

Natural Therapy for Alzheimer's Disease: Novel Regulation of Gastrointestinal Amyloid-beta Peptides Using Nutrition

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Amyloid- β (A β) extracellular plaques in the brain are a primary cause of Alzheimer's Disease. Previous studies have focused on understanding cerebral A β production and prevention. However, new research by Jin et al. (2023) discovered that peripheral A β can travel to the brain through the "gut-brain axis," suggesting that gastrointestinal A β may play a significant role in the formation of cerebral A β plaques. This study utilized the established human colon cell line, Caco-2, to investigate the effects of nutritional compounds on gastrointestinal A β production. Cells were treated with nutritional compounds, including catechin, resveratrol, aspartame, and sucralose. Following a six-week treatment period, an ELISA was conducted to determine the concentration of A β present in each culture. Control cells had 0.9185 ng/mL, cells treated with sucralose had 2.6025 ng/mL, cells treated with aspartame had 1.8555 ng/mL, cells treated with resveratrol had 1.1125 ng/mL, and cells treated with catechin had 0.9685 ng/mL. Results show a large increase in A β production with aspartame and sucralose treatments. There was minimal change in A β production with catechin and resveratrol treatments. The increase in A β due to aspartame and sucralose shows that A β production is influenced by nutrition. This suggests that nutritional compounds may play a role in the development of Alzheimer's disease. Dietary interventions could also be utilized as an Alzheimer's therapy. Future research should further explore aspartame and sucralose's effect on gastrointestinal A β and expand the knowledge of how diet affects physiological activity and Alzheimer's.

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