

## Radiotherapy

This information is about radiotherapy. Many people with cancer will have radiotherapy as part of their treatment.

There are different types of radiotherapy. We explain the main types in this fact sheet. Not all of the information will be relevant for you. Ask your doctor to explain which type of radiotherapy you are having, so you can read the right parts of this fact sheet.

Any words that are underlined are explained in the glossary at the end.

Radiotherapy may not be the only treatment you need. Some people also need chemotherapy or surgery. The doctors at the hospital will talk to you about your treatment. We also have information in [language] about these treatments.

If you have any questions, ask your doctor or nurse at the hospital where you are having your treatment.

If you have any questions or want someone to talk to, you can call Macmillan Cancer Support on **0808 808 00 00**, Monday to Friday, 9am to 8pm. We have interpreters, so you can speak to us in your own language. Just tell us, in English, the language you want to use.

We have more information in [language] about different types of cancer, treatments and living with cancer. Visit [macmillan.org.uk/translations](http://macmillan.org.uk/translations) or call us on **0808 808 00 00**.

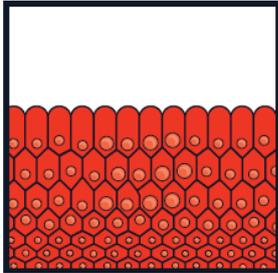
### In this fact sheet:

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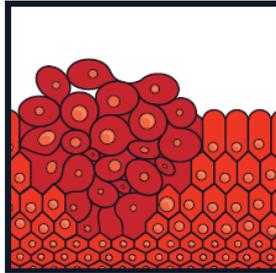
## What is cancer?

Cancer starts in our body's cells. Cells are the tiny building blocks that make up the organs and tissues of our body. Usually, these cells split to make new cells in a controlled way. This is how our bodies grow, heal and repair. Sometimes, this goes wrong and the cell becomes abnormal. The abnormal cell keeps splitting and making more and more abnormal cells. These cells form a lump called a tumour.

**Normal cells**



**Cells forming a tumour**



Not all lumps are cancer. A lump that is not cancer is called benign. It cannot spread to anywhere else in the body. A lump that is cancer is called malignant. It can grow into other areas of the body.

Cancer cells sometimes break away from the first cancer and travel through the blood or lymphatic system to other parts of the body. Cancer cells that spread and develop into a tumour somewhere else in the body are called a secondary cancer.

You cannot catch cancer from someone else.

## What is radiotherapy?

Radiotherapy uses strong x-rays to destroy cancer cells. It can damage normal cells too, but they usually recover after treatment finishes.

There are different ways of having radiotherapy. These are explained more on pages xx.

## Why is radiotherapy given?

### To cure the cancer

Radiotherapy is often given to try to cure the cancer. It may be given on its own. Or, it may be given before or after surgery. Before surgery, it may make the tumour smaller. After surgery, it can help kill any cancer cells left behind. Sometimes chemotherapy is given at the same time as radiotherapy.

### To relieve cancer symptoms

When a cancer cannot be cured, radiotherapy may be given to relieve symptoms. This is called palliative treatment.

## **Radiotherapy staff**

There are different staff at the hospital who may help with your treatment.

### **Clinical oncologist or cancer specialist**

This is a doctor who specialises in radiotherapy. They will plan your treatment. You may see them during and after your treatment so they can check how you are. You can also ask to see them between appointments.

### **Radiographers**

They work closely with clinical oncologists. They plan your treatments and operate the radiotherapy machines.

You will often see the same radiographers during your treatment. They can help with any part of your treatment, including any side effects or worries you have.

You can ask to be treated by a radiographer of the same sex, if you prefer.

### **Clinical nurse specialists**

Many cancer centres have specialist cancer nurses. They are experts in your type of cancer. They can give you support and information during your treatment. They can also help with managing any side effects.

## **Giving consent for treatment**

Before you have any treatment, your doctor or nurse will explain how it may help. They will also tell you about any side effects it might cause. They will ask you to sign a form to show that you understand this and that you agree to have the treatment. You can ask questions about anything you do not understand. No treatment will be given without your consent.

It's a good idea to take someone with you who speaks your language and English. Interpreters may be available at the hospital, but try to ask for one in advance if you would like one.

## **Where is treatment given?**

You will have your treatment at hospital. You usually have your treatment as a day patient. This means you can go home after the treatment and you don't need to stay overnight. With some types of radiotherapy, you may need to stay in hospital for a few days.

If you are unwell or also having chemotherapy, you may need to stay in hospital.

## Planning your treatment

Radiotherapy must be carefully planned. This is to make sure the treatment works well and causes as few side effects as possible. You may need to visit the hospital a few times for planning. The staff at hospital will tell you what to expect.

### Scans

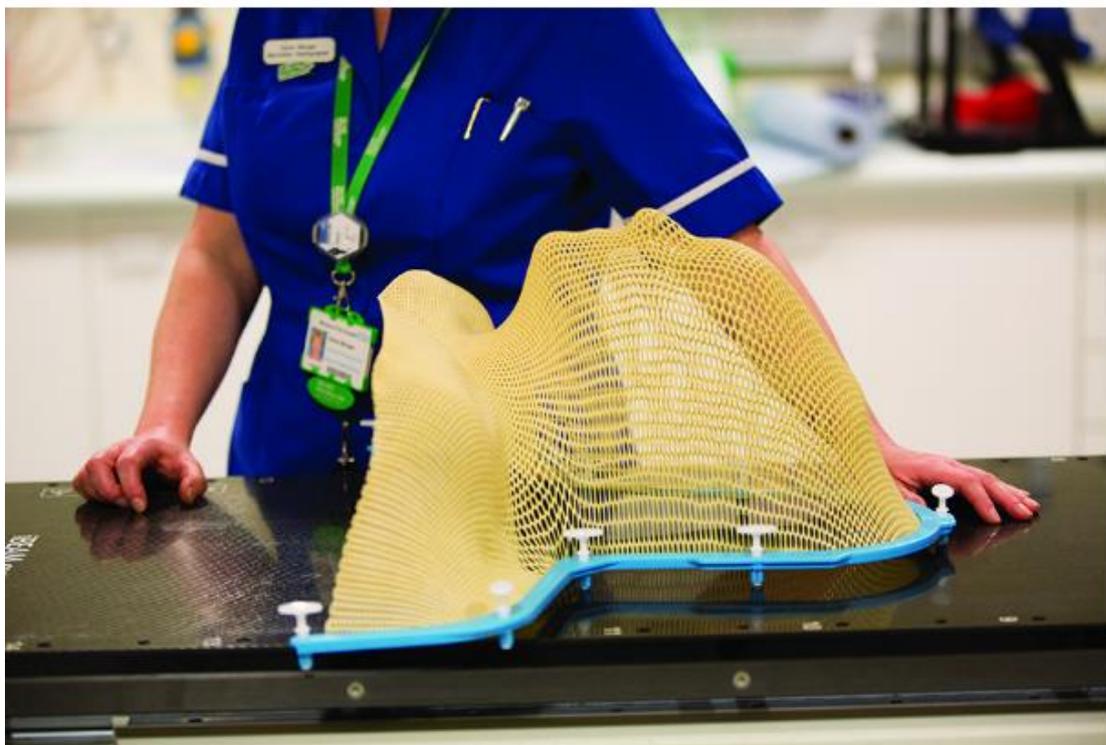
You will need to have one or more scans before you start treatment. This helps the doctors decide how much radiotherapy you need. It is a good idea to take someone with you who speaks your language and English.

Before a scan, you may be asked to remove some clothing and put on a gown. You may also be given a drink or injection, which can help to get a clear picture from the scan.



## **Mould**

You must lie very still during radiotherapy and stay in the correct position. Some people have a mould or shell to wear to keep them in position. It might feel uncomfortable but you will not have it on for very long. The mould is made before your treatment starts.



## **Marks on the skin**

A small, permanent mark (tattoo) may also be made on your skin. This shows the exact place the radiotherapy needs to be given.

Let your doctors know if you are worried about any of this. You can ask questions at any time.

**You may have to wait a few days after your planning appointment until your treatment starts.**

## Types of radiotherapy

There are different types of radiotherapy:

- **External radiotherapy** – given from outside the body using x-ray machines.
- **Internal radiotherapy** – when a radioactive substance is put into your body.
- **Radioisotopes** – when you are given an injection, drink or capsule.

These are explained below. Ask your doctor to explain which type of treatment you are having, so you can read the right parts of this fact sheet.

## External radiotherapy

This is when radiotherapy is given using x-ray machines. Doctors may use different radiotherapy machines depending on the type of cancer. Most people will have treatment each day from Monday to Friday, and then have a rest with no treatment at the weekend. The number of treatments you have will depend on the type and size of the cancer. It can take from one to seven weeks to have all the treatment you need.

Treatment only takes a few minutes each day, but you may need to wait for a while if the hospital is busy. It's a good idea to take something with you to pass the time, like a book. You can ask for your appointment to be at the same time every day.

Before your first treatment, the doctor will explain what will happen. They may ask you to take off some clothes and wear a gown. It is normal to feel worried about having treatment. But it usually becomes easier as you get to know the staff and what happens.

It may take a little while to get you in the correct position for treatment. You will then need to lie very still. The lights in the room may be dimmed and the staff will leave the room while the treatment happens. Radiotherapy does not hurt.

The staff will watch you from the next room, either through a window or on a television screen. No one else will be able to see you. If you have any problems, you can raise your hand or ring an alarm to let them know you need some help.

The machine may move around your body to give the treatment from different directions. Once the treatment is over, the radiographers will come back into the room and help you off the machine.

This treatment will not make you radioactive. It is safe for you to be with other people, including children, after your treatment.

## External radiotherapy:



## Internal radiotherapy

This is when a radioactive substance is placed into your body near the cancer. It gives a strong dose of radiotherapy to the cancer, but only a weak dose to normal cells.

In women, this can be used to treat cancers of the cervix, womb or vagina. The radioactive substance is placed inside plastic or metal tubes. The tubes are placed at the top of the vagina while you are under a general anaesthetic. When the tubes are in, you have to stay in hospital for a short time. When the treatment is finished, the tubes are removed. This treatment can be used on its own or with external radiotherapy (described above).

Sometimes, doctors put radioactive wires into a tumour. This can be used for cancer in the mouth, lip, cervix or breast. You need a small operation to put the wires in place. You will need to stay in a room on your own until the wires are removed. This is usually after three to eight days.

**During these treatments, doctors and nurses may only spend a short time with you. Pregnant women and children will not be allowed to visit. This might make you feel alone or frightened. Let the staff know if you feel like this. Once the treatment is over, it's safe to be with other people.**

In men, internal radiotherapy may be used to treat small tumours in the prostate gland. Small radioactive seeds are placed into the tumour. The seeds give out small doses of radiation very slowly over a period of time. They are not removed but are left in the prostate. The radiation gradually fades away over about a year. It affects only a small area around the seeds, so it won't affect other people. Your doctor will tell you if there are any precautions you need to take immediately after treatment.

## **Radioisotopes**

This is when a radioactive substance is given to you as:

- a drink
- tablets
- an injection.

The most common type of this treatment is radioactive iodine. It is used to treat thyroid cancer. When you have this treatment, some iodine will leave your body in sweat and urine. This means that you need to stay in a room on your own until the radiation drops to a safe level. This can take about four to seven days. After this you can go home. Your specialist will tell you if there are any precautions you need to take after treatment.

## **Side effects of radiotherapy**

Radiotherapy affects everyone differently. Some people have very few side effects while others have more. We describe the most common side effects here. It is unlikely that you will get all of these.

For many people side effects are mild. Before your treatment, the staff will talk to you about which side effects you may get. Remember to ask about anything that worries you.

### **Tiredness**

You may feel very tired during treatment and for some time after it finishes. Travelling to hospital each day can often make this worse. If you are tired, allow yourself time to rest and plan your day so that you don't do too much.

It is important to get a little bit of exercise each day if you can. A short walk may give you more energy.

### **Feeling sick**

Treatment can make you feel sick, and sometimes be sick. This is more common if you have treatment near the tummy. The hospital staff can give you a medicine for this if you need it. This will usually stop you feeling sick.

## **Eating and drinking**

Sometimes you may not want to eat. If this happens, try having regular small snacks rather than large meals. If you're having problems with eating it's important to tell the hospital staff. They will give you advice on how to improve your appetite. If needed you can add extra energy and protein to your diet by using food supplements.

## **Looking after your skin**

Radiotherapy can affect your skin. This usually happens after about ten days. The skin in the area being treated may become red, sore or itchy. If you have dark skin, it may get darker. If you get sore skin or a change in skin colour, let the doctors know. They can tell you how to look after your skin. Here are some tips that might help:

- Use lukewarm water rather than hot or cold.
- Use soaps that have no perfume.
- Do not lie in the bath for long.
- Dry your skin by patting it gently with a soft towel. Try not to rub the area.
- Do not use talcum powder, deodorants and perfumes in the treatment area.

If your skin does get sore, the hospital staff may give you cream for it. It's important to follow their instructions when using the cream.

You need to look after your skin during and after radiotherapy:

- Cover the area that has been treated when you go out in the sun or if it is windy.
- Try to wear clothes made of natural fibres like cotton and silk.
- Wear loose clothes.
- Use a high-protection suncream.
- Protect the skin from the sun for a year after treatment has finished.

## **Hair loss**

You will only lose hair from the area of your body where you are having treatment. If you are having treatment to your head, you may lose some hair from your head. If you are having treatment to your breast, the hair under your arm might fall out. Some people find hair loss very upsetting. If you are worried about it, talking to your doctor or nurse can help.

## **Changes in your blood**

Sometimes, treatment can reduce the number of red blood cells in your blood. This can make you feel tired. You may need to be given extra red blood cells.

Treatment can also reduce the number of white blood cells in your blood. This can make you feel unwell. Tell your hospital doctor straight away if your temperature goes above 37.5°C (99.5°F) or over 38°C (100.4°F), depending on the advice given by your hospital team. You should also tell them if you feel hot, cold or shaky.

## **Diarrhoea**

It is common to have diarrhoea if you have treatment near your tummy. You may need to use the toilet more often than normal. It can make you feel tired and weak. Your tummy may hurt. It is important to drink plenty of fluids. Tell the staff at the hospital if you have diarrhoea. They can give you tablets to help.

## **Problems with passing urine**

You may have to pass urine more often than usual. This can happen if you are having treatment near the bladder. Drinking more fluids may help. Some people find it helps to drink cranberry juice.

If it hurts when you pass urine, or if you can see blood in it, tell the doctor or nurse.

After radiotherapy for prostate cancer, some men find it more difficult to pass urine. They may need to have a plastic tube put into their bladder to drain urine into a bag. If you need this, the nurses at the hospital will show you how to look after it. A nurse can also visit you at home to help you.

## **Sore mouth**

If you have treatment to your head or neck, your mouth may become sore. Sometimes swallowing may become difficult. It's very important to look after your mouth during treatment. The staff will show you how to do this. They can give you mouthwashes and painkillers if you need them. It can help to avoid:

- smoking
- drinking alcohol
- spicy food
- very hot food

It is very important to tell the doctor or nurse if your mouth feels sore or you have mouth ulcers. If it becomes difficult to swallow your doctor can prescribe medicines to help.

## Contraception

Your doctor will advise you not to become pregnant or father a child during treatment. This is because radiotherapy may harm a developing baby. It is important to use contraception during and for a few months after radiotherapy. You can talk to your doctor or nurse if you are worried about this.

## Fertility

Treatment can affect your ability to get pregnant or father a child. Many people find this difficult to deal with. If you are worried about this, talk to your doctor or nurse before treatment starts. They can tell you what to expect, and talk to you about ways to protect your fertility. Speaking to a counsellor or religious leader may also be helpful.

## Long-term side effects

Most side effects only last for a short time. Some may last for a few weeks after your treatment has finished. Sometimes, side effects can last longer than this. Occasionally, they can last for the rest of your life. Your doctor will talk to you about this before you have your treatment. It is important that you understand that some side effects may be permanent.

## How Macmillan can help

Macmillan is here to help you and your family. You can get support from:

- **The Macmillan Support Line (0808 808 00 00).** We have interpreters, so you can speak to us in your language. Just tell us, in English, the language you want to use. We can answer medical questions, give you information about financial support, or talk to you about your feelings. The phone line is open Monday to Friday, 9am to 8pm.
- **The Macmillan website ([macmillan.org.uk](http://macmillan.org.uk)).** Our site has lots of English information about cancer and living with cancer. There is more information in other languages at [macmillan.org.uk/translations](http://macmillan.org.uk/translations)
- **Information centres.** At an information centre, you can talk to a cancer support specialist and get written information. Find your nearest centre at [macmillan.org.uk/informationcentres](http://macmillan.org.uk/informationcentres) or call us. Your hospital might have a centre.
- **Local support groups** – Find a group near you at [macmillan.org.uk/supportgroups](http://macmillan.org.uk/supportgroups) or call us.
- **Macmillan Online Community** – You can talk to other people in similar situations at [macmillan.org.uk/community](http://macmillan.org.uk/community)

## Glossary

**Benign** – A lump in the body that is not cancer and cannot spread to anywhere else in the body.

**Cells** – The tiny building blocks that make up the organs and tissues of our body.

**Cervix** – The cervix is the opening at the bottom of your womb. It is inside a woman's body at the top of the vagina.

**Chemotherapy** – A cancer treatment that uses drugs to kill cancer cells.

**Constipation** – When you find it difficult or painful to poo. You might not be going as often as usual, or your poo might be hard and lumpy.

**Cured** – When there are no cancer cells left in the body.

**Diarrhoea** – When you have soft or watery poo. You might need the toilet more than usual or very urgently. You may also have tummy pain.

**Iodine** – Iodine is a chemical. When it is radioactive, it can be used as a treatment for cancer.

**Lymphatic system** – A network of vessels and glands throughout the body that helps to fight infection.

**Malignant** – A lump in the body that is cancer and can spread around the body.

**Prostate** – The prostate is a small gland inside a man's body. It is near the bladder.

**Radioactive** – If something is radioactive, it means it releases radiation.

**Red blood cells** – Cells in our blood that carry oxygen around the body.

**Scan** – When doctors take a picture of the inside of your body.

**Side effects** – Unwanted effects of cancer treatment. For example, hair loss, feeling sick or tiredness. Most side effects go away after treatment finishes.

**Surgery** – Having an operation.

**Tumour** – A tumour is a group of cells that are growing in an abnormal way. The abnormal cells keep multiplying and form a lump.

**Vagina** – The vagina is a passageway inside a woman's body. The entrance to the vagina is between your legs. At the top of the vagina is the cervix, which then leads to the womb.

**White blood cells** – Cells in our blood that fight infection.

**Womb** – The womb is a round organ inside a woman's body in the lower tummy area. It is where a baby grows if you are pregnant.

## More information in [language]

We have information in [language] about these topics:

<p><b>Types of cancer</b></p> <ul style="list-style-type: none"><li>• Breast cancer</li><li>• Large bowel cancer</li><li>• Lung cancer</li><li>• Prostate cancer</li></ul> <p><b>Treatments</b></p> <ul style="list-style-type: none"><li>• Chemotherapy</li><li>• Radiotherapy</li><li>• Surgery</li></ul>	<p><b>Coping with cancer</b></p> <ul style="list-style-type: none"><li>• If you're diagnosed with cancer – A quick guide</li><li>• Claiming benefits</li><li>• Eating problems and cancer</li><li>• End of life</li><li>• Healthy eating</li><li>• Tiredness (fatigue) and cancer</li><li>• Side effects of cancer treatment</li><li>• What you can do to help yourself</li></ul>
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To see this information, go to [macmillan.org.uk/translations](http://macmillan.org.uk/translations)

## Speak to us in [language]

You can call Macmillan free on **0808 808 00 00** and speak to us in your own language through an interpreter. You can talk to us about your worries and medical questions. Just tell us, in English, the language you want to use.

We are open Monday to Friday, 9am to 8pm.

## References and thanks

This information has been written and edited by Macmillan Cancer Support's Cancer Information Development team.

The information in this fact sheet is based on the Macmillan booklet **Understanding radiotherapy**. We can send you a copy, but the full booklet is only available in English.

This information has been reviewed by relevant experts and approved by our Chief Medical Editor, Dr Tim Iveson, Macmillan Consultant Medical Oncologist.

With thanks to Helen Sparkes, Lung Cancer Nurse Specialist, and Lindsey Fitzpatrick, Macmillan Lung Cancer Clinical Nurse Specialist. Thanks also to the people affected by cancer who reviewed this edition.

All our information is based on the best evidence available. For more information about the sources we use, please contact us at **bookletfeedback@macmillan.org.uk**

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We make every effort to ensure that the information we provide is accurate but it should not be relied upon to reflect the current state of medical research, which is constantly changing. If you are concerned about your health, you should consult your doctor. Macmillan cannot accept liability for any loss or damage resulting from any inaccuracy in this information or third-party information such as information on websites to which we link.

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