

# Study demonstrates preventive effect of sterols in Alzheimer's

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It's no secret that phytochemicals in fruit and vegetables have a positive effect on our health. For instance, plant sterols help to lower cholesterol levels. According to a study by researchers at Saarland University, they also appear to prevent the onset of Alzheimer's disease. The scientific research team led by Dr. Marcus Grimm has shown that a particular sterol inhibits the production of proteins that play an important role in the development of the disease.

"Plant sterols are present in various combinations in nuts, seeds and plant oils. As [plant sterols](#) are the equivalents of animal cholesterol, they can in principal influence metabolic processes, where cholesterol is involved," explained Marcus Grimm, Head of the Experimental Neurology Laboratory at Saarland University. "Because they also lower cholesterol levels, they are extensively used in the food industry and as dietary supplements."

High [cholesterol levels](#) have long been discussed to increase the risk of developing Alzheimer's disease. "Studies have already shown that cholesterol promotes the formation of so-called senile plaques," said Grimm. These plaques, which are composed of proteins, particularly beta-amyloid proteins, deposit at nerve cells within the brain and are regarded as one of the main causes of Alzheimer's disease.

The research team based at Saarland University's medical campus in Homburg collaborated with scientists from Bonn, Finland and the Netherlands to examine how the sterols that we ingest influence the

formation of these plaque proteins. It was found that one sterol in particular, stigmasterol, actually inhibited [protein](#) formation.

"Stigmasterol has an effect on a variety of molecular processes: it lowers enzyme activity, it inhibits the formation of proteins implicated in the development of Alzheimer's disease, and it alters the structure of the cell membrane," explained Dr Grimm. "Together, these effects synergistically reduce the production of beta-amyloid proteins." The research team has been able to confirm the positive effect of stigmasterol in tests on animals.

Overall, the researchers were able to demonstrate that the various plant sterols influence different cellular mechanisms and therefore have to be assessed individually. "Particularly in the case of Alzheimer's disease, it seems expedient to focus on the dietary intake of specific plant sterols rather than a mixture of sterols," explained Dr Grimm. In future studies, the research team wants to determine which other cellular processes in the brain are affected by phytosterols.

**More information:** The study "Plant Sterols the Better Cholesterol in Alzheimer's Disease? A Mechanistical Study" has been published in the *Journal of Neuroscience*.

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Provided by Saarland University

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