



Information for  
patients

**Using the breath-hold  
technique for radiotherapy to  
the left breast**

The following guide has been written for patients who require radiotherapy to the left breast and have been asked to use a breath-hold technique at Rosemere Cancer Centre.

Breathing in and holding your breath inflates the lungs and moves the heart (which lies on the left-hand side of the chest) away from the radiotherapy field. Using this technique may reduce the dose of radiation to your heart during radiotherapy to the left breast.

This guide provides a basic overview of what breath-hold is, why it is used, and how it is delivered. It also gives instructions on how you can prepare for treatment.

## **What is the voluntary deep inspiration breath-hold technique?**

This is a technique in which you hold your breath for a short period of time. You will need to breathe in and out normally three times, and then take a deep breath in through your nose. You will then hold your breath as long as you can manage.

During treatment, you will be asked to hold your breath for a short duration while your radiotherapy is delivered. You will be in control of the breath hold and can decide when to breath out. This process is repeated several times during your treatment.

## Why might I need to hold my breath?

The main use of breath-hold is for patients having their left breast treated because the heart is located behind the left breast. By taking a breath in and holding it, your lungs fill with air and expand. This creates a gap between your heart and your breast.

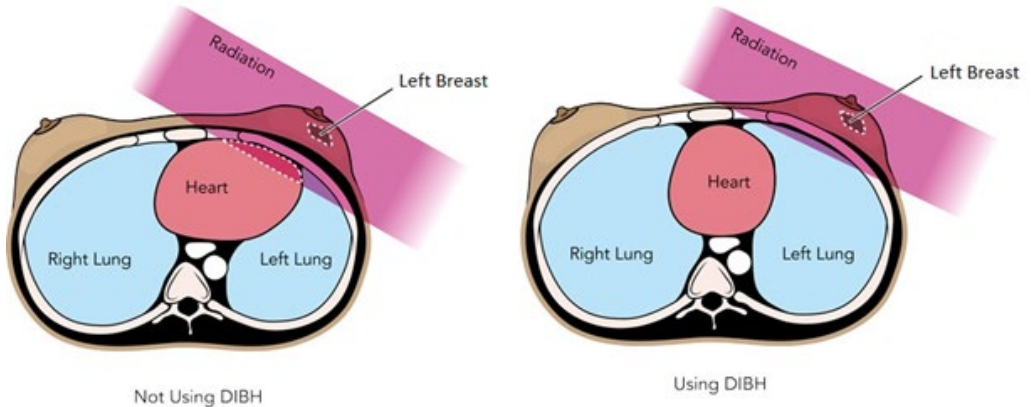


Image used with permission Dumane et al.

In many patients, this technique is helpful to minimise the amount of radiation the heart receives. All patients requiring left breast radiotherapy might be considered for the breath-hold technique. The radiographers will not know how close your heart is to the area of treatment until after your radiotherapy planning scan.

## Are there any alternatives?

The alternative to breath-hold is to have radiotherapy whilst breathing normally.

If breath-hold is not used, the radiographers will ensure the dose received by the heart is kept as low as possible by using other methods to shield the heart.

You may also decide that you do not want to be treated using the breath-hold technique. Please discuss this with your Oncologist or the radiographers.

## What are the risks of breath-hold?

There are no risks associated with breath-hold. The radiographers will monitor you during your treatment to ensure you are holding your breath correctly. The treatment machine will automatically turn off when you are no longer holding your breath.

## What do I need to do?

The following instructions will help you to prepare for your radiotherapy planning and treatment appointments in the comfort of your own home.

**It is important that you practise this before your radiotherapy planning appointment.**

You will need to lie on your back on the treatment bed with both arms above your head.

Practice this breathing technique at home on your bed in the treatment position.

All breaths should be taken allowing the chest to expand. Abdominal breathing (often practised in yoga) is not suitable for radiotherapy treatment.

It is important you do not arch your back or tense/hunch your shoulders when breathing in. Try to remain as relaxed as possible during the breath hold.

1. Take three slow breaths in and out, expanding the chest.
2. Slowly take a deep breath in through your nose and hold your breath for 5 seconds (ensure the breath is large enough to inflate the lungs, but not unmanageable)
3. Repeat steps 1 and 2, increasing in 5 second intervals, aiming to achieve a hold total of 20 seconds or more if you can manage. Give yourself breaks between each breath hold. Try to ensure each breath size is consistent.

Practising this cycle 3-4 times in a row a few times a day will ensure you are familiar and comfortable with the process prior to your radiotherapy planning and treatment. You should find that your ability to achieve a large breath hold improves as you practise more.

**Helpful videos are also available by visiting:**

<https://www.respire.org.uk/resources>

[www.saferradiationtherapy.com/27-of-left-breast-cancer-patients-are-at-risk-of-having-heart-damage/](http://www.saferradiationtherapy.com/27-of-left-breast-cancer-patients-are-at-risk-of-having-heart-damage/)



**It is strongly recommended that you watch these videos and practice prior to your radiotherapy planning appointment.**

## **What will happen during my radiotherapy planning appointment?**

In order to plan your radiotherapy treatment, a CT scan will be taken with you holding your breath in the treatment position.

You will be asked to remove all your upper clothing and lie on the CT scanner couch in the treatment position with both arms bent above your head.

The radiographers will ask you to take three normal breaths prior to holding your breath. You will then be asked to slowly take a deep breath in through your nose and hold your breath.

The radiographers will tell you when to breathe normally. This process will be repeated a few times to check you are achieving consistent breath-holds. You will be given a break between each cycle of breaths, so you can catch your breath.

Once you and the radiographers are happy with the technique, a CT scan will be taken with you breathing freely and another with you in breath-hold. The radiographers will speak to you via a microphone and tell you when to breathe in and out.

The radiotherapy planning appointment may take around 45 minutes.

If you are unable to hold your breath for the desired time, or the breath-holds are inconsistent, then breath-hold may not be appropriate for you. In this case, you will be scanned while you breathe normally. You should not worry if breath-hold is not used, as other methods are available to ensure the radiation dose to the heart is minimised.

## **What happens during my radiotherapy treatment?**

During the treatment, you will lie in the same position as the planning appointment. Once you have been positioned for treatment, the radiographers will ask you to hold your breath. This is so they can check the breaths you take are consistent. You will be asked to hold your breath a couple of times during this process.

Once the radiographers are happy with the measurements, they will leave the room to deliver the radiotherapy. The radiographers will give you instructions via a microphone and will instruct you when to hold your breath.

A camera will be focussed on you during this time to ensure your breaths are consistent. You will be asked to hold your breath several times during the treatment. You are in control of the breath hold process unless instructed otherwise. They will ensure you have a break between each breath-hold so you don't get too tired.

## What happens if I can't hold my breath during treatment?

The radiographers will be monitoring you the whole time and will be able to hear and see you to help guide you through the process. However, if at any time during your radiotherapy treatment you wish to breathe normally, you can let go of your breath and the machine will stop delivering the treatment until you are ready again. If you are unable to continue holding your breath, then this will be discussed with you. You will still receive the full course of radiotherapy treatment, however, there may be a small delay as we will need to perform another CT scan and re-plan your treatment. The rest of your radiotherapy treatment will be delivered whilst you are breathing normally.

## If you have any questions about this information then please contact:

Pre-treatment radiographers on 01772 523086/523684

### For general queries:

Radiotherapy reception/Transport queries 01772 522900

Radiotherapy appointment queries 01772 522931

## Sources of further information

[www.lancsteachinghospitals.nhs.uk/patient-information-leaflets](http://www.lancsteachinghospitals.nhs.uk/patient-information-leaflets)

<https://www.respire.org.uk/>

<https://www.macmillan.org.uk/>



**Lancashire Teaching Hospitals NHS Foundation Trust is not responsible for the content of external internet sites.**

## **Questions about cancer?**

We're here to help. The Macmillan Cancer Information & Support Service at Lancashire Teaching Hospitals is open to anyone affected by cancer and is situated both at Chorley Hospital & Royal Preston Hospital. Contact us on 01772 523709 or via [cancerinfocentre@lthtr.nhs.uk](mailto:cancerinfocentre@lthtr.nhs.uk)

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If you want to stop smoking you can also contact the Quit Squad Freephone 0800 328 6297.

Please ask if you would like help in understanding this information. This information can be made available in large print and in other languages

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