drugs have side effects. These may be worse with a higher dose of the drug.<sup>[105]</sup>

If you have a high dose of chemotherapy drugs, you're more likely to get:<sup>[105]</sup> <sup>[106]</sup>

- **Inflammation** in your mouth
- Hair loss
- Problems with your blood not clotting as it should (this can mean it takes a long time to stop bleeding if you cut yourself)

## Testicular cancer

- A lower number of **white blood cells** (white blood cells help your body fight off infections).

One study in men who'd been treated for testicular cancer showed that taking higher doses of cisplatin might have a long-term effect on your lungs. Men who had doses of cisplatin higher than 850 mg were able to take less air into their lungs, and were less able to breathe it out forcefully, compared with men who'd had lower-dose therapy or no chemotherapy. They were also more likely to have some kind of lung disease.<sup>[108]</sup>

To read more about side effects, see [Chemotherapy for testicular cancer later than stage 1](#).

### How good is the research on higher doses of chemotherapy for testicular cancer later than stage 1?

We know that having chemotherapy after surgery helps men with testicular cancer. But there isn't enough research to say whether larger doses are better. Different studies say different things. We looked at three good-quality studies ( **randomised controlled trials** ).

One study looked at men taking a combination of two chemotherapy drugs, vinblastine, and bleomycin.<sup>[109]</sup> They also took either a low or high dose of cisplatin. After a year, the men who'd taken the higher dose were more likely to be free of cancer.

Another study looked at men taking a high or low dose of vinblastine along with cisplatin and bleomycin. About 71 in 100 men were free of cancer after a year. It didn't make any difference which dose they had.

A third study looked at adding a fourth drug, carboplatin, to a standard-dose combination of bleomycin, etoposide, and cisplatin. But it didn't make much difference to whether the men got rid of the cancer.<sup>[107]</sup>

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## Lymph node surgery for testicular cancer later than stage 1

In this section

This information is for men who have testicular cancer that's later than stage 1. It tells you about surgery to remove lymph nodes from your abdomen. It is based on the best and most up-to-date research.

We haven't looked at the research on this surgery in the same detail we have for the other treatments we cover. (To read more, see Our method .) But we've included some information because you may be interested in it.

If cancer cells have spread from your testicle and formed lumps in your lymph nodes, you may need surgery to remove them. About a third of men with stage 2 or later testicular cancer need this operation.<sup>[110]</sup> To read more about stages, see [Staging testicular cancer](#).

## Testicular cancer

There are two main ways cancer cells can spread around your body: in your blood and in your lymphatic system. For more information, see [What is my lymphatic system?](#)

The first place testicular cancer cells spread to is usually a cluster of lymph nodes in your abdomen. That's because these nodes are the first place that the lymph vessels from your testicles carry fluid to. The nodes sit behind your bowels, just in front of your spine. They are between your belly button and the lower part of your back, about where your kidneys are.

Treatment with radiotherapy or chemotherapy can kill cancer cells in your lymph nodes. But these treatments might not be enough on their own. One reason for having your lymph nodes removed is that they may still be swollen after chemotherapy. If your lymph nodes are swollen, they may have cancer cells in them. If you don't have treatment, your cancer could come back in the future.

There are several ways a surgeon can remove your lymph nodes. But whichever way it's done, it's a serious operation. You'll need a general anaesthetic to make you sleep. And afterwards you'll spend several days recovering in hospital.

### Open surgery

If you have open surgery, the surgeon makes a long cut down your abdomen. It stretches from the bottom of your breastbone (sternum) to below your belly button.<sup>[111]</sup> Your bowels will be carefully moved aside so your surgeon can get to the lymph nodes behind them. The lymph nodes are then cut away, along with some of the tissue around them.

The operation takes about four or five hours.<sup>[112]</sup> You'll need to spend about 10 days in hospital to recover afterwards.

All operations have risks. After surgery to remove your lymph nodes, you could get a reaction to the anaesthetic. You could also get bleeding or an infection in the cut. A common problem men used to get was not ejaculating during sex. Between 8 in 10 to 9 in 10 men used to get this problem.<sup>[113]</sup> <sup>[114]</sup> But new ways of doing surgery have made this problem less likely. Newer types of surgery are **nerve-sparing surgery** and **keyhole surgery**.

### Nerve-sparing surgery

One of the main problems men used to get after surgery to remove their lymph nodes was not ejaculating during sex. If you get this problem, you still have orgasms, but no sperm comes out of your penis. It's called **dry climax** or **retrograde ejaculation**. It happens because some of the nerves near the lymph nodes are damaged during the operation.

The tube carrying sperm to your penis runs past your bladder. When you ejaculate, the neck of your bladder closes off. If it doesn't, sperm ends up in your bladder instead of the tube (your urethra) that comes out of your penis. This isn't harmful. Your body will flush the sperm out next time you urinate. But it makes it unlikely that you'll be able to father children by having sex.

## Testicular cancer

It's the **nerves near your lymph nodes** that tell the neck of your bladder to close off when you ejaculate. If these nerves are damaged during surgery, you won't ejaculate during sex.

There are treatments that can help you have children if you get this problem. You can have your sperm frozen before surgery. Or your doctor may be able to get sperm directly from your testicle using a needle. But there are also newer ways of removing the lymph nodes that make dry climax less likely. One of these is called nerve-sparing surgery.

Nerve-sparing surgery is done the same way as open surgery, through a cut down your abdomen. The surgeon finds and marks the important nerves. He or she then removes your lymph nodes and some of the tissue around them, being careful not to cut the nerves.

You have these nerves on the left and right side of your body. You might need more tissue removed from the side of your body where the tumour was.<sup>[111]</sup> In this case, one of the nerves might be cut. But the one on the other side of your body should be OK.

One study found that fewer men got dry climax after nerve-sparing surgery.<sup>[113]</sup>

- About 86 in 100 men got dry climax after traditional surgery.
- About 23 in 100 men got dry climax after nerve-sparing surgery.

### Keyhole surgery

If you have keyhole surgery, you don't have one long cut made down your abdomen (like you do in open surgery). Instead, you have several small cuts. Your surgeon uses a camera and long surgical tools to operate through these small cuts. The operation takes about four to six hours.<sup>[112]</sup> Keyhole surgery is sometimes called laparoscopic surgery.

There are several reasons why keyhole surgery is better than having surgery through one long cut down your abdomen.<sup>[112]</sup>

- You'll be able to go home sooner. Men who have this operation can go home after about four days. The average time it takes before you can go home with older types of surgery is 10 or 11 days.
- You're less likely to get problems ejaculating (dry climax). In one study, only 2 in 100 men who had keyhole surgery got this problem. And in another study, none of the men got this problem.
- You're less likely to get serious bleeding. In one study, 3 in 100 men who had keyhole surgery got bad bleeding. About 13 in 100 men who had open surgery got bad bleeding.

The operation also seems to work well. One study looked at men four years after they had this operation:<sup>[112]</sup>

## Testicular cancer

- About 98 in 100 men with stage 1 disease were still free of cancer
- All of the men with stage 2 disease were free of cancer.

But keyhole surgery is complicated. It should only be done by experienced surgeons.

<sup>[112]</sup> Between 3 in 100 and 10 in 100 men need to be switched from keyhole surgery to normal surgery during the operation. Some other problems you may get are: <sup>[112]</sup>

- Damage to an artery (5 in 100 men get this problem)
- Damage to the tubes that carry semen and the area around them (10 in 100)
- Swelling under your skin (7 in 100)
- Damage to your bowels (1 in 100)
- Damage to a nerve (1 in 100)
- Pressure sores (bedsores). You get these because you can't move around as much while you're recovering (14 in 100).

In theory, it's possible that keyhole surgery could cause some **very serious complications**. Problems you could get are: <sup>[112]</sup>

- Damage to a major blood vessel
- Serious damage to your bowel
- Not having all the cancer removed.

This operation is still fairly new. If you're offered keyhole surgery, your doctor should talk to you about the risks and make certain you have plenty of information. <sup>[112]</sup> You'll have check-ups after your operation to make sure it worked.

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### Further informations:

#### **What is my lymphatic system?**

Your lymphatic system is a network of tiny vessels in your body. Just as blood vessels carry blood, lymph vessels carry lymph. Lymph vessels are very thin. You can't usually see them.

Lymph fluid:

## Testicular cancer

- Carries waste products around your body
- Carries cells that are part of your immune system and help fight infections
- Contains protein.

Your lymph vessels take the fluid to your lymph nodes (also called lymph glands).

Lymph nodes are part of your immune system, which helps your body fight disease. They're small collections of cells and are found all over your body. Among other places, you have them in your groin, the backs of your knees, and under your chin. They're small, and round or oval-shaped. You can't usually feel them unless you're very thin or you have an infection that's made them swollen. You've probably felt the lymph glands on your neck swell up when you have a throat infection, for example.

If you have testicular cancer, cancer cells may be picked up by your lymphatic fluid and carried to lymph nodes in other parts of your body. The first place lymph vessels in your testicles carry fluid to is a collection of lymph nodes in your abdomen.<sup>[4]</sup> These nodes sit behind your bowels, just in front of your spine. You may hear them called the **retroperitoneal lymph nodes** or the **para-aortic lymph nodes**.

If cancer cells reach a lymph node, they may die, start growing, or travel on through your lymph vessels to other parts of your body.

The treatment you have for testicular cancer will depend on whether cancer cells have spread to your lymph nodes. You may have radiotherapy or chemotherapy to kill any cancer cells that have spread. Or you may have an operation to remove them.<sup>[7]</sup>

### Glossary:

#### chemotherapy

The use of chemicals or drugs to treat or prevent disease, usually cancer.

#### radiotherapy

This is also called radiation therapy. It is a treatment that uses high-energy X-rays to kill cancer cells. It's most often used for tumours that are hard to treat with surgery alone. You won't feel any pain during this treatment, but you may get some side effects afterwards.

#### ejaculation

When a man ejaculates, his penis suddenly releases semen, the white or transparent fluid that carries sperm.

#### immune system

Your immune system is made up of the parts of your body that fight infection. When bacteria or viruses get into your body, it's your immune system that kills them. Antibodies and white blood cells are part of your immune system. They travel in your blood and attack bacteria, viruses and other things that could damage your body.

#### lymph nodes

Lymph nodes (also called lymph glands) are small, bean-shaped lumps that you can't usually see or feel easily. You have them in various parts of your body, such as your neck, armpits, and groin. Lymph nodes filter lymph and remove unwanted things from your body, such as bacteria and cancer cells.

#### puberty

Puberty is the time when boys and girls develop secondary sexual characteristics. For boys, the major changes include pubic hair, a deeper voice, and growth of their penis and testicles. For girls, major changes include pubic hair, breasts and starting to have periods. After puberty, girls are able to become pregnant and boys are able to father children.

# Testicular cancer

## hormones

Hormones are chemicals that are made in certain parts of the body. They travel through the bloodstream and have an effect on other parts of the body. For example, the female sex hormone oestrogen is made in a woman's ovaries. Oestrogen has many different effects on a woman's body. It makes the breasts grow at puberty and helps control periods. It is also needed to get pregnant.

## viruses

Viruses are microbes (tiny organisms) that need the cells of humans or other animals to exist. They use the machinery of cells to reproduce. Then they spread to other cells in the body.

## inflammation

Inflammation is when your skin or some other part of your body becomes red, swollen, hot, and sore. Inflammation happens because your body is trying to protect you from germs, from something that's in your body and could harm you (like a splinter) or from things that cause allergies (these things are called allergens). Inflammation is one of the ways in which your body heals an infection or an injury.

## HIV

HIV stands for human immunodeficiency virus. It's the virus that causes AIDS. It makes you ill by damaging cells called CD4 cells. Your body needs these cells to fight infections. You can get HIV by sharing needles for injecting drugs, or by having sex without a condom with someone who has the virus.

## AIDS

AIDS stands for acquired immunodeficiency syndrome. People who are infected with the human immunodeficiency virus (HIV) get AIDS when the virus has destroyed most of their immune system. When people have AIDS, their body isn't able to fight infections. So even common infections, such as colds, can cause serious problems.

## X-ray

X-rays are pictures taken of the inside of your body. They are made by passing small amounts of radiation through your body and then onto film.

## ultrasound

Ultrasound is a tool doctors use to create images of the inside of your body. An ultrasound machine sends out high-frequency sound waves, which are directed at an area of your body. The waves reflect off parts of your body to create a picture. Ultrasound is often used to see a developing baby inside a woman's womb.

## local anaesthetic

A local anaesthetic is a painkiller that's used to numb one part of your body. You usually get local anaesthetics as injections.

## general anaesthetic

You may have a type of medicine called a general anaesthetic when you have surgery. It is given to make you unconscious so you don't feel pain when you have surgery.

## allergic reaction

You have an allergic reaction when your immune system overreacts to a substance that is normally harmless. You can be allergic to particles in the air you are breathing, like pollen (which causes hay fever) or to chemicals on your skin, like detergents (which can cause a rash). People can also have an allergic reaction to drugs, like penicillin.

## anaesthetic

An anaesthetic is a chemical that blocks the ability to feel sensations like pain or heat. A local anaesthetic blocks the feeling in a specific area of the body. For example, your dentist uses a local anaesthetic like lignocaine in your gums so that you don't feel the pain of having a cavity filled. A general anaesthetic makes you completely unconscious and is usually used only in a carefully controlled environment like an operating room.

## infection

You get an infection when bacteria, a fungus, or a virus get into a part of your body where it shouldn't be. For example, an infection in your nose and airways causes the common cold. An infection in your skin can cause rashes such as athlete's foot. The organisms that cause infections are so tiny that you can't see them without a microscope.

## haematoma

A haematoma is a collection of blood in any part of your body. The blood has usually clotted or dried.

## randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

## CT scan

A CT scan is a type of X-ray. It takes several detailed pictures of the inside of your body from different angles. CT stands for computed tomography. It is also called a CAT scan (computed axial tomography).

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## **intravenous infusion**

When a medicine or a fluid, such as blood, is fed directly into a vein, it's called an intravenous infusion (or IV). To give you an intravenous infusion, a nurse, technician or a doctor places a narrow plastic tube into a vein (usually in your arm) using a needle. The needle is then removed and the fluid is infused (or dripped) through the tube into the vein.

## **leukaemia**

Leukaemia is a type of cancer that affects your body's production of white blood cells. White blood cells are important for fighting infections. So, if you have leukaemia, you are more likely to catch an infectious disease.

## **anaemia**

Anaemia is when you have too few red blood cells. Anaemia can make you get tired and breathless easily. It can also make you look pale. Anaemia can be caused by a number of different things, including problems with your diet, blood loss and some diseases.

## **white blood cells**

White blood cells are the cells in your blood that help your body fight infections. They are part of your immune system. The other cells in your blood, red blood cells, carry oxygen around your body.

## **systematic reviews**

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

## **liver**

Your liver is on the right side of your body, just below your ribcage. Your liver does several things in your body, including processing and storing nutrients from food, and breaking down chemicals, such as alcohol.

## **kidney**

Your kidneys are organs that filter your blood to make urine. You have two kidneys, on either side of your body. They are underneath your ribcage, near your back.

## **arteries**

Arteries are the blood vessels that take blood that is rich in oxygen and food away from your heart. The arteries carry this blood to all the tissues in your body.

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