

Probiotics Reduce the Risk of Antibiotic-Associated Diarrhea in Adults (18–64 Years) but not the Elderly (>65 Years): A Meta-Analysis

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Background: Antibiotic-Associated Diarrhea (AAD) is a common problem in adults and elderly patients due to the widespread use of antibiotics in this population. Multiple previous systematic reviews have demonstrated an association between specific probiotics and decrease of AAD, especially in children. As there is no specific analysis concerning the elderly patients, we decided to focus on adults, especially elderly people.

Methods: We performed a systematic review of the literature regarding the use of probiotics in the treatment of AAD in adults (18–64 years old) and elderly subjects (≥ 65 years old). We identified 436 articles that met the search criteria. Thirty randomized controlled trials met the predefined inclusion criteria and were included in the meta-analysis.

Results: There was considerable heterogeneity among the trials ($P < .001$); thus, subgroup analyses were performed. The meta-analysis resulted in a pooled relative risk (RR) of AAD of 0.69 (95% confidence interval [95% CI]: 0.62–0.76) in a fixed effects model and 0.58 (95% CI: 0.48–0.71) in a random effects model, as compared with placebo. The positive association between intake of probiotic and reduced risk of AAD was observed in adults (RR, 0.47; 95% CI: 0.4–0.56). In contrast, in elderly patients, there was no positive effect (RR, 0.94; 95% CI: 0.76–1.15) of probiotic use and AAD.

Conclusion: In summary, the results emerging from our meta-analysis suggested that adjunct probiotic administration is associated with a reduced risk of AAD in adults but not in elderly people.

Keywords: Probiotics; Antibiotic-Associated Diarrhea; Diarrhea; Elderly; Adults; Aged