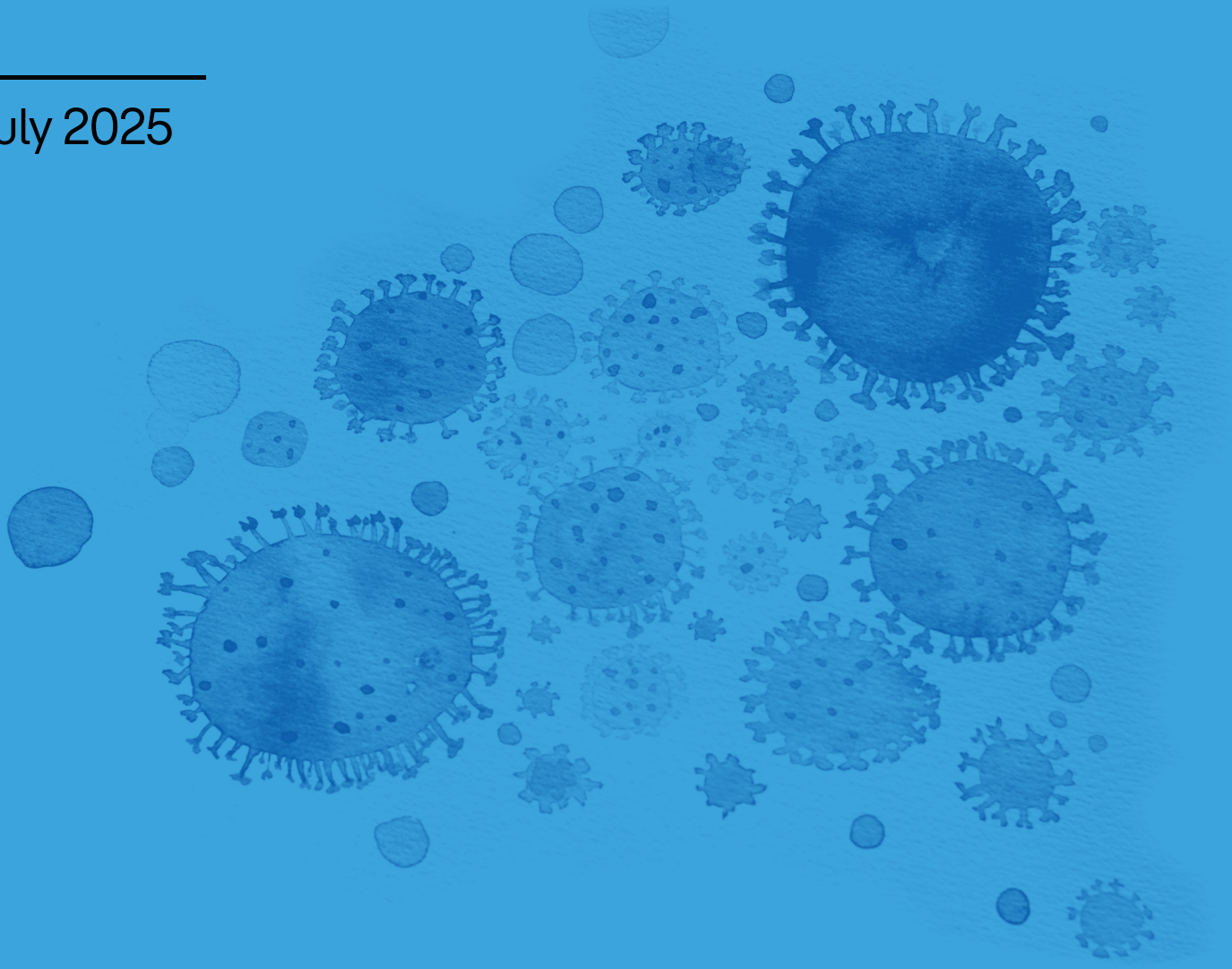
London-York Policy Research Programme Evidence Review Facility
Supporting national policy development and implementation

Treatment and rehabilitation of Long COVID

Quarterly scopes of the literature. Summary of the evidence January 2022 – April 2025

July 2025



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Treatment and rehabilitation of Long COVID: Quarterly scopes of the literature. Summary of the evidence January 2022 – April 2025

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Key points

- Across 12 quarterly reports, we identified and assessed 197 randomised controlled trials (RCTs) published between January 2022 and March 2025 that evaluated treatment or rehabilitation for Long COVID.
- Most trials focused on individuals experiencing generalised/multiple symptoms of Long COVID (n=73); olfactory/gustatory dysfunction (n=38); impaired respiratory or cardiovascular function or physical fitness (n=38) and fatigue/lack of energy (n=32). Trials also focused on treating neuropsychiatric sequela (n=10); cognitive dysfunction (n=9); lung abnormalities (n=5); as well as 'other' miscellaneous effects (n=8).
- The percentage of RCTs focused on olfactory/gustatory dysfunction decreased from 29% of all trials published between January 2022 and the start of September 2023 to 12% between September 2023 and March 2025. Conversely, the percentage of trials that focused on generalised/multiple symptoms of Long COVID increased over the same time frame from just over a fifth (22%) to almost a half (48%).
- One hundred and twenty-five interventions evaluated a range of treatments, including drugs, supplements, psychological therapies and alternative approaches such as acupuncture. Seventy-two trials evaluated rehabilitation-focused interventions based primarily on exercise, strength/resistance training and/or breathing training.
- Eight of the 197 trials were rated positively for all 13 quality criteria assessed; another 40 met 11 or 12 criteria. The majority of trials were rated positively for between three and ten criteria (n=149).

Introduction

To inform the development of a Long COVID plan, and support future policy and service delivery, NHS England and the Department of Health and Social Care in England requested that we conduct regular evidence scans of the Long COVID literature. Specifically, we were asked to provide regular updates on two strands of research:

a) published and ongoing systematic reviews on Long COVID.

b) published randomised controlled trials evaluating treatment or rehabilitation for Long COVID.

This report summarises strand b – published RCTs evaluating treatment or rehabilitation for Long COVID. For this strand of the work, we published 12 quarterly reports of the evidence which covered the period January 2022 to March 2025.[1-12] All reports are available from the EPPI Centre website. We have also produced an online interactive map of the evidence.

Method

Identification of studies

To identify relevant studies for our first report published in July 2022, we searched a living systematic map of Long COVID-19 evidence maintained by staff at the London-York NIHR Policy Reviews Facility. We screened all studies categorised as 'Treatment Evaluation' in the map, which were published between 1st January to 1st June 2022.

We also searched the Cochrane Central Register of Controlled Trials (CENTRAL) PubMed and CINAHL databases using a range of key terms that have been used in the literature to describe symptoms and effects persisting beyond the acute stage of COVID-19 infection. Searches of

CENTRAL were restricted to 1st January to 1st June 2022. Searches of PubMed and CINAHL covered the three-month period between March and June 2022 to identify any trials that had not yet been incorporated into CENTRAL.

For all other reports (reports 2 to 12) we searched five databases to identify relevant studies: CENTRAL MEDLINE, Embase, PsycINFO and CINAHL. We translated the CENTRAL search strategy for use in each of the other four databases and used study design search filters to restrict retrieval to randomised controlled trials. Searches were limited to studies added to the databases or published between 2022 and 2024, and no language restrictions were applied. Due to the rapid nature of the project, the database searches were designed to balance the need to retrieve as many relevant trials as possible against the limited time available for screening. Records were downloaded into EndNote and deduplicated against the search results from previous quarterly reports. One reviewer screened title and abstracts; two reviewers screened the full texts of all potentially relevant trials. Any disagreements on the eligibility of a study were resolved by consensus. An example search strategy, taken from the April 2025 report, is provided in Appendix 1 (page 19).

Study selection

Studies were screened for inclusion against the following criteria:

Population - patients with Long COVID, which we conceptualised broadly as experiencing at least one symptom or effect that persists or develops after acute COVID-19 infection. No restrictions were placed on the socio-demographic characteristics of participants or COVID severity. We also did not apply criteria relating to the time period after acute infection owing to variation in how Long COVID has been defined in the literature.

Interventions - any intervention aimed at treating or rehabilitating patients with Long COVID. This could include, but was not limited to, medication, supplements, and physical therapy. Interventions that had a primary focus on general rehabilitation from COVID-19 following hospitalisation or severe infection were excluded.

Outcomes – primary outcomes related to the effectiveness, cost-effectiveness, safety or side effects of interventions. Studies could also report outcomes related to the implementation of interventions. We excluded studies that only had a primary focus on intermediate outcomes such as blood biomarkers.

Study design - prospective trials with random allocation of participants to intervention and comparator groups. When designed and conducted to a high standard, a randomised controlled trial is often the most robust type of primary study design for investigating intervention effectiveness.[13] We excluded studies that were solely a post hoc or secondary analysis of a RCT.

Publication type and status - any publication type, except pre-prints and conference abstracts, which reports findings from a RCT (e.g., full papers, research letters, brief reports etc).

Quality assessment

Each study was appraised according to the Joanna Briggs Institute (JBI) Checklist for Randomized Controlled Trials.[14] In contrast to the Cochrane Risk of Bias Tool,[15] the JBI checklist does not require an assessment of bias for specific outcomes. It provides instead a general appraisal of each trial as a whole, which was needed for this programme of work as we

were not seeking to extract and synthesise outcome data. Assessments were conducted by one reviewer and checked by another. The appraisal identified potential sources of bias and threats to the validity and reliability of study findings. The full checklist is provided in Appendix 2 (page 27).

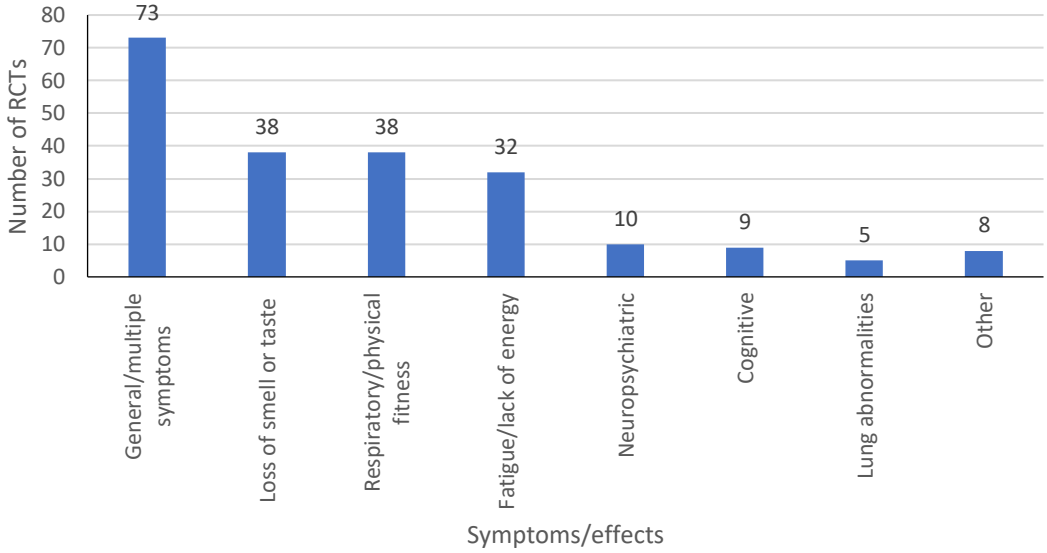
Findings

We screened 5014 records across the 12 reports and included 197 RCTs. The average number of RCTs included in our 12 reports was 16; the largest number was 23 (January 2025) and the smallest 11 (October 2022).

RCT Focus – symptoms/effects

Figure 1 summarises the focus of the 197 included trials. It shows that trials focused primarily on four main types of persistent problems: generalised/multiple symptoms of Long COVID (n=73); olfactory/gustatory dysfunction (n=38); impaired respiratory or cardiovascular function or physical fitness (n=38) and fatigue/lack of energy (n=32). A smaller number of trials focused on treating neuropsychiatric sequela (n=10); cognitive dysfunction (n=9) and lung abnormalities (n=5). Eight trials addressed a number of 'other' issues, most commonly decreased quality of life or ability to perform daily activities (n=3) and musculoskeletal problems (n=2). Twelve of the 197 trials focused on more than one specific category of symptoms/effects.

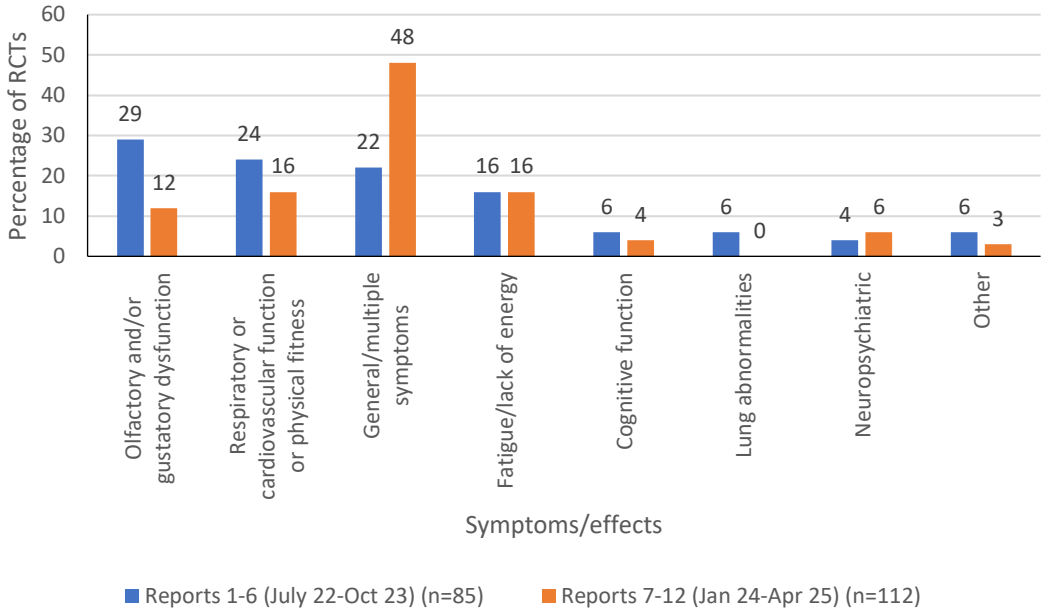
Figure 1: RCT focus (n=197)



To explore change in trial focus over time, we divided the 12 reports into two groups: reports 1 to 6 (covering the period January 2022 to beginning of September 2023) and reports 7 to 12 (September 2023 to March 2025). We then calculated the proportion of trials in the two combined groups that focused on each category of symptoms/effects, and this is shown in Figure 2. The largest differences over time were found for trials focused on olfactory/gustatory dysfunction and generalised/multiple symptoms of Long COVID. Twenty-nine percent (n=25) of all trials included in the first six reports (n=85) had a focus on olfactory/gustatory dysfunction compared to 12% (n=13) in the last six reports (n=112). Notably, we did not identify any trials of interventions for persistent olfactory/gustatory dysfunction in our last two reports covering the period between September 2024 and March 2025. The percentage of included trials that focused on generalised/multiple symptoms of Long COVID increased from 22% (n=19) in

reports 1-6 to 48% (n=54) in reports 7-12. There was a decline over time in the percentage of trials focused on the treatment of lung abnormalities from 6% in reports 1-6 to zero trials in reports 7-12. Similarly, the percentage of trials evaluating treatments for a specific problem with respiratory or cardiovascular function, most commonly dyspnoea, decreased from 24% in reports 1-6 to 16% in reports 7-12. There was little change over time in the proportion of trials focused specifically on fatigue, cognitive dysfunction or neuropsychiatric issues.

Figure 2: RCT focus over time (combined reports 1-6 and 7-12)



NB: totals exceed 100% because 12 trials focused on more than one specific category of symptoms/effects.

Intervention type

Of the 197 included trials, seven focused primarily on intervention feasibility/safety and reported findings of clinical effectiveness as secondary outcomes. One trial had a primary focus on intervention cost-effectiveness based on quality of life; 185 assessed clinical effectiveness as the primary outcome. Four trials assessed both clinical effectiveness and feasibility as primary outcomes. We categorised each intervention into two types - drugs/therapy or rehabilitation. In total, 125 of the 197 interventions were categorised as drugs/therapy, which included various medication, oral supplements, psychological therapies and alternative treatments such as acupuncture. Seventy-two interventions were categorised as rehabilitation, which were ones based primarily on exercise, strength/resistance training and/or breathing training. A summary of all 197 interventions by treatment type and report is provided in Tables 1 and 2, which, due to their length, follow the conclusion on pages 10-16. The tables also include the category of persistent symptoms each intervention was intended to treat.

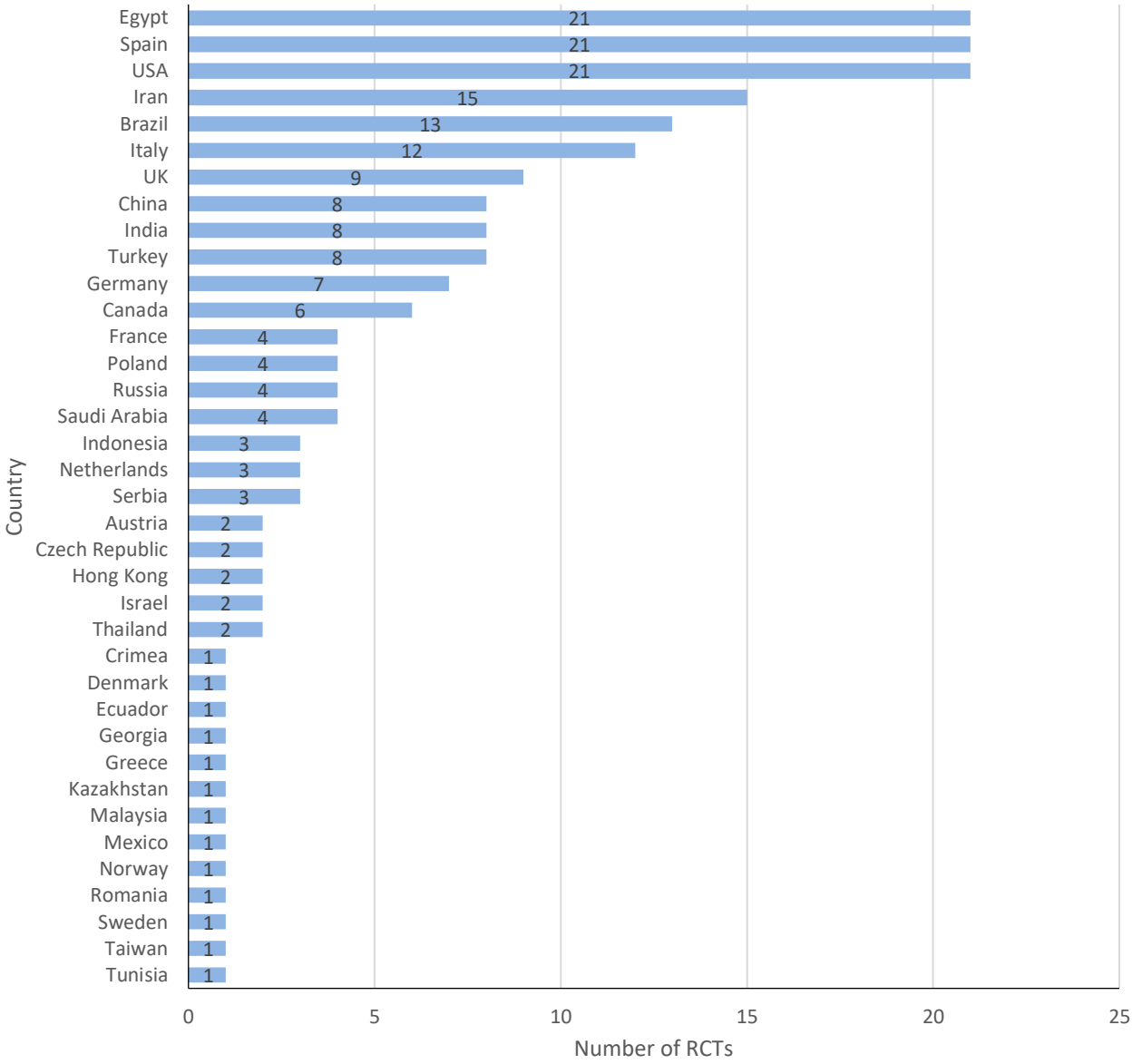
While trials evaluated a wide range of drugs and therapies (see Table 1), multiple studies evaluated the same, or similar, types of treatment. For example, interventions for olfactory/gustatory dysfunction commonly involved some form of olfactory training, either as a sole therapy, or in combination with drugs or other treatments (n=18). Other types of therapies

evaluated in multiple trials included: platelet rich plasma (n=4); vagus nerve stimulation (n=4) and other forms of electrical stimulation (n=5); low intensity lasers (n=7), which included one trial that assessed photobiomodulation with olfactory training.

Countries

Figure 3 shows that the largest number of trials were conducted in Egypt (n=21); Spain (n=21); and the USA (n=21); 40 other trials were from Iran (n=15); Brazil (n=13); and Italy (n=12). Trials conducted in these six countries accounted for over half of all RCTs (n=103). Ninety-four trials were conducted in 31 other countries, the largest number of which were from the UK (n=9).

Figure 3: Countries in which trials were conducted



Participants

There was considerable variation and ambiguity in the post COVID time-related criteria used for recruiting participants across the 197 trials. However, we determined that over three quarters (n=152) recruited participants who had experienced persistent effects for at least four weeks after symptom onset or diagnosis, or at least two weeks after recovery or hospital discharge

(assuming a minimum of two weeks from onset to discharge or recovery). In 103 of these 152 trials, participants had persistent effects for at least 12 weeks after symptom onset or diagnosis. Seventeen trials recruited individuals with persistent effects from a point less than four weeks after symptom onset or diagnosis or less than two weeks after recovery or hospital discharge. In 21 trials, participants were recruited after recovery or discharge, but the post COVID time was not reported or unclear. The remaining seven trials recruited individuals 'within', 'up to' or 'after' a specific time, or event, for example within eight weeks of acute infection.

Trial quality

Table 3 summarises our assessment of included trials against the 13 JBI appraisal criteria.

Table 3: Assessment of trial quality

Report	Number of appraisal criteria met (maximum 13)		
	13	11-12	3-10
Report 1 July 2022 (n=14)	1	4	9
Report 2 Oct 2022 (n=11)	1	5	5
Report 3 Jan 2023 (n=12)	2	5	5
Report 4 Apr 2023 (n=18)	1	4	13
Report 5 July 2023 (n=18)	2	3	13
Report 6 Oct 2023 (n=12)	0	1	11
Report 7 Jan 2024 (n=21)	0	5	16
Report 8 Apr 2024 (n=15)	0	2	13
Report 9 July 2024 (n=19)	0	0	19
Report 10 Oct 2024 (n=16)	0	5	11
Report 11 Jan 2025 (n=23)	0	5	18
Report 12 Apr 2025 (n=18)	1	1	16
Total	**8**	**40**	**149**

We rated eight of the 197 trials as having a low risk of bias for all 13 appraisal criteria; 40 others were assessed as meeting 11 or 12 criteria. Three quarters of trials were rated positively for between three and ten criteria (n=149). Insufficient reporting of key information about trials was a common issue, which meant that we were often unable to determine whether criteria had been met. For example, in half of the trials (n=98), we could not tell if an appropriate procedure had been used to prevent researchers from knowing whether the next patient would be allocated to the treatment or comparator group (allocation concealment). We were also unable to tell if an appropriate statistical analysis had been conducted in 84 trials, most commonly because there was insufficient information reported about the sample size requirements of the study.

We frequently identified other issues across the trials that we assessed, for example, an intention to treat (ITT) analysis was not conducted in 79 trials and in 27 others we could not tell if it had been used. Most trials also did not receive a positive assessment for criteria relating to the blinding of study participants (n=117) and/or the personnel who administered the treatment (n=150). However, it should be noted that the nature of the intervention in some trials is likely to have precluded the blinding of these individuals.

Conclusion

To conclude, this document summarises evidence from 197 RCTs published between January 2022 and April 2025 that evaluated treatment or rehabilitation for Long COVID. Trials focused most frequently on individuals experiencing generalised/multiple symptoms of Long COVID (n=73); olfactory/gustatory dysfunction (n=38); impaired respiratory or cardiovascular function or physical fitness (n=38) and fatigue/lack of energy (n=32). Other trials addressed neuropsychiatric sequela (n=10); cognitive dysfunction (n=9); lung abnormalities (n=5) and a combined group of 'other' problems (n=8).

We identified change in trial focus over time, particularly in relation to olfactory/gustatory dysfunction and generalised/multiple symptoms of Long COVID. The proportion of trials focused on olfactory/gustatory dysfunction decreased from 29% of the total number in reports 1-6 to 12% in reports 7-12. Conversely, the percentage of trials that focused on generalised/multiple symptoms of Long COVID increased from just over a fifth (22%) of the total in our first six reports to almost half (48%) in the last six reports.

One hundred and twenty-five interventions evaluated a wide range of drugs, supplements and other therapies. Seventy-two trials evaluated rehabilitation-focused interventions, which comprised primarily of various forms of exercise, strength/resistance training and/or breathing training.

One hundred and fifty-two trials recruited participants who had persistent effects for at least four weeks after symptom onset or diagnosis or less than two weeks after recovery or hospital discharge. In two thirds of the 152 trials, participants were recruited at least 12 weeks after symptom onset or diagnosis (n=103). In 45 trials, participants were recruited: after recovery or discharge, but the post COVID time was not reported or unclear (n=21); from less than four weeks after symptom onset or diagnosis or less than two weeks after recovery or hospital discharge (n=17); or 'within', 'up to' or 'after' a specific time, or event (n=7).

Trials were conducted in a large number of countries (n=37), but over half were carried out in just six countries: Egypt (n=21); Spain (n=21); USA (n=21); Iran (n=15); Brazil (n=13); and Italy (n=12). Nine of the 197 trials were conducted in the UK. Trial quality varied and inadequate reporting of key information about methods was a common issue. Eight trials were rated positively for all 13 quality criteria assessed; another 40 met 11 or 12 criteria. Most trials were rated positively for between three and ten criteria (n=149).

Table 1: drugs or therapy evaluated in included RCTs (n=125)

	Intervention *(primary symptoms/effects treated)*
R1 July 22 (n=8)	Molecular hydrogen inhalation (*not reported*) high-dose versus low-dose prednisolone (*lung abnormalities*) PEA-LUT and olfactory training (*olfactory and/or gustatory dysfunction)* Leronlimab (*general/multiple symptoms*) Aromatherapy (*fatigue/lack of energy*) Chisan®/ADAPT-232 (*general/multiple symptoms*) Fermented Carica papaya & Morinda citrifolia (*general/multiple symptoms*) Qingjin Yiqi (*general/multiple symptoms)*
R2 Oct 22 (n=10)	Intranasal tetra sodium pyrophosphate (*olfactory and/or gustatory dysfunction*) Sodium gluconate (*olfactory and/or gustatory dysfunction*) Vagus nerve stimulation (*neuropsychiatric*) 1-MNA (*respiratory/cardiovascular/physical fitness; fatigue/lack of energy*) PEA-LUT with and without olfactory training (*olfactory and/or gustatory dysfunction*) Theophylline and saline nasal irrigation (*olfactory and/or gustatory dysfunction*) Intranasal mometasone furoate (*olfactory and/or gustatory dysfunction*) Olfactory training (n=2) (*olfactory and/or gustatory dysfunction*) Hyperbaric oxygen therapy (*general/multiple symptoms*)
R3 Jan 23 (n=8)	Intranasal Ivermectin (*olfactory and/or gustatory dysfunction)* Pirfenidone (*lung abnormalities*) Treamid (*lung abnormalities*; *respiratory/cardiovascular/physical fitness*) Photobiomodulation (*fatigue/lack of energy; other - performing daily activities*) High dose coenzyme Q10 therapy (*general/multiple symptoms*) Prednisolone in addition to olfactory training (*olfactory and/or gustatory dysfunction)* PEA-LUT (*cognitive function; fatigue/lack of energy*) Formula C (*general/multiple symptoms)*
R4 Apr 23 (n=10)	Vagus nerve stimulation (*neuropsychiatric*) Olfactory training (*olfactory and/or gustatory dysfunction)* Nebivolol (*respiratory/cardiovascular/physical fitness)* Mindfulness-based neuro-meditation (*cognitive dysfunction; fatigue/lack of energy*; *neuropsychiatric)* Bimodal visual-olfactory training (*olfactory and/or gustatory dysfunction)*

	Topical steroids, antihistamine nasal spray and combined therapy (*olfactory dysfunction)* Fast dissolving insulin films (*olfactory and/or gustatory dysfunction)* Transcranial direct current stimulation (*fatigue/lack of energy)* L-Arginine plus vitamin C (*fatigue/lack of energy)* Platelet-rich plasma injections (*olfactory and/or gustatory dysfunction)*
R5 July 23 (n=13)	Platelet-rich plasma injections (*olfactory and/or gustatory dysfunction)* Laser acupuncture (*general/multiple symptoms*) UmPEA-LUT and olfactory training (*olfactory and/or gustatory dysfunction)* AXA1125 (*fatigue/lack of energy)* DTPA nasal spray (*olfactory and/or gustatory dysfunction)* Nintedanib versus Pirfenidone (*lung abnormalities*) 'Fit after COVID' online CBT *(fatigue/lack of energy)* Omega-3 fatty acid (*olfactory and/or gustatory dysfunction)* ImmunoSEB (systemic enzymes) and ProbioSEB CSC3 (probiotics) (fatigue/lack of energy) Diode lasers (*olfactory and/or gustatory dysfunction)* Tadalafil (o*ther -reproductive*) Brainmax® (*fatigue/lack of energy)* E-stim -electrical stimulation *(other - musculoskeletal)*
R6 Oct 23 (n=10)	Intranasal EDTA with olfactory training *(olfactory and/or gustatory dysfunction)* Hydroxychloroquine and clarithromycin (*general/multiple symptoms*) Vitamin A and olfactory training *(olfactory and/or gustatory dysfunction)* olfactory training, UmPEA-LUT or combined therapy *(olfactory and/or gustatory dysfunction)* Budesonide nasal irrigation and olfactory training *(olfactory and/or gustatory dysfunction)* Dexamethasone injection and olfactory training *(olfactory and/or gustatory dysfunction)* Hyperbaric oxygen therapy (*cognitive dysfunction)* Famotidine (*cognitive function)* Transcranial direct current stimulation (*fatigue/lack of energy)* Amygdala and insula retraining - Gupta program (*general/multiple symptoms*)
R7 Jan 24 (n=13)	Celecoxib monotherapy (*neuropsychiatric)* Photobiomodulation, transmucosal irradiation of blood, B-complex supplementation *(olfactory and/or gustatory dysfunction)* Platelet-rich plasma injections *(olfactory and/or gustatory dysfunction)* Alpha-lipoic acid and olfactory training *(olfactory and/or gustatory dysfunction)*

	Gabapentin *(olfactory and/or gustatory dysfunction)* Vortioxetine (*general/multiple symptoms*) Acceptance and commitment therapy (*other - resilience and quality of life*) Complex rehabilitation methods with and without acupuncture *(general/multiple symptoms)* Donepezil hydrochloride (*cognitive dysfunction)* Metoprolol versus ivabradine (*respiratory/cardiovascular/physical fitness)* Homeopathic products (*fatigue/lack of energy)* Creatine *(fatigue/lack of energy)* Brainmax® *(fatigue/lack of energy)*
R8 Apr 24 (n=8)	Sodium phytate nasal spray (*olfactory and/or gustatory dysfunction)* Titrating oxygen-flow system (*respiratory/cardiovascular/physical fitness)* Amantadine *(fatigue/lack of energy)* Transcranial direct current stimulation *(fatigue/lack of energy)* SIM01 - probiotics and prebiotics *(general/multiple symptoms)* Lifestyle self-adjustment *(general/multiple symptoms)* Photobiomodulation with olfactory training (*olfactory and/or gustatory dysfunction)* Internet-based group psychotherapy *(general/multiple symptoms)*
R9 July 24 (n=9)	RSLV-132 *(fatigue/lack of energy)* umPEALUT, ALA, or both combined with olfactory training *(olfactory and/or gustatory dysfunction)* Topical platelet-rich plasma *(olfactory and/or gustatory dysfunction)* PsiCoRes - third-generation therapies *(general/multiple symptoms)* Biosound therapy *(general/multiple symptoms)* Frequency-controlled ear acupuncture *(olfactory and/or gustatory dysfunction)* Olfactory training and topical nasal corticosteroid *(olfactory and/or gustatory dysfunction)* Creatine supplementation with or without glucose *(fatigue/lack of energy)* Hydrogen-rich water consumption *(general/multiple symptoms)*
R10 Oct 24 (n=11)	Forskolin -Indian Coleus plant extract *(olfactory and/or gustatory dysfunction)* Astragalus root extract *(fatigue/lack of energy)* Tele-counselling *(general/multiple symptoms)* High-dose vitamin D *(general/multiple symptoms)* Mobile app-based mindfulness (*neuropsychiatric)* Guided imagery and Lazarus multimodal therapy (*neuropsychiatric)*

	Nirmatrelvir-Ritonavir *(general/multiple symptoms)* Major ozone autohemotherapy *(general/multiple symptoms)* Olfactory training with or without topical corticosteroids *(olfactory and/or gustatory dysfunction)* Lactoferrin treatment *(general/multiple symptoms)* Intermittent hypoxia exposure (*respiratory/cardiovascular/physical fitness; fatigue/lack of energy)*
R11 Jan 25 (n=13)	Personalised health behaviour support *(general/multiple symptoms)* Beetroot juice (*fatigue/lack of energy)* Sulphur thermal water inhalation (*respiratory/cardiovascular/physical fitness)* Portable oxygen therapy (*cognitive dysfunction)* Lithium aspartate (*cognitive function; fatigue/lack of energy)* Mindfulness-based cognitive therapy and Beck's cognitive therapy (*neuropsychiatric)* Auriculotherapy (*respiratory/cardiovascular/physical fitness)* Clears-belong Plus® - combined plant extract *(general/multiple symptoms)* Homeopathic products *(general/multiple symptoms)* Probiotics and prebiotics (*fatigue/lack of energy)* Systemic ozone therapy *(general/multiple symptoms)* AKL-T01, EndeavorOTC® - videogame-based therapeutic intervention (*cognitive function)* Transcutaneous electrical nerve stimulation (TENS) *(general/multiple symptoms)*
R12 Apr 25 (n=12)	Vitamin K2 and D3 *(general/multiple symptoms)* Vascular photobiomodulation (*neuropsychiatric)* Remotely delivered weight management *(general/multiple symptoms)* Plasma exchange therapy *(general/multiple symptoms)* Pressing needle therapy (*neuropsychiatric)* Outpatient programme based on cognitive and behavioral therapy *(general/multiple symptoms)* Balneotherapy *(general/multiple symptoms)* Auricular vagus nerve stimulation *(general/multiple symptoms)* Magnesium and vitamin D (*neuropsychiatric)* Omega-3 *(general/multiple symptoms)* Thiamine (vitamin B1) *(general/multiple symptoms)* Low-level Tragus stimulation (*respiratory/cardiovascular/physical fitness)*

Table 2: Types of rehabilitation evaluated in included RCTs (n=72)

	Intervention *(primary symptoms/effects treated)*
R1 July 22 (n=6)	Inspiratory muscle training (*respiratory/cardiovascular/physical fitness)* Low versus high-intensity aerobic training with resistance training *(other- musculoskeletal)* Breathing exercises delivered by telemedicine (*respiratory/cardiovascular/physical fitness)* Telerehabilitation (*respiratory/cardiovascular/physical fitness)* ENO Breathe - online breathing and wellbeing programme (*respiratory/cardiovascular/physical fitness)* Pulmonary telerehabilitation (*respiratory/cardiovascular/physical fitness)*
R2 Oct 22 (n=1)	Telerehabilitation programme for post-discharge COVID-19 patients (TERECO) (*respiratory/cardiovascular/physical fitness)*
R3 Jan 23 (n=4)	Pilates and aqua-Pilates *(respiratory/cardiovascular/physical fitness; fatigue/lack of energy)* Home-based respiratory muscle training *(respiratory/cardiovascular/physical fitness; fatigue/lack of energy)* Multicomponent exercise training (*general/multiple symptoms*) Manual diaphragm release and inspiratory muscle training (*lung abnormalities*; *respiratory/cardiovascular/physical fitness*)
R4 Apr 23 (n=8)	Active cycle breathing (*respiratory/cardiovascular/physical fitness)* Low to moderate-intensity aerobic exercise training (*respiratory/cardiovascular/physical fitness)* Concurrent training, inspiratory muscle training and combined training (*general/multiple symptoms*) Home-based inspiratory muscle training (*respiratory/cardiovascular/physical fitness)* Telerehabilitation respiratory and strength exercises *(general/multiple symptoms)* Home-based pulmonary rehabilitation with and without telecoaching *(general/multiple symptoms)* Pulmonary exercise with inspiratory muscle training (*respiratory/cardiovascular/physical fitness)* Home-based versus hospital-based pulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)*
R5 July 23 (n=5)	Tai Chi versus aerobic training *(general/multiple symptoms)* Pulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)* Low versus moderate-intensity aerobic training *(general/multiple symptoms)* Home-based exercise training *(general/multiple symptoms)* Telerehabilitation through ReCOVery APP *(general/multiple symptoms)*
R6 Oct 23 (n=2)	Telerehabilitation using functional exercises (*respiratory/cardiovascular/physical fitness)* Exercise training rehabilitation (*respiratory/cardiovascular/physical fitness)*
R7 Jan 24 (n=8)	Pulmonary telerehabilitation *(general/multiple symptoms)* Health care facilitation programme based on personal pilot support and digital interventions *(general/multiple symptoms)*

	Telerehabilitation - functional versus aerobic exercises, combined with breathing techniques *(general/multiple symptoms)* Incentive spirometer-based exercises (*respiratory/cardiovascular/physical fitness)* Water-based versus land-based exercise *(general/multiple symptoms)* Telerehabilitation with a detraining period *(general/multiple symptoms)* Therapeutic physical exercise *general/multiple symptoms)* Modified diaphragmatic training *(other - gastrointestinal)*
R8 Apr 24 (n=7)	Multidisciplinary telerehabilitation *(other – performing daily activities)* Telerehabilitation (*respiratory/cardiovascular/physical fitness)* Multicomponent rehabilitation *(general/multiple symptoms)* Online-guided physical activity (*fatigue/lack of energy)* Structured online supervised group rehabilitation *(general/multiple symptoms)* Moderate intensity continuous training and interval training *(general/multiple symptoms)* Pulmonary rehabilitation *(general/multiple symptoms)*
R9 July 24 (n=10)	Traditional treadmill exercise versus virtual reality simulated treadmill exercise *(general/multiple symptoms)* Asynchronous multimodal telerehabilitation (*fatigue/lack of energy)* Home-based pulmonary rehabilitation *(general/multiple symptoms)* Cardiopulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)* Cardiopulmonary rehabilitation *(general/multiple symptoms)* Resistance exercise programme *(general/multiple symptoms)* Home-based rehabilitation (*respiratory/cardiovascular/physical fitness)* Respiratory physiotherapy and neurorehabilitation exercises *(general/multiple symptoms)* Virtual pulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)* Inspiratory muscle training *(respiratory/cardiovascular/physical fitness)*
R10 Oct 24 (n=5)	Incentive spirometry and diaphragmatic breathing (*respiratory/cardiovascular/physical fitness)* Cardiopulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)* Telerehabilitation (n=2) *(general/multiple symptoms)* Unsupervised tele-exercise versus hybrid (supervised and unsupervised) *(general/multiple symptoms)*
R11 Jan 25 (n=10)	Aerobic training *(general/multiple symptoms)* Online and face-to-face Mat Pilates (*fatigue/lack of energy)* Home-based breathing and chest mobility exercises *(general/multiple symptoms)* Pulmonary telerehabilitation *(general/multiple symptoms)* Pilates *(general/multiple symptoms)*

	Cardiopulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)* Multimodal rehabilitation - online and synchronous *(general/multiple symptoms)* Combined pulmonary rehabilitation and progressive muscle relaxation (*respiratory/cardiovascular/physical fitness)* Structured online supervised group rehabilitation *(general/multiple symptoms)* Resistance training *(general/multiple symptoms)*
R12 Apr 25 (n=6)	Symptom-titrated exercise program *(general/multiple symptoms)* Face-to-face versus remote post-hospitalisation rehabilitation *(general/multiple symptoms)* Aerobic exercise with and without inspiratory and expiratory muscle training *(general/multiple symptoms)* Endurance versus combined resistance and endurance exercise *(general/multiple symptoms)* Remote versus hybrid (remote and face-to-face delivery) pulmonary rehabilitation (*respiratory/cardiovascular/physical fitness)* Telerehabilitation (*respiratory/cardiovascular/physical fitness)*

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3. Raine G, Khouja C, Khatwa M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update January 2023. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2023. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

4. Raine G, Khouja C, Khatwa M, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update April 2023. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2023. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

5. Raine G, Khouja C, Khatwa M, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update July 2023. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College; 2023. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

6. Raine G, Khouja C, Khatwa M, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update October 2023. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London 2023. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

7. Raine G, Khouja C, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update January 2024. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2024. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

8. Raine G, Khouja C, Fulbright H, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update April 2024. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2024. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

9. Raine G, Khouja C, Fulbright H, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update July 2024. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2024. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

10. Raine G, Khouja C, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update October 2024. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2024. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

11. Raine G, Khouja C, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update January 2025. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2025. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

12. Raine G, Khouja C, Harden M, Sutcliffe K, Sowden A. Treatment and rehabilitation of Long COVID: A scope of the literature. Update April 2025. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London; 2025. Available from: https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3860.

13. Bhide A, Shah P, Acharya G. A simplified guide to randomized controlled trials. Acta Obstetricia et Gynecologica Scandinavica. 2018;97:380-7.

14. Joanna Briggs Institute. Checklist for Randomized Controlled Trials. The University of Adelaide, Adelaide: Joanna Briggs Institute; 2017. Available from: https://jbi.global/critical-appraisal-tools.

15. Sterne J, Savović J, Page M, Elbers R, Blencowe N, Boutron I, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ. 2019;366.

Appendix 1

Example search strategy from April 2015 report

Cochrane Controlled Register of Trials (CENTRAL)
via Wiley http://onlinelibrary.wiley.com/
Issue: Issue 2 of 12, February 2025
Date searched: 3rd March 2025
Records retrieved: 2446

Although 2446 records were identified overall in CENTRAL, trial register records were removed from this set, leaving a total of 2099 records downloaded for this update.

#1 MeSH descriptor: [Post-Acute COVID-19 Syndrome] this term only 322
#2 MeSH descriptor: [COVID-19] this term only and with qualifier(s): [complications - CO] 420
#3 MeSH descriptor: [COVID-19] this term only 8229
#4 MeSH descriptor: [SARS-CoV-2] this term only 3551
#5 MeSH descriptor: [Syndrome] this term only 6926
#6 MeSH descriptor: [Survivors] this term only 1767
#7 #3 or #4 8462
#8 #5 or #6 8687
#9 #7 and #8 109
#10 #1 or #2 or #9 769
#11 (long next (covid* or covid-19 or covid19 or coronavirus) or longcovid*):ti,ab,kw 639
#12 (post next (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2) or postcovid*):ti,ab,kw 996
#13 ((post acute or postacute) near/2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 1751
#14 PASC:ti,ab,kw 86
#15 (sequela* near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 210
#16 (chronic near/2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 46
#17 (ongoing next (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 115
#18 ((long* term or longterm) near/3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 1062
#19 (persist* near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 343
#20 ((post discharg* or postdischarg*) near/4 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw1623
#21 ((long haul* or longhaul*) near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 875
#22 (surviv* near/3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 228
#23 (after next (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 374
#24 ((ongoing or lasting or prolonged or fluctuat* or residual* or continu* or linger*) near/6 (symptom* or effect* or complication* or sequela* or syndrome or illness* or disorder$ or

dysfunction* or impair* or impact* or consequence*) near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 211
#25 (OR #11-#24) 3319
#26 #10 or #25 with Cochrane Library publication date Between Jan 2022 and Mar 2025, in Trials 2430
#27 #10 or #25 with Publication Year from 2022 to 2025, in Trials 2291
#28 #26 or #27 2446

MEDLINE ALL
(includes: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE Daily and Ovid MEDLINE)
via Ovid http://ovidsp.ovid.com/
Date range: 1946 to February 28, 2025
Date searched: 3rd March 2025
Records retrieved: 1487

The MEDLINE strategy below includes a search filter to limit retrieval to RCTs using the Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE: sensitivity and precision-maximizing version (2023 revision); Ovid format.

Lefebvre C, Glanville J, Briscoe S, Littlewood A, Marshall C, Metzendorf M-I, Noel-Storr A, Rader T, Shokraneh F, Thomas J, Wieland LS. Technical Supplement to Chapter 4: Searching for and selecting studies. In: Higgins JPT, Thomas J, Chandler J, Cumpston MS, Li T, Page MJ, Welch VA (eds). Cochrane Handbook for Systematic Reviews of Interventions Version 6.4 (updated October 2023). Cochrane, 2023. Available from: www.training.cochrane.org/handbook.

1 Post-Acute COVID-19 Syndrome/ (4202)
2 COVID-19 post-intensive care syndrome.mp. (6)
3 COVID-19/co [Complications] (20374)
4 COVID-19/ or SARS-CoV-2/ (294346)
5 Syndrome/ (124997)
6 Survivors/ (32378)
7 5 or 6 (157250)
8 4 and 7 (1261)
9 1 or 2 or 3 or 8 (23464)
10 ((long adj (covid$ or covid-19 or covid19 or coronavirus)) or longcovid$).ti,ab,kf,ot,bt. (6987)
11 ((post adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) or postcovid$).ti,ab,kf,ot,bt. (13379)
12 ((post acute or postacute) adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (1369)
13 PASC.ti,ab,kf,ot,bt. (1236)
14 (sequela$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (3606)
15 (chronic adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (436)
16 (ongoing adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (3591)
17 ((long$ term or longterm) adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (2930)

18 (persist$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (5419)
19 ((post discharg$ or postdischarg$) adj4 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (106)
20 ((long haul$ or longhaul$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (301)
21 (surviv$ adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (3708)
22 (after adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (11746)
23 ((ongoing or lasting or prolonged or fluctuat$ or residual$ or continu$ or linger$) adj6 (symptom$ or effect$ or complication$ or sequela$ or syndrome or illness$ or disorder$ or dysfunction$ or impair$ or impact$ or consequence$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (3632)
24 or/10-23 (42087)
25 9 or 24 (57433)
26 exp randomized controlled trial/ (634458)
27 controlled clinical trial.pt. (95682)
28 randomi#ed.ab. (812723)
29 placebo.ab. (256363)
30 clinical trials as topic.sh. (204457)
31 randomly.ab. (454166)
32 trial.ti. (329943)
33 26 or 27 or 28 or 29 or 30 or 31 or 32 (1716775)
34 exp animals/ not humans.sh. (5311502)
35 33 not 34 (1585310)
36 25 and 35 (2016)
37 limit 36 to yr="2022 -Current" (1494)
38 (2022* or 2023* or 2024* or 2025*).dt. (5010901)
39 36 and 38 (1456)
40 37 or 39 (1503)
41 preprint.pt. (36674)
42 40 not 41 (1487)

Embase
via Ovid http://ovidsp.ovid.com/
Date range: 1974 to 2025 February 28
Date searched: 3rd March 2025
Records retrieved: 2248

The Embase strategy below includes a search filter to limit retrieval to RCTs:

Lefebvre C, Eisinga A, McDonald S, Paul N. Enhancing access to reports of clinical trials published world-wide - the contribution of EMBASE records to the Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library. *Emerg Themes Epidemiol* 2008;5:13

1 long COVID/ (9834)
2 ((long adj (covid$ or covid-19 or covid19 or coronavirus)) or longcovid$).ti,ab,kw,ot. (7354)
3 ((post adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) or postcovid$).ti,ab,kw,ot. (17094)

4 ((post acute or postacute) adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (1196)
5 PASC.ti,ab,kw,ot. (1534)
6 (sequela$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (4423)
7 (chronic adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (547)
8 (ongoing adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (3738)
9 ((long$ term or longterm) adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (3661)
10 (persist$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (6917)
11 ((post discharg$ or postdischarg$) adj4 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (200)
12 ((long haul$ or longhaul$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (318)
13 (surviv$ adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (5414)
14 (after adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (15964)
15 ((ongoing or lasting or prolonged or fluctuat$ or residual$ or continu$ or linger$) adj6 (symptom$ or effect$ or complication$ or sequela$ or syndrome or illness$ or disorder$ or dysfunction$ or impair$ or impact$ or consequence$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kw,ot. (4468)
16 or/2-15 (53366)
17 1 or 16 (54216)
18 random$.ti,ab. (2172541)
19 factorial$.ti,ab. (51415)
20 crossover$.ti,ab. (97243)
21 cross-over$.ti,ab. (39811)
22 placebo$.ti,ab. (391076)
23 (doubl$ adj blind$).ti,ab. (259383)
24 (singl$ adj blind$).ti,ab. (34864)
25 assign$.ti,ab. (535075)
26 allocat$.ti,ab. (226090)
27 volunteer$.ti,ab. (309508)
28 Crossover Procedure/ (81324)
29 double blind procedure/ (228902)
30 Randomized Controlled Trial/ (867095)
31 single blind procedure/ (58211)
32 controlled clinical trial/ (445043)
33 or/18-32 (3322752)
34 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/ (7200282)
35 33 not 34 (2966332)
36 17 and 35 (3825)
37 limit 36 to yr="2022 -Current" (3004)
38 (2022$ or 2023$ or 2024$ or 2025$).dd. (6213272)
39 36 and 38 (3132)
40 37 or 39 (3177)

41 (conference abstract or "conference review").pt. (5397936)
42 40 not 41 (2414)
43 limit 42 to "remove preprint records" (2248)

PsycINFO
via Ovid http://ovidsp.ovid.com/
Date range: 1806 to February 2025 Week 4
Date searched: 3rd March 2025
Records retrieved: 655

The PsycINFO strategy below includes a search filter to limit retrieval to RCTs developed by the information specialist at the Cochrane Common Mental Disorders Group.

1 post-covid-19 conditions/ (406)
2 covid-19/ (44601)
3 coronavirus/ (6233)
4 syndromes/ (18747)
5 sequelae/ (4134)
6 2 or 3 (47107)
7 4 or 5 (22812)
8 6 and 7 (411)
9 1 or 8 (775)
10 ((long adj (covid$ or covid-19 or covid19 or coronavirus)) or longcovid$).ti,ab,id,ot. (517)
11 ((post adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) or postcovid$).ti,ab,id,ot. (1647)
12 ((post acute or postacute) adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (88)
13 PASC.ti,ab,id,ot. (72)
14 (sequela$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (287)
15 (chronic adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (32)
16 (ongoing adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (439)
17 ((long$ term or longterm) adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (269)
18 (persist$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (417)
19 ((post discharg$ or postdischarg$) adj4 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (9)
20 ((long haul$ or longhaul$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (29)
21 (surviv$ adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (410)
22 (after adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (827)
23 ((ongoing or lasting or prolonged or fluctuat$ or residual$ or continu$ or linger$) adj6 (symptom$ or effect$ or complication$ or sequela$ or syndrome or illness$ or disorder$ or dysfunction$ or impair$ or impact$ or consequence$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,id,ot. (480)
24 or/10-23 (4192)

25 randomized clinical trials/ (606)
26 randomized controlled trials/ (1143)
27 clinical trials/ (12485)
28 clinical trial.md. (45705)
29 (randomi#ed or randomi#ation or randomi#ing).ti,ab,id. (121747)
30 randomly.ti,ab,id. (89782)
31 (RCT or "at random" or (random* adj3 (administ* or allocat* or assign* or class* or cluster* or control* or crossover or cross over or pragmatic or quasi or determine* or divide* or division or distribut* or expose* or fashion or number* or place* or recruit* or split or substitut* or treat*))).ti,ab,id. (141772)
32 (groups or (control* adj3 group*)).ab. (653919)
33 ((control* or trial or study or group*) and (waitlist* or wait* list* or ((treatment or care) adj2 usual))).ti,ab,id,hw. (21179)
34 ((single or double or triple or treble) adj2 (blind* or mask* or dummy)).ti,ab,id. (30744)
35 trial.ti. (42765)
36 (placebo or sham).ti,ab,id,hw. (61232)
37 treatment outcome.md. (25891)
38 treatment effectiveness evaluation/ (31037)
39 mental health program evaluation/ (2551)
40 or/25-39 (869709)
41 9 or 24 (4388)
42 40 and 41 (726)
43 limit 42 to yr="2022 -Current" (587)
44 (2022$ or 2023$ or 2024$ or 2025$).up. (609615)
45 42 and 44 (641)
46 43 or 45 (655)

CINAHL Complete
via Ebsco https://www.ebsco.com/
Date range: Inception to 20250303
Date searched: 3rd March 2025
Records retrieved: 1151

The CINAHL strategy below includes a search filter to limit retrieval to RCTs developed by Glanville et al.:

Glanville J, Dooley G, Wisniewski S, Foxlee R, Noel-Storr A. Development of a search filter to identify reports of controlled clinical trials within CINAHL Plus. *Health Info Libr J* 2019;36:73-90.

S1 (MH "Post-Acute COVID-19 Syndrome") 1,779
S2 TI (long N1 (covid* or covid-19 or covid19 or coronavirus) or longcovid*) OR AB (long N1 (covid* or covid-19 or covid19 or coronavirus) or longcovid*) 2,113
S3 TI (post N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2) or postcovid*) OR AB (post N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2) or postcovid*) 2,190
S4 TI (("post acute" or post-acute or postacute) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (("post acute" or post-acute or postacute) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 464
S5 TI PASC OR AB PASC 138

S6 TI (sequela* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (sequela* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 732
S7 TI (chronic N2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (chronic N2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 319
S8 TI (ongoing N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (ongoing N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 770
S9 TI ((long* N1 term or long-term or longterm) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((long* N1 term or long-term or longterm) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 1,283
S10 TI (persist* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (persist* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 1,177
S11 TI ((post N1 discharg* or post-discharg* or postdischarg*) N4 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((post N1 discharg* or post-discharg* or postdischarg*) N4 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 59
S12 TI ((long N1 haul* or long-haul* or longhaul*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((long N1 haul* or long-haul* or longhaul*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 89
S13 TI (surviv* N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (surviv* N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 1,239
S14 TI (after N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (after N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 5,196
S15 TI ((ongoing or lasting or prolonged or fluctuat* or residual* or continu* or linger*) N6 (symptom* or effect* or complication* or sequela* or syndrome or illness* or disorder$ or dysfunction* or impair* or impact* or consequence*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((ongoing or lasting or prolonged or fluctuat* or residual* or continu* or linger*) N6 (symptom* or effect* or complication* or sequela* or syndrome or illness* or disorder$ or dysfunction* or impair* or impact* or consequence*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 1,069
S16 (MH "Randomized Controlled Trials") 149,628
S17 (MH "Double-Blind Studies") 54,772
S18 (MH "Single-Blind Studies") 16,284
S19 (MH "Random Assignment") 90,466
S20 (MH "Pretest-Posttest Design") 58,408
S21 (MH "Cluster Sample") 5,938
S22 TI (randomised OR randomized) 159,279
S23 AB random* 414,520
S24 TI trial 204,195
S25 MH (sample size) AND AB (assigned OR allocated OR control) 4,514
S26 MH (placebos) 14,624
S27 PT (randomized controlled trial) 162,083
S28 AB (control W5 group) 153,769

S29 MH (crossover design) OR MH (comparative studies) 514,079
S30 AB (cluster W3 RCT) 526
S31 MH animals+ 102,172
S32 MH (animal studies) 154,233
S33 TI (animal model*) 3,940
S34 S31 OR S32 OR S33 247,515
S35 MH (human) 2,881,189
S36 S34 NOT S35 212,862
S37 S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 1,087,821
S38 S37 NOT S36 1,039,480
S39 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 13,849
S40 S38 AND S39 1,474
S41 S38 AND S39 Limiters - Publication Date: 20220101-20250331 1,134
S42 (ZD 2022* or 2023* or 2024* or 2025*) 386,257
S43 S40 AND S42 308
S44 S41 OR S43 1,151

Appendix 2

The Joanna Briggs Institute Critical Appraisal Checklist for Randomized Controlled Trials

Q1 Was true randomization used for assignment of participants to treatment groups? Yes, No, Unclear, NA

Q2 Was allocation to treatment groups concealed? Yes, No, Unclear, NA

Q3 Were treatment groups similar at the baseline? Yes, No, Unclear, NA

Q4 Were participants blind to treatment assignment? Yes, No, Unclear, NA

Q5 Were those delivering treatment blind to treatment assignment? Yes, No, Unclear, NA

Q6 Were outcomes assessors blind to treatment assignment? Yes, No, Unclear, NA

Q7 Were treatment groups treated identically other than the intervention of interest? Yes, No, Unclear, NA

Q8 Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed? Yes, No, Unclear, NA

Q9 Were participants analyzed in the groups to which they were randomized? Yes, No, Unclear, NA

Q10 Were outcomes measured in the same way for treatment groups? Yes, No, Unclear, NA

Q11 Were outcomes measured in a reliable way? Yes, No, Unclear, NA

Q12 Was appropriate statistical analysis used? Yes, No, Unclear, NA

Q13 Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial? Yes, No, Unclear, NA

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