

Animal study reveals potential brain-health benefits of a walnut-enriched diet

October 21 2014



New research reveals the potential brain-health benefits of a walnut-enriched diet. Credit: California Walnuts

A new animal study published in the *Journal of Alzheimer's Disease* indicates that a diet including walnuts may have a beneficial effect in reducing the risk, delaying the onset, slowing the progression of, or preventing Alzheimer's disease.

Research led by Abha Chauhan, PhD, head of the Developmental Neuroscience Laboratory at the New York State Institute for Basic Research in Developmental Disabilities (IBR), found significant improvement in learning skills, memory, reducing anxiety, and motor development in mice fed a walnut-enriched diet.

The researchers suggest that the high antioxidant content of [walnuts](#) (3.7 mmol/ounce)¹ may have been a contributing factor in protecting the mouse brain from the degeneration typically seen in Alzheimer's disease. Oxidative stress and inflammation are prominent features in this disease, which affects more than five million Americans².

"These findings are very promising and help lay the groundwork for future human studies on walnuts and Alzheimer's disease – a disease for which there is no known cure," said lead researcher Dr. Abha Chauhan, PhD. "Our study adds to the growing body of research that demonstrates the protective effects of walnuts on cognitive functioning."

The research group examined the effects of dietary supplementation on mice with 6 percent or 9 percent walnuts, which are equivalent to 1 ounce and 1.5 ounces per day, respectively, of walnuts in humans. This research stemmed from a previous cell culture study³ led by Dr. Chauhan that highlighted the protective effects of walnut extract against the oxidative damage caused by amyloid beta protein. This protein is the major component of amyloid plaques that form in the brains of those with Alzheimer's disease.

Someone in the United States develops Alzheimer's disease every 67 seconds, and the number of Americans with Alzheimer's disease and other dementias are expected to rapidly escalate in coming years as the [baby boom generation](#) ages. By 2050, the number of people age 65 and older with Alzheimer's disease may nearly triple, from five million to as many as 16 million, emphasizing the importance of determining ways to

prevent, slow or stop the disease. Estimated total payments in 2014 for all individuals with Alzheimer's disease and other dementias are \$214 billion².

Walnuts have other nutritional benefits as they contain numerous vitamins and minerals and are the only nut that contains a significant source of alpha-linolenic acid (ALA) (2.5 grams per ounce), an [omega-3 fatty acid](#) with heart and brain-health benefits^{4,5}. The researchers also suggest that ALA may have played a role in improving the behavioral symptoms seen in the study.

More information: An article detailing these findings, "Dietary Supplementation of Walnuts Improves Memory Deficits and Learning Skills in Transgenic Mouse Model of Alzheimer's Disease," has been published in the October issue of *Journal of Alzheimer's Disease* 42(4): 1397-1405 (2014) iospress.metapress.com/content/n644184610325684/

Related:

1. Halvorsen BL, Carlsen MH, Phillips KM, Bohn SK, Holte K, Jacobs DR, Blomhoff R (2006) Content of redox-active compounds (ie, antioxidants) in foods consumed in the United States. *Am J Clin Nutr* 84, 95-135
2. 2014 Alzheimer's Disease Facts and Figures. *Alzheimers Dement*. 2014;2:16-17. Available from: www.alz.org/downloads/Facts_Figures_2014.pdf
3. Muthaiyah B, Essa MM, Chauhan V, Chauhan A (2011) Protective effects of walnut extract against amyloid beta peptide-induced cell death and oxidative stress in PC12 cells. *Neurochem Res* 36, 2096-2103.
4. Pan A, Chen M, Chowdhury R, HY Wu J, Sun Q, Campos H,

Mozaffarian D, Hu FB (2012) Alpha linolenic acid and risk of cardiovascular disease: a systemic review and meta-analysis. Am J Clin Nutr. 96:6:1262-1273.

5. Innis SM (2007) Dietary (n-3) fatty acids and brain development. J Nutr 137, 855-859.

Provided by California Walnut Commission

Citation: Animal study reveals potential brain-health benefits of a walnut-enriched diet (2014, October 21) retrieved 12 May 2024 from <https://medicalxpress.com/news/2014-10-animal-reveals-potential-brain-health-benefits.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--