

Alzheimer's Disease Health Center

**Antioxidant in Green Tea May Fight Alzheimer's
Ingredient May Prevent Buildup of Plaque in Brain Linked to Alzheimer's Disease**

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Sept. 20, 2005 -- An antioxidant found in green tea may protect the brain and fight the memory-robbing effects seen with plaque deposits in Alzheimer's disease.

A new study shows high doses of the green tea ingredient -- known as epigallocatechin-3-gallate (EGCG) -- significantly reduced the formation of beta-amyloid proteins in the brains of mice that were altered to develop Alzheimer's disease. An abnormal buildup of beta-amyloid plaque in the brain is implicated in the nerve damage and memory loss seen in Alzheimer's disease.

EGCG is one of a group of antioxidants called flavonoids found in plants. They have been linked to a variety of health benefits seen in diets rich in fruits and vegetables, such as protecting against cancer or reducing the risk of heart disease.

Antioxidant May Protect Brain

In the study, published in the *Journal of Neuroscience*, researchers studied the effects of treating mice genetically altered to develop Alzheimer's disease with high doses of the green tea antioxidant.

After several months of daily injections of EGCG, the results showed that the nerve cells of treated mice generated as much as 54% fewer beta-amyloid protein than nontreated mice nerve cells.

"The findings suggest that a concentrated component of green tea can decrease brain beta-amyloid plaque formation," says researcher Jun Tan, PhD, MD, director of the Neuroimmunology Laboratory at the University of South Florida, in a news release. "If beta-amyloid pathology in this Alzheimer's mouse model is representative of Alzheimer's disease pathology in humans, EGCG dietary supplementation may be effective in preventing and treating the disease."

Drinking Green Tea Not Enough

Green tea contains many different antioxidants. The researchers found other green tea antioxidants actually decreased EGCG's ability to reduce beta-amyloid protein production. Therefore, drinking green tea alone may not be enough to fight Alzheimer's disease.

"This finding suggests that green tea extract selectively concentrating EGCG would be needed to override the counteractive effect of other flavonoids found in green tea," says researcher Doug Shytle, PhD, of the University of South Florida, in the release.

Researchers say the dose of the green tea antioxidant humans would need to replicate the dose given the mice would be about 1,500 to 1,600 milligrams daily. That dose has already been studied in humans and found to be safe.

If further studies show treatment with EGCG can reduce memory loss in mice with Alzheimer's disease as well as reduce plaque formation, researchers say the next step would be clinical trials of the green tea antioxidant in humans to prevent and treat Alzheimer's disease.

SOURCES: Rezai-Zadeh, K. *Journal of Neuroscience*, Sept. 21, 2005; vol 25. News release, University of South Florida Health.

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