

Long COVID rehabilitation booklet

Information for patients



Produced in partnership:

The Leeds Teaching Hospitals NHS Trust and
Leeds Community Healthcare NHS Trust

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What is Long COVID?

Post COVID-19 Syndrome is also called Long COVID. It describes the signs and symptoms that develop during or following an infection consistent with COVID-19, which continues for more than 12 weeks and are not explained by an alternative diagnosis.

The condition usually presents with clusters of symptoms, often overlapping, which may change over time and can affect any system within your body.

The severity of your illness after catching COVID-19 does not indicate whether you will go on to develop Long COVID. In other words, you may have a mild dose of COVID-19 and then develop Long COVID. Or, you may have been severely ill with COVID-19 and then suffer no longer term after effects.

Commonly reported symptoms

There is a broad spectrum of symptoms that you may or may not experience with Long COVID. The most common ones are listed below:

- Fatigue
- Breathlessness
- Chills and sweats
- A fast heart rate at rest or on exertion
- Headaches
- Poor concentration and short-term memory problems
- Voice problems

- Muscle weakness
- Pain – back/joint/muscular and chest
- Anxiety
- Dizziness
- Flare up/exacerbation of pre-existing health problems
- Hair loss
- Skin rashes
- Tinnitus
- Gastro-intestinal issues
- Loss of taste and smell
- Numbness/pins and needles
- Insomnia
- Hormonal imbalance.

Please seek advice from your GP or by calling 111 if you feel your symptoms are worsening and might need further investigation.

Caution

There are certain medical complications that can arise while recovering from COVID-19 that need an urgent medical review. It's important to contact a healthcare professional (GP, 111 or 999 as appropriate) if you experience any 'red flag' symptoms:

- You become very short of breath with minimal activity that does not improve with any of the positions for easing breathlessness described on page 13.

- There is a change in how breathless you are at rest that does not get better by using the breathing control techniques described on page 14.
- You experience chest pain, racing of the heartbeat or dizziness in certain positions or during exercise or activity.
- Your confusion is getting worse or you have difficulty speaking or understanding speech.
- You have new weakness in your face, arm or leg, especially on one side of the body.
- Your anxiety or mood worsens, or you have thoughts of harming yourself.

(WHO - Support for rehabilitation: self-management after COVID-19-related illness, 2nd edition)

What causes Long COVID

At time of writing there has been no definitive cause of why some people get Long COVID and others do not. Research is ongoing across the world to try to identify the cause. We believe that it is impacting on our autonomic nervous system in many people we see in Leeds causing dysautonomia.

Understanding the nervous system

Our nervous system is made up of a network of nerves across the whole of our bodies that takes information to and from the brain and spinal cord (the central nervous system). It contains some nerves that carry sensations and instructions that we are consciously aware of and under our control.

The other part of our nervous system is the autonomic nervous system. This controls processes which we are not consciously in control of such as how fast our heart should beat, what blood pressure we should have and when to initiate digestion of food.

The autonomic nervous system has two branches – the sympathetic branch and the parasympathetic branch. The sympathetic nervous system response is also known as the 'fight or flight response'. The parasympathetic response is also known as the 'rest and digest' response. Usually these branches are balanced, with one counteracting the other to bring the body into a state of balance.

Dysautonomia

Dysautonomia refers to these two responses not being in a healthy balance with each other. The fight or flight response is useful for getting us out of short-lived periods of danger. For instance, if you cross a road and a car comes hurtling towards you, your heart rate increases, your reaction time improves and you get out of the way. However, what seems to happen in Long COVID is the 'fight or flight' response goes into overdrive. Our bodies are not used to being in this response for a long period of time. This can contribute to many symptoms of Long COVID including fast heart rate, dizziness and dry mouth. Importantly, it is very draining on the body's energy resources to be in this state for a long time and it can contribute to fatigue.

How is dysautonomia diagnosed and treated?

One way of us knowing if dysautonomia is contributing to your symptoms is by doing a test called the 'Lean test'. This will be carried out when you have your initial assessment. It is a test of your heart rate and blood pressure when lying for 2-3 minutes and then on standing whilst leaning against a wall for 10 minutes. Certain changes in your heart rate and blood pressure during this test are suggestive of dysautonomia. If you have dysautonomia this will be discussed with you along with management strategies. Any activity that relaxes you will be helpful for stimulating the 'rest and digest' response and drawing you out of the 'fight or flight' response to help bring the body back into balance. This may include mindfulness, meditation, being in nature etc and your rehab team will help you find what works for you.

The emotional impact of Long COVID

The experience of having COVID-19 can be very frightening. It is understandable that the experience of contracting the virus and then suffering from ongoing symptoms for months afterwards can have a huge emotional impact.

Having ongoing symptoms can cause common problems outlined below:

- Feeling anxious when struggling to catch your breath and when your heart feels like its racing.
- Feeling low in mood.
- Poor sleep.
- Wondering if this will ever go away.

- Worries about finances and/or getting back to work.
- Worries about family or friends becoming ill and suffering.
- Health experts not always being able to answer all your questions or give explanations.
- Unpleasant images from when you were first unwell, that might seem to come 'out of the blue'.
- Nightmares.
- Feelings of panic with any hospital reminders/medical appointments.



What can help?

- Speaking to family and friends.
- Trying to do activities that you find enjoyable and relaxing.
- Not being too hard on yourself if there are things that you

are finding harder to do, and remind yourself that recovery takes time.

- Focusing on what you can control.

Menopause and Long COVID

Long COVID seems to affect more women than men and particularly in the age group 40-60. This has led researchers to question if there is a link between Long COVID and menopause. So far it has been felt likely that covid infection could impact the ovaries, reducing hormone production and potentially this could exacerbate the symptoms of menopause. Further research into this area is ongoing.

There are many overlapping symptoms between Long COVID and menopause. Some of these include; 'brain fog', poor sleep, headaches, fatigue, joint pains, anxiety and low mood. Menopause in addition can present with hot flushes and disruption to periods. The average age in the UK is 51 but women can have menopausal symptoms prior to this as hormone levels fluctuate (perimenopause).

If you feel that any of your symptoms could be menopausal rather than related to Long COVID alone then please discuss this with your GP. Treatments for menopausal symptoms include lifestyle changes, hormone replacement therapy and there are other medication options too. These can, in some women, have huge benefits to quality of life.

Relaxation

Relaxation is an important part of energy conservation. It can help you to control your anxiety, improve the quality of

your sleep, reduce pain and help manage the symptoms of dysautonomia. Below is a technique you can use to manage anxiety and help you relax.

Grounding technique

Take slow gentle breaths and ask yourself:

1. What are five things I can see?
2. What are four things I can feel?
3. What are three things I can hear?
4. What are two things I can smell?
5. What is one thing I can taste?

Think of the answers slowly to yourself, one sense at a time and spend at least ten seconds focusing on each one.

There are a number of different relaxation techniques you can try, different people prefer different techniques. You can search on the internet to explore different strategies.

- Progressive muscle relaxation
- Meditation
- Mindfulness
- Guided imagery or visualisation
- Alexander technique
- Aromatherapy
- Tai Chi
- Yoga nidra
- Music.

Thinking patterns and symptoms

It is important to remember that your symptoms are a normal part of your recovery following COVID-19.

Worrying and thinking about your symptoms can often make them worse. This is partly due to paying attention to something will magnify or increase it.

If you focus on your breathing or heart rate for a couple of minutes you will feel the sensations more. This is the same with all Long COVID symptoms. For example, if you focus on headaches, you will likely get more headaches, if you focus on poor sleep you will likely struggle to sleep and if you focus on struggling to concentrate, concentration will become increasingly difficult.

Before you experienced COVID-19 you may have had some of these symptoms, therefore treat them in the same way you would have done before. We do not mean for you to ignore your symptoms, and you should still discuss any ongoing symptoms with your medical team as they may be able to offer treatment to help.

Often symptoms are linked; meaning an increase in one symptom leads to an increase in another symptom. If you are fatigued your concentration will be affected, this in turn will affect your memory. These lapses of memory can increase your anxiety, which increases your fatigue. As you can see this goes round in a cycle. Therefore, an improvement in one area should lead to an improvement in another.

During your recovery you will have good days and bad days, and periods of ups and downs. This is normal and it is important not to dwell on the negative. Throughout your

rehabilitation try to be kind to yourself, and not too critical. Consider what advice you might give to a friend and treat yourself in the same way.

At the back of this booklet, you will find a list useful online links. These are a fantastic resource to support your wellbeing.

Breathlessness and Long COVID

Breathlessness is a very common symptom in people with Long COVID. Your lungs can become inflamed with your initial infection and the effort of breathing can increase.

You may be breathing more quickly and shallower than normal, however, it is important to try and stay calm.

As your lungs recover and time passes into the 12 week mark following infection, there can be other reasons for your breathlessness to continue. These can be due to:

- Change to your breathing pattern
- Fatigue
- Effects of dysautonomia
- Poor posture
- Muscle weakness
- Anxiety.

(Please note that this is not an exhaustive list as research is ongoing into this area).

Other areas of our body can become more tense or work harder when our breathing pattern has changed, or we are breathless. For example, we may start to breathe more

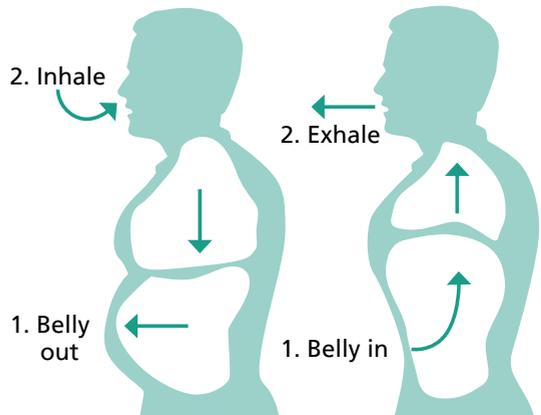
from our upper chest, or we may become more tense in our shoulders. This uses much more energy, and the muscles can become tired and sore.

We encourage breathing control to help manage your breathlessness, improve your breathing pattern, help manage anxiety, help regulate your autonomic nervous system, reduce fatigue, and improve posture.

Practice at rest to begin with then use during activity.

Breathing control - something to help you relax

1. Get in a comfortable position (preferably in lying or in sitting) and allow your body to relax.
2. Close your eyes and bring your attention to your breathing.
3. Breathe in and out through your nose (or mouth if you are unable to do this - but work towards trying to breathe through your nose in time).
4. Put a hand on your stomach and recognise how it rises and falls when you breathe in and out.
5. As you breathe in through your nose, let the air come low into your lungs, pushing your tummy out against your hands, and then breathing out, let your tummy sink back in.
6. Try to breathe in for

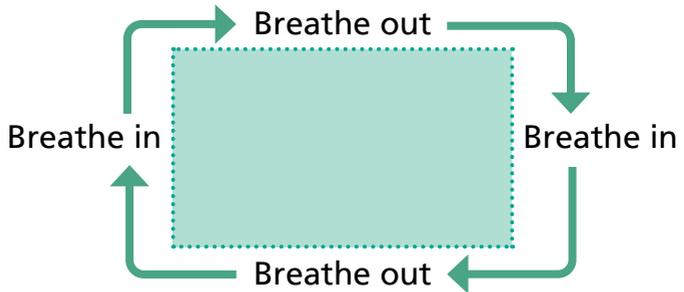


the count of one, PAUSE and then out for count of two, working towards a longer breath out than in. This will slow your breathing rate down.

7. Notice areas of tension in your body and try to release this with each breath out.
8. Gradually try to make your breaths slower.

Rectangular breathing

This is a useful exercise to try when feeling breathless on activity but is beneficial to practice several times of day when relaxed to start, and build on from the breathing control.



Look at your surroundings for something

rectangular – perhaps a window or television for example.

Breathe in on the short edge and out on the long edge, ensuring that the breath out is completely passive and greater in length than the breath in. Aim to breathe in and out through the nose slowly.

You are aiming towards breathing in for a count of four and breathing out for a count of six, however the main thing to achieve is a longer out breath than in breath. Early indications from research suggest that this helps with many symptoms of dysautonomia, when performed for 10 minutes (minimum of 5 minutes), 2-3 times a day gets the best results, especially if the last session is done before or in bed.

This may also be a useful technique for you to do when you are preparing to do something that you deem likely to be stressful, such as a work meeting, and then also to do this afterwards as a way of supporting recovery. Routine is key, try to build this into your everyday for optimum results.

Positions of ease:

These positions may help reduce your breathlessness and effort of breathing. Practice your breathing control in these positions.

High side lying:

- Lie on your side.
- Use multiple pillows under your head and shoulders.
- Bend your knees a little.



Supported forward sitting:

- Sitting upright, lean forward on to a table.
- Add as many pillows as required.



Forward sitting:

- Sit leaning forward.
- Rest your forearms on your knees.
- Relax your chest and shoulders.



Supported standing:

- Stand leaning forward and use a chair, bench or wall for support.
- Relax your chest and shoulders.



Prone lying:

- Lie on your tummy (prone) resting your forehead on the backs of your hands.
- If you usually have difficulty lying on your tummy, or you have shoulder problems, you may wish to use the other positions shown.



Pursed lip breathing

Pursed lip breathing can be used at any time to help you control your breathing. This helps to empty all the air out of your lungs in a slow and controlled manner.

1. Breathe in gently through your nose.
2. Then purse your lips as though you're going to blow out a candle.
3. Blow out with your lips in this pursed position. Imagine gently blowing out a candle when you breathe out. Blow out only for as long as is comfortable – don't force your lungs to empty.

Blow as you go

This is useful during activities that make you breathless e.g. lifting an object (can be used with pursed lip breathing):

1. Breathe in before you make the effort.
2. Breathe out whilst making the effort (e.g. as you lift the object).
3. Always breathe out on the hardest part of the action.

Cough and Long COVID

How can I manage my cough?

You may be experiencing a persistent, dry cough. This can be irritating, exhausting and can lead to inflammation in your upper airways.

There are techniques that you can use to help to reduce the amount you cough. By supressing your cough, you can break the cycle of coughing and help reduce your symptoms.

Supress the urge to cough

1. Breathing in and out through your nose instead of your mouth.
2. Sucking on boiled sweets or lollipops.
3. Having regular drinks/sips of fluids.

Stop cough exercise

As soon as you feel the urge to cough, close your mouth and cover it with your hand (SMOTHER the cough). At the same time, make yourself SWALLOW. STOP breathing - take a pause. When you start to breathe again, breathe in and out through your nose SOFTLY.

Smother - Swallow - Stop - Soft is a good way to remember this exercise.

If you cough at night, try lying in a different position and / or use pillows to prop yourself up.

Fatigue management

Fatigue is the most common debilitating symptom that is experienced in Long COVID. It is often described as an overwhelming sense of tiredness which can be physical, emotional, cognitive, social and spiritual.

Fatigue can impact on all activities of daily living for example, returning to work, cooking / planning a meal, holding and understanding a conversation, caring responsibilities and playing with your children.

Understanding how to get the most out your limited energy envelope is a puzzle which is individual to you. Understand all the pieces of your personal puzzle so you can piece back a life which uses your limited energy to maximise your quality of life.

Physical Fatigue

Some people find that when they are fatigued their body feels overwhelmingly heavy and that moving takes an enormous amount of energy. When increasing your levels of activity, you may experience an increase in physical symptoms, e.g. muscular aches and pains. This can be a normal process and may require careful monitoring.

Mental and Cognitive Fatigue

Many people find that when they are fatigued it becomes difficult to think, concentrate or take in new information and that memory and learning is affected. Some people find even basic word finding and thinking difficult.

The fatigue people are experiencing with Long COVID leaves them exhausted after completing the most basic of tasks, and some people wake up feeling as tired as they did when they went to sleep.

Fatigue affects people in different ways, and it may change from week to week, day to day or hour to hour. It may also mean people have reduced motivation to do anything because they are so fatigued and know that undertaking the smallest task will leave them exhausted. This can be difficult to explain to family/friends/colleagues.

Informing and helping others to understand your fatigue and how it impacts on you can make a big difference to how you cope with and manage your fatigue (see A.D.A.P.T.E.R.S further on for recommendations on how to do this).

Sleep

A lack of sleep or poor sleep quality can make fatigue worse.

Sleep can be adversely affected by a number of things:

- Pain
- Needing the toilet
- Screen time too near to trying to sleep
- Spending more time than usual inside
- Too much caffeine
- Alcohol
- Noise
- Temperature (too warm or too cold)
- Mood (anxiety/depression)
- PTSD and flashbacks.

When thinking about your sleep and the effect it is likely to be having on your fatigue, it is important to consider each of these issues and make any necessary changes to minimise the impact.

There is a 'Sleep Well' online session provided by Leeds Mental Health and Wellbeing Service. This is a valuable free resource, see links at the end of this booklet.

ADAPTERS

Applying these principles may help you in managing your levels of fatigue:

Accept - accept that you have an energy envelope with limited currency.

Delegate - Ask people for help.

Adjust - Do things differently.

Pace, Prioritise and Plan (see below).

Talking - talk to others about how it may be impacting you.

Embody - listen to your body and not just your head.

Review - Review how well are you managing your levels of fatigue regularly.

Savour - Live in the present and notice with gratitude.

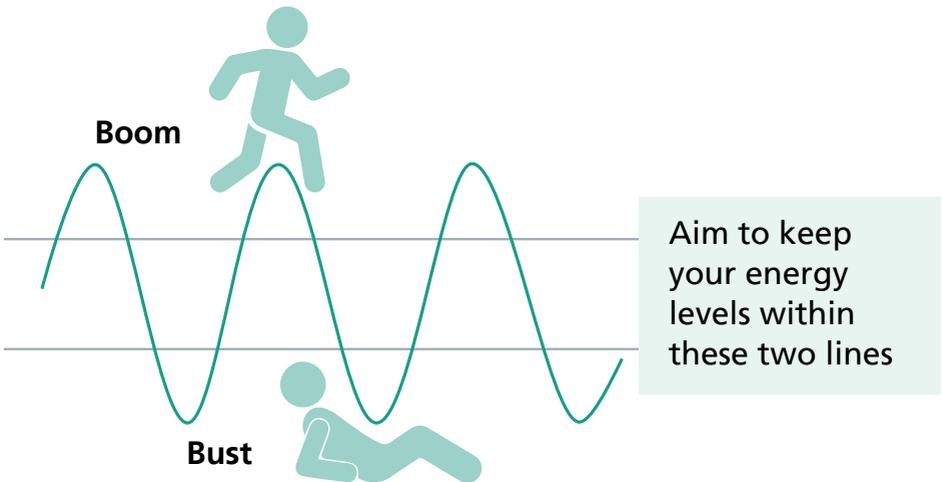
The 3 Ps = Pace, Prioritise and Plan

When recovering from any serious illness most people will experience ups and downs with their symptoms for a variety of reasons.

People tend to use these symptoms to decide how much they do. So on 'good days' they may try to do more, often trying to 'catch up' and very often then overdo it. This can then result in experiencing a bad day and some people describe this as a 'relapse' when they might experience more symptoms, feel low and are able to do very little.

It is important to remember that all activity takes energy, whether it is physical, mental or emotional.

You might have noticed that when you 'overdo' things, your symptoms are worse, and you need to rest more. Resting decreases the symptoms and you are tempted to be active again. This is called the '**boom and bust pattern**' and is detrimental to your recovery.



By keeping your energy exertion within the upper and lower lines you prevent the 'busting' which unfortunately can lead to PESE (post exertion symptom exacerbation) sometimes referred to as PEM (post exertional malaise). This is discussed in more detail on page 44.

Pacing

Pacing is a strategy that helps you to get out of this **boom and bust** cycle and helps you to manage your activities without aggravating your symptoms.

You should develop an activity plan which allows you to stay within your current 'energy envelope' and therefore avoid 'overdoing things'. Your levels of activity can then be increased in a controlled way over time as your stamina increases.

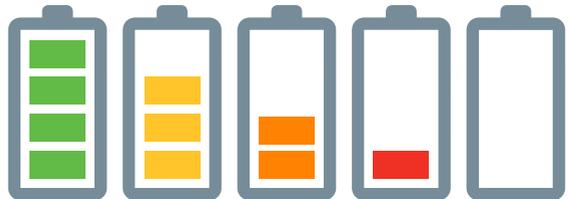
By pacing your activities, you are ensuring that:

- You are controlling the demands you place on yourself.
- These demands are in line with your current capabilities.
- You are exposing your body and mind to these demands in a regular controlled way.

By aiming not to 'overdo' activity on good days, it is possible to avoid the severity of symptoms on bad days, therefore making it easier to predict the level of activity you will be able to achieve on any given day.

The first step is to think about how much activity you are able to carry out at the moment, even on a 'not so good' day. It is important not to compare yourself to others or to how much you could do before.

From this, you will be able to set a baseline of activity. This is the amount of activity you will carry out every day.



It can be tempting to use your energy on days you feel good. How you use your energy can have an impact on your levels of fatigue.

Prioritise

When energy supplies are limited, you may need to make sure that the energy you use is spent on activities that are the most important to you. It may also be useful to identify what activities in your day are necessary, i.e., which tasks 'need' to be done and which do you 'want' to do, what activities could be carried out at a different time or day, and which activities somebody else could assist with.

Prioritising activities is very individual and what may be a priority for some may not be for others. For example, it may be important for someone to use their energy to have a shower each morning and for someone else, they may limit this to three times a week to ensure they save their energy to carry out a leisure task that is important to them.

Tip: It may be useful to write down the activities that you both want and need to do throughout the day. You could then score these activities to help you to prioritise them. This will also help you in planning your day.

Plan

When planning your day or week, spread your activities out rather than trying to fit them all in one day. Think about when your energy levels may be at their best and try to complete high energy tasks at this time.

Can an activity be graded so that it doesn't have to be completed all at once? E.g. cleaning one room as opposed to

the whole of the house.

Before starting an activity, it is useful to think about what you are required to complete in that particular activity. It is helpful to have an organised working space and ensure that you have all items to hand to avoid you having to use more energy going back and forth.

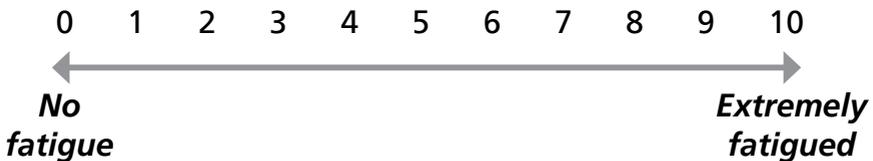
Can you conserve energy by sitting down to complete some of the tasks? E.g. preparing vegetables for cooking.

As well as planning your activities, it is equally as important to plan your rest and relaxation times to allow you to 'recharge.'

Creating an activity diary or a daily plan will help you to **pace** yourself and **prioritise** what you want and need to do.

It may take a few attempts to get right, but once you feel you have found your baseline it is important to ensure a period of consistency before this is increased again.

Fatigue scoring



When you are ready, you can gradually increase the amount of activity you are doing but be careful not to build up too quickly. As a general rule it is suggested an increase of no more than 10%.

Once you have made an increase, you will need to keep the levels stable before increasing again.

Activity and Fatigue Diary

Day	6-9am		9-12pm		12-3pm		3-6pm		6pm - bedtime	
	Activity	Fatigue Score	Activity	Fatigue Score						
Mon										
Tues										
Wed										
Thurs										
Fri										
Sat										
Sun										

Cognition

Cognition means someone's 'thinking skills'. People can experience a range of difficulties with their thinking skills post-COVID-19 affecting memory, attention, information processing, planning and organisation.

A common symptom experienced is Brain Fog. Brain Fog is a term used to explain a number of symptoms that affect someone's ability to think. This involves feeling confused, disorganised, having memory problems, finding it hard to focus and having slower processing of information.

Brain Fog is often made worse by fatigue, meaning the more tired a person is, the more they notice increased difficulty with their thinking skills.

To support your thinking skills, consider the following:

- **Minimise distractions:** Try to work in a quiet environment with no background distractions. You may find it helpful to:
 - Wear ear plugs
 - To let people know that they should try not to interrupt you.
 - If you are distracted when reading text, block off parts of the text using paper, or use your finger as a marker.
- **Complete activities when less fatigued:** When completing a task that demands your thinking skills, plan this for a time when you are less tired. For example, if you tire as the day goes on - then do the task in the morning.
- **Say things out loud:** By saying things out loud like 'what should I be doing now?' or 'Stay focused' or by reading instructions out loud you can help yourself to stay on the right track.

- **Take frequent breaks:** If the problem is made worse by fatigue, work for shorter periods of time and take breaks. Use 'little and often' as a guide and pace yourself.
- **Set yourself targets or goals:** Having something definite to work towards will help you stay motivated. Setting deadlines like "I'll do that task at 10 o'clock", instead of "I'll do my work later on".
- **Best time and apply structure:** Work out when your best time of day is for doing this kind of work. Try to set up your daily/weekly schedule to take account of this. It may help to plan activities ahead of time. Establishing a daily and weekly routine can also help. Keeping a record, or breaking things down into manageable parts can help, so then if you get distracted you can pick up where you left off.
- **Use incentives:** When you achieve a target or goal, reward yourself, try something very simple such as a cup of tea or coffee, letting yourself watch a TV programme or going for a walk.
- **One thing at a time:** Concentrate on one thing at a time, do not try to take in too much information at once, as this can lead to mistakes. Do one task then move on to the next.
- **Don't rush things:** You may find that you have a tendency to rush everyday tasks and end up making mistakes. Take your time and pace yourself.
- **Self-monitor or check and double check your work:** Do this with everything you do. It will be slow and hard at first, but it will become a habit as you get accustomed to it. This is the only sure-fire way of picking up on your own errors.
- **Gain control:** If in everyday conversation you feel you

are being 'overloaded' and you cannot attend to all the information, ask the person who is talking to you to slow down or repeat themselves. Be assertive and say something like "Excuse me, I think you have lost me, could you repeat that please?"

- **Aids:** Using lists, post it notes, diaries and calendars can all help support your memory and routine.

Please refer to /request the Long COVID Rehabilitation service 'Brain fog' booklet for further information and advice.

Communication

Sometimes people experience difficulties with their ability to communicate; this can affect the way that they communicate with other people.

You may experience one or more of the following difficulties:

- Understanding what people are saying to you
- Reading
- Putting your thoughts and feelings into words
- Having a conversation
- Finding the correct word
- Having slurred speech.

These symptoms can be worse when you are fatigued or feeling stressed. If you are having difficulty with your communication, speak to your GP or your therapist.

Nutrition and hydration

Good nutrition and hydration help to support your body in recovery from COVID-19 and Long COVID as well as helping to rebuild your muscle strength and function as part of your rehabilitation. Even though you may not feel hungry or thirsty, it is important to eat and drink well.

If you have specific dietary requirements, please check with a healthcare professional that the information is safe for you to follow.

Hydration

Being well hydrated helps your body to function and aids mobilisation and recovery.

- Drink regularly throughout the day - aim to have eight cups of fluid each day (2 litres).
- Take small, frequent sips of liquids every few minutes if you are not able to drink large amounts at one time.
- Aim to drink enough fluid to keep your urine a pale straw colour.
- All fluids (except alcohol) count, try to have a variety including one milk-based drink and once fresh fruit juice each day.



A varied and nourishing diet

You may require more nutrition than usual to support your body during and after illness.



DiETING with the aim of reducing body weight is not recommended during acute illness or recovery, due to the risk of reducing your muscle mass, strength and exacerbating fatigue.

Eat regularly and avoid missing meals. A well-balanced diet contains foods from all the food groups.

The Eatwell Guide shows how much of what we eat overall should come from each food group to achieve a healthy, balanced diet.

You do not need to achieve this balance with every meal but try to get the balance right over a day or even a week.

For more information visit:

<https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/>



The low glycaemic index diet

Carbohydrate containing foods can be classed according to their glycaemic index (GI). This is how quickly the sugar from these foods is absorbed into the body. Eating foods which have a low GI can help manage energy levels. The sugar from these foods is absorbed more slowly giving us a slower and more sustained release of energy.

If you are struggling with fatigue try and have a low GI food at each meal.

Carbohydrate containing food	Lower GI choice
Bread	Multigrain, granary, rye, seeded, wholegrain, oat, sourdough
Potatoes	New potatoes in skins, sweet potato, yam
Pasta	Brown, all pasta if cooked to <i>al dente</i>
Rice	Basmati, long grain, brown
Other grains	Bulgar wheat, barley, couscous, quinoa
Breakfast cereals	Porridge, muesli, most oat or bran-based cereals

For more information:

<https://www.bda.uk.com/resource/glycaemic-index.html>

Unwanted weight changes

Long COVID can affect peoples' appetite and weight in different ways. Some people find they gain unwanted weight and others suffer with a reduced appetite and consequently lose weight.

Unintentional weight gain

- Some people find themselves eating more than normal due to low mood, boredom, comfort eating or wanting to boost energy levels.
- They may also be less physically active and therefore more likely to gain weight.
- To help minimise unintentional weight gain keep high fat, sugary foods and sugary drinks to a minimum.
- Instead choose healthier alternatives.
- For more detail visit <https://www.nhs.uk/live-well/eat-well/healthy-food-swaps/>

Unintentional weight loss

- For others Long COVID can cause a poor appetite which results in eating significantly less than normal.
- To help minimise unintentional weight loss eat regularly (by the clock rather than waiting to feel hungry).
- Eat little and often having nourishing snacks and drinks in between your meal.
- If untreated unintentional weight loss can lead to malnutrition.
- Ask your health professional if you are struggling to regain your weight.

- For more advice on managing a poor appetite and preventing malnutrition visit:
<https://www.bda.uk.com/resource/malnutrition.html>

Practical tips to help you eat and drink well	
<i>Reduced sense of taste and smell</i>	<p>Ensure good oral hygiene.</p> <p>Experiment with strongly flavoured foods e.g. spicy, citrus, pickle.</p> <p>Try adding sauces or extra herbs and spices to meals.</p> <p>Practice smell training. For more information and online support visit: https://abscent.org/ or https://www.fifthsense.org.uk/</p>
<i>Breathlessness</i>	<p>Choose soft (easy to chew) foods and nourishing drinks.</p> <p>Eat slowly and take smaller bites.</p> <p>Try to eat more at the times when you feel less breathless.</p>
<i>Dry mouth</i>	<p>Sip drinks regularly, choose moist foods and ensure good mouth care.</p> <p>Try sucking on fruit sweets, mints or chewing gum to stimulate saliva production.</p>
<i>Gut symptoms such as bloating, stomach pains and changes to bowel habits</i>	<p>Reduce caffeine and alcohol intake.</p> <p>Ensure a good fluid intake and avoid fizzy drinks.</p> <p>Chew food well and sit up straight whilst eating and immediately afterwards.</p> <p>Limit fatty and processed foods.</p> <p>Relaxation (some gut symptoms can be exacerbated by stress and anxiety).</p>

Probiotics

The gut is filled with trillions of microbes which can be known as either 'good' or 'bad' bacteria, depending on how they impact our bodies. Research has found that an imbalance of gut microflora, therefore lower levels of 'good' bacteria, is common after being infected with Covid-19. This can lead to adverse gastrointestinal (gut) and non-gastrointestinal symptoms. Having reduced levels of healthy bacteria in the gut can increase inflammation, increasing instances of loose stools, bloating and gas, as well as impacting respiratory function, worsening fatigue and can also affect the immune system.

Although Covid-19 can upset the balance of microflora, other contributing factors may include sedentary lifestyles, smoking and antibiotic, antacid or steroid use. Dietary factors include a low intake of fibre-rich food including fruit and vegetables and a high intake of processed meat and refined sugar.

We can aim to improve gut microflora by focusing on probiotic and prebiotic intake.

- **Probiotics** = are live bacteria with proven health benefits. Probiotic supplements can be bought in the form of capsules, sachets and yogurts. Different probiotics play different roles in the body, therefore if you do not notice improvements in symptoms after 4-6 weeks of taking a regular probiotic, consider trialling another bacteria strain or brand. Probiotics can also be found in fermented milk drinks such as kefir.
- **Prebiotics** = what that the bacteria feeds on and increases their growth, this can be found in foods such as fruits, vegetables, beans, legumes, nuts and grains.

- Other **fermented foods** can also improve gut microbiome diversity. These include foods such as kombucha, kimchi, sauerkraut and other fermented vegetables.

Research has identified the benefit of a diverse diet, containing both prebiotics and probiotics on improving Long COVID symptoms, their severity and persistence including cough, fatigue and overall wellbeing, likely due to positive changes to gut microflora.

Please see the Eatwell Guide and website link in this booklet for more information on how to achieve a nutritionally balanced and varied diet.

For more information:

<https://www.bda.uk.com/resource/long-covid-and-diet.html>

If you have any concerns about your eating and drinking speak to your GP or therapist within the Long COVID team.

How could COVID-19 affect my swallowing?

COVID can affect your breathing. This can interrupt the breathe-swallow pattern as you need to hold your breath momentarily while you swallow. Due to this you may find that you become breathless while eating and drinking, or that it is hard to hold your breath to swallow, or you may cough when you swallow.

You may have had a stay in Intensive Care (ICU). This can result in weakening of the muscles used for swallowing as they haven't been used while you were unwell or asleep. Over time, the muscles will rebuild strength as you build up your intake.

If you had a breathing tube this can sometimes cause some bruising and swelling to your throat and voice box. Sometimes this can result in one or both of the vocal folds not moving properly, which can cause changes to your voice and reduced protection for your airway when you swallow. Usually, these affects are temporary and will resolve over time.

Some descriptions of swallowing difficulties:

- Coughing or choking when eating and drinking
- Throat clearing when eating and drinking
- Gurgly / wet voice
- Recurrent chest infections
- Poor appetite
- Weight loss
- Feeling as though food is getting stuck.

Swallowing advice:

- Make sure you are sat upright and that you are fully awake and alert when you are eating and drinking.
- Take your time and take small mouthfuls. It can be helpful to reduce distractions around you.
- You should avoid talking while eating and drinking as this opens the airway which could result in food or drink 'going down the wrong way'. Talking can also make you more breathless which can in turn impact on your swallowing.
- You may want to try making some modifications to the texture of your diet e.g. well chopped, softer consistencies,

more moisture if your throat feels uncomfortable when you swallow.

- It is also very important to keep your mouth clean and healthy with regular tooth brushing. If you notice that your tongue is coated or your mouth looks unclean, speak to your GP or pharmacist.
- If you experience any persisting symptoms speak to your GP or therapist within the Long COVID team as you may require a referral to a speech and language therapist.

How could COVID-19 affect my voice, throat and upper airways?

- COVID-19 can cause a sore throat, laryngitis and a cough, and some people may have needed a ventilator with a breathing tube through the voice-box which can cause an injury. Your voice may be weak and breathy or hoarse and you may have difficulties with voice projection.
- Laryngeal hypersensitivity: irritation of the vocal folds leading to long-term or chronic coughing, throat clearing, changes to the voice, how the voice sounds or feels or a feeling of a lump in the throat.
- Upper airway difficulties: difficulties with breathing which can also include chronic coughing.
- Other influences may be dehydration of your voice box, acid reflux, fatigue and stress.

Advice

- Keep hydrated - drinking 8-10 glasses of water a day is recommended. Dehydration caused by alcohol or caffeine in drinks can lead to vocal fold irritation.

- If your voice is hoarse or weak, don't whisper - use your voice gently to avoid strain.
- Steam inhalation for 10-15 minutes can help with dryness and moisturises the vocal tract.
- Reflux is very common so avoid eating late at night and foods that cause indigestion. You may wish to try a sodium alginate suspension product.
- Reduce or avoid smoking.
- Avoid lots of dairy produce as this can cause thick secretions.
- Try not to 'throat clear' - use sips of water and a hard swallow.

Will my voice return to normal?

The experience of being ill can be emotionally draining and for some people deeply upsetting. Our emotions and voice are closely linked so be aware that emotional recovery and vocal recovery often progress hand in hand.

In most people the inflammation and damage to your voice box should get better over time without treatment. However, if it doesn't, please seek a referral to the Ear, Nose and Throat (ENT) department or Speech and Language Therapy via your GP.

Social life and hobbies

When you have been ill, you may feel different, and you might not want to do the things you used to enjoy.

You may not feel like seeing lots of people at the same time,

and you might find it hard to concentrate to read or watch television. As you recover, your concentration will get better, and your memory will improve.

Try to find activities that you enjoy doing while you recover; this might include starting a new hobby or finding different ways to continue with old hobbies.

It is important that you have a balance of 'work, rest and play'. Try to make sure that each day you can do a good balance of 'work, rest and play' allowing yourself time to do things you enjoy, as well as the things you have to do.

Returning to work with Long COVID

If you have a job to return to and wish to return to that job, early discussions with your workplace manager and occupational health department are often a good idea. This will help your employer to develop a better understanding of your ongoing symptoms and manageable daily activity.

To support a successful return to work it is often helpful to have a flexible and phased return. This might include altered hours or altered duties. These adjustments to your work will aim to help you to manage your symptoms during your recovery.

Before returning to work it is important to think about the physical and cognitive demands. 'Cognitive demands' means the thinking skills required for your job. Examples might include attention, problem solving or organisation.

These skills should be compared to how much you can manage at home. Ideally the amount you can do at home should start

to match the amount you need to do at work.

It can be helpful to get some 'feedback' on your current abilities. This is beneficial as you may have been out of work for some time and may not be aware of how tired or unfit you are.

Through doing some normal day to day activities at home, you can begin to understand your current abilities.

Examples of activities to try (providing this is safe):

- Sorting through paperwork, and letters.
- Placing books or CDs in alphabetical order.
- Using your computer for email, research, or social media.
- Walking (how long and far will depend on your current abilities and symptoms).
- Helping with a mini-DIY project (do not use ladders or sharp tools).
- Making phone calls, e.g. to the bank, a local shop, ordering a family takeaway.
- Cooking yourself a meal/snack (if it is safe to do so).

Many of these activities need similar skills and abilities that you will need to have for returning to work. For example, using your home computer for emails and social media can help you to build up your typing skills and concentration.

Now consider:

- How are you managing with these tasks?
- What went well?

- Did you struggle with anything?
- Is there anything that you need to practice?

The more information that you have about how you find different activities at home will help to inform you when you will be ready to return to work. This information can also help you to structure your return to work and understand any changes that you might need when you are at work. This will ensure a successful return to your job.

Your GP can discuss any changes that you may need to return to work, as well as your local COVID Rehabilitation Team. Please request/refer to the Long COVID Rehabilitation 'Return to work' booklet for further support.

Physical activity advice in Long COVID

Being ill at home, or in hospital with COVID-19, and struggling with Long COVID over a long period of time can result in a significant reduction in your muscle strength and endurance.

Exercise is very important for regaining your muscle strength and endurance, but this needs to be managed alongside any other Long COVID symptoms.

Activities around the house and gentle short walks whilst pacing are considered suitable whilst you are recovering before returning to exercise.

Using the BORG scale will help you regulate your exertion and develop a good understanding of the level of activity or exercise that you should be working towards. It is a good tool to help you understand any symptoms of breathlessness you might have.

Staying active during your recovery has many benefits such as:

- Maintaining your energy levels.
- Maintaining the strength of your breathing muscles.
- Maintaining heart strength and good circulation.
- Prevention of other problems associated with bed rest such as chest infections, bed sores, blood clots, reduced mobility and weakness.
- Good for anxiety and depression.
- Helps to manage stress levels and blood pressure.
- Your wellbeing, independence and confidence.

However, in Long COVID how we maintain our activity levels is key. We must avoid increasing activity levels in such a way that makes our Long COVID symptoms worse and this is very personal to you and must be paced.

How to use the BORG scale during activity and exercise

Below is the BORG scale; you can use it to understand how hard you are working whilst undertaking any physical activity and/or during exercise.

Using this scale during activity and exercise will really give you guidance and a greater understanding about the safe level to challenge yourself and help you to increase your activity/exercise in safe phases.

Borg CR-10		Phases				
Score	Level of exertion	1	2	3	4	5
0	Rest/no exertion at all	1	2	3	4	5
1	Really easy/extremely light					
2	Easy/very light					
3	Moderate/light					
4	Somewhat hard					
5	Hard (heavy)					
6						
7	Very hard					
8						
9	Extremely hard					
10	Maximal exertion					

(WHO - Support for rehabilitation: self-management after COVID-19-related illness, 2nd edition)

Exercise and fatigue

If you are suffering from on-going fatigue, please seek advice from a healthcare professional before getting back to general exercise.

Fatigue and exercise need to be carefully considered and phased to prevent Post Exertional Malaise (PEM) also known as Post exertional symptom exacerbation (PESE) and a 'relapse' of your symptoms.

PESE symptoms include a marked physical and/or mental fatigue in response to increased activity/exercise. This can be debilitating and cause a relapse.

The exhaustion felt may be immediately after the activity/exercise or may be delayed by hours or days. Recovery normally takes 24 hours or longer affecting your fatigue levels, concentration, sleep, memory and can cause muscle/joint pains and flu' like symptoms.

To avoid PESE, follow the advice in the fatigue management section on pacing of activities.

When increasing activity or introducing exercise it is important that we work through phases gradually. Ideas of what to include in each phase are coming up.

If you experience PESE symptoms after exercise, then we recommend you try the following to see if this helps:

- Monitor your heart rate as you exercise and introduce new exercises. Keep your heart rate at less than 60% of your maximal heart rate.
- Monitor your rate of perceived exertion using the Borg Rating of Perceived Exertion Scale (0-10) and drop back a phase if required.
- Trial recumbent exercises, i.e. where you are laying down or sat with back supported like on a recumbent bike.

If this does not help and you continue to experience PESE then please stop and speak to your therapist. Do not try to push through to the next phase of activity.

To calculate your maximal heart rate you subtract your age from 220 then multiply the answer by 0.6

$(220 - \text{age}) \times 0.6 = 60\%$ of your maximal heart rate

E.g. if you are 40 years old then $220 - 40 = 180$, $180 \times 0.6 = 108$. During exercise you aim to keep your **pulse at less than 108 beats per minute.**

You can monitor your heart rate by taking your pulse or you may have a phone or smart watch that can do this for you. If you find you're unable to keep your heart rate at this level, please seek advice from a healthcare professional.

Exercise and chest pain and/or a racing heartbeat

If you are suffering from **chest pain, palpitations, severe breathlessness or feel faint** then please seek advice from a health care professional before starting any exercise programme, they will ensure that you have had the necessary investigations prior to starting exercise.

If you have a diagnosis of **any cardiac problems** or autonomic nervous system problems such as **Postural Orthostatic Tachycardia Syndrome**, you may need a more individualised exercise programme than the suggestions in the following pages.

Phases of exercise

We suggest you consider your return to exercise in 5 phases; the following sections describe these phases and give suggestions (see BORG and phases table on page 44).

You are aiming to return to your normal baseline, i.e. your pre covid level of fitness. For example, if the activity/exercise ideas listed in phase 2 are what you would usually do, then this is your phase 5 as it represents being back to normal. If you have previous injuries or specific illnesses, weakness then please discuss this with your healthcare professional before starting any new activity or exercise.

No exercise should be painful. If you experience pain, chest pain, feel faint or dizzy during exercise you should stop immediately. If symptoms persist, contact your GP, 111 or 999 to seek medical advice. Do not restart your exercise programme until you have been seen by your healthcare professional.

Phase 1 - Preparation for return to exercise

Types of exercise: Gentle walking, breathing exercises, flexibility and stretching, yoga nidra.

Working at a BORG score of 0-1.

Relaxed breathing

Breathing control exercise – see page 14 for description.

Stretching ideas

The following are examples of simple stretches and flexibility exercises that can be used alongside your progression through the five phases. You may wish to use positions and movements you are already familiar with; the



key is to work at a level which feels manageable and helpful. If you are unsure where to start, speak to your healthcare professional.

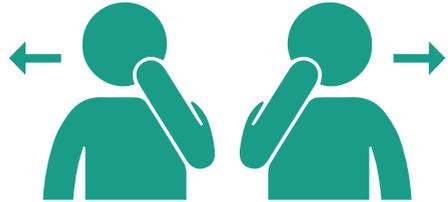
Stretches should always feel like a stretch, never pain. Take the movement to where you feel the stretch start and take time to notice how you feel. Over time you may find you can stretch further into your range of movement and there are less feelings of stiffness or tension. This is positive and can help your return to activity or exercise.

Exercise description	
<p>Knee rolls:</p> <p>Lie on your back with your knees bent, feet flat on the floor/bed. Gently roll your knees towards the right side, allowing a gentle twist through your spine. Return to the middle, and then repeat going to the left side.</p>	 The illustration shows two stages of the 'Knee rolls' exercise. In the top stage, a person is lying on their back with knees bent and feet flat. The knees are rolled towards the right side. In the bottom stage, the knees are rolled towards the left side, with a white arrow indicating the direction of movement.
<p>Knee to chest:</p> <p>Lie on your back if able, with your knees bent and feet flat. One at a time, gently hug your knee to your chest, holding for a couple of seconds before lowering.</p>	 The illustration shows a person lying on their back with knees bent and feet flat. One knee is being pulled towards the chest, with a white arrow indicating the direction of movement.

Exercise description

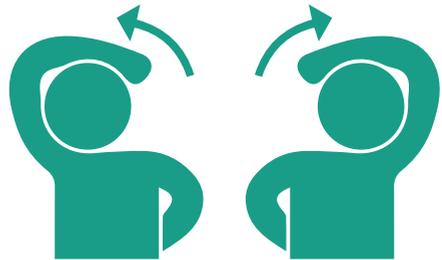
Head turning:

Gently turn your head to the right until there is a gentle stretch through your neck. You can place your fingers on your chin to help guide the movement. Repeat in both directions if you are able.



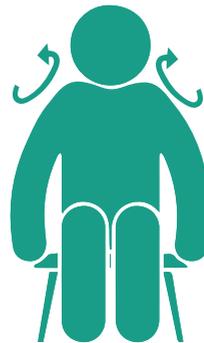
Neck side bends:

Take your head over to the side with your ear lowering towards your shoulder. Place your hand gently on your head to help guide the movement, and allow your shoulder to stay relaxed. You should feel the stretch on the opposite side of your neck. Repeat in both directions if you are able.



Shoulder rolls:

Sit comfortably and gently roll your shoulders backwards in circles. If it feels ok, try rolling them forwards too.



Exercise description	
<p>Side bending: Sit on a chair, then gently bend over to one side, preferably with your arm over your head as shown. Steady yourself by resting the other hand on the edge of the chair.</p>	
<p>Spine twist: Start by sitting comfortably, then turn to your right side allowing a gentle twist through your spine. You can use the back of the chair to help you hold the stretch. Return to the start, then repeat in the opposite direction.</p>	

Phase 2 - Low intensity activity

Types of exercise: Walking, light household/garden tasks, gentle yoga.

Working at a BORG score of 2-3.

Phase 3 - Moderate intensity aerobic and strength exercises

Types of exercise: Walking - introducing inclines, resistance exercises.

Working at a BORG score of 4-6.

Phase 4 - Moderate intensity aerobic and strength exercises with co-ordination and functioning skills

Types of exercise: Cycling, swimming, faster paced walking, jogging, Zumba or dance classes.

Working at a BORG score of 7-8.

Phase 5 - Return to your baseline exercises

Be able to complete your regular activity/exercise programme without exacerbating your symptoms.

For example, to be able to carry out your daily routine such as shopping, cleaning or work. Or, it could be returning to your usual exercise routine. This is very individual and depends on your pre-COVID activity and fitness levels.

BORG score – working up to 10, depending on your usual exercise or activity regime.

Speak to your healthcare professional for further advice on returning to usual exercise or activity. You can build a tailored exercise programme specific to your needs by speaking to a physiotherapist.

Top tips:

- Take as much time as you need at each phase. We recommend a minimum of 2-4 weeks at each phase, and then only increase in 10% increments of time, distance, reps or weight resistance. From our PESE evaluation, 2-4 weeks wasn't long enough for some patients to progress to the next phase.

- Drop back a phase if you have difficulty.
- Aim for the same level of activity each day. Remember, the types of activity you do will affect your energy levels e.g. cognitive activities as well as physical activities may bring on your symptoms.
- Remember to continue to monitor and manage your symptoms, watching for signs of PESE (post exertional symptom exacerbation). Remember to use the BORG scale to help with this.
- Choose exercises that you enjoy. You are more likely to do them, and they will help maximise your mental wellbeing.
- Exercises that you did prior to COVID may not be appropriate to your stage of recovery.
- Doing less intensity of the same pre-COVID activity may not always be the best way to approach your phased return to exercise.
- Track your exercise/activity progress using the activity diary in the fatigue section.

Research opportunities

The Leeds Long COVID Rehabilitation Service has a Patient, Carer and Public Involvement (PCPI) group. This enables people with experience of the condition, carers and interested members of the public to work collaboratively with the clinical and research team on service improvements, evaluations, research design and delivery. There are also national studies which you may wish to volunteer to participate in and these can be found below:

www.fundingawards.nihr.ac.uk/search/programme/Long%20COVID

www.bepartofresearch.nihr.ac.uk/results/search-results?query=long%20covid&location=

Useful resources

Overview

- **NHS Covid recovery:**
www.yourcovidrecovery.nhs.uk
- **The Long COVID Self-Help Guide: Practical Ways to Manage Symptoms** by Fraser, Dr Emily – Available online and in bookstores.

Mental wellbeing

- **Psychology Tools:** Living with worry and anxiety amidst global uncertainty - https://www.psychologytools.com/assets/covid-19/guide_to_living_with_worry_and_anxiety_amidst_global_uncertainty_en-gb.pdf
- **Mind:** Psychological wellbeing during coronavirus - <https://bit.ly/2KIGRX4>
- **Headspace:** 10 days free meditation - <https://bit.ly/34QBpoh>
- **Insight timer:** Free app with a range of relaxations to try, including meditations, mindfulness, yoga nidra: <https://insighttimer.com/en-gb>
- **Leeds Mental Wellbeing Service:** If you're feeling stressed, anxious, depressed or worried – Leeds Mental Wellbeing Service (LMWS) is here to help:
www.leedscommunityhealthcare.nhs.uk/our-services-a-z/leeds-mental-wellbeing-service/home
Tel: 0113 843 4388
- **MindWell:** The mental health website for people in Leeds. They help to find you information about support in the city and different ways to take care of your mental wellbeing: www.mindwell-leeds.org.uk

Nutrition

- **British Dietetic Association:** Long COVID and Diet: Food Fact Sheet: www.bda.uk.com/resource/long-covid-and-diet.html
Other food fact evidence based diet sheets on a wide range of topics:
<https://www.bda.uk.com/food-health/food-facts.html>
- **Nutrition and COVID-19 recovery knowledge hub:** A 'one stop shop' of information to support recovery from COVID-19 through nutritional care: www.plymouth.ac.uk/research/dietetics-and-health/covid-knowledge-hub
- **Healthy eating advice using the Eatwell Guide:**
<https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/>

Fatigue

- **How to manage post-viral fatigue after COVID-19:** After a hospital stay: www.rcot.co.uk/how-manage-post-viral-fatigue-after-covid-19
- **How to manage post-viral fatigue after COVID-19:** If you recovered at home: www.rcot.co.uk/how-manage-post-viral-fatigue-after-covid-19-0

Breathlessness

- **Self help for breathing pattern disorders:**
www.physiotherapyforbpd.org.uk/self-help/
- **Support for Long COVID Breathlessness:**
www.blf.org.uk/support-for-you/long-covid

Post Exertion Malaise/Post Exertional Symptom Exacerbation

- **Post Exertional Malaise:** Select menu/resources and COVID 19 resources: www.workwellfoundation.org

Sleep

- **Sleep hygiene:** A one off online course by Leeds Mental Wellbeing Service to help improve sleep pattern: www.leedscommunityhealthcare.nhs.uk/our-services-a-z/leeds-mental-wellbeing-service/online-group-classes/workshops/sleep-well-session/

Tinnitus

- **Tinnitus and Covid19:** FAQ on tinnitus post Covid 19, and practical advice and support: www.tinnitus.org.uk/Listing/Category/covid19

Postural Orthostatic Tachycardia Syndrome

- **POTS UK:** Help and support for people with a POTS diagnosis: www.potsuk.org/

Smell and taste retraining

- **Abscent:** Smell training to recover your sense of smell: www.abscent.org/
- **Fifth Sense:** Information for people affected by smell and taste disorders: www.fifthsense.org.uk/covid-19-introduction/

Menopause

- **Rock My Menopause:** Menopause information: <https://rockmymenopause.com/>
- **Menopause Matters:** Menopausal symptoms, remedies, advice: <https://www.menopausematters.co.uk/>

Support for Carers

- **Carers Leeds:** If you have caring responsibilities for a family member/friend, such as helping with finances, personal care and domestic tasks, we appreciate that this can be stressful at times. If you, or someone who is caring for you, would like some information or support please contact Carers Leeds Advice Line on 0113 380 4305 and have a look at: www.carersleeds.org.uk

Welfare rights support

- **Leeds Welfare Rights:** Give you free, confidential, impartial advice and support in a whole range of benefits:
www.leeds.gov.uk/benefits/welfare-rights
Tel: 0113 376 0452
- **Citizens Advice Leeds:** Citizen's advice Leeds can help with financial, housing, work and many other problems. Their advice is free, independent and confidential:
www.citizensadviceleeds.org.uk/ Tel: 0808 278 7878

Social Prescribing

- **Linking Leeds:** If practical or emotional problems are stopping you feeling your best, Linking Leeds can help you get them sorted: www.linkingleeds.com/
Tel: 0113 336 7612

Debt advice

- **Step change:** Free debt advice online, and support for as long as you need it: www.stepchange.org/
- **Money Buddies:** Free Money advice service who's aim is to help clients out of debt, poverty and have social justice:
www.moneybuddies.org.uk Tel: 0113 235 0276

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