

Abstract

Efficacy of Physical Exercise on Sleep Quality in Patients with Mild Cognitive Impairment: A Systematic Review [†]

Elton F. F. S. Vieira ^{1,2,*}, Lizandra R. Andrade ² , Raphael L. Olegário ¹  and Cláudia Goulart ¹

¹ Faculty of Medicine, University of Brasília, Brasília 70910900, Brazil; rlounb@gmail.com (R.L.O.); profclaudiagoulart@gmail.com (C.G.)

² Faculty of Physical Education, University of Brasília, Brasília 70910900, Brazil; liza12rodrigues@gmail.com

* Correspondence: eltonsouzafef@gmail.com

[†] Presented at the 6th International Congress on Health Innovation—INOVATEC 2025, Hybrid, 21–23 November 2025.

Keywords: mild cognitive impairment; physical exercise; sleep quality

Introduction: Mild cognitive impairment (MCI) is a transitional stage between typical cognitive ageing and dementia, often accompanied by sleep disturbances. These disturbances not only impair the quality of life but also increase the risk of progression to dementia. Pharmacological interventions have limitations, whereas physical exercise emerges as a promising non-pharmacological strategy. This study aimed to evaluate the efficacy of exercise on sleep quality in MCI patients. **Methods:** A systematic review was conducted following PRISMA guidelines. Searches were performed in PubMed/MEDLINE, Embase, Scopus, Web of Science, and Cochrane. Randomised controlled trials (RCTs) were eligible if they included participants with clinically diagnosed MCI, investigated physical exercise interventions (i.e., aerobic, resistance, combined, or mind–body) and assessed sleep-related outcomes through validated scales or objective measures. Two independent reviewers performed screening and data extraction, with a third adjudicating disagreements. **Results:** Four RCTs met the eligibility criteria. Interventions included moderate-intensity aerobic training, aerobic dance, structured limb exercises, and Tai Chi compared with conventional exercise or health education. All studies reported significant improvements in the Pittsburgh Sleep Quality Index or objective sleep efficiency. In two trials, improved sleep was described as a partial mediator of cognitive benefits. Methodological heterogeneity and the limited number of studies precluded meta-analysis. **Conclusions:** Physical exercise demonstrates potential to improve sleep quality in individuals with MCI, though available evidence remains limited. Future research should prioritise standardised protocols, objective sleep measures, and long-term follow-up to establish whether such benefits affect clinical trajectory and reduce progression to dementia.



Academic Editors: Andreanne Vasconcelos, Amílcar Damazo and José Roberto Leite

Published: 25 February 2026

Copyright: © 2026 by the authors.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

Author Contributions: Conceptualization, R.L.O. and C.G.; methodology, R.L.O. and C.G.; validation, R.L.O. and C.G.; formal analysis, R.L.O.; investigation, E.F.F.S.V., L.R.A. and R.L.O.; data curation, E.F.F.S.V., L.R.A. and R.L.O.; writing—original draft preparation, R.L.O.; writing—review and editing, R.L.O. and C.G.; visualization, R.L.O.; supervision, R.L.O. and C.G.; project administration, R.L.O.; funding acquisition, C.G. and R.L.O. All authors have read and agreed to the published version of the manuscript.

Funding: This study was supported by the Coordination for the Improvement of Higher Education Personnel (CAPES), Brazil.

Institutional Review Board Statement: Ethical review and approval were waived for this study because it used only publicly available published data and did not involve human or animal subjects.

Informed Consent Statement: Not applicable.

Data Availability Statement: No new data were created or analysed in this study.

Conflicts of Interest: The authors declare no conflicts of interest.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.