COVID-19: updates on follow-up & long-term effects

29th March 2021

**evidence summary:**

**Title:** **LIVING WITH COVID19 – SECOND REVIEW**

**Source**: NIHR, 16th March 2021  
  
A dynamic review of the evidence around ongoing Covid19 (often called Long Covid).

Executive summary: This is the second of two dynamic reviews of the evidence around people’s experience of the enduring symptoms following a Covid19 infection.

We published our first review of the evidence in October 2020. At the time there was uncertainty about the extent to which there could be lasting effects, and most people assumed a linear progression of a severe acute infection with a long recovery tail. Our first review on “Living with Covid19” was informed by the experience of professionals and we worked closely with a group of people with lived experience. In this review, we focus on the published evidence. In addition, we report findings from a short survey of people living with Covid19 that we embedded on our website. With over 3,000 responses it provided us with an insight into the key issues and challenges for people living with Covid19.

Since October, the term ‘Long Covid’ has gained widespread use and we have adopted it. But we recognise it covers a wide range of symptoms, including a high number of post-viral fatigue cases that appear to resolve spontaneously by 8 to 12 weeks.

There is enormous variation in the estimated prevalence of Long Covid due to different measurement criteria, making comparing studies impossible. Many people were unable to access Covid19 testing when first ill and are excluded from some studies as the infection is not confirmed. This may mask the true prevalence of Long Covid. Uncertainty about a prior infection means some people report difficulty accessing services for their Long Covid symptoms. It appears that at least 10% of those infected with Covid19 experience at least one symptom for 12 weeks or longer. For those who were not admitted to hospital, at least 20-30% experience at least one enduring symptom around one month later and at least 10% three months later. For those who were admitted to hospital, between 50% and 89% have at least one enduring symptom after two months. Our own and Davis et al. (2020) preprint surveys suggest significant rates of Long Covid beyond six months for people who were not hospitalised. Any estimates of incidence and prevalence must be considered provisional. The ONS reported an incidence in December 2020 of 301,000 people in the UK with symptoms lasting between 5 and 12 weeks. Long Covid appears to be more frequent in women and in young people (including children) than might have been expected from acute Covid19 mortality.

Whilst there is a growing list of symptoms associated with Long Covid, we know little about different clusters and patterns of symptoms (sometimes described as phenotypes, syndromes or clusters). There is increasing evidence of organ impairment in both people who were admitted to hospital and those who stayed at home. The limited evidence of correlation between past history and current pathology would suggest a need to investigate anyone with persistent symptoms, including those who were never admitted to hospital.

There is also evidence of a group of people with cognitive processing disorders and anxiety with some indication of neurological rather than social cause. A substantial number of people have symptoms they are not yet understood. Some are similar to Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) and others to orthostatic intolerance syndromes. There is some evidence suggesting Long Covid is a still active disease, with immunological evidence of continued inflammatory responses, lingering viral activity and/or blood clotting disorders. For some people with Long Covid, there appears to be the potential for further deterioration.

Long Covid can be very debilitating and some people need help with personal care months after the initial infection. 71% of respondents in our own survey said Long Covid was affecting family life and 39% said it was impacting their ability to care for dependents. This is having an impact on the workforce, with 80% of respondents in our own survey saying Long Covid had affected their ability to work and 36% said it was affecting their finance.

Long Covid can be a multi-system disease, and some people may have active disease that needs ongoing monitoring in secondary care. This will require joined-up care management across specialities and between primary and secondary care. New service delivery models that provide rapid access to an increasing number of people with Long Covid need to be designed and evaluated. This will also require a multi-professional workforce strategy.

As well as clinical rehabilitation care, some people need ongoing social care. Particular attention should be paid to the impact of Long Covid on vulnerable people, (such as older people with pre-existing health conditions) who may not have been captured in research to date and who may be tipped into a state of frailty.

We conclude that the journey of Long Covid is not well understood and it is important to continue to listen to the lived experience as we move into the second year of this new disease. As we learn more about the progression of Long Covid, it is important to retain a wide range of working hypotheses.

We make the following recommendations for the future research agenda.

More research is needed on the incidence of Long Covid and its causes. This will help to predict and prevent Long Covid in the longer term. There is an urgent need to research treatments and management for people with Long Covid.

The emergent nature of the understanding of Long Covid emphasises the need to continue to explore a range of hypotheses in any research that is undertaken.

A precursor to research in all areas is a better understanding of the disease syndromes and symptom clusters that currently sit under the umbrella of Long Covid or post Covid.

We recommend that a minimum data set for recording a wide range of symptoms be agreed and used by both researchers and healthcare providers.

Some elements of Long Covid are similar to other conditions and evaluations of interventions (pharmaceutical, psychological and physical therapies) that may improve symptoms. We recommend evaluation of the use of interventions that have been effective in other conditions when used with people with Long Covid. For non-pharmaceutical interventions, a range of research methodologies should be encouraged.

Long Covid is a significant health burden that is unlikely to be met by existing NHS services and new delivery models that allow rapid access are needed. We recommend rapid evaluation of different service models and skill mix for supporting people with Long Covid.

Seldom heard voices are not visible in the current evidence. We recommend research that is targeted at vulnerable people (including older people and people with learning disabilities) as well as hard-to-reach groups including travellers and prison populations.

We recommend that people living with Long Covid (who are experts by experience) should be equal partners in setting the research agenda.

<https://evidence.nihr.ac.uk/themedreview/living-with-covid19-second-review/>

**research papers**

**Title:** **LONG COVID IN ADULTS DISCHARGED FROM UK HOSPITALS AFTER COVID-19: A PROSPECTIVE, MULTICENTRE COHORT STUDY USING THE ISARIC WHO CLINICAL CHARACTERISATION PROTOCOL**

**Source**: Medrxiv Preprint Server, 23rd March 21

[**This article is a preprint and has not been certified by peer review. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**](https://www.medrxiv.org/content/what-unrefereed-preprint)

Structured Abstract Objectives: The long-term consequences of severe Covid-19 requiring hospital admission are not well characterised. The objective of this study was to establish the long-term effects of Covid-19 following hospitalisation and the impact these may have on patient reported outcome measures.

Design: A multicentre, prospective cohort study with at least 3 months follow-up of participants admitted to hospital between 5th February 2020 and 5th October 2020. Setting: 31 hospitals in the United Kingdom. Participants: 327 hospitalised participants discharged alive from hospital with confirmed/high likelihood SARS-CoV-2 infection. Main outcome measures and comparisons: The primary outcome was self-reported recovery at least ninety days after initial Covid-19 symptom onset. Secondary outcomes included new symptoms, new or increased disability (Washington group short scale), breathlessness (MRC Dyspnoea scale) and quality of life (EQ5D-5L). We compared these outcome measures across age, comorbidity status and in-hospital Covid-19 severity to identify groups at highest risk of developing long-term difficulties. Multilevel logistic and linear regression models were built to adjust for the effects of patient and centre level risk factors on these outcomes.

Results: In total 53.7% (443/824) contacted participants responded, yielding 73.8% (327/443) responses with follow-up of 90 days or more from symptom onset. The median time between symptom onset of initial illness and completing the participant questionnaire was 222 days (Interquartile range (IQR) 189 to 269 days). In total, 54.7% (179/327) of participants reported they did not feel fully recovered. Persistent symptoms were reported by 93.3% (305/325) of participants, with fatigue the most common (82.8%, 255/308), followed by breathlessness (53.5%, 175/327). 46.8% (153/327) reported an increase in MRC dyspnoea scale of at least one grade. New or worse disability was reported by 24.2% (79/327) of participants. Overall (EQ5D-5L) summary index was significantly worse at the time of follow-up (median difference 0.1 points on a scale of 0 to 1, IQR: -0.2 to 0.0). Females under the age of 50 years were five times less likely to report feeling recovered (adjusted OR 5.09, 95% CI 1.64 to 15.74), were more likely to have greater disability (adjusted OR 4.22, 95% CI 1.12 to 15.94), twice as likely to report worse fatigue (adjusted OR 2.06, 95% CI 0.81 to 3.31) and seven times more likely to become more breathless (adjusted OR 7.15, 95% CI 2.24 to 22.83) than men of the same age.

Conclusions: Survivors of Covid-19 experienced long-term symptoms, new disability, increased breathlessness, and reduced quality of life. These findings were present even in young, previously healthy working age adults, and were most common in younger females. Policymakers should fund further research to identify effective treatments for long-Covid and ensure healthcare, social care and welfare support is available for individuals with long-Covid.

<https://www.medrxiv.org/content/10.1101/2021.03.18.21253888v2>

**Title:** **FOUR-MONTH CLINICAL STATUS OF A COHORT OF PATIENTS AFTER HOSPITALIZATION FOR COVID-19**

**Source**: JAMA, March 17, 2021

Question What are the clinical outcomes after hospitalization for COVID-19?

Findings  Four months after hospitalization, in an uncontrolled cohort study of 478 survivors of COVID-19, at least 1 new-onset symptom was reported by telephone interview by 244 patients (51%), including fatigue in 134 of 431 (31%), cognitive symptoms in 86 of 416 (21%), and dyspnea in 78 of 478 (16%). Computed tomographic lung scan abnormalities were reported in 63% of 171 patients assessed at an ambulatory visit, mainly subtle ground-glass opacities. Fibrotic lesions were observed in 19% of these 171 patients.

Meaning This study provides clinical status of a cohort of patients 4 months after hospitalization for COVID-19, but further research is needed to understand longer-term outcomes.

<https://jamanetwork.com/journals/jama/fullarticle/2777787>

**Title:** **PERSISTENT NEUROLOGIC SYMPTOMS AND COGNITIVE DYSFUNCTION IN NON‐HOSPITALIZED COVID‐19 “LONG HAULERS”**

**Source**: Annals of Clinical and Translational Neurology, 23rd March 2021

Objective: Most SARS‐CoV‐2‐infected individuals never require hospitalization. However, some develop prolonged symptoms. We sought to characterize the spectrum of neurologic manifestations in non‐hospitalized Covid‐19 “long haulers”.

Methods: This is a prospective study of the first 100 consecutive patients (50 SARS‐CoV‐2 laboratory‐positive and 50 laboratory‐negative individuals) presenting to our Neuro‐Covid‐19 clinic between May and November 2020. Due to early pandemic testing limitations, patients were included if they met Infectious Diseases Society of America symptoms of Covid‐19, were never hospitalized for pneumonia or hypoxemia and had neurologic symptoms lasting over 6 weeks. We recorded the frequency of neurologic symptoms and analyzed patient‐reported quality of life measures and standardized cognitive assessments.

Results: Mean age was 43.2±11.3 years, 70% were female and 48% were evaluated in televisits. The most frequent comorbidities were depression/anxiety (42%) and autoimmune disease (16%). The main neurologic manifestations were: “brain fog” (81%), headache (68%), numbness/tingling (60%), dysgeusia (59%), anosmia (55%), myalgias (55%), with only anosmia being more frequent in SARS‐CoV‐2+ than SARS‐CoV‐2‐ patients (37/50 [74%] vs (18/50 [36%]; p <0.001). Moreover, 85% also experienced fatigue. There was no correlation between time from disease onset and subjective impression of recovery. Both groups exhibited impaired quality of life in cognitive and fatigue domains. SARS‐CoV‐2+ patients performed worse in attention and working memory cognitive tasks compared to a demographic‐matched US population (T‐score 41.5 [37, 48.25] and 43 [37.5, 48.75], respectively; both p<0.01).

Interpretation: Non‐hospitalized Covid‐19 “long haulers” experience prominent and persistent “brain fog” and fatigue that affect their cognition and quality of life.

<https://onlinelibrary.wiley.com/doi/abs/10.1002/acn3.51350>

**Title:** **POST-ACUTE COVID-19 SYNDROME**

**Source**: Nature Medicine, 22 March 2021

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the pathogen responsible for the coronavirus disease 2019 (COVID-19) pandemic, which has resulted in global healthcare crises and strained health resources. As the population of patients recovering from COVID-19 grows, it is paramount to establish an understanding of the healthcare issues surrounding them. COVID-19 is now recognized as a multi-organ disease with a broad spectrum of manifestations. Similarly to post-acute viral syndromes described in survivors of other virulent coronavirus epidemics, there are increasing reports of persistent and prolonged effects after acute COVID-19. Patient advocacy groups, many members of which identify themselves as long haulers, have helped contribute to the recognition of post-acute COVID-19, a syndrome characterized by persistent symptoms and/or delayed or long-term complications beyond 4 weeks from the onset of symptoms. Here, we provide a comprehensive review of the current literature on post-acute COVID-19, its pathophysiology and its organ-specific sequelae. Finally, we discuss relevant considerations for the multidisciplinary care of COVID-19 survivors and propose a framework for the identification of those at high risk for post-acute COVID-19 and their coordinated management through dedicated COVID-19 clinics.

<https://www.nature.com/articles/s41591-021-01283-z>

**Title:** **COVID-19 SURVIVORS’ REPORTS OF THE TIMING, DURATION, AND HEALTH IMPACTS OF POST-ACUTE SEQUELAE OF SARS-COV-2 (PASC) INFECTION**

**Source**: Medrxiv, 27th March 2021

[**This article is a preprint and has not been certified by peer review. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**](https://www.medrxiv.org/content/what-unrefereed-preprint)

IMPORTANCE: Post-Acute Sequelae of SARS-CoV-2 Infection (PASC) is a major public health concern since studies suggest that 1 in 3 infected with SARS-CoV-2 may develop PASC, including those without initial symptoms or with mild COVID-19 disease.1, 2 OBJECTIVE: To evaluate the timing, duration, and health impacts of PASC reported by a large group of primarily non-hospitalized COVID-19 survivors. DESIGN, SETTING, AND PARTICIPANTS: A survey of 5,163 COVID-19 survivors reporting symptoms for more than 21 days following SARS-CoV-2 infection. Participants were recruited from Survivor Corps and other online COVID-19 survivor support groups. MAIN OUTCOMES AND MEASURES: Participants reported demographic information, as well as the timing, duration, health impacts, and other attributes of PASC. The temporal distribution of symptoms, including average time to symptom onset and duration of symptoms were determined, as well as the perceived distress and impact on ability to work. RESULTS: On average, participants reported 21.4 symptoms and the number of symptoms ranged from 1 to 93. The most common symptoms were fatigue (79.0%), headache (55.3%), shortness of breath (55.3%), difficulty concentrating (53.6%), cough (49.0%), changed sense of taste (44.9%), diarrhea (43.9%), and muscle or body aches (43.5%). The timing of symptom onset varied and is best described as happening in waves. The longest lasting symptoms on average for all participants (in days) were "frequently changing" symptoms (112.0), inability to exercise (106.5), fatigue (101.7), difficulty concentrating (101.1), memory problems (100.8), sadness (99.2), hormone imbalance (99.1), and shortness of breath (96.9). The symptoms that affected ability to work were changing symptoms, inability to concentrate, fatigue, and memory problems, among others. Symptoms causing the greatest level of distress (on scale of 1 "none" to 5 "a great deal") were extreme pressure at the base of the head (4.4), syncope (4.3), sharp or sudden chest pain (4.2), brain pressure (4.2), headache (4.2), persistent chest pain or pressure (4.1), and bone pain in extremities (4.1). CONCLUSIONS AND RELEVANCE: PASC is an emerging public health priority characterized by a wide range of changing symptoms and hindering survivors' ability to work. PASC has not been fully characterized and the trajectory of symptoms and long-term outcomes are unknown. There is no treatment for PASC, and survivors report distress in addition to a host of ongoing symptoms. Capturing patient reports of symptoms through open-ended inquiry is a critical first step in accurately and comprehensively characterizing PASC to ensure that medical treatments and symptom management strategies best meet the needs of patients and help mitigate health impacts of this new disease.

<https://www.medrxiv.org/content/10.1101/2021.03.22.21254026v2>

**Title:** **COVID SYMPTOMS, SYMPTOM CLUSTERS, AND PREDICTORS FOR BECOMING A LONG-HAULER: LOOKING FOR CLARITY IN THE HAZE OF THE PANDEMIC**

**Source**: Medrxiv Preprint Server, 5th March 21

[**This article is a preprint and has not been certified by peer review. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.**](https://www.medrxiv.org/content/what-unrefereed-preprint)

Emerging data suggest that the effects of infection with SARS-CoV-2 are far reaching extending beyond those with severe acute disease. Specifically, the presence of persistent symptoms after apparent resolution from COVID-19 have frequently been reported throughout the pandemic by individuals labeled as “long-haulers”. The purpose of this study was to assess for symptoms at days 0-10 and 61+ among subjects with PCR-confirmed SARS-CoV-2 infection. The University of California COvid Research Data Set (UC CORDS) was used to identify 1407 records that met inclusion criteria. Symptoms attributable to COVID-19 were extracted from the electronic health record. Symptoms reported over the previous year prior to COVID-19 were excluded, using nonnegative matrix factorization (NMF) followed by graph lasso to assess relationships between symptoms. A model was developed predictive for becoming a long-hauler based on symptoms. 27% reported persistent symptoms after 60 days. Women were more likely to become long-haulers, and all age groups were represented with those aged 50 ± 20 years comprising 72% of cases. Presenting symptoms included palpitations, chronic rhinitis, dysgeusia, chills, insomnia, hyperhidrosis, anxiety, sore throat, and headache among others. We identified 5 symptom clusters at day 61+: chest pain-cough, dyspnea-cough, anxiety-tachycardia, abdominal pain-nausea, and low back pain-joint pain. Long-haulers represent a very significant public health concern, and there are no guidelines to address their diagnosis and management. Additional studies are urgently needed that focus on the physical, mental, and emotional impact of long-term COVID-19 survivors who become long-haulers.

<https://www.medrxiv.org/content/10.1101/2021.03.03.21252086v1>

**Title:** **NUTRITIONAL EVALUATION AND MANAGEMENT OF CRITICALLY ILL PATIENTS WITH COVID-19 DURING POST-INTENSIVE CARE REHABILITATION**

**Source**: Journal of Parenteral and Enteral Nutrition, 5th March 21

Background & aims: Among hospitalized patients with COVID-19, up to 12% may require intensive care management (ICU). The aim of this prospective cohort study is to assess nutritional status and outcome in patients with COVID-19 following ICU discharge.

Methods: All patients with COVID-19 requiring a minimum of 14 days stay in the ICU with mechanical ventilation were included. Nutritional status was assessed at inclusion (ICU discharge) and follow-up (after 15, 30 and 60 days). All patients had standardized medical nutrition therapy with defined targets regarding energy (30 kcal/kg/d) and protein intake (1,5g/kg/d).

Results: Fifteen patients were included (67% Males); median age was 60 (33 -75) years old. Body Mass index at ICU admission was 25,7 (IQR, 24 - 31) kg/m². After a median ICU stays of 33 (IQR, 26 - 39) days, malnutrition was present in all patients (11,3% median weight loss and/or low muscle mass based on hand grip strength measurement). Because of post-intubation dysphagia in 60% of patients, enteral nutrition was administered (57% naso-gastric tube; 43% percutaneous endoscopic gastrostomy). After 2-month, a significant improvement in muscle strength was observed (median handgrip strength: 64,7%(IQR, 51 - 73) of the predicted values for age vs 19% (IQR, 4,8 - 28,4) at ICU discharge (p < 0,0005)), as well as weight gain of 4,3 kg (IQR, 2,7 - 6,7) (p< 0,0002).

Conclusions: Critically ill patients with COVID-19 requiring ICU admission and mechanical ventilation have malnutrition and low muscle mass at ICU discharge. Nutritional parameters improve during rehabilitation with standardized medical nutrition therapy.

<https://pubmed.ncbi.nlm.nih.gov/33666263/>

**Title:** **MUSCLE STRENGTH AND PHYSICAL PERFORMANCE IN PATIENTS WITHOUT PREVIOUS DISABILITIES RECOVERING FROM COVID-19 PNEUMONIA**

Source: Am J Phys Med Rehabil, 2021 Feb 1; 100(2):105-109

In this cross-sectional study, we evaluated skeletal muscle strength and physical performance (1-min sit-to-stand and short physical performance battery tests), dyspnea, fatigue, and single-breath counting at discharge from a post-acute COVID department, in patients recovering from COVID-19 pneumonia who had no locomotor disability before the infection. Quadriceps and biceps were weak in 86% and 73% of the patients, respectively. Maximal voluntary contraction for quadriceps was 18.9 (6.8) kg and for biceps 15.0 (5.5) kg (i.e., 54% and 69% of the predicted normal value, respectively). The number of chair rises in the 1-min sit-to-stand test was 22.1 (7.3 corresponding to 63% of the predicted normal value), whereas the short physical performance battery score was 7.9 (3.3 corresponding to 74% of the predicted normal value). At the end of the 1-min sit-to-stand test, 24% of the patients showed exercise-induced desaturation. The single-breath counting count was 35.4 (12.3) corresponding to 72% that of healthy controls. Mild-to-moderate dyspnea and fatigue were found during activities of daily living (Borg scale score, median value = 0.5 [0-2] and 1 [0-2]) and after the 1-min sit-to-stand (Borg scale score, median value = 3 [2-5] and 1 [0-3]). Significant correlations were observed between muscle strength and physical performance indices (R = 0.31-0.69).The high prevalence of impairment in skeletal muscle strength and physical performance in hospitalized patients recovering from COVID-19 pneumonia without previous locomotor disabilities suggests the need for rehabilitation programs after discharge.

<https://pubmed.ncbi.nlm.nih.gov/33181531/>

**TITLE: WHAT IS THE RECOVERY RATE AND RISK OF LONG-TERM CONSEQUENCES FOLLOWING A DIAGNOSIS OF COVID-19? A HARMONISED, GLOBAL LONGITUDINAL OBSERVATIONAL STUDY PROTOCOL**

**Source:** BMJ Open; Mar 2021; vol. 11 (no. 3); p. e043887

**Abstract:** INTRODUCTION Very little is known about possible clinical sequelae that may persist after resolution of acute COVID-19. A recent longitudinal cohort from Italy including 143 patients followed up after hospitalisation with COVID-19 reported that 87% had at least one ongoing symptom at 60-day follow-up. Early indications suggest that patients with COVID-19 may need even more psychological support than typical intensive care unit patients. The assessment of risk factors for longer term consequences requires a longitudinal study linked to data on pre-existing conditions and care received during the acute phase of illness. The primary aim of this study is to characterise physical and psychosocial sequelae in patients post-COVID-19 hospital discharge. METHODS AND ANALYSIS This is an international open-access prospective, observational multisite study. This protocol is linked with the International Severe Acute Respiratory and emerging Infection Consortium (ISARIC) and the WHO's Clinical Characterisation Protocol, which includes patients with suspected or confirmed COVID-19 during hospitalisation. This protocol will follow-up a subset of patients with confirmed COVID-19 using standardised surveys to measure longer term physical and psychosocial sequelae. The data will be linked with the acute phase data. Statistical analyses will be undertaken to characterise groups most likely to be affected by sequelae of COVID-19. The open-access follow-up survey can be used as a data collection tool by other follow-up studies, to facilitate data harmonisation and to identify subsets of patients for further in-depth follow-up. The outcomes of this study will inform strategies to prevent long-term consequences; inform clinical management, interventional studies, rehabilitation and public health management to reduce overall morbidity; and improve long-term outcomes of COVID-19.ETHICS AND DISSEMINATION The protocol and survey are open access to enable low-resourced sites to join the study to facilitate global standardised, longitudinal data collection. Ethical approval has been given by sites in Colombia, Ghana, Italy, Norway, Russia, the UK and South Africa. New sites are welcome to join this collaborative study at any time. Sites interested in adopting the protocol as it is or in an adapted version are responsible for ensuring that local sponsorship and ethical approvals in place as appropriate. The tools are available on the ISARIC website (www.isaric.org). PROTOCOL REGISTRATION NUMBER: osf.io/c5rw3/ PROTOCOL VERSION: 3 August 2020 EUROQOL ID: 37035.

<https://bmjopen.bmj.com/content/11/3/e043887>

**Title: AN A-E ASSESSMENT OF POST-ICU COVID-19 RECOVERY (letter)**

**Source**: Journal of Intensive Care; Mar 2021; vol. 9 (no. 1); p. 29

**Abstract:** The COVID-19 global pandemic has placed unprecedented strain on healthcare and critical care services around the world. Whilst most resources have focused on the acute phase of the disease, there is likely to be an untold burden of patients chronically affected. A wide range of sequelae contribute to post intensive care syndrome (PICS); from our current knowledge of COVID-19, a few of these have the potential to be more prevalent following critical care admission. Follow-up assessment, diagnosis and treatment in an increasingly virtual setting will provide challenges but also opportunities to develop these services. Here, we propose an A to E approach to consider the potential long-term effects of COVID-19 following critical care admission. Anxiety and other mental health diagnoses, Breathlessness, Central nervous system impairment, Dietary insufficiency and malnutrition, Embolic events. Developing strategies to mitigate these during admission and providing follow-up, assessment and treatment of persistent multiple organ dysfunction will be essential to improve morbidity, mortality and patient quality of life.

<https://pubmed.ncbi.nlm.nih.gov/33743819/>

**TITLE: LONG-COVID POSTURAL TACHYCARDIA SYNDROME: AN AMERICAN AUTONOMIC SOCIETY STATEMENT**

**Source**: Clinical autonomic research: official journal of the Clinical Autonomic Research Society; Mar 2021

**Abstract:** COVID-19 is a global pandemic that has had a devastating effect on the health and economy of much of human civilization. While the acute impacts of COVID-19 were the initial focus of concern, it is becoming clear that in the wake of COVID-19, many patients are developing chronic symptoms that have been called Long-COVID. Some of the symptoms and signs include those of postural tachycardia syndrome (POTS). Understanding and managing long-COVID POTS will require a significant infusion of health care resources and a significant additional research investment. In this document from the American Autonomic Society, we outline the scope of the problem, and the resources and research needed to properly address the impact of Long-COVID POTS.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7976723/>

**TITLE: PHYSICAL THERAPY MANAGEMENT OF AN INDIVIDUAL WITH POST-COVID SYNDROME: A CASE REPORT**

**Source:** Physical Therapy; Mar 2021

**Abstract:** OBJECTIVE The purpose of this case report is to present the clinical presentation and physical therapist management for a patient with post-COVID syndrome. Secondarily, the report highlights the importance of assessing cognitive and emotional health in patients with post-COVID syndrome. METHODS (CASE DESCRIPTION) A 37-year-old woman tested positive for SARS-CoV-2 and developed mild COVID-19 disease but did not require supplemental oxygen or hospitalization. The patient experienced persistent symptoms including dyspnea, headaches, and cognitive fog. On day 62, she participated in an outpatient physical therapist evaluation that revealed deficits in exercise capacity, obtaining 50% of her age-predicted 6-minute walk distance (6MWD). She had minor reductions in muscle strength and cognitive function. Self-reported quality of life (QoL) was 50, and she scored above established cut-off scores for provisional diagnosis of posttraumatic stress disorder (PTSD).RESULTS The patient participated in biweekly physical therapist sessions for 8 weeks, which included aerobic training, strengthening exercises, diaphragmatic breathing techniques, and mindfulness training. Metabolic equivalent for task (METS) levels increased with variability over the course of the program. The patient's muscle strength, physical function, and exercise capacity improved. 6MWD increased by 199 m, equating to 80% of her age-predicted distance. QoL and PTSD scores did not improve. At evaluation after physical therapy, the patient was still experiencing migraines, dyspnea, fatigue, and cognitive dysfunction. CONCLUSION This case report described the clinical presentation and physical therapist management of a person with post-COVID syndrome, a novel health condition for which little evidence exists to guide rehabilitation examination and interventions. Physical therapists should consider cognitive function and emotional health in their plan of care for patients with post-COVID syndromes. IMPACT This case alerts physical therapists to post-COVID syndrome-which can include debilitating symptoms of decreased aerobic tolerance, anxiety, PTSD, and cognitive dysfunction-and to the role that therapists can play in assessing these symptoms and managing these patients.

<https://academic.oup.com/ptj/advance-article/doi/10.1093/ptj/pzab098/6177704>

**TITLE: CARDIOPULMONARY EXERCISE TESTING TO ASSESS PERSISTENT SYMPTOMS AT 6 MONTHS IN PEOPLE WITH COVID-19 WHO SURVIVED HOSPITALIZATION - A PILOT STUDY**

**Source:** Physical Therapy; Mar 2021

**Abstract:** OBJECTIVE The aim of this pilot study was to assess physical fitness and its relationship with functional dyspnea in survivors of Covid-19, 6 months after their discharge from the hospital. METHODS Data collected routinely from people referred for cardiopulmonary exercise testing (CPET) following hospitalization for Covid-19 were retrospectively analyzed. Persistent dyspnea was assessed using the modified Medical Research Council dyspnea (mMRC) scale. RESULTS Twenty-three people with persistent symptoms were referred for CPET. Mean mMRC dyspnea score was 1 (SD = 1) and was significantly associated with VO2peak (%) (rho = -0.49). At 6 months, those hospitalized in the general ward had a slightly reduced VO2peak (87% [SD = 20]), whereas those who had been in the intensive care unit (ICU) had a moderately reduced VO2peak (77% [SD = 15]). Of note, the results of the CPET revealed that, in all patients, respiratory equivalents were high, power-to-weight ratios were low, and those who had been in the ICU had a relatively low ventilatory efficiency (mean VE/VCO2 slope = 34 [SD = 5]). Analysis of each individual showed that none had a breathing reserve <15% or 11 L/min, all had a normal exercise electrocardiogram, and 4 had a heart rate above 90%.CONCLUSIONAt 6 months, persistent dyspnea was associated with reduced physical fitness. This study offers initial insights into the mid-term physical fitness of people who required hospitalization for Covid-19. It also provides novel pathophysiological clues about the underlaying mechanism of the physical limitations associated with persistent dyspnea. Those with persistent dyspnea should be offered a tailored rehabilitation intervention, which should probably include muscle reconditioning, breathing retraining, and perhaps respiratory muscle training. IMPACT This study is the first to show that a persistent breathing disorder (in addition to muscle deconditioning) can explain persistent symptoms 6 months after hospitalization for Covid-19 infection and suggests that a specific rehabilitation intervention is warranted.

<https://pubmed.ncbi.nlm.nih.gov/33735374/>

**TITLE: A ROLE FOR STEROIDS IN COVID-19 ASSOCIATED PNEUMONITIS AT SIX-WEEK FOLLOW-UP?**

**Source:** Annals of the American Thoracic Society; Mar 2021

<https://pubmed.ncbi.nlm.nih.gov/33735603/>

**TITLE: CHARACTERISTICS AND OUTCOMES OF US CHILDREN AND ADOLESCENTS WITH MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C) COMPARED WITH SEVERE ACUTE COVID-19**

**Source:** JAMA; Mar 2021; vol. 325 (no. 11); p. 1074-1087

**Abstract:** Importance Refinement of criteria for multisystem inflammatory syndrome in children (MIS-C) may inform efforts to improve health outcomes. Objective To compare clinical characteristics and outcomes of children and adolescents with MIS-C vs those with severe coronavirus disease 2019 (COVID-19).Setting, Design, and Participants Case series of 1116 patients aged younger than 21 years hospitalized between March 15 and October 31, 2020, at 66 US hospitals in 31 states. Final date of follow-up was January 5, 2021. Patients with MIS-C had fever, inflammation, multisystem involvement, and positive severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) reverse transcriptase-polymerase chain reaction (RT-PCR) or antibody test results or recent exposure with no alternate diagnosis. Patients with COVID-19 had positive RT-PCR test results and severe organ system involvement.ExposureSARS-CoV-2.Main Outcomes and Measures Presenting symptoms, organ system complications, laboratory biomarkers, interventions, and clinical outcomes. Multivariable regression was used to compute adjusted risk ratios (aRRs) of factors associated with MIS-C vs COVID-19.ResultsOf 1116 patients (median age, 9.7 years; 45% female), 539 (48%) were diagnosed with MIS-C and 577 (52%) with COVID-19. Compared with patients with COVID-19, patients with MIS-C were more likely to be 6 to 12 years old (40.8% vs 19.4%; absolute risk difference [RD], 21.4% [95% CI, 16.1%-26.7%]; aRR, 1.51 [95% CI, 1.33-1.72] vs 0-5 years) and non-Hispanic Black (32.3% vs 21.5%; RD, 10.8% [95% CI, 5.6%-16.0%]; aRR, 1.43 [95% CI, 1.17-1.76] vs White). Compared with patients with COVID-19, patients with MIS-C were more likely to have cardiorespiratory involvement (56.0% vs 8.8%; RD, 47.2% [95% CI, 42.4%-52.0%]; aRR, 2.99 [95% CI, 2.55-3.50] vs respiratory involvement), cardiovascular without respiratory involvement (10.6% vs 2.9%; RD, 7.7% [95% CI, 4.7%-10.6%]; aRR, 2.49 [95% CI, 2.05-3.02] vs respiratory involvement), and mucocutaneous without cardiorespiratory involvement (7.1% vs 2.3%; RD, 4.8% [95% CI, 2.3%-7.3%]; aRR, 2.29 [95% CI, 1.84-2.85] vs respiratory involvement). Patients with MIS-C had higher neutrophil to lymphocyte ratio (median, 6.4 vs 2.7, P < .001), higher C-reactive protein level (median, 152 mg/L vs 33 mg/L; P < .001), and lower platelet count (<150 ×103 cells/μL [212/523 {41%} vs 84/486 {17%}, P < .001]). A total of 398 patients (73.8%) with MIS-C and 253 (43.8%) with COVID-19 were admitted to the intensive care unit, and 10 (1.9%) with MIS-C and 8 (1.4%) with COVID-19 died during hospitalization. Among patients with MIS-C with reduced left ventricular systolic function (172/503, 34.2%) and coronary artery aneurysm (57/424, 13.4%), an estimated 91.0% (95% CI, 86.0%-94.7%) and 79.1% (95% CI, 67.1%-89.1%), respectively, normalized within 30 days. Conclusions and Relevance This case series of patients with MIS-C and with COVID-19 identified patterns of clinical presentation and organ system involvement. These patterns may help differentiate between MIS-C and COVID-19.

<https://jamanetwork.com/journals/jama/fullarticle/2777026>

**TITLE: POST COVID-19 OPHTHALMIC MANIFESTATIONS IN AN ASIAN INDIAN MALE**

**Source:** Ocular Immunology and Inflammation; Mar 2021; p. 1-6

**Abstract:** Introduction: The Ocular manifestations of coronavirus disease 2019 (COVID-19) reported include conjunctivitis, conjunctival hyperemia, chemosis, epiphora, episcleritis, retinal manifestations included cotton wool spots (CWS), micro-hemorrhages, papillophlebitis and neuro-ophthalmic manifestations. Purpose: To report post COVID-19 ophthalmic manifestations using multimodal imaging. Results: A 66-year-old Asian Indian male presented to us with bilateral blurring of vision, RE>LE, of 3 days following a diagnosis of COVID-19 disease. Corrected distance visual acuity were 20/2666 and 20/25 in the right (RE) and left (LE) eyes respectively. He had bilateral anterior chamber inflammation with a relative afferent pupillary defect in the RE. RE showed central retinal artery occlusion(CRAO) with CWS, few flame-shaped retinal hemorrhages and disc edema and hyperemia. LE had disc edema and hyperemia, few flame-shaped retinal hemorrhages, cystoid changes and CWS. A diagnosis of bilateral panuveitis and papillitis with CRAO in the RE was made. Conclusion: Our patient developed a vascular occlusion with panuveitis, which possibly represents an immune mediated event following COVID-19. Patients should be warned about possible ophthalmic sequelae even after recovery.

<https://pubmed.ncbi.nlm.nih.gov/33733987/>

**TITLE: HIGH PREVALENCE OF ACUTE STRESS DISORDER AND PERSISTING SYMPTOMS IN ICU SURVIVORS AFTER COVID-19 (letter)**

**Source:** Intensive Care Medicine; Mar 2021

… ASD prevalence is high among ICU survivors after COVID-19; a systematic screening should be performed to reduce chronic effects of critical illness. Symptoms of asthenia and dyspnoea for moderate efforts persist for weeks after ICU and hospital discharge in a large majority of the patients.

<https://link.springer.com/article/10.1007/s00134-021-06349-7>

**TITLE: THE RISK OF THROMBOSIS AFTER ACUTE-COVID-19 INFECTION**

**Source:** QJM: monthly journal of the Association of Physicians; Mar 2021  
  
Severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) has been associated with coagulation dysfunction which predisposes patients to an increased risk of both venous and arterial thromboembolism, increasing the short-term morbidity and mortality. Current data evidenced that the rate of post-discharge thrombotic events in COVID-19 patients is lower compared to that observed during hospitalization. Rather than ‘true thrombotic events’, these complications seem more probably ‘immunothrombosis’ consequent to the recent infection. Unfortunately, the absence of data from randomized controlled trials, large prospective cohorts and ambulatory COVID-19 patients, left unresolved the question regarding the need of post-discharge thromboprophylaxis due to the absence of strong-level recommendations

[View full text](https://watermark.silverchair.com/hcab054.pdf?token=AQECAHi208BE49Ooan9kkhW_Ercy7Dm3ZL_9Cf3qfKAc485ysgAAArkwggK1BgkqhkiG9w0BBwagggKmMIICogIBADCCApsGCSqGSIb3DQEHATAeBglghkgBZQMEAS4wEQQMZrG4TSklThb-Iz3bAgEQgIICbPbKkD6ikMV6EG4LFrat8l8V5gwhlNFM91AU6vnXXZJobZDCKtECO8kARbbKR_eGRMJIKSykLRU8vXYgo_PjAx3hhfERrmyk1F4ccYtfYYLWRyTo--qeRXDO0yiyaqQiADYpHUSPmnkL5MP9wLxcOD50W9aazjLK4TWBXq14PdxCVFKUN-Ywxt9-_1XW2PrLwxYOk3sxjXBiBeZWKHXeE4a0d80OiOrL0U0nc9RtsYpYlctSKOBYEN42oYkBl3rDXUhKsxLCAgf7BR8SXy56PavAWTarVOcrbTK9QsdXFHgU4TFVysL1cNNLtcWF0NTMQIXpEgscLiZO1AaYMlm6BR-rU6pIgyxN8fmL70tEQOGCZHwhgBhGho-hnywg_R2vsM7bD27oXJa-kfjpcUQtMVXoQuZcrR5_38s2IhpiL5mO_zVxd3iSw_7gD248n7unP5b88GS6KZKt9LkCmDGskCukpjjPQuJuWSWqRl_zOz_zFAZQp9sFlU4hx2nwtKlUooIsai4jLafrEWiR7zORXMbLcMt00bl9SGLGTMoLG9tG0EoOrPphUaLb9fTvtp7eavWaEBLYeRR5Ya8WqrntcdXIR-SCXNQ_O6Qm04xrTva2AyYfHMPOY8zIYFtZ56SDFzvXABxuWOMTCoOTwU7kamg1o1xEBqsuPnw_lsQV6nrMkzELgqoJw8sa4kEcu_YfYzSxKVtWSQdhkWKX4L8DgmL_k3t8MOrjfm91N6K8NPwwZyIxHXxBm-a2YqoaknLzbmkqOirujyCvm9q6lyIHo4yLngtMA1L_vFZH4FJqD5lhouNE8LDzEjg9D4wB)

**TITLE: PERSISTENT NASAL INFLAMMATION FIVE MONTHS AFTER ACUTE ANOSMIA IN PATIENTS WITH COVID-19 (letter)**

**Source:** American Journal of Respiratory and Critical Care Medicine; Mar 2021

.. In conclusion, there is clear evidence of persistent inflammation 5 months after onset of symptoms in COVID patients who have recovered from their OD. Whether this will lead to chronic rhino-sinus diseases is yet to be investigated.

<https://www.atsjournals.org/doi/abs/10.1164/rccm.202011-4258LE>

**TITLE: A NOVEL MULTI-OMICS-BASED HIGHLY ACCURATE PREDICTION OF SYMPTOMS, COMORBID CONDITIONS, AND POSSIBLE LONG-TERM COMPLICATIONS OF COVID-19**

**Source:** Molecular omics; Mar 2021

**Abstract:** Comprehensive clinical pictures, comorbid conditions, and long-term complications of COVID-19 are still unknown. Recently, using a multi-omics-based strategy, we predicted potential drugs for COVID-19 with ∼70% accuracy. Herein, using a novel multi-omics-based bioinformatic approach and three ways of analysis, we identified the symptoms, comorbid conditions, and short-, mid-, and possible long-term complications of COVID-19 with >90% precision including 27 parent, 170 child, and 403 specific conditions. Among the specific conditions, 36 viral, 53 short-term, 62 short-mid-long-term, 194 mid-long-term, and 57 congenital conditions are identified. At a threshold "count of occurrence" of 4, we found that 83-100% (average 92.67%) of enriched conditions are associated with COVID-19. Except for dry cough and loss of taste, all the other COVID-19-associated mild and severe symptoms are enriched. CVDs, and pulmonary, metabolic, musculoskeletal, neuropsychiatric, kidney, liver, and immune system disorders are top comorbid conditions. Specific diseases like myocardial infarction, hypertension, COPD, lung injury, diabetes, cirrhosis, mood disorders, dementia, macular degeneration, chronic kidney disease, lupus, arthritis, etc. along with several other NCDs were found to be top candidates. Interestingly, many cancers and congenital disorders associated with COVID-19 severity are also identified. Arthritis, gliomas, diabetes, psychiatric disorders, and CVDs having a bidirectional relationship with COVID-19 are also identified as top conditions. Based on our accuracy (>90%), the long-term presence of SARS-CoV-2 RNA in human, and our "genetic remittance" assumption, we hypothesize that all the identified top-ranked conditions could be potential long-term consequences in COVID-19 survivors, warranting long-term observational studies.  
  
<https://pubs.rsc.org/en/content/articlelanding/2021/mo/d0mo00189a#!divAbstract>

**TITLE: ATTRIBUTES AND PREDICTORS OF LONG COVID**

**Source:** Nature Medicine; 10th Mar 2021

**Abstract:** Reports of long-lasting coronavirus disease 2019 (COVID-19) symptoms, the so-called 'long COVID', are rising but little is known about prevalence, risk factors or whether it is possible to predict a protracted course early in the disease. We analyzed data from 4,182 incident cases of COVID-19 in which individuals self-reported their symptoms prospectively in the COVID Symptom Study app1. A total of 558 (13.3%) participants reported symptoms lasting ≥28 days, 189 (4.5%) for ≥8 weeks and 95 (2.3%) for ≥12 weeks. Long COVID was characterized by symptoms of fatigue, headache, dyspnea and anosmia and was more likely with increasing age and body mass index and female sex. Experiencing more than five symptoms during the first week of illness was associated with long COVID (odds ratio = 3.53 (2.76-4.50)). A simple model to distinguish between short COVID and long COVID at 7 days (total sample size, n = 2,149) showed an area under the curve of the receiver operating characteristic curve of 76%, with replication in an independent sample of 2,472 individuals who were positive for severe acute respiratory syndrome coronavirus 2. This model could be used to identify individuals at risk of long COVID for trials of prevention or treatment and to plan education and rehabilitation services.

<https://www.nature.com/articles/s41591-021-01292-y>

**TITLE: NEUROLOGICAL OUTCOME AND QUALITY OF LIFE THREE MONTHS AFTER COVID-19: A PROSPECTIVE OBSERVATIONAL COHORT STUDY**

**Source:** European Journal of Neurology; Mar 2021

**Abstract:** BACKGROUND To assess neurological manifestations and quality of life (QoL) three months after COVID-19.METHODSIn this prospective, multicentre, observational cohort study we systematically evaluated neurological signs and diseases by detailed neurological examination and a predefined test battery assessing smelling disorders (16-item Sniffin-Sticks-test), cognitive deficits (Montreal Cognitive Assessment), QoL (36-item Short Form), and mental health (Hospital Anxiety and Depression Scale, Post-traumatic Stress Disorder Checklist-5) three months after disease onset. RESULTS Of 135 consecutive COVID-19 patients, 31 (23%) required ICU-care (severe), 72 (53%) were admitted to the regular ward (moderate), and 32 (24%) underwent outpatient-care (mild) during acute disease. At three-month follow-up, 20 patients (15%) presented with one or more neurological syndromes that were not evident before COVID-19. These included poly-neuro/myopathy (n=16, 12%), mild encephalopathy (n=2, 2%), parkinsonism (n=1, 1%), orthostatic hypotension (n=1, 1%), Guillain-Barré-Syndrome (n=1, 1%) and ischemic stroke (n=1, 1%). Objective testing revealed hyposmia/anosmia in 57/127 (45%) patients at three-month follow-up. Self-reported hyposmia/anosmia was lower (17%), however, improved compared to the acute disease (44%; P<0.001). In ICU patients, encephalopathy improved over time (from 29% during acute disease to 3% at follow-up, P=0.008). At follow-up, cognitive deficits were apparent in 23%, and QoL was impaired in 31%. Assessment of mental health revealed symptoms of depression, anxiety and post-traumatic stress disorders in 11%, 25%, and 11%, respectively. CONCLUSIONS Despite recovery from acute infection, neurological symptoms were prevalent at three-month follow-up. Above all, smelling disorders were persistent in a large proportion of patients.

<https://pubmed.ncbi.nlm.nih.gov/33682276/>

**TITLE: EARLY REHABILITATION IN ICU FOR COVID-19: WHAT ABOUT FES-CYCLING? (letter)**

**Source:** Critical care (London, England); Mar 2021; vol. 25 (no. 1); p. 94

… Although the method presented by Nakamura et al. [[1](https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03526-4#ref-CR1)] is interesting, it is essential that early rehabilitation following COVID-19 also targets cardiovascular, cognitive, functional, and mobility reconditioning [[2](https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03526-4#ref-CR2)]. Such benefits require exercise intensities that might not be reachable with belt-type EMS. On the contrary, we think that FES-cycling (coordinated stimulation of lower limbs’ muscles to produce the movement of cycling on an ergometer placed on the patients’ bed) could be a solution since it involves a great muscle mass during a functional movement [[4](https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03526-4#ref-CR4)]. This method has already shown very beneficial effects in populations of patients with no or poor possibilities of lower-limb exercise [[4](https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03526-4#ref-CR4), [5](https://ccforum.biomedcentral.com/articles/10.1186/s13054-021-03526-4#ref-CR5)], and similar benefits can be expected in patients hospitalized in ICU for COVID-19 …

<https://ccforum.biomedcentral.com/articles/10.1186/s13054-020-03080-5>

**TITLE: A NEW TOOL FOR DETECTING COVID-19 PSYCHOLOGICAL BURDEN AMONG POSTACUTE AND LONG-TERM CARE RESIDENTS (MOOD-5 SCALE): OBSERVATIONAL STUDY**

**Source:** JMIR Aging; Mar 2021; vol. 4 (no. 1); p. e26340

**Abstract:** BACKGROUND Older adults are at high risk for developing serious somatic and psychological symptoms associated with COVID-19. Currently available instruments may not be sensitive to the concerns about COVID-19 in post-acute and long-term care and their applications in telehealth remain to be clarified. OBJECTIVE We investigated the psychometric properties of the Mood-5 Scale (M5) as a rapid self-assessment of the COVID-19 psychological burden among post-acute and long-term care residents. METHODS Residents (N=131), aged 50 years and above, from 20 post-acute and long-term care facilities in Maryland, USA, were evaluated in-person or via telehealth (43/131, 32.8%) across a 4-week period (May 11 to June 5, 2020) during the COVID-19 pandemic. The COVID-19 psychological burden experienced by the residents was rated by geriatric psychologists who independently reviewed their clinical documentation. Psychometric analyses were performed on the M5 in relation to psychological tests, COVID-19 psychological burden, and diagnostic data collected during the evaluation. RESULTS The M5 demonstrated acceptable internal consistency (Cronbach α=.77). M5 scores were not confounded by demographic variables or telehealth administration (P>.08). Convergent validity for the M5 was established via positive associations with anxiety (r=0.56, P<.001) and depressive (r=0.49, P<.001) symptoms. An M5 cutoff score of 3 demonstrated strong sensitivity (0.92) and adequate specificity (0.75) for identifying COVID-19 psychological distress among post-acute and long-term care residents (area under the curve of 0.89, positive predictive value=0.79, negative predictive value=0.91).C ONCLUSIONS The M5 is a reliable and valid tool for self-assessment of mood that can help identify post-acute and long-term care residents with significant psychological burden associated with COVID-19. It can be completed in less than 1 minute and is appropriate for use in both in-person and virtual visits.

<https://pubmed.ncbi.nlm.nih.gov/33640866/>

**TITLE: PERSISTENT SYMPTOMS UP TO FOUR MONTHS AFTER COMMUNITY AND HOSPITAL-MANAGED SARS-COV-2 INFECTION (letter)**

**Source:** The Medical Journal of Australia; Mar 2021 Publication Date Mar 2021

The spectrum of recovery for people infected with severe acute respiratory syndrome coronavirus 2 (SARS‐CoV‐2) remains uncertain.[1](https://onlinelibrary.wiley.com/doi/10.5694/mja2.50963#mja250963-bib-0001)-[4](https://onlinelibrary.wiley.com/doi/10.5694/mja2.50963#mja250963-bib-0004) The ADAPT study is a prospective cohort study that follows up all adults diagnosed with coronavirus disease 2019 (COVID‐19) at St Vincent’s Hospital, Sydney. Our goal is to characterise the effects of infection during the 12 months after diagnosis, by initial severity of COVID‐19. Our specific aims were to determine the prevalence and nature of persistent symptoms; to evaluate lung function, health‐related quality of life, neurocognitive and olfactory abnormalities during the recovery period; and to characterise the longitudinal immune response to infection.

In this article, we report the results of assessments performed up to four months after diagnosis. All adults with SARS‐CoV‐2 infections confirmed by polymerase chain reaction (PCR) at St Vincent’s Hospital testing clinics and who could be contacted were invited to participate. Participants were prospectively assessed according to a pre‐defined schedule. The study was approved by the St Vincent’s Hospital Human Research Ethics Committee (reference, 2020/ETH00964); baseline visits commenced as soon as this approval was obtained.

<https://pubmed.ncbi.nlm.nih.gov/33657671/>

**TITLE: HEALTH RELATED QUALITY OF LIFE OF COVID-19 PATIENTS AFTER DISCHARGE: A MULTICENTER FOLLOW UP STUDY**

**Source:** Journal of Clinical Nursing; Mar 2021

Aims and Objectives To determine the health‐related quality of life (HRQoL) of COVID‐19 patients after discharge and its predicting factors. Background COVID‐19 has caused a worldwide pandemic and led a huge impact on the health of human and daily life. It has been demonstrated that physical and psychological conditions of hospitalised COVID‐19 patients are impaired, but the studies focus on physical and psychological conditions of COVID‐19 patients after discharge from hospital are rare. Design A multicentre follow‐up study. Methods This was a multicentre follow‐up study of COVID‐19 patients who had discharged from six designated hospitals. Physical symptoms and HRQoL were surveyed at first follow‐up (the third month after discharge). The latest multiple laboratory findings were collected through medical examination records. This study was performed and reported in accordance with STROBE checklist.

Results Three hundred eleven patients (57.6%) were reported with one or more physical symptoms. The scores of HRQoL of COVID‐19 patients at third month after discharge, except for the dimension of general health, were significantly lower than Chinese population norm (p < .001). Results of logistic regression showed that female (odds ratio (OR): 1.79, 95% confidence interval (CI): 1.04–3.06), older age (≥60 years) (OR: 2.44, 95% CI: 1.33–4.47) and the physical symptom after discharge (OR: 40.15, 95% CI: 9.68–166.49) were risk factors for poor physical component summary; the physical symptom after discharge (OR: 6.68, 95% CI: 4.21–10.59) was a risk factor for poor mental component summary. Conclusions Health‐related quality of life of discharged COVID‐19 patients did not come back to normal at third month after discharge and affected by age, sex and the physical symptom after discharge.

<https://onlinelibrary.wiley.com/doi/full/10.1111/jocn.15733>

**TITLE: MUSCLE WEAKNESS, FUNCTIONAL CAPACITIES AND RECOVERY FOR COVID-19 ICU SURVIVORS**

**Source:** BMC Anesthesiology; Mar 2021; vol. 21 (no. 1); p. 64

Abstract BACKGROUND Few studies have evaluated muscle strength in COVID-19 ICU survivors. We aimed to report the incidence of limb and respiratory muscle weakness in COVID-19 ICU survivors. METHOD We performed a cross sectional study in two ICU tertiary Hospital Settings. COVID-19 ICU survivors were screened and respiratory and limb muscle strength were measured at the time of extubation. An ICU mobility scale was performed at ICU discharge and walking capacity was self-evaluated by patients 30 days after weaning from mechanical ventilation. RESULTS Twenty-three patients were included. Sixteen (69%) had limb muscle weakness and 6 (26%) had overlap limb and respiratory muscle weakness. Amount of physiotherapy was not associated with muscle strength. 44% of patients with limb weakness were unable to walk 100 m 30 days after weaning. CONCLUSION The large majority of COVID-19 ICU survivors developed ICU acquired limb muscle weakness. 44% of patients with limb weakness still had severely limited function one-month post weaning.

<https://bmcanesthesiol.biomedcentral.com/articles/10.1186/s12871-021-01274-0>

**TITLE: IMPLICATIONS OF COVID-19 SEQUELAE FOR HEALTH-CARE PERSONNEL**

**Source:** Source The Lancet. Respiratory medicine; Mar 2021; vol. 9 (no. 3); p. 230-231

… Specific return-to-work guidance for health-care personnel with long COVID should be implemented with the goal of successful reintroduction into the workforce, recognising that those with neuropsychiatric symptoms often need complex, individualised accommodations. Current recommendations for long COVID include the identification and treatment of concurrent general medical problems (including physical therapy and pulmonary rehabilitation for persistent fatigue and dyspnoea); management of psychiatric syndromes with medications or psychotherapy when appropriate; and the promotion of a brain healthy lifestyle of adequate sleep, exercise, social engagement, and nutrition. Specific return-to-work strategies should be guided by a multidisciplinary team. This team might include individuals with specialism in neurology, psychiatry, psychology, pulmonology, physiatry, and other subspecialties, in collaboration with primary care staff. Examples include reintroduction into the workforce in phases, limiting shift schedules that disrupt natural circadian rhythms, mandating breaks to avoid postexertional neurological symptoms, partnering with other workers to facilitate oversight while multitasking, and gradually increasing responsibility and workloads. Although these measures might be costly in the short term, they might also allow for a previously healthy, skilled health-care professional to continue working long term…

<https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30575-0/fulltext>

**TITLE: LONG COVID IN THE SKIN: A REGISTRY ANALYSIS OF COVID-19 DERMATOLOGICAL DURATION**

**Source:** The Lancet. Infectious diseases; Mar 2021; vol. 21 (no. 3); p. 313-314 Date Mar 2021

Since the start of the COVID-19 pandemic, multiple studies have reported that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is associated with dermatological manifestations.  However, data on duration of signs and symptoms for the myriad dermatological manifestations of COVID-19 are lacking. Patients infected with SARS-CoV-2 who experience prolonged symptoms have been termed “long-haulers” or are said to have “long Covid”  with studies reporting that 66–87% of patients continued to have one or more COVID-19 symptoms 60 days after PCR positivity. Using an international registry of COVID-19 dermatological manifestations, we evaluated the duration of dermatological signs and symptoms of COVID-19 and assessed the presence of patients with persistent skin manifestations.

<https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30986-5/fulltext>

**TITLE: FEASIBILITY OF SUBACUTE REHABILITATION FOR MECHANICALLY VENTILATED PATIENTS WITH COVID-19 DISEASE: A RETROSPECTIVE CASE SERIES**

**Source:** Source International journal of rehabilitation research. Mar 2021; vol. 44 (no. 1); p. 77-81

Abstract In this case series study, we aimed to evaluate the feasibility of a subacute rehabilitation program for mechanically ventilated patients with severe consequences of COVID-19 infection. Data were retrospectively collected from seven males (age 37-61 years) who were referred for inpatient rehabilitation following the stay in the ICU (14-22 days). On admission, six patients were still supported by mechanical ventilation. All patients were first placed in isolation in a special COVID unit for 6-22 days. Patients attended 11-24 treatment sessions for the duration of rehabilitation stay (13-27 days), including 6-20 sessions in the COVID unit. The treatment included pulmonary and physical rehabilitation. The initially non-ventilated patient was discharged prematurely due to gallbladder problems, whereas all six mechanically ventilated patients were successfully weaned off before transfer to a COVID-free unit where they stayed for 7-19 days. At discharge, all patients increased limb muscle strength and thigh circumference, reduced activity-related dyspnea, regained functional independence and reported better quality of life. Rehabilitation plays a vital role in the recovery of seriously ill postCOVID-19 patients. Facilities should develop and implement plans for providing multidisciplinary rehabilitation treatments in various settings to recover functioning and prevent the development of long-term consequences of the COVID-19 disease.

<https://pubmed.ncbi.nlm.nih.gov/33323782/>

**TITLE: COVID-19 MYOCARDITIS AND LONG-TERM HEART FAILURE SEQUELAE**

**Source:** Source Current opinion in Cardiology; Mar 2021; vol. 36 (no. 2); p. 234-240

Abstract PURPOSE OF REVIEW The clinical syndrome of coronavirus disease 2019 (COVID-19) has become a global pandemic leading to significant morbidity and mortality. Cardiac dysfunction is commonly seen in these patients, often presenting as clinical heart failure. Accordingly, we aim to provide a comprehensive review on COVID-19 myocarditis and its long-term heart failure sequelae. RECENT FINDINGS Several suspected cases of COVID-19 myocarditis have been reported. It is often not clear if the acute myocardial dysfunction is caused by myocarditis or secondary to generalized inflammatory state of cytokine release or microvascular thrombotic angiopathy. Ischemia may also need to be ruled out. Regardless, myocardial dysfunction in these patients is associated with poor overall prognosis. Laboratory testing, echocardiography, cardiac magnetic resonance imaging, and even endomyocardial biopsy may be needed for timely diagnosis. Several treatment strategies have been described, including both supportive and targeted therapies.SUMMARYCOVID-19 can cause a spectrum of ventricular dysfunction ranging from mild disease to fulminant myocarditis with hemodynamic instability. Future research is needed to understand the true prevalence of COVID-19 myocarditis, as well as to better define various diagnostic protocols and treatment strategies.

<https://pubmed.ncbi.nlm.nih.gov/33394709/>

**TITLE: PULMONARY LONG-TERM CONSEQUENCES OF COVID-19 INFECTIONS AFTER HOSPITAL DISCHARGE**

**Source:** Clinical Microbiology and Infection, Mar 2021

Abstract OBJECTIVESCOVID-19 survivors are reporting residual abnormalities after discharge from the hospital. Limited information is available about this stage of recovery or the lingering effects of the virus on pulmonary function and inflammation. The aim of this study was to describe lung function and to identify biomarkers in serum and induced sputum samples from patients recovering from COVID-19 hospitalisation. METHODS Patients admitted to Spanish hospitals with laboratory-confirmed COVID-19 infection by a real-time PCR (RT-PCR) assay for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) were recruited for this study. Each hospital screened their lists of discharged patients at least 45 days after symptom onset. SARS-CoV-2-infected patients were divided into mild/moderate and severe disease groups according to the severity of their symptoms during hospitalisation. Patients' epidemiological and medical histories, comorbidities, chronic treatments, and laboratory parameters were evaluated. Pulmonary function tests, the standardised 6-minute walk test (6 MWT) and chest computed tomography (CT) were also performed. The levels of proteases, their inhibitors, and shed receptors were measured in serum and induced sputum samples. RESULTS A total of 100 patients with respiratory function tests were included in this study. The median number of days after the onset of symptoms was 104 (IQR 89.25, 126.75). COVID-19 was severe in 47% (47/ 100) of patients. CT was normal in 48% (48/100) of patients. Lung function was normal (FEV1 ≥80%, FVC ≥80%, FEV1/FVC ≥0.7, and diffusing capacity for carbon monoxide [DLCO] ≥80%) in 92% (92/100), 94% (94/100), 100% (100/100) and 48% (48/100) of patients, respectively. Multivariate analysis showed that a DLCO

<https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(21)00101-4/fulltext>

**TITLE: QUALITY OF LIFE, FUNCTIONAL STATUS, AND PERSISTENT SYMPTOMS AFTER INTENSIVE CARE OF COVID-19 PATIENTS**

**Source:** British Journal of Anaesthesia; Mar 2021; vol. 126 (no. 3); p. e110

The present study aimed to determine the quality of life, functional status, and persistent symptoms of patients with COVID-19-induced ARDS at 6 months after requiring treatment in an ICU. The ethics committee of Galicia, Spain (code No. 2020-188), approved this study. Informed consent was obtained from all participants.

We prospectively evaluated all critically ill patients with COVID-19-induced ARDS admitted to the ICUs of seven hospitals located in northwestern Spain between March 15 and April 30, 2020. A confirmed case of COVID-19 was defined by a positive result on a reverse-transcriptase polymerase chain reaction (RT–PCR) test. The following information was collected during ICU admission: patient characteristics, coexisting disorders, treatments, complications, Acute Physiology and Chronic Health Evaluation II (APACHE II) score, laboratory tests, need for mechanical ventilation, tracheotomy, renal replacement therapy, duration of mechanical ventilation, length of ICU stay, and ICU outcomes.

<https://bjanaesthesia.org/article/S0007-0912(20)30991-0/fulltext>

**TITLE: CASE REPORT AND SYSTEMATIC REVIEW SUGGEST THAT CHILDREN MAY EXPERIENCE SIMILAR LONG-TERM EFFECTS TO ADULTS AFTER CLINICAL COVID-19**

**Source:** Acta Paediatrica (Oslo, Norway : 1992); Mar 2021; vol. 110 (no. 3); p. 914-921

Abstract AIM Persistent symptoms in adults after COVID-19 are emerging and the term long COVID is increasingly appearing in the literature. However, paediatric data are scarce. METHODS This paper contains a case report of five Swedish children and the long-term symptoms reported by their parents. It also includes a systematic literature review of the MEDLINE, EMBASE and Web of Science databases and the medRxiv/bioRxiv pre-print servers up to 2 November 2020.RESULTSThe five children with potential long COVID had a median age of 12 years (range 9-15) and four were girls. They had symptoms for 6-8 months after their clinical diagnoses of COVID-19. None were hospitalised at diagnosis, but one was later admitted for peri-myocarditis. All five children had fatigue, dyspnoea, heart palpitations or chest pain, and four had headaches, difficulties concentrating, muscle weakness, dizziness and sore throats. Some had improved after 6-8 months, but they all suffered from fatigue and none had fully returned to school. The systematic review identified 179 publications and 19 of these were deemed relevant and read in detail. None contained any information on long COVID in children. CONCLUSION Children may experience similar long COVID symptoms to adults and females may be more affected.

<https://pubmed.ncbi.nlm.nih.gov/33205450/>

**TITLE: THREE-MONTH FOLLOW-UP OF PULMONARY EMBOLISM IN PATIENTS WITH COVID-19 (letter)**

**Source:** Thrombosis research; Feb 2021; vol. 201 ; p. 113-115

Coronavirus disease 2019 (COVID-19) infection has been notable for the occurrence of pulmonary arterial thrombosis, also known as immunothrombosis, in addition to classical pulmonary embolism [[[1]](https://www.thrombosisresearch.com/article/S0049-3848(21)00078-5/fulltext#bb0005). ]. The pathophysiology underpinning this appears more platelet-dependent and related to viral-mediated endothelial inflammation, in addition to hypercoagulability [[[2]](https://www.thrombosisresearch.com/article/S0049-3848(21)00078-5/fulltext#bb0010) ]. To date, treatment of confirmed pulmonary embolism (PE) has followed established (pre-COVID) venous thromboembolism (VTE) guidelines [[[3]](https://www.thrombosisresearch.com/article/S0049-3848(21)00078-5/fulltext#bb0015) ] but it is not known whether the subsequent clinical behaviour of COVID-associated VTE differs from outcomes reported prior to the COVID-19 pandemic. We have previously reported the rate, clinical characteristics and initial treatment of pulmonary embolus (PE) in a cohort of patients with clinically suspected or confirmed COVID-19 at King's College Hospital [[[4]](https://www.thrombosisresearch.com/article/S0049-3848(21)00078-5/fulltext#bb0020) ]. Given that the pathophysiology of immunothrombosis differs to classical pulmonary embolism, the clinical outcomes in these patients may also differ vis a vis risks of bleeding or recurrent thrombosis. The primary aim was to describe longer term clinical outcomes from n = 77 patients with confirmed COVID and with at least 90 days of follow-up, or earlier death. As patients with severe COVID-19 had further imaging as part of a structured follow up protocol [[[6]](https://www.thrombosisresearch.com/article/S0049-3848(21)00078-5/fulltext#bb0030)], we also report rates of residual thrombosis in this subgroup.

<https://www.thrombosisresearch.com/article/S0049-3848(21)00078-5/fulltext>

**TITLE: HEALTH RELATED QUALITY OF LIFE OF COVID-19 PATIENTS AFTER DISCHARGE: A MULTICENTER FOLLOW UP STUDY**

**Source: Journal of Clinical Nursing, 3 March 2021**

**Abstract:** AIMS AND OBJECTIVES To determine the health related quality of life (HRQoL) of COVID-19 patients after discharge and its predicting factors.BACKGROUNDCOVID-19 has caused a worldwide pandemic and led a huge impact on the health of human and daily life. It has been demonstrated that physical and psychological conditions of hospitalized COVID-19 patients are impaired, but the studies focus on physical and psychological conditions of COVID-19 patients after discharge from hospital are rare. DESIGN A multicenter follow up study. METHODS This was a multicenter follow up study of COVID-19 patients who had discharged from six designated hospitals. Physical symptoms and HRQoL were surveyed at first follow up (the third month after discharge). The latest multiple laboratory findings were collected through medical examination records. This study was performed and reported in accordance with STROBE checklist.RESULTS311 patients (57.6%) were reported with one or more physical symptoms. The scores of HRQoL of COVID-19 patients at third month after discharge, except for the dimension of general health, were significant lower than Chinese population normal (P<0.001). Results of logistic regression showed that female (odds ratio (OR): 1.79, 95% confidence interval (CI): 1.04-3.06), older age (≥60 years) (OR: 2.44, 95%CI: 1.33-4.47), and the physical symptom after discharge (OR: 40.15, 95%CI: 9.68-166.49) were risk factors for poor physical component summary; the physical symptom after discharge (OR: 6.68, 95%CI: 4.21-10.59) was a risk factor for poor mental component summary. CONCLUSIONS HRQoL of discharged COVID-19 patients did not come back to normal at third months after discharge and affected by age, sex and the physical symptom after discharge. RELEVANCE TO CLINICAL PRACTICE Healthcare workers should pay more attention to the physical and psychological rehabilitation of discharged COVID-19 patients. Long-term follow up on COVID-19 patients after discharge are needed to determine the long-term impact of COVID-19.

<https://onlinelibrary.wiley.com/doi/full/10.1111/jocn.15733>

**TITLE: CARDIORESPIRATORY AND SKELETAL MUSCLE DAMAGE DUE TO COVID-19: MAKING THE URGENT CASE FOR REHABILITATION**

**Source:** Expert Rev Respir Med, 2021 Mar 4;1-14.

**Abstract:** INTRODUCTION It has become increasingly evident that COVID-19 contributes to multiorgan pathophysiology. The systemic inflammatory response increases both pro-inflammatory cytokine and chemokine levels, leading to immune dysregulation and increasing the likelihood of incurring cardiac and pulmonary injuries. AREAS COVERED Longer periods of hospitalization (~20 days) increase susceptibility to ICU-acquired muscle weakness and deconditioning, which decreases muscle function and functional capacity. These conditions affect the quality of life in the post-COVID-19 period and require multi-disciplinary approaches to rehabilitate the cardiopulmonary and musculoskeletal systems of these patients. In this context, this narrative review, which included articles published in the Embase, PEDro and PubMed databases up to December 2020, is focused on discussing the essential role of exercise and rehabilitation health professionals in the COVID-19 recovery process, from hospitalization to hospital discharge, addressing strategies for professionals to mitigate the cardiac and pulmonary impairments associated with hospitalization to home or ambulatory rehabilitation, purposing ways to conduct rehabilitation programs to restore their functional status and quality of life after the infection. EXPERT OPINION In the current environment, these findings further point to the vital role of rehabilitation health professionals in the coming years and the urgent need to develop strategies to assist COVID-19 survivors.

<https://pubmed.ncbi.nlm.nih.gov/33606567/>

**TITLE: LONG-TERM FOLLOW UP OF PATIENTS WITH VENOUS THROMBOEMBOLISM AND COVID-19: ANALYSIS OF RISK FACTORS FOR DEATH AND MAJOR BLEEDING**

**Source:** European journal of haematology; Feb 2021

Available at [European journal of haematology](https://onlinelibrary.wiley.com/doi/full/10.1111/ejh.13603) - from Wiley Online Library Medicine and Nursing Collection 2019

**Abstract:**INTRODUCTIONCOVID-19 predisposes patients to a higher risk of venous thromboembolism (VTE), although the extent of these implications is unclear and the risk of bleeding has been poorly evaluated. To date, no studies have reported long-term outcomes of patients with COVID-19 and VTE.METHODProspective observational study to evaluate long-term (90 days or more) outcomes of patients diagnosed with VTE (PE, DVT of the extremities or both) in the setting of COVID-19. The main outcome of the study was a compound of major bleeding and death.RESULTSthe study comprised 100 patients (mean age 65 +/-13.9 years). At the time of VTE diagnosis, 66% patients were hospitalized, 34.8% of them in the ICU. Mean follow-up was 97.9 +/-23.3 days. During the study period 24% patients died and median time to death was 12 (IQR: 2.25-20.75) days, 11% patients had major bleeding and median time to event was 12 (IQR: 5-16) days. The cause of death was PE in 5% and bleeding in 2% of patients. There were no VTE recurrences. The main study outcome occurred in 29% patients. Risk of death or major bleeding were independently associated with ICU admission (HR 12.2; 95% CI 3.0-48.3), thrombocytopenia (HR 4.5; 95% CI 1.2-16.5) and cancer (HR 21.6; 95% CI 1.8-259).CONCLUSIONIn patients with COVID-19 and VTE, mortality and major bleeding were high and almost a third of deaths were VTE-related. The majority of complications occurred in the first 30 days. ICU admission, thrombocytopenia and cancer are risk factors for poor prognosis.

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**Title: CAMBRIDGE SPIN-OUT SANO GENETICS RAISES £2.5M AND ACCELERATES RESEARCH INTO LONG COVID**

**Source**: Cambridge UP, Jan 2021

Cambridge Enterprise joins in the new funding, which will support the cost of free at-home DNA testing kits for 3,000 people affected by long COVID. See also <https://www.bbc.co.uk/news/uk-england-cambridgeshire-56445891>.

<https://www.enterprise.cam.ac.uk/news/cambridge-spin-out-sano-genetics-raises-2-5m-and-accelerates-research-into-long-covid/>

**Title: UK STUDY TO COMPARE STRUGGLES OF PATIENTS WITH ‘LONG-COVID-19’ AND MS**

**Source**: MS News Today, 12th March 21

Researchers in the U.K. are seeking patients who found it difficult to return to work or school after a diagnosis of [multiple sclerosis](https://multiplesclerosisnewstoday.com/multiple-sclerosis-overview/) (MS) or COVID-19 to participate in a [survey](https://cdss.nottingham.ac.uk/redcap/surveys/?s=JH48LFC8YJ) that aims to gather more data on the physical and mental health of individuals with these conditions.

<https://multiplesclerosisnewstoday.com/news-posts/2021/03/12/uk-study-to-compare-work-school-struggles-of-patients-with-long-covid-19-and-ms/>

**Title: LONGCOVIDSOS LAUNCH VACCINE SURVEY**

**Source**: LongCovidSOS, 16th March 2021

A recently published preprint involving 44 vaccinated and 22 unvaccinated Long Covid patients found that 23.2% of participants showed improvements in Long Covid symptoms in the vaccinated group compared to only 15.4% of unvaccinated participants. They conclude that "Individuals with prolonged COVID-19 symptoms should receive vaccinations as suggested by national guidance."

Anecdotal evidence from support groups and a patient generated survey of 473 participants suggest that a proportion of people with Long Covid may be deriving benefit from the Covid-19 vaccine, however any improvement may be transitory and more research is needed. We have launched a survey to capture detailed data on the impact of vaccination on symptoms over time. We have also included people with ME and/or Chronic Fatigue. We hope that this may lead to more research and possibly clinical trials if evidence emerges that vaccines may be of therapeutic benefit.

<https://www.longcovidsos.org/post/longcovidsos-launch-vaccine-survey>

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**Title: VACCINES MAY HELP CLEAR UP LONG-TERM COVID-19 SYMPTOMS**

**Source**: New Scientist, 13th March 21

SOME people with long covid, the term for long-lasting symptoms after a covid-19 infection, have had health improvements after being vaccinated against the coronavirus. Reports are based on anecdotes and an informal survey, but may offer clues to the cause of long covid.

<https://www.sciencedirect.com/science/article/pii/S0262407921003961>

**Title: INSIDE A LONG COVID CLINIC: ’I LOOK NORMAL, BUT MY BODY IS BREAKING DOWN’**

**Source**: The Guardian, 23rd March 2021

The Guardian has had unique access to University College London hospital's long Covid clinic where patients are treated for a multitude of different chronic symptoms ranging from ongoing fatigue to issues with taste and smell. Some patients have been suffering for months, and the toll on their mental and physical health has been significant. It’s been a year since the first UK lockdown and the NHS has warned it may have to treat a million patients for a condition we now know as long Covid

<https://www.theguardian.com/society/video/2021/mar/23/inside-a-long-covid-clinic-i-look-normal-but-my-body-is-breaking-down-video>

**Title: CHANNEL 4 TO PROFILE BRADFORD LONG COVID CLINIC – THE FIRST IN YORKSHIRE**

**Source**: Bradford Teaching Hospitals NHS Foundation Trust

There are now over 60 long Covid assessment clinics around the country. But six months before any dedicated NHS funding came through, Respiratory Consultant Dr Paul Whitaker saw the urgent need to support his patients and set up the first long Covid clinic in Yorkshire at St Luke’s Hospital in Bradford, part of Bradford Teaching Hospitals NHS Foundation Trust.

Dispatches investigates what is long Covid and can people recover? Dispatches, 15th March 2021.

<https://www.bradfordhospitals.nhs.uk/2021/03/15/channel-4s-dispatches-to-profile-bradford-long-covid-clinic-the-first-in-yorkshire/>

**Title: NHS MAY FACE A MILLION LONG COVID PATIENTS AFTER PANDEMIC**

**Source**: The Guardian, 5th March 2021

Senior doctors are braced for up to a million people needing treatment for long Covid after the pandemic, putting huge extra pressure on an already overstretched [NHS](https://www.theguardian.com/society/nhs), the Guardian can reveal.

Long Covid is a significant problem affecting huge numbers of patients that will confront the NHS for many years to come, one of the service’s expert advisers on the fast-emerging condition said.

Signs are already emerging that the health service is having trouble keeping up with the demand for care created by the sheer number of patients who are still displaying symptoms such as exhaustion, brain fog, chest pains and breathing problems months after having Covid.

<https://www.theguardian.com/society/2021/mar/05/nhs-long-covid-patients-after-pandemic>

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[TRFT Library & Knowledge Service](https://www.trftlibraryknowledge.com/) aim to bring together the latest guidelines, research and news on Covid-19 through our [Covid-19 portal](https://www.trftlibraryknowledge.com/coronavirus.html). For daily updates on Covid-19 visit our '[Latest Health](https://trfthealthweeklydigest.wordpress.com/)' newsfeed, or use the hashtag [#covid19rftlks](https://twitter.com/hashtag/covid19rftlks?src=hashtag_click) to see our latest tweets on Covid-19 research, guidelines and news.

We also produce a range of subject-specific news feeds to ensure our clinical and professional teams stay up to date with developments in their work areas. Please visit our [website](http://www.trftlibraryknowledge.com/) for more information

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