St Elizabeth Hospice

Therapy Team

Breathlessness

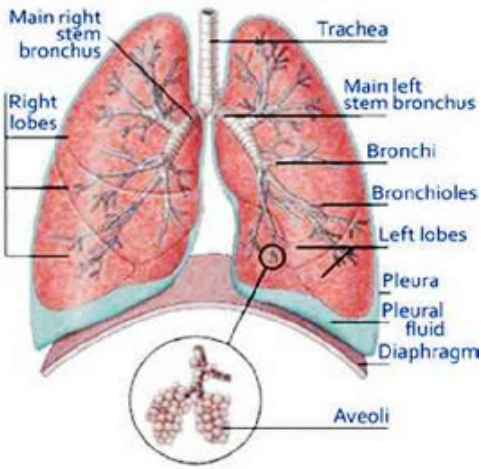
What is **breathlessness**?

The sensation of difficult or uncontrolled breathing at rest or during activity. During times of illness this can happen at a lower level of physical activity than previously experienced.

Mechanics of **breathing**

The principal function of the lungs is to transport oxygen from the atmosphere into the bloodstream and to release carbon dioxide from the bloodstream into the atmosphere.

Breathing is largely driven by the muscular diaphragm at the bottom of the chest cavity. Contraction of the diaphragm causes the diaphragm to flatten which increases the volume of the chest cavity, decreasing the pressure which causes you to breathe air in. The muscles between the ribs (intercostal muscles) also contribute by helping to stabilize the rib cage.



When you are breathless accessory muscles in the neck (scalene and sternocleidomastoid muscles) also contract to lift the top of the chest, however these muscles tire quickly as they were not designed to help with breathing and were mainly designed to assist neck movement.

Air travels through the mouth or nose into the trachea (windpipe), to the bronchi, bronchioles and finally the alveoli.

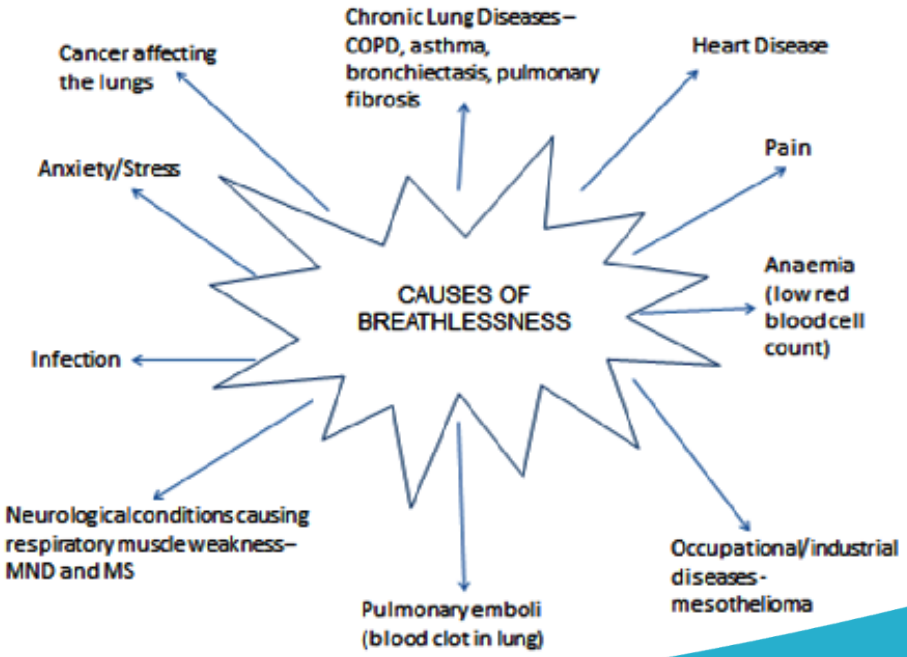
At the alveoli oxygen is transferred from the air into the blood stream and carbon dioxide is transferred from the blood stream into the lungs so it can be exhaled.

Breathing out (exhalation) is mostly passive by the diaphragm relaxing and this elastic recoil decreases the space in the chest cavity and 'squeezes' the air out.

When you are breathless often accessory muscles are activated to assist with breathing out. These compress the abdominal compartment and decrease the size of the chest cavity to squeeze the air out.

Causes of **breathlessness**

All of the causes will disrupt a part of the above cycle, and will increase the breathing rate and therefore cause breathlessness.



Managing **breathlessness**

1. Find a position which relieves the breathlessness efficiently (see hand out)
2. Use a hand held fan
3. Breathing exercises to help with relaxation and control the breathing rate e.g. counted breaths, oblong breathing (see hand out)
4. Practice breathing control (see hand out)
5. Keep hydrated to manage chest secretions
6. Active cycle of breathing technique to help clear secretions which may be causing breathlessness
7. Relaxation
8. Pacing activity
9. Remain as active as possible to prevent muscle weakness

The **heart**

Blood coming from the body to the lungs in order for the carbon dioxide to be exhaled, first enters the right atrium via the superior vena cava.

It then moves to the right ventricle which pumps the blood from the heart to the lungs via the pulmonary artery. The carbon dioxide is exchanged and exhaled and the oxygen is transferred to the bloodstream from the lungs.

This oxygenated blood leaves the lungs through the pulmonary vein and enters the left atrium. It is then transferred to the left ventricle where it is pumped around the body.