

# Interventions for long COVID treatments

Prepared for the OUTPOST APT, HEAL COVID and ALCAP MRFF-funded projects

February 2025 (search performed on 03/03/2025)

The Bond and ALEC teams have completed full text screening of all studies published up to the end of February and have included a total of 150 RCTs. These trials were identified through a comprehensive systematic search on PubMed, Cochrane and Embase, plus pre-print servers. The search is also supplemented with updates from long COVID reviews that are being conducted by EPPI-Centre and Epistemonikos.

In February, 8 new RCTs on long COVID were published. These studies focused on; physical activity and physical therapy (k=2), therapeutic procedures (k=3) and complementary and alternative medicine (k=3)(see Table 1).

**Table 1: List of RCTs included in the February update**

Reference	Taxonomy category
<a href="#">Astley C, Drezner JA, Sieczkowska SM, Ihara A, Franco T, Gil S, DO Prado DML, Longobardi I, Suguita P, Fink T, Lindoso L, Matsuo O, Martins F, Bain V, Leal GN, Badue MF, Marques HH, Silva CA, Roschel H, Gualano B. Exercise in Pediatric COVID-19: A Randomized Controlled Trial. Med Sci Sports Exerc. 2025 Mar 1;57(3):514-523. doi: 10.1249/MSS.0000000000003589. Epub 2024 Nov 6. PMID: 39501479.</a>	<b>Physical activity/therapy</b> (combined exercise)
<a href="#">Yasaci Z, Mustafaoglu R, Ozgur O, Kuveloglu B, Esen Y, Ozmen O, et al. Virtual recovery: efficacy of telerehabilitation on dyspnea, pain, and functional capacity in post-COVID-19 syndrome. 2025.</a>	<b>Physical activity/therapy</b> (telerehabilitation-based exercise program)
<a href="#">España-Cueto S, Loste C, Lladós G, López C, Santos J, Dulsat G, et al. Plasma exchange therapy for the post COVID-19 condition: a phase II, double-blind, placebo-controlled, randomized trial. 2025. Contract No.: 1.</a>	<b>Therapeutic</b> (plasma exchange therapy)

<a href="#">Pfooser-Poschacher V, Keilani M, Steiner M, Schmeckenbecher J, Zwick RH, Crevenna R. Feasibility and acceptance of transdermal auricular vagus nerve stimulation using a TENS device in females suffering from long COVID fatigue. Wiener Klinische Wochenschrift.</a>	<b>Therapeutic</b> (VNS)
<a href="#">Wang Z, Zhu T, Li X, Lai X, Chen M. Tragus Nerve Stimulation Attenuates Postural Orthostatic Tachycardia Syndrome in Post COVID-19 Infection. 2025 Mar.</a>	<b>Therapeutic</b> (Tragus nerve stimulation)
<a href="#">Ovejero D, Ribes A, Villar-García J, Trenchs-Rodríguez M, Lopez D, Nogués X, et al. Balneotherapy for the treatment of post-COVID syndrome: a randomized controlled trial. 2025. Contract No.: 1.</a>	<b>Complementary</b> (Balneotherapy)
<a href="#">Qiao X, Han, L., Li, Y., Zhen, H, Dang, H, Chen, Y., Li, X. Clinical efficacy of olfactory training using aromatic traditional Chinese medicine in managing olfactory dysfunction induced by SARS-CoV-2. Rhinology. 2025;63(1):77-84.</a>	<b>Complementary</b> (Chinese medicine)
<a href="#">Rayapuraju A, Mohamed E, Reed P, Orui H, Pratt M, Friedopfer S, et al. Yogic Breathing and Guided Meditation Practices Address the Mental Fear Associated with Breathing, Fostering a Sense of Self-Stability among Long COVID Patients: a Mixed Methods Study. 2025.</a>	<b>Complementary</b> (Breathing and meditation)

In the absence of substantial high-quality trial evidence for interventions of interest (e.g. antivirals), the Living Evidence Group has commenced a systematic review for low dose naltrexone in long COVID. As there are no published RCTs on this drug to date, the Living Evidence Group will identify and review research literature from pre-post studies of low dose naltrexone in long COVID. This review is underway and the results will be reported to the project team shortly.

The table below lists all the trials and systematic reviews that have been identified since the beginning of the search. Please refer to Appendix A for a full reference list of RCTs that have been included to date.



Olfactory function/anosmia			11									11
Other (BrainMax, AXA1125)			2					1				3
<b>Non-pharmacological</b>			<b>83</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>8</b>	<b>127</b>
Physical Activity and physical therapy	31		37	1		1	5	1	3	3	2	53
Therapeutic procedures	6		17	1	2	1		2	1		3	27
Complementary and Alternative medicine	5		6			1	1		1		3	12
Behavioural, psychological, educational	2		6	1			1		1			9
Diet and dietary supplements	2		17	3			1	2	1	2		26
Other non-drug			0									0
Both drug and non-drug interventions	2		0									0
<b>Full texts included</b>	<b>56</b>	<b>20</b>	<b>102</b>	<b>7</b>	<b>2</b>	<b>4</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>6</b>	<b>8</b>	<b>150</b>

\*bovhyaluronidase azoximer (longidase), # Targeted drugs- includes both Leronlimab-CCR5-, and RNase

## Appendix A: Reference list of all studies included to date

### Pharmacological interventions n=23

<a href="#">Abdelazim MH, Abdelazim AH. Effect of Sodium Gluconate on Decreasing Elevated Nasal Calcium and Improving Olfactory Function Post COVID-19 Infection. Am J Rhinol Allergy. 2022;36(6):841-8.</a>	pre July 2024
<a href="#">Abdelazim MH, Abdelazim AH, Moneir W. The effect of intra-nasal tetra sodium pyrophosphate on decreasing elevated nasal calcium and improving olfactory function post COVID-19: a randomized controlled trial. Allergy Asthma Clin Immunol. 2022;18(1):67.</a>	pre July 2024
<a href="#">Abdelazim MH, Mandour Z, Abdelazim AH, Ismaiel WF, Gamal M, Abourehab MAS, et al. Intra Nasal Use of Ethylene Diamine Tetra Acetic Acid for Improving Olfactory Dysfunction Post COVID-19. Am J Rhinol Allergy. 2023;37(6):630-7.</a>	pre July 2024
<a href="#">Altemani A, Alanazi M, Altemani A, Alharbi A, Alsahali S, Alotaib N, et al. The Efficacy of Sodium Phytate as a Natural Chelating Agent in Reducing Elevated Calcium Levels in Nasal Mucus Among Individuals Experiencing Olfactory Dysfunction Following COVID-19: A Prospective Randomized Double-Controlled Clinical Trial. American journal of rhinology &amp; allergy. 2023;38:116-22.</a>	pre July 2024
<a href="#">Andrews JS, Boonyaratanakornkit JB, Krusinska E, Allen S, Posada JA. Assessment of the Impact of RNase in Patients With Severe Fatigue Related to Post-Acute Sequelae of SARS-CoV-2 Infection (PASC): A Randomized Phase 2 Trial of RSLV-132. Clin Infect Dis. 2024.</a>	pre July 2024
<a href="#">Dal Negro R, Turco P, Povero M. Nebivolol: an effective option against long-lasting dyspnoea following COVID-19 pneumonia - a pivotal double-blind, cross-over controlled study. Multidisciplinary respiratory medicine. 2022;17:886.</a>	pre July 2024
<a href="#">Gaylis NB, Ritter A, Kelly SA, Pourhassan NZ, Tiwary M, Sacha JB, et al. Reduced Cell Surface Levels of C-C Chemokine Receptor 5 and Immunosuppression in Long Coronavirus Disease 2019 Syndrome. Clin Infect Dis. 2022;75(7):1232-4.</a>	pre July 2024
<a href="#">Gupta S, Lee JJ, Perrin A, Khan A, Smith HJ, Farrell N, et al. Efficacy and Safety of Saline Nasal Irrigation Plus Theophylline for Treatment of COVID-19-Related Olfactory Dysfunction: The SCENT2 Phase 2 Randomized Clinical Trial. JAMA Otolaryngol Head Neck Surg. 2022;148(9):830-7.</a>	pre July 2024

<a href="#">Hamed S, Ahmed M. The effectiveness of cerebrolysin, a multi-modal neurotrophic factor, for treatment of post-covid-19 persistent olfactory, gustatory and trigeminal chemosensory dysfunctions: a randomized clinical trial. Expert review of clinical pharmacology. 2023;16:1261-76.</a>	pre July 2024
<a href="#">Hintschich CA, Dietz M, Haehner A, Hummel T. Topical Administration of Mometasone Is Not Helpful in Post-COVID-19 Olfactory Dysfunction. Life (Basel). 2022;12(10).</a>	pre July 2024
<a href="#">Imam MS, Abdelazim MH, Abdelazim AH, Ismaiel WF, Gamal M, Abourehab MAS, et al. Efficacy of pentasodium diethylenetriamine pentaacetate in ameliorating anosmia post COVID-19. Am J Otolaryngol. 2023;44(4):103871.</a>	pre July 2024
<a href="#">Kerget B, Çil G, Araz Ö, Alper F, Akgün M. Comparison of two antifibrotic treatments for lung fibrosis in post-COVID-19 syndrome: A randomized, prospective study. Medicina clinica (English ed). 2023;160:525-30.</a>	pre July 2024
<a href="#">Kwan ATH, Guo Z, Ceban F, Le GH, Wong S, Teopiz KM, et al. Assessing the Effects of Metabolic Disruption, Body Mass Index and Inflammation on Depressive Symptoms in Post-COVID-19 Condition: A Randomized Controlled Trial on Vortioxetine. Adv Ther. 2024;41(5):1983-94.</a>	pre July 2024
<a href="#">Lasheen H, Abou-Zeid M. Olfactory mucosa steroid injection in treatment of post-COVID-19 olfactory dysfunction: a randomized control trial. The Egyptian Journal of Otolaryngology. 2023;39.</a>	pre July 2024
<a href="#">Mahadev A, Hentati F, Miller B, Bao J, Perrin A, Kallogjeri D, et al. Efficacy of Gabapentin For Post-COVID-19 Olfactory Dysfunction: The GRACE Randomized Clinical Trial. JAMA otolaryngology-- head &amp; neck surgery. 2023;149:1111-.</a>	pre July 2024
<a href="#">McIntyre RS, Phan L, Kwan ATH, Mansur RB, Rosenblat JD, Guo Z, et al. Vortioxetine for the treatment of post-COVID-19 condition: a randomized controlled trial. Brain. 2024;147(3):849-57.</a>	pre July 2024
<a href="#">Schmidt F, Azar C, Goektas O. Treatment of Olfactory Disorders After SARS - CoViD 2 Virus Infection. Ear, nose, &amp; throat journal. 2023;1455613231168487-014556132311684.</a>	pre July 2024
<a href="#">Tanashyan M, Morozova S, Raskurazhev A, Kuznetsova P. A prospective randomized, double-blind placebo-controlled study to evaluate the effectiveness of neuroprotective therapy using functional brain MRI in patients with post-covid chronic fatigue syndrome. Biomed Pharmacother. 2023;168:115723.</a>	pre July 2024

<a href="#">Tanashyan MM, Raskurazhev AA, Kuznetsova PI, Bely PA, Zaslavskaya KI. [Prospects and possibilities for the treatment of patients with long COVID-19 syndrome]. Ter Arkh. 2022;94(11):1285-93.</a>	pre July 2024
<a href="#">Geng LN, Bonilla H, Hedlin H, Jacobson KB, Tian L, Jagannathan P, et al. Nirmatrelvir-Ritonavir and Symptoms in Adults With Postacute Sequelae of SARS-CoV-2 Infection: The STOP-PASC Randomized Clinical Trial. JAMA Intern Med. 2024.</a>	July 2024
<a href="#">Guttuso T, Jr., Zhu J, Wilding GE. Lithium Aspartate for Long COVID Fatigue and Cognitive Dysfunction: A Randomized Clinical Trial. JAMA Netw Open. 2024;7(10):e2436874.</a>	Sept 2024
<a href="#">Avdeev S, Ignatova G, Drapkina O, Popova V, Melnikova E, Chudinovskikh T, et al. Bovhyaluronidase azoximer for long-term pulmonary sequelae of COVID-19: a randomized, double-blind, placebo-controlled trial. 2024</a>	Nov 2024
<a href="#">Hohberger, B., M. Ganslmayer, T. Harrer, F. Kruse, S. Maas, T. Borst, R. Heimke-Brinck, A. Stog, T. Knauer, E. Rühl, V. Zeisberg, A. Skornia, A. Bartsch, A. Ströbel, M. Wytopil, C. Merkel, S. Hofmann, K. G. Schmidt, P. Lakatos, J. Schottenhamml, M. Herrmann, C. Mardin and J. Rech (2024). Safety, tolerability and clinical effects of BC007 (Rovunaptabin) on fatigue and quality of life in patients with post-COVID syndrome (reCOVer): a prospective, exploratory, randomised, placebo-controlled, double-blind, crossover phase IIa clinical trial. medRxiv.</a>	Jan 2025

### Non-pharmacological interventions = 127

<b><i>Physical activity and physical therapy n=53</i></b>	
<a href="#">Ahmad AM, Mohamed Awad Allah SA, Abd Elhaseeb GA, Elsharawy DE, Ahmed HS, Mohamed Abdelwahab MA. Effects of conventional versus virtual reality-simulated treadmill exercise on fatigue, cognitive function, and participant satisfaction in post-COVID-19 subjects. A randomized trial. J Exerc Sci Fit. 2024;22(4):316-21.</a>	pre July 2024
<a href="#">Alsharidah A, Kamel F, Alanazi A, Alhawsah E, Alharbi H, Alrshedi Z, et al. A Pulmonary Telerehabilitation Program Improves Exercise Capacity and Quality of Life in Young Females Post-COVID-19 Patients. Annals of rehabilitation medicine. 2023;47:502-10.</a>	pre July 2024

<p><a href="#">Berenguel Senén A, Gadella Fernández A, Godoy López J, Borrego Rodríguez J, Gallango Brejano M, Cepas Guillén P, et al. Functional rehabilitation based on therapeutic exercise training in patients with postacute COVID syndrome (RECOVER). Revista espanola de cardiologia (English ed). 2023;77:167-75.</a></p>	pre July 2024
<p><a href="#">Bileviciute-Ljungar I, Norrefalk J, Borg K. Improved Functioning and Activity According to the International Classification of Functioning and Disability after Multidisciplinary Telerehabilitation for Post-COVID-19 Condition-A Randomized Control Study. Journal of clinical medicine. 2024;13:970-.</a></p>	pre July 2024
<p><a href="#">Calvo-Paniagua J, Díaz-Arribas MJ, Valera-Calero JA, Ramos-Sánchez M, Fernández-de-Las-Peñas C, Navarro-Santana MJ, et al. An Educational, Exercise and Occupational Therapy-Based Telerehabilitation Program versus 'Wait-and-See' for Improving Self-Perceived Exertion in Patients with post-COVID Fatigue and Dyspnea: A Randomized Clinical Trial. Am J Phys Med Rehabil. 2024.</a></p>	pre July 2024
<p><a href="#">Çelik Z, Kafa N, Güzel NA, Köktürk N. The effects of physical activity tele-counseling intervention on physical activity, functional performance, and quality of life in post-COVID-19 conditions: a randomized controlled trial. Expert Rev Respir Med. 2024.</a></p>	pre July 2024
<p><a href="#">Del Corral T, Fabero-Garrido R, Plaza-Manzano G, Fernández-de-Las-Peñas C, Navarro-Santana M, López-de-Uralde-Villanueva I. Home-based respiratory muscle training on quality of life and exercise tolerance in long-term post-COVID-19: Randomized controlled trial. Ann Phys Rehabil Med. 2023;66(1):101709.</a></p>	pre July 2024
<p><a href="#">Espinoza-Bravo C, Arnal-Gómez A, Martínez-Arnau FM, Núñez-Cortés R, Hernández-Guillén D, Flor-Rufino C, et al. Effectiveness of Functional or Aerobic Exercise Combined With Breathing Techniques in Telerehabilitation for Patients With Long COVID: A Randomized Controlled Trial. Phys Ther. 2023;103(11).</a></p>	pre July 2024
<p><a href="#">Lai CY, Lin CH, Chao TC, Chang CC, Huang CY, Chiang SL. Effectiveness of a 12-week telerehabilitation training in people with long COVID: A randomized controlled trial. Ann Phys Rehabil Med. 2024;67(5):101853.</a></p>	pre July 2024
<p><a href="#">M K, A B, L D, P G, B D, P dT, et al. Feasibility of a Group-Based Telerehabilitation Intervention for Long COVID Management. ResearchSquare. 2022.</a></p>	pre July 2024



<p><a href="#">McGregor G, Sandhu H, Bruce J, Sheehan B, McWilliams D, Yeung J, et al. Clinical effectiveness of an online supervised group physical and mental health rehabilitation programme for adults with post-covid-19 condition (REGAIN study): multicentre randomised controlled trial. Bmj. 2024;384:e076506.</a></p>	pre July 2024
<p><a href="#">Okan F, Okan S, Duran Yücesoy F. Evaluating the Efficiency of Breathing Exercises via Telemedicine in Post-Covid-19 Patients: Randomized Controlled Study. Clin Nurs Res. 2022;31(5):771-81.</a></p>	pre July 2024
<p><a href="#">Pleguezuelos E, Del Carmen A, Moreno E, Miravittles M, Serra M, Garnacho-Castaño M. Effects of a telerehabilitation program and detraining on cardiorespiratory fitness in patients with post-COVID-19 sequelae: A randomized controlled trial. Scandinavian journal of medicine &amp; science in sports. 2023;34:e14543.</a></p>	pre July 2024
<p><a href="#">Pleguezuelos E, Del Carmen A, Moreno E, Serra-Prat M, Serra-Payá N, Garnacho-Castaño MV. Telerehabilitation improves cardiorespiratory and muscular fitness and body composition in older people with post-COVID-19 syndrome. J Cachexia Sarcopenia Muscle. 2024.</a></p>	pre July 2024
<p><a href="#">Samper-Pardo M, León-Herrera S, Oliván-Blázquez B, Méndez-López F, Domínguez-García M, Sánchez-Recio R. Effectiveness of a telerehabilitation intervention using ReCOVerry APP of long COVID patients: a randomized, 3-month follow-up clinical trial. Scientific reports. 2023;13:7943.</a></p>	pre July 2024
<p><a href="#">Samper-Pardo M, Oliván-Blázquez B, León-Herrera S, Sánchez-Arizcuren R, Casado-Vicente V, Sánchez-Recio R. Effectiveness of ReCOVerry APP to improve the quality of life of Long COVID patients: a 6-month follow-up randomized clinical trial. 2023.</a></p>	pre July 2024
<p><a href="#">Sarmiento A, Adodo R, Hodges G, Webber S, Sanchez-Ramirez D. Virtual pulmonary rehabilitation approaches in patients with post COVID syndrome: a pilot study. BMC pulmonary medicine. 2024;24:139.</a></p>	pre July 2024
<p><a href="#">Stölting A, Schröder D, Müllenmeister C, Behrens GMN, Klawitter S, Klawonn F, et al. Improvement in quality of life and cognitive function in Post Covid Syndrome after online occupational therapy: results from a randomized controlled pilot study. medRxiv. 2024.</a></p>	pre July 2024

<a href="#">Vallier JM, Simon C, Bronstein A, Dumont M, Jobic A, Paleiron N, et al. Randomized controlled trial of home-based vs. hospital-based pulmonary rehabilitation in post COVID-19 patients. Eur J Phys Rehabil Med. 2023;59(1):103-10.</a>	pre July 2024
<a href="#">Abo Elyazed TI, Abd El-Hakim AAE, Saleh OI, Sonbol MMF, Eid HA, Moazen E, et al. Diaphragmatic strengthening exercises for patients with post COVID-19 condition after mild-to-moderate acute COVID-19 infection: a randomized controlled study. J Rehabil Med. 2024;56:jrm25491.</a>	pre July 2024
<a href="#">Besnier F, Malo J, Mohammadi H, Clavet S, Klai C, Martin N, et al. Effects of Cardiopulmonary Rehabilitation on Cardiorespiratory Fitness and Clinical Symptom Burden in Long COVID: Results from the COVID-Rehab Randomized Controlled Trial. Am J Phys Med Rehabil. 2024.</a>	pre July 2024
<a href="#">Gaudreau-Majeau F, Gagnon C, Djedaa S, Bérubé B, Malo J, Iglesias-Grau J, et al. Cardiopulmonary rehabilitation's influence on cognitive functions, psychological state, and sleep quality in long COVID-19 patients: A randomized controlled trial. Neuropsychological rehabilitation. 2024;1-17.</a>	pre July 2024
<a href="#">Gomes Dos Santos EG, Vieira da Costa K, Cordeiro de Souza IT, Victor Dos Santos Felix J, Furtado Brandão CB, Michelle de Souza Fernandes V, et al. Effects of a cardiopulmonary rehabilitation protocol on functional capacity, dyspnea, fatigue, and body composition in individuals with post-COVID-19 syndrome: A randomized controlled trial. Physiother Res Int. 2024;29(2):e2086.</a>	pre July 2024
<a href="#">Jimeno-Almazán A, Buendía-Romero Á, Martínez-Cava A, Franco-López F, Sánchez-Alcaraz BJ, Courel-Ibáñez J, et al. Effects of a concurrent training, respiratory muscle exercise, and self-management recommendations on recovery from post-COVID-19 conditions: the RECOVE trial. J Appl Physiol (1985). 2023;134(1):95-104.</a>	pre July 2024
<a href="#">Jimeno-Almazán A, Franco-López F, Buendía-Romero Á, Martínez-Cava A, Sánchez-Agar JA, Sánchez-Alcaraz Martínez BJ, et al. Rehabilitation for post-COVID-19 condition through a supervised exercise intervention: A randomized controlled trial. Scand J Med Sci Sports. 2022;32(12):1791-801.</a>	pre July 2024

<a href="#">Kaczmarczyk K, Matharu Y, Bobowik P, Gajewski J, Maciejewska-Skrendo A, Kulig K. Resistance Exercise Program Is Feasible and Effective in Improving Functional Strength in Post-COVID Survivors. Journal of clinical medicine. 2024;13:1712-.</a>	pre July 2024
<a href="#">Kerling A, Beyer S, Dirks M, Scharbau M, Hennemann A, Dopfer-Jablonka A, et al. Effects of a randomized-controlled and online-supported physical activity intervention on exercise capacity, fatigue and health related quality of life in patients with post-COVID-19 syndrome. BMC sports science, medicine &amp; rehabilitation. 2024;16:33.</a>	pre July 2024
<a href="#">Kogel A, Machatschek M, Scharschmidt R, Wollny C, Lordick F, Ghanem M, et al. Physical exercise as a treatment for persisting symptoms post-COVID infection: review of ongoing studies and prospective randomized controlled training study. Clin Res Cardiol. 2023;112(11):1699-709.</a>	pre July 2024
<a href="#">McNarry MA, Berg RMG, Shelley J, Hudson J, Saynor ZL, Duckers J, et al. Inspiratory muscle training enhances recovery post-COVID-19: a randomised controlled trial. Eur Respir J. 2022;60(4).</a>	pre July 2024
<a href="#">Mooren J, Garbsch R, Schäfer H, Kotewitsch M, Waranski M, Teschler M, et al. Medical Rehabilitation of Patients with Post-COVID-19 Syndrome-A Comparison of Aerobic Interval and Continuous Training. Journal of clinical medicine. 2023;12:6739-.</a>	pre July 2024
<a href="#">Palau P, Domínguez E, Gonzalez C, Bondía E, Albiach C, Sastre C, et al. Effect of a home-based inspiratory muscle training programme on functional capacity in postdischarged patients with long COVID: the InsCOVID trial. BMJ Open Respir Res. 2022;9(1).</a>	pre July 2024
<a href="#">Pietranis KA, Izdebska WM, Kuryliszyn-Moskal A, Dakowicz A, Ciotkiewicz M, Kaniewska K, et al. Effects of Pulmonary Rehabilitation on Respiratory Function and Thickness of the Diaphragm in Patients with Post-COVID-19 Syndrome: A Randomized Clinical Trial. J Clin Med. 2024;13(2).</a>	pre July 2024
<a href="#">Romanet C, Wormser J, Fels A, Lucas P, Prudat C, Sacco E, et al. Effectiveness of exercise training on the dyspnoea of individuals with long COVID: A randomised controlled multicentre trial. Ann Phys Rehabil Med. 2023;66(5):101765.</a>	pre July 2024

<a href="#">Sánchez Milá Z, Rodríguez Sanz D, Martín Nieto A, Jiménez Lobo A, Ramos Hernández M, Campón Chekroun A, et al. Effects of a respiratory and neurological rehabilitation treatment plan in post Covid-19 affected university students. Randomized clinical study. Chronic Respiratory Disease. 2024;21.</a>	pre July 2024
<a href="#">Sánchez-Milá Z, Abuín-Porras V, Romero-Morales C, Almazán-Polo J, Velázquez Saornil J. Effectiveness of a respiratory rehabilitation program including an inspiration training device versus traditional respiratory rehabilitation: a randomized controlled trial. PeerJ. 2023;11:e16360-e.</a>	pre July 2024
<a href="#">Spiesshoefer J, Regmi B, Senol M, Jörn B, Gorol O, Elfeturi M, et al. Potential Diaphragm Muscle Weakness-related Dyspnea Persists Two Years after COVID-19 and Could Be Improved by Inspiratory Muscle Training: Results of an Observational and an Interventional Trial. Am J Respir Crit Care Med. 2024.</a>	pre July 2024
<a href="#">Tryfonos A, Pourhamidi K, Jörnåker G, Engvall M, Eriksson L, Elhallos S, et al. Functional Limitations and Exercise Intolerance in Patients With Post-COVID Condition: A Randomized Crossover Clinical Trial. JAMA Netw Open. 2024;7(4):e244386.</a>	pre July 2024
<a href="#">Stavrou VT, Vavougiros GD, Astara K, Mysiris DS, Tsirimona G, Papayianni E, et al. The Impact of Different Exercise Modes in Fitness and Cognitive Indicators: Hybrid versus Tele-Exercise in Patients with Long Post-COVID-19 Syndrome. Brain Sci. 2024;14(7).</a>	July 2024
<a href="#">Leon-Herrera S, Oliván-Blázquez B, Sánchez-Recio R, Méndez-López F, Magallón-Botaya R, Sánchez-Arízuren R. Effectiveness of an online multimodal rehabilitation program in long COVID patients: a randomized clinical trial. Arch Public Health. 2024;82(1):159.</a>	Sept 2024
<a href="#">Bai B, Xu M, Zhou H, et al. Effects of aerobic training on cardiopulmonary fitness in patients with long COVID-19: a randomized controlled trial. Vol. 25. 2024:649.</a>	Oct 2024
<a href="#">Cunha ACR, Silva JC, Garcês CP, et al. Online and Face-to-Face Mat Pilates Training for Long COVID-19 Patients: A Randomized Controlled Trial on Health Outcomes. Vol. 21. International journal of environmental research and public health. 2024 Oct 19.</a>	Oct 2024

<a href="#">Dwiputra B, Ambari A, Triangto K, et al. The home-based breathing and chest mobility exercise improves cardiorespiratory functional capacity in long COVID with cardiovascular comorbidities: a randomized study. Vol. 24. 2024:574.</a>	Oct 2024
<a href="#">Kaddoussi R, Rejeb H, Kalai A, et al. Effects of a cardiopulmonary rehabilitation programme on submaximal exercise in Tunisian patients with long-COVID19: a randomized clinical trial. Vol. 41. 2024:197-217.</a>	Oct 2024
<a href="#">Maritescu A, Crisan AF, Pescaru CC, Stoicescu ER, Oancea C, Iacob D. Effectiveness of Combined Pulmonary Rehabilitation and Progressive Muscle Relaxation in Treating Long-Term COVID-19 Symptoms: A Randomized Controlled Trial. Vol. 13. Journal of clinical medicine. 2024 Oct 18.</a>	Oct 2024
<a href="#">Ramírez-Vélez R, Oteiza J, Legarra-Gorgoñon G, Oscoz-Ochandorena S, García-Alonso N, García-Alonso Y, et al. Exercise training in long COVID: the EXER-COVID trial. 2024 Nov 22.</a>	Nov 2024
<a href="#">Jorge, M. S. G., P. Nepomuceno, R. H. Schneider and L. M. Wibeling (2025). Eight weeks of Pilates Method improves physical fitness and sleep quality of individuals with post-COVID-19 syndrome: a randomized clinical trial blinded. 41: 238-245-undefined.</a>	Dec 2024
<a href="#">Sick, J., V. Steinbacher, D. Kotnik, F. König, T. Recking, D. Bengsch and D. König (2024). Exercise rehabilitation in post COVID-19 patients: a randomized controlled trial of different training modalities. European journal of physical and rehabilitation medicine.</a>	Dec 2024
<a href="#">Barz, A., J. Berger, M. Speicher, A. Morsch, M. Wanjek, J. Rissland and J. Jäger (2024). Effects of a symptom-titrated exercise program on fatigue and quality of life in people with post-COVID condition - a randomized controlled trial. Scientific reports. 14: 30511-undefined.</a>	Dec 2024
<a href="#">del Corral, T., R. Fabero-Garrido, G. Plaza-Manzano, J. Izquierdo-García, M. López-Sáez, R. García-García and I. López-de-Uralde-Villanueva (2025). "Effect of respiratory rehabilitation on quality of life in individuals with post-COVID-19 symptoms: A randomised controlled trial." Annals of Physical and Rehabilitation Medicine 68(1).</a>	Jan 2025

<a href="#">Bileviciute-Ljungar, I., A. Apelman, L. Braconier, S. Östhols, J. R. Norrefalk and K. Borg (2025). "A First Randomized Eight-Week Multidisciplinary Telerehabilitation Study for the Post-COVID-19 Condition: Improvements in Health- and Pain-Related Parameters." Journal of Clinical Medicine 14(2).</a>	Jan 2025
<a href="#">Janaudis-Ferreira, T., M. K. Beauchamp, A. Rizk, C. M. Tansey, M. Sedeno, L. Barreto, J. Bourbeau, B. A. Ross, A. Benedetti, P. Z. Li, K. Agarwal, R. Zucco, J. Lopez, E. Crowley and J. Cloutier (2024). Virtual rehabilitation for individuals with Long COVID: a randomized controlled trial. medRxiv.</a>	Jan 2025
<a href="#">Astley C, Drezner JA, Sieczkowska SM, Ihara A, Franco T, Gil S, DO Prado DML, Longobardi I, Suguita P, Fink T, Lindoso L, Matsuo O, Martins F, Bain V, Leal GN, Badue MF, Marques HH, Silva CA, Roschel H, Gualano B. Exercise in Pediatric COVID-19: A Randomized Controlled Trial. Med Sci Sports Exerc. 2025 Mar 1;57(3):514-523. doi: 10.1249/MSS.0000000000003589. Epub 2024 Nov 6. PMID: 39501479.</a>	Feb 2025
<a href="#">Yasaci Z, Mustafaoglu R, Ozgur O, Kuveloglu B, Esen Y, Ozmen O, et al. Virtual recovery: efficacy of telerehabilitation on dyspnea, pain, and functional capacity in post-COVID-19 syndrome. 2025.</a>	Feb 2025

***Therapeutic procedures n=27***

<a href="#">Abo El Naga H, El Zaiat R, Hamdan A. The potential therapeutic effect of platelet-rich plasma in the treatment of post-COVID-19 parosmia. The Egyptian Journal of Otolaryngology. 2022;38.</a>	pre July 2024
<a href="#">Amorim NTS, Cavalcanti FCB, Moura E, Sobral Filho D, Leitão CCS, Almeida MM, et al. Does whole-body vibration improve risk of falls, balance, and heart rate variability in post-COVID-19 patients? A randomized clinical trial. J Bodyw Mov Ther. 2024;39:518-24.</a>	pre July 2024

<p><a href="#">Badran B, Huffman S, Dancy M, Austelle C, Bikson M, Kautz S, et al. A pilot randomized controlled trial of supervised, at-home, self-administered transcutaneous auricular vagus nerve stimulation (taVNS) to manage long COVID symptoms. Bioelectronic medicine. 2022;8:13.</a></p>	pre July 2024
<p><a href="#">Bowen R, Arany P. Use of either transcranial or whole-body photobiomodulation treatments improves COVID-19 brain fog. Journal of biophotonics. 2023;16:e202200391.</a></p>	pre July 2024
<p><a href="#">Cardoso Soares P, de Freitas P, Eduardo C, Azevedo L. Photobiomodulation, Transmucosal Laser Irradiation of Blood, or B complex as alternatives to treat Covid-19 Related Long-Term Taste Impairment: double-blind randomized clinical trial. Lasers in medical science. 2023;38:261.</a></p>	pre July 2024
<p><a href="#">Catalogna M, Sasson E, Hadanny A, Parag Y, Zilberman-Itskovich S, Efrati S. Effects of hyperbaric oxygen therapy on functional and structural connectivity in post-COVID-19 condition patients: A randomized, sham-controlled trial. Neurolmage Clinical. 2022;36:103218-.</a></p>	pre July 2024
<p><a href="#">Duffy A, Naimi B, Garvey E, Hunter S, Kumar A, Kahn C, et al. Topical platelet-rich plasma as a possible treatment for olfactory dysfunction—A randomized controlled trial. International Forum of Allergy &amp; Rhinology. 2024.</a></p>	pre July 2024
<p><a href="#">Evman M, Cetin Z. Effectiveness of platelet-rich plasma on post-COVID chronic olfactory dysfunction. Revista da Associacao Medica Brasileira (1992). 2023;69:e20230666.</a></p>	pre July 2024
<p><a href="#">Klířová M, Adamová A, Biačková N, Laskov O, Renková V, Stuchlířková Z, et al. Transcranial direct current stimulation (tDCS) in the treatment of neuropsychiatric symptoms of long COVID. Sci Rep. 2024;14(1):2193.</a></p>	pre July 2024
<p><a href="#">Leitman M, Fuchs S, Tyomkin V, Hadanny A, Zilberman-Itskovich S, Efrati S. The effect of hyperbaric oxygen therapy on myocardial function in post-COVID-19 syndrome patients: a randomized controlled trial. Scientific reports. 2023;13:9473.</a></p>	pre July 2024

<a href="#">Oliver-Mas S, Delgado-Alonso C, Delgado-Álvarez A, Díez-Cirarda M, Cuevas C, Fernández-Romero L, et al. Transcranial direct current stimulation for post-COVID fatigue: a randomized, double-blind, controlled pilot study. Brain Commun. 2023;5(2):fcad117.</a>	pre July 2024
<a href="#">Orlova EV, Lyamina NP, Skorobogatyth NV, Pogonchenkova IV. Clinical Efficacy of Individually Dosed Intermittent Hypoxia-Hyperoxic Therapy in Osteoarthritis Patients with Post-Covid Syndrome. Bulletin of Rehabilitation Medicine. 2022;21(2):6-16.</a>	pre July 2024
<a href="#">Santana K, França E, Sato J, Silva A, Queiroz M, de Farias J, et al. Non-invasive brain stimulation for fatigue in post-acute sequelae of SARS-CoV-2 (PASC). Brain Stimul. 2023;16(1):100-7.</a>	pre July 2024
<a href="#">Shogenova LV, Truong TT, Kryukova NO, Yusupkhodzhaeva KA, Pozdnyakova DD, Kim TG, et al. Hydrogen inhalation in rehabilitation program of the medical staff recovered from COVID-19. Cardiovascular Therapy and Prevention. 2021;20(6).</a>	pre July 2024
<a href="#">Yan CH, Jang SS, Lin HC, Ma Y, Khanwalkar AR, Thai A, et al. Use of platelet-rich plasma for COVID-19-related olfactory loss: a randomized controlled trial. Int Forum Allergy Rhinol. 2023;13(6):989-97.</a>	pre July 2024
<a href="#">Zilberman-Itskovich S, Catalogna M, Sasson E, Elman-Shina K, Hadanny A, Lang E, et al. Hyperbaric oxygen therapy improves neurocognitive functions and symptoms of post-COVID condition: randomized controlled trial. Sci Rep. 2022;12(1):11252.</a>	pre July 2024
<a href="#">Zulbaran-Rojas A, Lee M, Bara R, Flores-Camargo A, Spitz G, Finco M, et al. Electrical stimulation to regain lower extremity muscle perfusion and endurance in patients with post-acute sequelae of SARS CoV-2: A randomized controlled trial. Physiological reports. 2023;11:e15636.</a>	pre July 2024
<a href="#">He Y, Liu X, Zha S, Wang Y, Zhang J, Zhang Q, et al. A pilot randomized controlled trial of major ozone autohemotherapy for patients with post-acute sequelae of COVID-19. 2024;139.</a>	July 2024



<a href="#">Lee M, Zulbaran-Rojas A, Bargas-Ochoa M, Martinez-Leal B, Bara R, Flores-Camargo A, et al. Gastrocnemius electrical stimulation increases ankle dorsiflexion strength in patients with post-acute sequelae of SARS-COV-2 (PASC): a double-blind randomized controlled trial. Sci Rep. 2024;14(1):17939.</a>	Aug 2024
<a href="#">Zha S, Liu X, Yao Y, He Y, Wang Y, Zhang Q, et al. Short-term intermittent hypoxia exposure for dyspnea and fatigue in post-acute sequelae of COVID-19: A randomized controlled study. Respir Med. 2024;232:107763.</a>	Aug 2024
<a href="#">Soldatenko AA, Gumenyuk LN, Berdieva DM, Ponomarchuk EI. Effectiveness of enriching drug treatment with systemic ozone therapy in patients with post-COVID asthenic syndrome. Bulletin of Russian State Medical University. 2024(2024(4)).</a>	Sept 2024
<a href="#">Gagnon C, Vincent T, Bherer L, Gayda M, Cloutier S, Nozza A, et al. Oxygen supplementation and cognitive function in long-COVID. 2024. Contract No.: 11.</a>	Nov 2024
<a href="#">Zulbaran-Rojas A, Bara R, Lee M, Bargas-Ochoa M, Phan T, Pacheco M, et al. Transcutaneous electrical nerve stimulation for fibromyalgia-like syndrome in patients with Long-COVID: a pilot randomized clinical trial. 2024. Contract No.: 1.</a>	Nov 2024
<a href="#">Campos, M. C. V., S. S. V. Schuler, A. J. Lacerda, A. C. Mazzoni, T. Silva, F. C. S. Rosa, M. D. Martins, K. P. S. Fernandes, E. S. Fonseca, R. A. Mesquita-Ferrari, A. C. R. T. Horliana, S. K. Bussadori and L. J. Motta (2024). Evaluation of vascular photobiomodulation for orofacial pain and tension type headache following COVID 19 in a pragmatic randomized clinical trial. Scientific reports. 14: 31138-undefined.</a>	Dec 2024
<a href="#">España-Cueto S, Loste C, Lladós G, López C, Santos J, Dulsat G, et al. Plasma exchange therapy for the post COVID-19 condition: a phase II, double-blind, placebo-controlled, randomized trial. 2025. Contract No.: 1.</a>	Feb 2025
<a href="#">Pfoser-Poschacher V, Keilani M, Steiner M, Schmeckenbecher J, Zwick RH, Crevenna R. Feasibility and acceptance of transdermal auricular vagus nerve stimulation using a TENS device in females suffering from long COVID fatigue. Wiener Klinische Wochenschrift.</a>	Feb 2025

[Wang Z, Zhu T, Li X, Lai X, Chen M. Tragus Nerve Stimulation Attenuates Postural Orthostatic Tachycardia Syndrome in Post COVID-19 Infection. 2025 Mar.](#)

Feb 2025

**Complementary and alternative medicine n=12**

<a href="#">Bérubé S, Demers C, Bussière N, Cloutier F, Pek V, Chen A, et al. Olfactory Training Impacts Olfactory Dysfunction Induced by COVID-19: A Pilot Study. ORL J Otorhinolaryngol Relat Spec. 2023;85(2):57-66.</a>	pre July 2024
<a href="#">Bhandari R. Online Yoga and Ayurveda Intervention as Tertiary Prevention of Psychological Comorbidities in COVID-19 Survivors: A Randomized Controlled Trial. Annals of neurosciences. 2022;29:233-44.</a>	pre July 2024
<a href="#">Hawkins J, Hires C, Keenan L, Dunne E. Aromatherapy blend of thyme, orange, clove bud, and frankincense boosts energy levels in post-COVID-19 female patients: A randomized, double-blinded, placebo controlled clinical trial. Complement Ther Med. 2022;67:102823.</a>	pre July 2024
<a href="#">Khan AM, Piccirillo J, Kallogjeri D, Piccirillo JF. Efficacy of Combined Visual-Olfactory Training With Patient-Preferred Scents as Treatment for Patients With COVID-19 Resultant Olfactory Loss: A Randomized Clinical Trial. JAMA Otolaryngol Head Neck Surg. 2023;149(2):141-9.</a>	pre July 2024
<a href="#">Saha S, Singh R, Mani I, Chakraborty K, Sarkar P, Rana A, et al. Individualized Homeopathic Medicines in the Treatment of Post-COVID-19 Fatigue in Adults: Single-Blind, Randomized, Placebo-Controlled Trial. Complement Med Res. 2024;31(1):1-9.</a>	pre July 2024
<a href="#">Sumbalová Z, Kucharská J, Rausová Z, Palacka P, Kovalčíková E, Takácsová T, et al. Reduced platelet mitochondrial respiration and oxidative phosphorylation in patients with post COVID-19 syndrome are regenerated after spa rehabilitation and targeted ubiquinol therapy. Front Mol Biosci. 2022;9:1016352</a>	pre July 2024
<a href="#">Rana A, Bhattacharya P, Ganguly S, Saha S, Naskar S, Ghosh S, et al. Individualized Homeopathic Medicinal Products in the Treatment of Post-COVID-19 Conditions: A Double-Blind, Randomized, Placebo-Controlled, Feasibility Trial. J Integr Complement Med. 2024.</a>	Sept 2024

<a href="#">Crucianelli S, Mariano A, Valeriani F, et al. Effects of sulphur thermal water inhalations in long-COVID syndrome: Spa-centred, double-blinded, randomised case-control pilot study. Vol. 24.100251. Clinical medicine (London, England). 2024 Oct 5.</a>	Oct 2024
<a href="#">Khodabakhshian, F., Tagharrobi, Z., Sharifi, K., Sooki, Z., Momen-Heravi, M., &amp; Joshaghani, F. Z. (2024). Effect of auriculotherapy on persistent fatigue in recovered patients from the acute phase of COVID-19: a double-blind randomized clinical trial. Fatigue: Biomedicine, Health &amp; Behavior, 1–13.</a>	Dec 2024
<a href="#">Ovejero D, Ribes A, Villar-García J, Trenchs-Rodríguez M, Lopez D, Nogués X, et al. Balneotherapy for the treatment of post-COVID syndrome: a randomized controlled trial. 2025. Contract No.: 1.</a>	Feb 2025
<a href="#">Qiao X, Han, L., Li, Y., Zhen, H, Dang, H, Chen, Y., Li, X. Clinical efficacy of olfactory training using aromatic traditional Chinese medicine in managing olfactory dysfunction induced by SARS-CoV-2. Rhinology. 2025;63(1):77-84.</a>	Feb 2025
<a href="#">Rayapuraju A, Mohamed E, Reed P, Orui H, Pratt M, Friedopfer S, et al. Yogic Breathing and Guided Meditation Practices Address the Mental Fear Associated with Breathing, Fostering a Sense of Self-Stability among Long COVID Patients: a Mixed Methods Study. 2025.</a>	Feb 2025

***Behavioural, psychological and educational interventions n=9***

<a href="#">González-Moreno J, Pozuelo C, Manos D, Gómez-Martínez S, Cantero-García M. A third generation therapies approach in long covid patients: Efficacy of an intervention program with spanish adults. Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues. 2024.</a>	pre July 2024
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<p><a href="#">Kuut T, Müller F, Csorba I, Braamse A, Aldenkamp A, Appelman B, et al. Efficacy of Cognitive-Behavioral Therapy Targeting Severe Fatigue Following Coronavirus Disease 2019: Results of a Randomized Controlled Trial. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America. 2023;77:687-95.</a></p>	pre July 2024
<p><a href="#">Navas-Otero A, Calvache-Mateo A, Calles-Plata I, Valenza-Peña G, Hernández-Hernández S, Ortiz-Rubio A, et al. A lifestyle adjustments program in long COVID-19 improves symptomatic severity and quality of life. A randomized control trial. Patient Educ Couns. 2024;122:108180.</a></p>	pre July 2024
<p><a href="#">Philip KEJ, Owles H, McVey S, Pagnuco T, Bruce K, Brunjes H, et al. An online breathing and wellbeing programme (ENO Breathe) for people with persistent symptoms following COVID-19: a parallel-group, single-blind, randomised controlled trial. Lancet Respir Med. 2022;10(9):851-62.</a></p>	pre July 2024
<p><a href="#">Shatri H, Sinulingga DI, Rumende CM, Setiati S, Putranto R, Ginanjar E, et al. Effectiveness of Internet-Based Group Supportive Psychotherapy on Psychic and Somatic Symptoms, Neutrophil-Lymphocyte Ratio, and Heart Rate Variability in Post COVID-19 Syndrome Patients. Acta Med Indones. 2023;55(4):411-20.</a></p>	pre July 2024
<p><a href="#">Toussaint LL, Bratty AJ. Amygdala and Insula Retraining (AIR) Significantly Reduces Fatigue and Increases Energy in People with Long COVID. Evid Based Complement Alternat Med. 2023;2023:7068326.</a></p>	pre July 2024
<p><a href="#">Uswatte G, Taub E, Ball K, Mitchell BS, Blake JA, McKay S, et al. Long COVID Brain Fog Treatment: findings from a Pilot Randomized Controlled Trial of Constraint-Induced Cognitive Therapy. 2024.</a></p>	July 2024
<p><a href="#">Armstrong M, Owen R, Van Niekerk KS, Saynor ZL. Personalised Health Behaviour Support Programme in Adults With Post-COVID Syndrome: A Randomised, Controlled Pilot Feasibility Trial. Vol. 27.e70079. Health expectations : an international journal of public participation in health care and health policy. 2024 Oct.</a></p>	Oct 2024

[Nerli, T. F., J. Selvakumar, E. Cvejic, I. Heier, M. Pedersen, T. L. Johnsen and V. B. B. Wyller \(2024\). Brief Outpatient Rehabilitation Program for Post-COVID-19 Condition: A Randomized Clinical Trial. JAMA network open. 7: e2450744-undefined.](#)

Dec 2024

**Diet and dietary supplements n=26**

<a href="#">Brichetti V, Rubilar T, Tejada JV, Montecino P, Crespi-Abril AC, Barbieri ES, et al. EuroQol-5D-3L in Long Covid patients After Supplementation with Echa Marine, a Sea Urchin Eggs Extract: a double-blinded, multicentric study. medRxiv. 2023.</a>	pre July 2024
<a href="#">Cantone E, D'Ascanio L, De Luca P, Roccamatysi D, La La Mantia I, Brenner M, et al. Persistent COVID-19 parosmia and olfactory loss post olfactory training: randomized clinical trial comparing central and peripheral-acting therapeutics. European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery. 2024.</a>	pre July 2024
<a href="#">Chung T, Zhang H, Wong F, Sridhar S, Lee T, Leung G, et al. A Pilot Study of Short-Course Oral Vitamin A and Aerosolised Diffuser Olfactory Training for the Treatment of Smell Loss in Long COVID. Brain sciences. 2023;13:1014-.</a>	pre July 2024
<a href="#">D'Ascanio L, Vitelli F, Cingolani C, Maranzano M, Brenner MJ, Di Stadio A. Randomized clinical trial "olfactory dysfunction after COVID-19: olfactory rehabilitation therapy vs. intervention treatment with Palmitoylethanolamide and Luteolin": preliminary results. Eur Rev Med Pharmacol Sci. 2021;25(11):4156-62.</a>	pre July 2024
<a href="#">De Luca P, Camaioni A, Marra P, Salzano G, Carriere G, Ricciardi L, et al. Effect of Ultra-Micronized Palmitoylethanolamide and Luteolin on Olfaction and Memory in Patients with Long COVID: Results of a Longitudinal Study. Cells. 2022;11(16):2552-.</a>	pre July 2024
<a href="#">Di Stadio A, Cantone E, De Luca P, Di Nola C, Massimilla E, Motta G, et al. Parosmia COVID-19 Related Treated by a Combination of Olfactory Training and Ultramicronized PEA-LUT: A Prospective Randomized Controlled Trial. Biomedicines. 2023;11:1109-.</a>	pre July 2024
<a href="#">Di Stadio A, D'Ascanio L, Vaira LA, Cantone E, De Luca P, Cingolani C, et al. Ultramicronized Palmitoylethanolamide and Luteolin Supplement Combined with Olfactory Training to Treat Post-COVID-19 Olfactory Impairment: A Multi-Center Double-Blinded Randomized Placebo- Controlled Clinical Trial. Curr Neuropharmacol. 2022;20(10):2001-12.</a>	pre July 2024
<a href="#">Di Stadio A, Gallina S, Cocuzza S, De Luca P, Ingrassia A, Oliva S, et al. Treatment of COVID-19 olfactory dysfunction with olfactory training, palmitoylethanolamide with luteolin, or combined therapy: a blinded controlled multicenter randomized trial. European</a>	pre July 2024

<p><a href="#">archives of oto-rhino-laryngology</a> : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery. 2023;280:4949-61.</p>	
<p><a href="#">Figueiredo L, Paim P, Cerqueira-Silva T, Barreto C, Lessa M. Alpha-lipoic acid does not improve olfactory training results in olfactory loss due to COVID-19: a double-blind randomized trial. Brazilian journal of otorhinolaryngology. 2023;90:101356-.</a></p>	pre July 2024
<p><a href="#">Finnigan LEM, Cassar MP, Koziel MJ, Pradines J, Lamum H, Azer K, et al. Efficacy and tolerability of an endogenous metabolic modulator (AXA1125) in fatigue-predominant long COVID: a single-centre, double-blind, randomised controlled phase 2a pilot study. EClinicalMedicine. 2023;59:101946.</a></p>	pre July 2024
<p><a href="#">Hansen KS, Mogensen TH, Agergaard J, Schiøttz-Christensen B, Østergaard L, Vibholm LK, et al. High-dose coenzyme Q10 therapy versus placebo in patients with post COVID-19 condition: a randomized, phase 2, crossover trial. Lancet Reg Health Eur. 2023;24:100539.</a></p>	pre July 2024
<p><a href="#">Lau RI, Su Q, Lau ISF, Ching JYL, Wong MCS, Lau LHS, et al. A synbiotic preparation (SIM01) for post-acute COVID-19 syndrome in Hong Kong (RECOVERY): a randomised, double-blind, placebo-controlled trial. Lancet Infect Dis. 2024;24(3):256-65.</a></p>	pre July 2024
<p><a href="#">Lerner D, Garvey K, Arrighi-Allisan A, Kominsky E, Filimonov A, Al-Awady A, et al. Omega-3 Fatty Acid Supplementation for the Treatment of Persistent COVID-Related Olfactory Dysfunction. American journal of rhinology &amp; allergy. 2023;37:531-40.</a></p>	pre July 2024
<p><a href="#">Marinoni B, Rimondi A, Bottaro F, Ciafardini C, Amoroso C, Muià M, et al. The Role of VSL#3® in the Treatment of Fatigue and Other Symptoms in Long Covid-19 Syndrome: a Randomized, Double-blind, Placebo-controlled Pilot Study (DELong#3). 2023.</a></p>	pre July 2024
<p><a href="#">Slankamenac J, Ranisavljev M, Todorovic N, Ostojic J, Stajer V, Ostojic SM. Creatine supplementation combined with breathing exercises reduces respiratory discomfort and improves creatine status in patients with long-COVID. J Postgrad Med. 2024;70(2):101-104. doi:10.4103/jpgm.jpgm_650_23</a></p>	pre July 2024



<a href="#">Tosato M, Calvani R, Picca A, Ciciarello F, Galluzzo V, Coelho-Júnior HJ, et al. Effects of L-Arginine Plus Vitamin C Supplementation on Physical Performance, Endothelial Function, and Persistent Fatigue in Adults with Long COVID: A Single-Blind Randomized Controlled Trial. Nutrients. 2022;14(23).</a>	pre July 2024
<a href="#">Versace V, Ortelli P, Dezi S, Ferrazzoli D, Alibardi A, Bonini I, et al. Co-ultramicrosized palmitoylethanolamide/luteolin normalizes GABA(B)-ergic activity and cortical plasticity in long COVID-19 syndrome. Clin Neurophysiol. 2023;145:81-8.</a>	pre July 2024
<a href="#">Abdelazim MH, Alsenani F, Alnuhait M, Alshammari AS, Altemani AH, Althagafi EA, et al. Efficacy of forskolin as a promising therapy for chronic olfactory dysfunction post COVID-19. 2024.</a>	July 2024
<a href="#">Charoenporn V, Tungasukruthai P, Teacharushatakit P, Hanvivattanakul S, Sriyakul K, Sukprasert S, et al. Effects of an 8-week high-dose vitamin D supplementation on fatigue and neuropsychiatric manifestations in post-COVID syndrome: A randomized controlled trial. Psychiatry and Clinical Neurosciences. 2024</a>	July 2024
<a href="#">Redel AL, Miry F, Hellemons ME, Oswald LMA, Braunstahl GJ. Effect of lactoferrin treatment on symptoms and physical performance in long COVID patients: a randomised, double-blind, placebo-controlled trial. ERJ Open Res. 2024;10(4).</a>	July 2024
<a href="#">Lukkunaprasit T, Satapornpong P, Kulchanawichien P, et al. Impact of combined plant extracts on long COVID: An exploratory randomized controlled trial.:103107. Complementary therapies in medicine. 2024 Oct 31.</a>	Oct 2024
<a href="#">Calvani R, Giampaoli O, Marini F, Del Chierico F, De Rosa M, Conta G, et al. Beetroot juice intake positively influenced gut microbiota and inflammation but failed to improve functional outcomes in adults with long COVID: a pilot randomized controlled trial. 2024. Contract No.: 12.</a>	Nov 2024
<a href="#">Ranisavljev M, Stajer V, Todorovic N, Ostojic J, Cvejic JH, Steinert RE, et al. The effects of 3-month supplementation with synbiotic on patient-reported outcomes, exercise tolerance, and brain and muscle metabolism in adult patients with post-COVID-19 chronic fatigue syndrome (STOP-FATIGUE): a randomized Placebo-controlled clinical trial. 2024 Nov 26</a>	Nov 2024

<a href="#">Horvath A, Habisch H, Prietl B, Pfeifer V, Balazs I, Kovacs G, et al. Alteration of the Gut–Lung Axis After Severe COVID-19 Infection and Modulation Through Probiotics: A Randomized, Controlled Pilot Study. Nutrients.16(22).</a>	Dec 2024
<a href="#">Atieh, O., J. Daher, J. C. Durieux, M. Abboud, D. Labbato, J. Baissary, Z. Koberssy, K. Ailstock, M. Cummings, N. T. Funderburg and G. A. McComsey (2025). "Vitamins K2 and D3 Improve Long COVID, Fungal Translocation, and Inflammation: Randomized Controlled Trial." Nutrients 17(2).</a>	Jan 2025
<a href="#">Combet E, Haag L, Richardson J, Haig CE, Cunningham Y, Fraser HL, et al. Remotely delivered weight management for people with long COVID and overweight: the randomized wait-list-controlled ReDIRECT trial. Nature medicine.</a>	Jan 2025