

ONE-YEAR SUPPLEMENTATION WITH LACTOBACILLUS REUTERI ATCC PTA 6475 COUNTERACTS A DEGRADATION OF GUT MICROBIOTA IN OLDER WOMEN WITH LOW BONE MINERAL DENSITY

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Osteoporosis is a highly prevalent bone disease in the elderly population and is characterised by decreased bone mineral density, deteriorated bone microarchitecture, reduced bone strength and increased susceptibility to fragility fractures. Due to the lack of awareness about osteoporosis, there is the need to develop a novel and effective intervention for its prevention and treatment.

The aim of this study was to gain mechanistic insight into the effect of *Lactobacillus reuteri* ATCC PTA 6475 on bone metabolism and identify factors important for a good response to the probiotic. This study was based on a placebo-controlled cohort trial where 68 elderly women had been randomised to supplementation with the probiotic strain *L. reuteri* ATCC PTA 6475 or placebo. For this secondary analysis, 20 out of the 68 elderly women with bone loss who supplemented with probiotic *L. reuteri* ATCC PTA 6475 were selected.

Results showed that after one-year probiotic supplementation, there was decreased inflammation and significantly increased gene richness of the gut microbiota in the good responders, whereas there was altered microbial composition and function, including enrichment of *E. coli* and its biofilm formation in the poor responders. Authors conclude that *L. reuteri* ATCC PTA 6475 supplementation might promote bone formation by modulating the gut microbiota composition and function, which could be crucial for the development of novel osteoporosis treatments.

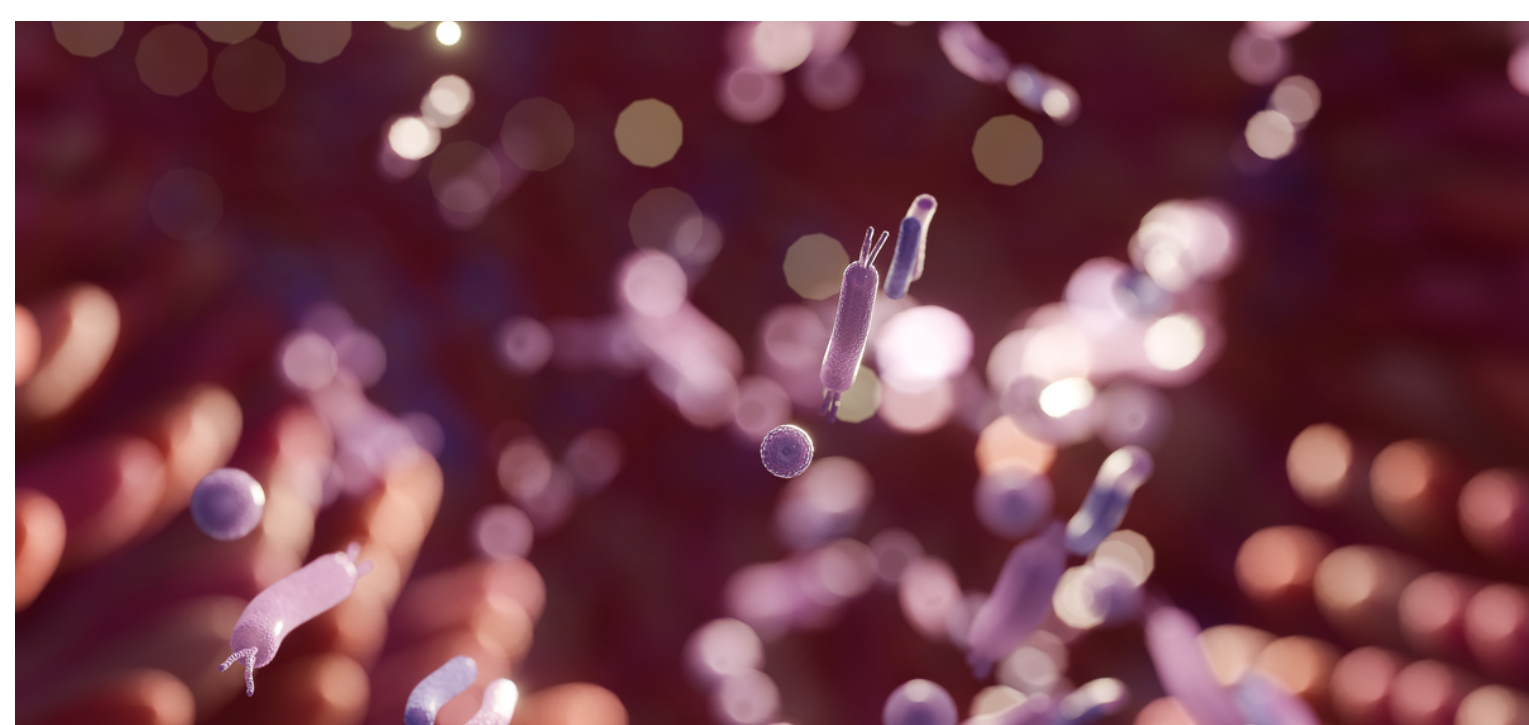
EFFECTS OF LACTIPLANTIBACILLUS PLANTARUM OLL2712 ON MEMORY FUNCTION IN OLDER ADULTS WITH DECLINING MEMORY: A RANDOMIZED PLACEBO-CONTROLLED TRIAL

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On the Alzheimer's disease spectrum, which is the most common cause of dementia, the typical symptom at onset is impaired memory. As the disease progresses, other cognitive domains, such as language, visuospatial cognition, and executive function, are impaired, gradually making it impossible to maintain independence in daily life.

The aim of this study was to test the protective effects of 12 weeks of supplementation with heat-treated *Lactiplantibacillus* OLL2712 cells on memory function in older adults. This study was a double-blind placebo-controlled trial in which participants were randomly assigned to the active or placebo group.

Results showed that OLL2712 consumption had a protective effect on memory function in older adults. However, there was no significant effect of OLL2712 intake on verbal memory in either of the analyses. Furthermore, in the gut microbiota analysis, the bacterial composition of the active group showed significantly lower abundance ratios of bacterial species linked to inflammation (*Lachnospirillum*, *Monoglobus*, and *Oscillibacter*). Authors conclude that continuous intake of OLL2712 may be an effective approach to protect memory function in older adults.



THE EFFECT OF VITAMIN D SUPPLEMENTATION ON THE GUT MICROBIOME IN OLDER AUSTRALIANS - RESULTS FROM ANALYSES OF THE D-HEALTH TRIAL.

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Microbiota are communities of microorganisms that co-exist with the host ecosystem in a specific environment. The term microbiome refers to the microbial genome. The aim of this study was to investigate the effect of supplementing older adults with 60,000 IU of vitamin D per month on the gut microbiome for a period of five years, using a subsample (n = 835) of participants recruited from the large population-based D-Health Trial. This study is based on a subsample from the D-Health Trial, which was a randomised, double-blind trial with two parallel arms. Participants were randomly allocated (1:1 ratio) to monthly doses of either 60,000 IU of cholecalciferol (vitamin D3) or matching placebo. Results showed that monthly doses of 60,000 IU vitamin D over 5 years did not alter the composition of the gut microbiome in a population that is largely vitamin D replete. Authors conclude that further investigation is required to examine whether non-bolus doses of vitamin D would influence the gut microbiome or whether vitamin D supplementation would be beneficial in populations with a higher prevalence of vitamin D deficiency.

