

# Long COVID overview

## Introduction

This information is written by speech and language therapists (SLTs) and is a guide for individuals, and their carers/families, living with the aftereffects of COVID-19 infection.

SLTs are experts in treating disorders of communication (speech, language, voice and cognition), swallowing and upper airway conditions. When COVID-19 emerged, SLTs worked in intensive care units helping people with these disorders following critical illness. SLTs support people in outpatient and community care who require ongoing therapy for their communication, swallowing and airway needs. SLTs provide impairment-based or behavioural change treatments aimed at improving everyday function.

This information does not include details of medical treatments for the central nervous system, inflammatory, immune system, vascular or post-viral effects of COVID-19 which are outside the SLT role. People are advised to see their GP to discuss such treatments.

## What is included?

Details of communication (speech/pronunciation, voice/sound production, language/word finding), thinking/cognitive changes, throat difficulties and swallowing changes that can happen after a COVID-19 infection. It discusses symptoms that SLTs can help with.

The following is practical information aimed at people living with the aftereffects of a COVID-19 infection. This is a place to start before someone meets a speech and language therapist. It does not replace one to one therapy or medical advice.

## What is not included?

This information does not include details of the causes of post COVID-19 symptoms or the origin of long COVID. Please refer to the [\*\*NHS Your Covid Recovery website for general information.\*\*](#)

For academic research, see [\*\*our resources.\*\*](#)

## Long COVID in brief

The symptoms and severity of a COVID-19 infection vary between individuals. Some people do not have symptoms, others have mild symptoms whilst some need hospital treatment. Although some people recover without ongoing symptoms, other people have symptoms lasting more than 12 weeks which cannot be explained by another diagnosis. This is called post COVID-19 Syndrome or long COVID. See the NICE website for details: [\*\*Long-term effects of coronavirus \(long COVID\)\*\*](#).

How unwell a person is when they contract COVID-19 does not indicate if they will develop long COVID. Some people with a severe infection do not develop long COVID and other people with a mild illness do.

## Symptoms of long COVID

Long COVID has many symptoms which happen together and vary over time. It can affect many parts of the body including the heart, lungs, muscles, brain, mood, energy levels, nerves, throat, and stomach amongst others. For a [\*\*full list of long COVID symptoms and an easy read patient booklet, visit Sign's website.\*\*](#)

Speech and language therapists (SLTs) care for people who have changes to their throat, voice, swallowing, upper airway and communication after a COVID-19 infection. SLTs work closely with other health professionals such as occupational therapy, physiotherapy and psychology, if you have other symptoms which require support.

## Speech and language therapy input after COVID-19

Speech and language therapists (SLTs) care for people who have changes to their throat, voice, swallowing, upper airway and communication after a COVID-19 infection. This information focuses on long COVID symptoms that SLTs can help with:

- speaking and pronouncing words or speech changes
- voice production and making sounds
- thinking around words, getting the right word, or word finding difficulties
- brain fog or cognitive dysfunction, changes to memory and concentration
- swallowing changes, food/pills sticking or coughing/choking when eating and/or drinking
- irritation in the throat, a lump in the throat feeling and coughing or tightening in the throat
- hearing, taste and smell

## How we breathe, speak and swallow

Knowing how humans breathe, cough, swallow and speak can help you to understand your symptoms.

### The nose

- We should breathe in through our nose.
- The mouth is mainly for eating, drinking and talking.
- Our nose warms up, cleans and wets the cold air from outside our bodies.
- If we cannot breathe in through our nose, we breathe through the mouth. This can happen if we have a blocked nose.
- Mouth breathing dries the throat and can make you cough.

### The lungs

- We have two lungs inside our chest.
- The lungs take oxygen from the air into the body and remove carbon dioxide.
- The lungs are a triangle shape. They are narrow at the top and wide at the bottom.
- If we are breathing too fast or too shallowly, we feel as if we cannot take in a full, or deep enough, breath.
- Shallow breathing makes people feel anxious and breathless.

### The voicebox

- The medical name for the voicebox is the larynx.
- The voicebox is above the lungs, at the top of the breathing system.
- The voicebox is a valve which opens and closes when we breath, swallow or make sounds.
- Its job is to protect your airway, help you swallow and make sound (voice).
- The voicebox is open when you breathe and closes when you hold your breath, swallow or cough.
- The voicebox has two important muscles called the vocal folds (or vocal cords).
- Air comes up from the lungs causing your vocal folds to vibrate. We shape this vibration into speech using our lips, teeth and tongue.

### How to feel your voicebox making sound

- Put your fingers gently on your throat in the middle.
- You will feel the prominence called the Adam's Apple underneath your fingers. This is the centre of your voicebox.

- Now gently make a humming sound, like a bee or an 'mmmm' sound.
- You will feel buzzing under your fingertips as your vocal folds vibrate.

## Speaking

- When you talk, the vocal folds close and air from the lungs makes them vibrate to make sound.
- We shape the sound into speech using our lips, teeth and tongue.
- Air coming out of the lungs is the energy, or power, for the voice.
- You cannot do more than one action at once. For example breathe, swallow, cough or speak at the same time.

## Swallowing

- When we swallow, the airway and voicebox close.
- The muscles to the food pipe (oesophagus) open.
- The food and drink pass into the food pipe.
- If the voicebox and throat muscles are tight, you might feel that food and tablets are sticking in the throat. **See section 9 – throat irritation after COVID-19.**
- When food, drink or tablets 'go the wrong way' into the airway we cough, choke and splutter.
- Coughing when choking is a good thing. It protects our lungs.

## Voice changes after COVID

Many people notice changes in their voice and the effort needed to use it after a COVID-19 infection. COVID-19 can also affect the feelings or sensations in your throat.

Common COVID-19 voice changes include:

- a hoarse or croaky voice
- straining to talk
- a deeper voice
- a quieter voice with less power
- not being able to talk over background noise
- your voice gets tired the more you talk
- using more effort to talk
- changes to the (pitch) range of your voice
- running out of breath when you talk.

## The impact of COVID-19 on the voicebox

COVID-19 is caused by the SARS-CoV-2 coronavirus. It leads to a range of symptoms which can include throat irritation and voice changes.

The virus irritates the throat, causing a sore throat and can make your vocal folds swollen and inflamed.

- It is harder to talk when your vocal folds are swollen and your throat is inflamed. This can lead to coughing and irritation (short-term or long-term).
- Your throat makes mucus to soothe itself when it is irritated.
- The more mucus you have, the more you feel the urge to cough.

People sometimes talk more loudly when their throat is inflamed. This can lead to voice strain even after the inflammation and irritation has reduced.

## Will my voice return to normal?

- Your voice is expected to get better within 6-8 weeks after an acute COVID-19 infection.
- The changes to your voicebox should get better without treatment once swelling in your voicebox settles.
- Sometimes voice change continues for more than 12 weeks in long COVID.
- Sometimes the feeling of irritation or a 'tickle' in the throat continues and causes coughing and difficulty swallowing food and drink for a prolonged time.

More information on [coughing](#), [swallowing difficulties](#) and [throat irritation](#) is available throughout this guidance.

### **If your voice does not improve...**

An ear, nose and throat (ENT) doctor specialises in throat problems. If the voice change and discomfort carry on for more than 8 weeks your GP can refer you to an ENT.

- You may need help from a voice specialist speech and language therapist (SLT) to improve your voice and irritated throat.
- The ENT doctor can refer you to an SLT after they have examined your voicebox.
- The ENT examination is necessary, especially if you were unwell in hospital with a breathing tube (read on).

### **If you were in hospital with COVID-19**

Many people with COVID-19 convalesced at home when they were unwell. If you were in hospital with COVID-19, you may have had a tube put into your mouth or throat to help you breathe.

This may have been a small plastic breathing tube (called an endotracheal tube) which was put into your mouth to help you breathe or a small opening was made in the front of your neck and a small tube (called a tracheostomy tube) was put into your windpipe.

### **How does a breathing tube affect the voice?**

- A mouth breathing tube might have been passed through your voice box and down into your windpipe, or a tube was inserted in your neck. Your voice box is the primary tool for making sound in your body.
- Having a tube in your mouth or throat can cause the windpipe to become irritated and swollen.
- Healthy mucus (a slimy fluid that moistens the voicebox) can thicken when a tube is inserted.
- Sometimes, one or both vocal folds stop moving. This can change the sound of your voice even after the tube is removed.
- It takes time for your voicebox to recover after having a breathing tube, however temporary.

### **How does having oxygen affect my throat?**

Some people needed extra oxygen to help them breathe, because they were breathless. The speed and pressure of this can change the pattern of breathing even after the extra oxygen is stopped.

- Some people can develop a breathing pattern disorder after COVID-19 ([See section 14 of this guidance for information on breathlessness](#)).

- Changes in your breathing can affect your voice.
- Extra oxygen can be drying and irritating to the throat. This can lead to coughing. Coughing makes your voice croaky.
- Some people can feel claustrophobic or stressed when wearing an oxygen mask. Increased levels of stress hormones in the body can increase breathlessness.
- You might notice you breathe through your mouth instead of your nose. Breathing through your mouth dries out your throat and voicebox.

## Looking after your voice

Here is general advice on looking after your voicebox. This is not intended to replace advice from your ENT doctor or a speech and language therapist.

### How to soothe your throat

- Drink lots of water, unless otherwise directed to do so. Sip frequently. **[Visit the NHS website for information on water, drinks and hydration.](#)**
- Drink water, squash (diluting juice), fruit tea or herbal teas.
- Try not to drink too much caffeine (including tea, coffee, coke and energy drinks).
- Use hot water only steam inhalations for five minutes, twice a day. Breathe in through your mouth. Stop when the water goes cold. You may use a bowl, towel and hot water. Or buy a steam inhaler cup. Do not add anything such as mint/menthol/herbs.
- Reduce alcohol. (See **[NHS guidance on drinking less](#)** for further details).

### Reduce irritants

- Get help to stop smoking and vaping (the **[NHS stop smoking services](#)** can help).
- If you think you are getting reflux (burning throat, indigestion, burping), **[follow the advice from the NHS website.](#)**
- If you use an inhaler, remember to use a spacer device and rinse your mouth out afterwards.
- Avoid long-term use of cough sweets (mint/menthol/eucalyptus). Use these only when you have a cough/cold. If your throat is irritated, try a boiled, fruit sweets instead.
- Reduce throat clearing and coughing. If you feel like coughing or clearing your throat, instead sip a drink and put your chin down when swallowing, or swallow hard.

### Use your voice gently

- Do not whisper. It does not 'save' your voicebox. Whispering makes your voice tired. Use writing, texting and gestures instead.
- If you lose your voice, stop talking until your voice returns. It may be a few days.
- Cut down on work and social engagements until your voice recovers.
- Speak gently, like you are having a private conversation.
- Avoid talking over background noise such as music, television or car engines, this can strain your voice.
- If your voice starts to get hoarse, or you have pain in your throat, rest your voice for 20-30 minutes or until it feels more comfortable.
- Ask people to come closer to you so they can hear you.
- Avoid long telephone calls or video calls which can tire your voice.

- Take regular 'voice rests' (20-30 minutes at a time).
- Avoid raising your voice and shouting. Remember more volume requires more energy.
- Wait until your voice is back to normal before shouting and singing. Instead, sing in your head or whistle.
- Always warm up and cool down when singing.
- Keep your volume and pitch in a comfortable range.
- Avoid talking in long sentences where you run out of air. Slow down, pause more and allow more time to breathe.
- Reduce tension in your jaw, neck, shoulders and upper back.

## Speech changes after COVID-19

A number of people notice changes in their speech (pronunciation) after COVID-19. This is like stammering/stuttering, which are terms used to describe difficulties with speech fluency. The term stammering will be used from now on.

### Potential speech changes after COVID-19:

- new stammering or the return of childhood speech difficulties
- slow speech
- finding it an effort to speak
- facial grimacing or tightening trying to get words out
- changes to the rhythm of speech
- repeating words or parts of words and sentences
- words blocking when you speak

These changes can be very upsetting and can impact people's confidence when speaking. The words may feel jumbled up or stuck inside.

### The impact of COVID-19 on speaking

There is no single explanation of what causes speech changes after COVID-19. It may be related to the impact of the illness on the central nervous system or inflammation due to an exaggerated immune system response, vascular effects of COVID-19 or a post-acute viral nervous system dysfunction. There are links with dysautonomia and postural tachycardia syndrome (PoTS). Research is ongoing.

- A range of factors can impact speech production after COVID-19, these factors include breathlessness, cognitive function, fatigue and physiological stress.
- Speech is a complex skill in which lots of muscles move in a short space of time.
- For some people, their existing stammer got worse after having COVID-19 or a previous stammer returned.

### Help with speech changes

If you are concerned about changes to your speech, ask your GP to refer you to a local speech and language therapy service. They are experts in helping people with speech difficulties.

Things that may help you:

- You may notice a link between fatigue levels and your speech. The greater the fatigue levels the more effortful your speech becomes. This can fluctuate. Strategies to manage these

symptoms may indirectly help your speech production.

- Give yourself time to plan what you want to say.
- Use your breath to speak. Slow down, pause more and allow the air into your body through your nose. Having a bit more time to speak helps.
- Write things down. Sometimes it is easier to read more fluently.
- Focus on times where speaking goes well, rather than when it does not.

## Changes to thinking after COVID-19

You may notice changes to your thinking skills (cognition) after COVID-19. You may find it harder to think clearly. This is called cognitive dysfunction. It is sometimes referred to as brain fog. The term cognitive dysfunction will be used from now on.

Cognitive difficulties can make it difficult for children to complete schoolwork and for adults to return to employment. They can also affect a person's ability to interact and communicate with others.

Common thinking changes after COVID-19:

- memory issues and forgetfulness
- reduced attention and concentration
- unclear or slow thinking
- difficulty making plans
- difficulty performing activities that involve a sequence of steps
- feeling 'muddled up' or confused
- difficulty performing mental arithmetic
- difficulty using language

During communication, you may:

- struggle to find words to express what you want to say
- use incorrect words or mix up words in a sentence
- struggle to understand what people are saying to you
- forget the topic of conversation
- repeat words or parts of words more than normal
- produce distorted or indistinct speech sounds
- lose your way in the middle of a sentence and have to abandon it
- struggle to recall what was said earlier in a conversation.

Reading and writing are also often challenging and can affect learning and work activities.

These language and communication difficulties may lead to frustration and embarrassment. You may limit conversation with others and avoid social situations where you feel you might struggle. These reactions are normal.

If you let friends and family know you are having difficulties, they can help you by reducing the speed of conversation and making other changes (e.g. texting you rather than making phone calls).

Employers can assist by making adaptations that can help you communicate more easily. School teachers should be told about difficulties so that pupils can receive additional learning support such

as additional time and slower/lower rate of information to process at once.

Fatigue reduces our ability to think clearly. Cognitive dysfunction gets worse when you are exhausted and fatigued. The more fatigued you are, the harder it is to think clearly. It can be worrying and frustrating. There are things that you can do to help your thinking and communication. Managing fatigue is an important first step in helping your thinking. **See Section 14 on fatigue, breathlessness and changes to well-being.**

### How COVID-19 may affect thinking

- Changes to thinking may be a neuropsychological consequence of COVID-19. People living with Long COVID have reported other neurological symptoms such as headache, sleep disorders and sensorimotor changes.
- There is no single explanation of what causes brain fog after COVID-19. It may be related to the impact of the illness on the central nervous system or inflammation due to an exaggerated immune system response, vascular effects of COVID-19, or a post-viral nervous system dysfunction. Research is ongoing.
- A range of physical and psychological factors can impact cognitive dysfunction including breathlessness, stress, fatigue and feeling overloaded/overwhelmed and/or anxious.

See the our resources page for more details.

### Advice for cognitive dysfunction after COVID-19

- Practice pacing every day to manage your physical and cognitive/mental fatigue. Information on pacing is available on the **long COVID Physio website.**
- Plan ahead with activities. Have a schedule for daily and weekly tasks.
- Set achievable goals for example read five pages of a book each day rather than reading a whole chapter.
- Break down activities into manageable chunks. Do one chunk at a time.
- Have lots of breaks.

Work for short periods if you get fatigued easily. Plan to do more involved cognitive activities when you are less fatigued.

- Use lists, diaries and calendars to help your memory.
- Reduce distractions. Work in a quiet space with no background noise
- Use earplugs/earphones or ear defenders to reduce sensory input and help with concentration.

- If you find it difficult reading, block off parts of the text using paper or your finger as a marker. Consider audio versions or inbuilt functionality such as Microsoft's Read Aloud feature.

### **Help with cognitive dysfunction**

If you are concerned about memory, concentration and cognitive dysfunction, ask your GP to refer you to a local speech and language therapy service. You might also be referred for an assessment by an occupational therapist or neuropsychologist. It is important to recognise these difficulties. You can get support from your friends, family, work and educational settings. Thinking difficulties can impact relationships and daily life.

## Throat irritation after COVID-19

Many people have symptoms of a sore throat and runny nose when they get COVID-19. They may have mucus in the throat causing them to cough. The irritation in the throat may persist after the infection has ended. Being exposed to strong smells, aerosols, sprays and changes in air temperature might trigger a cough, mucus, throat tightness or feelings of difficulty breathing.

Common throat changes after COVID-19:

- the sensation of a lump/ball in the throat (globus pharyngeus)
- a sore or scratchy throat
- too much mucus in the throat
- sensitivity to smells, sprays, and air temperatures
- coughing and throat clearing
- a tight or strangled throat
- food or tablets sticking in the throat
- a tight throat
- coughing or throat clearing after eating
- feeling breathless after eating
- aching in the muscles of the throat after talking

## The impact of COVID-19 on the throat

- COVID-19 is caused by the SARS-CoV-2 coronavirus. There is no single explanation for the symptoms. Long COVID symptoms may be related to the impact of the illness on the central nervous system or inflammation due to an exaggerated immune system response, the effects of blood vessels and clotting, or a post-viral nervous system dysfunction.
- A common symptom post COVID-19 is throat irritation.
- The irritation may continue for some time after the original infection.
- Irritation makes swallowing uncomfortable, the throat feels tight, and/or the voice gets croaky accompanied by coughing.
- The throat produces mucus when it is irritated and people typically cough to clear the mucus away.
- When you cough a lot, it makes your throat more uncomfortable.
- Your throat produces more mucus to soothe the irritation of coughing and you cough or clear again. This is a vicious cycle.
- You can get increased reflux after COVID-19. Reflux can also increase throat irritation.
- Medications can also make your throat feel dry and scratchy.

## Throat tightness and/or 'a feeling of a lump in the throat'

- Some people develop the feeling of a lump in the throat, known as 'globus pharyngeus' after COVID-19.
- This is a lump sensation caused by muscles tightening, in the absence of a physical lump in the throat.
- If a physical lump were present, the person would not be able to talk or swallow safely or breathe freely.
- COVID-19 can lead to an increase in existing acid reflux or new onset reflux for some people. See [section on acid reflux](#).
- COVID-19 increases the body's physiological mechanism (known as the flight, fight or freeze response). This is an involuntary nervous system response affecting the body and the mind.
- The voicebox tightens in response to fight/flight/freeze and in response to repeated reflux episodes.
- Treatment for reflux can help to reduce globus as can exercises to reduce the tightness of the throat muscles.

## How to reduce the feeling of a lump in the throat

Speak to your GP if you have changes to the sensations in your throat affecting breathing, swallowing and/or talking which continue for more than three weeks after your COVID-19 infection. Having the constant feeling of a lump in the throat MUST be investigated by a doctor.

- **Reflux factors** – If you are suspected of having reflux, follow the advice given by your GP.
- **Muscle tension** – Pretending to chew a toffee apple (moving the lower jaw up and down) or pretending to stifle a yawn (yawning with your mouth closed) can reduce the feeling of a lump in the throat in certain cases. Repeat the chewing or yawning as many times as you like (usually 5-6 times in a row) until the lump feeling eases. You know yourself. Be careful not to overdo it. If this exercise causes muscle strain or pain, STOP!

## Recovering from throat irritation

- Your throat should feel better within 6-8 weeks after COVID-19 infection in the absence of long COVID symptoms.
- Sometimes the irritation continues for more than 12 weeks as part of long COVID.
- Sometimes the feeling of irritation or a 'tickle' continues and causes coughing and discomfort swallowing food and drink.
- If you have had a dry cough for more than 8 weeks, ask your GP to refer you to a chest doctor (respiratory medicine). Speech and language therapists may be able to help you if you develop a chronic cough, but only after a medical review of your lungs.

## Changes to your senses after COVID-19

### Ear and hearing problems after COVID-19

You may have hearing changes/loss post COVID-19. This may be temporary or ongoing. You may develop tinnitus (ringing in the ears) or worsened existing tinnitus. Tinnitus can keep you awake at night which adds to fatigue. For further information visit [Long COVID Tinnitus – Your COVID Recovery](#).

Even without hearing loss and tinnitus, some people have problems with hearing information or processing what they hear after COVID-19. This is part of cognitive dysfunction, also known as brain fog. These symptoms are similar to a condition called auditory processing disorder. You may need an assessment to see if you are having auditory processing difficulties. You can read an article on [brain fog and auditory processing deficits](#) from the Hearing Review.

### Taste and smell problems after COVID-19

Many people report loss of taste and/or smell during a COVID-19 infection. This can continue long after the initial infection period. If you lose your taste and smell for more than two weeks, you could try smell retraining known as olfactory training. It is a safe way to help retrain your sense of taste and smell. Visit Abscent's website, specifically their [information on smell training](#) for more information.

## Coughing after COVID-19

People often have a cough and a sore throat when they get COVID-19. The infection irritates the throat. The cough should improve when you feel better, however it can carry on. Some people still cough after 12 weeks as part of long COVID.

It is ESSENTIAL that you speak with your GP and see a doctor for investigations if you are still coughing more than 8 weeks after a COVID-19 infection.

This information is on two irritant symptoms that can develop after COVID-19: coughing and throat clearing:

- coughing often starts from an irritation in the chest such as a tickle in the chest.
- throat clearing typically starts from a feeling of too much mucus in the throat or a lump in the throat.

### The cough function

Coughing is an essential mechanism to protect our airways from food, drink or other materials going down the wrong way, into our lungs. If such things go into our lungs, we must clear them out. We cough when we are unwell and have a cough/cold/virus or infection. People who suffer with a long-term lung disease such as asthma or COPD, will typically have a cough as part of their condition.

In the absence of an infection or lung disease, people often feel they must cough and clear their throat no matter what. Coughing can be controllable in some cases.

There are different types of coughs:

1. **Wet cough:** Coughing is essential when food or drink goes 'the wrong way' into the lungs or when we have an infection. This is often a wet sounding cough. This is a necessary cough and we do not need to control it. We are talking about clear, slightly white and/or frothy mucus. If you have discoloured mucus (yellow/green/brown/red) and/or lots of mucus, please speak to your GP. People with a long-term lung condition such as asthma, COPD, bronchiectasis plus others are likely to have a wet type of cough. This will need to be managed with help from the respiratory doctors and your GP. DO NOT FOLLOW THIS advice if have a long-term lung condition or discoloured mucus.
2. **Dry cough:** COVID-19 causes irritation in the throat. This leads to dry coughing. We do not produce any mucus/phlegm but feel the need to keep coughing. We can learn to control a dry, irritant, ongoing cough.

## Coughing after COVID-19

Dry coughing can become a habit. The more we cough, the more it irritates our throat, the more mucus our throat produces and the more we cough and throat clear. This is a vicious circle. You can break the cycle. See section six of this guidance for more information on [looking after your throat](#).

### **Advice to help with dry coughing**

You may have a strong urge to dry cough post COVID-19. This will ease over time. Repeat any strategy that helps you to control the urge to cough. Repeat, repeat, repeat, even if you have started coughing.

Notice when the feeling of wanting to cough rises inside and do one of the following:

- Instead of coughing, sharply sniff in through your nose (shoulders down) and do a long blow out with rounded lips and puffy cheeks; or
- Press your tongue up into the roof of your mouth for 5 seconds then swallow; or
- Take a sip of water, put your chin on your chest and swallow.

Repeat any strategy until the urge to cough passes. Remember, the more you cough, the more you need to cough. The less you cough, the less you need to cough.

### **Help with chronic coughing after COVID-19**

If you are concerned about coughing and clearing your throat excessively after COVID-19, ask your GP to refer you to a chest (respiratory) doctor. It is ESSENTIAL that you speak with your GP and see a doctor for investigations if you are still coughing more than 8 weeks after a COVID-19 infection.

You may be referred to a physiotherapist and/or speech and language therapist after investigation by your doctor.

## Acid reflux after COVID-19

Some people develop acid reflux after COVID-19, even though they did not have it before. This information is for guidance. It does not replace advice from your GP.

There is a ring of muscle at the bottom end of the food-pipe before the stomach, which helps to prevent reflux. The muscle relaxes when we eat and drink and tightens afterwards. If the ring of muscle weakens, reflux can happen. This happens commonly after COVID-19.

### What is acid reflux?

- When you eat or drink, food and liquid pass through your food-pipe (oesophagus) down into your stomach.
- We call it acid reflux when the acid from your stomach travels back up into your food-pipe and sometimes into your throat and voicebox.
- Acid reflux is not like vomiting.
- Most people get heartburn or indigestion at times. This usually occurs after a big meal, rich food or lying/bending down after eating.
- Acid reflux can be happening without you being aware of it. You do not always get symptoms of heartburn and indigestion even when you are having acid reflux.

### Experiencing acid reflux after COVID-19

Reflux is a common problem after COVID-19. COVID-19 can cause reflux or make previous reflux worse. If reflux keeps happening, it can irritate your throat which gives you a sore throat, a hoarse voice or makes you cough after you eat or lie down. There are things you can do to help with reflux.

Common acid reflux symptoms:

- Heartburn or indigestion after eating/drinking, worse after a rich meal, citrus fruits, alcohol, hot drinks or peppermints
- Burping after eating or drinking
- Occasionally a pain deep in the chest, almost within the back
- Discomfort or pain in the chest on swallowing
- Repeating of food into the food-pipe, throat or mouth
- A sensation of food sticking or a feeling of a lump in the throat
- Frequent coughing or throat clearing
- A tickly irritating cough, especially at night
- Waking up with a bitter or sour taste in the mouth or a sore throat
- Increased mucus or phlegm in the throat

- A frequently dry throat
- Increased sensitivity or coughing when eating dry/crumby textures
- Changes in voice quality or a hoarse voice
- Tightness or constriction in the throat

### **Advice to help with managing acid reflux**

Speak to your doctor about reflux. They can prescribe medication. There are lots of things you can do to help yourself:

- Stop smoking
- Minimise alcohol
- Reducing any additional weight around the waistline
- Eat before 8pm – leave <2 hours between eating and lying down
- Avoid large and rich meals
- Raise the head of the bed
- Bend your knees – avoid bending or stooping over
- Avoid tight or restrictive clothing on your waist
- Avoid fizzy drinks and lots of caffeine (tea, coffee, coke, energy drinks)
- Drink lots of water everyday
- Avoid chocolate, fatty foods, fried foods, spicy foods, citrus or acidic foods
- Chew gum after meals – whitening gum (bicarbonate of soda gum)
- Sit upright when eating
- Lie on your left side at night, if possible
- There is a link between increased physiological stress levels, changes to the tone of muscles in the body and reflux episodes.

For NHS advice on reflux visit [heartburn and acid reflux – NHS.uk](https://www.nhs.uk/heartburn-and-acid-reflux)

## Swallowing problems after COVID-19

After COVID-19, some people have irritation and sensitivity in their throat and mouth including mouth ulcers. You cough more often after an infection. Coughing tightens the throat. When the throat is tight it can make swallowing uncomfortable. It can feel like food and tablets are sticking in the throat. Sometimes tiny bits of food catch and make people cough when eating. Changes in tastes and smell can influence what you eat and drink. Some people develop mouth ulcers post COVID-19 which can cause pain and affect the pleasure of eating and drinking.

Some people were very unwell with COVID-19 and were hospitalised, with or without having a tube in their throat or mouth to help them breathe. Being very unwell, especially having a breathing tube can affect your voice and swallowing.

### Symptoms of swallowing difficulties

- Coughing or choking when eating and/or drinking
- Throat clearing when eating and/or drinking
- Gurgly/wet voice
- Repeated chest infections
- Poor appetite or avoiding certain types, temperatures and/or textures of food
- Weight loss
- Feeling as though food is getting stuck
- Loss of pleasure in eating and drinking
- Avoiding eating or drinking with other people
- Not taking tablets because they are uncomfortable to swallow.

### Breathing during swallowing

COVID-19 can affect the way you breathe. When we swallow, we briefly hold our breath.

Some people feel breathless when eating after COVID-19. This is due to changes in the cycle of breathing and swallowing.

Normally, we breathe out after swallowing. If you feel out of breath after COVID-19 you might breathe in after swallowing, instead of breathing out.

If bits of food or drink are still in your throat, you will cough and splutter.

### Swallowing issues after being in hospital with COVID-19

- If you were in hospital with COVID-19 you may have had a tube put into your mouth or throat to help you breathe.
- The tube can cause bruising and swelling in your throat or changes to your voicebox.
- The swallowing muscles can weaken if they were not used for a while.
- These changes can affect your swallowing.
- The issues are usually temporary and resolve over time (typically 4-6 weeks) but may be long term.

Some people develop the feeling of a lump in the throat, known as globus pharyngeus after COVID-19.

### **Advice to help with swallowing problems**

- Avoid eating and drinking when you are tired or breathless
- Sit upright when you are eating and drinking. Eat at a table if you can
- Reduce distractions such as the television
- Take small mouthfuls and chew well
- Have soft, easy to chew foods
- Add sauce and gravy to moisten foods
- Eat smaller, more frequent meals
- Take a break if you become short of breath when eating
- Try to breathe out after swallowing to clear food or drink left in your throat
- Alternate mouthfuls of food with drinking sips
- Avoid talking during mealtimes. This helps you to save your energy and breath
- Sit upright for 30 minutes after you have finished eating
- Regularly brush your teeth. See a dentist if your tongue is coated or your mouth is not clean

### **Help with swallowing problems**

If you are having problems with swallowing food, drink or tablets after COVID-19, ask your GP to refer you to your local speech and language therapy service. They are experts in helping people with swallowing problems. If you are not eating or drinking well, ask your GP to refer you to a dietician. Do not delay seeking help from your GP.

## Fatigue, breathlessness, and changes to psychological well-being

There are other significant symptoms that occur post COVID-19 including:

- fatigue
- breathlessness
- difficulties with sleeping
- muscle pain and weakness
- gastrointestinal issues
- changes to psychological well-being including anxiety and depression
- neurological symptoms including dysautonomia and postural tachycardia syndrome (PoTS).

These symptoms can fluctuate in severity from day to day and may have a long-term impact on health, family, social educational and work commitments.

Speech and language therapists are not directly involved with treating these conditions, however these symptoms impact on swallowing, communication and upper airway changes post COVID-19. Here is brief information on fatigue, breathlessness and nervous system changes where they impact on communication, swallowing and upper airway conditions.

For more information on these conditions, refer to the [Your COVID Recovery website](#).

### Fatigue

Fatigue is more than feeling tired. Fatigue is excessive tiredness that does not improve despite resting or sleeping. It is different to tiredness which improves after rest. Fatigue can be so severe that people are unable to perform everyday tasks such as having a shower without needing to rest for a long time afterwards.

There are different types of exertion that contribute to fatigue:

- physical exertion
- cognitive exertion
- emotional exertion
- sensory exertion

All four types will affect fatigue levels and communication function. Fatigue triggers are unique and will differ for individuals. People living with long COVID can experience Post Exertional Malaise (PEM) or Post Exertional Symptom Exacerbation (PESE). Visit the [long COVID physio page](#) for more information about how they impact the individual.

There are practical steps people can take to reduce the impact of fatigue. Visit the Royal College of Occupational Therapists [website on managing post-viral fatigue](#) and the [Your COVID Recovery](#) website.

## Breathlessness

Breathlessness is a commonly reported symptom. Some people sustain damage to their lungs, brain and blood vessels due to COVID-19, whilst other people do not and still experience breathing changes. It is vital you have been seen by a doctor who can investigate the reasons for feeling breathless.

Symptoms include feeling short of breath even at rest, feeling unable to take in enough air and a having tight chest when breathing in. The origin may be from lung damage, disordered breathing pattern or a combination of both.

If you feel breathless after COVID-19 you must be referred to a doctor for examination and medical treatment as required.

Some people develop a chronic change in their breathing pattern post COVID-19, known as a Breathing Pattern Disorder (BPD). BPD develops over time. You may be referred to a specialist respiratory physiotherapist or specialist speech and language therapist working in respiratory care to teach you breathing control and retraining exercises if needed. This approach will not be suitable for people with lung disease and blood vessel or heart changes post COVID-19.

Treatment involves:

- understanding the reasons for your symptoms
- learning the difference between shallow and efficient breathing
- being aware of normal breathing rates at rest and during activity
- nose breathing instead of mouth breathing
- breathing pattern retraining exercises
- making the most of sleep, good diet, throat care and relaxation.

There is a link between form and function in breathing. Chronic physiological stress leads to shallow breathing which causes changes to the chemical balance in the body. Breathing retraining exercises have been shown to reduce physiological stress and help reduce Breathing Pattern Disorder.

If you have lung changes, your chest doctor will help you manage this.

Further details about managing breathlessness can be found on the [Your COVID Recovery website](#) and from the [World Health Organisation](#).

## Changes to psychological well-being and the nervous system

Changes to mood and psychological well-being, including anxiety and depression, are primary neuropsychiatric symptoms post COVID-19. They are also consequences of contracting a severe illness with long-term consequences. Research shows a link between long COVID and psychological changes such as increased fight/flight/freeze response, anxiety and depression (Mazza et al., 2020). This is a physiological response to chemical changes triggered by the overactive nervous system. COVID-19 can lead to long-term autonomic nervous system changes associated with increased sympathetic nerve activity.

People living with long COVID experience features of dysautonomia including but not limited to: dizziness, irregular and variable cardiac activity, palpitations, sweating, fevers and the onset of **POTS**.

If you are experiencing these changes, it is important to be assessed by a specialist doctor, following a referral by your GP. You may also benefit from support for psychological well-being in the wake of living with a long-term condition.

- **[Your COVID Recovery – children and young people with COVID-19 on managing emotions and feelings](#)** provides information for children over 12 and parent/carers.
- **[Your COVID Recovery – managing your worries](#)** provides information for adults.
- **[NHS England – supporting colleagues affected by long COVID](#)** provides information on the best ways to support your colleagues.
- **[NHS Talking Therapies](#)** has information about psychological therapies.

### For further help...

If you are experiencing any of these symptoms and would like assistance, speak with your GP. Ask them to refer you to a local post COVID-19 Service if available or ask them to refer you for specialist input. They will be able to make the correct onwards referral for your symptoms.