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# **Radiotherapy**

## **Information for Patients**

# Radiotherapy

Radiotherapy is the careful use of high energy x-rays (radiation) to treat cancer. A machine called a linear accelerator (or linac) produces x-rays and delivers them to the area requiring treatment.

Radiotherapy is the use of a beam of carefully focused radiation to destroy. Healthy cells in the treated area may also be temporarily damaged by radiation, leading to side effects, but with time most of these subside as the healthy cells repair.

Radiotherapy can be used to:

- Cure cancer (radical treatment)
- Shrink cancers before surgery (neoadjuvant treatment)
- Reduce the chances of a cancer coming back after surgery (adjuvant or post-operative treatment)
- Relieve symptoms caused by an inoperable primary or cancer (palliative treatment)

To ensure the radiation dose is delivered accurately and personalised to you, a CT scan of the area to be treated is performed first. This is sometimes known as 'simulation' or radiotherapy planning.

Precise treatment planning helps reduce the dose to other normal tissues to keep side effects to a minimum.

The scan takes just a few minutes and is painless. You will need to lie very still, often with your hands above your head.

Tiny but permanent ink marks (sometimes known as 'tattoos') are placed on the skin by the radiographers to ensure the treatment is delivered precisely. The tattoos are usually very discrete and fade with time.

After the scan, the oncologist identifies the area to be treated and works closely with the radiographers and dosimetry team to finalise the radiotherapy plan to ensure that as little damage as possible occurs to normal cells during the treatment.

During treatment, the radiographers will carefully position you on a couch beneath the linac, usually lying on your back wearing a gown, and move the treatment machine to the correct position.

When all the checks are complete the radiographers will leave the room and ask you to lie still, but remain in contact with you using CCTV and an intercom system.

The linac will then deliver two to three radiation beams directed at the treatment area, from different angles, each usually lasting approximately a minute.

The treatment is painless. The machine does not touch you. You can breathe normally (unless you are having Deep Inspiration Breath Hold radiotherapy for left breast cancer). You may hear a buzzing noise in the background; this is quite normal.

# Radiotherapy – General FAQs

## **Will I need to give my consent?**

Yes. Your oncologist will always weigh up the risks and benefits of treatment with you before recommending a course of radiotherapy.

The treatment will be explained in detail at your outpatient appointment. You will usually be given some written information. If you agree to proceed you will be asked to sign a form giving your consent and be offered a copy for your records.

There will be a further opportunity to ask questions when you attend for your radiotherapy planning scan.

## **How many treatments will I have?**

You may have a single treatment or a course of treatments once daily, Monday to Friday, lasting several weeks. Your oncologist will decide how many treatments you will have depending on your individual circumstances.

## **Who will look after me during the treatment?**

A team of highly trained radiographers will deliver the daily treatments and monitor your progress. You may not be treated by the same staff every day. Most departments have a mixture of male and female radiographers. They are all ready to help answer any questions you may have.

Specialist oncology nurses are also on hand to offer advice.

If problems arise during treatment an appointment will be made with your nurse specialist or oncologist.

## **Will I be radioactive during treatment?**

No. External beam linac radiotherapy does not make you radioactive. You can safely mix with other people, including children, at any time during a course of treatment.

## **What if I am or think I may be pregnant?**

Radiotherapy is potentially harmful to a developing baby, particularly in the first three months of pregnancy. You should not fall pregnant shortly before or during radiotherapy. Please let your radiographer or doctor know if you think you might be pregnant.

## **What if I have a pacemaker?**

If you have a pacemaker please let your oncologist know. A pacemaker check will be required before treatment but radiotherapy can usually still be safely delivered.

## **Why do I need to have a photograph taken?**

A photograph of your face will be taken to aid patient identification within the treatment centre.

You may have a photograph of the treatment area taken to aid accurate delivery of the treatment.

You will always be asked for your permission before any photographs are taken.

## **Will I be able to work during treatment?**

Tiredness (also referred to as fatigue) is common during radiotherapy. You may need to reduce the length of your working day but many patients are able to work throughout their treatment.

## **Can I take my usual medicines?**

Yes, you can continue to take all prescription medicines safely during radiotherapy.

It's important to tell your oncologist about any vitamin and mineral supplements that are bought over the counter. There is some uncertainty about how safe it is to take vitamins, particularly high-dose antioxidants (including vitamins A, C and E, Co-enzyme Q10 and selenium) during radiotherapy, so these are best avoided.

## **Will there be side effects?**

All patients get some side effects during radiotherapy, though most of them are mild and completely reversible.

Short term side effects are common, occur during or shortly after treatment, and are temporary (because the normal tissues heal after radiation exposure).

Tiredness and skin redness are the commonest effects. These are usually short-lived.

Long term ('late') side effects are rare but can appear months or years after treatment. For most patients they are not usually severe.

The type of side effects experienced depends on the area of the body being treated.

More information about breast radiotherapy side effects is available [here](#).

## **How should I look after my skin during radiotherapy?**

Wash the skin in the treated area with a mild, unperfumed soap.

Use lukewarm water when washing, then pat dry with a soft towel.

Moisturise with aqueous cream or aloe vera gel (instead of your regular gels and creams).

If you want to use anything else on the skin in the treatment area, discuss this with your radiographer first.

Avoid exposing the area to extremes of temperature (such as heat pads, saunas or ice packs) during treatment.

Avoid using deodorant or perfume in the treated area.

Make sure the treated skin is covered when out in the sun.

Swimming during a course of radiotherapy is not known to be harmful, though some patients find the chemicals in the water can irritate the skin.

## **When will I have a follow-up appointment?**

You will receive a follow-up telephone call from the radiographer staff a couple of weeks after the treatment is complete.

Patients are seen in clinic by the oncologist about 4-6 weeks after the last radiotherapy session.

This provides an opportunity to make sure any side effects have settled, review any new symptoms and ask any questions you might have.

# Breast radiotherapy - side effects

All patients experience a different range and severity of side effects during and after treatment. Most patients suffer relatively minor side effects from breast radiotherapy.

## Short term ('early') side effects

These are common, occur during or shortly after treatment, and are temporary (as the normal tissues heal after radiation exposure).

### Skin reactions

The skin in the treated area may turn red (like sunburn) and become tender and itchy in the second or third week of treatment.

Skin reactions often get worse for a short time after the treatment is finished.

A few patients suffer peeling or blistering of the skin (most commonly underneath the breast and / or in skin creases in the lower neck). If this happens, it may take two to four weeks to heal; please talk to your oncologist or radiographers if this happens.

The redness often turns darker over a period of weeks, but eventually fades back to a natural skin colour.

### Tiredness

You may feel tired during and for a few weeks after radiotherapy. The severity of tiredness varies considerably between patients. Many people can continue to work during radiotherapy.

Sometimes the tiredness briefly gets worse after treatment finishes.

Severe fatigue is unusual and often more common in patients who've also received chemotherapy.

### Cough

Occasionally patients experience a temporary tickly dry cough towards the end of, or shortly after, treatment. This usually gets better without any intervention.

Very rarely, patients experience a short-lived sensation of breathlessness.

### Breast swelling

The breast may become a little swollen after treatment but this usually settles within a few months.

## **Long term ('late') side effects**

Long term side effects are less common but can appear months or years after treatment. The benefits of radiotherapy almost always outweigh the small likelihood of long term side effects.

### **Breast pain and tenderness**

Many patients experience sharp pains or 'twinges' in the breast. These are mild, often come on when you least expect them and usually last just a few seconds. Over time (sometimes two or three years) the severity and frequency subsides.

### **Changes in the shape, size and feel of the breast**

The breast tissue can become firmer and heavier after radiotherapy (this is known as 'fibrosis'), leading to subtle changes in the size and shape of the breast. Over time, the changes usually soften and subside.

### **Skin changes**

Sometimes the skin of the breast takes on a 'dimpled' appearance or tiny blood vessels under the skin appear. These changes tend to be permanent.

### **Shoulder stiffness**

This can occur after radiotherapy to the lymph nodes. Continuing to do arm exercises usually helps.

### **Lymphoedema**

Swelling of the breast or arm and hand can occur after surgery and, less commonly, after radiotherapy. Lymphoedema is rare, but when it occurs is usually permanent though it can be kept under control with compression sleeves if necessary.

If you develop lymphoedema you should contact your breast care nurse who will ensure you get any specialist help you need to manage the condition so that it doesn't interfere with your everyday life.

### **Heart changes**

Old fashioned radiotherapy techniques are now known to have caused damage to the arteries of the heart in some patients, leading to an increased risk of heart disease in later life after left breast radiotherapy.

Modern radiotherapy, including the use of DIBH, minimises the radiation dose to the heart so long term cardiac effects are now extremely rare.

## **Scarring of the lung**

Radiation to the breast can cause some scarring (fibrosis) to a tiny portion of the underlying lung. This does not cause long term chest symptoms, but it may be apparent on an x-ray or CT scan of the chest taken in later life.

## **Nerve damage**

In the very unusual situation where patients need radiotherapy to the armpit after surgery, damage to the nerves can cause weakness and numbness of the arm.

## **Second cancers**

Radiation-induced cancers of the breast area are extremely rare after radiotherapy (approximately 3 cases per 1000 patients treated at 15 years). They can be cured by early surgical removal.

# Breast radiotherapy - FAQs

## Will I need radiotherapy?

The size, grade, stage and type of your breast cancer, which operation and other treatments you have had and how many lymph nodes were affected will determine if you need radiotherapy and which area(s) require treatment.

Post-operative radiotherapy is given to reduce the risk of breast cancer cells recurring in the breast, chest wall or lymph node regions.

Most patients require post-operative radiotherapy to the remaining breast tissue following breast-conserving surgery (removal of the breast cancer and an area of normal tissue around it, also known as a 'lumpectomy').

Some patients who have had breast conserving surgery may be at higher risk of the cancer returning in the breast, for example:

- younger patients with larger tumours
- patients where only a narrow rim of normal tissue was taken around the cancer (also known as 'close margins')
- patients who required pre-operative chemotherapy.

These patients require an extra 'boost' dose to the area where the original tumour developed.

Following a mastectomy (removal of the whole breast) radiotherapy to the scar and chest area may be considered if the tumour:

- was large
- was deep in the breast and close to the chest wall
- had spread to some or all of the lymph nodes.

Sometimes the lymph nodes under the arm and / or in the lower neck might need radiotherapy, depending on the type of surgery and how many lymph nodes contained cancer cells.

## When will the radiotherapy happen?

Most patients have radiotherapy after surgery. It is important the wound(s) are fully healed before treatment starts, so typically the radiotherapy commences about four to eight weeks post-operatively.

If you also require chemotherapy, this is given first; the radiotherapy usually starts about one month after the chemotherapy is complete.

## What might delay the treatment starting?

Sometimes, fluid collects around the breast or armpit scar after the surgery (known as a 'seroma'). This may require drainage and needs to settle before the radiotherapy can be planned. Occasionally the treatment may need to be delayed until the fluid stops reaccumulating.

It's important that you've regained your arm movement after surgery and can comfortably raise your arms above your head before treatment planning starts. Exercises and physiotherapy can help; talk to your breast care nurse if you need further information.

### **How long will the course of radiotherapy last?**

Most courses of radiotherapy to the breast or chest wall (+/- lymph nodes) are delivered once daily (Monday – Friday) for three weeks (a total of fifteen consecutive weekday visits).

Patients who need a 'boost' dose usually require an additional one week (5 extra days) of treatment.

### **Can I interrupt the course of radiotherapy?**

Interruptions during a course of radiotherapy are not recommended as the treatment is known to be less effective if given over a prolonged period of time.

### **Can I continue to work during radiotherapy?**

The severity of tiredness experienced during radiotherapy varies considerably. Many patients are able to lead a near-normal life and continue to work throughout treatment, accepting the inconvenience that daily visits for treatment cause.

### **What is Deep Inspiration Breath Hold (DIBH) radiotherapy?**

DIBH uses state-of-the-art technology to minimise the radiation dose to the heart and eliminate organ movement caused by breathing in patients being treated for left sided breast cancers.

Patients receive a short breathing training session before their radiotherapy planning CT scan and breathe through a mouth piece (like a snorkel) during the treatment.

All left breast cancer patients treated at GenesisCare are offered DIBH.

A full description and patient information film is available [here](#).

### **Can I take my usual medicines?**

Yes. All medication can be continued safely during radiotherapy. Please let the doctors and nurses know which medicines you are taking.

### **Practical tips for skincare during and after breast radiotherapy**

In addition to the general skincare advice given [above](#) (link to general FAQs) patients often find it helpful to:

- wear a soft cotton bra or vest; some patients find it more comfortable to go without a bra
- avoid underwired bras or tight clothes until the skin is healed

Skin reactions usually heal within three or four weeks of completing radiotherapy.

You may have other questions you want to ask.

Always feel free to ask one of the radiographers treating you, or me, if you are concerned.