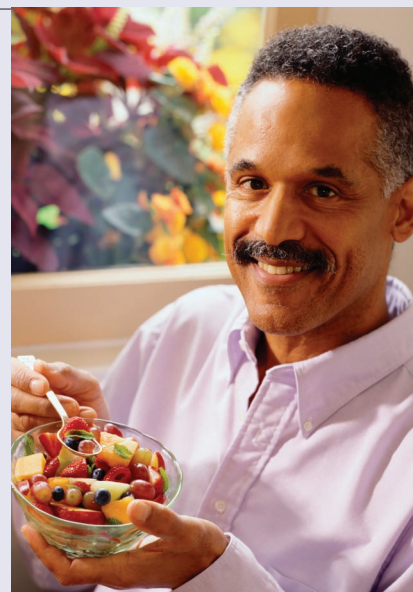


Can Diet and Exercise Help Prevent Alzheimer's Disease?

By Heather Lindsey

You've already heard how diet and exercise can help prevent heart disease, diabetes, obesity, and other illnesses. But did you know research is beginning to provide clues indicating that nutrition and physical activity may also play a role in lowering your risk of developing Alzheimer's disease (AD) and may help those who already have the condition?

So far, research tends to support the relationship between eating less fat and more vegetables and a lower risk of AD.



Debbie Mandel, 54, a book author and host of a weekly health and wellness show in Lawrence, N.Y., made sure her mother, Tuna Eisenstadt, who lived with AD for eight years, ate properly and exercised to help manage the disease. Unexpectedly, she passed away about a year ago from lung cancer, but Mandel believes her mother would still be managing her AD well if she were alive today.

"I made sure she ate nutritionally well with a rainbow diet of fruits and vegetables," says Mandel. "She also ate a lot of fish, which is good because it contains omega-3 fatty acids." Research indicates that omega-3 fatty acids may lower the risk of developing AD.

Additionally, a low-fat diet helped her mother manage her cholesterol and high blood pressure. High blood pressure is a risk factor for AD, and studies indicate low-fat diets may decrease the risk for the disease.

Mandel also ensured that Eisenstadt exercised regu-

larly on a stationary bike for about 20 minutes a day before breakfast and encouraged her to walk as often as she could. "We used exercise to help my mother preserve the integrity of her lifestyle," she says. "I think that exercise helps reverse the clock and helped her mind to hang in longer." Physical activity not only seemed to help her mother with cognition, but also appeared to help improve her mood and self-esteem, says Mandel.

Mandel believes in using nutrition and physical activity to maximize and preserve her own health and hopes that these measures will help prevent disease, including Alzheimer's. As part of her interest in keeping as healthy as possible, she has written a book called *Turn On Your Inner Light*, which contains stress-management tools and fitness exercises to be done at home and includes a section for seniors.

Scientific evidence suggests the diet and exercise

strategies Mandel uses to stay healthy do have an impact on prevention of AD and may be helpful to patients with the condition.

Eating a Healthy Diet

Low-fat foods and vegetables

So far, research tends to support the relationship between eating less fat and more vegetables and a lower risk of AD, says Martha Clare Morris, Sc.D., associate professor of internal medicine at Rush Institute for Healthy Aging at Rush-Presbyterian-St. Luke's Medical Center in Chicago, Ill.

People should follow general health measures such as keeping an eye on blood pressure, weight, and nutrition and ensuring they get enough exercise.



For instance, in a study reported in 2003 in the *Archives of Neurology*, she found that foods contain-

ing saturated fats and trans-unsaturated fats—the bad kind of fats—appeared to increase the risk of AD. In contrast, polyunsaturated and monounsaturated fats—the good kind—were linked with a decreased risk.

Fish is rich in omega-3 fatty acid, a type of polyunsaturated fat, which may protect against AD. Another study in the same journal showed that those who ate fish once per week or more had 60 percent less risk of AD compared with those who rarely or never ate fish, says Dr. Morris, author of one of the studies.

The studies suggest that eating a lot of unsaturated, unhydrogenated fats may be protective against AD, she says. In contrast, eating a lot of foods containing saturated or trans-unsaturated or hydrogenated fats may increase risk. These foods include high-fat dairy, meats, and processed foods prepared with trans-oils that have been hydrogenated and are found in prepared desserts, crackers, cookies, and chips.

A high-fat, high-calorie diet can lead to obesity and coronary heart disease, and may put people at higher risk of dementia later in life, agrees Eric B. Larson, M.D., M.P.H., director and senior investigator of The Center for Health Studies, in Seattle, Wash. "This is powerful motivation to follow a prudent diet," he says.

Antioxidants—Vitamins E and C, and Beta-carotene

In addition to eating a low-fat diet, some studies show that antioxidants such as vitamins E and C and beta-carotene may have a protective effect against the development of AD and help those who already have the disease, although current research tends to be controversial and inconclusive.

Researchers began studying antioxidants because of the theory that highly reactive oxygen molecules in the brain can cause damage to tissue, leading to AD. Anti-oxidants may help prevent this damage, explains Dr. Morris. However, whether increasing the amount of antioxidants will stave off AD remains to be seen.

A 1997 study in the *New England Journal of Medicine* showed that taking 2,000 IU of vitamin E supplements a day may delay the time to death, institutionalization, and loss of the ability to perform basic daily activities in people with moderately advanced AD. However, this research has not been replicated, says one of the study authors, Leon Thal, M.D., professor of neurosciences at the University of California, San Diego.

Based on the overall scientific evidence, patients with AD should consider taking vitamin E, says William Rodman Shankle, M.S., M.D., who is a neurological specialist in Alzheimer's disease and an assistant adjunct professor in the Cognitive Sciences Department at the University of California-Irvine. However, each patient's nutritional needs should be assessed on an individual basis, he notes.

Supplements vs. Foods

Researchers are also studying how eating foods rich in antioxidants, as opposed to supplements, may help prevent onset of AD. A study by Dr. Morris found that vitamin E from food may lower risk of the disease. However, the same study, published in 2002 in the *Journal of*

the American Medical Association, found that supplements containing either vitamin E, vitamin C, or beta-carotene did not seem to impact risk of developing AD. Additionally, a study published early this year by Dr. Morris and her colleagues in the *American Journal of Clinical Nutrition* found that vitamin E from food rather than from supplements helps to reduce the risk of AD. "There's very limited evidence of supplements being protective," she says.

Another study, also published in the *American Journal of Clinical Nutrition* in 2005 reported a 45-percent drop in AD risk in people who consumed enough fruits and vegetables containing sufficient amounts of vitamins C and E when compared to a group that took low amounts of these nutrients.

The B Vitamins

B vitamins found in food may also have a protective effect against AD. In research published last year in the *Journal of Neurology, Neurosurgery, and Psychiatry*, Dr. Morris found that people who got the least amount of niacin, or vitamin B3, in their diet tended to be more at risk of cognitive decline and AD. However, more research is needed before drawing any definite conclusions, she says.

Additionally, the Alzheimer's Disease Cooperative Study Group is studying whether vitamins B6, B12, and folate, a water-soluble B vitamin that occurs in food, slow cognitive decline in people with AD. These B vitamins can lower the amount of homocystine, an amino acid that occurs naturally in the body, explains Walter Kukull, Ph.D., a professor of epidemiology at the University of Washington in Seattle. There is some evidence that high homocystine levels may contribute to risk of AD.

The full impact of diet on AD remains to be seen, and researchers are cautious about making recommendations on nutrition at this point, says Dr. Thal. Studies conducted so far generally give researchers clues about diet but not definitive answers.

The Benefits of Exercise

The effect of exercise on lowering the risk of cognitive decline in patients with AD, as well as how physical activity may prevent such problems in healthy people, is also being studied.

Stock Up to Prevent Cognitive Decline

While researchers continue to examine how nutrition impacts AD, all note that eating a healthy diet is protective against chronic illnesses such as heart disease and diabetes and could possibly help prevent memory problems. Healthy foods include:

Vegetables high in antioxidants:

Kale	Red bell peppers
Spinach	Eggplant
Brussels sprouts	Beets
Alfalfa sprouts	Onions
Broccoli	Corn



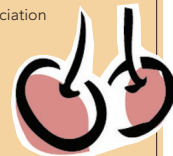
Fruits high in antioxidants:

Prunes	Raspberries
Raisins	Plums
Blueberries	Oranges
Blackberries	Red grapes
Strawberries	Cherries

Source: The Alzheimer's Association

Foods particularly high in vitamin E:

Wheat germ
Corn
Olive and other vegetable oils
Nuts such as almonds, pecans, and walnuts
Spinach, asparagus, and other green leafy vegetables



Foods high in niacin:

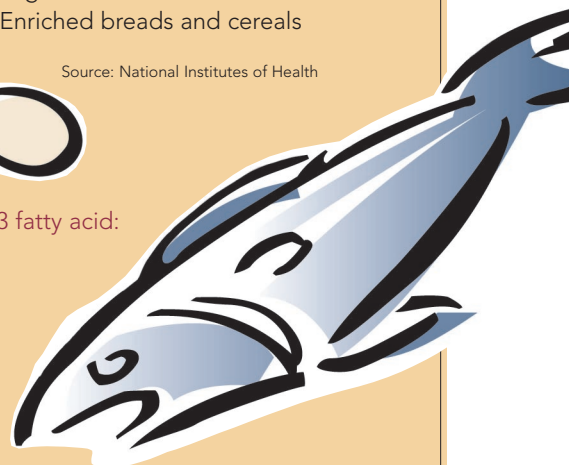
Milk and other dairy products
Poultry and lean meats
Nuts
Eggs
Fish
Legumes
Enriched breads and cereals

Source: National Institutes of Health

Foods high in omega-3 fatty acid:

Halibut
Mackerel
Salmon
Trout
Tuna

Source: Alzheimer's Association



An article published last year in the *Archives of Physical Medicine and Rehabilitation*, which reviewed several studies on exercise in people who had dementia and AD, found that physical activity not only increases fitness, but also helps improve cognitive function.

There are no well-designed clinical trials on this point on exercise and AD, cautions Dr. Shankle. But, drawing from his experience in

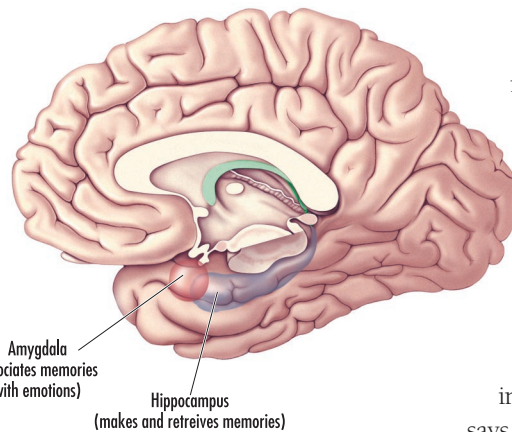
treating more than 7,000 patients with AD and similar disorders, he says, “patients who regularly exercise show a slower rate of decline, show fewer behavioral problems, and have fewer problems with their other medical conditions.” He recommends at least 30 minutes of exercise three days a week.

“At this stage, doctors could probably add the potential for lesser cognitive decline as we age to the list of reasons to recommend exercise,” says Mary Ellen Lytle, M.S.W., a researcher in the department of epidemiology in the University of Pittsburgh’s Graduate School of Public Health. “However,” she adds, “patients should realize that although exercise may decrease their risk of cognitive decline, it is not a guarantee.”

In a study published last year in *Alzheimer Disease and Associated Disorders*, Lytle and her colleagues found that exercise appeared to help prevent cognitive decline in people with and without varying degrees of dementia.

Why May Exercise Help?

Researchers are just beginning to understand how exercise might impact the brain. Physical activity may reduce the risk of vascular problems, such as high blood pressure and high cholesterol, which, in turn, may lower the risk of risk of AD. “It’s likely there’s a part of the brain that



is particularly susceptible to low blood flow and vascular disease,” says Dr. Larson.

For example, shrinkage of the hippocampus, the part of the brain that transfers information into memory, is less extensive over time in people who are in better physical condition, he says. The hippocampus is one of the first areas of the brain that deteriorates in people with AD.

There is also animal and human research showing that regular exercise reduces the risk of heart disease, diabetes, high blood pressure, and obesity, notes Dr. Shankle. Each of these diseases is a risk factor for AD and other forms of dementia.

The Bottom Line

With questions still remaining about the true impact of diet and physical activity on preventing AD, people should follow general health measures such as keeping an eye on their blood pressure, weight, and nutrition and ensuring they get enough exercise, says Dr. Thal. Scientists may one day find proof that these measures help prevent AD, but more research is needed, he concludes. **NN**

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