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HEALTH

## Mediterranean Mystery

An olive oil compound that makes your throat itch may also help prevent Alzheimer's



**Doctors and nutritionists** have long associated the Mediterranean diet with human health benefits, including a lower risk of Alzheimer's disease. A recent study of 1,880 elderly people living in New York City, for example, showed that those who strongly adhered to a Mediterranean diet over the study's 14-year span had a 32 to 40 percent lower incidence of Alzheimer's compared with those who did not.

Extra virgin olive oil seems to be one of the main factors behind this risk reduction. People adhering to a Mediterranean diet consume up to 50 milliliters (around one fifth of a cup) of the fragrant green liquid a day. Previously, researchers assumed this benefit came from extra virgin olive oil's high concentration of monounsaturated fatty acids. But in 2005 scientists discovered that oleocanthal—the naturally occurring compound that elicits a peppery, burning sensation in the back of the throat—seemed to produce effects strikingly similar to those of ibuprofen, which tamps down inflammation. Since then, investigators have turned their attention to the potential benefits of this particular compound.

Some studies have shown that oleocanthal interferes with the formation of characteristic neurofibrillary tangles and beta-amyloid plaques, both of which play principal roles in Alzheimer's neurological devastation. Research published online in *ACS Chemical Neuroscience* in February offers new details on how the compound works. The study authors applied different concentrations of oleocanthal over three days to mouse brain cell cultures. They also administered oleocanthal to live mice—the first time such an experiment has been done—every day for two weeks. In both trials, levels of two proteins that play

major roles in transporting beta-amyloid out of the brain as well as enzymes that degrade beta-amyloid increased significantly after administering oleocanthal.

The researchers also introduced beta-amyloid to the live mice brains. Compared with control groups, the mice that were given oleocanthal showed significantly enhanced clearance and degradation of the beta-amyloid peptides. "We're trying to further understand oleocanthal's mechanism and maybe eventually try to find compounds that can work in the same way for drug development," says Amal K. Kaddoumi, an assistant professor of pharmaceuticals at the University of Louisiana at Monroe and one of the paper's authors. The findings, she notes, most likely have more application for Alzheimer's prevention than treatment. She also thinks that other factors, besides high olive oil consumption, account for the so-called Mediterranean miracle, such as exercise and the large helpings of fresh vegetables that people in that region regularly consume.

Oleocanthal is one of several compounds that scientists have been working with to clear beta-amyloid from the brain. Others include an older skin cancer drug that last year helped alleviate Alzheimer's symptoms in mice and antibodies that bind directly to beta-amyloid and remove it. "This paper is beginning to close in on what the specific components are in these more nutraceutical remedies that are actually helping us," says Kenneth S. Kosik of the University of California, Santa Barbara.

Kosik points out, however, that until clinical trials in humans take place, people must be cautious in interpreting the results. Kaddoumi's group is working to secure funding for just such clinical trials.

—Rachel Nuwer