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Rehabilitation and COVID-19: update of the rapid living systematic review by Cochrane Rehabilitation Field as of December 31st, 2021

The present update follows the methodology defined in the 3rd edition of the rapid living systematic review conducted as part of the Cochrane Rehabilitation REH-COVER (Rehabilitation COVID-19 Evidence-based Response) Action.[1] Table I lists the main characteristics of this update.

We identified 7735 studies from the databases. After removing duplicates and title and abstract screening, we evaluated 100 studies of which we included 41 in the qualitative synthesis (Supplementary Digital Material 1: Supplementary Table I). Table II, III present the distribution of selected studies stratified by limitations of functioning of rehabilitation interest (LFRI), disease phase and rehabilitation setting (Table II),[2-42] research question, and study design (Table III).[43]

The main findings from the current bi-monthly update are:

• most RCTs still investigate intervention efficacy at relieving respiratory symptoms in the acute phase: four out of five RCTs included in this update,[11, 13, 32, 33, 35] concern subjects in the acute phase of COVID-19.[11, 13, 33, 35] Hospital samples are described by Liu *et al.*[11] who found Qigong and acupressure plus standard therapy to be more effective than standard therapy in 128 patients with severe COVID-19, at reducing dyspnea and shortening hospital stay, and by Oner Cengiz *et al.*[35] who reported that deep breathing exercises with the Triflo, compared to usual care, reduced hospital stay and increased quality of life in 44 participants with mild COVID-19. Two RCTs[13, 33] studied community-dwelling participants with COVID-19 showing that a self-administered treatment with Positive Expiratory Pressure Flute was more effective than usual care at reducing the severity of respiratory symptoms in 378 patients,[13] and a 7-days program of meditation and breathing exercises in the form of pranayama, compared to usual care, realized a positive effect on depression, stress levels, and quality of sleep in 84 asymptomatic or mildly symptomatic patients.[33] In postacute COVID-19 patients, a telerehabilitation program proved superior to no rehabilitation at improving functional exercise capacity, limb muscle strength, and physical health-related quality of life;[32]

TABLE I.—*Main characteristics of this update.*

Date of search	January 2nd, 2022, looking for papers published from November 1st up to December 31st, 2021
Methods	No changes to the 3rd edition of the Rehabilitation and COVID-19 rapid living systematic review[1]
Consolidated online table of papers of all editions	https://bit.ly/rr-dyn
Table of the present update	https://bit.ly/rr11_12
Interactive living evidence map	https://bit.ly/rr-map

TABLE II.—*Distribution of studies by limitations of functioning of rehabilitation interest (LFRI), disease phase, and rehabilitation setting.*

Classification	Current update (N.=41)			Total 3rd edition (N.=148)	
	N.	%	Citation	N.	%
LFRI					
Nervous system structures/functions	7	17.1	2-8	20	13.5
Respiratory structures/functions	11	26.8	9-19	53	35.8
Digestive functions	0	0		1	0.7
Cardiovascular functions	0	0		4	2.7
Any other body structure and function	20	48.8	20-39	58	39.2
Any activity limitation and participation restriction	3	7.3	40-42	13	8.8
Disease phase					
Acute covid-19 infection	6	14.6	8, 11-13, 33, 35	13	8.8
Ongoing symptomatic COVID-19	5	12.2	9, 10, 30, 31, 39	36	24.3
Post COVID-19 condition	29	70.7	2, 3, 5-7, 14-29, 32, 34, 36-38, 40-42	96	64.9
Impact of COVID-19 (any phase) on people with disability	1	2.4	4	3	2.0
Rehabilitation setting					
Rehabilitation in acute care	3	7.3	11, 12, 35	5	3.4
Postacute specialized	3	7.3	6, 17, 20	5	3.4
Postacute general	2	4.9	23, 26	8	5.4
Specialized outpatient	1	2.4	37	7	4.7
General outpatient	0	0		2	1.3
Home-care	3	7.3	13, 32, 33	13	8.8
Rehabilitation in social assistance	0	0		1	0.7
NA *	29	70.7	2-5, 7-10, 14-16, 18, 19, 21, 22, 24, 25, 27-31, 34, 36, 38-42	107	72.3

NA: not applicable.
*A high proportion of studies reported LFRI in COVID-19 survivors, without focusing on a rehabilitation program.

TABLE III.—*Distribution of studies by research question and study design (according to the Agency for Healthcare Research and Quality).*[43]

Study design	RCT	Cross-sectional	Cohort	Non-RCT or quasi-experimental studies	Total Current update N. (%)	Total 3rd edition N. (%)
Research question						
Epidemiology: clinical presentation	0	0	0	0	0	0
Epidemiology: prevalence	0	20	0	0	20 (48.8)	73 (49.3)
Epidemiology: natural history, determining and modifying factors	0	0	13	0	13 (31.7)	40 (27)
Micro-level: individuals	5	0	2	1	8 (19.5)	35 (23.7)
Meso-level: health services	0	0	0	0	0	0
Macro-level: health systems	0	0	0	0	0	0
Total current update, N. (%)	5 (12.2)	20 (48.8)	15 (36.6)	1 (2.4)	41 (100)	148 (100)
Total 3rd edition, N. (%)	17 (11.5)	72 (48.6)	49 (33.1)	10 (6.8)	148 (100)	

• there is a further increase in the proportion of studies investigating the long-term effects of COVID-19: up to 73.2% of studies included in this update focus on post COVID condition. Sixteen are cross-sectional surveys totaling 8,060 participants and sampling 29[22] to 2198[28] cases in the age range 40-60 years, whereas 13 are cohort studies totaling 1886 subjects and sampling 12[3] to 377[21] cases, mostly in their sixties. Only one study assessed a cohort of 236 children,[36] looking for long-lasting symptoms after COVID-19 and finding that over 50% of cases complained of at least 2 persisting symptoms, mostly fatigue, but also cognitive and mood change sequelae. Studies on adults, enrolling the largest samples,[15, 21, 25, 28] indicated fatigue, dyspnea, chest tightness,[15, 21, 25, 28] but also musculoskeletal pain, anxiety, and "brain fog,"[21] weight loss and hair loss[15] to be the most commonly reported symptoms 12 weeks after COVID-19 onset. Rates range from 9% for sleepiness to 40% for weight loss and fatigue and vary from one study to another, but overall, around 30% of survivors complain of at least one long COVID symptom. Finally, one large survey of 599 subjects with Multiple Sclerosis developing COVID-19 and followed up after 12 weeks of symptom onset revealed that patients with a greater disability and more severe mental disorders before the infection were less likely to report symptom recovery afterward.[4]

Overall, the findings contribute to the hypothesis that a minimum of 25-30% of COVID-19 survivors are at risk to suffer from at least one persisting symptom at 6 months of infection onset, irrespective of age, symptom severity in the acute phase, and premorbid condition. However, there is still need for high-quality studies to understand the impact of the new variants of COVID-19 in the long term and to profile post-COVID condition after 12 months.

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