**FROM THE EXPERTS**

**Food for Thought**

*From Massachusetts General Hospital's Mind, Mood & Memory.*

**WANT A KEEPER MIND AND A more balanced mood in older age?** A healthy diet may hold the key. Although it's a small organ, the brain is metabolically the most active organ of the body, and it requires continuous nourishment for optimal functioning.

"Diet has a very important effect on brain function and cognition, and mounting evidence suggests that enhancing your diet by paying more attention to the range of foods you eat and the quality of those foods can help improve your chances of staying sharp and mentally healthy," says Uma Naidoo, M.D., a psychiatrist at Massachusetts General Hospital, an instructor of psychiatry at Harvard Medical School, and an expert on the effects of food on neurochemistry.

**DIRECT PATHWAY**

An important indication of the brain/diet connection is recent research that for the first time conclusively links dietary patterns in older adults to specific changes in the size and functioning of the hippocampus, a brain region critical to learning, memory and mental health. The study, published in the journal *BMC Medicine*, compared participants who ate a “prudent/healthy” diet that included plenty of fresh vegetables, fruit, salad and grilled fish with others who ate a “Western/unhealthy diet” that included large amounts of foods such as sausages, roast meats, hamburgers, steaks, fries, potato chips and sodas. Researchers found that over four years, brain scans of the participants who ate the healthy diet showed an increase in volume of the left hippocampus, while those who ate the unhealthy diet showed a decrease. Diet accounted for 62% of the decline in left hippocampal volume, independent of other factors, such as health and socioeconomic status.

**A MENU OF DIETS**

Studies such as this one suggest that if you wish to protect your aging brain, eating foods that help reduce risk for cardiovascular disease, obesity, inflammation and other health problems that can damage the brain is essential. The following three diets have been associated with lower risk for cognitive decline and/or dementia.

1. **The DASH diet.** The Dietary Approaches to Stop Hypertension (DASH) diet is recommended by the American Heart Association and other health organizations to help lower blood pressure, keep your cardiovascular system in good condition and ensure that your brain receives a vigorous flow of blood that keeps it well nourished and oxygenated. The DASH diet also provides antioxidants that protect tissues from damage. **CONSUME:** Small portions (3 ounces) of lean meats, poultry, fish and low-fat dairy. Eat plenty of fruits, vegetables, whole grains and nuts, which supply fiber, essential nutrients, and antioxidants that facilitate brain function and combat the body’s formation of toxic free radicals.
Also limit refined products and processed foods, which are often loaded with salt, unhealthy fats, sugar and preservatives, and avoid excessive sweets. Too many sweets can lead to metabolic syndrome and diabetes, which have been associated with greater risk for high blood pressure, cardiovascular disease and cognitive problems.

2. The Mediterranean diet. Regular consumption of the diet typical of Mediterranean regions has been linked to slower cognitive decline and reduced risk for mild cognitive impairment, as well as a decrease in the likelihood of developing dementia.
- CONSUME: Plenty of fish, fresh fruits and vegetables, legumes, nuts and whole grains. Use olive oil in place of other fats, and enjoy an occasional glass of red wine, if you wish.
- LIMIT: Red meats, dairy products (including cheese), saturated fats and trans fats, processed foods and sweets.

3. The MIND diet. A combination of the DASH and Mediterranean diets, the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet is associated with a significant reduction in risk for cognitive decline and dementia. Better still, the MIND diet has been found to slow cognitive decline and provide significant protection against Alzheimer's disease even in individuals who don't completely follow the diet.
- CONSUME: Vegetables (including leafy greens), whole grains, legumes, nuts, berries, poultry, fish, olive oil and a daily glass of red wine, if you wish.
- LIMIT: Fried or fast foods, red meats, butter and stick margarine, cheese, and pastries and sweets.

"You needn’t change your diet all at once," says Naidoo. "Make sensible, small changes in the direction of good health. Start with the ingredients, such as substituting fresh foods and whole grains for processed foods. Choose healthy snacks, such as fruit or nuts, and make sure you are getting at least three meals a day that supply the simple building blocks of a nutritious diet. Finally, remember to exercise portion control to help manage your weight."

For more information about Massachusetts General Hospital's Mind, Mood & Memory, visit www.universityhealthnews.com/mmmsub-kip.

Diet Essentials

**BRAIN BOOSTERS**

Besides six to eight glasses of water a day, the following dietary elements ensure a healthy brain.

**Glucose.** This is essential for repairing brain cells, manufacturing enzymes and neurotransmitters, sending signals throughout the neuronal network, and performing activities such as learning, remembering and concentrating. Glucose is a form of sugar derived from the carbohydrates in your diet. These starches and sugars are best eaten in complex forms that come largely from fruit, whole grains, vegetables and legumes.

**Fatty acids.** About two-thirds of brain tissue is composed of fats, which enhance communication among brain cells and stabilize and promote the elasticity of brain-cell membranes, among other functions. Important fats for brain health are oleic acid, found in olive and peanut oils, almonds and avocados; omega-3 fatty acids, found in cold-water fish, nuts and dark leafy greens; and omega-6 fatty acids, found in vegetable oils. A ratio of three omega-6 fatty acids to one omega-3 fatty acid is best because excessive amounts of omega-6 are unhealthy.

**Amino acids.** Derived from proteins in the diet, amino acids are the building blocks of neurotransmitters, the chemical messengers that allow brain cells to communicate with one another. Good sources of amino acids are lean meat, fish, eggs, poultry and low-fat dairy products. Grains, legumes, nuts and seeds also provide important amino acids.

**Micronutrients.** Micronutrients, such as vitamins, minerals and phytochemicals (plant compounds that are thought to have antioxidant and other health-promoting qualities), are vital to your brain's defense system. They help control free radicals, a byproduct of normal cell metabolism that can damage brain cells through chemical reactions that destabilize cellular mitochondria (the cell's energy producers), DNA, membrane fatty acids and other cell components.