

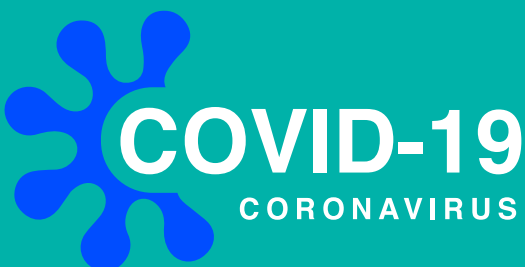


**World  
Physiotherapy**

**World Physiotherapy  
response to COVID-19**

**Briefing paper 2**

**REHABILITATION AND THE VITAL ROLE  
OF PHYSIOTHERAPY**



**May 2020**

## **World Physiotherapy briefing papers**

World Physiotherapy briefing papers inform our member organisations and others about key issues that affect the physiotherapy profession.

World Physiotherapy is producing a series of papers in response to COVID-19.

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## ➤ Introduction

This briefing paper focuses on rehabilitation as it applies to individuals and will also consider the wider systems issues as they relate to physiotherapy. A later briefing paper will consider the impact of COVID-19 and rehabilitation in fragile systems and vulnerable communities.

The focus in the paper is on:

- acute physiotherapy management of patients with COVID-19
- rehabilitation of people after COVID-19
- people living with a disability and frail older people: immediate and episodic rehabilitation
- people with short-term rehabilitation needs where routine care has been suspended
- return to work
- rehabilitation with public health restrictions
- service delivery

## ➤ Key messages

### Acute rehabilitation phase



- Physiotherapists are vital to the rehabilitation efforts in the acute phase of COVID-19.
- Service managers need to support staff being redeployed to unfamiliar practice settings with appropriate education and support.
- Physiotherapists should be involved in the planning of service delivery at a strategic and operational level.
- Practice needs to adapt to the changing context of delivery and emerging evidence.

## Post-acute COVID-19 rehabilitation phase



- Physiotherapists are vital for rehabilitation as patients transition from the acute to the post-acute phase.
- Individual rehabilitation needs may be specific to the consequence of COVID-19 for otherwise healthy people, such as recovery from the consequences of long term ventilation, immobilisation and deconditioning, including related impairments that may be respiratory, neurological, musculoskeletal or otherwise.
- The needs of patients with pre-existing co-morbidities may be significant and there may be a need to draw on the expertise from physiotherapists working across disciplines to ensure an integrated rehabilitation plan.
- Service delivery pathways need to support the transition from the acute to the post-acute phase across settings and a multi-professional, cross-sectorial approach can support this.

## Immediate and episodic rehabilitation of those living with a disability and frail older people



- Rehabilitation those living with a disability and for frail older people should continue during times of a pandemic, albeit in appropriately modified forms of delivery.
- Patients, their families and carers should not be set adrift from their rehabilitation services to avoid deterioration and the potential negative impact on their general physical and mental wellbeing.
- Physiotherapists play a vital role in maintaining and restoring functional ability for those with a disability and frail older people, and services can be adapted for delivery via modified or alternative means.
- Those responsible for economic planning and health service delivery, in the face of the pandemic, are urged not to compromise the rehabilitation needs of those with disabilities.

## Short term rehabilitation where routine care is suspended



- Absence of physiotherapy rehabilitation provision will have long term consequences leading to increase need and potentially increased disability.
- There is a risk this need will not be met due the immediate impact on service providers resulting from lockdown restrictions and changes to funding priorities once restrictions ease.
- Telehealth is a viable and effective form of service delivery for many physiotherapy interactions at a time of social distancing.
- Telehealth should not be seen as a replacement for future face-to-face rehabilitation and is not a viable option for all, reflecting differences in the access to, as well as familiarity and comfort with the use of technology.
- Telehealth will be one option in a range of future models of rehabilitation delivery.

## Rehabilitation with public health restrictions



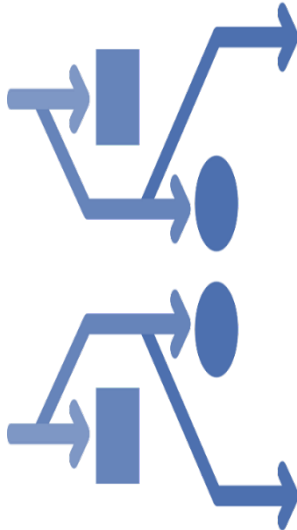
- Rehabilitation services will need to adapt to a changing practice environment as lockdowns and public health restrictions ease, whilst social distancing and personal protective measures may still be required.
- Service providers will need to ensure ongoing infection prevention and control measures are implemented to facilitate the return of rehabilitation services in different settings.
- Concerted efforts may be required to ensure no one is lost from the system due to health disparities.

## Occupational rehabilitation



- Once lockdown eases return to work will not be straightforward for some who will have physiotherapy related rehabilitation needs.
- Physiotherapists have a key role to play in ensuring fitness to return to work and advising on adaptive requirements.
- The occupational health and safety of physiotherapists also needs supporting with appropriate personal protective equipment (PPE).
- The occupational rehabilitation response must address both physical and mental wellbeing.

## Service delivery



- There will be increased demand for rehabilitation professionals working in acute and critical care settings, and action is needed to ensure staffing requirements are met.
- There will also be increased demand for specialised longer-stay rehabilitation, especially for older people who will frequently require these services, and those with co-morbidities.
- Service providers should take steps to increase the surge capacity of their teams, particularly in the areas of critical care and stepdown.
- Infection prevention and control measures, and access to PPE are essential for the continuation of rehabilitation services.
- Service providers should undertake multiple actions if rehabilitation is reduced. This includes prioritising patients for ongoing care, providing early supported discharge, and developing systematic follow-up mechanisms.
- Modifications relating to how rehabilitation is delivered will be required for infection control, this may include changes to team structures, roles and means of communication.
- Integrated care planning for those individuals with long term needs will require multi-professional and inter-sectoral cooperation across settings, including the home environment.

## ➤ Context

World Physiotherapy is made up of 121 member organisations from five regions and from low, middle and high resource countries. Hence there is great diversity in the delivery of physiotherapy and rehabilitation services in the countries/territories of its member organisations.

We note that there are a variety of contexts in which practice takes place as well as a diversity of health care delivery systems in which physiotherapy is practised globally. Moreover, the trajectory and impact over time of COVID-19 means that as the epicentre moves, societies and communities will be affected in different ways.

World Physiotherapy is in close contact with its member organisations across all settings and has been collating the resources generated nationally and the publications emerging via its [COVID-19 knowledge hub](#). It will continue to provide links to resources to inform practice, drawing on resources from within the profession and other global organisations.

## ➤ COVID-19: rehabilitation, the role of physiotherapists – people and systems

Rehabilitation is ‘a set of interventions designed to reduce disability and optimize functioning in individuals with health conditions in interaction with their environment’ (World Health Organization, 2017). A health condition refers to disease (acute or chronic), disorder, injury or trauma. Further, a health condition may also include other circumstances, such as pregnancy, ageing, stress, congenital anomaly, or genetic predisposition. This broad perspective on rehabilitation informs this paper.

Early reports highlight that the rehabilitation needs of people with severe COVID-19 exist during the acute, sub-acute and long-term phases of the disease. Physiotherapists are vital to the rehabilitation efforts in intensive care units (ICUs), hospital wards, stepdown facilities and in the community (Pan American Health Organization, 2020, Thomas et al., 2020). The appropriate deployment of physiotherapists to reflect the local needs may facilitate early discharge, thus reducing the burden on scarce hospital beds.

The role of physiotherapists in supporting and empowering individuals to self-manage their rehabilitation, where appropriate and able, is important at any time and particularly so when access is restricted or service delivery changed.

WHO and other organisations, such as the European Respiratory Society, are gathering evidence globally. For example see:

- WHO [searchable database on global research on COVID-19](#) updated daily from searches of bibliographic databases, hand searching, and the addition of other expert-referred scientific articles
- European Respiratory Society [Guidelines and Resources Directory](#)

The Chartered Society of Physiotherapy in the UK has produced COVID-19 rehabilitation standards setting out the key principles of providing physiotherapy in a multiprofessional context. They focus on facilitating safe and rapid decision making, and the delivery of high quality assessment and personalised physiotherapy. There are 5 quality standards: assessment and goal setting, timing and intensity of rehabilitation, continuity of care and communication, ongoing rehabilitation in the community, and personal protective equipment (PPE) and infection control during rehabilitation (Chartered Society of Physiotherapy, 2020). This set of standards covers rehabilitation in hospital critical and acute care settings through to step-down rehabilitation facilities and/or ongoing

rehabilitation in the community. They have been developed in a country hit hard by the pandemic and may be of interest to others, though they may not apply in all settings.



## Acute physiotherapy management of the patient with COVID-19

The acute physiotherapy management of patients with COVID-19 has received a focus with the development of clinical guidelines (Thomas et al., 2020) and papers (Kiekens et al., 2020, Lazzeri et al., 2020). The guidelines are currently [available in 24 languages](#) on the World Physiotherapy website to support acute physiotherapy rehabilitation globally.

Resources such as apps like [OnCall buddy](#) and [online courses](#) have been developed to support physiotherapists who have been re-deployed into respiratory practice.



## Rehabilitation of people after COVID-19

The early and short-term rehabilitation needs of patients recovering from COVID-19 are under consideration in a guideline being developed by the European Respiratory Society <https://ers.app.box.com/s/npzkvigt14w3pb0vbsth4y0fxe7ae9z9> This provides access to a live document that is being update regularly with a guideline anticipated at a later stage. It lists 27 questions about what is not yet known about COVID-19 survivors (as at 3 April 2020), which may be relevant for rehabilitative interventions.

World Physiotherapy's member organisation in the Netherlands, the Royal Dutch Society for Physiotherapy (KNGF) has produced a [position statement with guidance for COVID-19 related rehabilitation issues](#), which has been translated into English. It describes recommendations regarding physiotherapy services, for patients with confirmed or suspected COVID-19, after hospital discharge or patients who have been ill at home (Royal Dutch Society for Physiotherapy, 2020).

The British Society of Rehabilitation Medicine has produced recommendations for rehabilitation services for adults aged 16 years and over in the wake of the COVID-19 pandemic, in particular addressing the need to support patients with more complex rehabilitation needs (Phillips et al., 2020). The importance of integrated planning across the care pathway is highlighted.

As noted previously, people with severe COVID-19 have rehabilitation needs beyond the acute phase (Pan American Health Organization, 2020). The appropriate deployment of physiotherapists across the care pathway is important for rehabilitation. Optimal recovery from severe cases of COVID-19 will require the expansion of stepdown facilities that provide rehabilitation. These facilities enable early discharge from acute settings where bed shortages occur. It is not clear that service planning has advanced to consider the rehabilitation model that best fits with the population needs beyond addressing the acute phase.

The [World Federation for NeuroRehabilitation](#) has published a series of chapters in response to the COVID-19 pandemic, the first of which provides guidance on rehabilitation for people with COVID-19.



A number of emerging clinical perspectives give rise for rehabilitation concerns, namely post-intensive care syndrome (PICS) (box 1) and post-viral fatigue syndrome (box 2) in patients with COVID-19.

#### Box 1 Post-intensive care syndrome



Stam et al have highlighted the need to prepare for the aftershocks of the pandemic and ongoing rehabilitation needs associated with post-intensive care syndrome (PICS) and other severe conditions (Stam et al., 2020). Kiekens et al have described clinical experiences in Northern Italy indicating relatively long lengths of stay in the ICU units for patients with COVID-19, with immobilisation in the prone position. They describe specific problems in the post-acute phase such as severe muscle weakness, fatigue, joint stiffness, dysphagia, (neuro)psychological problems and impaired mobility and functioning, highlighting how crucial physiotherapists are in early and ongoing rehabilitation (Kiekens et al., 2020). The importance of coordinated rehabilitation approaches for patients with PICS, as part of the COVID-19 rehabilitation pathways, emphasises a multi-professional approach involving relevant health professionals and service providers across sectors to support individuals, families and carers (Smith et al., 2020).

#### Box 2 Post-viral fatigue syndrome

Physiotherapists have been highlighting the potential for people recovering from COVID-19 to develop post-viral fatigue syndrome (PVFS). Clague-Baker, a researcher from the University of Leicester (University of Leicester, 2020), notes that based on previous research on PVFS, up to 10% of people recovering from COVID-19 could develop the syndrome (Hickie et al., 2006, Moldofsky and Patcai, 2011). Physiotherapists should be aware of the signs and symptoms of PVFS and know the management strategies which should focus on rest, hydration and nutrition. If symptoms do not resolve by four to five months this could then be diagnosed as myalgic encephalomyelitis (ME). Physiotherapists should be familiar with the signs and symptoms of ME with the main symptom being post-exertional malaise (PEM) and know the appropriate treatment strategies. They should be aware that progressive physiotherapy can be harmful as people with ME have abnormal responses to exercise including: a lower anaerobic threshold, lower oxygen capacity, increased acidosis and abnormal cardiovascular responses (Carruthers et al., 2012). Appropriate management strategies include symptom-contingent pacing and heart rate monitoring (for advice see [www.physiosforME.com](http://www.physiosforME.com)).



Some reports are also highlighting other neurological consequences of COVID-19, such as Guillain-Barre syndrome (Toscano et al., 2020, Zhao et al., 2020), stroke encephalitis, motor peripheral neuropathy and demyelinating lesions (Butler et al., 2020). It is imperative that a thorough neurological assessment is carried out during the rehabilitation of people post COVID-19.

It has been suggested by Prvu Bettger et al. (2020) that a core set of measures needs to be adopted to monitor the health and functional outcomes for patients after COVID-19, as well as other patients at risk of functional decline, in order to assess the quality, availability and accessibility of services today

and as our nations recover (Prvu Bettger et al., 2020). This may assist in estimating the burden and cost of disability related to COVID-19.

With COVID-19 only emerging in December 2019, it is still early in terms of tracking and identifying longer term health effects and subsequent disability and consequences for individuals and services.



## People living with a disability and frail older people: immediate and episodic rehabilitation

It is estimated that 15% of the world's population live with disability, many of whom require rehabilitation support, or interventions either in the acute phase after the initial onset of a disability, or on an on-going but intermittent basis as required when living with a chronic condition.

WHO-Europe notes that 'there is a substantial and ever-increasing unmet need for rehabilitation worldwide which is particularly profound in low and middle income countries. This unmet need has been exacerbated by the pandemic with many services shutting down to reduce the spread of the virus and due to a lack of human resources, particularly in places that previously had sparse service provision and poor access. WHO/Europe is developing guidance to support and advise rehabilitation professionals throughout the pandemic' (World Health Organization Regional Office for Europe, 2020).

The [NCD Alliance](#) has also drawn attention to the impact of COVID-19 for people living with non-communicable diseases (NCDs). (NCD Alliance, 2020) A significant population who are supported by long term physiotherapy and rehabilitation services and a population at particular risk of severe complications from COVID-19.

As many countries in the world are in lockdown, large numbers of people living with a disability will not have been able to access services, or will have had to access them in a different way, such as online via telerehabilitation platforms. However, many people will have been left behind, particularly vulnerable groups with no voice, or those in lower resource settings for whom access was a challenge even before COVID-19. Rehabilitation services are an essential component of high-value care offered for individuals across the lifespan, to optimize physical and cognitive functioning and to reduce disability. They should continue during the pandemic, acknowledging that there are various implications for different patient groups as well as health service delivery and the infection risk needs to be considered and managed (Pan American Health Organization, 2020, Prvu Bettger et al., 2020). World Physiotherapy agrees with this noting that a lack of access to physiotherapy services can compromise health outcomes, extend inpatient stays and result in preventable hospital admissions.

Frail older people are at risk of many of the same issues as those living with a disability and their needs must be addressed. With most lockdown strategies requiring older people to stay at home and self-isolate there is concern for both the short term and longer term needs of this population (Armitage and Nellums, 2020, Lloyd-Sherlock et al., 2020, Petretto and Pili, 2020). This will be explored further in the next rehabilitation briefing paper World Physiotherapy will be producing.



## People with short-term rehabilitation needs where routine care has been suspended

Rehabilitation services need to continue during a pandemic, as they are an essential component of high-value care offered for individuals across the lifespan to optimise physical and cognitive functioning to reduce disability. Physiotherapy, as a health profession, has a critical role to play in maintaining the health and wellbeing of the community. However, with many physiotherapy services suspended during the period of social distancing, patients will likely experience a deterioration of other conditions unrelated to the COVID-19.

Changing priorities to service delivery have impacted across widespread areas where physiotherapists provide rehabilitation:

- elective surgery has been cancelled in the midst of the COVID-19, hence there will be many people who have become deconditioned while they wait for orthopaedic and other surgeries
- individuals with acute musculoskeletal problems may not have been able to access physiotherapy
- individuals may delay presentation of symptoms due to concern about COVID-19
- concerns relating to reimbursement for changes to modes of service delivery, such as telehealth
- physiotherapy services in community, outpatient setting or private practice are simply not open with many being classified as non-essential
- individuals, unable to leave their homes for several weeks, will become even more sedentary, lose mobility and function, and require physiotherapy services when restrictions are lifted

The long term effect of delays in accessing and seeking physiotherapy services, or in doing little physical activity while waiting for surgery, could have devastating effects on the overall mental and physical health of a person. This may lead to more disability, which will require more rehabilitation, but the funds for this are likely to be prioritised elsewhere, leading to a downward spiral for the individual, their family and society.

However, there is now an opportunity to prevent this community-wide functional decline in certain settings. Telerehabilitation is an important tool in allowing physiotherapists to rise to the challenge of this unprecedented situation and prevent functional decline. To prevent a public health emergency in the months ahead governments should allow physiotherapists to deliver telehealth services with appropriate reimbursement, where relevant. World Physiotherapy is aware that this was already permissible in some countries, others have responded rapidly by implementing changes to professional regulation and insurance reimbursement mechanisms in the face of the pandemic. In some instances, this is reportedly a temporary measure, but World Physiotherapy advocates for the professional autonomy to be creative and responsive in delivering services to meet needs.

A recent survey of its member organisations by the [International Private Physical Therapy Association \(IPPTA\)](#), a World Physiotherapy subgroup, noted that in countries where telehealth is permissible, in two-thirds of cases this availability has been recent and in response to COVID-19. However, this approval was only temporary in 43% of cases (see [https://world.physio/sites/default/files/2020-06/IPPTA\\_Telehealth\\_Survey2020.pdf](https://world.physio/sites/default/files/2020-06/IPPTA_Telehealth_Survey2020.pdf)).



## Rehabilitation with public health restrictions

While rehabilitation for certain people may be appropriate via telerehabilitation platforms, for some this will not be possible or appropriate.

Once lockdown eases and services can resume they may do so in a different environment, depending on the public health recommendations implemented. This will relate to infection prevention and control requirements and ongoing physical distancing needs. These may apply for all people in the community or for defined vulnerable groups.

Consideration will need to be given to how rehabilitation services will return and be managed as restrictions are adjusted and begin to be lifted. How will inclusive rehabilitation emerge that will limit the impact of public health restrictions, as well as other disparities that will be heightened such as the digital divide and social determinants of health and wellbeing? There is a risk that some individuals, previously in the system, may be missed having become disconnected with services. Service providers will need to review priorities and may need to implement triage and outreach strategies to get services up and running again.



## Occupational rehabilitation for the return to work and changing practices

The consequences of widespread 'lockdown' has resulted in much of the world's workforce being obliged to work from home, being furloughed (temporary layoff from work with or without financial support) or losing employment.

There are a number of key aspects to be considered when people will return to work; for example, ensuring people are fit to return to physically demanding work, those with disabilities being supported with staged returns, working environment changes that arise from physical distancing and the impact on individuals and the work that they do.

The [International Federation of Physical Therapists working in Occupational Health and Ergonomics \(IFPTOHE\)](#), a World Physiotherapy subgroup, is preparing resources for considering the potential rehabilitation needs for these people. Details will be added to the World Physiotherapy COVID-19 website information hub when available.

Physiotherapists themselves will also be embracing a different practice environment and will need to ensure they are adequately supported to provide their services. Access to appropriate personal protective equipment (PPE) is likely to play an ongoing role in this. World Physiotherapy's [#PPE4PT advocacy campaign](#) will continue to be important as services re-emerge.

Whilst the focus may be on physical ability and the return to work, the potential impact on mental wellbeing for all affected should not be neglected.



## Changing service delivery and workforce implications

To date we have seen significant changes in the physiotherapy workforce and these will be ongoing and varied as they respond, adapt and proactively change in response to the changing environment and rehabilitation needs.

Physiotherapists are integral to multi-professional teams in delivering coordinated rehabilitation and in working in cross-sector partnerships to bridge settings and service delivery providers.

Health services rapidly responded to the need to address the immediate acute phase of the pandemic. As demands on acute services reduce attention must be given to the needs of patients post COVID-19 and the wider population with non-COVID related rehabilitation needs.

Service capacity across the continuum of care will likely need to respond to changing priorities, surges in demand and potential future acute phase waves.

During these times and for the foreseeable future, the mental, physical and emotional stresses on physiotherapists and all frontline health workers should not be underestimated and appropriate services made available to ensure the wellbeing of staff (Walton et al.).

## References

- Armitage, R & Nellums, LB 2020. COVID-19 and the consequences of isolating the elderly. *Lancet Public Health*, 5, e256. [www.thelancet.com/journals/lanpub/article/PIIS2468-2667\(20\)30061-X/fulltext](http://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(20)30061-X/fulltext)
- Butler, M, Ellul, M, Pollak, T, Michael, B & Nicholson, T. 2020. Blog: The Neurology and Neuropsychiatry of COVID-19. Available from: <https://blogs.bmj.com/jnnp/2020/05/01/the-neurology-and-neuropsychiatry-of-covid-19/> [Accessed 15 May 2020].
- Carruthers, B, van de Sande, M, De Meirleir, K, et al. 2012. MYALGIC ENCEPHALOMYELITIS – Adult & Paediatric: International Consensus Primer for Medical Practitioners. Vancouver, Canada: Carruthers & van de Sande. <http://hetalternatief.org/ICC%20primer%202012.pdf>
- Chartered Society of Physiotherapy 2020. CSP COVID-19 Rehabilitation Standards. Rehabilitation of adults who are hospitalised due to Covid-19: physiotherapy service delivery. London, UK: CSP. [www.csp.org.uk/system/files/publication\\_files/001745\\_Covid-19%20Rehab%20Standards.pdf](http://www.csp.org.uk/system/files/publication_files/001745_Covid-19%20Rehab%20Standards.pdf)
- Hickie, I, Davenport, T, Wakefield, D, et al. 2006. Post-infective and chronic fatigue syndromes precipitated by viral and non-viral pathogens: prospective cohort study. *BMJ*, 333, 575. [www.bmj.com/content/bmj/333/7568/575.full.pdf](http://www.bmj.com/content/bmj/333/7568/575.full.pdf)
- Kiekens, C, Boldrini, P, Andreoli, A, et al. 2020. Rehabilitation and respiratory management in the acute and early post-acute phase. "Instant paper from the field" on rehabilitation answers to the Covid-19 emergency. *Eur J Phys Rehabil Med*. [www.minervamedica.it/en/getfreepdf/adwj4EDC5%252FqOyppiNQyvufRqYL7vNwigKSf5WTuDW0G2h7LdwhNf%252F1BlzLu1zRyjKNvgoZp0%252BAcPNUlwlCBY9g%253D%253D/R33Y9999N00A20041508.pdf](http://www.minervamedica.it/en/getfreepdf/adwj4EDC5%252FqOyppiNQyvufRqYL7vNwigKSf5WTuDW0G2h7LdwhNf%252F1BlzLu1zRyjKNvgoZp0%252BAcPNUlwlCBY9g%253D%253D/R33Y9999N00A20041508.pdf)
- Lazzeri, M, Lanza, A, Bellini, R, et al. 2020. Respiratory physiotherapy in patients with COVID-19 infection in acute setting: a Position Paper of the Italian Association of Respiratory Physiotherapists (ARIR). *Monaldi Arch Chest Dis*, 90. [www.monaldi-archives.org/index.php/macd/article/view/1285](http://www.monaldi-archives.org/index.php/macd/article/view/1285)
- Lloyd-Sherlock, P, Ebrahim, S, Geffen, L & McKee, M 2020. Bearing the brunt of covid-19: older people in low and middle income countries. *BMJ*, 368, m1052. [www.bmj.com/content/368/bmj.m1052](http://www.bmj.com/content/368/bmj.m1052)
- Moldofsky, H & Patcai, J 2011. Chronic widespread musculoskeletal pain, fatigue, depression and disordered sleep in chronic post-SARS syndrome; a case-controlled study. *BMC Neurology*, 11, 37. <https://doi.org/10.1186/1471-2377-11-37>
- NCD Alliance 2020. Briefing note: Impacts of COVID-19 on people living with NCDs. Geneva, Switzerland: NCD Alliance. [https://ncdalliance.org/sites/default/files/resource\\_files/COVID-19\\_%26\\_NCDs\\_BriefingNote\\_27April\\_FinalVersion\\_0.pdf](https://ncdalliance.org/sites/default/files/resource_files/COVID-19_%26_NCDs_BriefingNote_27April_FinalVersion_0.pdf)
- Pan American Health Organization 2020. Rehabilitation considerations during the COVID-19 outbreak. Washington DC, USA: PAHO. <https://iris.paho.org/handle/10665.2/52035>
- Petretto, DR & Pili, R 2020. Ageing and COVID-19: What is the Role for Elderly People? *Geriatrics (Basel)*, 5. [www.mdpi.com/2308-3417/5/2/25](http://www.mdpi.com/2308-3417/5/2/25)
- Phillips, M, Turner-Stokes, L, Wade, D & Walton, K 2020. Rehabilitation in the wake of Covid-19 - A phoenix from the ashes. Issue 2: 11/05/2020. London, UK: British Society of Rehabilitation Medicine (BSRM). [www.bsrn.org.uk/downloads/covid-19bsrmissue2-11-5-2020-forweb11-5-20.pdf](http://www.bsrn.org.uk/downloads/covid-19bsrmissue2-11-5-2020-forweb11-5-20.pdf)
- Prvu Bettger, J, Thoumi, A, Markevich, V, et al. 2020. COVID-19: maintaining essential rehabilitation services across the care continuum. *BMJ Global Health*, 5, e002670. <https://gh.bmj.com/content/bmjgh/5/5/e002670.full.pdf>

Royal Dutch Society for Physiotherapy 2020. KNGF position statement: Physiotherapy recommendations in patients with COVID-19. Amersfoort, Netherlands: KNGF.

<https://www.kngf.nl/kennisplatform/guidelines>

Smith, JM, Lee, AC, Zeleznik, H, et al. 2020. Home and Community-Based Physical Therapist Management of Adults With Post-Intensive Care Syndrome. *Physical Therapy*, 10.1093/ptj/pzaa059.

<https://doi.org/10.1093/ptj/pzaa059>

Stam, HJ, Stucki, G & Bickenbach, J 2020. Covid-19 and Post Intensive Care Syndrome: A Call for Action. *J Rehabil Med*, 52, jrm00044.

[www.medicaljournals.se/jrm/content/abstract/10.2340/16501977-2677](http://www.medicaljournals.se/jrm/content/abstract/10.2340/16501977-2677)

Thomas, P, Baldwin, C, Bissett, B, et al. 2020. Physiotherapy management for COVID-19 in the acute hospital setting: clinical practice recommendations. *Journal of Physiotherapy*, 66, 73-82.

[www.sciencedirect.com/science/article/pii/S183695532030028X](http://www.sciencedirect.com/science/article/pii/S183695532030028X)

Toscano, G, Palmerini, F, Ravaglia, S, et al. 2020. Guillain-Barre Syndrome Associated with SARS-CoV-2. *N Engl J Med*. [www.nejm.org/doi/full/10.1056/NEJMc2009191](http://www.nejm.org/doi/full/10.1056/NEJMc2009191)

University of Leicester. 2020. *Patients at higher risk of developing ME after COVID-19 diagnosis*.

[Online]. University of Leicester. Available: <https://le.ac.uk/news/2020/may/coronavirus-me-risk>

[Accessed 13 May 2020].

Walton, M, Murray, E & Christian, MD Mental health care for medical staff and affiliated healthcare workers during the COVID-19 pandemic. *European Heart Journal: Acute Cardiovascular Care*, DOI 10.1177/2048872620922795.

<https://journals.sagepub.com/doi/abs/10.1177/2048872620922795>

World Health Organization 2017. Rehabilitation in health systems. Geneva, Switzerland: WHO.

<https://apps.who.int/iris/bitstream/handle/10665/254506/9789241549974-eng.pdf?sequence=8>

World Health Organization Regional Office for Europe. 2020. *COVID-19 exposes the critical importance of patient rehabilitation*. [Online]. WHO Europe. Available: [www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/4/covid-19-exposes-the-critical-importance-of-patient-rehabilitation](http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/4/covid-19-exposes-the-critical-importance-of-patient-rehabilitation) [Accessed 28 April 2020].

Zhao, H, Shen, D, Zhou, H, Liu, J & Chen, S 2020. Guillain-Barre syndrome associated with SARS-CoV-2 infection: causality or coincidence? *Lancet Neurol*, 19, 383-384.

[www.thelancet.com/journals/laneur/article/PIIS1474-4422\(20\)30109-5/fulltext](http://www.thelancet.com/journals/laneur/article/PIIS1474-4422(20)30109-5/fulltext)

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