Oxford University Hospitals
NHS Trust

Radiotherapy Department

Deep inspiration breath hold (DIBH)

Information for patients
Radiotherapy (RT) is routinely planned using a CT scan, during which we place you in a comfortable position that can be reproduced for your radiotherapy treatment. You will need to be in this same position during your RT treatment, to make sure we are treating the correct area each time.

**What is deep inspiration breath hold (DIBH)?**

Deep inspiration breath hold (DIBH) is a technique whereby you hold your breath after taking a large breath in. We will ask you to do this during both the planning scan and your treatment. You will need to be able to hold your breath for up to 20 seconds each time. Not everyone will feel comfortable or be able to hold their breath for the required time. If you feel that you may not be able to do this, please speak with your Oncologists or radiographer.

**What is the advantage of DIBH?**

Research has shown that, by controlling the way you breathe during RT, it is possible to target the radiotherapy more accurately. This is because when you hold your breath you remain very still. This reduces the risk of the radiation damaging normal tissue and internal organs, such as the heart and lungs. When you carry out a DIBH this also moves your heart away from the radiotherapy field, all of which is helpful during the treatment.
Why have I been given this leaflet?
Your Clinical Oncologist has reviewed your case and has recommended using this technique to help optimise your treatment. DIBH is most commonly used in RT treatment for breast cancer, but it may also be helpful when treating other tumour sites.

How can I prepare for DIBH?
As this technique relies on self-control of your breathing pattern, you may like to practice holding your breath for 15-20 seconds after taking a deep breath in, while lying flat. Try to repeat this 3-4 times, as the average duration of RT treatment is approximately a couple of minutes. You could practice at home a couple of days before your RT planning appointment.
How do I know if I am holding my breath at the correct level?

Before your planning scan the RT radiographer will also practice with you. They will show you a visual aid of your breathing cycle, to guide you on how deep a breath to take. They will also make sure you are comfortable with the technique before going ahead with the scan.

A small box will be placed on your chest to record your chest wall movements. A special camera will record how this box moves when you breathe.

![Recording your chest movements](image)
A screen will display your breathing movements as a visual aid during your RT planning and treatment. You will know you are holding your breath at the correct level when the green indicator is within the blue bar.

This table shows an example of the visual aid used during DIBH. The dark area at the top of the table (blue on the screen) represents your normal breathing range. The smaller light coloured bar will move up and down as you breathe normally. It will start off below the dark area and will be yellow, to show that you are not yet in breath-hold position. The bar will rise as you start to breathe in. Once the yellow bar enters the dark area it will turn green; this shows that your breathing is at the correct level for carrying out a DIBH.

This system will also control the RT treatment machine, by making sure the treatment is delivered only whilst you are holding your breath at the correct level.
What happens during the radiotherapy treatment?

You will be asked to adopt the same position every time you come for your treatment. You will need to take a deep breath in, until your breathing cycle is within the correct level, and then hold your breath for up to 20 seconds. Treatment will be delivered during this time.

If at some point you need to breathe normally, the machine will automatically pause the treatment until you are ready to hold your breath again. The number of times you will need to hold your breath is variable, but will also depend on the length of time you are able to hold your breath for. Radiographers will be communicating with you through the intercom and monitoring you from outside the room, to guide you until treatment is completed.

What happens if I am not able to perform DIBH?

Do not worry. Your Clinical Oncologist will prescribe your treatment during your normal breathing. We will plan your treatment from a normal breathing CT scan to avoid any delays to your treatment. It is far more important that we are able to put you in a reproducible position and you are comfortable during treatment, so do not worry if you have not been able to perform DIBH.

Please speak with your Oncologist or radiographer if you have any further questions.
If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call 01865 221 473 or email PALSJR@ouh.nhs.uk

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