THE MIND DIET

FIGHTING DEMENTIA WITH FOOD

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A recent study from Rush University has identified a dietary pattern that can significantly reduce the risk of developing Alzheimer's disease, even in patients with only moderate compliance.

There is growing scientific evidence that dietary intake can actually reduce the risk of developing Alzheimer's disease (AD).1 The same eating patterns recommended to support cardiovascular health, such as the Mediterranean diet and the Dietary Approaches to Stop Hypertension (DASH) diet, have also been shown in multiple studies and meta-analyses to slow cognitive decline or reduce the risk of cognitive impairment, including AD.2-5

A recent study led by Martha Clare Morris, ScD, a professor of epidemiology and director of the Section on Nutrition and Nutritional Epidemiology at Rush University, has taken a closer look at the effect of those two diets on cognitive decline and compared them with a new diet plan. Called the MIND (Mediterranean-DASH intervention for Neurodegenerative Delay) diet, this new dietary pattern uses the Mediterranean and DASH diets as a basis, but modifies them to place more emphasis on foods that have been linked by previous research to improved cognitive function and delayed decline.6

The Research

The MIND trial followed 923 individuals aged 58 to 98 for an average of 4.5 years (in a range of two to 10 years). Diet was assessed using a 154-item guided questionnaire, and cognitive function was measured yearly using 19 cognitive tests. Participants' diets were scored by how closely they matched up with recommendations for the Mediterranean, DASH, or MIND eating patterns. High adherence to any of these diets was associated with reduced risk of cognitive decline. For the people who followed the diet most closely, the Mediterranean diet had the greatest impact, with the top one-third of adherents realizing a 54% reduction in the risk of developing AD. The MIND diet was a close second at 53% reduction. But the MIND diet was the most effective overall, since the middle one-third of MIND diet followers had a significant reduction in AD (35%) during the study period, even when results were adjusted for AD risk factors.6 "Unlike the other two diets we studied, even moderate adherence to the MIND diet brought about significant reduction in dementia risk," Morris says.

Why It Works

A diet that supports vascular health is certainly protective against vascular dementia, but certain foods and food components have been directly linked to improved neurological function or reduced AD biomarkers in the brain.1,8 "MIND diet foods reflect nutrients shown to slow cognitive decline, lower risk of AD, decrease amyloid in the brain or neuron loss in animal studies, or decrease oxidative stress and inflammation," Morris says.

MIND-recommended foods are rich in nutrients such as vitamin E and the omega-3 fatty acid docosahexaenoic acid (DHA). "Dietary vitamin E (tocopherol), which is found in nuts, plant oils, seeds, and leafy greens, is a very potent antioxidant associated strongly with brain health," Morris says, "and fish is an excellent source of omega-3 fatty acids, which, studies show, are important for synaptic proteins in the brain. Omega-3s (DHA in particular) are among the more important lipid structures in the brain. They lead to higher synaptic transmission and less oxidative stress." The diet also includes plenty of B vitamins such as folate, and vitamins C and D, all of which have been found in multiple analyses and randomized controlled studies to help neurons cope with aging.9

The MIND Diet

The MIND diet emphasizes foods shown to support a healthy brain and recommends limiting potentially damaging choices.7 The more closely the recommendations are followed, the greater the impact on neurological health is likely to be.

Include These

- **Green leafy vegetables:** every day
- **Other vegetables:** at least once per day
- **Nuts:** every day
- **Berries:** at least twice per week
- **Beans:** every other day
- **Whole grains:** three times per day
- **Fish:** at least once per week
- **Poultry:** at least twice per week
- **Olive oil**
- **Wine:** one glass per day

Limit These

- **Red meats**
- **Butter and stick margarine:** less than 1 tablespoon per day
- **Cheese:** less than one serving per week
- **Pastries and sweets:** limit
- **Fried or fast food:** less than one serving per week

Epidemiologic studies sometimes point to specific foods. "Food studies show that vegetables are important for reducing cognitive decline," Morris says, "but green leafy vegetables show up in research as particularly protective, so we recommend people eat things like spinach, kale, collards, or romaine at least six times a week." Fruits, which are stressed in the Mediterranean and DASH diets, are not specifically recommended in the MIND diet, except for berries. "No studies on cognitive decline and AD have found a n association with fruits as a general category. But berries like strawberries and blueberries have been shown to decrease neuron loss and improve memory performance in a fairly large body of animal studies and the Nurses Health Study," she says.

Balance of fats appears to be important to brain health as well. A 2014 ***Neurobiology of Aging*** review of evidence linking dietary fat composition to the risk of developing dementia (coauthored by Morris) found support from laboratory, animal, and prospective epidemiologic studies for the hypothesis that high saturated or trans fatty acids increase the risk of dementia and high polyunsaturated or mono-unsaturated fatty acids decrease the risk.10 Avoiding fried foods, pastries, full-fat dairy, and large amounts of red meat, and eating foods such as fish, nuts, and plant oils such as olive oil, as recommended by the MIND diet, provides this balance of fats.

Putting It Into Practice

"The MIND diet is a fairly simple diet to follow," says Vandana R. Sheth, RDN, CDE, a spokesperson for the Academy of Nutrition and Dietetics. It eschews specific nutrient recommendations for more general patterns of foods. "Having a green salad and one other vegetable every day and snacking on nuts is pretty simple to do," Sheth says. "Many people already eat poultry at least twice a week and enjoy a glass of wine with dinner or before bed. Adding fish once a week can be as simple as a can of tuna on that lunch salad."

Eating three servings of whole grains every day may seem like a challenge, but patients should be reminded that one slice of bread is a serving, so that goal can be

met with oatmeal for breakfast and a sandwich on whole grain bread for lunch, or a bowl of whole grainbread for lunch, or a bowl of whole grain cereal in the morning and a cup of brown rice or barley soup for dinner. Berries can be expensive, particularly out of season, but frozen berries are just as nutritious as fresh berries and are perfect in oatmeal or for smoothies and yogurt parfaits all year round. For patients who prefer not to cook, are on a fixed budget, or have issues with dentition, beans are a perfect choice. Rinsed canned beans can be tossed into salads; stirred into prepared soups, stews, and chilies; or served over brown rice with some simple herbs and spices for a truly brain-boosting meal.

Cutting back on saturated fats presents a big challenge for many Americans. Stepping down from whole milk to 2%, and then to 1% over time is an effective strategy. Avoiding cheese, limiting red and processed meats, and keeping to one tablespoon of butter or less per day may be difficult, and cutting back on pastries, cookies, and other sweet treats is nearly impossible for many. It may help to look at dessert as a special occasion treat rather than a requirement to round out a meal. "It is important to recognize that behavior change is difficult," Sheth says. "A diet is not a short-term strategy; it's a permanent lifestyle change. Most people do best by tackling one or two small achievable goals at a time." Making room for the positive changes discussed above, such as salads, whole grains, fish, and beans, will push some of the less than judicious choices off the plate. Reassure patients that any step toward the ideal eating pattern is a positive step for neurological (and cardiovascular) health. "The beauty of the MIND diet is that you get benefits even if you are not following it to the letter," Morris says.

Older patients often have additional concerns that make good dietary choices even more difficult, Sheth says. "Good nutrition allows us to prevent, delay, and better manage normal aging as well as chronic conditions," she says, "but older patients often experience physical, emotional, and social changes that affect their ability to eat right. These include limited ability to shop [for], prep, and cook meals; financial constraints; lack of motivation to cook; taste and appetite changes related to medications as well as normal aging; and difficulty chewing or swallowing." Health care professionals working with this population are in the perfect position to screen for these issues when providing other needed care. "Discussing eating habits and the importance of proper nutrition, and making a referral to a registered dietitian, as necessary, can make a big difference," Sheth says.

As the relatively young science of nutrition and the brain evolves, more specific information is sure to become available. What seems clear even now, however, is that diet-related lifestyle changes can be neuroprotective and are worth encouraging in patients. As Sheth says, "Introducing the MIND diet principles can positively affect not only the geriatric patients' neurological health but also their overall health and well-being."

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