



## Autogenic Drainage

Autogenic drainage (AD) means self-drainage. It uses controlled breathing to move mucus. It was first developed in the 1960s. Today it is used to treat patients with large amounts of thick mucus. AD has certain rewards over other methods of airway clearance. The patient can use it alone in a sitting position without any machines or tools.

This is a "concentration intensive" method used by people with cystic fibrosis. Patients who can learn AD are 12 years or older. They must be able to learn a new breathing pattern. AD training may require one or two sessions with an instructor.

AD uses air that you breathe out to move mucus from the smaller airways to the central airways. Once it is in the central airways it can be cleared out. There are three phases of the breathing exercise:

- "Unsticking" the mucus in the smaller airways by breathing in the base of your lungs,
- "Collecting" the mucus from the middle airways by breathing at low to mid lung levels,
- "Evacuating" the mucus from the central airways by breathing at mid to high lung levels.

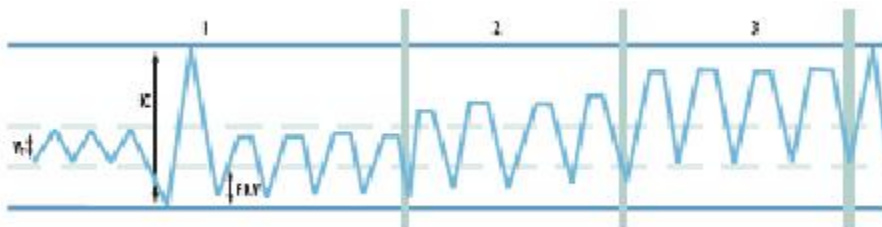
### Instruction:

#### Posture

1. Choose a breath-stimulating position like sitting or reclining. Relax, with the neck slightly extended.
2. Clear your nose and throat by blowing your nose and huffing.

#### Breathing in

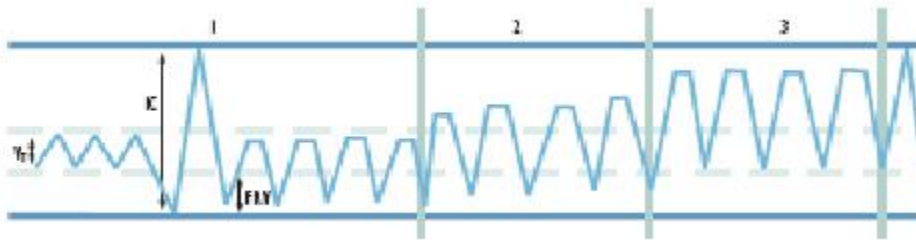
3. Slowly breathe in through the nose to keep the upper airways open. Use the diaphragm and/or the abdomen if possible.
4. First take a large breath in, hold it for a moment. Breathe all the way out for as long as you can. Now you are at low lung volume. See picture below. The size of breath and level at which you breathe depends on where the mucus is located.



5. Take a small to normal breath in, and pause. Hold your breath for about 3 seconds. All the upper airways should be kept open. This improves the even filling of all lung parts. The pause allows time for the air to get behind the mucus.

## Breathing out

6. Breathe out through the mouth. Keep the upper airways open. This is your glottis, throat and mouth. Breathing out is done in a sighing manner. When you force your breath out the airways can collapse. You will hear a wheeze.
7. At low lung level breathing use your abdominal muscles. Squeeze all the air out until you can breathe out no more.
8. You hear the mucus rattling in the airways when breathing the right way. Put a hand on your upper chest, and feel the mucus vibrating. High frequencies mean that the mucus is in the small airways. Low frequencies mean that the mucus is in the large airways. Using this feedback lets you easily adjust the technique.
9. Repeat the cycle. Inhale slowly to avoid sending the mucus back down. Keep breathing at the low level until the mucus collects and moves upward. Signs of this are:
  - o Crackling of the mucus can be heard as you exhale.
  - o You feel the mucus moving up.
  - o You feel a strong urge to cough.
10. The level of breathing is raised when any of the above occurs. Refer to the picture below. Moving the breathing from lower to higher lung area takes the mucus with it.



11. Finally the collected mucus reaches the large airways where it can be cleared by a high lung volume huff. Don't cough until the mucus is in the larger airways. Cough only if a huff did not move the mucus to the mouth.
12. You have now finished one cycle. Take a break of one to two minutes. Relax and perform breathing control before you start on the next cycle. The cycles are repeated during the session. A session lasts between twenty to forty-five minutes or until you feel all the mucus has been cleared. Do sessions of AD more often if you still have mucus present at the end of a session.

## Summary

To get ready for AD, relax, sit comfortably, and perform slow - controlled deep breathing.

The Three Lung Levels of Autogenic Drainage:

Level One: "Unsticking" of mucus by low lung level breathing. First, exhale completely; inhale a small to normal breath. Hold the breath for 1-3 seconds, then exhale completely again. This step is repeated for 1-3 minutes. Repeat until crackles are heard when breathing out.

Level Two: "Collecting" the mucus in larger or mid-sized airways. Take in a slightly larger breath. Hold for 1-3 seconds, and then exhale, but not as low as in level one. Repeat this step for 1-3 minutes. Listen for crackles at the end of exhaling. Continue for 2-3 more breaths. Then proceed to level III.

Level Three: "Evacuating" the mucus in the central airways is achieved by breathing at normal to high volumes. Take in a slow deep breath. Hold the breath for 1-3 seconds. Exhale forcefully with open glottis. This moves the mucus into your mouth. Then spit it out into a container or tissue.

Each level requires about 2-3 minutes. The full cycle takes 6-9 minutes. When mucus is felt in the larger, central airways, do 2-3 effective "Huff" type coughs. The Huff cough uses the mid to high lung volumes of level III.

Coughing should be avoided if possible in levels I and II. Do 2-3 Huff coughs if you must cough.

## **Important Remarks**

1. When mucus has been cleared out as described, some of the remaining mucus has moved partially up the respiratory tract. This makes the collection and clearing of the next mucus plug easier and quicker.
2. In AD, it is best to first clear mucus from the small airways. Using low lung breathing, the flow rates in the larger airways are also affected. Some mucus moves in all of the levels at the same time. If the urge to cough is too strong that mucus should be cleared first.
3. Patients being introduced to AD can have problems breathing at low-lung volumes. You may begin to breathe at your natural tidal volume level. Slowly go down to low levels. You will find that breathing out deeply is not as difficult as your skill increases.
4. The larger and thinner the mucus plug, then less force is needed to move it upwards.
5. The length of an AD session depends on the amount and thickness of the mucus. Skilled patients drain their lungs quicker than others. Drainage should always be done thoroughly. This way lung function will improve over time. You should never do more than 1 hour per session. AD may be done at any time of day.
6. Patients who clear well, improve their lung function. This improves their activity level which helps with drainage during the day. The airways remain clearer over a longer period of time.
7. To practice these techniques you need to have the correct breathing pattern. Breathing re-education, thoracic mobility exercises, relaxation training and physical activities, are important for aiding the movement of mucus.
8. Aerosol therapy improves drainage when it reaches the parts of the lung where it is needed. Clearing your airways with AD makes it easier to get the aerosol where it needs to be.

## **Conclusion**

Autogenic Drainage is a series of breathing rules. Every patient develops their own personal method based on their own understanding and state of health.

As a team, the patient and their Respiratory Therapist work to find the best technique. If you have questions or concerns please contact your Respiratory Therapist for assistance.