

Department of Respiratory Physiology and Sleep

Chest Physiotherapy: Cough Augmentation techniques

Lung Volume Recruitment

Introduction

For many people with a neuromuscular condition or a condition that affects your muscles, muscle weakness can affect your breathing muscles. This can mean that you may struggle to:

- Take a deep breath
- Breathe out effectively
- Cough effectively/strongly

This leaflet explains techniques that you can use to help assist with clearing your secretions or phlegm. This leaflet will help to remind you of the techniques you have been taught by your respiratory physiotherapist.

Lung Volume Recruitment

Lung volume recruitment refers to the process of increasing the amount of air you breathe in (recruitment). In order to take a big enough breath in, we need to use our breathing muscles, as well as abdominal (tummy muscles) and diaphragm. Neuromuscular conditions can make all of your muscles weak, including your breathing muscles.

If you are unable to open up or fully expand your rib cage due to muscle weakness you will struggle to take a big enough breath in and you will be



Patient Information

unable to get a big enough breath out to sufficiently cough. This may mean that secretions or phlegm collect in your airways and make it more likely you will develop a chest infection.

We all produce secretions from our lungs and saliva from our mouths. We are usually able to clear this by coughing or swallowing. However, if we have weak muscles we may be unable to clear these secretions or saliva. This can become uncomfortable as well as increasing the chances of developing a chest infection.

An effective cough

In order to produce an effective cough we need to ensure that three key components work together:

- A big deep breath in
- The voice box or glottis is able to close
- Air is forced out

We usually spontaneously cough when there is something irritating our airways (mucus, phlegm, saliva). We will automatically take a deep breath, our glottis will close and we will force air out. However, if we have weak muscles this may limit our ability to cough and clear whatever is irritating our airways.

If the respiratory muscles are too weak to cough effectively then we need to use techniques that your respiratory physiotherapist will teach you techniques to assist with coughing.

Lung Volume Recruitment bag

This technique uses a lung volume recruitment bag to force air into your lungs. Every person will have a slightly different regime with this bag and your physiotherapist will work with you to come up with the most suitable regime for you. This technique can take a while to get used to, the more you do it, the better you will become.

How to use the lung volume recruitment bag

Equipment needed:



Mouth Piece



Nose Clip



LVR Bag with Mask

Technique

1. Sit as upright as possible.
2. If you are unable to use the LVR bag yourself agree on a signal with the person using it so that they know when your lungs are full. This may be a blink or raising your eyebrows etc.
3. Take a deep breath in and hold it.
4. If you are using a mouthpiece put the nose clip on securely and ensure you make a tight seal around the mouthpiece. If you are using a facemask put this over your mouth and nose ensuring a tight seal.
5. Gently squeeze the bag and time this with your breath in.
6. Repeat until your lungs are full.
7. You may feel a stretch in your lungs or chest. This is normal but it should not be painful. Stop if it becomes painful.
8. Exhale or cough as desired.

Patient Information

Your prescription is:

Interface: Mouthpiece + Nose clip/Facemask

Regime:

	Times per day
	Breaths in
	Manually assisted cough
	Repeat cycles

You must stop the treatment if you experience any of the following:

- Dizziness
- Chest pain
- Blood in secretions

If the symptoms persist please contact your GP for advice.

Feeling unwell?

If you begin to feel unwell please contact your GP or NHS 111 and seek advice. If you become acutely unwell and require admission to hospital please take your lung volume recruitment bag with you.

How often should I clean my mask/mouthpiece and change LVR bag?

Your LVR bag must be changed every 3 months. Please contact the respiratory physiology department on **02476 966734** and request a replacement. You must wash your mask/mouthpiece on a daily basis with warm soapy water and allow to dry prior to using again.

IMPORTANT

Due to the one-way valve on the LVR bag it must NOT be used for resuscitation in the event of emergency. Please ensure your LVR bag has a sticker on it denoting this.

The LVR bag should only be used by those trained and deemed competent to use it.

The Trust has access to interpreting and translation services. If you need this Information in another language or format please contact 02476 966 734 and we will do our best to meet your needs.

The Trust operates a smoke free policy.

Document History

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