

Airway Clearance: Why, When and How

NOTE: PLEASE CONSULT YOUR PHYSICIAN BEFORE TRYING ANY OF THESE TECHNIQUES.

NOTE: IF YOU HAVE RECENTLY OR ARE CURRENTLY COUGHING UP ANY BLOOD, DO NOT USE ANY AIRWAY CLEARANCE TECHNIQUES UNLESS DIRECTED TO DO SO BY YOUR DOCTOR.

Why?

What is Airway Clearance?

It is clearance of mucus or sputum from the lungs and/or airways. Respiratory tracts continuously produce mucus that is a part of our immune system. Inhaled particles, including bacteria, get trapped in this mucus and are normally swept up by the beating action of little hairs called cilia. Once pushed through the air sacs, small and large airways, a cough completes the process of expelling mucus and it is this combination that is called airway clearance.

The Importance of Airway Clearance

Coughing makes breathing easier, opens airways, and rids lungs of infected material. It also gives antibiotics more room to work. If we don't cough and clear our airways breathing can become more difficult and the normal exchange of oxygen and carbon dioxide may be compromised. You may feel some shortness of breath if the airways and lungs are not cleared of excess mucus. Also, bacteria may be trapped in the lungs with the potential for causing respiratory tract infections. Repeated episodes of infection may result in lung damage.

Effective airway clearance, (also referred to as pulmonary or respiratory hygiene or therapy) is often an important part of the overall treatment plan for patients with NTM and especially for those with bronchiectasis. Whether you have a productive cough that produces thick or excessive sputum, or a dry unproductive cough that does not produce sputum, airway clearance techniques can help keep airways clear and open by inflating the airways and helping to prevent mucus from plugging the small airways.

Even if your cough is not normally productive, your doctor may suggest respiratory therapy to help keep the small airways open and clear.

When?

It seems that we (those of us who cough) have different times of day that we are able to expectorate, clear or bring up mucus (sputum). If you observe when your cough is most productive you will know when your airway clearance therapy can be most productive.

How?

HYDRATION Make sure you are fully hydrated. DRINK fluids – but DRINK the right fluids! Drinking water or juice helps hydrate the lungs and soften mucus. Limit coffee, cola, and alcohol (they dehydrate). You should strive to drink as much as recommended by your doctor. In some instances, your doctor may limit fluid intake due to other medical conditions therefore the amount you should drink should be discussed with your doctor.

EXERCISE As directed by your doctor to expand your lungs. Patients usually start slowly, doing five to ten minutes of exercise per day, and add two minutes every day, until exercising as much as the doctor or respiratory therapist recommends. (Stationary bikes, treadmills, shopping malls all work well).

CLEARANCE DEVICES, POSITIONS & TECHNIQUES There are a number of ways to promote effective coughing and lung or airway clearance:

Chest Physical Therapy. Chest PT is manual percussion on the back and chest in various spots and in various positions. Your doctor or respiratory therapist will direct you on this technique depending on where the areas of mucus are. This is generally followed by several huff coughs. A “Huff” cough is a cough where you deliberately, quickly and forcefully breath out make a huffing sound (with a big breath), which helps bring up the mucus (sputum) that has been loosened by chest percussion.

P.E.P. Valve; Acapella Valve; Flutter Valve. These are several devices available for use in inflating airways and loosening secretions that are stuck in the lungs and airways. After using any of these devices a “huff” cough may help get the mucus out.

Each of these devices has slightly different ways of assisting airway clearance. With each you take a deep breath, hold for ten seconds, and push the air out into the mouthpiece of the valve or device for as long as possible. This is not unlike blowing up a balloon. This action will also inflate alveolae (small airways) that are narrowed or have collapsed in the lungs, possibly trapping infected secretions.

Vest. This is a mechanical device that is worn like a vest and applies pressure on the lungs and airways. The vest generates high frequency oscillation or movement of the chest wall by rapid movement to loosen and thin secretions so they can be mobilized to be expelled or coughed out. It may also be followed by use of a positive expiratory pressure device (Pep Valve) and huff coughs, to get rid of mucus.

Lying down with the head lower than the feet utilizes gravity to help move sputum out. This is called the trendelenberg position and can be on the back or either side depending on where the infected area is. Your respiratory therapist will instruct you on this positioning and can explain various ways to get into this position. Use of trendelenberg positioning may be done by itself or

while using one of the devices noted above as determined by the prescribing health care professional.

Any of the above might be done several times daily as directed by your doctor or respiratory therapist. Any airway clearance therapy should only be undertaken on the advice of your doctor. Check with your health care professional before commencing or continuing any airway therapy if you cough up blood or if there is blood in your sputum.

Keep in mind: the more mucus (sputum), you get out, the less trouble it will cause you. Only perform those airway clearance techniques recommended by your doctor or respiratory therapist.

RECAP: The Coughing Recipe

Incorporate the exercise and drinking of fluids into your daily living.

Use the technique and devices as advised by your doctor or respiratory therapist.

Make sure you huff cough when finished.

Keep your airway clearance device clean in accordance with the instructions. If you are unsure, ask how to maintain the airway device you are using.

Other Ideas Reported by Patients

Some people add additional ingredients to the airway clearance recipe. These include eating cold watermelon, other melons or fruit.

Some patients have reported cold drinks or foods can cause a bronchospasm and induce a productive cough.

Notice

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