

**TOOLKIT
GUIDE**

Physiotherapy - Exercise therapy in the context of long-term Covid- 19 symptoms

Validated by the HAS Board on 10 February 2021

Document intended for physiotherapists

Many patients presenting with long-term Covid-19 symptoms present with physical deconditioning and should benefit from respiratory rehabilitation including exercise therapy to be administered gradually and tailored to each patient's capabilities.

Specific respiratory management of hyperventilation syndrome is sometimes necessary before commencing an exercise therapy programme (see hyperventilation toolkit guide).

The medical prescription is accompanied by a separate doctor's letter setting out the medical diagnosis and the information required for the proper implementation of this rehabilitation. Specific training of physiotherapists is recommended for exercise therapy.

Doctor's letter, key points:

- Medical diagnosis
- Type(s) of complaint(s) and their progression potentially resulting in restrictions and/or recommendations for rehabilitation: parenchymal damage, and/or heart and/or musculoskeletal damage
- Pain and/or fatigue
- Other potentially interfering condition(s)

Physiotherapy report, key points:

- Data from initial assessment (aerobic tests, force measurement, quality-of-life assessment, etc.).
- Targets shared with patient
- Session content
- Data from intermediate/final assessment
- Resumption of exercise and/or work

Regularly exchanged assessments help optimise patient management and envisage the end of care after social integration and a return to work.

Diagnostic Physiotherapy Assessment

During the initial interview, the physiotherapist determines the assessment needed in this (non-exhaustive) list to organise diagnosis:

- Assessment of aerobic capacity
- Assessment of anaerobic capacity
- Pain assessment
- Assessment of fatigue, fatigability
- Functional assessments
- Assessment of patient's skills, motivations
- Quality-of-life assessment
- Assessment of proprioception abilities and balance
- Assessment of overall motricity connected with any neurological disorders
- Joint assessments (amplitude deficit, pain on movement)
- Respiratory assessment
- Screening for swallowing disorders, assessment of swallowing (post-ICU and/or elderly patient and/or with previous history of central neurological lesion)
- Identify any weight loss connected with anosmia, ageusia and/or swallowing disorders.

The initial assessment (and the intermediate assessments) is used to tailor the rehabilitation programme as closely as possible to the patients' needs, expectations, and progress.

The resumption of daily exercise should be encouraged, built up gradually, and tailored to the patient's capabilities and exertion thresholds triggering symptoms. This exercise therapy is conducted by a trained physiotherapist.

Exercise therapy session content

At least:

- Aerobic training (ergocycle, treadmill, etc.)
- Muscle strength training of limbs and torso (guided-load weight training bench, dumbbells and barbells, bungee cords, etc.)

Based on findings of diagnostic physiotherapy assessment:

- Respiratory muscle training (breathing resistance valves)
- Balance training
- Return to previous exercise, resumption of exercise habit
- And/or guidance and accommodation in sports medicine facility
- Sustainability of physical activity and exercise.

Table 1. Principles and precautions of exercise therapy for post-Covid-19 patients

PRINCIPLES AND PRECAUTIONS	
Linked with exercise therapy	Covid-19-specific
Before the session	
Assessment of tolerance and fatigue following previous session.	Based on current knowledge, there can be concerns that a Covid+ patient may be infectious, even if only by hand-to-hand transmission. Therefore, all patients must be treated as if they were carriers.
Assessment of any fatigue or dyspnoea.	In cases of pericarditis or myocarditis: no exercise therapy, commence later subject to cardiological advice (see chest pain toolkit guide).
Measurement of blood pressure (BP), heart rate (HR), saturation (SpO2).	Patients presenting with pain (ENT, muscle), dyspnoea, fatigue (see relevant toolkit guides) must wait 2 to 3 weeks after these symptoms have cleared before initiating training greater than 3 metabolic equivalents (METs) (option to keep a diary).
	The session is not carried out or is discontinued if: - BP <90/60 mm Hg or > 140/90 mm Hg - SpO2 ≤ 95% (in the absence of known respiratory disease) - Drop in SpO2 ≥ 4 points during the session - Recent onset of dyspnoea (<3 days) - Major exacerbation of dyspnoea during the session - Chest tightness/pain
During the session	
Strength training: - Avoid pain and any excessive fatigue. - Observe physiological recovery times between series.	The physiotherapist shall be particularly mindful of any pain and fatigue during the session and post-session: - In the case of a prolonged (>24 hrs), but isolated, increase in fatigue and pain, do not increase (even decrease) the workload during the session. - In the case of a prolonged (> 24 hrs) and recurrent increase in fatigue and pain, over several sessions, reduce and adapt the workload (intensity and/or volume and/or frequency).
Loads should be increased gradually and in a manner tailored to the individual. It would seem reasonable not to exceed a 10% increase in each session whether in intensity or volume.	
Aerobic training: - Monitoring of saturation, HR, BP - Fatigue or dyspnoea score according to the visual analogue or numeric scale (modified Borg scale) between 4 and 6.	
Inspiratory muscle training: - Limit the involvement of accessory inspiratory muscles - Avoid dyspnoea and excessive fatigue.	
Tailored and gradual workload management will help obtain long-term patient compliance.	

Bibliographic references

1. Andrejak C, Cottin V, Crestani B, Debieuvre D, Gonzalez-Bermejo J, Morelot-Panzini C, et al. Guide de prise en charge des séquelles respiratoires post infection à SARS-CoV-2. Propositions de prise en charge élaborées par la

Société de Pneumologie de Langue Française. Version du 10 novembre 2020. Rev Mal Respir 2021;38(1):114-21. <http://dx.doi.org/10.1016/j.rmr.2020.11.009>

2. Barker-Davies RM, O'Sullivan O, Senaratne KPP, Baker P, Cranley M, Dharm-Datta S, et al. The Stanford Hall consensus statement for post-COVID-19 rehabilitation. Br J Sports Med 2020;54(16):949-59. <http://dx.doi.org/10.1136/bjsports-2020-102596>
3. Haute Autorité de Santé. Comment mettre en œuvre la réhabilitation respiratoire pour les patients ayant une bronchopneumopathie chronique obstructive ? Saint-Denis La Plaine: HAS; 2014. https://www.has-sante.fr/upload/docs/application/pdf/2014-06/fps_bpco_rehabilitation_respiratoire_web_2014-06-02_17-33-40_489.pdf
4. Singh SJ, Puhan MA, Andrianopoulos V, Hernandez NA, Mitchell KE, Hill CJ, et al. An official systematic review of the European Respiratory Society/American Thoracic Society: measurement properties of field walking tests in chronic respiratory disease. Eur Respir J 2014;44(6):1447-78. <http://dx.doi.org/10.1183/09031936.00150414>
5. Smondack P, Gravier F, Prieur G, Repel A, Muir JF, Cuvelier A, et al. Kinésithérapie et COVID-19: de la réanimation à la réhabilitation à domicile. Synthèse des recommandations internationales. Rev Mal Respir 2020;37(10):811-22. <http://dx.doi.org/10.1016/j.rmr.2020.09.001>
6. Spruit MA, Singh SJ, Garvey C, ZuWallack R, Nici L, Rochester C, et al. An official American Thoracic Society/European Respiratory Society statement: key concepts and advances in pulmonary rehabilitation. Am J Respir Crit Care Med 2013;188(8):e13-64. <http://dx.doi.org/10.1164/rccm.201309-1634ST>

This document presents the main points of the publication: Physiotherapy - Exercise therapy in the context of long-term Covid-19 symptoms, rapid response method, 10 February 2021.

All our publications can be downloaded at www.has-sante.fr