

Probiotics and institutionalized older adults a pilot triple blinded randomized clinical trial

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Introduction: Due to social changes and specific services and care of elderly people, Long Stay Institution for Elderly (LSIE) emerged. These institutions should offer an environment with activities that stimulate cognition, physical capacity and a healthy lifestyle, working to maintain autonomy and delaying functional losses. During aging, changes in characteristics are observed with functional decline in different organs and systems. This deterioration is the fundamental risk factor for diseases that may be associated with aging. The muscular system suffers from the aging process resulting in sarcopenia. Furthermore, cognitive capacity may be altered, with difficulties with memory and other cognitive skills, and the presence of depression. The intestinal microbiome has been proposed as a possible determinant of healthy aging as it may influence the intestinal permeability. It may contribute positively to preventing bone and cognitive decline. In this sense, probiotic supplementation aimed at reducing intestinal dysbiosis favors to the prevention and treatment of conditions associated with aging, such as cardiovascular and neurological diseases. **Objective:** This study aimed to evaluate the effect of probiotic consumption for 12 weeks on clinical and anthropometric characteristics, handgrip strength, and cognitive ability in institutionalized older adults. **Method:** This is a pilot prospective randomized triple-blind study. We included 20 participants of both sexes residing at a private Long Stay Institution for Elderly in the city of São Paulo, SP, Brazil). Participants were randomly assigned to a control group (placebo) and an experimental group that was supplemented with commercial probiotics containing 1 billion of *Bifidobacterium lactis* HN019[®] and 1 billion of *Lactobacillus acidophilus* NCFM[®] for 12 weeks. Two participants in the control group were excluded due to the need for hospitalization. All participants were evaluated pre- and post-supplementation. A sociodemographic questionnaire, clinical characteristics, anthropometric measurements, handgrip strength (Jamar[®] hand dynamometer), and cognitive capacity were assessed using the Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment-Basic (MoCA-B) questionnaire. To evaluate the effects of probiotic supplementation, the delta variation of each variable (post-pre) was calculated, presented by median, and the comparative test was performed. **Results:** The sample characteristics data showed that the groups were homogeneous before the supplementation. Although some positive changes, mainly in relation to mood and social interaction, have been reported by caregivers, there was no statistical difference regarding clinical characteristics, anthropometric measurements, handgrip strength ($p=0.40$), and cognitive capacity by MMSE ($p=0.73$) and MoCA-B ($p=0.89$) between groups and before and after the supplementation. **Final considerations:** Probiotic supplementation did not show any influence on the parameters evaluated. However, these findings should be further investigated with studies that correct these described limitations so that the data can be extrapolated to institutionalized elderly population.

References

Hutchinson AN, Bergh C, Kruger K, S?sserová M, Allen J, Améen S, Tingö L. The Effect of Probiotics on Health Outcomes in the

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Elderly: A Systematic Review of Randomized, Placebo-Controlled Studies. *Microorganisms*. 2021 Jun 21;9(6):1344.

van den Nieuwboer, M., Klomp-Hogeterp, A., Verdoorn, S., Metsemakers-Brameijer, L., Vriend, T.M., Claassen, E., & Larsen, O.F.A. (2015). Improving the bowel habits of elderly residents in a nursing home using probiotic fermented milk. *Beneficial Micro*

Neeraja Recharla, Jihee Choi, Pradeep Puligundla, Seon-Joo Park, Hae-Jeung Lee, Impact of probiotics on cognition and constipation in the elderly: A meta-analysis, *Heliyon*, Volume 9, Issue 7, 2023, e18306, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon>

Shokri-Mashhadi N, Navab F, Ansari S, Rouhani MH, Hajhashemy Z, Saraf-Bank S. A meta-analysis of the effect of probiotic administration on age-related sarcopenia. *Food Sci Nutr*. 2023 Aug 9;11(9):4975-4987. doi: 10.1002/fsn3.3515. PMID: 37701185; PMCID: PM

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