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A systematic review of the effectiveness of probiotic supplementation on mild cognitive impairment and dementia**Katarzyna W Jasinska, Dawid Storman, Mateusz J Swierz, Wojciech Staskiewicz, Magdalena Gorecka, Anna Skuza, Paulina Tobola and Malgorzata M Bala**
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Mild Cognitive Impairment (MCI) and dementia are clinical states characterized by decline in cognitive functions such as: Memory, thinking, orientation, comprehension, calculation, learning capacity, language and judgment and without consciousness impairment. Prevalence of MCI and dementia is increasing in ageing populations. According to World Health Organization, worldwide 7.7 million new cases of dementia were anticipated each year, implying one new case every 4.1 seconds. Recently, more is known about functioning of the gut-brain axis and there is growing evidence that gut microbiota plays major role in this signaling path. However, available data on effectiveness of probiotic supplementation on cognitive function are still limited. The objective of this study was to assess the effectiveness of probiotic supplementation on mild cognitive impairment and dementia. This is a systematic review conducted following guidelines provided by Cochrane Collaboration. Protocol of this study has been registered in PROSPERO (CRD42019123490). We have searched four electronic databases, three clinical trial registers and carried out a hand searching to find relevant studies. All titles and abstracts of studies were reviewed independently by two reviewers and eligible full texts were assessed similarly. To assess the risk of bias in included studies we have used Cochrane Risk of Bias Tool for RCTs. Main outcomes were change in cognitive function and quality of life, both measured by validated scales. After comprehensive systematic search and screening, eight studies were included into qualitative analysis. Main interventions were *Lactobacillus* and *Bifidobacteria* used in various routes of administration. Predominantly evaluated dementia was associated with Alzheimer's disease and MCI was related to minimal hepatic encephalopathy. Although results for severe dementia remains uncertain, the majority of included studies show improvement in cognitive function in MCI.

Biography

Katarzyna W Jasinska is Junior Researcher from Faculty of Medicine, Jagiellonian University Medical College in Cracow, Poland. Her main research interests are probiotics and bariatrics.

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