



Health effects of olive oil and the mediterranean diet

COGNITIVE HEALTH AND IMPAIRMENT

EFFECT SIZE



A Mediterranean diet reduced the risk of cognitive impairment and dementia, and was associated with improved cognitive functioning.

Pettersson, S.D. and E. Philippou, Mediterranean Diet, Cognitive Function, and Dementia: A Systematic Review of the Evidence. *Adv Nutr*, 2016. 7(5): p. 889-904.

What is the effect?

Possible protective effect for Dementia

Possible protective effect for Cognitive Impairment

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WHAT IS THE QUALITY OF THE EVIDENCE?

Cognitive function

or cognitive decline (e.g. dementia)



Outcomes measured

5 randomised controlled trials



as well as 27 observational studies

KEY RESULTS



DEMENTIA:

6 of 9 studies (2 of 2 cross-sectional and 4 of 7 longitudinal studies found a protective effect, and the other 3 studies did not find a significant association.

COGNITIVE IMPAIRMENT:

7 of 10 studies (3 of 4 cross-sectional, 3 of 5 longitudinal and 1 of 1 RCT) found the Mediterranean diet to be protective, and the other 3 studies did not find a significant association.

COGNITIVE FUNCTION:

(e.g. global cognition and verbal ability): 18 of 23 studies (2 of 3 cross-sectional, 12 of 15 longitudinal and 4 of 5 RCTs) found a significant association for at least one measure, whilst the remaining 5 studies found no significant associations.

WHAT TO KEEP IN MIND?

Limitations

- Different cognitive function tests were used between studies, making the findings difficult to compare.
- Most studies were observational and did not adjust for important confounders.
- Given that many participants showed signs of memory impairment, the retrospective studies and the use of a Food Frequency questionnaire could give a distorted account of foods eaten.
- It is unclear whether the Mediterranean diet is protective as a whole or through the action of its individual components.
- The same adherence score to a Mediterranean diet can mean a high and low consumption of different foods.
- Nine studies included participants <65 years of age, which could make cognitive decline harder to detect.
- The type of tool used to measure adherence to a Mediterranean diet varied between studies, and 7 studies modified the Mediterranean diet score, which diverges from the traditional Mediterranean diet.

WHAT'S THE BOTTOM LINE?

A Mediterranean diet may improve cognitive performance and be protective for cognitive impairment and dementia; although the majority of the evidence is observational without adjusting for confounders.

More RCTs and large epidemiological studies adjusted for confounders are needed in order to strengthen the empirical evidence for the role of the Mediterranean Diet in cognitive function, as well as the roles of the individual dietary components.

OTHER REVIEWS

Dinu, M., et al., Mediterranean diet and multiple health outcomes: an umbrella review of meta-analyses of observational studies and randomised trials. *Eur J Clin Nutr*, 2018. 72(1): p. 30-43.

Nowson, C.A., et al., The Impact of Dietary Factors on Indices of Chronic Disease in Older People: A Systematic Review. *J Nutr Health Aging*, 2018. 22(2): p. 282-296.

Radd-Vagenas, S., et al., Effect of the Mediterranean diet on cognition and brain morphology and function: a systematic review of randomized controlled trials. *Am J Clin Nutr*, 2018. 107(3): p. 389-404.

Aridi, Y.S., J.L. Walker, and O.R.L. Wright, The Association between the Mediterranean Dietary Pattern and Cognitive Health: A Systematic Review. *Nutrients*, 2017. 9(7).

Knight, A., J. Bryan, and K. Murphy, The Mediterranean diet and age-related cognitive functioning: A systematic review of study findings and neuropsychological assessment methodology. *Nutr Neurosci*, 2017. 20(8): p. 449-468.

Loughrey, D.G., et al., The Impact of the Mediterranean Diet on the Cognitive Functioning of Healthy Older Adults: A Systematic Review and Meta-Analysis. *Adv Nutr*, 2017. 8(4): p. 571-586.

Masana, M.F., et al., n-3 Fatty acids, Mediterranean diet and cognitive function in normal aging: A systematic review. *Exp Gerontol*, 2017. 91: p. 39-50.

Solfrizzi, V., et al., Relationships of Dietary Patterns, Foods, and Micro- and Macronutrients with Alzheimer's Disease and Late-Life Cognitive Disorders: A Systematic Review. *J Alzheimers Dis*, 2017. 59(3): p. 815-849.

Wu, L. and D. Sun, Adherence to Mediterranean diet and risk of developing cognitive disorders: An updated systematic review and meta-analysis of prospective cohort studies. *Sci Rep*, 2017. 7: p. 41317.

Yusufov, M., L.L. Weyandt, and I. Piryatinsky, Alzheimer's disease and diet: a systematic review. *Int J Neurosci*, 2017. 127(2): p. 161-175.

Cao, L., et al., Dietary Patterns and Risk of Dementia: a Systematic Review and Meta-Analysis of Cohort Studies. *Mol Neurobiol*, 2016. 53(9): p. 6144-6154.

Hardman, R.J., et al., Adherence to a Mediterranean-Style Diet and Effects on Cognition in Adults: A Qualitative Evaluation and Systematic Review of Longitudinal and Prospective Trials. *Front Nutr*, 2016. 3: p. 22.

Pettersson, S. and E. Philippou, The effects of Mediterranean Diet on cognitive function and dementia: Systematic review of the evidence. *Clin Nutr ESPEN*, 2016. 13: p. e67.

Singh, B., et al., Association of Mediterranean diet with mild cognitive impairment and Alzheimer's disease: a systematic review and meta-analysis. *J Alzheimers Dis*, 2014. 39(2): p. 271-82.

Lourida, I., et al., Mediterranean diet, cognitive function, and dementia: a systematic review. *Epidemiology*, 2013. 24(4): p. 479-89.

Opie, R.S., R.A. Ralston, and K.Z. Walker, Adherence to a Mediterranean-style diet can slow the rate of cognitive decline and decrease the risk of dementia: a systematic review. *Nutrition & Dietetics* 2013. 70(3): p. 206-217.

Psaltopoulou, T., et al., Mediterranean diet, stroke, cognitive impairment, and depression: A meta-analysis. *Ann Neurol*, 2013. 74(4): p. 580-91.

Shah, R., The role of nutrition and diet in Alzheimer disease: a systematic review. *J Am Med Dir Assoc*, 2013. 14(6): p. 398-402.

Sofi, F., et al., Accruing evidence on benefits of adherence to the Mediterranean diet on health: an updated systematic review and meta-analysis. *Am J Clin Nutr*, 2010. 92(5): p. 1189-96.

Roman, B., et al., Effectiveness of the Mediterranean diet in the elderly. *Clin Interv Aging*, 2008. 3(1): p. 97-109.

Sofi, F., et al., Adherence to Mediterranean diet and health status: meta-analysis. *BMJ*, 2008. 337: p. a1344.

