

A Guide to Chest Clearance Techniques

Sputum, Phlegm or Mucus all commonly used words for the same thing.

The respiratory system has a coating of mucus from the nose to the smallest air-sacs. There are small cells (Goblet cells) that produce sputum and small hair-like cells (cilia) that move the sputum along the tubes, into the back of our throat where it is usually swallowed along with the saliva in our mouth.

Sputum has two main functions:

- To protect the airways from irritants
- To humidify the air- making it easier for oxygen to pass into the blood

Sputum is essential for us to be able to breathe efficiently, however a build-up of sputum in the lungs can result in difficulty in breathing and repeat infections. The lungs may produce more sputum than usual due to:

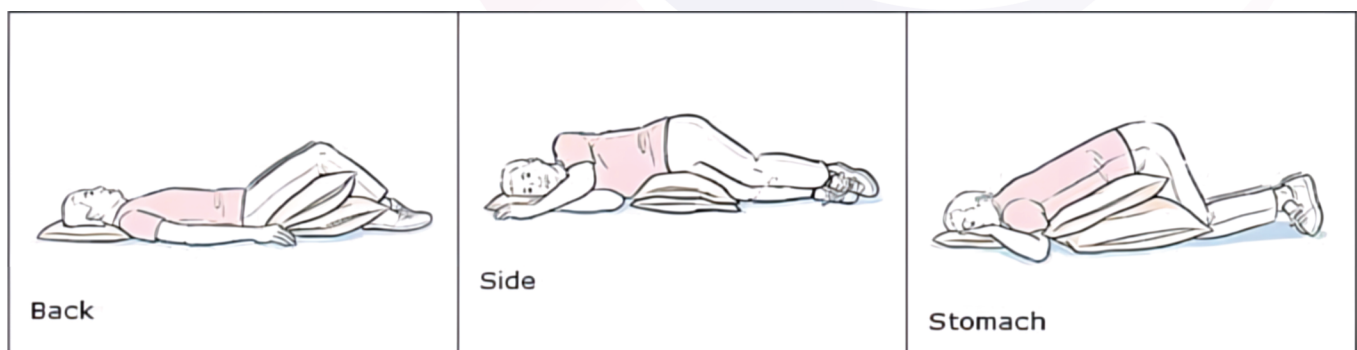
- Smoking and pollution
- Respiratory conditions e.g. Asthma, Bronchiectasis, Cystic Fibrosis
- Chest Infections including Pneumonia

Chest Clearance Techniques are designed to help remove sputum and keep the lungs clear.

Postural Drainage

As sputum is a fluid it lies in the bases of the different areas of the lungs. If you spend most of your time sitting up, including being propped up at night, the sputum may build up, in the bottom of both lungs. Changing our body's position allows the effect of gravity to help move sputum, making it easier to clear. Lying down at night helps to keep our chest clear.

There are specific positions for different areas, or segments, of the lung but any change in position for a short period during the day will help. **Try lying on your side on the sofa while watching television.**



If you have trouble with Heart-burn and reflux, or have a Heart Condition then tipping is not recommended. The important thing to remember is that you must feel comfortable.

Breathing Exercises to help Remove Sputum

Air flowing in and out of the lungs helps the cilia move sputum up the trachea (wind-pipe) where it can be swallowed or removed by coughing. Breathing into different parts of the lungs in a specific order can help speed this natural process. When using breathing exercises to remove sputum, it is important that you maintain a good pattern of breathing and keep the stress of coughing to a minimum.

Breathing Control

This is gentle breathing. Breathe in and out through the nose if you can. Feel your belly rise as you breathe in and sink as you breathe out. The breath should be gentle, quiet and regular. (see **The Guide to Optimal Breathing** Leaflet)

Thoracic Expansion Exercises (Bigger breaths)

larger controlled breaths to move the sputum into the larger airways.

Breathe in and out through your **nose** - take a slow, large breath in, hold for the count of 3 if you can and then breathe out gently. The cycle of breathing should be controlled, try to keep the noise of the air passing in and out **silent**. Repeat up to 3 times only.

Forced Expiratory Technique

a forced breath out to move the sputum up the airway. It is also known as a **Huff**. Breathe in through your nose (as if smelling a rose) then with your mouth open force the air out (as if trying to steam up a mirror).

There are 2 types of huff (slow which clears the lower lungs and fast which clears upper lungs):

1) Slow - small breath in and then a LONG, slow huff out - to clear the bottom of your lungs or to the level of your sputum. Repeat and then rest.

2) Fast - breathe in and then a short, fast huff out - to bring the sputum up into the upper airway. Repeat if you need to and then cough the sputum out. Rest as you need to between huffs and coughs.

One good cough should be enough to clear the sputum from the airway- Try to avoid excessive coughing.

If you have to cough at anytime during the cycle always return to the breathing control exercise and start again. At no time should you feel dizzy- if this happens reduce the size and number of the breaths.

Inhalers and nebulizers - use reliever inhalers (e.g. ventolin) or nebulisers (e.g.saline) before chest clearance. Always take your steroid inhaler after the chest clearance (e.g Clenil, Fostair, Spiromax, Relvar) Medication such as Carboceistine (mucodyne) can help to loosen sputum - ask your Doctor.

Anti- reflux medication should be taken regularly.

Frequency - if you produce a lot of sputum you should aim to do your Chest Clearance twice a day. If you have an infection or an exacerbation (worsening) of your symptoms you should increase the frequency.

Hydration- **make sure you drink plenty of water** helps keep the sputum loose. Have a drink of water before you start and take sips after each cough

Please note this is an overview of how to keep your chest clear.

For more information please speak to your Physiotherapist or your Doctor

Quick Summary chest clearance:

- Breathing control for 1 minute (good relaxed breathing)
- 3 Thoracic Expansion breaths (big breaths)
- 2 slow, long huffs and then 2 fast, short huffs
- 1 Cough if you can feel the phlegm in upper chest
- Repeat until your chest feels clear