

Question submitted to RapidInfo4U

What are the recommended physiotherapy outcome measures to use with Covid-19 patients in an out-patient post-COVID clinical setting?

Answer

There is little consensus in the research literature regarding outcome measures for physiotherapy and there have been calls for the rehabilitation community to create a core set of measures to monitor recovery of patients with COVID-19 [1]. The UK Chartered Society of Physiotherapy recommends an holistic assessment of patients needs, that considers risk, co-morbidities, prognosis and current information on COVID-19 [2]. They state that rehabilitation goals should be personalised and developed in collaboration between multidisciplinary healthcare providers and the patient. They also state that assessments should be carried out regularly in order to identify individuals at risk of deterioration. The Irish Society of Chartered Physiotherapists and the Royal Dutch Society for Physical Therapy have published general guidance on existing physiotherapy outcomes for COVID-19, both are outlined below. The Dutch guidance has been referenced as a key document by World Physiotherapy in their COVID-19 [briefing paper](#). There are three newly developed outcome measures for use with COVID-19 patients and rehabilitation: the PICUPS, the PCFS and the C19-YRS. While these measures are yet to be validated, they have been carefully developed and are being used in large scale research COVID- 19 rehabilitation. These are outlined below.

The Irish Society of Chartered Physiotherapists

The Irish Society of Chartered Physiotherapists has published guidelines for treating older people post COVID-19. This document is available [here](#). They recommend a Comprehensive Geriatric Assessment for all older people in the post-acute phases of COVID-19 and that rehabilitation goals are developed in collaboration with the multidisciplinary team. The document presents a list of outcome measures based on clinical reasoning and early evidence from the pandemic. See Table 1 below:

Table 1

Outcome measures recommended by the Irish Society of Chartered Physiotherapists (p.17)

| <i>COVID-19 Symptom</i> | <i>Outcome Measure Ideas</i> |
|---|---|
| Fatigue | BORG, FACIT-F, Fatigue Severity Scale |
| Breathlessness | BORG, 2MWT, 6MWT, 40 Step Desaturation Test, Short Physical Performance Battery (SPPB) |
| Deconditioning | 10MWT, 5 Times STS, 2MWT, 6MWT, SPPB |
| Muscle Weakness, Myopathy, Neuropathy | Oxford Scale, Fatigue Severity Scale, TUG, 10MWT, Patient-Specific Functional Scale |
| Airway Clearance | Auscultation, Vitals (Oxygen Saturation), Production of Sputum, BORG |
| Anxiety / Mood | Hospital Anxiety and Depression Score (HADS), EQ-5D-5L (Quality of Life), 4AT (Delirium Screen) |

The Royal Dutch Society for Physical Therapy

The Royal Dutch Society for Physical Therapy developed their position statement drawing on international evidence, a national working group of physiotherapy experts, a patient association and the Dutch Lung Association. This position statement, available [here](#), describes recommendations regarding physiotherapy services for patients with confirmed or suspected COVID-19 after hospital discharge or patients who have been ill at home. The guidance states that decisions about what outcome measures to use must be made in collaboration with a multi-disciplinary team. It highlights the importance of all team members using the same clinical outcomes for the same constructs to facilitate communication and to reduce burden on the patient. The core set of clinical outcome measures recommended by the Royal Dutch Society for Physical Therapy are presented in Table 2.

Table 2

Core set of clinical outcome measures recommend by the Royal Dutch Society for Physical Therapy (p.14 & p.23)

| <i>For the first six weeks after hospital discharge or illness from COVID-19 at home</i> | <i>From six weeks onwards</i> |
|--|--|
| Patient Specific Functioning Scale (PSFS) to determine the perceived physical limitations in participation and activities of daily living. | Patient Specific Functioning Scale (PSFS) to determine the perceived physical limitations in participation and activities of daily living. |
| Borg Scale CR10 for Shortness of Breath and Fatigue indicating shortness of breath and fatigue experienced by the patient. A maximum threshold score for exercise intensity of 4 out of 10 on the Borg Scale CR10 applies at this time after illness. | Borg Scale CR10 for Shortness of Breath and Fatigue indicating shortness of breath and fatigue experienced by the patient. A maximum threshold score for exercise intensity of 6 out of 10 on the Borg Scale CR10 applies at this time after illness. |
| Oxygen saturation (SpO₂) at rest, during and after physical activity and therapeutic exercise. If the physiotherapist has a pulse oximeter, it can be delivered to the patient's home, when treatment is provided remotely. | Oxygen saturation (SpO₂) at rest, during and after physical activity and therapeutic exercise. |
| Heart rate (HR) at rest, during and after physical activity and therapeutic exercise. In case of e-health consultation, heart rate can be measured by instructing the patient on how to measure it himself, for example using the pulse oximeter or by instructing the patient how to measure it themselves with the heart rate indicated by the patient ('counting strokes aloud'). The physiotherapist should be aware that outcomes can be influenced by medication. | Heart rate (HR) at rest, during and after physical activity and therapeutic exercise. The physiotherapist should be aware that outcomes can be influenced by medication. |
| Short Physical Performance Battery (SPPB) to measure balance, muscle strength and mobility. The SPPB consists of a balance test, walking speed over 4 meters and 5 times repeated standing up from a chair test. The physiotherapist must at all times ensure the safety of the patient if they are (seriously) weakened. In case of e-health consultation, the SPPB cannot be performed. | Short Physical Performance Battery (SPPB) to measure balance, muscle strength and mobility. The SPPB consists of a balance test, walking speed over 4 meters and 5 times repeated standing up from a chair test. The physiotherapist must at all times ensure the safety of the patient if they are (seriously) weakened. |

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|--|---|
| <p>Grip Strength to estimate overall peripheral muscle strength. If possible and available, a hand-held dynamometer is used.</p> | <p>Grip Strength to estimate overall peripheral muscle strength. If possible and available, a hand-held dynamometer is used.</p> |
| <p>6-Minute Walk Test (6MWT) to estimate the exercise capacity. In case of e-health consultation or the patient has (very) low exercise tolerance levels, the 6MWT should not be attempted.</p> | <p>6-minutes walk test (6MWT) to estimate the exercise capacity. In case the patient has (very) low exercise tolerance levels, the 6MWT should not be attempted. The physiotherapist must at all times ensure the safety of the patient if they are (seriously) weakened.</p> |
| <p>Short Nutritional Assessment Questionnaire (SNAQ65+) for early detection of malnutrition in patients who have been hospitalised. The physiotherapist uses the SNAQ65+ to identify a potential malnutrition status of the patient. A dietician should be consulted or referred to in case of signs of malnutrition. It is important that the physiotherapist and dietician have good communication and collaboration.</p> | <p>One-Repetition' Maximum test (1RM) of large muscle groups to measure muscle strength.</p> |
| | <p>Pedometer/accelerometer, to assess physical activity levels (optional).</p> |
| | <p>Maximum respiratory muscle strength tests, if indicated (see section 3.2.3) If improvement of the exercise capacity slows or stops after six weeks, contact the GP. They may decide to further assess the patient and/or refer the patient for a Cardiopulmonary Exercise Test (CPET) to determine whether it is safe to exercise and to determine adequate intensity levels for exercise prescription.</p> |

The PICUPS

The PICUPS (Post ICU Presentation Screen) is a 13-item screening tool developed to support triage and handover of patients stepping down from critical care to the acute wards, and onwards into rehabilitation. It is designed to be simple enough to be completed by staff from a range of backgrounds to inform the immediate plan for care on the acute ward, identify problems and indicate the needs for rehabilitation at the next stage of care. The PICUPS was developed by the UK National Post-Intensive Care Rehabilitation Collaborative in conjunction with the UK Intensive Care Society and the British Society of Rehabilitation Medicine. The Collaborative is a multi-professional group from a wide range of backgrounds with expertise in the rehabilitation and support of patients following treatment in intensive care. They worked

with leading experts to support the development of the PICUPS and used a range of existing and validated metrics. It was developed in the context of the Covid-19 pandemic but it is expected to be useful in future for any patient following prolonged treatment in intensive care. The PICUPS is available [here](#).

Post-COVID-19 Functional Status (PCFS) scale

The Post-COVID-19 Functional Status (PCFS) scale [3] is used at discharge from the hospital, at 4 and 8 weeks post-discharge to monitor direct recovery, and at 6 months to assess functional sequelae. This scale is not meant to replace other relevant instruments for measuring quality of life, tiredness or dyspnoea in the acute phase, but to be used as an additional outcome measure to evaluate the ultimate consequences of COVID-19 on functional status. The scale is available [here](#).

The C19-YRS screening tool

The COVID-19 Yorkshire Rehabilitation Screening (C19-YRS) tool is a comprehensive multi-system telephone screening tool that has been developed by a multi-disciplinary-rehabilitation teams from Leeds, Airedale and Hull NHS Trusts in the UK to assess and capture symptoms and guide rehabilitation interventions [4]. The tool, available [here](#), covers all the components of the WHO International Classification of Functioning, Disability and Health framework. It is also being developed into an app to help manage individuals with Long COVID. See presentation [here](#).

Conclusion

Many outcome measures have been identified to address the various issues presenting in rehabilitation post COVID-19. There is limited consensus on the most appropriate physiotherapy outcome measures to use with patients in the post-COVID-19 context. There is an emphasis across guidelines on holistic and comprehensive assessment.

Disclaimer

This document has not been peer-reviewed; it should not replace individual clinical judgement. The views expressed in this document are not a substitute for professional medical advice. The content of this document is correct as of 26/01/2021

Rapid Evidence Search & Summary (RESS)

Our team of multidisciplinary researchers and clinicians in conjunction with the University of Limerick Library and Information Services have developed a detailed protocol for conducting a Rapid Evidence Search & Summary (RESS) to answer questions submitted to RapidInfo4U. Our RESS protocol uses PICO or PEO methods to refine your question and follows a detailed search procedure capturing guidance documents from governments, institutions and professional bodies; searching clinical and COVID specific repositories; and identifying the most recent reviews and RCTs in the scientific literature using established databases.

References

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3. Klok, F. A., Boon, G. J., Barco, S., Endres, M., Geelhoed, J. M., Knauss, S., ... & Siegerink, B. (2020). The Post-COVID-19 Functional Status scale: a tool to measure functional status over time after COVID-19. *European Respiratory Journal*, 56(1).
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4. Sivan, M, Halpin, S and Gee, J (2020) Assessing long-term rehabilitation needs in COVID-19 survivors using a telephone screening tool (C19-YRS tool). *Advances in Clinical Neurosciences and Rehabilitation*, 19 (4). pp. 14-17. ISSN 1473-9348.

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