

Abstract

Aging is associated with natural biological changes, which result in a decrease in the functional capacity of the body, which is also accompanied by an increased incidence of inflammatory processes that contribute to the development of neurodegeneration. The intestinal microbiota and its interaction with the intestine and the central nervous system play a key role in maintaining the function of biological homeostatic systems at an older age. This opens the possibility of influencing or modifying human microbiota for the development of therapeutic strategies. Based on the analysis of stool samples by HPLC MS / MS, the study confirmed the effect of selected probiotics on the modification of metabolic pathways and the proper functioning of the microbiota per se. The greatest effects were observed on tyrosine metabolism, tryptophan metabolism, arachidonic acid metabolism and bile acid biosynthesis metabolism. A positive effect of selected probiotic bacteria was found in the memory component of cognitive functions. Significant improvements were observed in verbal learning and verbal memory. In subjects with mild cognitive impairment, the progression of cognitive deficit has been slowed. Significant improvement was also observed for executive functions. These findings were not followed by a subjective feeling of improved health, memory, or digestion.

Keywords: microbiota, aging, neurodegeneration, probiotics, cognitive function, metabolomics

