

In alcohol abusers, fish oil may reduce risk of neurodegeneration and ensuing dementia

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Omega-3 fish oil might help protect against alcohol-related neurodamage and the risk of eventual dementia, according to a study published in the journal *PLOS ONE*.

Many human studies have shown that long-term alcohol abuse causes [brain damage](#) and increases the risk of dementia. The new study found that in [brain cells](#) exposed to high levels of alcohol, a fish oil compound protected against inflammation and [neuronal cell death](#).

The study was conducted by Michael A. Collins, PhD, Edward J. Neafsey, PhD, and colleagues at Loyola University Chicago Stritch School of Medicine, and collaborators at the University of Kentucky and the National Institute of Alcohol Abuse and Alcoholism (NIAAA).

Collins and colleagues exposed cultures of adult rat brain cells over several days to concentrations of alcohol equivalent to about four times the legal limit for driving – a concentration seen in chronic alcoholics. These brain cultures were compared with cultures exposed to the same high levels of alcohol, plus a compound found in fish oil called omega-3 docosahexaenoic acid (DHA).

Researchers found there was up to 90 percent less neuroinflammation and neuronal death in the brain cells exposed to alcohol plus DHA than in the cells exposed to alcohol alone.

An earlier meta-analysis by Collins and Neafsey, which pooled the

results of about 75 studies, found that moderate social drinking may have the opposite effect of reducing the risk of dementia and/or cognitive impairment during aging. (Moderate drinking is defined as a maximum of two drinks per day for men and 1 drink per day for women.)

It appears that limited amounts of alcohol might, in effect, tend to make brain cells more fit. Alcohol in moderate amounts stresses cells and thus toughens them up to cope with major stresses and insults down the road that could cause dementia. But too much alcohol overwhelms the cells, leading to neuroinflammation and cell death.

Further studies are needed to confirm whether fish oil protects against alcohol-related cognitive injury and [dementia](#) in adult rodent models. "Fish oil has the potential of helping preserve brain integrity in chronic alcohol abusers," Collins said. "At the very least, it is unlikely that it would hurt them."

But Collins added that the best way for an alcohol abuser to protect the brain is to cut back to low or moderate amounts or quit entirely. "We don't want people to think it is okay to take a few [fish oil](#) capsules and then continue to go on abusing [alcohol](#)," he said.

Provided by Loyola University Health System

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