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Long Covid/Post COVID-19 Syndrome Guidelines for Care in the Community (August 2021)

Following COVID-19 infection, there are 3 phases:

Acute COVID-19

Signs and symptoms of COVID-19 for up to 4 weeks.

Ongoing symptomatic COVID-19

Signs and symptoms of COVID-19 from 4 weeks up to 12 weeks.

Post-COVID-19 syndrome

Signs and symptoms that develop during or after an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis.

What is Long Covid?

Long Covid is a range of symptoms can remain after the clearance of the acute infection in many people who have had covid-19. It includes both ongoing symptomatic COVID-19 (from 4 to 12 weeks) and post-COVID-19 syndrome (12 weeks or more).

The National Institute for Health and Care Excellence (NICE) in the UK, defines **Long Covid** as “the symptoms that continue or develop after acute covid-19 infection and which cannot be explained by an alternative diagnosis.”

The National Institutes of Health (NIH) uses the US Centre for Disease Control and Prevention (CDC) definition of **Long Covid**, “which describes the condition as sequelae that extend beyond four weeks after initial infection.”



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What is the prevalence of Long Covid?

The reported incidence and mortality rates of COVID-19 vary between countries, making it difficult to accurately predict the number of patients who will progress to long covid.

Similarly, the accurate reporting of long covid is complicated.

The UK Office for National Statistics (ONS) has released data on the prevalence of long covid symptoms. They estimated that the 12-week prevalence of any symptom among survey respondents, who tested positive for COVID-19 between 22 April and 14 December 2020 was **9.9%**.

Ayoubkhani and colleagues extracted data from all UK general practice records linked to hospital admissions to explore the risks of readmission, death, and incidence of respiratory, cardiovascular, metabolic, kidney, and liver diseases in a mean time frame of 140 days after discharge of patients admitted with COVID-19.

Strikingly, 33% of discharged patients were readmitted to hospital and 10% died.

Discharged patients had higher risks of new respiratory disease (6 times), major cardiovascular disease (3 times), chronic liver disease (2.8 times), chronic kidney disease (1.9 times), and diabetes (1.5 times) than matched controls from the general population. The risks were higher in those younger than 70 and in non-white individuals.

Another recent UK study showed that more than 50% of patients with COVID-19 had long covid symptoms three months after discharge from hospital, with worse outcomes among those younger than 50, women, and those with higher pre-covid fitness levels. (Sigfrid et al)



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What are the risk factors for Long Covid?

The UK Office for National Statistics reported that the prevalence of any long covid symptoms:

- Higher in women compared with men (23.6% versus 20.7%)
- The age group estimated to be most greatly affected by long covid symptoms is,
35-49 years (26.8%)
50-69 years (26.1%)
≥70 years group (18%).

Male sex, age, and pre-existing conditions including obesity, diabetes, and cardiovascular disease have shown no association with the risk of developing long covid.

How do you identify Long Covid and what are the common symptoms?

The SARS-CoV-2 virus enters the cells of multiple organs via the ACE2 receptor. Once these cells have been invaded, the virus can cause a multitude of damage ultimately leading to numerous persistent symptoms, some of which are outlined below:

- ***Fatigue*** is a major manifestation of long covid. There is no association between COVID-19 severity and long-term fatigue.
- ***Dyspnoea***- Several studies have found that dyspnoea is a common manifestation following COVID-19 infection, and one study reported that 43.4% of 143 patients assessed were still experiencing dyspnoea at 60 days after COVID-19 onset.
- ***Abnormalities of smell and taste*** have been reported to persist following recovery from COVID-19. The ONS estimated the 5-week prevalence of loss of smell and loss of taste as 7.9% and 8.2% of all people who have had COVID-19, respectively.



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- Heart- Chest pain, myocardial inflammation, palpitations, raised serum troponin
- Lungs-dyspnoea, chest pain, cough
- Musculoskeletal – joint pain, muscle pain
- Brain- Headache ,“brain fog”, delirium, fatigue, sleep disturbances,anxiety,depression,post -traumatic stress disorder
- ENT symptoms- earache,sorethroat,tinnitus,
- Dermatology-skin rashes
- Liver-liver injury, raised enzymes
- Blood vessels- inflammation, vessel damage,coagulopathy,microangiopathy
- GI Tract- Diarrohea,nausea,sore throat
- Kidney- Acute kidney injury, renal impairment
- Pancreas- Pancreatitis, pancreatic injury

Investigations and Referral

Offer tests and investigations tailored to people's signs and symptoms to rule out acute or life-threatening complications and find out if symptoms are likely to be caused by long covid/ post-COVID-19 syndrome or could be a new, unrelated diagnosis.

Blood tests- a full blood count, kidney and liver function tests, C-reactive protein test, ferritin, B-type natriuretic peptide (BNP) and thyroid function tests.

Offer a chest X-ray by 12 weeks after acute COVID-19 if the person has not already had one and they have continuing respiratory symptoms.

If appropriate, offer an Exercise Tolerance Test suited to the person's ability (for example the 1-minute sit-to-stand test). During the exercise test, record level of breathlessness, heart rate and oxygen saturation.



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One-minute Sit-to-Stand Test

1. The patient should be seated:
 - upright on a chair without rests
 - with their knees and hips flexed to 90°
 - with their feet placed flat on the floor, hip-width apart
 - with their hands placed on their hips.
2. The patient should then be asked to go from sitting to standing as many times as they can in 1 minute. Each sit to stand should be observed carefully to ensure that a complete sit to stand is achieved.
3. Oxygen saturation, pulse, and perceived exertion (using the Borg exertion or breathlessness scale) at rest and immediately after 1 minute should be recorded.

The test should be terminated promptly if any adverse symptoms (such as severe shortness of breath, chest pain, syncope, or dizziness) develop.

A drop in oxygen saturation of >3% (e.g., 97–94%) is considered significant and warrants exclusion of pulmonary embolism.¹⁷

Treatment and Management of Long Covid

As well as the physical implications, consider the functional, emotional, and psychological impacts of long COVID. These may include anxiety, depression, or post-traumatic stress resulting from the physical illness itself or from isolation.

Recommend lifestyle advice including rest, sleep hygiene, healthy diet, vitamin D, multivitamins, moderating alcohol intake, and smoking cessation as supportive measures that you would normally recommend in any illness requiring convalescence to promote physical and psychological wellbeing.



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Work with the person to develop a personalised rehabilitation and management plan:

- areas of rehabilitation and interventions based on their assessment
- helping the person to decide and work towards goals
- symptom management for all presenting symptoms, for example advice and education on managing breathlessness, fatigue and 'brain fog'.

Pulmonary Symptoms

Can also be self-managed by limiting factors that exacerbate dyspnoea, including stopping smoking, avoiding pollutants, avoiding extremes in temperature.

Non-pharmacological strategies for managing dyspnoea include breathing exercises, pulmonary rehabilitation, and maintaining optimal body positioning for postural relief.

Cardiovascular Symptoms

β blockers may be useful in the treatment of cardiovascular manifestations of long covid.

Myocarditis may resolve naturally over time; however, supportive and/or immunomodulating therapy may improve recovery, as a systematic review describes.

A review has also suggested that anticoagulants may be used to reduce the risks associated with hypercoagulability

Treating fatigue, cognitive, and neuropsychiatric symptoms

Management strategy for fatigue is pacing, whereby patients manage tasks and activities to avoid over-exertion and exacerbating fatigue.



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CBT is ineffective in reducing long covid symptoms, including fatigue, with only 10% of participants achieving clinically meaningful improvements.

Cognitive impairment should be managed with support, including setting tailored, achievable goals .

Recommendations suggest strategies to manage chemobrain including repeating exercises, tracking what influences deficits, and using stress relief and coping strategies.

Medications including methylphenidate, donepezil, modafinil, and memantine may be considered.

Antidepressants have been proposed to reduce the effects of long covid.

Exercise and Pacing

The current advice is that exercise should be undertaken cautiously.

If there are any persisting symptoms of fatigue, cough, breathlessness, or fever, activity should be limited to 60% of the patient's maximum heart rate until 2–3 weeks after symptoms resolve.

Patients with cardiac symptoms should have a cardiac review before resuming exercise.

Patients returning to exercise should tailor their activities to their symptoms:

- **after recovery from mild illness:** 1 week of low level stretching and strengthening before targeted cardiovascular sessions
- **very mild symptoms:** limit activity to slow walking or equivalent; increase rest periods if symptoms worsen, and avoid high intensity training



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- **persistent symptoms (such as fatigue, cough, shortness of breath, fever):** limit activity to 60% maximum heart rate until 2–3 weeks after symptoms resolve
- patients who had lymphopenia or required oxygen should undergo respiratory assessment before resuming exercise
- patients with suspected cardiac involvement should undergo cardiac assessment before resuming exercise.

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