



# Testicular Cancer

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## **This information was produced by the European Association of Urology**

This leaflet contains general information about testicular cancer. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

This information was produced by the European Association of Urology (EAU) Patient Information Working Group.

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The content of this leaflet is in line with the EAU Guidelines.

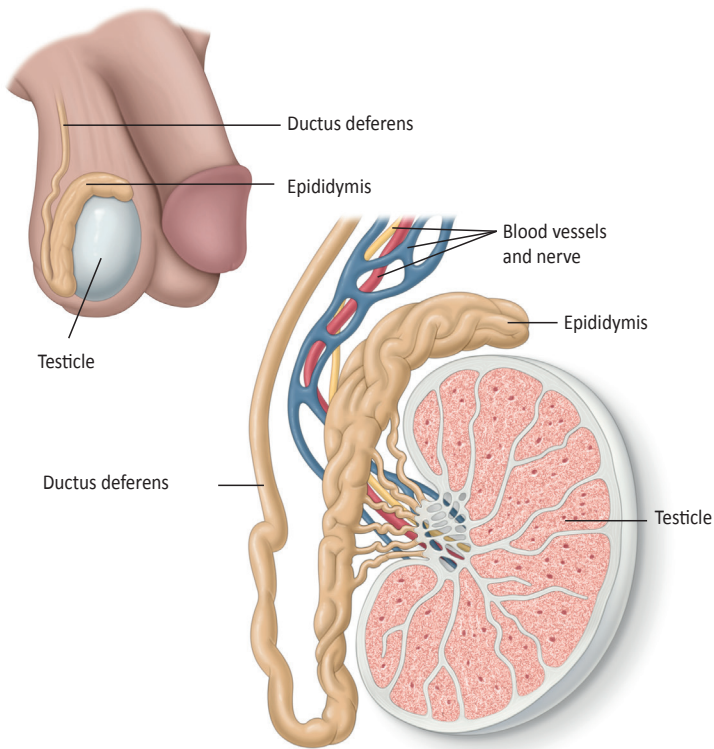
You can find this and other information on urological diseases at our website: <http://patients.uroweb.org>



# Testicular Cancer

## What is testicular cancer?

The testicles (also called the “testes”) are part of the male reproductive system (**Fig. 1**). They are found in the scrotum—the pouch of skin that hangs below the penis. The testicles make testosterone and sperm.



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Fig. 1: The testicles.

Testicular cancer is a growth called a tumour that starts in the testicle (**Fig. 2**) and can sometimes spread to other parts of the body (**Fig. 2**). There are two main types of testicular tumour:

- Seminomas can grow in men at any age but are less aggressive.
- Non-seminomas usually affect younger men and are more likely to grow and spread quickly.

### Risk factors for testicular cancer

- Age 18 to 35 years
- An undescended testicle (cryptorchidism), in the past or the present

- Opening for urine on the underside of the penis instead of at the tip (hypospadias)
- Poor sperm production that makes it difficult getting a partner pregnant
- Abnormal testicle development
- Family history (father or brother had testicular cancer)
- White race

## What are the symptoms?

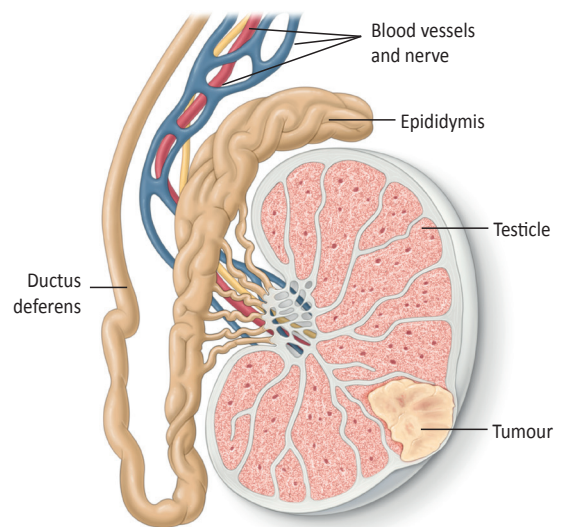
As testicular cancer grows, you might feel a lump or swelling in part of one testicle (**Fig. 2**). This is the most common symptom. You might have pain in a testicle or the scrotum, but testicular cancer is not usually painful.

## How is testicular cancer diagnosed?

Your doctor will give you a physical exam and ask about your medical history. Depending on your symptoms and risk factors, blood tests and ultrasound may be ordered to check for testicular cancer.

### Questions to ask your doctor about diagnosis

- Which tests are you going to do?
- Are the tests painful?
- Can I go home after the tests?
- How long does it take to get the results?
- Will you know for sure whether I have cancer?
- If I have cancer, will you know whether it has spread?



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Fig. 2: Tumour in the testicle.

If testicular cancer has spread to other part of the body (metastasis), you might have dull aches or feel lumps in other areas.

### Remember: Most lumps are not cancer!

However, if you have one of these symptoms, it is important to see your doctor right away. The sooner testicular cancer is caught, the better the chance of cure.

Testicular Cancer Test	
Test	Purpose
Blood test	Blood is tested to check for high levels of certain proteins that suggest testicular cancer (tumour markers).
Ultrasound	Sound waves are used to view the inside of the testicles, including any growths.
Microlithiasis	If small white spots (called “microliths”) are seen with ultrasound, your doctor might
MRI	take tissue from the testicles (biopsy). The tissue will be examined to look for precancerous cells.

## What is staging?

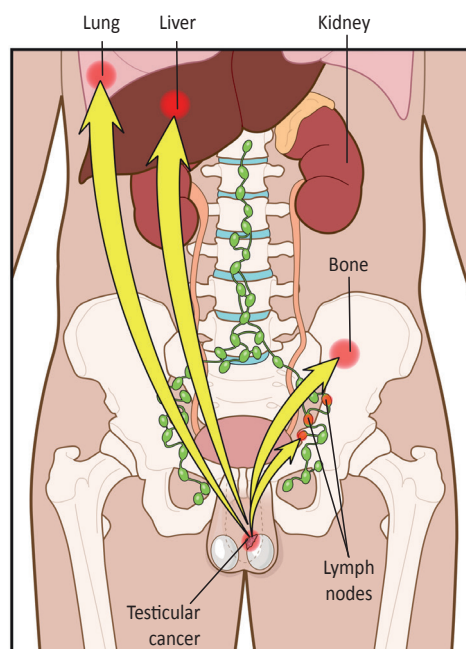
Cancer is classified in stages. The stages describe a tumour’s size and whether the cells have spread to other tissues or organs (**Fig. 4**). This information helps you and your doctor understand how serious the cancer is and how to treat it.

### Stages of testicular cancer

Stage 1: Cancer is only in the testicle.

Stage 2: Cancer has spread to the lymph nodes in the abdomen.

Stage 3: Cancer has spread beyond the lymph nodes in the abdomen. The cancer may have spread to parts of the body far from the testicles, such as the lungs or liver.



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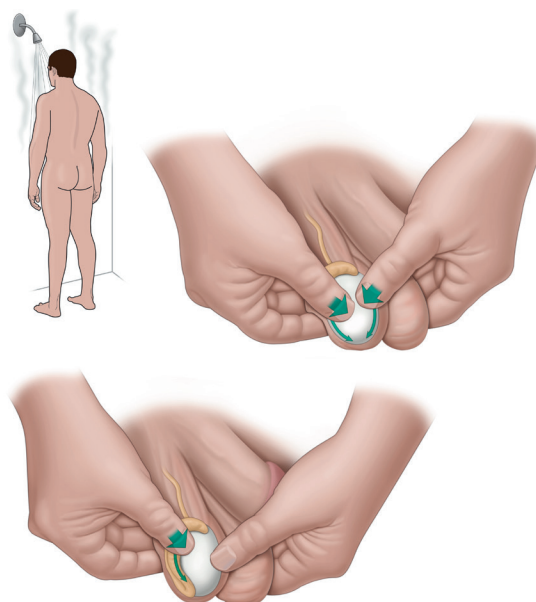
Fig. 4: Metastatic spread.

## Examining your testicles is easy

Examine your testicles regularly, especially if you have a risk factor for testicular cancer. The best time to examine your testicles is right after a hot bath or shower. The scrotal skin will be relaxed, and the testicles can be felt more easily. It takes only a few minutes. Do the exam standing:

- Look for swelling in the scrotum.
- Gently feel the scrotal sac to find a testicle.
- Examine the testicles one at a time. Firmly and gently feel each testicle between the thumb and fingers of both hands over the whole surface.
- It is normal for one testicle to be slightly larger than the other. It is also normal to feel a cord-like structure (the epididymis) on the top and back of each testicle.

If you find a lump, swelling, or other change, see you doctor. Changes are not always cancer, but if it is cancer and you catch it early, you have the best chance of cure.



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Fig. 3: Self-examination of the testicle.

## What is my prognosis?

Your prognosis is your risk of the cancer growing and/or coming back after treatment. The type and stage of testicular cancer will help you and your doctor understand this.

Your doctor will look at:

- Your personal and family history of testicular cancer
- Cancer type (seminoma vs. non-seminoma)
- Whether the cancer cells have spread to other tissues or organs (metastasis)
- Levels of tumour markers in blood tests, especially for non-seminomas, which are aggressive

## How is testicular cancer treated?

Testicular cancer is usually treated with surgery. The testicle must be removed (orchiectomy) to Remove the cancer (**Fig. 5**). The tissue may be examined during surgery to confirm the diagnosis and stage. Additional surgery, drug treatment (chemotherapy), or radiation therapy also may be needed.

### Surgery to remove the testicle

All testicular cancers are treated with surgery, with very few exceptions.

- An incision is made in the groin so the doctor can look at the testicle.
- Tissue may be taken to confirm the diagnosis and stage.
- If cancer is found, the whole testicle will be removed.
- Sometimes a false testicle (silicone implant) can be inserted for a more natural look and feel.

There are usually few complications with removal of the testicle.

You might have bleeding or an infection after surgery. In the long term, you might have poor semen quality or low testosterone. This can affect your ability to father children.

Tell your doctor before orchiectomy if you wish to have children after treatment.

Most men can become fathers even after treatment for testicular cancer. However, you should be offered semen analysis and cryopreservation of sperm (freezing deposits of sperm samples in a sperm bank) as options.

## Additional surgery

Other surgery might include biopsy of the other testicle, removal of lymph nodes, or removal of testicular cancer tissue from the lungs, liver, or other sites.

### Biopsy of the other testicle

Your doctor may recommend taking tissue from the other testicle to look for precancerous cells.

This should be considered especially if you had an undescended testicle, if you have very small testicles, or if you have poor semen quality. Precancerous cells are treated with radiation or removal of the testicle.

### Removal of lymph nodes

If testicular cancer cells spread, they often go to the lymph nodes at the back of the abdomen.

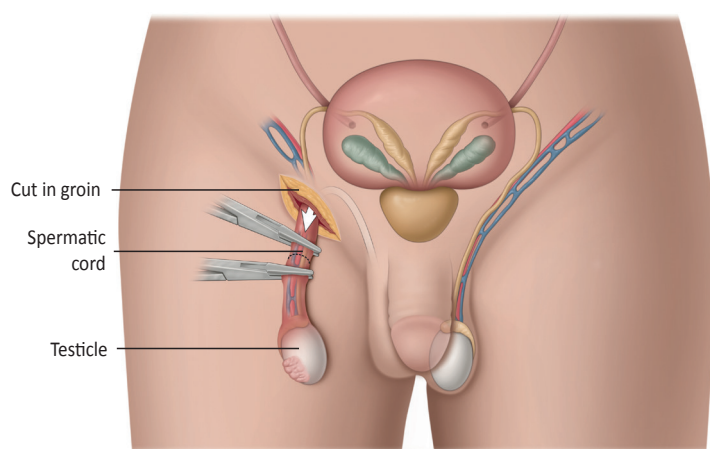
Removal of these lymph nodes is called “retroperitoneal lymph node dissection” (RPLND). This Surgery is considered for men with a high risk of cancer spreading. It might also be performed to remove any cancer that remains after chemotherapy.

#### Ask your doctor about sexual side effects of RPLND

Your sex life can be affected by surgery to remove the lymph nodes at the back of your abdomen:

- RPLND can cause your semen and sperm to go backward into your bladder instead of coming out of your penis (retrograde ejaculation). Your orgasms will feel different because they will be dry. Medication helps sometimes, but you might not be able to have children by natural sexual intercourse.
- RPLND can cause nerve damage that can affect the ability to have erections.

Before you have your lymph nodes removed, talk to your surgeon about other possible side effects.



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Fig. 5: Orchiectomy – incision in the groin area.

## Removal of tumours at other sites

The spread of testicular cancer cells might have caused tumours to grow in other tissues and organs. These tumours are typically treated with chemotherapy. Surgery might be performed after chemotherapy to remove any cancer that remains.

Questions to ask your doctor about surgery

- Why do I need surgery?
- Will the surgery affect my sex life?
- Will I be able to have children after this surgery?
- How long will I be in hospital?
- How long will I have to be off work or on sick leave?
- Will I be in pain?
- Can I have a false testicle put in?
- What are the possible complications?

## Chemotherapy

Chemotherapy treats cancer with drugs that kill cancer cells. Chemotherapy drugs are usually given through an IV directly into the bloodstream. Chemotherapy is usually given one to four times at 3-week intervals, depending on the stage of the disease.

Your doctor may recommend the drug carboplatin or a combination of bleomycin, etoposide, and cisplatin (called “B-E-P”). These drugs treat high-risk testicular cancer or cancer that has spread. They are very effective but may have some side effects. Side effects are usually mild and go away once treatment ends.

## Common side effects of chemotherapy

- Infection—contact your doctor if you have a fever, chills, or cough
- Hair loss—will usually grow back in 3-6 months
- Tiredness
- Upset stomach (nausea)
- Mouth sores
- Sensory changes in taste or hearing
- Changes in skin or nails
- Tingling in fingers or toes

## Questions to ask your doctor about chemotherapy

- Do I need chemotherapy?
- Can I do anything to prevent side effects?
- What should I do if I get an infection?
- How long will I have chemotherapy for?
- How long will I need to be off work or school?
- How will I know if chemotherapy is working?

## Radiation therapy

Radiation therapy treats cancer by exposing cancer cells to high energy rays. The rays damage and kill the cells. Radiation therapy is sometimes used to treat seminoma-type testicular cancer, but not nonseminoma tumours. The goal of radiation therapy is usually to kill cancer cells that have spread to the lymph nodes behind the abdomen.

Radiation can also damage healthy cells in other organs, so the radiation beam must target the cancer cells to limit damage. Side effects are usually mild.

Testicular Cancer Treatment			
Treatment	Stage 1 cancer	Stage 2 cancer	Stage 3 cancer
Surgery	The testicle is removed (orchiectomy)		
Additional surgery	Biopsy of the other testicle may be done	If non-seminoma, some lymph nodes may be removed  Biopsy of the other testicle may be done	If non-seminoma, some lymph nodes may be removed  Tumours that have spread to other areas will be removed, typically after chemotherapy  Biopsy of the other testicle may be done
Chemotherapy	Possible if you have a high risk of the cancer coming back	Yes	Yes
Radiation therapy	For seminoma only, if tissue exam shows the tumour starting to spread	For seminoma only, may be used to kill cancer cells in the lymph nodes at the back of the abdomen	

## Managing Common Side Effects

Side effect	Strategy
Infection	Chemotherapy reduces your white blood cell count, which increases your risk of infection. Contact your doctor if you have a fever, chills, or cough. If you have an infection, you might need antibiotics to treat it.
Poor semen quality	Poor semen quality after testicular cancer treatment can make it difficult for some men to father children. Before treatment begins, tell your doctor if you wish to have children. You might want to have semen analysis and preserve sperm samples in a sperm bank for later use.
Tiredness	Feeling tired during and after treatment is common and will usually pass after a few days. Staying active can help.
Upset stomach (nausea)	Chemotherapy and radiation therapy can upset your stomach or make you lose your appetite. Tell your doctor or nurse if this happens. <ul style="list-style-type: none"> <li>• Anti-nausea medicine can help calm your stomach.</li> <li>• If you do not feel like eating, a high-calorie food supplement drink can provide nutrition.</li> <li>• Consult the hospital dietician if you have ongoing problems with your diet.</li> </ul>
Diarrhea	Treatment can affect your bowel function. Manage diarrhoea with anti-diarrhoea medicine. A low-fibre diet can also help during treatment.
Skin changes	Chemotherapy can cause changes in your skin and nails. Radiation therapy can cause the treated area to become red and sore like a sunburn. Talk with your doctor about how to keep your skin moisturised and comfortable. Symptoms will usually go away after treatment is done.

### Common side effects of radiation therapy

- Impaired semen quality
- Stomach or GI symptoms, including peptic ulcer
- A small risk that the radiation will cause another type of cancer
- Tiredness
- Sore skin
- Upset stomach (nausea)
- Diarrhea
- Temporary sperm damage

### Questions to ask your doctor about radiotherapy

- Why do I need radiotherapy?
- Are there any other treatment options?
- How can I prevent side effects?
- Are there any permanent side effects from this treatment?
- How long will the course of treatment take?
- Will I need to be off work or school?

## What happens after treatment?

### Follow-up

Your doctor will schedule you for regular visits after treatment to see if the cancer has come back (recurrence). Visits may include a physical examination, blood tests, chest x-ray, and/or a CT scan to look for new tumours. Visits are usually more frequent just after treatment ends. Follow-up typically

continues for at least 5 years. If there is no recurrence, you do not need further treatment.

### Treatment of recurrence

If new cancer is detected during follow-up, it will be treated with surgery, chemotherapy, or radiation therapy, as described. Even with recurrence, the chance of cure is good.

## Living with testicular cancer

A cancer diagnosis is often stressful and confusing. Good information about your disease can help you feel more in control. Talk with your health care team and learn as much as you can. The more informed you are, the better able you will be to make choices about your care.

### Living with one testicle

A man can usually do everything with one testicle that he would have done with two. If appearance is a concern, a false testicle (silicone implant) might be an option for a more natural look and feel. Treatment can affect semen quality, but most men with one testicle are able to father children. Some may need treatment to restore normal hormone levels of testosterone.

### Treating low testosterone

Symptoms of low testosterone are not very specific but may include tiredness, low sex drive, erectile

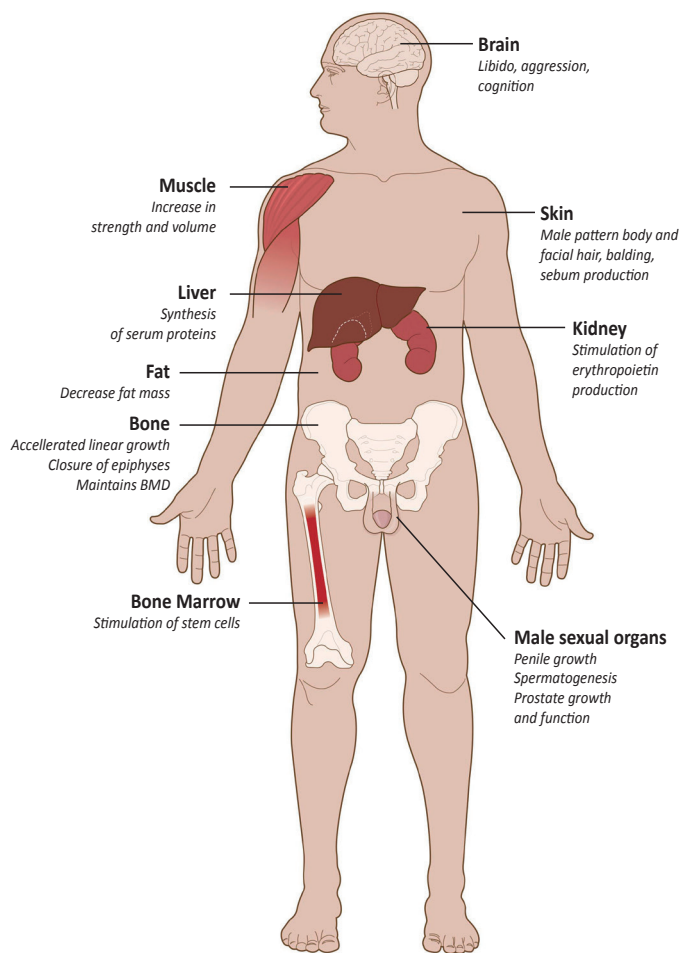


dysfunction, gynecomastia (swelling of breast tissue in men), or decreased body hair or beard growth.

Sometimes men with normal testosterone levels also have these symptoms after treatment. Blood tests can confirm if low testosterone is the likely cause of these symptoms.

Learn more about testosterone deficiency here:

<http://patients.uroweb.org/hypogonadism>.



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Fig. 6: testosterone: target organs.

## Protecting your partner

Testicular cancer is not an infection. You cannot pass cancer cells to your partner during sex, and ejaculation will not make your cancer worse. If you are having chemotherapy, use a condom during sex. This will protect your partner from contact with the drugs in your semen.

## Dealing with sexual issues

Removing one testicle should not take away your sexual ability or fertility. Most men can have a normal erection after surgery. However, some sexual difficulties are common after

a diagnosis of testicular cancer. The ability to ejaculate may change after surgery. If you have any of these problems, counselling or medical treatment may help.

Before you have your abdominal lymph nodes removed, talk to your surgeon about possible side effects. Your sex life can be affected by this surgery:

- RPLND can cause your semen and sperm to go backward into your bladder instead of coming out of your penis (retrograde ejaculation). Your orgasms will feel different because they will be dry. Medication helps sometimes, but you might not be able to have children by natural sexual intercourse.
- RPLND can cause nerve damage that can make you lose the ability to have erections.

You may find it hard to talk with your doctor or your partner about sexual problems. After all, your sex life is very personal. But doctors and nurses have treated many men with similar problems and are used to talking about them. You can ask your doctor or nurse to refer you to a specialist counsellor or a sex therapist.

## Managing low sex drive

You may find that you have less sexual desire (libido) than usual, at least for a while. This is perfectly normal. Any testicular cancer treatment can make you feel like this. Feeling tired or sick can also lower your libido. So can emotions such as fear, anxiety and anger. Once treatment is done and you are living with having had cancer, you will find your libido comes back.

## Preserving fertility

Poor semen quality after testicular cancer treatment can make it difficult for some men to father children. Before treatment begins, tell your doctor if you wish to have children. You might want to have semen analysis and preserve sperm samples in a sperm bank for later use.

Sperm banking is when you produce a semen sample for later use. You might be one of the few men who cannot produce a semen sample or who has no sperm or very few sperm in his semen. If so, there is still a possibility that there may be usable sperm somewhere in your testicles. Sometimes sperm can be taken directly from samples of healthy testicle tissue. Banked sperm can be used to fertilise an egg immediately, or it can be frozen and used later.

## Handling social and psychological effects

A cancer diagnosis can have a big impact on your life and the lives of your loved ones. Cancer can make you feel powerless.



It can make you feel anxiety, anger, fear, or depression. Some patients are exhausted during or after treatment. It is very common to worry about the cancer coming back. During treatment you will be away from your work. Talk to your boss about the best way for you to get back to work. Perhaps you could work part time or in a different function. Find support or treatment for these issues. Talk with your doctor or nurse in the hospital or ask your family doctor. Your health care team can refer you to patient organisations or others who can help you with psychological support or practical matters like financial advice.

## FAQs

### Can testicular cancer kill you?

Current treatments for testicular cancer are very effective. Death from testicular cancer is rare.

### What is my prognosis?

Your prognosis is your risk of the cancer growing quickly and/ or coming back after treatment. The type and stage of testicular cancer will help you and your doctor understand this.

### How soon do I need to start cancer treatment?

Treatment should be started as soon as possible.

### Can I function normally with only one testicle?

With one testicle, most men will still produce sperm and the male sex hormone testosterone. Some men, however, will need medical treatment to restore normal levels of testosterone in the body. It is usually not possible to restore normal sperm production after damage to the testicular tissue. You can have a false testicle (prosthesis) put into the scrotum during the operation. This is sometimes done, for cosmetic reasons only, to give a normal appearance.

### Will my cancer treatments affect my fertility?

If you wish to father children after treatment for testicular cancer, you should be offered a semen analysis and cryopreservation of sperm (freezing deposits of sperm samples in a sperm bank). This should be performed before orchiectomy, ideally, but in any case prior to chemotherapy treatment. In the very rare case of testicular cancer on both sides, where both testicles are removed, a man will not be able to father children naturally after surgery. However, sperm banking before treatment still gives a fair chance of success.

### My son is worried he might get testicular cancer. What should I tell him?

If testicular cancer runs in your family, tell your doctor. The risk of getting this cancer is higher if a close family member— for example, your father or brother— was diagnosed with it. There are no routine tests to screen for testicular cancer. Your son might want to do a self-examination regularly.

### Where is research for testicular cancer happening?

Ask your doctor where research is done in your area or search the registry and results database of publicly and privately supported clinical studies conducted around the world: <https://clinicaltrials.gov/>

## Links to more information

### Testicular Cancer Treatment

In English:

<http://www.cancer.gov/cancertopics/pdq/treatment/testicular/Patient>

In Spanish:

<http://www.cancer.gov/espanol/pdq/tratamiento/testiculo/Patient>

National Library of Medicine

[www.nlm.nih.gov/medlineplus/testicularcancer.html](http://www.nlm.nih.gov/medlineplus/testicularcancer.html)

### EAU Guidelines

<https://uroweb.org/guideline/testicular-cancer/>

# Glossary of terms

## Biopsy

Removal of tissue from the tumour for examination under a microscope

## Chemotherapy

A cancer treatment that uses drugs to kill cancer cells

## Cryptorchidism

An undescended testicle

## Epididymis

Cord-like structure on the top and back of each testicle that carries sperm to the urethra for ejaculation

## Hypospadias

The opening for urine is on the underside of the penis instead of at the tip

## Metastasis

Cancer cells have spread to other tissues or organs

## Non-seminoma

A type of testicular cancer that usually affects younger men and is more likely to grow and spread quickly

## Orchiectomy

Surgery to remove the testicle

## Prognosis

Your risk of the cancer growing and/ or coming back after treatment

## Radiation therapy

A cancer treatment that exposes cancer cells to high energy rays. The rays damage and kill the cells. It is used to treat seminoma-type testicular cancer but not non-seminoma tumours.

## Recurrence

The cancer comes back after treatment

## RPLND

Removal of the lymph nodes at the back of the abdomen (also called "Retroperitoneal Lymph Node Dissection"). This surgery is considered for men with a high risk of cancer spreading. It might also be performed to remove any cancer that remains after chemotherapy.

## Seminoma

A type of testicular cancer that can grow in men of any age but is less aggressive than non-seminoma

## Testicles

Part of the male reproductive system (also called the "testes"). They are found in the scrotum, the pouch of skin that hangs below the penis. The testicles make testosterone and sperm.

## Testicular cancer

A growth called a tumour that starts in the testicle and can spread throughout the body

## Tumour

An unusual growth of cells

## Tumour markers

High levels of certain proteins that suggest testicular cancer. Tumour markers are measured in a blood sample.

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