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

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Amyloid-ß (Aß) extracellular plaques in the brain are a primary cause of Alzheimer’s Disease. Previous studies have focused on understanding cerebral Aß production and prevention. However, new research by Jin et al. (2023) discovered that peripheral Aß can travel to the brain through the “gut-brain axis,” suggesting that gastrointestinal Aß may play a significant role in the formation of cerebral Aß plaques. This study utilized the established human colon cell line, Caco-2, to investigate the effects of nutritional compounds on gastrointestinal Aß 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 Aß 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 Aß production with aspartame and sucralose treatments. There was minimal change in Aß production with catechin and resveratrol treatments. The increase in Aß due to aspartame and sucralose shows that Aß 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 Aß and expand the knowledge of how diet affects physiological activity and Alzheimer’s.

**Awards Won:**