

## Clinical pathology selected abstracts

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### **Dietary patterns during adulthood and cognitive performance in midlife**

June 2019—Cognitive impairment is associated with an increased risk of mortality, disability, and late-life dementia, which contributes to the rising costs of health care. Several studies have demonstrated cognitive decline in midlife, and some data have linked this decline to cardiovascular disease risk factors or a more sedentary lifestyle. Diet is a modifiable exposure, but few studies have analyzed the risk of cognitive impairment due to dietary factors. The Mediterranean diet (MedDiet) and Dietary approaches to Stop Hypertension (DASH) have shown potential to slow cognitive decline and reduce the risk of dementia in later life. However, results from these studies have not been consistent. The authors examined the association between three heart-healthy diet patterns characterized by MedDiet, DASH, and CARDIA A Priori Diet Quality Score (APDQS) scores and cognitive performance in midlife. They assessed 2,621 participants in the Coronary Artery Risk Development in Young Adults (CARDIA) multicenter longitudinal study who were a mean age of  $25 \pm 3.5$  years and calculated their mean diet scores at baseline, year seven, and year 20. Cognitive function was evaluated at years 25 and 30, representing a mean age of 50 and 55 years. The authors used general linear models to determine an association between diet scores and change in composite cognitive function testing. The results showed that DASH was not associated with a change in cognitive performance. However, higher MedDiet and APDQS scores were associated with less decline in cognitive function. In addition, study participants who adhered most closely to MedDiet or APDQS had a 46 to 52 percent lower risk of poor global cognitive function after adjusting for demographic, health, and lifestyle covariates. The authors concluded that the mechanisms in which diet can influence midlife cognitive function are not clear, but they likely involve oxidative stress and inflammatory and vascular disease pathways that contribute to cognitive decline and dementia. The study also showed that greater long-term adherence to the MedDiet and APDQS diet during adulthood was associated with better midlife cognitive performance. Additional studies are needed to further examine the preferred combinations of foods and nutrients for optimal brain health.

McEvoy CT, Hoang T, Sidney S, et al. Dietary patterns during adulthood and cognitive performance in midlife: the CARDIA study. *Neurology*. 2019;92:e1589-e1599. doi:10.1212/WNL.0000000000007243.

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### **Association between mushroom consumption and mild cognitive impairment**

Emerging evidence suggests that mushrooms may have a neuroprotective effect on cognitive health. Certain components of mushrooms, such as hericenones, erinacines, scabronines, and dictyophorines, may promote the synthesis of nerve growth factors. Bioactive compounds in mushrooms may also protect the brain from neurodegeneration. Mushrooms are one of the richest dietary sources of ergothioneine, which is a unique antioxidant and cytoprotective compound. The authors conducted a study to test the hypothesis that mushroom consumption is associated with reduced odds of having mild cognitive impairment and that this association is independent of potential confounders, such as age, gender, education, lifestyle, and other factors. They examined 663 participants, aged 60 and older, from the Diet and Healthy Aging (DaHA) study in Singapore who had not been diagnosed with dementia or a psychiatric disorder. The authors administered to DaHA study participants, via community research nurses, a questionnaire about the frequency of their consumption of mushrooms and portion size. A standard portion was defined as a three-quarter cup of cooked mushrooms with an average weight of approximately 150 grams. The authors used the Singapore Modified Mini-Mental State Examination (SM-MMSE) to assess global cognitive function and further assessed cognitive domains in detail using a structured neurocognitive test. A local version of the Clinical Dementia Rating (CDR) was also administered. The results showed that study

participants who consumed more than two portions of mushrooms per week had reduced odds of having mild cognitive impairment compared with those who consumed mushrooms less than once a week. This association was independent of all other variables. The authors concluded that this study supports the potential role of mushrooms and their bioactive compounds in delaying neurodegeneration. However, they noted that the results are based on self-reported information on mushroom intake and this may not be accurate, especially for those with mild cognitive impairment. Future studies will need to adopt similar study designs and methods to enhance comparability.

Feng L, Cheah IK, Ng MM, et al. The association between mushroom consumption and mild cognitive impairment: a community-based cross-sectional study in Singapore. *J Alzheimers Dis.* 2019;68:197–203.

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