

## More Evidence Mediterranean Diet May Reduce Stroke Risk

Pauline Anderson | March 12, 2015

Eating a plant-based diet rich in fruits, vegetables, and nuts and low in animal fats, dairy, and sweets can reduce the risk for stroke by up to 18% compared with a less healthy dietary pattern, a new study suggests.

Results showed that women who were more adherent to the Mediterranean dietary pattern were significantly less likely to have an ischemic stroke than the least adherent.

The findings are particularly important as new evidence shows that few Americans eat a healthy diet, said study author Ayesha Sherzai, MD, fellow, vascular neurology and neuro-epidemiology, Columbia University Medical Center, New York, New York.

"We need better studies, but given the fact that less than 1% of the US adult population has an ideal diet, our findings emphasize the importance of addressing diet as an important modifiable risk factor."

She presented the study at the recent International Stroke Conference (ISC) 2015.

### Proven in Primary and Secondary Prevention

Previous studies have shown the Mediterranean diet has benefit in secondary prevention of cardiovascular disease, and most recently the PREDIMED study showed benefit in primary prevention of cardiovascular disease.

The main PREDIMED results, published in the *New England Journal of Medicine* in 2013, enrolled 7447 individuals at high cardiovascular risk and found after a mean follow-up of 4.8 years that those randomly assigned to the Mediterranean diets had a 30% reduction in the primary endpoint of myocardial infarction (MI), stroke, or cardiovascular death.

The diet advocates intake of the key foods, including vegetables, fruit, nuts, fish, legumes, extra-virgin olive oil, and red wine in moderation; an increase in the intake of white meat; and a decrease in the intake of red and processed meat, soda drinks, whole dairy products, commercial bakery goods, and sweets and pastries.

Recent primary stroke prevention guidelines from the American Heart Association (AHA)/American Stroke Association recommend following a Mediterranean diet supplemented with nuts; reducing sodium; increasing potassium intake; or following a DASH-style diet that emphasizes fruits, vegetables, low-fat dairy products, and reduced saturated fat.

The current study reported here used data from the California Teachers Study, which included 104,268 female teachers, mostly non-Hispanic whites (87%) with a mean age of 52 years, who completed a widely used and well-validated food-frequency questionnaire in 1995.

Respondents were asked about their food habits over the previous year. Researchers allotted them points for eating specific foods (eg, fruits, vegetables, legumes, monounsaturated fats) and deducted points for eating other food items (eg, meat, dairy, refined foods, sweets).

From this information, researchers developed dietary scores and divided participants into five groups according to how adherent they were to the ideal Mediterranean diet.



Dr Ayesha Sherzai

During follow-up (1996 to 2011), 3165 strokes (2270 ischemic and 895 hemorrhagic) occurred in this population.

Researchers adjusted for stroke risks between groups: socioeconomic factors; physical activity level; menopause; oral contraceptive use; and diseases such as diabetes, hypercholesterolemia, and high blood pressure.

Compared with those in the lowest quintile, those in the fourth and highest quintiles were at lower risk for overall stroke ( $P = .009$ ).

For ischemic stroke, those in the third (hazard ratio [HR] 0.84; 95% confidence interval [CI], 0.72 - 0.97), fourth (HR, 0.85; 95% CI, 0.73 - 0.98), and highest (HR, 0.82; 95% CI, 0.70 - 0.95) quintiles were all at reduced risk ( $P = .02$ ).

"Even after we threw in all these factors that could affect the relationship between diet and stroke, we saw a significant result, meaning that the ischemic stroke risk was lower in women even if they had all these other factors," she said.

The study did not detect a significant association between the Mediterranean diet and hemorrhagic stroke. This might have been because of the low number of such strokes, she speculated. "Or maybe there's a special relationship between the dietary factors affecting the risk factors for ischemic stroke only, such as diabetes and body mass index," said Dr Sherzai.

The new findings come on the heels of a statistical update that the AHA released this year. New evidence in that report suggests that less than 1 in 100 older US residents has an ideal diet, which is "alarming," said Dr Sherzai.

To arrive at this figure, said Dr Sherzai, experts looked at seven metrics of cardiovascular health, diet being one of them. They found that 0.4% of the population has an "ideal" diet. Ideal, she said, means that on a regular basis they incorporate four of five components of a healthy diet.

This compares to 73% of the population that has reached an "ideal" category in terms of not smoking, she said.

"So there is a stark difference and, as a matter of fact, diet is the least addressed cardiovascular health metric," said Dr Sherzai. "It's about time we started to have the conversation about diet as it's an easily modifiable risk factor that could make a big difference."

Currently, when patients come in with vascular risk factors, such as uncontrolled high blood pressure or high cholesterol, the usual focus is on medication to normalize these levels. "We forget to talk about diet," said Dr Sherzai. "It's our responsibility as health care professionals and researchers to make culturally appropriate recommendations when it comes to diet."

It's also important, she said, to do more research to find ways to make dietary recommendations that are "feasible and reasonable" and that patients can take home and follow. These can be as basic as what to put in the shopping cart.

A limitation of the study was that it didn't examine the effects of individual components of the Mediterranean diet and was restricted to one state (California) and to women. "So there is the issue of generalizability," said Dr Sherzai.

### Usual Caveats

Asked for comment on the findings, Larry B. Goldstein, MD, professor of medicine, Division of Neurology, and director of the Duke Stroke Center at Duke University Medical Center, Durham, North Carolina, pointed out that it's well known that people who follow a healthy lifestyle — who don't drink alcohol to excess or smoke, exercise regularly, keep a lean body mass, and follow a healthy diet — have an approximately 80% lower risk for a first stroke than those who don't.

"The question then is what's a healthy diet?" he told *Medscape Medical News*. "One healthy diet model has been the DASH type diet, a diet that's low in sodium, high in potassium, high in fruits and vegetables."

The Mediterranean diet is not dissimilar from the DASH diet, but the randomized PREDIMED study has shown it to be associated with a lower risk for cardiovascular disease and stroke, he said, "so based on that, there were two potential diets that could be recommended."

The current study was an observational study showing the higher the adherence to a Mediterranean diet, independent of other factors, the lower the risk for stroke, he said. "So it does reinforce and support the other data and the other recommendations — that's reassuring. But it does have all the caveats of being an observational, non-randomized study with all the issues that that kind of analysis has including that this was done by dietary report." Still, with that and other caveats, he added, "it's helpful that the overall results support the other studies."



**Dr Larry B.  
Goldstein**

Another recent paper, published online in January in *Stroke* found a similar relationship between adherence to the Mediterranean diet and reduced ischemic stroke in the well-known REasons for Geographic and Racial Differences in Stroke (REGARDS) cohort.

High adherence to the diet was associated with a lower risk for incident ischemic stroke independent of potential confounders but was not associated with the risk for incident hemorrhagic stroke.

*Dr Sherzai and Dr Goldstein have disclosed no relevant financial relationships.*

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