

Bronchial Hygiene Therapy (BHT)

Airway Clearance



Definition

A variety of noninvasive techniques designed to improve gas exchange by helping mobilize and remove secretions (mucus) known as Airway Clearance Techniques-ACT

Airway Clearance Techniques-ACT techniques

1. Chest Physiotherapy (CPT)- percussion, vibration & coughing techniques
2. Breathing exercises-Controlled coughing & huffing

Phlegm vs Mucus

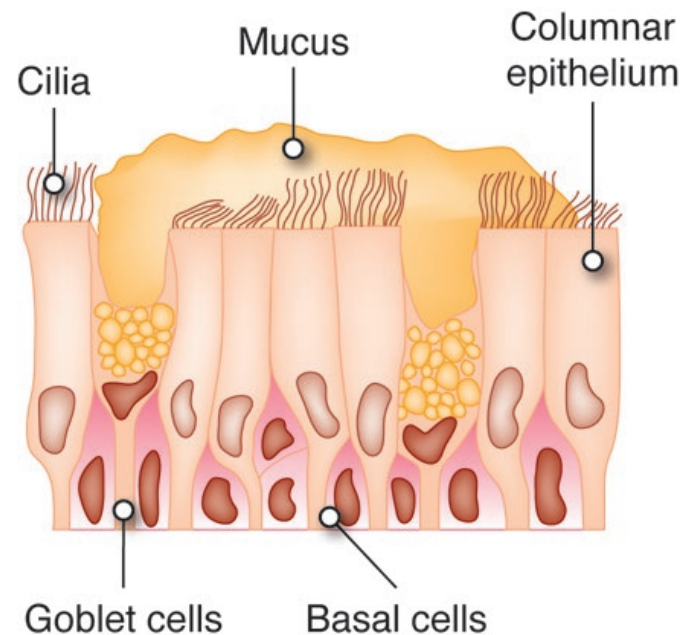
Phlegm: The definition is limited to the mucus produced by the lower respiratory system (everything below the voice box)

Mucus: called other things, is normally assigned to nasal discharge (upper respiratory tract)

They are in essence the same

Where does it all come from???

- Phlegm is produced by cells called Goblet cells
- Healthy phlegm is normally clear or pearly white



Why do we have phlegm & what is it made of ???

- Phlegm is a combination of 98% water, 1% salt & the rest is glycoprotein's, DNA debris, and other substances
- Mucus is one of our “first line” defense systems
- It is meant to capture viruses or bacteria like flies to fly paper. Then when it’s expelled from your body, so are the germs

What Your Phlegm Color Says About Your Health





Checking your mucus color

“Running water never runs stale.” If mucus is stuck due to a lack of ciliary movement you’re leaving harmful particles just sitting in your lungs. You must get it out of there!!

**QUICK COLOUR CHART
(AKA THE PHLEGM CHEAT SHEET)**

COLOUR	TEXTURE	STATUS
Clear	Thin	Healthy & normal
White/Grey	Thick & cloudy	Onset of nasal congestion or a viral infection/cold
Yellow	Thicker	Immune cells arrive, fight, die & are carried off in the mucus, turning it yellow
Green	Even Thicker	Higher concentration of immune cells as the attack intensifies
Red	Frothy	Presence of blood, may indicate a serious condition. Seek medical advice/go see your doctor

Phlegm

- Yellow phlegm means the immune system is working and could be a sign of dehydration or infection
- Greenish or brownish phlegm is almost always a sign of infection
- Rusty colored phlegm could be an indication of pneumonia
- Smokers or former smokers may cough up brown or grey. COPD patients may cough up phlegm with streaks of blood. **But** coughing up a significant quantity of blood is a sign of a serious medical issue and one should seek medical attention immediately
- One should note the consistency of sputum. Thick (dehydration), chunky (could be a mucous plug), and smell

How to get it moving and expelled:

- Controlled Cough/Huffing techniques
- Postural Drainage
- Chest Physical Therapy (Percussion, Vibration Therapy)
- Nasal sprays or nasal wash-Neti Pot
- Vibratory PEP /Flutter valve-ie Aerobika (OPEP), Acapella, VibraPEP or D.R. Burton (V-PEP)
- CF (Cystic Fibrosis) or Smart Vest



Controlled Coughing Technique

Sit on a chair on the edge of your bed, with both feet on the floor. Lean slightly forward. Relax (shoulders down).

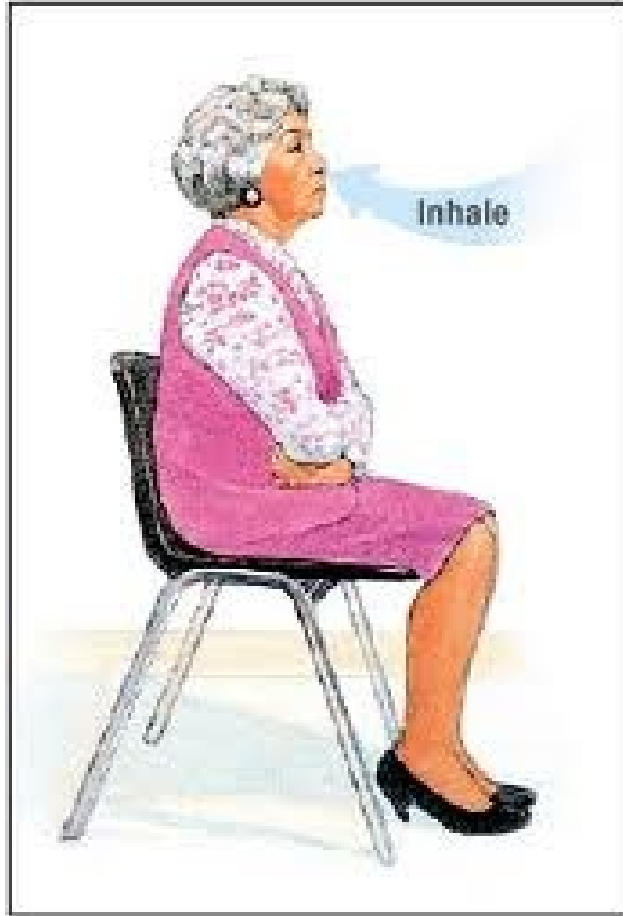
2. Fold your arms across your abdomen and breathe slowly through your nose. (The power of the cough comes from moving air)

3. To exhale: lean forward, pressing your arms against your abdomen. Cough 2-3 times through a slightly open mouth. Coughs should be short and sharp.

4. Breathe in again by “sniffing slowly and gently through your nose”, this prevents mucus from moving backwards.

5. Rest

Controlled Coughing Technique



Controlled Coughing Outcome

- The first cough loosens the mucus and moves it through the airways. The second and third cough enables you to cough the mucus up and out
- This coughing maneuver saves energy and effort to get maximum results



Huffing

- Huffing, also known as huff coughing, is a technique that helps move mucus from the lungs. It should be done in combination with another ACT.
- It involves taking a breath in, holding it, and actively exhaling. Breathing in and holding it enables air to get behind the mucus and separates it from the lung wall so it can be coughed out.
- Huffing is not as forceful as a cough, but it can work better and be less tiring. Huffing is like exhaling onto a mirror or window to steam it up.

Huffing Technique



The Huff Coughing Technique:

1. Sit up straight with chin tilted slightly up and mouth open.
2. Take a slow deep breath to fill lungs about three quarters full.
3. Hold breath for two or three seconds.
4. Exhale forcefully, but slowly, in a continuous exhalation to move mucus from the smaller to the larger airways.
5. Repeat this maneuver two more times and then follow with one strong cough to clear mucus from the larger airways.
6. Do a cycle of four to five huff coughs as part of your airway clearance.

The Neti Pot

- This modality is thousands of year old! But it works at clearing the nose, and nasopharynx
- This also reduces inflammation in the nasal cavity

Use boiled water or water labeled as distilled or sterile



Vibratory PEP/Flutter Valves

- This will cause vibrations inside your lungs that simulates a bunch of mini coughs
- This will help mobilize secretions and probably cause you to cough, BUT when you cough you should have phlegm to cough up

