



SPECIAL ARTICLE

Cochrane “evidence relevant to” rehabilitation of people with post COVID-19 condition. What it is and how it has been mapped to inform the development of the World Health Organization recommendations

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ABSTRACT

Cochrane Rehabilitation developed a series of actions to provide the global rehabilitation community with the best available evidence to respond to the COVID-19 pandemic. These initiatives constituted the REH-COVER (Rehabilitation COVID-19 evidence-based response) action. In March 2020, the first initiative started in agreement with the European Journal of Physical and Rehabilitation Medicine (EJPRM): the rapid systematic review of all papers relevant to COVID-19 rehabilitation to inform rehabilitation health professionals rapidly. Currently, we are facing the long-term consequences of COVID-19, initially called “long Covid” and now named post COVID-19 condition (PCC), which led to the request by the WHO Rehabilitation Programme for evidence synthesis to support the development of specific recommendations. Cochrane Rehabilitation provided the best available evidence from the REH-COVER rapid living systematic review results, a systematic scoping review on the models of care and a summary of “evidence relevant to” the rehabilitation for adults with PCC. Based on this evidence, expert groups developed the 16 recommendations for the rehabilitation of adults with PCC recently published in Chapter 24 of the WHO “Clinical management of COVID-19 living guideline.” This paper aims to introduce the Special Section of EJPRM reporting the work performed by Cochrane Rehabilitation to produce a summary of the existing “evidence relevant to” the rehabilitation of adults with PCC. The paper reports the methodology (overview of systematic reviews with mapping) and introduces the concept of “evidence relevant to” rehabilitation.

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KEY WORDS: Rehabilitation; COVID-19; World Health Organization.

Cochrane Rehabilitation developed a series of actions to provide the global rehabilitation community with the best available evidence to respond to the COVID-19 pandemic. These initiatives constituted the REH-COVER (Rehabilitation COVID-19 evidence-based response) ac-

tion. In March 2020, the first initiative started in agreement with the European Journal of Physical and Rehabilitation Medicine (EJPRM): the rapid systematic review of all papers relevant to COVID-19 rehabilitation.¹ The systematic review immediately became rapid living,^{2,3} in-

producing a new methodology described in the Journal of Clinical Epidemiology.⁴ Until now, due to the improved quality of the literature, there have been two methodological updates,^{5, 6} and due to the changing urgency to inform clinical management, there have been content updates initially monthly,⁷ then bi-monthly,⁸ and now yearly. In May 2020, Cochrane Rehabilitation identified an International Multiprofessional Steering Committee (<https://rehabilitation.cochrane.org/resources/reh-cover-action/international-multiprofessional-steering-committee>) to supervise the REH-COVER action, that also included an interactive living evidence web page (<https://rehabilitation.cochrane.org/covid-19/reh-cover-interactive-living-evidence>), and a Cochrane Library Special Collection (<https://www.cochranelibrary.com/collections/doi/SC000047/full>). Cochrane Rehabilitation developed other REH-COVER initiatives within the existing collaboration with the World Health Organization (WHO) Rehabilitation Programme,⁹ starting with the definition of the rehabilitation research framework for COVID-19.¹⁰

The long-term consequences of COVID-19, initially called “long Covid” and now named post COVID-19 condition (PCC), led to the request by the WHO Rehabilitation Programme for evidence synthesis to support the development of specific recommendations. Cochrane Rehabilitation provided the best available evidence from the REH-COVER rapid living systematic review results,^{1-3, 5-8} a systematic scoping review on the models of care¹¹ and a summary of “*evidence relevant to*” rehabilitation for adults with PCC. Based on this evidence, expert groups developed the 16 recommendations for rehabilitation of adults with PCC recently published in Chapter 24 of the WHO “Clinical management of COVID-19 living guideline”¹².

This paper aims to introduce the Special Section of EJPRM reporting the work performed by Cochrane Rehabilitation to produce a summary of the existing “*evidence relevant to*” rehabilitation of adults with PCC. The paper reports the methodology (overview of systematic reviews with mapping) and introduces the concept of “*evidence relevant to*” rehabilitation.

The concept and importance of “*evidence relevant to*” rehabilitation

The PICO framework informs evidence production and synthesis: Interventions to achieve a specific Outcome for people with a disease (Population) are contrasted with a Comparison. We could call the output of such research activities the “*evidence on*” interventions for a population

that is defined according to the WHO International Classification of Diseases (ICD) framework (<https://www.who.int/standards/classifications/classification-of-diseases>). However, for rehabilitation, the reference WHO classification is the international Classification of Functioning, Disability and Health (ICF) (<https://www.who.int/standards/classifications/international-classification-of-functioning-disability-and-health>). Rehabilitation aims at optimizing functioning through interventions targeting a person’s capacity (by addressing body structures, functions, and activities/participation) and/or contextual factors related to performance.¹³ Within rehabilitation, the interventions do not target the disease (according to the ICD) but the impairments and the level of activity/participation (according to the ICF), provided there is no contraindication due to the underlying pathophysiology.¹⁴ Some examples of such rehabilitation interventions include gait training for health conditions impacting walking capacity, cognitive behavioural therapy for chronic pain independent of its location or cause, and exercise therapy for fatigue due to different health conditions. In these examples, the underlying health condition informs how gait training, cognitive behavioural and exercise interventions are provided, sometimes even contraindicating their provision. In other words, in rehabilitation, the health condition contextualizes the interventions that are required to regain capacity that has previously been lost by the patient.¹⁴ This understanding of rehabilitation provides an opportunity for a different approach to evidence gathering for managing new diseases – at least until direct evidence is available; rehabilitation interventions can be identified based on their effectiveness for impairments and activity limitations in other health conditions. These interventions become strong hypotheses (and constitute the earliest evidence available) for clinical management and research until direct, more robust “*evidence on*” the rehabilitation for people with that health condition becomes available. This is what we call “*evidence relevant to*” rehabilitation.

Methodology of the papers included in the Special Section

The studies included in this Special Section of the EJPRM are overviews of Cochrane Systematic Reviews (CSRs) with mapping. Their common aim is to identify and summarize high-quality research on the effectiveness of rehabilitation interventions relevant to PCC. We report here the elements in common for all papers, while we will list specific differences within every paper.

Selection criteria

Type of the studies

We included CSRs on interventions for impairments due to PCC independently from the underlying health condition. The WHO identified the following impairments related to PCC and amenable to rehabilitation:¹²

- fatigue, postexertional fatigue, exhaustion;
- breathing impairment, shortness of breath, dyspnoea, breathlessness;
- orthostatic intolerance, Postural Orthostatic Tachycardia Syndrome (POTS), autonomic nervous system dysfunction;
- postexertional symptom exacerbation, postexertional malaise;
- dysphagia, swallowing disorder;
- dysphonia, voice disorder;
- arthralgia, joint pain;
- olfactory impairment;
- cognitive impairment: attention deficit, memory impairment, concentration impairment, executive dysfunction, cognitive communication disorder;

- anxiety;
- depression;

We systematically searched all interventions targeting these impairments, and we grouped them into five studies for this EJPRM Special Section:

1. fatigue, postexertional malaise and orthostatic intolerance;
2. dyspnoea;
3. dysphagia, dysphonia and olfactory dysfunction;
4. arthralgia;
5. cognitive impairment, anxiety and depression.

Type of participants

PCC being a chronic condition, we included CSRs of any chronic health condition in which the participants were adults (≥ 16 years old) experiencing the relevant PCC impairment. We excluded all results reported in the CSRs on any other impairment.

Type of interventions

Without a specific definition at the moment of data collection,^{15, 16} we defined rehabilitation intervention as any intervention provided by a rehabilitation professional.¹⁷ We included CSRs evaluating any rehabilitation intervention alone or in addition to other treatments *versus* any other treatment, usual care, placebo, or no interventions. We ex-

cluded all comparisons among treatments to keep the possibility of comparing different diseases.

Type of outcomes

We included CSRs involving any outcome measurement used to evaluate the relevant PCC impairments. We considered all primary and secondary outcomes.

Search strategy

We composed the search strings for each WHO impairment (*e.g.* “fatigue”) using the relevant MeSH-Term as a free term combined (using the Boolean operator “OR”) with their synonyms/variations and “rehabilitation” (using the Boolean operator “AND”). We ran the search from the inception of the Cochrane Library (1996) to 30th September 2021.

Selection and quality appraisal of the Cochrane reviews

We included only CSRs published in the most recent five years (September 2016 to September 2021) and excluded protocols and CSRs that have been withdrawn from the Cochrane Library. We followed the methodology of a rapid systematic review. One reviewer independently screened the title and abstract of the citations of each search according to the inclusion criteria. We solved any doubt through discussion with a second reviewer. We retrieved and screened full texts of included reviews to confirm inclusion. Again, we solved any doubt through discussion with a second reviewer. Finally, we used AMSTAR (A Measurement Tool to Assess systematic Reviews)² to evaluate the methodological quality of each CSRs.¹⁸

Data extraction and quality of evidence appraisal

We identified and extracted data on each reported outcome related to a rehabilitation intervention relevant to PCC. One reviewer extracted data using an electronic form and a second reviewer checked the data extraction for accuracy and completeness. We resolved disagreements between the two reviewers by discussing with a third reviewer. The data extraction form included the following data: type of outcome and its measurement instrument, number of primary studies and participants, population, comparisons (experimental intervention and control), effect (in favour of experimental intervention or control or no effect), and the judgement of the quality of evidence for each comparison in each outcome assessed with Grading of Recommendations, Assessment, Development, and Evaluations (GRADE).¹⁹

Summarizing evidence within a map

We synthesized the results using an evidence map, a specific methodology to provide a comprehensive overview of the body of evidence within a research field. We adapted the evidence mapping methodology to provide a clear overview of the GRADEd evidence according to the reported comparisons and populations, including the quality of evidence (very low, low, moderate and high) and the effects (no effect, favor intervention, favor control). We used an Excel sheet to collect and summarize all data.

Conclusions

This Special Section describes all the available “*evidence relevant to*” the rehabilitation of adults with PCC. The results should be considered as provisional and interesting hypotheses for clinical decision-making while waiting for “*evidence on*” the rehabilitation for people with PCC. Moreover, they can provide valuable ideas for future research. Based on the available “*evidence relevant to*” and their clinical expertise, the WHO experts developed 16 recommendations for the rehabilitation of adults with PCC for the WHO “Clinical management of COVID-19 living guideline”¹².

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