

**Supplementary Table S1:** Level of details provided by the included studies on the program of physical activity.

Types of Exercises		Frequency		Volume of sessions		Intensity of sessions					
NR		0pt		NR		0pt		NR		0pt	
For all modalities only						1pt					
AEROBIC		RESISTANCE		AEROBIC		RESISTANCE		AEROBIC		RESISTANCE	
		Worked muscles <i>(e.g. lower limbs, abdominal muscles)</i>				Total duration		RPE and/or Dyspnea			
		2pt				4pt		1pt			
Activity only <i>(e.g. Walking)</i>		Material used <i>(e.g. elastics, machines, free weight)</i>		Frequency for all modalities		Number of repetitions		%HR <sub>max</sub> E or %WR <sub>max</sub> E		RPE and/or Dyspnea	
2pt		2pt		2pt		2pt		2pt		2pt	
Activity + Material/place <i>(e.g. Walking on a treadmill/on a plane surface)</i>		Type of exercises <i>(e.g. squat, bench press)</i>				Number of repetitions + series		%HR <sub>max</sub> Real or %WR <sub>max</sub> Real (from a previous test)			
3pt		3pt				3pt		3pt			
Activity + Modality <i>(e.g. HIIT or MICT walking)</i>						Number of repetitions + series + number of exercises and/or total duration				% of RM	
4pt						4pt				4pt	
Activity + material/place + modality <i>(e.g. MICT walking on a treadmill)</i>		Worked muscles and/or type of exercises + Material used <i>(e.g. bench press using a machine)</i>				Total duration + Details on warm-up and/or cooling-down		Number of repetitions + series + number of exercises and/or total duration + Recovery time		RPE and/or Dyspnea + %HR <sub>max</sub> E or %PowerE	
5pt		5pt				5pt		5pt		5pt	
				Frequency for each modality		Details for each modality + all modalities (bonus point)		RPE and/or Dyspnea + %HR <sub>max</sub> Real or %WR <sub>max</sub> Real (from a previous test)		RPE and/or Dyspnea + % of RM	
				4pt		0.5pt		6pt		6pt	
/5 points (mean between aerobic and resistance)		/4 points		/5 points (mean between aerobic and resistance)		/6 points (mean between aerobic and resistance)					

The higher mark on each subscore is retained for the total score calculation (subscores not cumulative). HIIT: High Intensity Interval Training, HR<sub>max</sub>: maximal Heart Rate, HR<sub>max</sub>E: Estimated maximal Heart Rate, MICT: Moderate Intensity Continuous Training, NR: Not Reported, pt: points, RM: Repetition Maxima, RPE: Rated Perceived Exertion, WR<sub>max</sub>: maximal Work Rate, WR<sub>max</sub>E: Estimated maximal Work Rate.

**Supplementary Table S2:** Designs of the studies, characteristics of the population, description of the intervention, and method used in the included studies.

Reference	Design of the study	Characteristics of the population (n; age; BMI) and comorbidities	Severity of COVID-19 during the acute phase and duration of hospitalization/symptoms (low severity: no hospitalization; moderate severity: hospitalization; high severity: hospitalization and intensive care)	Start of the rehabilitation program	Rehabilitation interventions	Physical activity program	Parameters assessed pre- and post-rehabilitation (detailed only when available results)
Al Chikhanie et al., 2021 [35]	Retrospective Two groups	COV+ (post-ICU): n=21 (14f, 7m); 70.9±10.6 yo; 26.9±5.4 kg/m <sup>2</sup> At least 1 comorbidity/subject among its: CVD, DM, cancer or obesity  COV- (post-ICU): n=21 (13f, 8m); 69.1±9.4 yo; 24.7±7.2 kg/m <sup>2</sup> COPD (n=15), Stroke, cirrhosis or CVD (n=6)	<b>High</b> ICU: - COV+ (n=21): 23.4±8.5 days - COV- (n=21): 16.2±26.9 days Intubation: - COV+ (n=16): 22.3±5.7 days - COV- (n=6): 1.6±2.9 days  Groups comparison: significant differences for number of intubated (p<0.05) and days intubated (p<0.05)	Duration between extubation and RP: range: 3-45 days	In hospital (rehabilitation center)  Physical activity, respiratory exercises  Duration: - COV+: 27.6±14.2 days - COV-: 29.9±17.3 days	Modality: aerobic Type: walking, cycling Frequency: NR Volume: NR Intensity: NR  Modality: resistance, balance Type: gymnastic Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> 6MWT, Handgrip, Quadriceps isometric, Balance (Tinetti test)  <u>Respiratory function:</u> FEV1 and FVC (method NR), Need for oxygen therapy, P <sub>I</sub> max and PE <sub>max</sub> (method NR), Dyspnea post-6MWT (Borg scale, probably 0-10), SaO <sub>2</sub> min during 6MWT  <u>Quality of life, mental health, and general state:</u> QoL (Saint George respiratory questionnaire), Anxiety and depression (HADS), Post-traumatic stress (Post-traumatic stress disorder checklist scale), Fatigue (Pichot questionnaire)
Bernal-Utrera et al., 2021 [36]	Prospective Controlled trial, initially two interventional groups and one control group, but only results from the interventional groups	COV+: n=25 (18f, 7m); 41.4±13.4 yo; NR No comorbidity  Some patients performed the toning exercises program and some patients performed respiratory program (2 groups), but unseparated results and no further details on how many patients performed each program - Protocol article (Gonzalez-Gerez et al. 2020)	<b>Low</b> No hospitalization/very mild symptoms	During the acute phase (time period that patients diagnosed with COVID-19 were obligated to stay at home)	Telerehabilitation (no-supervised)  Physical activity, respiratory exercises  Duration: 14 days, but higher duration for some patients who needed to continue with the intervention	Modality: NR Type: 10 toning exercises (no further information) Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> 6MWT (assessments every day by the patient himself at home), 30-s STST, RPE during 6MWT and 30-s STST (Borg scale, type NR) Semi-structured interviews  <u>Respiratory function:</u> FEV1 and PEF (spirometry, assessments every day by the patient himself), Dyspnea post-6MWT (Multidimensional Dyspnea-12 questionnaire - Spanish version) Semi-structured interviews  <u>Quality of life, mental health, and general state:</u> Fatigue (Fatigue VAS) Semi-structured interviews
Bertolucci et al., 2021 [37]	Prospective Single group	COV+: n=39 (15f, 24m); 67.8±10.8 yo; NR Obesity (n=14), DM (n=10), No comorbidity (n=14) CIRS: median: 1 [IQR: 0, 3]	<b>High</b> ICU (n=32) or COVID unit hospital (n=7): 46.4±20.9 days Intubation (n=23): range: 4-36 days  Symptoms at admission to RP: Bacterial superinfection (n=23), Prone ventilation (n=17)	Immediately after hospital discharge, 82 and 137 days after hospital discharge for 2 patients	In hospital (rehabilitation unit)  Physical activity, respiratory exercises, swallowing rehabilitation  Duration: 25.5±16.3 days	Modality: aerobic Type: walking (IT or continuous) Frequency: NR Volume: NR Intensity: NR  Modality: resistance Type: NR Frequency: NR Volume: NR Intensity: NR  Modality: coordination and posturology Type: active postural changes, readjustment of postural reflexes, coordination exercises for trunk control, recovery of standing position	<u>Functional capacity:</u> Peripheral nervous system impairment (electromyography)  <u>Respiratory function:</u> Need for tracheostomy, Need for oxygen therapy, PaO <sub>2</sub> and FiO <sub>2</sub> (method NR)  <u>Quality of life, mental health, and general state:</u> Mental confusion (method NR), Disability level (BI), Ambulation capacity (FAC)  <u>Other:</u> Corticosteroids intake, Antipsychotic intake, Dysphagia (Need for enteral alimentation), Rectal colonization by multidrug resistant Enterobacteriaceae

						Frequency: NR Volume: NR Intensity: N/A	
Betschart et al., 2021 [38]	Prospective Single group	COV+: n=12 (4f, 8m); 61 yo (range: 26-84); NR CVD (n=6), CKD (n=5), HT (n=3), Cancer (n=3), Chronic pulmonary disease (n=2), DM (n=1), Overweight/obesity (n=1), Polyneuropathia (n=1), Other disease (n=2)	<b>Moderate</b> Hospitalization: 11 days (range: 3-24)  Severity of pneumonia: Mild (n=1), Moderate (n=8), Severe (n=2), Critical (n=1)	Duration between COVID-19 diagnosis and RP: 41.5 days (range: 21-73) (One of the selection criteria: at least 14 days after confirmed diagnosis of COVID-19 and at least 4 days without COVID-related symptoms)	In hospital  Physical activity, education  Duration: 4-13 wk	Modality: aerobic Type: cycling (HIIT or MICT, probably on ergometer) Frequency: 2x/wk Volume: 30min Intensity: REP=4-6 (Borg scale 0-10) - HIIT: 4min 15%WR <sub>peak</sub> (warm-up), [4 x 4min 50%WR <sub>peak</sub> (RPE=4-6, Borg scale 0-10) + 3 x 3min 20-30%WR <sub>peak</sub> ], 3min 15%WR <sub>peak</sub> (cooling-down) - MICT: 20-30%WR <sub>peak</sub> (WR <sub>peak</sub> assessed using the incremental ultra-short maximal steep ramp test)  Modality: resistance Type: chest press, low row, back extension, leg abductor, leg curl, leg press Frequency: 2x/wk Volume: 3sets x 10-12rep (30-40min) Intensity: 50-85%RM (RPE=4-6, Borg scale 0-10)	<u>Functional capacity:</u> 6MWT  <u>Quality of life, mental health, and general state:</u> QoL (EQ5D 5 levels, EQ5D VAS), Perception of COVID-19 specific limitations in daily life (Post-COVID Functionality score)  <u>Other:</u> Adherence and tolerability of the program
Büsching et al., 2021 [39]	Retrospective Controlled trial, two groups	COV+ (with pneumonia): n=51 (13f, 38m); 65.8±11.7 yo; 27.3±4.9 kg/m <sup>2</sup> HT (n=30), Acute respiratory distress syndrome (n=26), CVD (n=8), COPD (n=2) CIRS: 17.7±11.3  COV- (with pneumonia): n=51 (28f, 23m); 69.8±9.6 yo; 26.1±6.5 kg/m <sup>2</sup> COPD (n=25), HT (n=19), CVD (n=10), Acute respiratory distress syndrome (n=3) CIRS: 13.5±5.9  Groups comparison: gender repartition (p<0.01), age (p<0.05), comorbidities (p<0.001), CIRS (p<0.05)	<b>Moderate-to-High</b> ICU (COV+: n=30; COV-: n=7) Groups comparison: COV+ > COV- Intubation: - COV+ (n=27): 13±7 days - COV- (n=6): 10±8 days	Immediately after discharge hospital	In hospital  Physical activity, education (minimum 540 min), respiratory exercises, relaxation techniques, and if necessary, psychological counseling, speech, nutritional and occupational therapy, social services  Duration: - COV+: 22±6 days - CON: 20±5 days	Modality: aerobic Type: cycling, guided walking Frequency: NR Volume: NR Intensity: NR  Modality: resistance Type: machines, free weight, elastic bands Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> 6MWT  <u>Quality of life, mental health, and general state:</u> Disability level (Chronic respiratory questionnaire, FIM)
Curci et al., 2021 [40]	Retrospective Single group	COV+: n=41 (16f, 25m); 72.2±11.1 yo; 25.7±3.7 kg/m <sup>2</sup> HT (n=26), DM2	<b>High</b> ICU: 18.0±8.7 days  Respiratory status at admission: No respiratory support (n=7), Nasal	Immediately post-ICU	In hospital (COVID-19 rehabilitation unit)	Modality: aerobic Type: walking Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> 6MWT, RPE probably post-6MWT (Borg scale, probably 6-20)  <u>Respiratory function:</u> Dyspnea in daily life activities (mMRC Dyspnea scale), Respiratory supports

		(n=11), Malignancy (n=10), Pulmonary embolism (n=8), Dyslipidemia (n=7), Myocardial infarction (n=6), Arrhythmia (n=5), Stroke (n=5), HT (n=3), COPD (n=3), Hepatitis (n=3), Hypothyroidism (n=3), CKD (n=3), No comorbidity (n=3)	cannula (n=18), Venturi mask (n=8), Oxygen mask (n=5), Non-rebreather mask (n=3)		Physical activity, respiratory exercises, kinesiology	Duration: 32.0±9.1 days	Modality: resistance Type: upper and lower limbs, trunk, gluteus muscles Frequency: NR Volume: 2-4sets x 8-12rep Intensity: NR	need (Nasal cannula, oxygen mask, Venturi mask, Non-rebreather mask), FiO <sub>2</sub> , PaO <sub>2</sub> and SaO <sub>2</sub> (blood samples), CT pulmonary scan
							Modality: balance and coordination Type: one-legged stance, static heel/toes Frequency: NR Volume: NR Intensity: N/A	<u>Quality of life, mental health, and general state:</u> Disability level (BI), Ambulation capacity (method NR)
							<u>Total (for all modalities):</u> Frequency: 2x/day Volume: 30min	<u>Biological parameters:</u> Arterial lactate, CRP, D-dimer, LDH
Daynes et al., 2021 [41]	Prospective Single group	COV+: n=30 (14f, 16m); 58±16 yo; NR Asthma (n=3), COPD (n=1), CVD (n=1)	<b>Moderate-to-High</b> Hospital (n=26): 10±14 days ICU and mechanical ventilation (n=5)	Duration between COVID-19 diagnosis and RP: 125±54 days	In hospital (center of exercise and rehabilitation sciences)	Duration: 6 wk	Modality: resistance Type: lower and upper limbs Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> Incremental shuttle walking test, ESWT
					Physical activity, education		<u>Total (for all modalities):</u> Frequency: 2x/wk Intensity: NR but used of dyspnea and RPE (Borg scale)	<u>Respiratory function:</u> Respiratory symptoms (COPD Assessment Test)
								<u>Quality of life, mental health, and general state:</u> Fatigue (Functional Assessment of Chronic Illness Therapy - Fatigue score), Anxiety and depression (HADS), QoL (ED5D), Cognition (MoCA)
Dun et al., 2021 [42]	Retrospective Controlled trial, two groups	COV+ (≥5 performed RP sessions): n=27 (18f, 9m); 54±16 yo; 23.8±2.5 kg/m <sup>2</sup> CVD (n=6), DM (n=4), HT (n=3), Dyslipidemia (n=2), Smoking history (n=2), Cerebrovascular disease (n=2), Peptic ulcer (n=0), Cancer (n=0)	<b>Moderate-to-High</b> Hospitalization: - COV+: 18±9 days - CON: 17±8 days	2 wk after discharge from acute care	In hospital (rehabilitation center) and telerehabilitation (no-supervised)	Duration: 12 wk	<u>Supervised at hospital</u> Modality: aerobic Type: cycling, walking (HIIT on ergocycle and treadmill) Frequency: 3x/wk Volume: 2sets x 4min/4min Intensity: 4min high intensity (RPE=15-17, Borg scale 16-20)/4min low intensity (RPE<14)	<i>Post-RP tests were performed 10 wk after the end of the RP.</i>
		CON (COV+, <5 performed RP sessions): n=71 (35f, 36m); 44±13 yo; 23.8±3.2 kg/m <sup>2</sup> Smoking history (n=8), HT (n=8), Dyslipidemia (n=6), CVD (n=6), Cancer (n=4), DM (n=3), Peptic ulcer (n=3), Cerebrovascular disease (n=1)	Clinical classification of COVID-19: Mild (COV+: n=0, CON: n=1), Moderate (COV+: n=17; CON: n=56), Severe (COV+: n=8; CON: n=10), Critical (COV+: n=2; CON: n=4)		Physical activity, respiratory exercises		<u>Telerehabilitation</u> Modality: aerobic Type: walking, jogging, cycling Frequency: 2-5x/wk Volume: 30-50min Intensity: 40-60%HR <sub>max</sub> (predicted: 220 - age), RPE=13-14 [Evolution after 1 mo: 40-80%HR <sub>max</sub> , RPE=13-16]	<u>Biological parameters:</u> SARS-CoV-2 IgG and IgM, Lymphocytes, WBC, Neutrophils, Eosinophils, Hemoglobin, Platelets, Alanine aminotransferase, Aspartate aminotransferase, Bilirubin, Total protein, ALB, Globulin, Blood urea nitrogen, Urid acid, Creatinine (blood samples)

		Groups comparison: age (p<0.01)					
Everaerts et al., 2021 [43]	Prospective Single group	COV+; n=22 (7f, 15m); median: 54.5 [IQR: 47, 61] yo; median: 28 [IQR: 25, 31] kg/m <sup>2</sup>	<b>Moderate-to-High</b> Hospitalization: median: 29 [IQR: 12, 39] days Mechanical ventilation (n=7): median: 14 [IQR: 11, 24] days Among ICU patients (n=15): High-flow oxygen nasal cannula (n=1), Mechanically ventilated (n=14; among them n=1 Extracorporeal membrane oxygenation, n=2 Tracheostomy)	Duration between hospital discharge and RP: median: 47 [IQR: 15, 69] days	In hospital (outpatient)	Modality: aerobic Type: walking, cycling, stepping (continuous or IT, on treadmill, ergocycle, arm ergometer, stair climbing, step) Frequency: NR Volume: NR Intensity: started at 60-75%WR <sub>max</sub> of CPET [Evolution: Patients went from IT (for patients not able to cycle ≥ 10min on 80%WR <sub>max</sub> during CPET) to continuous training before wk 6]	<u>Functional capacity:</u> 6MWT, CPET, Handgrip, Quadriceps strength (method NR)
		DM (n=4, but 3 of them stopped anti-DM treatment during the program), CKD (n=5)	Need for oxygen at RP admission (n=2)		Physical activity Duration: 12 wk	Modality: resistance Type: lower and upper limbs (leg, chest press) Frequency: NR Volume: NR Intensity: NR	<u>Respiratory function:</u> FVC, FEV, TLC, DLCO, Pl <sub>max</sub> , PE <sub>max</sub> (methods NR)
		Previous history of rehabilitation: n=5 (5 to 80 days before RP for the study)				<u>Quality of life, mental health, and general state:</u> Anxiety and depression (HADS), Cognitive deficits (reported by patients), Cognition (MoCA)	
						<u>Total (for all modalities):</u> Frequency: 3x/wk Volume: 90min Intensity: Dyspnea and RPE=4-6 (Borg scale 0-10)	
Ferraro et al., 2021 [44]	Prospective Case series	COV+; n=7 (2f, 5m); 65.7±11.9 yo; NR HT (n=2), DM2 (n=1), Liver disease (n=1), CKD (n=1), Smoking history (n=1)	<b>Moderate-to-High</b> Hospitalization: 27±11 days (calculated from raw data) ICU (n=2): 15 and 18 days  COVID-19 complications: Bilateral pneumonia (n=7), Peripheral neuropathy (n=3), Pulmonary embolism (n=1), Stroke (n=1)	NR	In hospital (COVID-19 rehabilitation unit)	Modality: aerobic Type: walking [for progressive distances] Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> 6MWT, Handgrip, 10MWT, SPPB (score 0-12 from 3 tests: static body balance, ability to walk, and stand up from a chair)
					Physical activity, respiratory exercises, kinesitherapy  Duration: NR	Modality: resistance Type: lower and upper limbs, trunk, gluteus muscles Frequency: NR Volume: NR Intensity: NR	<u>Quality of life, mental health, and general state:</u> Fatigue (Borg scale 0-10), Disability level (FIM, BI)
						<u>Total (for all modalities):</u> Frequency: 6x/wk, 1-2x/day Volume: 30min	
Gloeckl et al., 2021 [45]	Prospective Two groups	M.COV+ (mild/moderate COV+); n=24 (20f, 4m); median: 52 [IQR: 47, 56] yo; median: 24.7 [IQR: 22.0, 29.8] kg/m <sup>2</sup> Obstructive sleep apnea (n=9), Chronic lung disease (n=7),	<b>Low-to-High</b> M.COV+: <b>Low</b> (no hospitalization)  S.COV+: <b>Moderate-to-High</b> Hospitalization: 26 days ICU (n=22): median: 28 [IQR: 15, 40] days Need for oxygen (n=24) Mechanical ventilation (n=15): median: 18 [IQR: 11, 43] days	NR for M.COV+  S.COV+: median: 18 days [IQR: 5, 40] after hospital discharge	In hospital	Modality: aerobic Type: cycling Frequency: 5x/wk Volume: 10-20min Intensity: 60-70%WR <sub>peak</sub> (NR if intensity was estimated or defined from a previously test)	<u>Functional capacity:</u> 6MWT Only for S.COV+: ESWT, HR pre- and post-ESWT, Maximal isometric knee extension, Handgrip, 5-rep STST
					Physical activity, education, respiratory exercises, activities of daily living training, relaxation techniques, occupational therapy, psychological support, nutritional counselling, drug therapy	Modality: resistance Type: machines (leg press, knee extension, pull-down, push-down, and	<u>Respiratory function:</u> FVC, FEV1, TLC, DLCO, KCO (plethysmography), PaO <sub>2</sub> and PaCO <sub>2</sub> (blood samples), Dyspnea post-6MWT (Borg scale, probably 0-10), Need for oxygen therapy during rest and exertion Only for S.COV+: SaO <sub>2</sub> and breathing frequency pre- and post-ESWT, Dyspnea during daily activities (MRC Dyspnea scale)

		Smoking history (n=7), Obesity (n=5), HT (n=5), Dyslipidemia (n=3), Coronary heart disease (n=1), DM (n=1), CKD (n=0), Stroke (n=0) Comorbidities/patient: median: 2 [IQR: 2, 4]		Duration: 3 wk	if possible: butterfly, forward/backward, rowing, back extension, abdominal trainer) Frequency: 5x/wk Volume: 3sets x 15-20rep (30min) Intensity: NR	<u>Quality of life, mental health, and general state:</u> QoL (SF-36) Only for S.COV+: Anxiety (GAD-7), Depression (PHQ-9), Cognition (MoCA), COVID-19 symptoms  <u>Biological parameters:</u> CRP, Leukocytes, D-dimer, Pro-BNP	
		S.COV+ (severe/critical COV+): n=26 (8f, 18m); median: 66 [IQR: 60, 71] yo; median: 26.9 [IQR: 24.2, 29.2] kg/m <sup>2</sup> Smoking history (n=20), HT (n=16), Dyslipidemia (n=10), Obstructive sleep apnea (n=9), Coronary heart disease (n=7), DM (n=6), CKD (n=6), Chronic lung disease (n=5), Obesity (n=5), Stroke (n=1) Comorbidities/patient: median: 3 [IQR: 3, 5]					
Gobbi et al., 2021 [46]	Prospective Two groups	Total group: n=34 (18f, 16m); NR; NR HT (n=6), CVD (n=6), DM (n=3) <sup>u</sup>  S.COV+ (COV+ with sarcopenia): n=20 (9f, 11m); 71.5±17.0 yo; 21.0±4.2 kg/m <sup>2</sup> Comorbidities NR  NS.COV+ (COV+ without sarcopenia): n=14 (9f, 5m); 68.0±16.5 yo; 27.3±9.0 kg/m <sup>2</sup> Comorbidities NR  Groups comparison: age (p-value NR), BMI (p-value NR)	<b>Moderate-to-High</b> ICU (Total group: n=11; S.COV+: n=8; NS.COV+: n=3)	Probably immediately after hospital discharge	In hospital (rehabilitation unit from COVID hospital)  Physical activity, psychiatric support, cognitive behavioral therapy, nutritional treatment  Duration: 28 days	Modality: aerobic Type: cycling (ergocycle), arm ergometer Frequency: NR Volume: NR Intensity: 65%HR <sub>max</sub> (predicted: (220-age)x0.65)  Modality: resistance Type: sitting-to-bed exercises for upper-body conditioning and progressive limb muscle strengthening Frequency: NR Volume: 1-3sets x 8-12rep (2min recovery between sets) Intensity: NR  <u>Total (for all modalities):</u> Frequency: 6x/wk Volume: 45min Intensity: Individualized with patient's conditioning, subjective perception of fatigue and clinical status. RPE (Borg scale 0-10) and SaO <sub>2</sub> was monitored during exercise.	<u>Functional capacity:</u> Handgrip, Time-up-to-go test (>13.5s = practical cut-off for high fall risk, >20s = severe sarcopenia)  <u>Respiratory function:</u> Dyspnea (Borg scale 0-10) and SaO <sub>2</sub> in lying, sitting and standing positions, and at the end of Time-up-to-go test  <u>Biological parameters:</u> ALB, Ferritin, Vitamin D  <u>Other:</u> BMI, Phase angle and ASM (obtained from impedancemetry with the whole-body resistance and the reactance, ASM<20 for m and ASM<15 for f = sarcopenia)
Güler et al., 2021 [47]	Retrospective Single group	COV+: n=85 (22f, 63m); 58.3±11.1 yo; 25.3±4.8 kg/m <sup>2</sup> (range: 17.7-46.7) HT (n=42), DM	<b>Moderate-to-High</b> Hospitalization: 16±12 days (range: 1-60) ICU (n=67): 19±19 days (range: 0-120)	Immediately after post-acute care	In hospital (COVID-19 rehabilitation clinic)  Physical activity (Neuromuscular rehabilitation, n=77;	"Neuromuscular rehabilitation" Modality: aerobic Type: walking (in the parallel bar and the hall), step climbing Frequency: NR	<u>Respiratory function:</u> Need for oxygen therapy  <u>Quality of life, mental health, and general state:</u> Disability level (BI), Functional status

	(n=29), Smoking history (n=13), COPD (n=14), CVD (n=14), Thyroid disease (n=10), Rheumatic disorders (n=5), CKD (n=1), Cancer (n=1)	admission to RP): Nasal oxygen cannula (n=77), Reservoir mask (n=53), High flow oxygen therapy (n=33), Non-invasive ventilator (n=5), Mechanical ventilation (n=31)  COVID-19 complications: Pulmonary involvement (n=48), Guillain-Barré syndrome (n=18), Critical illness-related myopathy/neuropathy (n=11), Acute cerebrovascular disease (n=8), Dysphagia (n=5), Steroid myopathy (n=1), Sinus vein thrombosis (n=1)	Arm/cycle ergometer, n=44), electrostimulation (Without cycling, n=43; With cycling, n=29), respiratory exercises (High-frequency chest oscillation devices: n=10), speech and swallowing therapy (n=5), nutritional and psychological support	Volume: NR Intensity: NR  Modality: resistance Type: active and passive exercises Frequency: NR Volume: NR Intensity: NR  Modality: balance and coordination Type: standing exercises Frequency: NR Volume: NR Intensity: NR	
			Duration: at least 3 wk for Arm/cycle ergometer program (no further information)	"Arm/cycle ergometer" Modality: aerobic Type: "arm cycle" ergometer Frequency: 5x/wk Volume: 20-30min Intensity: 40-60%WR <sub>max</sub> (NR if intensity was estimated or defined from a previously test)	
Hameed et al., 2021 [48]	Prospective Controlled trial, three interventional groups and one control group	VPT COV+ ('Virtual physical therapy') <sup>u</sup> : n=44 (25f, 19m); median: 60 [IQR: 14] <sup>u</sup> yo; median: 30.6 [IQR: 8.2] <sup>u</sup> kg/m <sup>2</sup> (n=27) HT (n=22), DM (n=11), Other pulmonary diseases (n=8), CVD (n=6), Autoimmune disorder (n=5), Asthma (n=4)  HPT COV+ ('Home in-person physical therapy') <sup>u</sup> : n=25 (6f, 19m); median: 57 [IQR: 14] <sup>u</sup> yo; median: 28.4 [IQR: 5.2] <sup>u</sup> kg/m <sup>2</sup> (n=24) HT (n=15), DM (n=13), CVD (n=4), Other pulmonary diseases (n=4), Asthma (n=3), Autoimmune disorder (n=2)  EI COV+ ('Independent exercise') <sup>u</sup> : n=17 (6f, 11m); median: 59 [IQR: 20] <sup>u</sup> yo; median: 29.2 [IQR: 6.7] <sup>u</sup> kg/m <sup>2</sup> (n=13) HT (n=11), DM (n=6), CVD (n=2), Asthma (n=1),	Unclear	Modality: resistance Type: circuit training detailed in a guide for the patients (sit to stand, standing walk, shoulder caption, standing heel raises, sidestepping, wall pushups) or detailed in videos on Internet (for phase 4) Frequency: 1set 4x/day everyday (phase 1); 2sets 2x/day, 6x/wk (phase 2); 3sets 2x/day, 6x/wk (phase 3); 1-2 sessions/wk were tele-supervised Volume: 1-3sets; alternance of 30s work/30s rest (30-60min) [Evolution: increase until 1min work/1min rest (with stable vitals at rest: SaO <sub>2</sub> >90%, RPE<3 and 'HR within acceptable activity-specific increases with exercise') and then pass in the next phase] Intensity: NR, but HR, SaO <sub>2</sub> (always>88%) and RPE (Borg scale 0-10) were monitored during exercise. If more rest was needed, patients were able to rest until they achieved RPE≤3 or SaO <sub>2</sub> >90%.	<u>Functional capacity:</u> 2-min step test, 30-s STST  <u>Respiratory function:</u> SaO <sub>2</sub> (probably at rest)

Autoimmune disorder (n=1), Other pulmonary diseases (n=0)

CON (COV+ whitout intervention): n=20 (11f, 9m); median: 58 [IQR: 18]ª yo; median: 28.7 [IQR: 9.7]ª kg/m² (n=13)  
HT (n=11), DM (n=8), CVD (n=3), Other pulmonary diseases (n=2), Asthma (n=0), Autoimmune disorder (n=0)

Groups comparison: gender effect between groups (p<0.05)

Hayden et al., 2021 [49]

Total groups (COV+): n=108 (49f, 59m); 55.6±10.1 yo (range: 32-85); 30.2±6.1 kg/m² (range: 19.3-53.3)  
CVD (n=60), Obesity (n=46), Orthopedic comorbidities (n=44), Upper or lower airway disease (n=34, among them, COPD n=2 and Asthma n=18), Hyperlipoproteinemia (n=28), Psychological comorbidities (n=27), Neurological comorbidities (n=24), DM (n=15), No comorbidity (n=2)  
Group A (severe COV+ with hospital discharge < 1 mo): n=55 (21f, 34m); 57.9±10.8 yo (range: 33-85); 29.9±5.7 kg/m² (range: 19.3-53.3)  
Comorbidities NR  
Group B (severe COV+ with hospital discharge > 1 mo): n=32 (11f, 21m); 54.0±9.9 yo (range: 32-80); 31.5±6.7 kg/m² (range: 21.0-48.3)

**Moderate-to-High**

Hospitalization:  
- Total groups: 26±18 days (range: 1-101)  
- Group A: 32±19 days (range: 3-101)  
- Group B: 19±11 days (range: 3-49)  
- Group C (n=5): 1 night maximum ICU:  
- Total groups (n=57): 24±17 days (range: 5-97)  
- Group A (n=39): 22±18 days (range: 4-97)  
- Group B (n=18): 15±9 days (range: 5-40)  
- Group C: N/A  
Invasive ventilation:  
- Total groups (n=39): 18±16 days (range: 5-87)  
- Group A (n=27): 20±18 days (range: 8-87)  
- Group B (n=12): 12±5 days (range: 5-23)  
- Group C: N/A  
Need for oxygen therapy (% of sample):  
- Total groups: 68%  
- Group A: 87%  
- Group B: 69%  
- Group C: 14%  
Groups comparison: Group C < Groups A and B

Most important symptoms (% of total sample): Dyspnea (50%), Anxiety and worries regarding one's own health status (17%), Faintness/lack of energy (16%), Pain in various parts of the body (8%)

Duration between the acute phase or hospital discharge and RP:  
- Total groups: 69±75 days (range: 0-270)  
- Group A: 11±11 days (range: 0-31) (n=24 immediately after hospital discharge)  
- Group B: 121±70 days (range: 32-270)  
- Group C: 143±55 days (range: 35-270)

In hospital (inpatient rehabilitation center)

Physical activity and vibration training if necessary, respiratory exercises, patient information about COVID-19, routine medical diagnosis, psychological support, and if necessary, daily activities life training, nutritional counseling, occupational therapy

Duration (Total group): 26±6 days (range: 5-42 days)

Modality: aerobic  
Type: cycling (probably on ergocycle), nordic walking, indoor sports  
Frequency: 3-5x/wk  
Volume: 30-60min  
Intensity: for cycling, based on 6MWT performance (RPE=4-6, Borg scale 0-10)

Modality: resistance  
Type: machines (leg press, rowing pull, latissimus pull, butterfly reverse, cable pull, abdominal exercises)  
Frequency: 2-3x/wk  
Volume: 3sets x 12rep  
Intensity: 12RM

Modality: vibration (if necessary)  
Type: statically in squat position  
Frequency: 7x/wk  
Volume: 3sets x 1-2min  
Intensity: 16-26 Hz (1.5-4 amplitude) (the goal was muscular exhaustion at the end of the set and the session)

Functional capacity:  
6MWT

Respiratory function:  
VC, TLC, FEV1, DLCO, P<sub>lmax</sub>, RV, total specific airway resistance (spirometry and plethysmography), PaO<sub>2</sub> and PaCO<sub>2</sub> (blood samples), Dyspnea at rest and exertion (11-point NRS, MRC Dyspnea scale)

Quality of life, mental health, and general state:  
QoL (EQ5D 5 levels, EQ5D 5 levels VAS), Fatigue (Brief Fatigue Inventory), Depression (PHQ-9), Anxiety (GAD-7), Cough, Sputum and pain (11-point NRS), Global rating of change in subjective health

Biological parameters:  
D-dimer, CRP, BNP, LDH

Adherence and tolerability:  
Estimation of the rehabilitation effectiveness (Likert scale 0-10)

		Comorbidities NR					
		Group C (mild COV+); n=21 (17f, 4m); 52.1±6.8 yo (range: 39-61); 28.9±6.1 kg/m <sup>2</sup> (range: 19.9-46.0) Comorbidities NR					
		Groups comparison: significant differences between Group C with Groups A and B for gender repartition (p<0.001) and age (p<0.01)					
Hermann et al., 2020 [50]	Retrospective Two groups	Total groups (COV+): n=28 (14f, 14m); 66.0±9.3 yo; 27.6±4.9 kg/m <sup>2</sup> HT (n=14), DM2 (n=7), Smoking history (n=7), Dyslipidemia (n=6), COPD (n=6), CKD (n=5), Coronary artery disease (n=4), Peripheral artery disease (n=2), Stroke (n=1)  Ventilation+ (COV+): n=12 (3f, 9m); 64.3±8.9 yo; 26.9±3.5 kg/m <sup>2</sup> HT (n=5), Smoking history (n=5), DM2 (n=4), CKD (n=3), Dyslipidemia (n=2), Coronary artery disease (n=1)  Ventilation- (COV+): n=16 (11f, 5m); 67.4±9.7 yo; 28.1±5.7 kg/m <sup>2</sup> HT (n=9), COPD (n=6), Dyslipidemia (n=4), Coronary artery disease (n=3), DM2 (n=3), Peripheral artery disease (n=2), CKD (n=2), Smoking history (n=2), Stroke (n=1)	<b>Moderate-to-High</b> Hospitalization: - Total groups: 19.3±10.7 days - Ventilation+: 27.6±9.1 days - Ventilation-: 12.7±6.5 days ICU: - Total groups (n=17): 13.9±7.3 days - Ventilation+ (n=12): 17.0±5.9 days - Ventilation- (n=5): 6.4±3.8 days  Respiratory status at RP admission (Total groups): Need for non-invasive ventilation (n=3, only during night time), Need for oxygen therapy (n=21)  85% of positive patients for COVID-19 at admission  Groups comparison: hospitalization and ICU duration (p<0.001)	Duration of hospitalization before admission to RP (Total groups): 19.3±10.7 days  (Initially admitted in the RP after being asymptomatic for 2 days and 10 days after onset of infection, and later admitted if at least one negative swab before transfer)	In hospital  Physical activity, respiratory exercises, education, nutritional/diabetes advices, structured smoking cessation program if needed, psychosocial support, massages  Duration: 2-4 wk (20 days)	Modality: aerobic Type: walking (in- or out-door), cycling (ergocycle) Frequency: NR Volume: NR Intensity: NR (but derived from initial 6MWT. Criteria for stopping or reducing exercise intensity was SaO <sub>2</sub> <88%, symptom limited (RPE≥6) or/and reaching submaximal HR). [Evolution: adjusted continuously to achieve the maximum tolerated exercise load <sup>d</sup> ]  Modality: resistance Type: NR Frequency: NR Volume: 3sets x 20rep Intensity: 20RM <sup>d</sup>  <u>For isolated patients:</u> Frequency: 1-2x/day Volume: 15-45min Intensity: limited Instructions for self-training  <u>Total (for all RP):</u> Frequency: 5-6x/wk When a drop in SaO <sub>2</sub> was observed, oxygen was added with a maximum of 4L via nasal cannula to keep SaO <sub>2</sub> >90%	<u>Functional capacity:</u> 6MWT  <u>Respiratory function:</u> SaO <sub>2</sub> (probably at rest), Need for oxygen therapy  <u>Quality of life, mental health, and general state:</u> Patients' feeling (Feeling Thermometer)
Imamura et al., 2021 [51]	Retrospective Single group	COV+: n=27 (7f, 20m); 53.8±13.3 yo; 27.6±5.8 kg/m <sup>2</sup> For n=23 (4 'drop-out'): HT (n=12), DM	<b>High</b> (n=23) Hospitalization: 75±40 days (range: 20-164) ICU: 30±18 days (range: 5-76) Intubation: 23±14 days	Immediately after hospital discharge	In hospital (inpatient rehabilitation institute)  Physical activity, electrostimulation, speech, psychology, nutrition and	Modality: aerobic Type: cycling (ergocycle) Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> Muscle strength (MRC score 1-60), SPPB (score 0-12 from 3 tests: static body balance, ability to walk and stand up from a chair)  <u>Respiratory function:</u> PI <sub>max</sub> and PE <sub>max</sub> (manovacuometer)

		(n=10), Smoking history (n=6), Obesity (n=3), Arrhythmia (n=2), CVD (n=2), Liver disease (n=1), Psychiatric illness (n=1), Dyslipidemia (n=1)		dietetic, nursing, social services, and cognitive therapies, robot-assisted and virtual reality-assisted rehabilitation according to individual prescriptions	Modality: resistance Type: NR Frequency: NR Volume: NR Intensity: NR	Quality of life, mental health, and general state: Ambulation capacity (FAC), Disability level (FIM)	
				Duration: 23±9 days	Modality: balance Type: balance, gait, and body awareness training Frequency: NR Volume: NR Intensity: NR	Other: FFM (bioimpedance, skinfolds and circumferences), Body weight, BMI, Functional Oral Intake Scale, Dysphagia (oropharyngeal dysphagia classification), Malnutrition (categories of the Global Leadership Initiative for Malnutrition)	
					Total (for all modalities): Frequency: 2-3x/wk for resistance and aerobic training Intensity: NR but RPE (Borg scale NR) was monitored		
Li et al., 2021 [52]	Retrospective Single group	COV+: n=16 (8f, 8m); 70.1±16.5 yo; 22.6±3.3 kg/m <sup>2</sup> (calculated from raw data) CKD (n=10), HT (n=8), CVD (n=4), DM2 (n=4), Emphysema/COPD (n=4), Ischemic stroke (n=3), fatty liver (n=2), Alzheimer (n=2), Anemia (n=2), Hypercholesterolemia (n=1), Bile stone (n=1), Chronic renal ischemia (n=1), Hypoproteina (n=1), Breast cancer (n=1), Prostate surgery (n=1), Low toxin levels (n=1), Dysphagia (n=1)	<b>High</b> Hospitalization: 27.7±8.7 days (range: 11-46) (calculated from raw data) ICU: 17.4±9.7 days (range: 6-38) (calculated from raw data)  Respiratory status at RP admission: - Mechanical ventilation (n=3): 17.3±11.5 days (calculated from raw data) - Breathing spontaneously with high-flow nasal oxygenation or nasal cannulae (n=13)	Duration between admission to hospital and the beginning of RP#: 8.9±7.7 days (calculated from raw data) In the middle of the disease (during ICU)	In hospital  Physical activity, respiratory exercises, speech therapy, drug therapy  Program of physiotherapy inspired from Gosselink et al. 2011  Duration: 10.6±7.1 days	Modality: N/A Type: rolling over and moving on the bed regularly, sitting up in bed, sitting on the bedside, sitting on a chair, standing, walking (along a 7m walkway) Frequency: NR Volume: NR Intensity: SaO <sub>2</sub> >90%, Dyspnea<4 (Borg scale 0-10). [Evolution: walking program increase by 10m each day, with 2-3 short rest periods during walking]  Total (for all RP): Frequency: 2x/day Volume: 30-40min  For ventilated patients (n=3): only passive/assisted active limb mobility	Function capacity: Walking distance managed by patients independently or with the help of an assistant (not described as a 6MWT), Muscle strength (MRC score 1-60), Physical function (Physical Function in Intensive Care Test), Mobility (De Morton Mobility Index)  Respiratory function: PaO <sub>2</sub> and FiO <sub>2</sub> (method NR), PEF (method NR), P <sub>I,max</sub> (respiratory pressure meter), Dyspnea at rest (Borg Scale, probably 0-10)  Quality of life, mental health, and general state: Disability level (BI)
Martin et al., 2021 [53]	Prospective Controlled trial, two groups	COV+: n=14 (3f, 14m); 60.8±10.4 yo (range: 55.6-65.9); 29.7±5.2 kg/m <sup>2</sup> (range: 27.3-32.2) Comorbidities NR  CON (COV+ subjects refusing the RP): n=13 (7f, 6m); 61.9±10.7 yo (range: 57.9-66.0); 28.1±3.9 kg/m <sup>2</sup> (range: 26.0-30.3) Comorbidities NR	<b>High</b> Hospitalization: - COV+: 16±10 days - CON: 16±9 days ICU (COV+: n=4; CON: n=2)  Need for oxygen at RP admission (COV+: n=12; CON: n=12)	Immediately after hospital discharge	Telerehabilitation (supervised and non-supervised)  Physical activity  Duration: 5 wk	Modality: aerobic Type: NR Frequency: 2x/wk Volume: 30min Intensity: RPE=6 (Borg scale, probably 0-10)  Modality: resistance Type: upper and lower limbs (with bottle of water and a chair) Frequency: 2x/wk Volume: 2-3sets x 8-12rep (20min) Intensity: NR  Patients were then encouraged to perform undersupervised exercises 3x/wk using provided templates.	Post-RP test were performed 3 mo after the beginning of RP.  Functional capacity: 1-min STST, HR pre- and post-STST  Respiratory function: SaO <sub>2</sub> and Dyspnea pre- and post-STST (VAS 1-10)
Mohamed et al., 2021 [54]	Prospective Randomized controlled	COV+: n=15 (7f, 8m); 44.6±4.3 yo; 24.7±1.3 kg/m <sup>2</sup>	<b>Moderate</b> Hospitalization# Patients with mild or moderate COVID-19 (no or low-grade fever)	Unclear, maybe during/after the acute phase	Telerehabilitation (non-supervised)	Modality: aerobic Type: walking/running or cycling (MICT on treadmill and ergocycle) Frequency: 3x/wk	Quality of life, mental health, and general state: QoL (Wisconsin Upper Respiratory Symptom Survey-24)  Biological parameters:

	trial, two groups	Smoking history (n=4) - No comorbidity  CON (COV+ without RP): n=15 (8f, 7m); 35.3±4.0 yo; 24.0±1.2 kg/m <sup>2</sup> Smoking history (n=3) - No comorbidity  Patients with other chronic diseases (such as heart problems, HT, or DT), and women with contraception were excluded.		Physical activity, drug therapy  Duration: 2 wk for physical activity and 5 days for drug therapy	Volume: 40min Intensity: 5min of warm-up + 30min 60-75%HR <sub>max</sub> (predicted: 210-age), RPE=12-14 (Borg scale 6-20) + 5min of cool-down	Lymphocytes, Leukocytes, IL-6, IL-10, TNF-α (blood samples), IgA-S concentration (salivary samples)
Ozyemisci Taskiran et al., 2021 [55]	Prospective Controlled trial, two groups	COV+: n=18 (7f, 11m); median: 73 yo (range: 55-91); median: 24.8 kg/m <sup>2</sup> (range: 16.0-39.1) Chronic pulmonary disease (n=8, and among them: Interstitial lung disease (n=3), Cancer (n=2), COPD (n=2), Tuberculosis (n=1), HT (n=7), DM (n=6), Cancer (n=6), Coronary artery disease (n=5), Neurologic disease (n=4)  CON (COV+ without RP): n=17 (4f, 13m); median: 70 yo (range: 49-88); median: 29.4 kg/m <sup>2</sup> (range: 22.8-39.7) HT (n=10), DM (n=6), Coronary artery disease (n=5), Cancer (n=2), COPD (n=1)	<b>High</b> Hospitalization: - COV+: median: 27 days (range: 6-52) - CON: median: 16 days (range: 8-26) ICU: - COV+: median: 16 days (range: 2-30) - CON: median: 9 days (range: 1-20) Stay in ICU≤5 days (COV+: n=5; CON: n=6) Invasive mechanical ventilation: - COV+ (n=13): median: 17 days (range: 5-27) - CON (n=13): median: 7 days (range: 1-19)  COVID-19 complications: Pressure ulcers (COV+: n=13; CON: n=8), Co-infection (COV+: n=12; CON: n=8), Sepsis (COV+: n=10; CON: n=11)	In hospital (ICU)  Physical activity, drug therapy  Number of sessions: median 6 (range: 2-14)  Effective program in n=11 patients (who fulfilled the inclusion criteria and ICU stay>5 days)	<u>For invasively mechanically ventilated and sedated patients:</u> Modality: N/A Type: passive range of motion exercises Frequency: 6x/wk Volume: 10-15rep (15min) Intensity: NR  <u>For non-invasively mechanically ventilated patients:</u> Modality: N/A Type: active-assistive or active range of motion exercises in-bed according to their condition, including sitting unsupported, sit to stand and walking (commenced following their transfer to the ward) Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> Handgrip, Muscle strength (MRC score 1-60)  <u>Quality of life, mental health, and general state:</u> Physical function, Pain, Role limitations-physical, Role limitations-emotional, Mental health, Tremor in the hands, Social functioning, Energy, QoL (SF-36)
Pancera et al., 2021 [56]	Retrospective Case series	COV+: n=7 (7m); 48.3±8.7 yo (range: 37-61); 24.7±3.7 kg/m <sup>2</sup> (calculated from raw data) Smoking history (n=7), HT (n=4)	<b>High</b> ICU: 18.4±2.8 days (calculated from raw data) Tracheostomy: 8.4±3.6 days (calculated from raw data)  Patients still positive for COVID-19, requiring mechanical ventilation (n=6) and isolated in a COVID unit at RP admission (T0)	During the acute phase	In hospital (rehabilitation center)  Physical activity, electrostimulation, respiratory exercises  Duration: 2-5 wk  Calculated from raw data: - T0 to T1: 11±5 sessions	Modality: aerobic (as soon as possible) Type: walking (with or without ambulatory assisting), climbing and descending stairs (from T1), cycling (ergocycle) (from T1) Frequency: NR Volume: 30min for cycling Intensity: 20W, RPE=4-6 (probably Borg scale 0-10) for cycling  <u>Tests were performed at pre-RP, at the end of T1, and at the end of T2 (post-RP).</u>  <u>Functional capacity:</u> Muscle strength (MRC score 1-60), SPPB (score 0-12 from 3 tests: static body balance, ability to walk and stand up from a chair)  <u>Rerspiratory function:</u> PI <sub>max</sub> and PE <sub>max</sub> (MicroRPM - Respiratory Pressure Meter - at T1 and T2 only)  <u>Quality of life, mental health, and general state:</u>

					(range: 6-20) - T1 to T2: 9±4 sessions (range: 0-17)		[Evolution: increase of 10W when RPE and dyspnea<4]	QoL (EDQ5 3 levels), Disability status (BI, BI based on dyspnea)
							Modality: resistance (as soon as possible) Type: sit-to-stand, strength exercises with elastic bands or free weights (from T1) Frequency: NR Volume: 5-10rep for sit-to-stand, 2sets x 20rep for strength exercises Intensity: NR for sit-to-stand, 50%1RM for strength exercises [Evolution: 2sets x 10rep at 70%1RM for strength exercises]	<u>Other:</u> BMI, Quadriceps girth (10cm above the patella)
							<u>Total (for all RP):</u> Frequency: 5x/wk Volume: 45min	
							Modality: aerobic Type: cycling (sitting ergocycle), walking Frequency: NR Volume: 10 steps at a time for walking Intensity: NR	
					In hospital (COVID-19 recovery unit)	Physical activity, occupational therapy, and if necessary, speech-language therapy, neuropsychology, psychiatry, neurology, and pulmonology consultation, swallow therapy	Modality: resistance Type: upper and lower limbs ("TherEx with/without TheraBands", "TheraBands", "NutStep", free weight, weight bearing). Excentric movements are favoured while isometric and concentric movements are limited. Frequency: NR Volume: NR Intensity: NR	<u>Functional capacity:</u> Distance ambulated  <u>Respiratory function:</u> Respiratory status
Patel et al., 2021 [57]	Retrospective Single group	COV+: n=106 (27f, 79m); 64±14 yo; NR Vascular or metabolic disease (n=43), History of cognitive disorder (n=6)	<b>High</b> Hospitalization: 53±28 days ICU (most of patients): 35±24 days Intubation: median: 13 [IQR: 0, 20.5] days Tracheostomy (n=33)	Probably immediately after acute hospital discharge	Duration: 17±9 days		Modality: balance Type: standing reaching tasks, dribble soccer ball, shoot basketball Frequency: NR Volume: NR Intensity: NR	<u>Quality of life, mental health, and general state:</u> QoL (AMPAC for basic mobility, AMPAC for daily activities), Ambulatory status
							<u>Total (for all modalities):</u> Frequency: 2-3x/wk to 5-6x/wk Volume: 30min to 60-90min Intensity: rest breaks based on HR and SaO <sub>2</sub> of patients	
Piquet et al., 2021 [58]	Retrospective Single group	COV+: n=100 (34f, 66m); median: 66 [IQR: 22] <sup>a</sup> yo; 26.0±5.4 kg/m <sup>2</sup> HT (n=48 <sup>b</sup> ), DM (n=29), Renal failure (n=13), Stroke (n=9), Immunosuppression (n=3), Coronapathy (n=1)	<b>Moderate-to-High</b> No-ICU hospitalization (n=77): 11.7±6.5 days Need for nasal oxygen <sup>a</sup> (n=77) ICU (n=23): 13.8±9.0 days Hospitalization after ICU (n=23): 10.2±4.9 days Intubation (n=13): 8.2±8.5 days  Need for nasal oxygen at RP admission <sup>a</sup> (n=58) Symptoms/complications due to COVID-19 at RP admission: Dyspnea	Duration between onset of symptoms and admission in RP <sup>a</sup> : 20.4±10.0 days (unclear if it is mean and SD or median and IQR)		In hospital (COVID-19 rehabilitation unit)  Physical activity, respiratory exercises, education, occupational therapy, speech therapy, psychology therapy  Duration: 9.8±5.1 <sup>a</sup> days	Modality: aerobic Type: cycling (ergocycle), 'pedal boards', arm ergometer Frequency: NR Volume: NR Intensity: 'submaximal'  Modality: resistance Type: sit-to-stand, tiptoe stand, squats (elastic bands, weights, dumbbells) Frequency: NR Volume: 3sets x 10rep for each exercise (depending on patients')	<i>Among included patients, functional outcome criteria were analyzed for lengths of stay ≥72h</i>  <u>Functional capacity:</u> 10-rep STST (time to perform 10 full sit-to-stands; when 10 STST could not be completed, the number of completions in 1min was collected), HR, and RPE (Borg scale, probably 0-10) pre and post-STST, Handgrip  <u>Respiratory function:</u> Respiratory rate (method NR) and SaO <sub>2</sub> pre- and post-STST, Need for oxygen therapy

		Age>70 yo (n=41), BMI>30 (n=17)	(n=79), Asthenia (n=76), Fever (n=73), Cough (n=64), Myalgia (n=33), Diarrhea (n=25), Ageusia (n=16), Headache (n=14), Anosmia (n=13), Pulmonary embolism (n=4), Thrombosis (n=1)			abilities) Intensity: NR	Quality of life, mental health, and general state: Disability level (BI)
			At the time of the diagnosis: 26% had more than 50% pulmonary damage on CT scans.			Total (for all modalities): Frequency: 2x/day, 5days/wk Volume: <20min	
Puchner et al., 2021 [59]	Prospective Single group	COV+: n=23 (7f, 16m); 57±10 yo; 27±4 kg/m <sup>2</sup> Overweight/obesity (n=15), CVD (n=11), Endocrine disease (n=11), HT (n=9), DM2 (n=6), Pulmonary disease (n=5), CKD (n=3), Cancer (n=3), Immunodeficiency (n=3), Asthma (n=3), Chronic liver disease (n=2), Hypercholesterolemia (n=2), COPD (n=1), No comorbidity (n=3)	<b>Moderate-to-High</b> Hospitalization: 32±16 days ICU: 19±14 days Need for oxygen therapy (n=20) Mechanical ventilation (n=19)	Immediately after hospital discharge 44±33 days after onset of infection (range: 20-70 days)	In hospital (rehabilitation clinic)  Physical activity, respiratory exercises, logopaedics and swallow evaluation, nutritional counseling, passive therapy sessions (e.g. massage)  Duration: 3-4 wk (24±5 days) Total duration for physical activity program: 441±204 min	Modality: aerobic Type: MICT, HIIT Frequency: NR Volume: 20min (MICT) or 26min (HIIT) Intensity: - MICT: 50%P <sub>max</sub> - HIIT: 8min 30%P <sub>max</sub> (warm-up), 12sets x [30s 100%P <sub>max</sub> /30s 0-20%P <sub>max</sub> ], 6min 20%P <sub>max</sub> (cooling-down) [Evolution: RPE (Borg scale 6-20) was used to ease or progress intensity] (P <sub>max</sub> based on CPET)  Modality: resistance Type: machines, bodyweight, elastic bands, dumbbells Frequency: NR Volume: NR Intensity: NR	Quality of life, mental health, and general state: Disability level (BI)  <b>Functional capacity:</b> 6MWT  <b>Respiratory function:</b> FVC, FEV1, FEV1/FVC, TLC, RV, DLCO, PI <sub>max</sub> , PaO <sub>2</sub> , PaCO <sub>2</sub> , pH (blood samples, plethysmography, spirometry)  <b>Quality of life, mental health, and general state:</b> Disability level (BI)
Rodriguez-Blanco et al., 2021 [60]	Prospective Controlled Trial (Pilot), two groups	COV+: n=18 (9f, 9m); 39.4±11.7 <sup>a</sup> yo (f: 42.3±11.5 yo; m: 36.4±11.9 yo); NR No comorbidity  CON (COV+ without RP): n=18 (10f, 8m); 41.3±12.1 yo (f: 41.1±11.4 yo; m: 41.6±13.8 yo); NR No comorbidity  Groups comparison: age (p<0.1)  Subjects with previously comorbidities (e.g. CKD, CVD, neurological disorders), or patients received a physical treatment in the previous 3 mo were excluded.	<b>Low</b> No hospitalization (mild-to-moderate symptoms)	During the acute phase	Telerehabilitation (supervised and non-supervised)  Physical activity  Duration: 7 days	Modality: resistance Type: 10 exercises based on non-specific toning exercises (free weight or light weights such as water bottles) - <a href="https://www.fisiosurid.com/ejercicios-proyecto-COVID/">https://www.fisiosurid.com/ejercicios-proyecto-COVID/</a> Frequency: 1x/day, 7x/wk Volume: - 4rep if RPE=7-10 (Borg scale 0-10) on the 30-s STST (10min) - 8rep if RPE=5-7 on the 30-s STST (20min) - 12rep if RPE=1-5 on the 30-s STST (30min) Intensity: NR  Supervised sessions 2x/wk by visioconference + text message daily for follow-up. No combination of the following program with other physical therapy or sports physical activity.	Tests were performed pre- and post-RP, and 1 wk post-RP.  <b>Functional capacity:</b> 6MWT (self-administrated by the patient at home using the app "StepsApp" which recorded the number of steps), 30-s STST, RPE post-30-s STST (Borg scale, probably 0-10)  Patients were instructed and telematically controlled by the study evaluator who provided patients the necessary assessment materials.
Saeki et al., 2021 [61]	Prospective Case series	COV+: n=4 (m); 55.8±17.3 yo (range: 30-67); 26.5±1.7 kg/m <sup>2</sup> HT (n=2), DM2	<b>High</b> Hospitalization: 32±2 days (range: 29-34) ICU: 19±2 days (range: 16-21)	During hospitalization (started in ICU)	In hospital and then telerehabilitation (non-supervised)  Physical activity (from	<b>Before hospital discharge:</b> Modality: aerobic Type: stepping, gait exercises, cycling (ergocycle) Frequency: NR	Tests were performed at ICU discharge, at hospital discharge, 1 mo and 6 mo after hospital discharge.  <b>Functional capacity:</b> 6MWT, Muscle strength (MRC score 1-60), Gait speed

		(n=1), Bullous pemphigoid (n=1), No comorbidity (n=2)	Mechanic ventilation: 16±3 days (range: 13-19)		ICU to the end of rehabilitation), positioning and postural drainage, passive exercises (from ICU to hospital discharge)	Volume: NR Intensity: NR Modality: resistance Type: muscle power training Frequency: NR Volume: NR Intensity: NR	<u>Quality of life, mental health, and general state:</u> Disability level (BI), SaO <sub>2</sub> pre- and post-6MWT
					Duration: approximately 7 mo	<u>Total (for all modalities before hospital discharge):</u> Frequency: 1x/day Volume: 40min  <u>After hospital discharge (telerehabilitation):</u> Modality: aerobic Type: walking Frequency: NR Volume: NR Intensity: NR  Modality: resistance Type: lower limbs (closed kinetic chain exercises), upper limbs (Thera-Band) Frequency: NR Volume: NR Intensity: NR  Modality: balance Type: NR Frequency: NR Volume: NR Intensity: NR	
Spielmann et al., 2021 a [62]	Retrospective Controlled trial, two groups	COV+ (tested positive for COVID-19 during RP and were temporary isolated): n=27 (9f, 18m); 71.5±12.3 yo; 25.3±5.5 kg/m <sup>2</sup> Stroke (n=19), HT (n=18), CKD (n=11), Dislipidemia (n=10), DM2 (n=9), Smoking history (n=8), COPD (n=6), Coronary artery disease (n=5), Peripheral artery disease (n=0) CIRS: 17.2±6.6  COV- (needing RP before and during COVID-19 pandemic): n=786 (399f, 387m); 71.5±13.1 yo; 25.9±5.8 kg/m <sup>2</sup> Stroke (n=541), HT (n=512), Smoking history (n=347), CKD	<b>Low-to-Moderate</b> Need for oxygen (COV+: n=10)	During the acute phase	In hospital (single-center inpatient rehabilitation center)  Physical activity, and if necessary, occupational, speech, and neuropsychological therapy Specifically during isolation intervention (positive COVID-19 patients) if necessary: dysphagia beside assessments, respiratory exercises, psychological support, massages, nutrition and diabetes counseling, social services, etc.  Duration: - COV+: 54±24 days - CON: 32±18 days Groups comparison: p<0.001	<u>Normal program (COV- and COV+ after negative COVID-19 swab):</u> Modality: aerobic Type: NR Frequency: NR Volume: NR Intensity: NR  Modality: resistance Type: circuit training if possible Frequency: NR Volume: 3sets x 10-15rep Intensity: 10-15RM  Modality: coordination Type: circuit training if possible Frequency: NR Volume: 3sets x 10-15rep Intensity: 10-15RM  <u>Total (for all modalities for the normal program):</u> Frequency: 4-6x/wk for individual sessions + NR for group sessions Volume: 30-45min  <u>During isolation (only for COV+):</u> Modality: aerobic	<u>Quality of life, mental health, and general state:</u> Disability level (FIM)

	<p>(n=301), Dislipidemia (n=259), DM2 (n=212), COPD (n=159), Coronary artery disease (n=159), Peripheral artery disease (n=89) CIRS: 16.9±5.8</p>				<p>Type: cycling (ergocycle), stepping (stepper), and other ergometers Volume: NR Frequency: NR Intensity: NR</p> <p>Modality: resistance Type: elastic bands (in patient's room) Volume: NR Frequency: NR Intensity: NR</p> <p><u>Total (for all modalities for the isolation program):</u> Frequency: 1-2x/day Volume: 15-45min</p>	
<p>Spielmanns et al., 2021 b [63]</p> <p>Prospective and retrospective (in function of group) Controlled trial, two groups</p>	<p>COV+: n=99 (42f, 57m); 67.7±10.2 yo; 28.2±6.1 kg/m<sup>2</sup> HT (n=54), Smoking history (n=27), Overweight/obesity (n=25), Musculoskeletal disease (n=25), Dyslipidemia (n=20), Neurological disease (n=20), CKD (n=19), Coronary artery disease (n=18), Cancer (n=15), COPD (n=11), Cerebrovascular insufficiency (n=9), Atrial fibrillation (n=8), Obstructive sleep apnea (n=7), Chronic heart failure (n=6), Venous thromboembolism (n=5), Interstitial lung disease (n=5), Liver disease (n=5) In average 3 comorbidities/patient CIRS: 14.2±5.9</p> <p>COV- (patients with lung disease in year 2019): n=419 (213f, 206m); 69.3±11.3 yo; 24.5±6.1 kg/m<sup>2</sup> CIRS: 14.5±5.6</p> <p>Groups comparison: BMI (p&lt;0.001)</p>	<p><b>Moderate-to-High</b> Hospitalization (included ICU): 26±9 days ICU (n=65): 11±13 days Ventilation: 7±9 days</p> <p>Symptoms/complications due to COVID-19: Sepsis (n=37), Delirium (n=36), Acute respiratory distress syndrome (n=31), Weakness due to ICU (n=24), Anemia (n=24), Electrolyte disturbance (n=18), Acute renal failure (n=18), Atrial fibrillation (n=13), Myocarditis (n=12), Hepatitis (n=12), Venous thromboembolism (n=11), Bacterial superinfection (n=11), DM (n=8), HT (n=6), Acute heart failure (n=4), COPD (n=1), Coronary artery disease (n=1), Pulmonal artery disease (n=1)</p>	<p>Immediately after hospital discharge, after being asymptomatic for 2 days and 10 days after onset of infection</p>	<p>In hospital (single-center inpatient rehabilitation center)</p> <p>Physical activity, respiratory and relaxation exercises, education (1h twice a wk), and if necessary, smoking cessation program, psychosocial support or diabetes advices</p> <p>Duration: - Total groups: 3 wk (25-30 therapy sessions on 5-6 weekdays) - COV+: median: 20 days [IQR: 18, 22] - CON: median: 21 days [IQR: 18, 21] Groups comparison: p&lt;0.05</p>	<p>Modality: aerobic Type: cycling (IT on ergocycle), walking (IT on treadmill) (Partially bedridden patients: started with in-bed cycling, walking with aids and then IT cycling) Frequency: 5-6x/wk Volume: 5-35min [Evolution: increase of duration in function of patient level] Intensity: - 6MWT&lt;200m (n=58): cycling only, 30-60s at 55-70%HR<sub>max</sub> / 60s low intensity (RPE=4-6, Borg scale 0-10) - 6MWT&gt;200m: 80% of 6MWT speed (RPE&lt;6) Interrupted exercise if SaO<sub>2</sub>&lt;88% or RPE&gt;6. (NR if HR<sub>max</sub> is estimated or previously evaluated)</p> <p>Modality: aerobic Type: outdoor walking Frequency: 2-3x/wk Volume: 45min Intensity: level 1 (slow pace with little incline of the terrain) to level 3 (faster pace with frequent inclines)</p> <p>Modality: resistance Type: large muscle groups Frequency: 3-4x/wk Volume: 30min, 3sets x 8-12rep per exercise (3-5 exercises in total) Intensity: NR</p> <p>Modality: 'gymnastics' Type: mixture of exercises to improve endurance, strength, coordination range of motion, balance Frequency: 5-6x/wk Volume: 45min Intensity: level 1 (sitting position with several breaks) to level 3 (standing position or walking with very few or no breaks)</p> <p><u>Total (for all modalities):</u></p>	<p><u>Functional capacity:</u> 6MWT</p> <p><u>Quality of life, mental health and general status:</u> Disability level (FIM), Wellbeing (feeling thermometer)</p>

Stavrou et al., 2021 [64]	Prospective Single group	COV+: n=20 (5f, 15m); 64.1±9.9 yo; 30.3±4.3 kg/m <sup>2</sup> HT (n=13), DM (n=4), Smoking history (n=2), COPD (n=2), CVD (n=2)	<b>Moderate-to-High</b> Hospitalization: 15±15 days ICU (n=4)	2 mo after hospital discharge	Telerehabilitation (no-supervised)  Physical activity, stretching, respiratory exercises (yoga), nutritional personalized recommendations  Duration: 8 wk	Frequency: max 4x/day for Monday to Friday, 1x/day for Saturday Modality: aerobic Type: walking (on flat and hard surface) Frequency: 3x/wk Volume: 50min Intensity: initially 75%HR <sub>peak</sub> (wk 1) and increase until 110%HR <sub>peak</sub> (wk 8) [Evolution: +5% every wk] / initially leg fatigue=2 (Borg scale 0-10) and dyspnea=3 (Borg scale 0-10) (wk 1) [Evolution: increase until leg fatigue=6 and dyspnea=6 (wk 7)] (HR <sub>peak</sub> evaluated during 6MWT)  Modality: resistance Type: dumbbell side lateral raises (a), dumbbell squats (b), chair lunges (c), seated leg raises (d), elbow flexion-extension on the chest with medecin ball (e) Frequency: 3x/wk Volume: 2sets x 12rep for (a) and (b) (wk 1-2) [Evolution: increase until 3sets x 16rep for all exercises (wk 8)] (20min) Intensity: (a): 1.5kg, (e): 2kg, (b), (c), (d): body weight	<u>Functional capacity:</u> 6MWT, HR, blood pressure pre-, post- and 1min post-6MWT, Lower extremity fatigue (Borg scale) pre- and post-6MWT, HR during 6MWT, 30-s STST, HR pre- and post-30-s STST, Handgrip  <u>Respiratory function:</u> FVC, FEV1 and DLCO (spirometry, pneumotachograph), Dyspnea (Borg scale 0-10) pre- and post-6MWT, SaO <sub>2</sub> pre-, post- and 1min post-6MWT, SaO <sub>2</sub> during 6MWT, SaO <sub>2</sub> pre- and post-30-s STST, Chest circumference difference between maximal inhalation and exhalation  <u>Quality of life, mental health and general status:</u> Sleep quality (PSQI)  <u>Biological parameters:</u> ROS and Plasma antioxidant capacity (blood samples)  <u>Other:</u> BMI, Neck circumference, Circumference differences between right and left Arm, Thigh, and Calf, FM, Visceral FM and Muscle mass (impedancemetry), Rest metabolic rate (method NR)
Steere et al., 2021 [65]	Prospective Three groups	Total groups (COV+): n=102 (44f, 58m); 59.5±13.7 yo; NR HT (n=56), Obesity (n=50), Smoking history (n=28), CVD (n=26), Chronic lung disease (n=16), CKD (n=15), Depression (n=14), Other mental health (n=12), Immunosuppression (n=9), Cancer (n=5), Dementia (n=2), Liver disease (n=1)  Participants were divided in 3 groups in function of the rehabilitation location, but we extracted the results only for all groups.	<b>Moderate-to-High</b> Hospitalization: 15.2±10.8 days ICU (n=38) Mechanical ventilation (n=36): 14.9±6.4 days	Unclear	Telerehabilitation (supervised and no-supervised)  Physical activity, respiratory exercises, advices for mental health In addition, psychologist telehealth, occupational and speech therapy were coordinated based on identified patient needs.  Duration: 14.6±9.6 days	Warm-up and recovery for each session: 3 exercises of stretching Modality: aerobic Type: walking Frequency: 5x/day (wk 1), 3x/day (wk 2), 2x/days (wk 3) Volume: 5min (wk 1), 10min (wk 2), 15min (wk 3) Intensity: NR  Modality: resistance Type: circuit training detailed in a guide for the patients (sit to stand, standing walk, shoulder caption, standing heel raises, sidestepping, wall pushups) or detailed in videos on Internet (for phase 4) Frequency: 1 cycle 4x/day everyday (phase 1); 2 cycles 2x/day, 6x/wk (phase 2); 3 cycles 2x/day, 6x/wk (phase 3) Volume: 1 to 3 cycles; alternance of 30s work/30s rest (30-60min) Intensity: NR, but HR, SaO <sub>2</sub> (always>88%) and RPE (Borg scale 0-10) were monitored.	<u>Functional capacity:</u> 2-min step test, 30-s STST  <u>Respiratory function:</u> SaO <sub>2</sub> pre- and post-functional tests (2-min step test and 30-s STST)
Sun et al., 2021 [66]	Prospective Single group	COV+: n=31 (12f, 19m); 60.4±10.2 yo; NR HT (n=12), DM (n=2), Hepatitis B (n=2), Cancer (n=2),	<b>Moderate-to-High</b> Patients with respiratory rate≥30/min or SaO <sub>2</sub> ≤93% when they were breathing ambient air or PaO <sub>2</sub> /FiO <sub>2</sub> ≤300mmHg  Abnormalities on chest (CT): Bilateral	During the acute phase	In hospital (by video teaching in the isolation ward)  Physical activity,	Modality: resistance Type: upper limbs (upward lift, lateral lift, abduction, chest enlargement, grasping), lower limb (lifting, kicking, tiptoeing, stepping, bridge exercise, air pedal, ankle pump). All	<i>Tests were performed at pre-RP, after 2 wk and after 3 wk of RP.</i>  <u>Functional capacity:</u> Exercise tolerance (capacity to elevate legs in bed, to stand and sit), Activities of daily living (capacity to wear clothes, to wear shoes, to go to the toilet by himself)

		CKD (n=2), Coronary heart disease (n=2), Tuberculosis (n=1), Smoking history (n=0), No comorbidity (n=9)	patchy shadowing (n=21), Ground-glass opacity (n=16), Pulmonary bullae (n=1)	respiratory exercises, psychotherapy	exercises performed in lying, sitting and standing positions	<u>Respiratory function:</u> Dyspnea (mMRC Dyspnea Scale), SaO <sub>2</sub> , Oxygen intake (probably from exogenous source), Need for oxygen therapy, Sputum, Cough and Shortness of breath (Questionnaires not further defined)
		Previous history of rehabilitation: n=7	COVID-19 symptoms at RP admission: Fever (n=23), Cough (n=22), Shortness of breath (n=12), Sputum production (n=4), Diarrhea (n=2), Fatigue (n=1)	Duration: 3 wk	Intensity: NR (but always SaO <sub>2</sub> >93%, HR<120bpm - if palpitation, sweating, shortness of breath: activity stopped)	<u>Quality of life, mental health, and general state:</u> Sleep quality (method NR), COVID-19 symptoms (method NR)
					Patients who needed oxygen therapy could do it in bed or at bedside.	<u>Biological parameters:</u> Lymphocytes, ALB, Total cholesterol, Neutrophils, CRP, Procalcitonin, WB, RBC, Hemoglobin, Triglycerids (methods NR)
						<u>Other:</u> Dietary habits (method NR)
Tozato et al., 2021 [67]	Prospective Case series	COV+: n=4 (2f, 2m); 56.0±12.1 yo; NR HT (n=3), Smoking history (n=1), HIV (n=1), Cancer (n=1), No comorbidity (n=1)	<b>Moderate-to-High</b> Hospitalization (duration indicated for n=3): 29±28 days (calculated from raw data) ICU (n=1): 9 days	Immediately after hospital discharge (n=3), 107 days after the symptoms start (n=1)  One subject had tetraparesis and started an adapted rehabilitation program during 45 days before to begin the RP.	In hospital  Physical activity in association with other therapies (NR).  Duration: 3 mo	Modality: aerobic Type: walking (treadmill), cycling (ergocycle), arm ergometer, stepping Frequency: 3x/wk Volume: 30min Intensity: 60-80%HR <sub>reserve</sub> (estimated with Karvonen formula), RPE=4-6 (Borg scale 0-10), SaO <sub>2</sub> ≥90%  Modality: resistance Type: all muscle groups Frequency: 3x/wk Volume: 3sets x 10rep for each exercise Intensity: 60%1RM
		Total groups (COV+): n=33 (19f, 14m); 66.2±12.8 yo; NR Comorbidities/patient: 1.5±1.6 Pre-COVID-19 well-functioning adults (low disability level, great independence level, low frailty status, low comorbidities)	<b>Moderate-to-High</b> ICU (n=20 for Total groups; n=18 for subsample who performed 6MWT): 10.3±9.9 days Mechanical ventilation (n=20, only ICU+)	In hospital	Physical activity, respiratory exercises, manual therapy if necessary, anti-sedentary advices  Duration: 8.2±1.7 days	Modality: aerobic Type: stepping, cycling (ergocycle), walking (continuous for all) Frequency: NR Volume: 5-15min Intensity: RPE=3-5 (Borg scale 0-10)  Modality: resistance Type: upper and lower limbs Frequency: NR Volume: 2-4 exercises, 1-2 sets x 8-10rep Intensity: 30-80%1RM  Modality: balance Type: static and dynamic (walking with obstacles, changing directions, unstable surfaces, unbalance, functional exercises) Frequency: NR Volume: 2 exercises Intensity: N/A  + recommendations to decrease daily sedentary behaviors
Udina et al., 2021 [68]	Prospective Single group (but constitution of subgroups for specific analyses)	ICU+ (COV+): n=20 (10f, 10m); 58.2±7.9 yo; NR Comorbidities/patient: 0.5±0.8  ICU- (COV+): n=13 (9f, 4m); 78.4±8.1 yo; NR Comorbidities/patient: 2.8±1.8  Subsample who performed 6MWT (ICU+ and ICU-): n=22 (14f, 8m); 61.9±12.1 yo; NR  Comparison groups between ICU+ and ICU-: age (p<0.001),	Symptoms/complications due to COVID-19 at admission to RP: Pneumonia (Total groups: n=30; ICU+: n=20; ICU-: n=10; subsample who performed 6MWT: n=21)  Polypharmacy (≥5 drugs) at admission to RP (Total groups: n=24; ICU+: n=13; ICU-: n=11)	Immediately after post-acute care		<u>Functional capacity:</u> 6MWT (evaluated only in a subsample for logistical reasons), SPPB (score 0-12 from 3 tests: static body balance, ability to walk and stand up from a chair), Ambulation capacity (FAC 4-5), Standing balance on a single leg (Single leg stance test - maintaining single leg stance for 10s)  <u>Quality of life, mental health, and general state:</u> Disability level (BI), Delirium (Confusion assessment method)
						<u>Total (for all modalities + breathing exercises):</u> Frequency: 1x/day, 7x/wk Volume: 30min

comorbidities  
(p<0.001)

Zampogna et al., 2021 [69]	Prospective Single group	COV+: n=140 (45f, 90m); median: 71.0 [IQR: 61.5, 78.0] yo; median: 25.2 [IQR: 23.2, 29.3] kg/m <sup>2</sup> COPD (n=23), Asthma (n=6)	<p><b>Moderate-to-High</b> 'Patients transferred from ICU, sub-ICU, pneumology units, or general wards' Hospitalization: median: 47 [IQR: 33.5, 64] days Respiratory status during hospitalization: Invasive ventilation (n=56), Non-invasive ventilation (n=70), Need for oxygen therapy (n=117)</p> <p>Respiratory status at RP admission: Need for oxygen therapy (n=33)</p>	NR	In hospital (inpatient)	Physical activity, drug therapy, and in function of patients' need, chest physiotherapy, lung expansion procedures, nutritional and psychological therapy	Duration: median: 24 [IQR: 19, 34] days (total sessions - median: 60)	<p><u>Level A (SPPB&lt;6):</u> Modality: aerobic Type: free walking Frequency: NR Volume: NR Intensity: NR</p>	<p>Modality: resistance Type: peripheral limbs, shoulders, full arm circling Frequency: NR Volume: NR Intensity: NR</p>	<p><u>Level B (SPPB&gt;6):</u> Modality: aerobic Type: paced walking, cycling (ergocycle, for patients with higher physical autonomy) Frequency: NR Volume: NR Intensity: for cycling, low intensity (&lt;3 METs), RPE=4-5 (Borg scale 0-10)</p>	<p><u>Functional capacity:</u> 6MWT, SPPB (score 0-12 from 3 tests: static body balance, ability to walk and stand up from a chair)</p>
								<p>Modality: resistance Type: gymnastics, strengthening Frequency: NR Volume: NR Intensity: NR</p>	<p><u>Quality of life, mental health, and general state:</u> Disability level (BI)</p>		
								<p>Modality: balance Type: NR Frequency: NR Volume: NR Intensity: NR</p>			
								<p><u>Total (for all modalities):</u> Type: without devices or used of gymnastic tools such as balls, canes, balance boards, or light weights bands Frequency: 1-3x/day Volume: 20-30min Intensity: NR [Evolution: subjects were assessed daily to adjust the type, intensity, timing and modality of the intervention]</p>			

10MWT: 10-minute walk test, 6MWT: 6-minute walk test, ALB: albumin, AMPAC: activity measure for post-acute care 6 clicks, ASM: appendicular skeletal muscle mass, BI: Barthel index, BMI: body mass index, BNP: brain natriuretic peptide, bpm: beats per minute, CIRS: cumulative illness rating scale, CKD: chronic kidney disease, CO<sub>2</sub>: carbon dioxide, CON: controlled group (COVID-19 subjects who didn't performed rehabilitation program), COPD: chronic obstructive pulmonary disease, COV+: COVID-19 subjects who performed rehabilitation program, COV-: subjects without COVID-19 infection who performed rehabilitation program, CPET: cardiopulmonary exercise test, CRP: C-reactive protein, CT: computed tomography, CVD: cardiovascular disease, DLCO: diffusing capacity for carbon monoxide, DM: diabetes mellitus, DBP: diastolic blood pressure, EI: independent exercise group, EQ5D: EuroQol questionnaire - 5 dimensions, ESWT: endurance shuttle walking test, f: female subjects, FAC: Functional ambulatory category, FEV<sub>1</sub>: forced expiratory volume in 1 second, FFM: fat-free mass, Fi: fraction of inspired gas, FIM: functional independence measure, FM: fat mass, FVC: forced vital capacity, GAD-7: generalized anxiety disorder-7 questionnaire, HADS: hospital anxiety and depression scale, HR: heart rate, HIIT: high intensity interval training, HPT: home in-person physical therapy group, HT: hypertension, ICU: intensive care unit, IL: interleukine, Ig: immunoglobulin, IQR: interquartile range, IT: interval training, KCO: carbon monoxide transfer coefficient, LDH: lactate dehydrogenase, m: male subjects, MICT: moderate interval continuous training, min: minute, mMRC: modified Medical Research Council, mo: month, MoCA: Montreal cognitive assessment, MRC: Medical Research Council, N/A: not applicable, NR: not reported, NRS: numerical rating scale, O<sub>2</sub>: oxygen, Pa: partial pressure of a gas, PEF: peak expiratory flow, PE<sub>max</sub>: maximal expiratory pressure, PHQ-9: patient health questionnaire 9, PI<sub>max</sub>: maximal inspiratory pressure, P<sub>max</sub>: maximal puissance, PSQI: Pittsburgh sleep quality index, QoL: quality of life, RBC: red blood cells, rep: repetitions, RM: repetition maxima, ROS: reactive oxygen species, RP: rehabilitation program, RPE: rating of perceived exertion, RV: residual

volume, s: second, SaO<sub>2</sub>: oxygen saturation, SARS-CoV-2: severe acute respiratory syndrome coronavirus 2, SBP: systolic blood pressure, SF-36: short form 36 health survey questionnaire, SPPB: short physical performance battery, STST: sit-to-stand test, TLC: total lung capacity, TNF- $\alpha$ : Tumor Necrosis Factor-alpha, VAS: visual analog scale, VC: vital capacity, VPT: virtual physical therapy group, WR: work rate, yo: year old. #: unclear. Severity of COVID-19: Low: no-hospitalized patients, Moderate: hospitalized patients but not in intensive care, High: hospitalized patients in intensive care.

**Supplementary Table S3:** Effects of the rehabilitation program on function capacity, respiratory function, and quality of life in post-COVID-19 patients.

Reference	Effects of the RP on functional capacity	Effects of the RP on respiratory function	Effects of the RP on quality of life, mental health, and general state	Effects of the RP on Biological and other parameters and adherence and tolerability of the RP
Al Chikhanie et al., 2021 [35]	<p><b>6MWT (m):</b> - COV+: 139±144 / 343±140* - COV-: 137±152 / 223±171* Groups comparison: COV+ &gt; COV- in post-RP</p> <p><b>Handgrip (kg):</b> - COV+: 18.1±8.0 / 23.5±8.5* - COV-: NR</p> <p><b>Quadriceps isometric (kg):</b> - COV+: 14.2±10.6 / 25.5±11.7* - COV-: NR</p> <p><b>Tinetti test (score):</b> - COV+: 25.0±3.0 / 27.5±1.0 - COV-: NR</p> <p>Correlation between 6MWT improvement (m/days) with the number of days post-ICU (p=0.01), and with the number of days in RP (p=0.09).</p>	<p><b>SaO<sub>2</sub>min during 6MWT and Dyspnea post-6MWT:</b> - COV+: → - COV-: →</p> <p><b>FEV1, FVC, P<sub>I</sub>max, PE<sub>max</sub>:</b> - COV+: ↗ - COV-: NR</p> <p><b>Need for oxygen therapy (% of sample):</b> - COV+: 86 / 16%# - COV-: 76 / 62%#</p>	<p><i>Results only for COV+</i> <b>QoL, Post-traumatic stress:</b> → <b>Anxiety and depression, Fatigue:</b> ↘</p>	<p><u>Adherence and tolerability:</u> <b>Adherence:</b> 100%</p>
Bernal-Utrera et al., 2021 [36]	NR, but stated that patients felt daily improvement.	NR, but stated that patients felt daily improvement.	NR, but stated that patients felt significant improvements on physical symptomatology (fatigue, weakness, myalgia) and psychological benefits (more confidence, safeguarding, well-being, motivation, distraction from confinement and disease, emotional support from physical therapist' presence)	<p><u>Adherence and tolerability:</u> No apparent dropout. Great acceptability that 'could be related to the fact that patients felt that they took part in their recovery'</p>
Bertolucci et al., 2021 [37]	<b>Peripheral nervous system impairment evaluated by electromyography (% of sample):</b> 18 / 18%#	<p><b>Need for tracheostomy (% of sample):</b> 28 / 4%# <b>Need for oxygen therapy (% of sample):</b> 79 / 21%# <b>PaO<sub>2</sub>/FiO<sub>2</sub> ratio:</b> 361±123 / NR</p>	<p><b>Mental confusion (% of sample):</b> 18 / 0%# <b>Disability level:</b> ↘ <b>Ambulation capacity:</b> ↗</p>	<p><u>Drugs:</u> <b>Corticosteroids intake (% of sample):</b> 49 / 10%# <b>Antipsychotic intake (% of sample):</b> 28 / 13%#</p> <p><u>Other:</u> <b>Dysphagia (% of sample):</b> 18 / 0%# <b>Rectal colonization:</b> →</p> <p><u>Adherence and tolerability:</u> <b>Adherence:</b> 100%</p>
Betschart et al., 2021 [38]	<p><b>6MWT (m):</b> 442 / 554*** <b>Δ6MWT (m):</b> +88 (range: 80-170) For n=9/12: clinically significant ↗ 6MWT (&gt;30m)</p>	N/A	<p><b>QoL:</b> ↗ <b>Perception of COVID-19 specific limitations in daily life (n in sample):</b> 10 / 4# (negligible or slight limitations)</p>	<p><u>Adherence and tolerability:</u> Dropout rate of 25% and 2 patients who stopped because they perceived their performance level and QoL have reached the level it was before the infection</p>
Büsching et al., 2021 [39]	<p><b>6MWT (m):</b> - COV+: 336±169 (n=41) / 484±147**** (n=45) - COV-: 320±136 (n=48) / 417±145**** (n=50) Groups comparison: COV+ &gt; COV- in post-RP</p> <p><b>Δ6MWT (m):</b> - COV+: +133±93 (n=40) - COV-: +102±73 (n=47) Groups comparison: COV+ &gt; COV- (trend), COV+ ICU+ = COV+ ICU- ICU-</p>	N/A	<p><b>Disability level:</b> - COV+: ↘ (n=21) - COV-: ↘</p> <p>Groups comparison: - pre-RP: COV+ (n=25) &lt; COV- - post-RP: COV+ (n=36) = COV- - Δ: COV+ = COV-, COV+ ICU- = COV+ ICU-</p> <p><b>Disability level:</b> - COV+: ↘ (n=45) - COV-: ↘</p>	<p><u>Adherence and tolerability:</u> no information</p>

			<p>Groups comparison:  - pre-RP: COV+ (n=45) &lt; COV-  - post-RP: COV+ (n=45) &lt; COV-  - Δ: COV+ = COV-, COV+ ICU- = COV+ ICU-</p>	
Curci et al., 2021 [40]	<p><b>6MWT (m):</b> 240±81 (n=6) / 303±112* (n=37)  <b>Proportion 6MWT&lt;200m in patients able to perform (% of sample):</b> 50 / 23%<sup>#</sup>  <b>RPE (probably post-6MWT) (Borg scale):</b> 16.0±2.3 / 12.2±2.5****</p>	<p><b>Dyspnea in activity of daily life:</b> ∟  <b>Need for respiratory supports:</b> ∟ (all discharged patients needed no respiratory support)  <b>FiO<sub>2</sub>:</b> ∟  <b>PaO<sub>2</sub>/FiO<sub>2</sub>:</b> ↗  <b>PaO<sub>2</sub>:</b> →  <b>SaO<sub>2</sub>:</b> ↗<sup>ε</sup>  <b>CT scan:</b> 74% showed a reduced ground glass opacity, 26% showed unchanged extension, 8% fully recovered</p>	<p><b>Disability level:</b> ∟  <b>Ambulation capacity:</b> ↗ (recovered in 100% patients)</p>	<p><u>Biological parameters:</u>  <b>Arterial lactate, CRP, D-dimer, LDH:</b> ∟</p> <p><u>Adherence and tolerability:</u>  No dropout (but deaths of 2 patients)</p>
Daynes et al., 2021 [41]	<p><b>Incremental shuttle walking test (m):</b> 300±198 / 413±229**  <b>ESWT (s):</b> 292±260 / 837±406**</p>	<p><b>Respiratory symptoms:</b> ∟</p>	<p><b>Fatigue:</b> ∟ (↗ for n=4)  <b>Anxiety and depression:</b> →  <b>QoL, Cognition:</b> ↗</p>	<p><u>Adherence and tolerability:</u>  <b>Adherence:</b> 94% (initially 32 subjects)  11/12 sessions completed in average</p>
Dun et al., 2021 [42]	<p><b>6MWT (m):</b>  - COV+: 366±59 / NR<sup>#</sup>  - CON: 538±68 / NR<sup>#</sup>  <b>Δ6MWT (m):</b>  - COV+: +254±67  - Low-volume (≤17 RP sessions, n=14): +204  - High-volume (&gt;17 RP sessions, n=13): +263  - CON: +60±58  <b>Groups comparison:</b> CON &lt; COV+, Low-volume &lt; High-volume</p>	N/A	N/A	<p><u>Biological parameters:</u>  COV+ = CON for all parameters changes (# for pre vs post-RP measures)</p> <p><u>Adherence and tolerability:</u>  Number of completed sessions: median: 17 (range: 5-30)</p>
Everaerts et al., 2021 [43]	<p><i>All results expressed in median [IQR]</i>  <i>Pre-RP / 6 wk of RP / 12 wk of RP (post-RP)</i>  <b>6MWT (m):</b> 453 [342-529] / 549 [478-620]**** / 605 [497-655]**  <b>6MWT (%pred):</b> 63 [53-73] / 77 [73-85]**** / 88 [76-91]**  <b>Δ6MWT (m):</b> N/A / +86 [53-175] / +149 [90-221]  <b>Handgrip (%pred):</b> 69 [61-81] / 90 [78-103]***/ 104 [96-112]**  <b>Groups comparison ICU+ vs ICU-:</b> improvements appeared more pronounced in ICU+ for 6MWT and Handgrip.  <i>Pre-RP / Post-RP</i>  <b>CPET work load (%pred):</b> 65 [50-78] / 96 [83-114]**  <b>VO<sub>2peak</sub> estimated from CPET (ml/min/kg):</b> 16 [13-20] / 20 [16-30]**  <b>VO<sub>2peak</sub> estimated from CPET (%pred):</b> 66 [56-73] / 91 [82-108]**  <b>Quadriceps force (%pred):</b> 61 [50-70] / 74 [71-87]**</p>	<p><b>FVC, FEV1, TLC, DLCO, P<sub>I</sub>max, P<sub>E</sub>max (all in %pred):</b> ↗</p>	<p><b>Anxiety and depression, Cognition:</b> →<sup>μ</sup>  <b>Cognitive deficits:</b> ∟<sup>μ</sup></p>	<p><u>Adherence and tolerability:</u>  <b>Dropouts at 6 wk:</b> n=1  <b>Dropouts at 12 wk:</b> n=6/22 (satisfying results n=2, poor motivation n=1, interfering medical problems - myasthenia gravis, lumbar discus hernia, severe cognitive dysfunction n=3)</p>
Ferraro et al., 2021 [44]	<p><i>Results were analysed (T tests) from raw data.</i>  <b>6MWT (m):</b> 173±73 / 313±26**  <b>Handgrip (kg):</b> 21±9 / 28±8*  <b>10MWT (s):</b> 11±5 / 8±3*  <b>SPPB (score 0-12):</b> 6±5 / 11±2*</p>	N/A	<p><i>Results were analysed (T tests) from raw data.</i>  <b>Fatigue, Disability level:</b> ∟</p>	<p><u>Adherence and tolerability:</u>  No information but one patient excluded for missing data.</p>
Gloeckl et al., 2021 [45]	<p><i>All results expressed in median [IQR]</i>  <b>6MWT (m):</b>  - M.COV+: 509 [426, 539] / 557 [463, 633]** (Δ +48 [35, 113])  - S.COV+: 344 [244, 392] / 468 [374, 518]** (Δ +124 [75, 145])  <b>Groups comparison:</b> M.COV+ &gt; S.COV+ in pre-RP, M.COV+ &lt; S.COV+ for Δ  <b>6MWT (%pred):</b>  - M.COV+: 70 [58, 80] / 81 [68, 91]** (Δ +11 [5, 15])  - S.COV+: 53 [42, 58] / 71 [60, 83]** (Δ +18 [11, 23])  <b>Groups comparison:</b> M.COV+ &lt; S.COV+ for Δ  <i>Only S.COV+:</i>  <b>ESWT (m):</b> 430 [195, 758] / 980 [390, 1385]** (Δ +550 [50, 725])  <b>ESWT (s):</b> 460 [217, 625] / 1200 [312, 1200]** (Δ +740 [143, 789])  <b>HR pre-ESWT (bpm):</b> 86 [77, 98] / 85 [75, 95] (Δ -1 [-8, 4])  <b>HR post-ESWT (bpm):</b> 114 [99, 126] / 108 [97, 119] (Δ -6 [-12, 5])</p>	<p><i>All results expressed in median [IQR]</i>  <b>Dyspnea post-6MWT (Borg scale):</b> → (for the two groups, NS for groups comparison)  <b>PaO<sub>2</sub>, FVC (%pred), FEV1 (%pred):</b> ↗  <b>Groups comparison:</b> M.COV+ &gt; S.COV+ for FEV1 at pre-RP, M.COV+ = S.COV+ for all Δ  <b>TLC (%pred), KCO (%pred), PaCO<sub>2</sub>:</b> → (NS for groups comparison)  <b>DLCO (%pred):</b>  - M.COV+: →  - S.COV+: ↗  <b>Groups comparison:</b> M.COV+ = S.COV+ for Δ  <b>Need for oxygen therapy at rest:</b>  - M.COV+: →  - S.COV+: ∟  <b>Groups comparison:</b> M.COV+ = S.COV+ for Δ  <b>Need for oxygen therapy at exertion:</b></p>	<p><b>SF-36 physical component (score):</b> → (NS for groups comparison)  <b>SF-36 mental component (score):</b>  - M.COV+: →  - S.COV+: ↗  <b>Groups comparison:</b> M.COV+ &lt; S.COV+ for Δ  <i>Only S.COV+:</i>  <b>Depression, Anxiety:</b> ∟  <b>Cognition:</b> ↗  <b>COVID-19 symptoms (% of sample):</b>  - Dyspnea: 85 / 73%<sup>#</sup>  - Fatigue: 73 / 58%<sup>#</sup>  - Cough: 54 / 35%<sup>#</sup>  - Cognitive impairment: 14 / 14%<sup>#</sup></p>	<p><u>Biological parameters:</u>  <b>CRP, Leukocytes, Pro-BNP:</b> → (NS for groups comparison)  <b>D-dimer:</b>  - M.COV+: →  - S.COV+: ↗  <b>Groups comparison:</b> M.COV+ &lt; S.COV+ for Δ</p> <p><u>Adherence and tolerability:</u>  Patients realized 94 to 100% of rehabilitation sessions.</p>

<p><b>Handgrip (kg):</b> 25 [18, 35] / 30 [20, 39]** (<math>\Delta</math> +5 [3, 7])  <b>Maximal quadriceps strength (%pred):</b> 78 [49, 98] / 100 [68, 103]** (<math>\Delta</math> +21 [6, 31])  <b>5-rep STST (s):</b> 13.3 [10.5, 15.5] / 10.3 [8.5, 13.2]*** (<math>\Delta</math> -3.0 [-4.3, 0.3])</p>	<p>- M.COV+: <math>\rightarrow</math>  - S.COV+: <math>\sphericalangle</math>  Groups comparison: M.COV+ = S.COV+ for <math>\Delta</math></p> <p><i>Only S.COV+:</i>  <b>Breathing frequency pre- and post-ESWT, Dyspnea during daily activities:</b> <math>\sphericalangle</math>  <b>SaO<sub>2</sub> pre-ESWT (%):</b> <math>\nearrow</math>  <b>SaO<sub>2</sub> post-ESWT (%):</b> <math>\nearrow^{\text{f}}</math></p>		
<p><b>Handgrip (kg):</b>  - Total S.COV+: 17.3<math>\pm</math>5.6 / 20.6<math>\pm</math>7.2** (<math>\Delta</math> +19.71%)  - m S.COV+: 19.9<math>\pm</math>6.1 / 23.9<math>\pm</math>6.9<sup>f</sup> (<math>\Delta</math> +6.04%)  - f S.COV+: 13.8<math>\pm</math>2.9 / 16.1<math>\pm</math>2.3* (<math>\Delta</math> +16.67%)  - Tot NS.COV+: 25.7<math>\pm</math>8.2 / 26.7<math>\pm</math>8.3 (<math>\Delta</math> +3.89%)  - m NS.COV+: 31.2<math>\pm</math>10.8 / 33.5<math>\pm</math>7.2 (<math>\Delta</math> +7.32%)  - f NS.COV+: 22.4<math>\pm</math>5.1 / 22.2<math>\pm</math>5.4 (<math>\Delta</math> -0.89%)  <b>Time-up-to-go test (s):</b>  - S.COV+: 31.5<math>\pm</math>23.5 / 17.9<math>\pm</math>15.9* (<math>\Delta</math> -26.83%)  - NS.COV+: 13.1<math>\pm</math>8.1 / 9.0<math>\pm</math>3.3* (<math>\Delta</math> -31.29%)</p> <p># for groups comparison</p>	<p><b>SaO<sub>2</sub> in lying position:</b> <math>\rightarrow</math> (for the two groups)  <b>SaO<sub>2</sub> in sitting position:</b> <math>\nearrow</math> (but trend for NS.COV+)  <b>SaO<sub>2</sub> in standing position:</b>  - S.COV+: <math>\nearrow</math>  - NS.COV+: <math>\rightarrow</math>  <b>SaO<sub>2</sub> post-Time-up-and-go test:</b>  - S.COV+: <math>\nearrow^{\text{f}}</math>  - NS.COV+: <math>\rightarrow</math>  <b>Dyspnea in lying position:</b> <math>\sphericalangle</math> (for the two groups) N/A  <b>Dyspnea in sitting position:</b>  - S.COV+: <math>\rightarrow</math>  - NS.COV+: <math>\sphericalangle</math>  <b>Dyspnea in standing position:</b> <math>\sphericalangle</math> (for the two groups)  <b>Dyspnea post-Time-up-and-go test:</b> <math>\sphericalangle</math> (but trend for S.COV+)</p> <p># for groups comparison</p>		<p><u>Biological parameters:</u>  <b>ALB:</b> <math>\rightarrow</math> (for the two groups)  Groups comparison: S.COV+ &lt; NS.COV+ in pre-RP  <b>Ferritin:</b>  - S.COV+: <math>\sphericalangle</math>  - NS.COV+: <math>\rightarrow</math>  Groups comparison: S.COV+ &gt; NS.COV+ in pre-RP  <b>Vitamin D:</b>  - S.COV+: <math>\nearrow</math>  - NS.COV+: <math>\rightarrow</math>  Groups comparison: S.COV+ &lt; NS.COV+ in pre-RP  <u>Other:</u>  <b>BMI:</b> <math>\rightarrow</math> (for the two groups)  <b>Phase angle:</b>  - S.COV+: <math>\rightarrow</math>  - NS.COV+: <math>\nearrow</math>  <b>ASM:</b> <math>\nearrow</math> (for the two groups)  - m: <math>\rightarrow</math> (for the two groups)  - f: <math>\nearrow</math> (for the two groups)  # for groups comparison</p>
<p>Gülér et al., 2021 [47] N/A</p>	<p><b>Need for oxygen therapy (% of sample):</b> 84 / 8%<sup>#</sup></p>	<p><b>Disability level:</b> <math>\sphericalangle</math>  <b>Functional status (% of sample):</b>  - Bedridden: 55 / 2%<sup>#</sup>  - Wheelchair: 22 / 5%<sup>#</sup>  - Mobilized with oxygen requirement: 20 / 8%<sup>#</sup>  - Mobilized with assistive device: 2 / 22%<sup>#</sup>  - Mobilized with no requirement: 0 / 62%<sup>#</sup></p>	<p><u>Adherence and tolerability:</u> no information</p> <p><u>Adherence and tolerability:</u> no information</p>
<p>Hameed et al., 2021 [48]</p> <p><b>2-min step test (unit NR):</b>  - VPT: 44<math>\pm</math>23 / 73<math>\pm</math>26***  - HPT: 46<math>\pm</math>27 / 71<math>\pm</math>30*  - IE: 54<math>\pm</math>24 / 76<math>\pm</math>14*  - CON: 59<math>\pm</math>30 / 69<math>\pm</math>12  <b>30-s STST (unit NR):</b>  - VPT: 9<math>\pm</math>4 / 13<math>\pm</math>3***  - HPT: 8<math>\pm</math>3 / 12<math>\pm</math>1**  - IE: 10<math>\pm</math>5 / 13<math>\pm</math>3<sup>f</sup>  - CON: 12<math>\pm</math>4 / 11<math>\pm</math>7</p> <p># for groups comparison</p>	<p><b>SaO<sub>2</sub> (probably at rest) (%):</b>  - Total groups: 96<math>\pm</math>3 (n=80) / 98<math>\pm</math>1% (n=33)<sup>#</sup>  - *Follow-up population<sup>#</sup>: <math>\nearrow</math>  Groups comparison: NS in pre- and post-RP</p>	<p>N/A</p>	<p><u>Other:</u>  <b>Participants working (% of sample):</b>  - VPT: 2 / 14%<sup>#</sup>  - HPT: 0 / 20%<sup>#</sup>  - IE: 6 / 0%<sup>#</sup>  - CON: 0 / 0%<sup>#</sup></p> <p><u>Adherence and tolerability:</u>  50% of participants were lost for the follow-up visit.</p>
<p>Hayden et al., 2021 [49]</p> <p><b>6MWT (m):</b>  - Total groups (n=97): 419<math>\pm</math>127 (range: 13-663) / 530<math>\pm</math>100 (range: 175-740) (ES: large)  - Group A (n=52): 377<math>\pm</math>142 (range: 13-603) / 508<math>\pm</math>111 (range: 175-720) (ES: large)  - Group B (n=27): 459<math>\pm</math>79 (range: 270-590) / 555<math>\pm</math>80 (range: 406-675) (ES: large)  - Group C (n=18): 480<math>\pm</math>97 (range: 275-663) / 554<math>\pm</math>86 (range: 380-740) (ES: large)</p>	<p><b><math>\Delta</math>Dyspnea at rest (NRS):</b>  - Total groups (n=82): -0.7 [95%CI: -1.0, -0.3] (ES: small)  - Group A (n=43): -0.6 [95%CI: -1.1, -0.2] (ES: small)  - Group B (n=24): -0.6 [95%CI: -1.2, -0.0] (ES: small)  - Group C (n=15): -0.9 [95%CI: -2.2, -0.4] (ES: small)  Time (p&lt;0.001), Group NS, Group x Time NS  <b><math>\Delta</math>Dyspnea at exertion (NRS):</b>  - Total groups (n=82): -2.2 [95%CI: -2.7, -1.6] (ES: large)  - Group A (n=43): -2.4 [95%CI: -3.2, -1.6] (ES: large)</p>	<p><b><math>\Delta</math>"How intense is your cough?" (NRS):</b>  - Total group (n=82): -0.9 [95%CI: -1.3, -0.4] (ES: small)  - Group A (n=43): -1.1 [95%CI: -1.7, -0.6] (ES: moderate)  - Group B (n=25): -0.3 [95%CI: -0.6, 0.2] (ES: very small)  - Group C (n=15): -1.1 [95%CI: -3.0, 0.7] (ES: small)  Time (p&lt;0.001), Group (p&lt;0.05), Group x Time NS  <b><math>\Delta</math>"How big is the amount of phlegm that you expectorate?" (NRS):</b>  - Total groups (n=81): -0.5 [95%CI: -0.8, -0.2] (ES: small)</p>	<p><u>Biological parameters:</u>  <b><math>\Delta</math>LDH (U/I):</b>  - Total groups (n=56): -4.1 [95%CI: -11.9, 3.8] (ES: very small)  - Group A (n=30): -4.1 [95%CI: -16.9, 8.7] (ES: very small)  - Group B (n=17): -5.0 [95%CI: -17.2, 7.2] (ES: small)  - Group C (n=9): -2.1 [95%CI: -18.5, 14.2]</p>

Time (p<0.001), Group (p<0.01), Group x Time (p<0.05)

**Δ6MWT (m):**

- Total groups: 111 [95%CI: 94, 127]
- Group A: 131 [95%CI: 107, 155]
- Group B: 96 [95%CI: 72, 120]
- Group C: 74 [95%CI: 33, 114]

Groups comparison: Groups A and B > C; Patients who were the more severely burdened at pre-RP achieved the higher improvement.

**Correlation with Δ6MWT:**

- Positive correlation with ΔPaO<sub>2</sub> (p<0.01), ΔCRP (p<0.05), ΔEQ5D (p<0.05), ΔEQ5D VAS (p<0.05)
- Negative correlation with ΔPl<sub>max</sub> (p<0.01)

- Group B (n=24): -2.2 [95%CI: -3.4, -1.0] (ES: large)
- Group C (n=15): -1.5 [95%CI: -2.9, -0.1] (ES: moderate)
- Time (p<0.001), Group NS, Group x Time NS
- Δ"How burdening or debilitating is your dyspnea at rest?" (NRS):**
- Total groups (n=81): -1.1 [95%CI: -1.4, -0.7] (ES: moderate)
- Group A (n=43): -1.0 [95%CI: -1.5, -0.5] (ES: moderate)
- Group B (n=23): -1.4 [95%CI: -2.2, -0.5] (ES: moderate)
- Group C (n=15): -0.7 [95%CI: -1.6, 0.1] (ES: small)
- Time (p<0.001), Group (p<0.05), Time x Group NS
- Δ"How burdening or debilitating is your dyspnea on exertion?" (NRS):**
- Total groups (n=81): -2.1 [95%CI: -2.7, -1.5] (ES: moderate)
- Group A (n=43): -2.4 [95%CI: -3.2, -1.6] (ES: large)
- Group B (n=23): -2.4 [95%CI: -3.6, -1.2] (ES: large)
- Group C (n=15): -0.9 [95%CI: -2.1, 0.4] (ES: small)
- Time (p<0.001), Group NS, Group x Time NS
- ΔNSAVC (%pred):**
- Total groups (n=103): 8.3 [95%CI: 4.9, 11.8] (ES: small)
- Group A (n=54): 12.5 [95%CI: 7.3, 17.7] (ES: moderate)
- Group B (n=32): 6.7 [95%CI: 0.5, 12.8] (ES: small)
- Group C (n=17): -1.18 [95%CI: -6.27, 2.64] (ES: small)
- Time (p<0.01), Group (p<0.001), Group x Time (p<0.05)
- ΔDyspnea (mMRC score):**
- Total groups (n=90): -0.7 [95%CI: -1.0, -0.5] (ES: moderate)
- Group A (n=48): -0.9 [95%CI: -1.3, -0.6] (ES: moderate)
- Group B (n=26): -0.5 [95%CI: -1.0, -0.0] (ES: small)
- Group C (n=16): -0.6 [95%CI: -1.0, -0.1] (ES: moderate)
- Time (p<0.001), Group NS, Group x Time NS
- ΔTLC (%pred):**
- Total groups (n=103): 4.9 [95%CI: 2.3, 7.6] (ES: small)
- Group A (n=54): 6.5 [95%CI: 2.7, 10.4] (ES: small)
- Group B (n=32): 5.8 [95%CI: 0.6, 10.9] (ES: small)
- Group C (n=17): -1.7 [95%CI: -6.9, 3.4] (ES: very small)
- Time (p<0.05), Group (p<0.001), Group x Time (p<0.05)
- ΔFEV1 (%pred):**
- Total groups (n=103): 8.6 [95%CI: 5.2, 12.0] (ES: small)
- Group A (n=54): 12.16 [95%CI: 6.5, 17.8] (ES: moderate)
- Group B (n=32): 6.4 [95%CI: 1.4, 11.5] (ES: small)
- Group C (n=17): 1.5 [95%CI: -1.6, 4.5] (ES: small)
- Time (p<0.001), Group (p<0.001), Group x Time (p<0.05)
- ΔFEV1/VC (%):**
- Total groups (n=103): -0.2 [95%CI: -2.4, 2.1] (ES: very small)
- Group A (n=54): -1.0 [95%CI: -5.0, 2.9] (ES: very small)
- Group B (n=32): -0.3 [95%CI: -2.6, 2.1] (ES: very small)
- Group C (n=17): 2.8 [95%CI: 0.06, 5.5] (ES: moderate)
- Time NS, Group NS, Group x Time NS
- ΔDLCO (%pred):**
- Total groups (n=93): 6.2 [95%CI: 4.0, 8.4] (ES: moderate)
- Group A (n=48): 9.9 [95%CI: 6.7, 13.1] (ES: large)
- Group B (n=30): 3.8 [95%CI: 0.48, 7.1] (ES: small)
- Group C (n=15): -1.0 [95%CI: -5.9, 3.9] (ES: very small)
- Time (p<0.001), Group (p<0.001), Group x Time (p<0.001)
- ΔPl<sub>max</sub> (%pred):**
- Total groups (n=98): 7.7 [95%CI: 3.4, 12.0] (ES: small)
- Group A (n=52): 6.3 [95%CI: 1.1, 11.5] (ES: small)
- Group B (n=31): 12.0 [95%CI: 1.7, 22.3] (ES: small)
- Group C (n=15): 3.7 [95%CI: -3.2, 10.6] (ES: small)
- Time (p<0.01), Group £, Group x Time NS
- ΔPaO<sub>2</sub> (%pred):**
- Total groups (n=100): 4.0 [95%CI: 2.6, 5.5] (ES: moderate)
- Group A (n=51): 5.6 [95%CI: 3.7, 7.5] (ES: moderate)
- Group B (n=31): 3.7 [95%CI: 0.9, 6.5] (ES: small)
- Group C (n=18): 0.06 [95%CI: 3.4, -3.5] (ES: very small)

- Group A (n=42): -0.4 [95%CI: -0.9, 0.0] (ES: small)
- Group B (n=24): -0.6 [95%CI: -0.1, -0.1] (ES: small)
- Group C (n=15): -0.7 [95%CI: -1.6, 0.4] (ES: small)
- Time (p<0.001), Group NS, Group x Time NS
- Δ"How strong is the pain that you experience?" (NRS):**
- Total groups (n=83): -0.8 [95%CI: -1.3, -0.2] (ES: small)
- Group A (n=44): -0.8 [95%CI: -1.6, 0.0] (ES: small)
- Group B (n=24): -0.5 [95%CI: -1.5, 0.6] (ES: very small)
- Group C (n=15): -1.1 [95%CI: -2.6, 0.3] (ES: small)
- Time (p<0.05), Group (p<0.001), Group x Time NS
- ΔEQ5D 5 levels (Score 5-25):**
- Total groups (n=82): -2.4 [95%CI: -3.0, -1.9] (ES: large)
- Group A (n=42): -2.9 [95%CI: -3.7, -2.2] (ES: large)
- Group B (n=25): -2.0 [95%CI: -2.9, -1.1] (ES: large)
- Group C (n=15): -1.7 [95%CI: -3.4, -0.0] (ES: moderate)
- Time (p<0.001), Group NS, Group x Time NS
- ΔEQ5D 5 levels VAS (Scale 0-100):**
- Total groups (n=83): 18 [95%CI: 15, 21] (ES: large)
- Group A (n=43): 21 [95%CI: 16, 26] (ES: large)
- Group B (n=24): 15 [95%CI: 8, 21] (ES: large)
- Group C (n=16): 16 [95%CI: 8, 24] (ES: large)
- Time (p<0.001), Group (p<0.01), Group x Time NS
- ΔFatigue (score 0-10):**
- Total groups (n=81): -1.7 [95%CI: -2.1, -1.3] (ES: large)
- Group A (n=42): -2.1 [95%CI: -2.6, -1.7] (ES: large)
- Group B (n=24): -1.4 [95%CI: -2.2, -0.7] (ES: large)
- Group C (n=15): -0.9 [95%CI: -2.1, 0.3] (ES: small)
- Time (p<0.001), Group (p<0.01), Group x Time (p<0.05)
- ΔDepression (score 0-27):**
- Total groups (n=78): -4.3 [95%CI: -5.1, -3.5] (ES: large)
- Group A (n=42): -4.8 [95%CI: -6.0, -3.7] (ES: large)
- Group B (n=23): -3.8 [95%CI: -5.4, -2.3] (ES: large)
- Group C (n=13): -3.2 [95%CI: -5.4, -1.2] (ES: large)
- Time (p<0.001), Group NS, Group x Time NS
- ΔAnxiety (score 0-21):**
- Total groups (n=77): -2.4 [95%CI: -3.2, -1.6] (ES: moderate)
- Group A (n=40): -2.9 [95%CI: -4.1, -1.8] (ES: large)
- Group B (n=22): -2.5 [95%CI: -1.1, -0.7] (ES: moderate)
- Group C (n=15): -0.9 [95%CI: -3.3, 1.4] (ES: small)
- Time (p<0.001), Group NS, Group x Time NS
- Post-rehabilitation subjective health changed compared to pre-rehabilitation (-7 = Very much worse, 0 = Unchanged, +7 = Very much better):**
- Total group: 4.3±2.1 (range: -6-7)
- Group A: 5.2±1.5 (range: 0-7)
- Group B: 4.0±1.4 (range: -1-7)
- Group C: 2.8±2.2 (range: -6-6)
- Post-rehabilitation subjective health changed compared to pre-COVID-19 infection (-7 = Very much worse, 0 = Unchanged, +7 = Very much better):**
- Total group: -1.6±3.6 (range: -7-7)
- Group A: -0.5±3.8 (range: -7-7)
- Group B: -1.9±2.5 (range: -5-5)
- Group C: -4.3±3.0 (range: -7-4)

- (ES: very small)
- Time NS, Group NS, Group x Time NS
- ΔBNP (pg/ml):**
- Total groups (n=61): -28.4 [95%CI: -100.1, -43.2] (ES: very small)
- Group A (n=32): -50.7 [95%CI: -190.2, -88.8] (ES: very small)
- Group B (n=18): -5.2 [95%CI: -20.4, 10.0] (ES: very small)
- Group C (n=11): -1.6 [95%CI: -22.7, 19.4] (ES: very small)
- Time NS, Group NS, Group x Time £
- ΔD-dimer (ng/ml):**
- Total groups (n=69): -468 [95%CI: -735, -202] (ES: small)
- Group A (n=41): -765 [95%CI: -1195, -335] (ES: moderate)
- Group B (n=18): -20 [95%CI: -112, 71] (ES: very small)
- Group C (n=10): -57 [95%CI: -147, 32] (ES: small)
- Time (p<0.01), Group (p<0.05), Group x Time (p<0.01)
- ΔCRP (mg/ml):**
- Total groups (n=71): -1.8 [95%CI: -2.8, 0.8] (ES: small)
- Group A (n=39): -2.6 [95%CI: -4.2, 0.9] (ES: moderate)
- Group B (n=21): -1.3 [95%CI: -2.8, 0.3] (ES: small)
- Group C (n=11): 0.0 [95%CI: -1.2, 1.2] (ES: very small)
- Time (p<0.05), Group NS, Group x Time NS

**Adherence and tolerability (n NR):**

**"How effective was the rehabilitation program for you?" (Scale 0-10):**

- Total groups: 8.3±2.0 (range: 0-10)
- Group A: 8.9±1.4 (range: 4-10)
- Group B: 7.8±1.6 (range: 4-10)
- Group C: 7.1±2.9 (range: 0-10)

One patient transferred to psychiatric hospital due to an acute psychosocial crisis not related to RP. One patient quit RP because of disc prolapse. One drop-out. All the other 105 patients participated at least 90% of RP sessions.

Time (p<0.001), Group (p<0.05), Group x Time (p<0.01)  
**ΔPaCO<sub>2</sub> (mmHg):**  
 - Total groups (n=100): -0.1 [95%CI: -0.7, 0.4] (ES: very small)  
 - Group A (n=51): 0.1 [95%CI: -0.7, 1.0] (ES: very small)  
 - Group B (n=31): -0.8 [95%CI: -1.7, 0.1] (ES: very small)  
 - Group C (n=18): 0.11 [95%CI: -1.4, 1.6] (ES: very small)  
 Time NS, Group NS, Group x Time NS  
**ΔRV (%pred):**  
 - Total groups (n=103): -0.28 [95%CI: -5.8, 5.2] (ES: very small)  
 - Group A (n=54): -2.2 [95%CI: -10.5, 6.1] (ES: very small)  
 - Group B (n=32): 3.4 [95%CI: -5.6, 12.3] (ES: very small)  
 - Group C (n=17): -1.2 [95%CI: -15.8, 13.3] (ES: very small)  
 Time NS, Group (p<0.001), Group x Time NS  
**ΔTotal specific airway resistance (%pred):**  
 - Total groups (n=103): -8.7 [95%CI: -6.3, 3.7] (ES: very small)  
 - Group A (n=54): -14.2 [95%CI: -37.0, 8.6] (ES: very small)  
 - Group B (n=32): 1.77 [95%CI: -9.4, 13.0] (ES: very small)  
 - Group C (n=17): -11.0 [95%CI: -21.2, -0.7] (ES: moderate)  
 Time NS, Group NS, Group x Time NS

**SaO<sub>2</sub> (probably at rest) (%):**  
 - Total groups: 92.7±2.7 / 96.0±2.3<sup>#</sup>  
 - Ventilation+: 92.4±2.2 / 96.0±2.8<sup>#</sup>  
 - Ventilation-: 92.9±3.1 / 96.1±2.1<sup>#</sup>  
 Groups comparison: Ventilation+ = Ventilation- in pre- and post-RP  
**Need for oxygen therapy (n in sample):**  
 - Total groups: 21 / 7<sup>#</sup>  
 - Ventilation+: 11 / 4<sup>#</sup>  
 - Ventilation-: 10 / 3<sup>#</sup>  
 Groups comparison: Ventilation+ = Ventilation- in pre- and post-RP

Hermann et al., 2020 [50]  
**6MWT (m):**  
 - Total group: 231±154 / 361±135<sup>S</sup> (Δ +130±78)  
 - Ventilation+: 241±154 / 387±136\*\*\* (Δ +145±59)  
 - Ventilation-: 223±158 / 342±135\*\*\* (Δ +119±90)  
 Groups comparison: Ventilation+ = Ventilation- in pre- and post-RP and for Δ

**Patients' feeling (points):**  
 - Total group: Δ = +40<sup>#</sup>  
 - Ventilation +: ↗  
 - Ventilation -: ↗  
 Groups comparison: Ventilation+ = Ventilation- in pre-RP and for Δ, Ventilation + > Ventilation- (trend)

Adherence and tolerability:  
 No patient died, no dropout mentioned. Stated that the program was performed safely. All patients return back home without professional nursing support.

Imamura et al., 2021 [51]  
**Muscle strength (score 1-60):** 44±8 / 51±7\*\*  
**SPPB (n=16) (score 0-12):** 5.9±1.2 / 8.8±2.1

**PI<sub>max</sub>, PE<sub>max</sub> (n=10):** →

**Ambulatory capacity (% of sample):**  
 - Non-functional gait / unable to walk: 52 / 30%<sup>#</sup>  
 - Walking dependent on continuous manual contact to support body weight: 11 / 0%<sup>#</sup>  
 - Gait dependent on intermittent or continuous manual contact: 19 / 4%<sup>#</sup>  
 - Walking under supervision or verbal guidance: 19 / 19%<sup>#</sup>  
 - Independent walking on level terrain, with supervision in other environments: 0 / 26%<sup>#</sup>  
 - Independent walking anywhere, including stairs: 0 / 22%<sup>#</sup>  
**Disability level:** ↘

Other:  
**FFM (n=18), Body weight, BMI: →**  
**Dysphagia (% of sample):**  
 - No dysphagia: 48 / 70%<sup>#</sup>  
 - Mild dysphagia: 15 / 15%<sup>#</sup>  
 - Mild-Moderate dysphagia: 37 / 15%<sup>#</sup>  
**Malnutrition (% of sample, n=24):**  
 - No malnutrition: 4 / 46%<sup>#</sup>  
 - Moderate: 54 / 29%<sup>#</sup>  
 - Severe: 42 / 25%<sup>#</sup>

Adherence and tolerability:  
**Adherence:** 85% (n=23)

Li et al., 2021 [52]  
*Results only for n=13/16 patients who were breathing spontaneously*  
*Results analysed from raw data*  
**Walking distance (not a 6MWT) (m):** 21±15 / 49±3\*\*\*  
**Muscle strength (score 1-60):** 57±5 / 58±3<sup>‡</sup>  
**Physical function (score):** 9.3±2.1 / 10.7±1.5\*\*  
**Mobility (score):** 46.3±11.2 / 73.2±26.3\*\*\*

*Results analysed from raw data*  
**PaO<sub>2</sub>/FiO<sub>2</sub> ratio, PI<sub>max</sub>, PI<sub>max</sub> (%pred), PEF, PEF (%pred):**  
 ↗  
**Dyspnea at rest:** ↘

*Results analysed from raw data*  
**Disability level:** ↘

Adherence and tolerability:  
 No apparent dropout, no patient desaturated during or after either respiratory or mobility intervention, no adverse effects associated with physical therapist interventions.

Martin et al., 2021 [53]  
**1-min STST (n rep):**  
 - COV+: 17.6±4.7 / NR<sup>#</sup> (|Δ| 10 (range: 5-19))  
 - CON: 13.6±7.6 / NR<sup>#</sup> (|Δ| 5 (range: -4-11))  
 Groups comparison: COV+ = CON in post-RP, COV+ > CON for |Δ|  
**HR pre-STST (bpm):**  
 - COV+: 91±17 / NR<sup>#</sup>  
 - CON: 86±15 / NR<sup>#</sup>  
 Groups comparison: COV+ = CON in post-RP  
**HR post-STST (bpm):**

**Dyspnea pre-STST (Borg scale):**  
 - COV+: 0 / NR<sup>#</sup> (range: 0-3)  
 - CON: 2 / NR<sup>#</sup> (range: 0-5)  
 Groups comparison: COV+ = CON in post-RP  
**Dyspnea post-STST (Borg scale):**  
 - COV+: 5 / NR<sup>#</sup> (range: 3-8) (|Δ| +2.5 (range: -2-7))  
 - CON: 5 / NR<sup>#</sup> (range: 1-10) (|Δ| +2 (range: 0-6))  
 Groups comparison: COV+ = CON in post-RP and for |Δ|  
**SaO<sub>2</sub> pre-STST (%):**  
 - COV+: 95.1±1.9 / NR<sup>#</sup>

N/A

Adherence and tolerability:  
 One drop-out after first session for privacy reasons (not included in the final evaluation).

	- COV+: 111±19 / NR <sup>#</sup> (Δ  43±25) - CON: 102±15 / NR <sup>#</sup> (Δ  23±12) Groups comparison: COV+ = CON in post-RP, COV+ > CON for Δ	- CON: 94.8±1.9 / NR <sup>#</sup> Groups comparison: COV+ = CON in post-RP <b>SaO<sub>2</sub> post-STST (%):</b> - COV+: 91.8±3.3 / NR <sup>#</sup> - CON: 92.5±1.7 / NR <sup>#</sup> Groups comparison: COV+ = CON in post-RP				<u>Biological parameters:</u> <b>Lymphocytes, leukocytes:</b> ↗ (for the two groups) Groups comparison: COV+ > CON in post-RP <b>IL-10:</b> ↗ (for the two groups) Groups comparison: COV+ = CON <b>IL-6:</b> - COV+: ↗ - CON: → Groups comparison: COV+ = CON <b>IgA-S:</b> - COV+: ↗ - CON: → Groups comparison: COV+ > CON in post-RP <b>TNF-α:</b> - COV+: → - CON: ↗ Groups comparison: COV+ = CON
Mohamed et al., 2021 [54]	N/A	N/A		<b>QoL:</b> ↗ (for the two groups) Groups comparison: COV+ > CON in post-RP		<u>Adherence and tolerability:</u> <b>Drop-out:</b> n=3 for COV+ and n=2 for CON
Ozyemisci Taskiran et al., 2021 [55]	Results provided only for n=5 patients in the COV+ group and n=9 patients in the CON group and only in post-RP <b>Muscle strength (score 1-60):</b> - COV+: median: 58 (range: 48-60) - CON: median: 57 (range: 48-60) Groups comparison: COV+ = CON <b>Handgrip (kg):</b> - COV+: median: 30 (range: 7-32) - CON: median: 22 (range: 6-36) Groups comparison: COV+ = CON <b>Restricted range of motion (n in sample):</b> - COV+: 1 (shoulder: n=1) - CON: 2 (shoulder: n=1, finger flexion: n=1) Groups comparison: COV+ = CON	N/A		Results provided only for n=5 patients in the COV+ group and n=9 patients in the CON group and only in post-RP <b>Physical function:</b> COV+ > CON <sup>£</sup> <b>Pain, Role limitations-physical, Role limitations-emotional, Mental health, Social functioning, Energy, General health:</b> COV+ = CON <b>Tremor in the hands (n in sample):</b> - COV+: 2 - CON: 8 Groups comparison: COV+ < CON <sup>£</sup>		<u>Adherence and tolerability:</u> <b>Mortality:</b> - COV+: n=8/18 - CON: n=5/17 <sup>µ</sup>
Pancera et al., 2021 [56]	Results analysed from raw data for n=6 T0 / T1 / T2 <b>Muscle strength (score 0-60):</b> 51±2 / 55±3** / 59±2*** <b>SPPB (score 0-12):</b> 1±3 / 9±5**** / 12±0****	Results analysed from raw data for n=6 <b>PI<sub>max</sub>:</b> → <b>PE<sub>max</sub>:</b> ↗ <sup>£</sup>		Results analysed from raw data for n=6 <b>QoL:</b> ↗ <b>Disability level:</b> ↘		Results analysed from raw data for n=6 <u>Other:</u> <b>BMI, Quadriceps girth left and right:</b> ↗ <u>Adherence and tolerability:</u> <b>Drop-out:</b> one patient discharged early because of an acute gallbladder problem unrelated to the RP (not included in results). <u>Other:</u> 80% of patients discharged at home, 9% were discharged to a skilled nursing facility or subacute rehabilitation facility, 6% required medical transfer off the unit to an acute medical floor, 5% were transferred to another unit/hospital for further rehabilitation.
Patel et al., 2021 [57]	<b>ΔDistance ambulated (m):</b> +224 [95%CI: 172, 276]*** (ES: large)	<b>Could breathe on room air (% of sample):</b> 68 / 81% <sup>#</sup> <b>Need for oxygen on exertion (% of sample):</b> 23 / 14% <sup>#</sup>		<b>AMPAC for basic mobility and daily activities:</b> ↗ Groups comparison: intubated patients > non-intubated patients for Δ, patients receiving psychotherapy > patients without psychotherapy for ΔAMPAC for daily activities and trend for ΔAMPAC for basic mobility <b>Ambulatory status (% of sample):</b> 66 / 92% <sup>#</sup>		<u>Adherence and tolerability:</u> no information <u>Correlations:</u> - Positive correlation between disability level and STST frequency (n=51) at admission
Piquet et al., 2021 [58]	Groups comparison: ICU+ = ICU-, LONG+ (>14 days in acute care, n=50) = LONG- (<14 days in acute care, n=50) in all pre-RP measures	<b>Respiratory rate pre-STST, SaO<sub>2</sub> pre- and post-STST:</b> →		<b>Disability level (n=89):</b> ↘ Groups comparison: ICU+ = ICU-, LONG+ = LONG- in pre-RP		

	<p><b>10-rep STST (s) (n=51):</b> 30.7±3.5 / 28.7±9.3**  <b>STST Frequency x100 (Hz) (n=51):</b> 26.9±15.1 / 36.9±15.1*** (Δ +37%)  <b>HR pre-STST (bpm) (n=50):</b> 88±16 / 90±17  <b>HR post-STST (bpm) (n=50):</b> 103±21 / 103±21  <b>RPE pre-STST (Borg scale) (n=37):</b> 0.7±1.4 / 0.2±0.7  <b>RPE post-STST (Borg scale) (n=37):</b> 3.0±2.3 / 2.1±1.5* (Δ -30%)  <b>Handgrip left (kg):</b> 17.0±9.8 / 20.1±9.2***  <b>Handgrip right (kg):</b> 19.2±9.9 / 21.9±9.6*** (Δ +15%)  <b>Mean handgrip (left+right) (kg):</b> 18.1±9.8 / 20.9±9.5***  Groups comparison: ICU+ &gt; ICU- for Δ  At discharge, mean grip strength remained 10% below normal values in that age range.</p>	<p><b>Respiratory rate post-STST:</b> ∩  <b>Need for oxygen therapy (% of sample):</b> 58 / 3%#</p>		<p>(p&lt;0.001<sup>u</sup>) and at discharge (p&lt;0.001<sup>u</sup>)  - Negative correlation between disability level and handgrip (n=48) at admission (p&lt;0.01<sup>u</sup>) and at discharge (p&lt;0.01<sup>u</sup>)  - Negative correlation between handgrip and days spent in ICU (n=16) at admission (trend<sup>u</sup>) and at discharge (p&lt;0.05<sup>u</sup>)  - Negative correlation between handgrip and RPE post-STST at discharge (p&lt;0.05)</p> <p><u>Adherence and tolerability:</u>  Death of 2 subjects. 79% of discharges home or to a relative's home, 15% of transfers to a COVID-free unit for further inpatient rehabilitation.</p>
Puchner et al., 2021 [59]	<p><b>6MWT (m):</b> 323±196 / 499±103*** (Δ +176±137)</p>	<p><b>FVC, FEV1, TLC, DLCO, P<sub>I</sub>max:</b> ↗  <b>FEV1/FVC:</b> ∩  <b>RV:</b> ↗<sup>ε</sup>  <b>pH:</b> ∩<sup>ε</sup>  <b>PaO<sub>2</sub>, PaCO<sub>2</sub>:</b> →</p>	<p><b>Disability level:</b> ∩</p>	<p><u>Adherence and tolerability:</u>  No information but 7 patients excluded due to missing data.</p>
Rodriguez-Blanco et al., 2021 [60]	<p><b>6MWT (m):</b>  - COV+: 440±164 / 520±135* (Δ +80±126)  - CON: 380±129 / 380±136 (Δ 0±26)  Groups comparison: COV+ = CON in pre- and post-RP, COV+ &gt; CON for Δ  <b>30-s STST (n rep):</b>  - COV+: 12.3±4.8 / 13.8±5.7* (Δ +1.5±2.2)  - CON: 10.5±2.3 / 9.9±2.0* (Δ -0.6±0.9)  Groups comparison: COV+ &gt; CON in pre- and post-RP and for Δ  <b>RPE post-30-s STST (Borg scale):</b>  - COV+: 4.8±1.7 / 2.6±0.9*** (Δ -2.2±1.3)  - CON: 4.8±1.8 / 4.8±1.5 (Δ +0.1±1.3)  Groups comparison: COV+ = CON in pre-RP, COV+ &gt; CON in post-RP and trend for Δ</p> <p>No difference between females and males subjects for the two groups (details of data are available in article).</p>	<p>N/A</p>	<p>N/A</p>	<p><u>Adherence and tolerability:</u>  <b>Adherence:</b> 90%  Program found effective, safe, and feasible</p>
Saeki et al., 2021 [61]	<p><i>Results analysed from raw data for parameters assessed in all subjects (n=4)</i>  <b>6MWT (m) from 1 mo to 6 mo:</b> 491±44 / 542±31*  <b>Muscle strength (score 1-60) from ICU discharge to 6 mo:</b> 52±3 / 57±3* / 60±1*** / 60±0***  <b>Gait speed (m/s) from hospital discharge to 6 mo:</b> 1.0±0.2 / 1.4±0.1 / 2.2±0.8*  <b>Handgrip right (kg) from 1 mo to 6 mo:</b> 23.8±10.6 / 33.9±5.6  <b>Handgrip left (kg) from 1 mo to 6 mo:</b> 24.9±4.0 / 31.6±6.8*</p>	<p><b>SaO<sub>2</sub> pre- and post-6MWT from 1 mo to 6 mo:</b> →</p>	<p><b>Disability level from ICU discharge to 6 mo:</b> ∩ (all patients achieved 100 (BI score) from 1 mo after hospital discharge)</p>	<p><u>Adherence and tolerability:</u> no information</p>
Spielmanns et al., 2021 a [62]	<p>N/A</p>	<p>N/A</p>	<p>Groups comparison for <b>Disability level:</b> COV+ &lt; COV- in pre-RP, COV+ = COV- in post-RP, COV+ &lt; COV- for Δ # for pre vs post-RP</p>	<p><u>Adherence and tolerability:</u>  2 patients were transferred to acute hospital because of respiratory failure (one of them died).</p>
Spielmanns et al., 2021 b [63]	<p><b>6MWT (m):</b>  - COV+: 176±141 / 357±132*** (Δ +180±101)  - COV-: 210±128 / 312±126*** (Δ +102±89)  Groups comparison: COV+ &lt; COV- in pre-RP, COV+ &gt; COV- in post-RP and for Δ</p>	<p>N/A</p>	<p><b>Disability level:</b> ∩ (for the two groups)  Groups comparison: COV+ = COV- in pre-RP, COV+ &lt; COV- in post-RP, COV+ &gt; COV- for Δ  <b>Wellbeing:</b> ↗ (for the two groups)  Groups comparison: COV+ = COV- in pre-RP, COV+ &gt; COV- in post-RP and for Δ</p>	<p><u>Adherence and tolerability:</u> no information</p>
Stavrou et al., 2021 [64]	<p><b>6MWT (m):</b> 434±102 / 519±95***  <b>6MWT (%pred):</b> 84±17 / 99±11***  <b>VO<sub>2peak</sub> estimated from 6MWT (ml/min/kg):</b> 14.9±2.4 / 16.9±2.2***  <b>Metabolic equivalent estimated from 6MWT (METs):</b> 4.3±0.7 / 4.8±0.6***  <b>HR pre-6MWT (bpm):</b> 77±16 / 78±12  <b>HR post-6MWT (bpm):</b> 111±19 / 107±17<sup>u</sup></p>	<p><b>Dyspnea pre-6MWT:</b> →  <b>Dyspnea post-6MWT:</b> ∩  <b>FVC, FEV1, DLCO (%pred):</b> →  <b>Chest circumference difference between maximal inhalation and exhalation:</b> ↗  <b>SaO<sub>2</sub> pre- and post-6MWT:</b> →  <b>SaO<sub>2</sub> 1min post-6MWT:</b> ∩<sup>u</sup></p>	<p><b>Sleep quality:</b> ↗</p>	<p><u>Biological parameters:</u>  <b>Plasma oxydant capacity:</b> ↗  <b>ROS:</b> →</p> <p><u>Other:</u>  <b>BMI, FM, Visceral fat, Neck circumference:</b> ∩</p>

	<p>HR 1min post-6MWT (bpm): 90±16 / 88±16  HR 4e and 5e min of 6MWT: pre-RP &gt; post-RP<sup>‡</sup>  HR (%pred<sup>‡</sup>): 71±11 / 67±11*  SBP pre-6MWT (mmHg): 139±16 / 129±9**  SBP post-6MWT (mmHg): 160±14 / 152±12*  SBP 1min post-6MWT (mmHg): 142±12 / 138±8  DBP pre-6MWT (mmHg): 84±16 / 84±9  DBP post-6MWT (mmHg): 88±13 / 88±12  DBP 1min post-6MWT (mmHg): 83±12 / 83±9  Lower extremity fatigue pre-6MWT (Borg scale): 0.3±0.8 / 0.1±0.6  Lower extremity fatigue post-6MWT (Borg scale): 1.0±0.8 / 0.8±0.6  30-s STST (n rep): 11.4±3.2 / 14.1±2.7***  HR difference pre/post 30-s STST (bpm): 24±11 / 24±15  Handgrip (kg): 31.9±10.2 / 33.2±9.8</p>	<p>SaO<sub>2</sub> 4e min of 6MWT: pre-RP &lt; post-RP  SaO<sub>2</sub> difference pre/post 30-s STST: 1.7±1.3 / 1.5±2.3*</p>	<p>Muscle mass: ↗  Body surface area, Rest metabolic rate,  Circumference differences between right  and left Arm, Thigh, and Calf: →</p>	
<p>Steere et al., 2021 [65]</p>	<p>NR</p>	<p>NR</p>	<p>N/A</p>	<p>Adherence and tolerability: no information</p>
<p>Sun et al., 2021 [66]</p>	<p>Baseline (n=31) / 2 wk (n=29) / 3 wk (n=31)  <b>Elevate legs in bed (n in sample):</b>  - Can: n=27 / n=28 / n=31  - Can't: n=4 / n=1 / n=0  Baseline vs 2 wk NS<sup>‡</sup>, Baseline vs 3 wk*<sup>‡</sup>  <b>Stand and sit by yourself (n in sample):</b>  - Can: n=27 / n=28 / n=31  - Can't: n=4 / n=1 / n=0  Baseline vs 2 wk NS<sup>‡</sup>, Baseline vs 3 wk*<sup>‡</sup>  <b>Wear clothes by yourself (n in sample):</b>  - Can: n=19 / n=28 / n=31  - Can't (short of breath slightly): n=7 / n=0 / n=0  - Can't (short of breath significantly): n=5 / n=1 / n=0  Baseline vs 2 wk**<sup>‡</sup>, Baseline vs 3 wk***<sup>‡</sup>  <b>Wear shoes by yourself (n in sample):</b>  - Can: n=21 / n=28 / n=31  - Can't: n=10 / n=1 / n=0  Baseline vs 2 wk***<sup>‡</sup>, Baseline vs 3 wk***<sup>‡</sup>  <b>Go to the toilet by yourself (n in sample):</b>  - Can: n=31 / n=29 / n=31<sup>‡</sup>  - Can't: n=0 / n=0 / n=0<sup>‡</sup>  Details on statistical analysis between 2 wk and 3 wk are available in the article.</p>	<p><b>Dyspnea, Oxygen intake:</b> ↘  SaO<sub>2</sub>: ↗  <b>Need for oxygen therapy, Whitish sputum:</b> ↘    Baseline (n=31) / 2 wk (n=29) / 3 wk (n=31)  <b>Productive cough (n in sample):</b>  - Easy: 6 / n=3 / NR  - Difficult: 3 / 2 / NR  - Can't cough phlegm: 8 / 1 / NR  Baseline vs 2 wk**<sup>‡</sup>  <b>When feel shortness breath (n in sample):</b>  - Prostration: 1 / 0 / 0  - Stroll: 12 / 3 / 0  - Scoot: 17 / 26 / 31  - No shortness breath: 1 / 0 / 0  Baseline vs 2 wk**<sup>‡</sup>, Baseline vs 3 wk***<sup>‡</sup>  Details on statistical analysis between 2 wk and 3 wk are available in the article.</p>	<p>Baseline (n=31) / 2 wk (n=29) / 3 wk (n=31)  <b>Sleep quality (n in sample):</b>  - Good: 5 / 6 / 24  - Wake up 1-2 times a night: 23 / 23 / 7  - Can't sleep: 3 / 0 / 0  Baseline vs 2 wk NS<sup>‡</sup>, Baseline vs 3 wk***<sup>‡</sup>  <b>Effect of cough on life (n in sample):</b>  - No effect: 15 / 7 / 1  - Marginal effect: 8 / 22 / 30  - Serious effect: 8 / 0 / 0  Baseline vs 2 wk NS<sup>‡</sup>, Baseline vs 3 wk NS<sup>‡</sup>  <b>When feel fatigue (n in sample):</b>  - Walk: 25 / 28 / 31  - Go to the toilet: 6 / 1 / 0  Baseline vs 2 wk<sup>‡</sup>, Baseline vs 3 wk NS<sup>‡</sup>  <b>Whether palpitate (n in sample):</b>  - Never: 10 / 22 / 29  - Seldom: 20 / 7 / 2  - Usually: 1 / 0 / 0  Baseline vs 2 wk**<sup>‡</sup>, Baseline vs 3 wk***<sup>‡</sup>  Details on statistical analysis between 2 wk and 3 wk are available in the article.    Baseline vs wk 2 and wk 3  <b>Fatigue:</b> ↗  <b>Shortness breath, Cough, Sputum production:</b> ↘</p>	<p>Biological parameters:  Baseline vs 2 wk  <b>Lymphocytes, ALB, Total cholesterol:</b> ↗  <b>Neutrophils, CRP, Procalcitonin:</b> ↘  <b>WBC, RBC, Hemoglobin, Triglycerids:</b> →  Baseline vs 3 wk  <b>RBC, Hemoglobin, Lymphocytes, ALB, Total cholesterol:</b> ↗  <b>Neutrophils, CRP:</b> ↘  <b>Procalcitonin:</b> ↘<sup>‡</sup>  <b>WBC, Triglycerids:</b> →  Details on statistical analysis between 2 wk and 3 wk are available in the article.    <b>Others:</b>  Baseline (n=31) / 2 wk (n=29) / 3 wk (n=31)  <b>Dietary habits (n in sample):</b>  - As usual: 28 / 28 / 1<sup>‡</sup>  - Less than usual: 3 / 1 / 0<sup>‡</sup>    Adherence and tolerability:  In the first 3 days of rehabilitation: n=21 with side effects of muscle soreness and fatigue, but side effects disappeared within 1 wk.</p>
<p>Tozato et al., 2021 [67]</p>	<p>6MWT (m): 396±82 / 604±78*  Handgrip right (kg): 20.4±8.8 / 26.9±2.8  Handgrip left (kg): 18.6±6.9 / 25.2±4.2<sup>‡</sup>  HR<sub>max</sub> during 6MWT (bpm): 131±16 / 148±14  RPE<sub>max</sub> during 6MWT (Borg scale): 4.8±2.2 / 3.0±2.2  Double product at rest (HR x SBP): 12.1±1.3 / 9.9±2.0*  IRM knee extension right and left (kg): 7.3±5.3 / 15.5±7.1*  IRM shoulder abduction right (kg): 1.7±0.9 / 2.6±0.5*  IRM shoulder abduction left (kg): 1.6±0.9 / 2.4±0.5  IRM elbow flexion right (kg): 2.2±0.7 / 3.6±1.1<sup>‡</sup>  IRM elbow flexion left (kg): 2.1±0.5 / 3.4±0.8<sup>‡</sup></p>	<p>SaO<sub>2min</sub> during 6MWT: →</p>	<p>N/A</p>	<p>Adherence and tolerability: no information</p>
<p>Udina et al., 2021 [68]</p>	<p>6MWT (m) (n=22): 159±154 / 346±112***  <b>SPPB (score 0-12):</b>  - Total groups: 5.4±2.7 / NR<sup>‡</sup> (Δ +3.7±2.1)  - ICU+: 5.5±2.8 / NR<sup>‡</sup> (Δ +4.4±2.1)  - ICU-: 5.3±2.6 / NR<sup>‡</sup> (Δ +2.5±1.7)  Groups comparison: ICU- &lt; ICU+ for Δ  <b>SPPB Balance (score 0-4):</b>  - Total groups: 2.8±1.3 / NR<sup>‡</sup> (Δ +0.8±1.1)</p>	<p>N/A</p>	<p><b>Disability level:</b> ↘ (for the two groups, NS for groups comparison for Δ)  <b>Delirium:</b> although none of the patient had delirium at admission, post-COVID-19 cognitive function was mildly impaired in the whole cohort and within both groups</p>	<p>Adherence and tolerability:  No death during the intervention and all were discharge home</p>

- ICU+: 2.7±1.3 / NR<sup>§</sup> (Δ +1.1±1.2)  
 - ICU-: 3.1±1.2 / NR (Δ +0.4±0.7)  
 Groups comparison: ICU- < ICU+ (trend) for Δ

**SPPB Gait speed (m/s):**

Total groups: 0.5±0.2 / NR<sup>§</sup> (Δ +0.3±0.2)  
 - ICU+: 0.5±0.3 / NR<sup>§</sup> (Δ +0.4±0.2)  
 - ICU-: 0.5±0.2 / NR<sup>§</sup> (Δ +0.2±0.1)  
 Groups comparison: ICU- < ICU+ for Δ

**SPPB Chair stand (s):**

- Total groups: 35.4±21.4 / NR<sup>§</sup> (Δ -14.1±16.9)  
 - ICU+: 33.7±21.1 / NR<sup>§</sup> (Δ -15.3±16.9)  
 - ICU-: 38.1±22.3 / NR<sup>§</sup> (Δ -12.2±17.6)  
 Groups comparison: ICU- = ICU+ for Δ

**Standing balance on a single leg (n in sample maintaining 10s):**

- Total groups: n=3 / n=13<sup>§</sup>  
 - ICU+: n=1 / n=10<sup>§</sup>  
 - ICU-: n=2 / n=1

Groups comparison: NR

**Unassisted gait (n in sample):**

- Total groups: n=19 / n=33<sup>§</sup>  
 - ICU+: n=13 / n=20<sup>§</sup>  
 - ICU-: n=6 / n=13<sup>§</sup>

Groups comparison: NR

Zampogna et al., 2021 [69]	<b>6MWT (m) (n=42):</b> 229±103 / 328±98*** <sup>‡</sup> (for n=81 at discharge: 298±117) <b>6MWT (%pred) (n=42):</b> 48±19 / 68±15%*** <sup>‡</sup> <b>SPPB (score 0-12):</b> 3.2±3.7 / 6.9±3.8 <sup>§</sup>	N/A	<b>Disability level:</b> ∩	<u>Adherence and tolerability:</u> 31% of patients in level A, 62% shifted from level A to level B, 7% in level B (70% of adherence in this level)
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%pred: percentage of predicted value, 10MWT: 10-minute walk test, 6MWT: 6-minute walk test, 95%CI: 95% confidence interval, ALB: albumin, AMPAC: activity measure for post-acute care 6 clicks, ASM: appendicular skeletal muscle mass, BI: Barthel index, BMI: body mass index, BNP: brain natriuretic peptide, bpm: beats per minute, CO<sub>2</sub>: carbon dioxide, CON: controlled group (COVID-19 subjects who didn't performed rehabilitation program), COV+: COVID-19 subjects who performed rehabilitation program, COV-: subjects without COVID-19 infection who performed rehabilitation program, CPET: cardiopulmonary exercise test, CRP: C-reactive protein, DLCO: diffusing capacity for carbon monoxide, DBP: diastolic blood pressure, EI: independent exercise group, EQ5D: EuroQol questionnaire - 5 dimensions, ES: effect size, ESWT: endurance shuttle walking test, f: female subjects, FAC: Functional ambulatory category, FEV1: forced expiratory volume in 1 second, FFM: fat-free mass, Fi: fraction of inspired gas, FIM: functional independence measure, FM: fat mass, FVC: forced vital capacity, HPT: home in-person physical therapy group, HR: heart rate, ICU: intensive care unit, IL: interleukine, Ig: immunoglobulin, IQR: interquartile range, KCO: carbon monoxide transfer coefficient, LDH: lactate dehydrogenase, m: male subjects, min: minute, mMRC: modified Medical Research Council, mo: month, MRC: Medical Research Council, N/A: not applicable, NR: not reported, NRS: numerical rating scale, O<sub>2</sub>: oxygen, Pa: partial pressure of a gas, PEF: peak expiratory flow, PE<sub>max</sub>: maximal expiratory pressure, PI<sub>max</sub>: maximal inspiratory pressure, QoL: quality of life, rep: repetition, RBC: red blood cells, RM: repetition maxima, ROS: reactive oxygen species, RP: rehabilitation program, RPE: rating of perceived exertion, RV: residual volume, s: second, SaO<sub>2</sub>: oxygen saturation, SBP: systolic blood pressure, SF-36: short form 36 health survey questionnaire, SPPB: short physical performance battery, STST: sit-to-stand test, TLC: total lung capacity, TNF-α: Tumor Necrosis Factor-alpha, VAS: visual analog scale, VC: vital capacity, VPT: virtual physical therapy group, WBC: white blood cell, wk: week. Δ: change between pre-rehabilitation program and post-rehabilitation program, <sup>‡</sup>: unclear, NS: no significant difference, <sup>‡</sup>p<0.1, \* p<0.05, \*\*p<0.01, \*\*\*p<0.001, \*\*\*\*p<0.0001, <sup>§</sup>significant but no p-value versus T0 (pre-RP measure), <sup>#</sup> no apparent statistics, >: significantly higher, <: significantly lower, =: no statistical difference between groups. Effect size (d de Cohen's): <0.2 = very small, <0.5 = small, <0.8 = moderate, ≥0.8 = large.