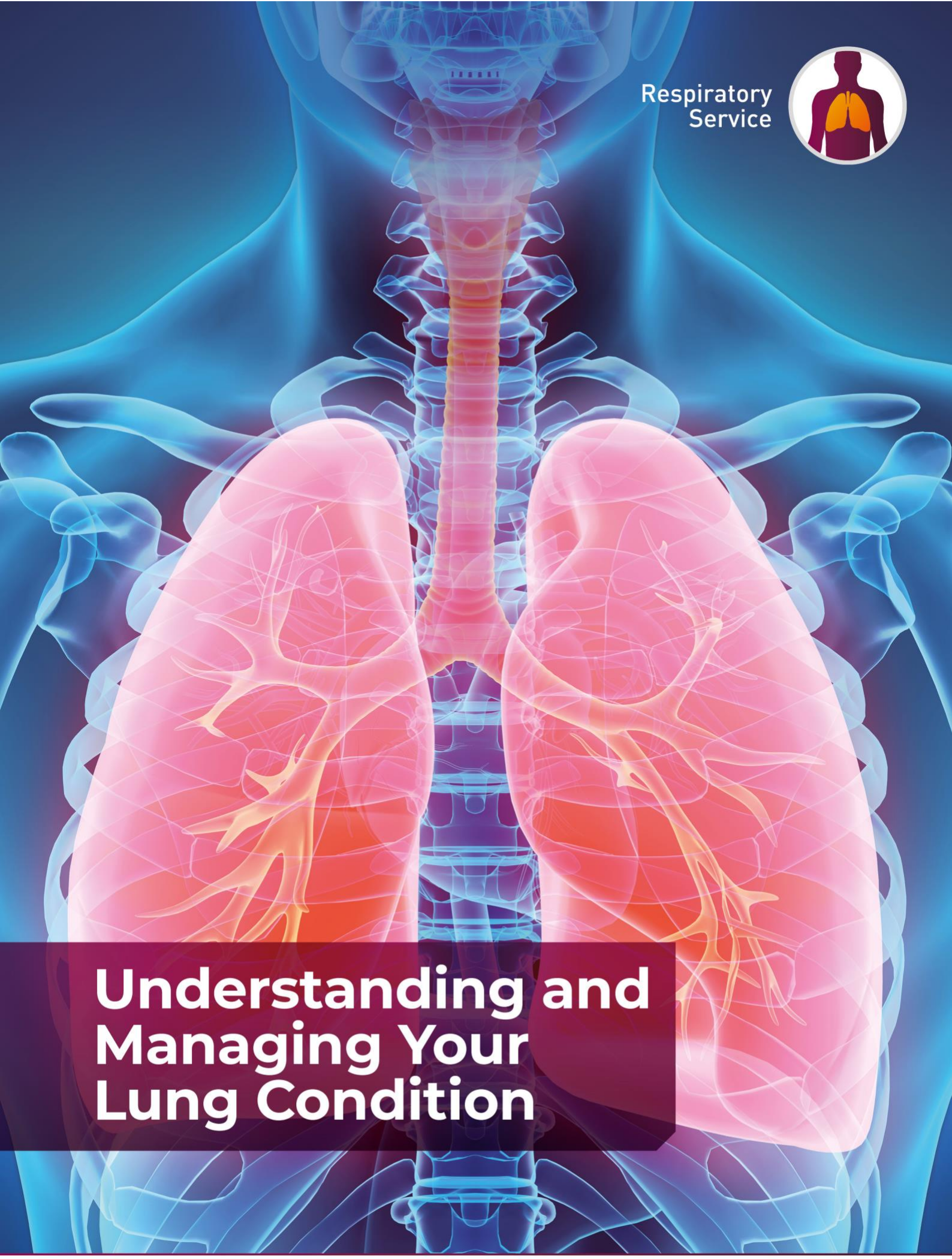

Understanding and Managing Your Lung Condition

providehealth.org.uk

Provide Health

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Contents

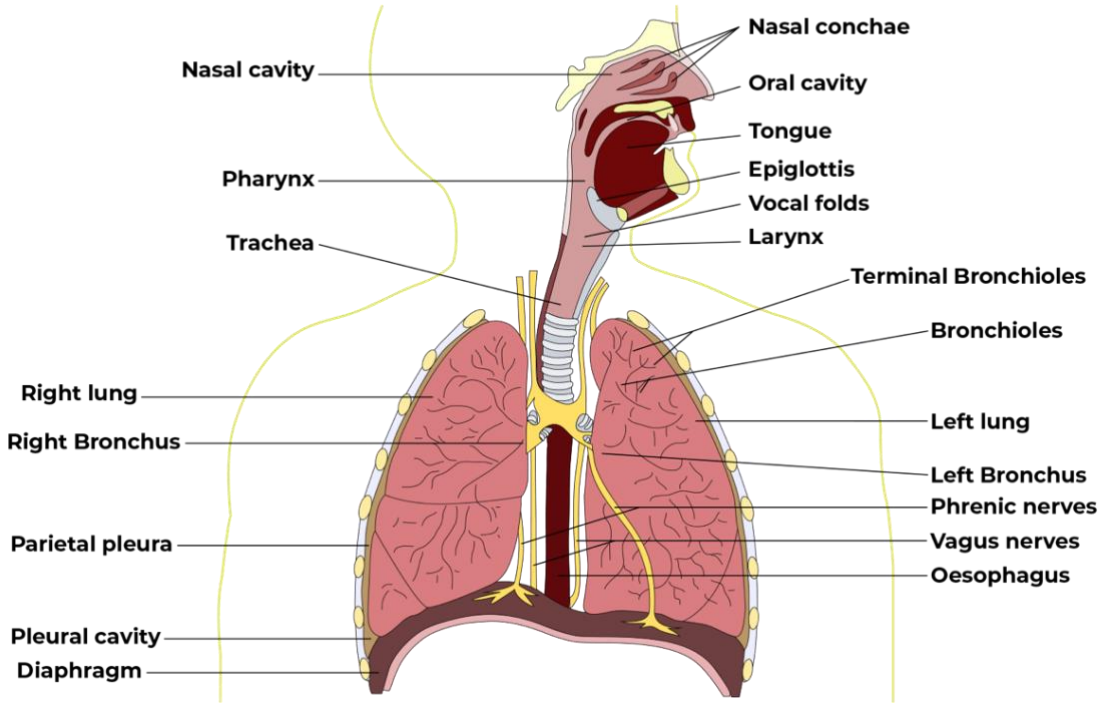
Introduction

The Respiratory Education Day is designed for people, their families and/or carers to increase understanding of respiratory disease and how this can affect everyday life.

It is vitally important to understand medical conditions in order to manage them successfully on a day-to-day basis, have less exacerbations or infections and less risk of admission to hospital.

This booklet is to serve as an aid to your learning and something that can be used to help you manage your breathing.

How the lungs work

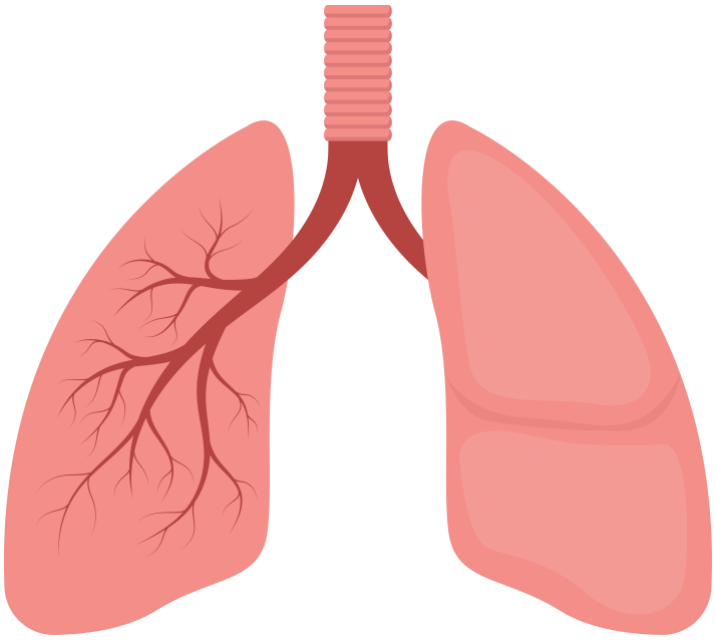


The lungs are the main organs of the respiratory system. When we breathe in, air enters our lungs and oxygen in the inspired air moves into the bloodstream for our body to use. At the same time the waste gas (carbon dioxide) passes from the bloodstream into our lungs where it is expelled when we breathe out.

The Respiratory system is made up of many different parts: *nose, mouth, throat, larynx (voicebox), trachea (windpipe), bronchi & bronchioles (large & small airways), alveoli (air sacs), and the lungs.*

Air passes through the nose where it is warmed, moistened, and filtered. It travels down the back of the throat through the larynx into the trachea. The trachea branches as it reaches the lungs into left and right tubes called bronchi. These tubes then keep dividing into smaller tubes called bronchioles getting smaller and smaller like the branches of a tree. At the end of the smallest tubes are air sacs called alveoli. This is where gases are exchanged. Hairlike projections called cilia aim to clear mucus from the airways and filter the air we breathe in.

The lungs are surrounded by two layers of tissue called pleura which secrete a small amount of fluid which acts as a lubricant. This helps the lungs to move smoothly whilst breathing.

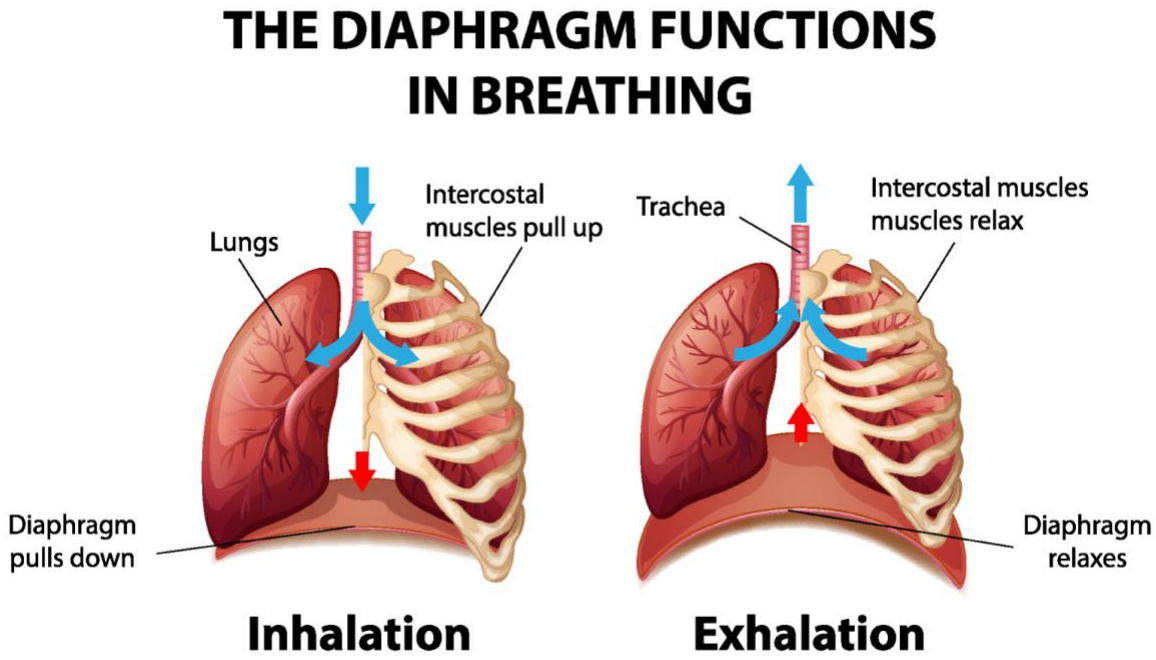


How we breathe in and out

The main muscle used in breathing is the diaphragm. The muscles in between the ribs (intercostals) help to pull the ribs up and out.

***As we breathe in*:** the ribs move up and out, the diaphragm flattens and the lungs expand pulling in the air.

***As we breathe out*:** the ribs move down and in, the diaphragm moves up and the lungs contract down expelling the air.



Lung Conditions

There are many lung conditions but for the purpose of this booklet we will be discussing the following:

- Asthma
- Chronic Obstructive Pulmonary Disease (COPD)
- Bronchiectasis
- Pulmonary Fibrosis

Asthma

Asthma is a long-term condition that affects both children and adults. The air passages in the lungs become narrow due to inflammation and tightening of the muscles around the smaller airways. Symptoms come in episodes and usually when exposed to trigger factors. Triggers can make symptoms worse and vary from person to person.

Triggers:

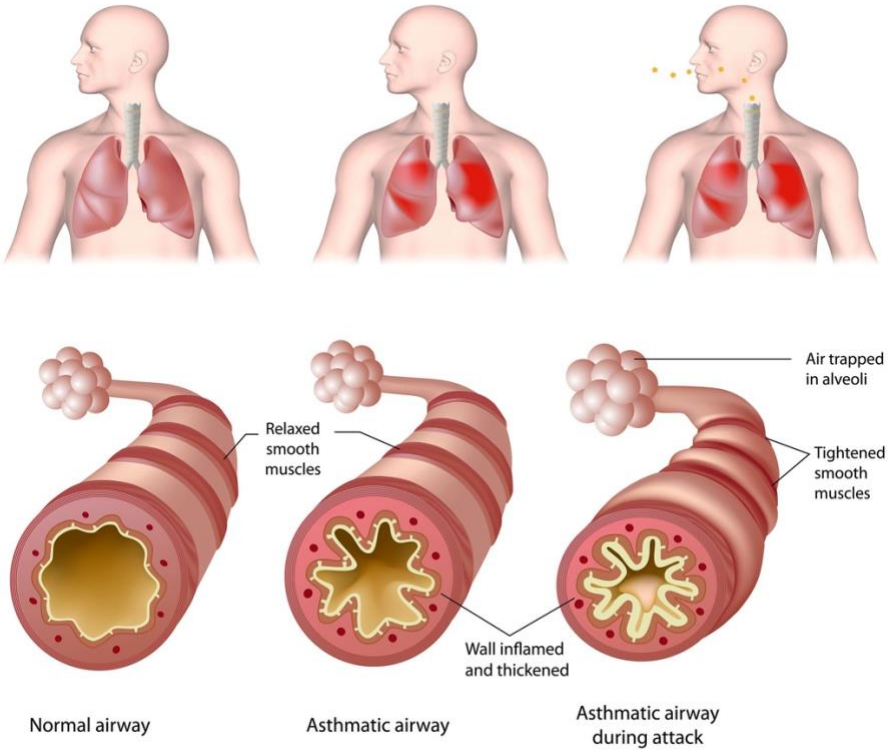
- Tree and grass pollens
- House dust mites
- Animal fur and feathers
- Smoke
- Viral infections (colds)
- Changes in the weather: hot/cold, thunderstorms
- Strong soaps and perfume

Episodic Symptoms:

- Cough
- Wheeze
- Chest Tightness
- Shortness of Breath

What happens to the airways in Asthma?

The lining of the airways become swollen and inflamed producing more mucus and the muscles tighten causing the airways to narrow.



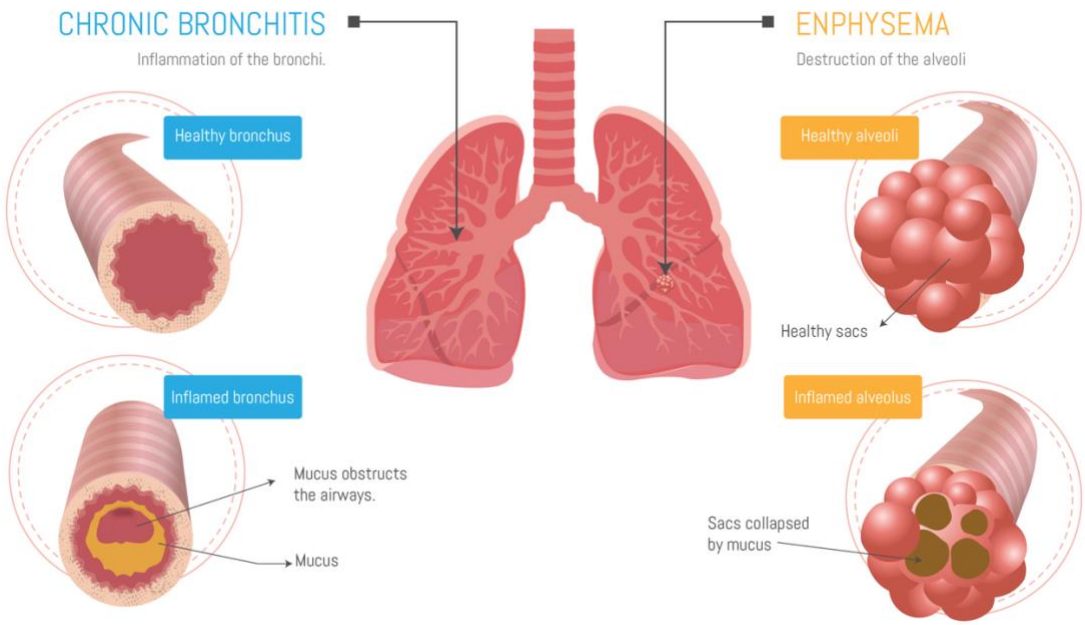
Chronic Obstructive Pulmonary Disease (COPD)

COPD describes a group of lung conditions that make it difficult to move air in and out of the lungs because the airways have become narrowed.

- Chronic = Long term condition
- Obstructive = Airways are narrowed
- Pulmonary = Affects your lungs
- Disease = Medical condition

Chronic Bronchitis : Airways are inflamed and narrowed. People often produce more sputum (phlegm).

Emphysema: Affects the tiny air sacs (alveoli). The walls of the air sacs are damaged and lose their elasticity so air becomes trapped. Remember-this is where the oxygen and carbon dioxide goes in and out of the bloodstream.



COPD Symptoms:

Common Symptoms include:

- Cough
- Sputum production
- Breathlessness (often worse with activity)
- Recurrent chest infections

Possible causes of COPD:

- Smoking
- Occupational Exposure
- Indoor Pollution (wood fires)
- Undertreated Asthma
- Genetics (Alpha 1 Antitrypsin deficiency)
- Lung development

Bronchiectasis

If you have bronchiectasis your airways are widened and inflamed and produce large amounts of sputum (phlegm). This phlegm may get trapped in the airways and increase your risk of an infection.

Symptoms:

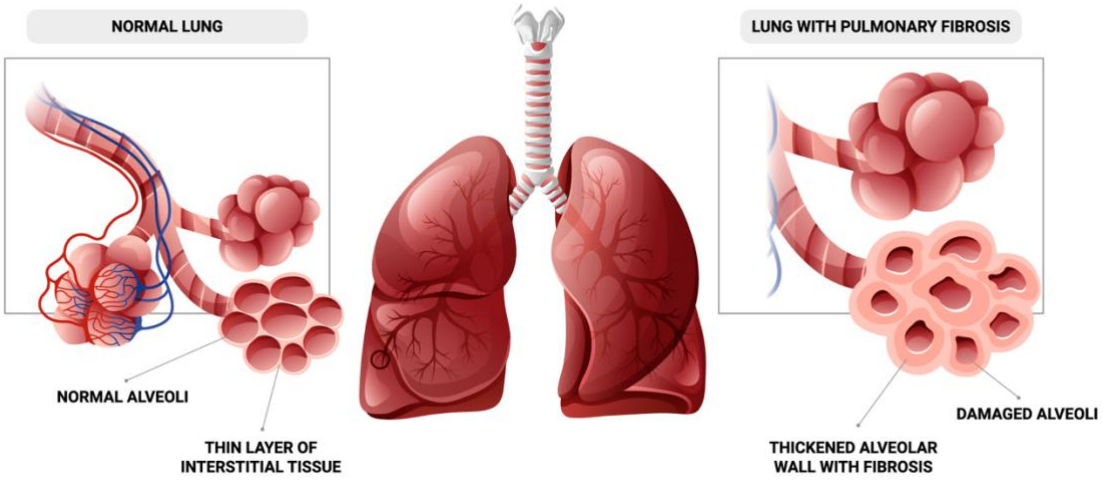
- Productive cough
- Large volumes of sputum (phlegm)
- Frequent chest infections.

Causes of Bronchiectasis:

- Not known (Idiopathic)
- Previous severe lung infection (Pneumonia, Whooping cough, Tuberculosis)
- Gastric reflux
- Some illnesses are linked to bronchiectasis and there are other less common causes.

Pulmonary Fibrosis

Pulmonary = Lung
Fibrosis = scar tissue
In Pulmonary Fibrosis the lungs become scarred & stiff. This affects the lungs ability to expand & contract, it can also affect the ability of gases (oxygen/carbon dioxide) to move between the lungs and bloodstream.



Symptoms:

- Shortness of breath
- Persistent dry cough
- Tiredness
- Loss of appetite and weight loss

Causes of Pulmonary Fibrosis:

- No known cause (Idiopathic)
- Occupational exposure: asbestos, coal dust, silica
- Some medications have been associated with risk of pulmonary fibrosis such as: an antibiotics (nitrofurantoin), immunosuppressant drugs and some drugs used for heart conditions (amiodarone)Inflammation due to exposure to moulds
- Associated with other diseases (rheumatoid)
- Hereditary

Every lung condition is different but many of the symptoms are the same including cough, sputum, breathlessness & wheeze.

Inhaled Medication

How to use your inhalers

An inhaler is a device that administers medicine into your lungs. The medicine comes in different formats such as a metered dose in a pressurised spray (MDI), Soft Mist or Dry Powder (DPI).

Not all devices are the same and require different techniques!

Common problems you may experience when using your inhalers

- Not breathing out first
- Not priming device properly
- Not shaking inhaler (if required)
- Timing not right (inhaling too early or late)!
- Not leaving enough time between doses
- Not using correct inspiratory effort
- Not maintaining a good seal around the mouthpiece

Metered dose inhaler (mdi)

- Spray comes out under pressure very fast when you press it (60mph)
- Requires manual dexterity & co-ordination.
- Inhaler needs shaking before every puff
- Wait a minimum of 30 seconds between puffs
- Breathe out to empty your lungs before starting
- Take a slow deep breath in as you press it
- Hold your breath for 5-10 seconds

(See below about using a spacer.)

Spacers

- Spacers may be used with a mouthpiece or a mask
- Spacers reduce the risk of side effects (oral thrush, hoarseness)

When to use a spacer:

- Use with your MDI inhaler to improve the amount of drug you get into your lungs
- When you are unable to breathe in and hold your breath, ***tidal breathing*** is more appropriate so breath in and out for 5 normal breaths after each puff
- Emergency situations: when your ability to inhale normal inhalers is compromised

Soft mist inhalers

- Require you to prime it
- Example: Respimat-load cartridge, twist device to load dose
- Breathe out to empty your lungs
- When button pressed will emit soft spray which can be inhaled slowly
- Hold your breath for 5-10 seconds

Dry powder inhalers (dpi)

- Require more effort to breathe the medicine into your lungs
- May require you to prime the device (twisting, pressing a button or opening the lid until it clicks)Breathe out to empty your lungs first
- Then a short, strong deep breath in
- Hold your breath for 5-10 seconds

How do we assess if you have enough inspiratory flow to breathe in?

- Using a device called an ***in-check dial*** which measures your breath in
- Using a trainer device to see if you can make it whistle!
- Ask your nurse or pharmacist if you are unsure to check this.

Do I need to rinse my mouth out after using my inhaler?

- You should rinse your mouth with water and spit out after using a steroid inhaler
- This is because tiny particles of the drug can sit in your mouth or at the back of your throat and can cause soreness & sometimes thrush
- Do not swallow as this can carry drug particles onto your voice box and cause hoarseness

Remember, the right inhaler for you is the inhaler that is right for you!

Think:

- Do I need a spacer device to use with my inhaler?
- Do I have sufficient effort to breathe in the medication?
- Can I activate my inhaler?

If you are a patient of this service and have any doubts or questions, seek advice from the community respiratory team here at Provide Health.

Telephone number: 0300 131 0111

Monday - Friday 9 am - 5 pm

How to dispose of used or unwanted inhalers.

Return used inhalers to your local pharmacy for safe disposal.

The propellants in inhalers are ‘greenhouse gases’ and disposing of them in your landfill waste is harmful to the environment, as this gas is released into the atmosphere.
(Please be assured these gases are not harmful to you when you use your inhaler.)

Inhalers that are returned to a pharmacy for safe disposal are incinerated which is safer for the environment than inhalers being put into landfill.

Make each puff count! Only order your next inhaler when required, to reduce waste.

Nebuliser Therapy

Please note: most medications are delivered via an inhaler. **Nebulisers are only used in very specific circumstances after an assessment by a Respiratory Specialist.** Please do not purchase a nebuliser without consultation with your healthcare professional.

What is a nebuliser?

It is a device that delivers medicine into the lungs. It may be portable or an electric machine that turns liquid medication into a mist which you then breathe in using a mask or mouthpiece. It consists of four parts:

1) Compressor unit (blows air through the tubing and medicine chamber creating a mist)
2) Tubing (carries the air)
3) Medicine chamber (holds the liquid medicine)
4) Facemask or mouthpiece (Used to breathe in the medicine)

The medicine comes in containers called *nebules* and can only be prescribed by a healthcare professional.

Why may I be prescribed a nebuliser?

If you have a chronic lung condition such as COPD or Bronchiectasis you may be prescribed certain medications via a nebuliser such as:

- Bronchodilators to open your airways
- Saline to help you clear secretions from your chest
- Antibiotics to treat a specific chest infection

In an emergency, nebulisers can give you high doses of medicine to help with your breathing.

How to set up your nebuliser:

1. Wash your hands
2. Ensure the nebuliser tubing is fitted securely to the machine
3. Remove the top of the medicine chamber and pour the medicine from the nebule into the chamber
4. Screw the top back on
5. Attach the bottom of the tubing to the medicine chamber
6. Connect either the facemask or mouthpiece to the top of the medicine chamber (check all connections are secure)
7. Sit in a comfortable upright position
8. Support the medicine chamber and place the facemask over your face (or place your lips around the mouthpiece to create a seal) and switch on the machine.
9. Breathe normally inhaling the mist created by the machine

It may take between 5-15 minutes for the medicine delivery to be completed so switch off the machine when the mist has stopped.

How to clean your nebuliser:

Always read the manufacturer's instructions for cleaning & maintenance

1. Switch off and unplug the machine
2. Wash your hands
3. Disconnect the medicine chamber, facemask or mouthpiece from the tubing
4. Wash the separate parts in warm soapy water, rinse with clean water and leave to air dry at room temperature

5. DO NOT WASH THE TUBING: You can switch the machine back on for a few seconds to run some air through the tubing to help dry any residual moisture
6. Once all the parts are completely dry, put back together again ready for use

Always clean your nebuliser after every use and never share with anyone else!

Maintenance

- Your nebuliser should be serviced annually
- Filters must be changed when discoloured and as a minimum every three months
- Parts such as tubing, medicine chamber and facemask or mouthpiece need to be replaced regularly (check manufacturer's recommendations)

Safety precautions

- Never get your nebuliser wet
- Store the machine off the floor on a level surface and keep free from dust
- Never cover the air vent
- Keep away from children and pets
- Always switch off when not in use and unplug before cleaning
- Only use the medicines prescribed by your healthcare professional

Breathlessness Techniques

Breathing exercises help to loosen secretions in the lungs, aid chest wall mobility and help to control breathlessness in the chest during bouts of coughing and exertion.

The aims of breathing exercises are to:

- Help encourage a normal relaxed pattern of breathing where possible
- Teach controlled breathing with the minimum amount of effort
- Assist the removal of phlegm
- Mobilise the chest wall

As previously discussed normal breathing is done using the diaphragm and lower chest. People with chest disease tend to over-inflate the upper chest and do not use the lower chest efficiently. The chest wall becomes rigid and it is unnecessarily tiring to use the upper chest muscles all the time.

Pursed lip breathing

- Improves ventilation
- Releases trapped air in the lungs
- Keeps the airways open longer and decreases the work of breathing
- Prolongs exhalation to slow breathing rate
- Improves breathing patterns by moving old air out of the lungs and allowing for new air to enter the lungs
- Relieves shortness of breath
- Causes general relaxation

When should I use this technique?

Use this technique during the difficult part of any activity, such as bending, lifting, stair climbing or walking up slopes/hills.

Practice this technique 4-5 times a day at first so you can get the correct breathing pattern.

Pursed lip breathing technique

- Relax your neck and shoulder muscles.
- Breathe in (inhale) slowly through your nose for two counts, keeping your mouth closed. Don't take a deep breath; a normal breath will do. It may help to count to yourself: inhale, one, two.
- Pucker or "purse" your lips as if you were going to whistle or gently flicker the flame of a candle.
- Breathe out (exhale) slowly and gently through your pursed lips while counting to four. It may help to count to yourself: exhale, one, two, three, four.

Positions of Ease:

There are several positions which can help you breathe more easily whether you are lying down, sitting up or standing.

Here are a few examples:

1. **Sitting**

- Rest your feet flat on the floor.
- Lean your chest forward slightly.
- Rest your elbows on your knees or rest your chin on your hands.
- Relax your neck and shoulder muscles.

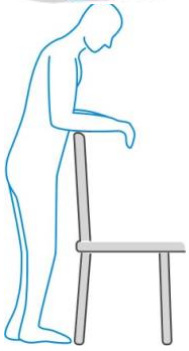
OR

- Rest your feet flat on the floor.
- Lean your chest forward slightly.
- Rest your arms on a table.
- Rest your head on your forearms or on some pillows.

2. Standing

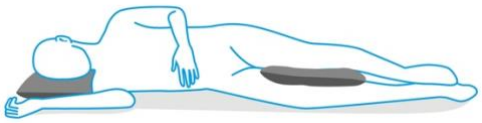
- Stand with your feet shoulder width apart
- Lean your hips against a wall
- Relax your shoulders leaning forward slightly
- Allow your arms to hang freely by your side.

OR



- Rest your elbows or hands on a piece of furniture or worktop, just below shoulder height
- Relax your neck and shoulders
- Lean upper body forwards

3. Lying



- Lie on your side with a pillow between your legs and your head elevated with pillows. Keep your back straight.

OR

- Lie on your back with your head elevated and your knees bent, with a pillow under your knees.

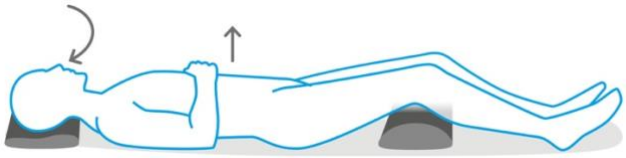
Diaphragmatic breathing

Is intended to help you use the diaphragm correctly while breathing to:

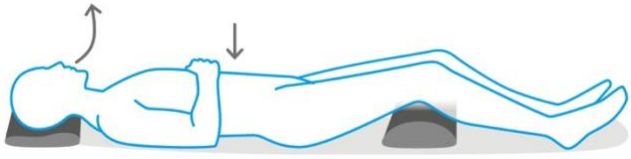
- Strengthen the diaphragm
- Decrease the work of breathing by slowing your breathing rate
- Decrease oxygen demand
- Reduce the effort and energy to breathe

Initially when practising, lie on your back on a flat surface or in bed, with your knees bent and your head supported. You can use a pillow under your knees to support your legs. Place one hand on your upper chest and the other just below your rib cage. This will allow you to feel your diaphragm move as you breathe.

Breathe in slowly through your nose so that your stomach moves out against your hand. The hand on your chest should remain as still as possible.



Tighten your stomach muscles, letting them fall inward as you exhale through pursed lips. The hand on your upper chest must remain as still as possible.



When you first learn the diaphragmatic breathing technique, it may be easier for you to follow the instructions lying down, as shown on the first page. As you gain more practice, you can try the diaphragmatic breathing technique while sitting in a chair, as shown below.

To perform this exercise while sitting in a chair:

1. Sit comfortably, with your knees bent and your shoulders, head and neck relaxed.
2. Place one hand on your upper chest and the other just below your rib cage. This will allow you to feel your diaphragm move as you breathe.
3. Breathe in slowly through your nose so that your stomach moves out against your hand. The hand on your chest should remain as still as possible.
4. Tighten your stomach muscles, letting them fall inward as you exhale through pursed lips (see "Pursed Lip Breathing Technique"). The hand on your upper chest must remain as still as possible.

Note: You may notice an increased effort will be needed to use the diaphragm correctly. At first, you'll probably get tired while doing this exercise. But keep at it, because with continued practice, diaphragmatic breathing will become easy and automatic.

How often should I practice this exercise?

At first, practice this exercise 5-10 minutes about 3-4 times per day. Gradually increase the amount of time you spend doing this exercise, and perhaps even increase the effort of the exercise by placing a book on your abdomen.

Coordinating your breathing with exercise and every-day activities

You may get anxious about tackling exercise and everyday activities especially if these have caused you breathlessness in the past. You can increase your ability to exercise and complete everyday tasks without breathlessness if you become aware of your breathing while doing any activities.

Walking: You should match the rate of breathing with your walking pace. You can do this by breathing in on the first step and out on the next two steps.

Stairs: Breathe in on the first step and out on the next two steps

It may take some practice for you to get it right so just take your time and match your breathing to the right number of steps so that it is comfortable for you. Doing this will help you to walk or climb stairs without stopping to catch your breath. It may also help to reduce the time it takes you to recover.

Blow-as-you-go

Use this technique to help with daily activities and exercise, you can combine this with pursed lip breathing.

When to breathe in

Breathe in before making the effort or activity.

Examples:

- Breathe in before raising arms to reach an item in a cupboard
- Breathe in before standing up
- Breathe in before bending down

When to breathe out

Breathe out through pursed lips on exertion.

Examples:

- Breathe out when lifting arms up to reach an item
- Breathe out as standing or stepping up
- Breathe out on bending down

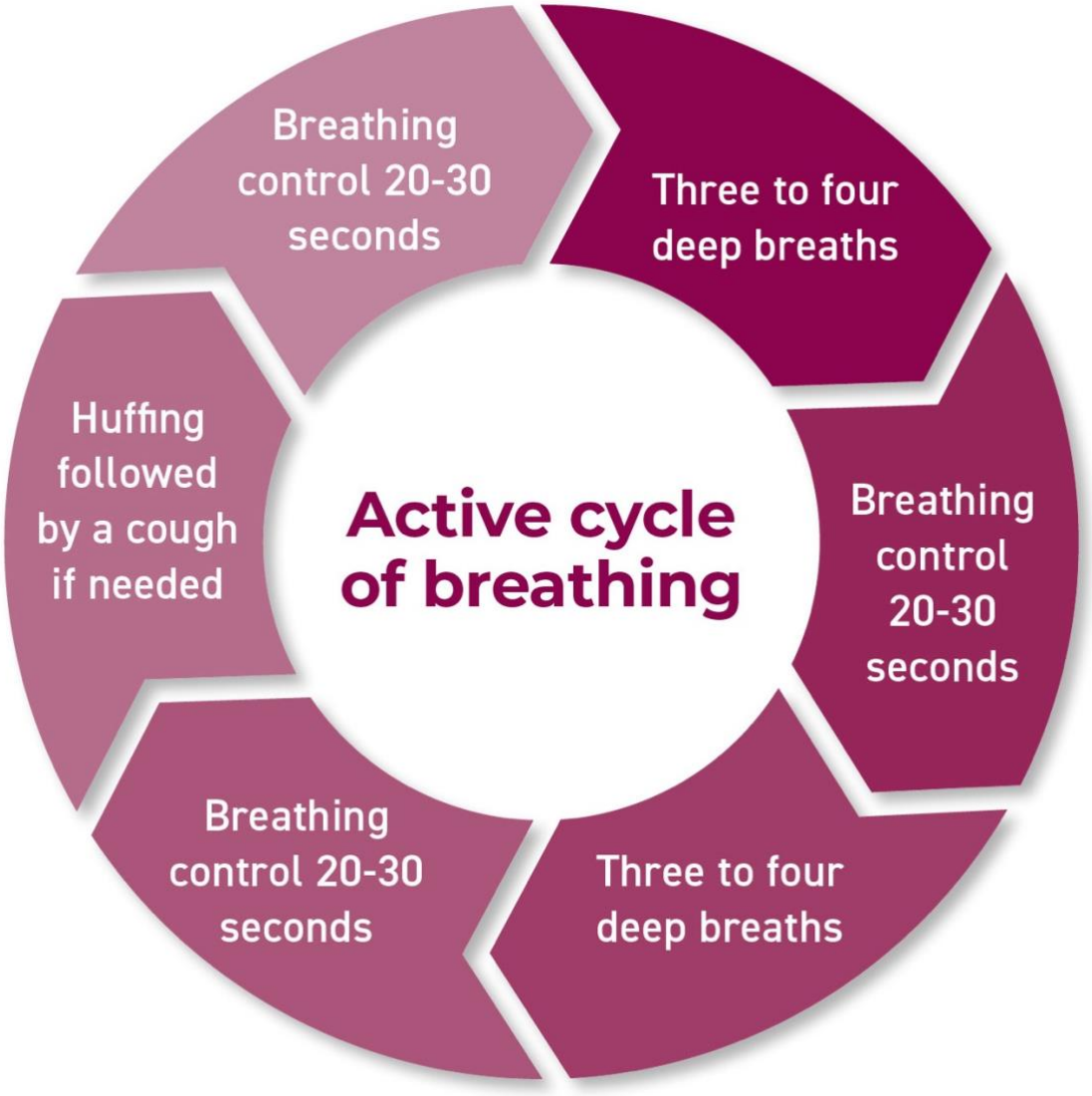
Sputum Clearance: Active Cycle of Breathing Technique (ACBT)

The best method of clearing your secretions should be with minimum effort. To do so will prevent persistent wheezing and breathlessness. The active cycle of breathing technique allows you to do this. It consists of 3 different types of breathing:

1. **Breathing control** or **relaxed breathing** using the diaphragm. This is a very important method of resting the airways between bouts of coughing. It is where you keep your shoulders and tummy as relaxed as possible. The breathing should be quiet.
2. **Deep breathing** to loosen and mobilise the secretions. Take 3 deep breaths in and let the air out quietly in its own time.
3. **Huffing** is the active part of the cycle where you push the air out from your lungs through an open throat and mouth, much the same way as if you were trying to mist up a cold window. This can be done from either a deep breath (high volume) or an ordinary sized breath (low volume) and in one large huff or 3 small ones.

Repeat the cycle until the chest feels clear.

The 'Active Cycle'



Fan Therapy

Fan therapy is recognised to help reduce the feelings of breathlessness.

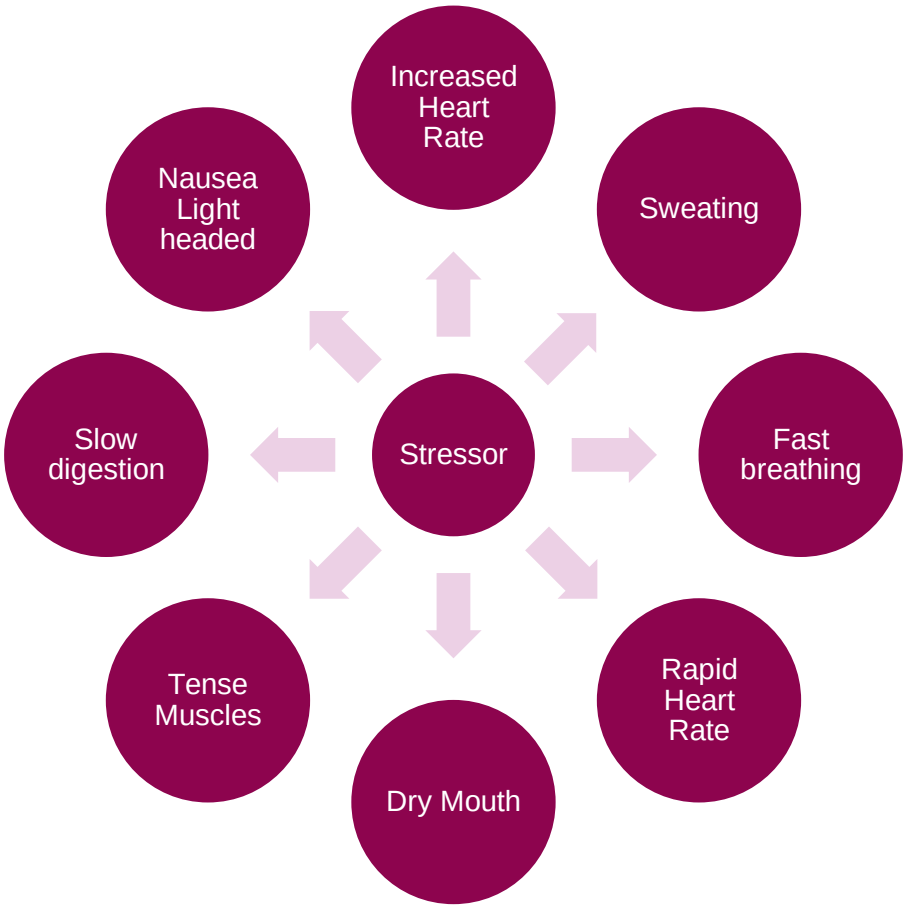
You can have a handheld battery fan or a desktop/floor fan near your face (about six inches)– this should help you feel less breathless. This can be used in conjunction with pursed lip breathing to reduce the effort of breathing and reduce anxiety.

Talking Therapy – Psychological Therapies: Anxiety & COPD

COPD can be difficult to live with, and this can lead to increased stress, anxiety and low mood. Evidence suggests that anxiety problems are particularly common in people with COPD; panic disorder is up to 10 times more prevalent than in the general population, and that up to 30 per cent of all people with long-term health conditions also have mental health problems.

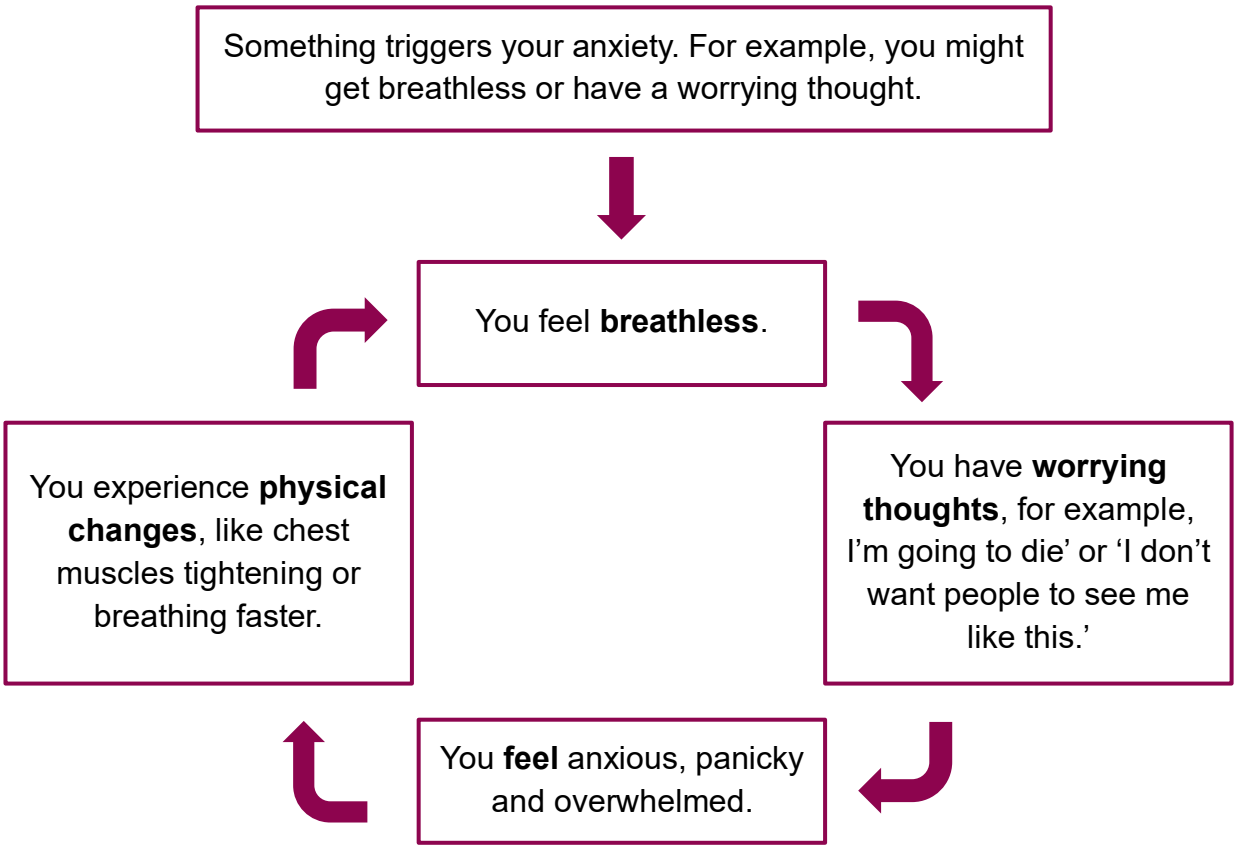
What is Anxiety?

Anxiety is a normal experience, which although unpleasant, is harmless. Anxiety is a response to perceived fears or threats to our wellbeing and an automatic cue to prepare our bodies for action, known as the ***Fight or Flight response***. Physical symptoms of anxiety, including increased heart rate, nausea, sweating, dizziness, are our body preparing for fight or flight. This is an automatic response that we have no control over. It is helpful when there is real danger, however this is unhelpful when there is no real danger and we are left feeling anxious.


Increased Heart Rate
Sweating
Fast breathing
Rapid Heart Rate
Dry Mouth
Tense Muscles
Slow digestion
Nausea Light headed
Stressor

Anxiety & Breathlessness:

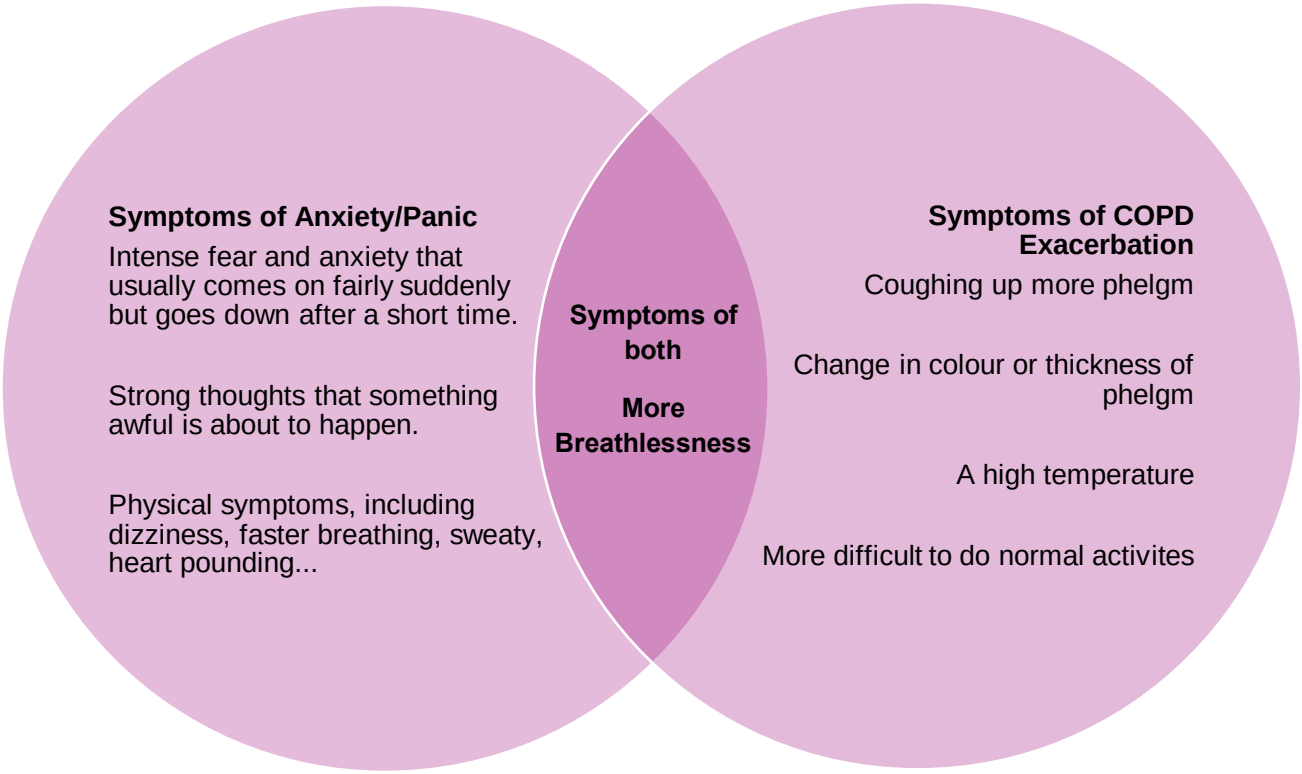
Dealing with breathlessness can be stressful and frustrating. Being really out of breath can be frightening and many people feel anxious about what is happening. The biggest problem with fear and anxiety is that these feelings make people feel **more** out of breath. Getting more out of breath can then make people feel **more** anxious and it becomes a vicious cycle.



Working out which symptoms are part of anxiety and which symptoms are part of an exacerbation:

Increased breathlessness can be a sign of a COPD flare up, however, it is also a symptom of anxiety. This can make it difficult to work out what is happening.

"Am I breathless because there is something wrong with my COPD or is it because I feel tense and anxious?"



Relaxation

Relaxation is defined as being free from tension and anxiety and it has benefits for general health like reduced muscle tension, calmer thoughts, improved mood, improved sleep and overall, more energy. As anxiety can cause breathlessness, relaxation can be especially helpful for COPD as it helps to feel less anxious and panicky, and as a result breathe more easily.

Relaxed Breathing

Start by sitting down comfortably and slowly breathe through your nose for the count of four pause for a second, then slowly breathe out for four. Ensure you are breathing smoothly and into your belly not your chest – you can put a hand on your belly and chest to check this.

Try to do this for a few minutes to feel relaxed. Relaxed breathing signals to our brain that we are safe and reduces panic and helps to feel more in control of your breathing.

Progressive Muscle Relaxation

Increased stress can automatically increase feeling tense, and by releasing body tension this can help reduce stress and feel relaxed.

First sit or lie down somewhere comfortable. Take a slow deep breath in before you begin. Then gradually starting from the top of your body working down, or the tips of your toes working up, focus your attention on different groups of muscles. Tense the muscles for 5 seconds, then as you exhale release the tension and focus on how it feels for that to melt away for 10 seconds, then repeat for the rest of your body.

For example, you may start at your face, lifting eyebrows and tensing your jaw, before moving to your shoulders and neck, then your arms, abdomen, buttocks, legs, and complete the exercise all the way until you reach your feet. Following this you should notice your body feels more relaxed.

Mindfulness

Mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally, to things as they are.

It has many benefits like relieving stress, improving control over emotions, increasing concentration, reducing chronic pain, lowering blood pressure.

Mindfulness can be incorporated into daily life through paying attention to your senses.

5, 4, 3, 2, 1 technique

(This technique is taught during the session.)

How to refer

'Talking Therapies' covers Mid-Essex which is classed as Chelmsford, South Woodham Ferrers, Maldon, Braintree areas – if you would like to refer into our service there are 2 main ways you can go about this:

1) Speak to your GP
2) Self-refer online by filling out a form:

   https://www.hpft-iapt.nhs.uk/service/mid-essex

Support Groups

https://www.asthmaandlung.org.uk/groups-support

https://www.actionpf.org/information-and-support/find-a-support-group

Resources

Asthma and Lung UK have information leaflets on different lung conditions and action plans.

Helpline: 0300 222 5800

Videos on inhaler technique can be accessed at Asthma and Lung UK at: https://www.asthmaandlung.org.uk and type inhaler technique in search box.

NHS England has information on lung conditions. Access at: https://www.nhs.uk

Useful Contacts / Websites

https://www.nhs.uk/conditions/lung-health-checks/

https://www.nhs.uk/conditions/spirometry/

https://www.nhs.uk/conditions/chronic-obstructive-pulmonary-disease-copd/treatment/

https://www.nhs.uk/conditions/bronchodilators/#:~:text=Inhaled%20corticosteroids%20are%20the%20main,never%20be%20taken%20without%20corticosteroids.

https://www.asthmaandlung.org.uk/

https://www.asthmaandlung.org.uk/symptoms-tests-treatments/tests/spirometry

https://www.macmillan.org.uk/cancer-information-and-support/lung-cancer/the-lungs

Talking Therapies Self Referral: https://www.hpft-iapt.nhs.uk/service/mid-essex

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