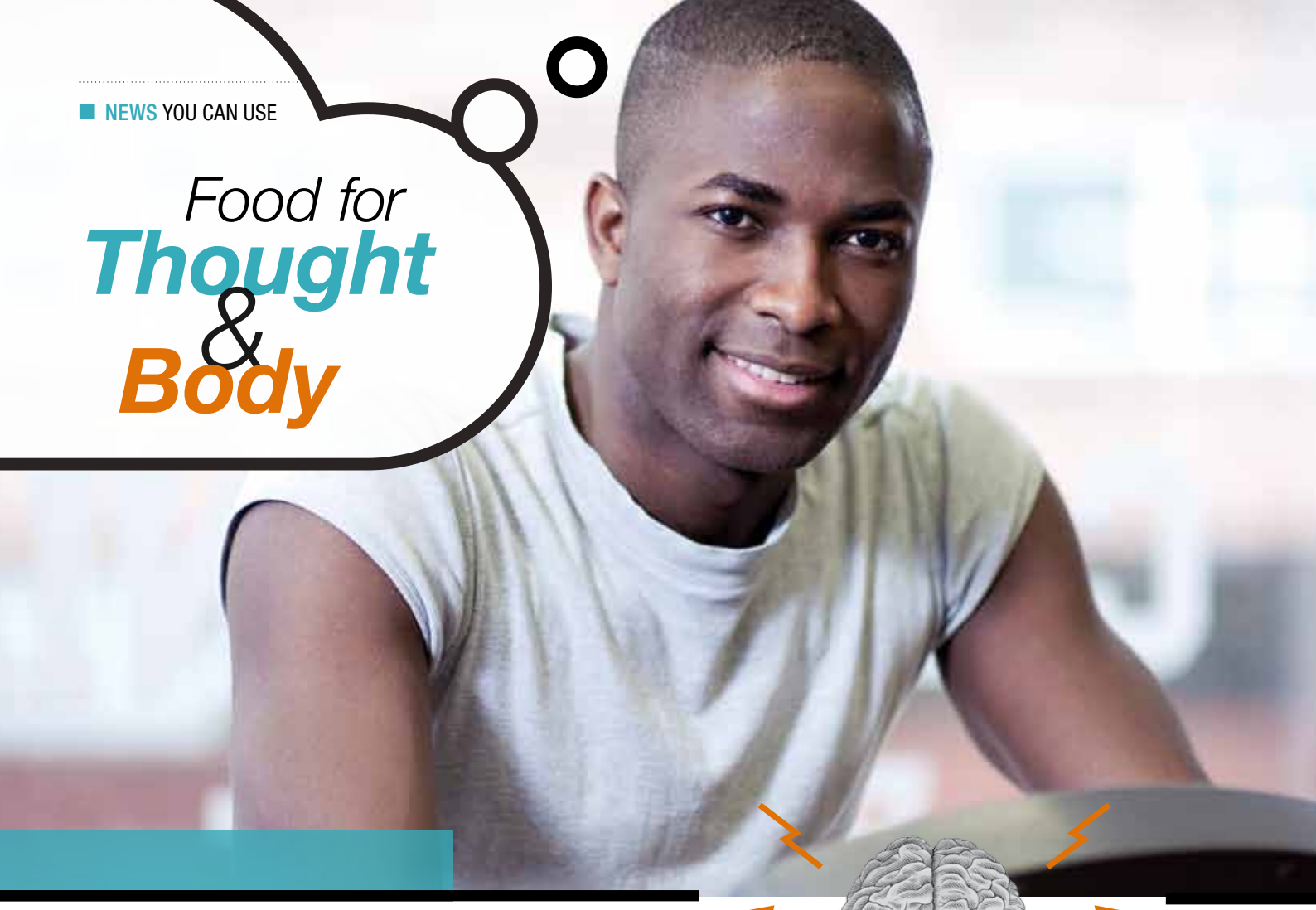
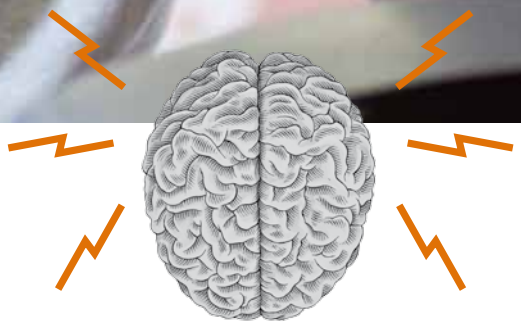
Food for Thought & Body



Achieving a Healthier Mind & Body

Optimal health and a lifetime of wellness come from not only achieving physical and emotional health, but by also attaining optimal cognitive function. However, today we face many challenges that have a profound effect on both our body and our mind. Poor dietary habits, inactive lifestyles, stress and aging itself make it difficult to achieve lifelong health and vitality. The good news is an abundance of research has proven that our lifestyle choices can make a difference. A nutritious diet rich in plant foods, more physical activity and daily use of supplements can all positively influence our body and our brain throughout life. This issue of *News You Can Use* brings you the latest scientific findings in this important area of research.



Shed Kilos, Gain Smarts

Maintaining a healthy weight may not only be good for your body but good for your brain too. In a recent study conducted over a 10-year period among 6,401 British men age 39-63 years, researchers found an association between being overweight or obese and impaired cognitive function. Published in the journal *Neurology*, study investigators compared body mass index (BMI), metabolic conditions including high blood pressure, high cholesterol and high blood sugar, and cognitive function at the beginning of the study and again at 5 and 10 years.[1] Study subjects were assessed on measures of cognitive function such as reasoning and memory. The researchers found two interesting trends:

1: At the start of the study men with a lower BMI had better cognition, and

2: Over time men who were obese and had multiple metabolic conditions were significantly more likely to show a faster rate of cognitive decline.

The results of this study suggest that vascular problems associated with excess body weight might affect brain function and that maintaining a healthy weight may help prevent declines in cognitive function that occur with aging.

Protecting Brain Function With a Diet Rich in Antioxidants

Stroke is a medical emergency and occurs when the flow of oxygen-rich blood to a portion of the brain is blocked. Without oxygen, brain cells start to die after only a few minutes. Sudden bleeding in the brain can also cause a stroke if the bleeding damages brain cells. Studies have shown that stroke can be prevented by controlling risk factors like high blood pressure and high blood cholesterol. It can also be prevented through healthy lifestyle practices - not smoking and eating a plant-based diet rich in antioxidants. To prove this point, researchers at the Karolinkska Institute in Stockholm, Sweden evaluated the diets of 36,715 women over an average of 11 years. Among 5,680 subjects already diagnosed with cardiovascular disease researchers discovered that women who ate more fruits, vegetables, whole grains, tea and dark chocolate were 46-57% less likely to suffer a stroke.[2] Researchers also calculated their antioxidant intake and found women with the highest antioxidant intake ate fruits and vegetables twice as often and drank 17 times more tea (known for its high polyphenol content and potent antioxidant activity) than those with the lowest intake. This was the first study to connect antioxidant intake with stroke risk among people already diagnosed with cardiovascular disease and draws attention to the importance of a diet rich in phytonutrients.

green tea beverages increased key areas of brain activity

Green Tea — Need A Brain Booster?

A growing amount of research suggests green tea may promote brain performance and protect brain cells from neurodegenerative conditions like Alzheimer's disease. Although studies have varied in their design from scanning people's brains to forming Alzheimer's plaques in a test tube[3], the focus of these studies has been on the polyphenolic compounds found in green tea and their effect on important areas of the brain. In one recent study published in the *European Journal of Clinical Nutrition*, researchers used MRI scans of the brain to evaluate brain function in healthy subjects as they performed tasks testing their working memory – the type that allows the brain to both store and process information at the same time.[4] Subjects' brains were scanned after consuming two different doses of a beverage containing green tea extract or placebo. Compared to the placebo, consuming the green tea beverages increased key areas of brain activity related to working memory processing. Researchers noted that this was the first study of its kind to show that MRI brain scans could be used to examine the effects of green tea extract on brain performance.

Berry Intake May Slow Cognitive Decline by 2½ Years

Cognitive function is a measure by which the brain is able to manage and use available information for activities of daily life and changes as we age. And while everyone has to age, it appears some people are better than others at successfully curbing the

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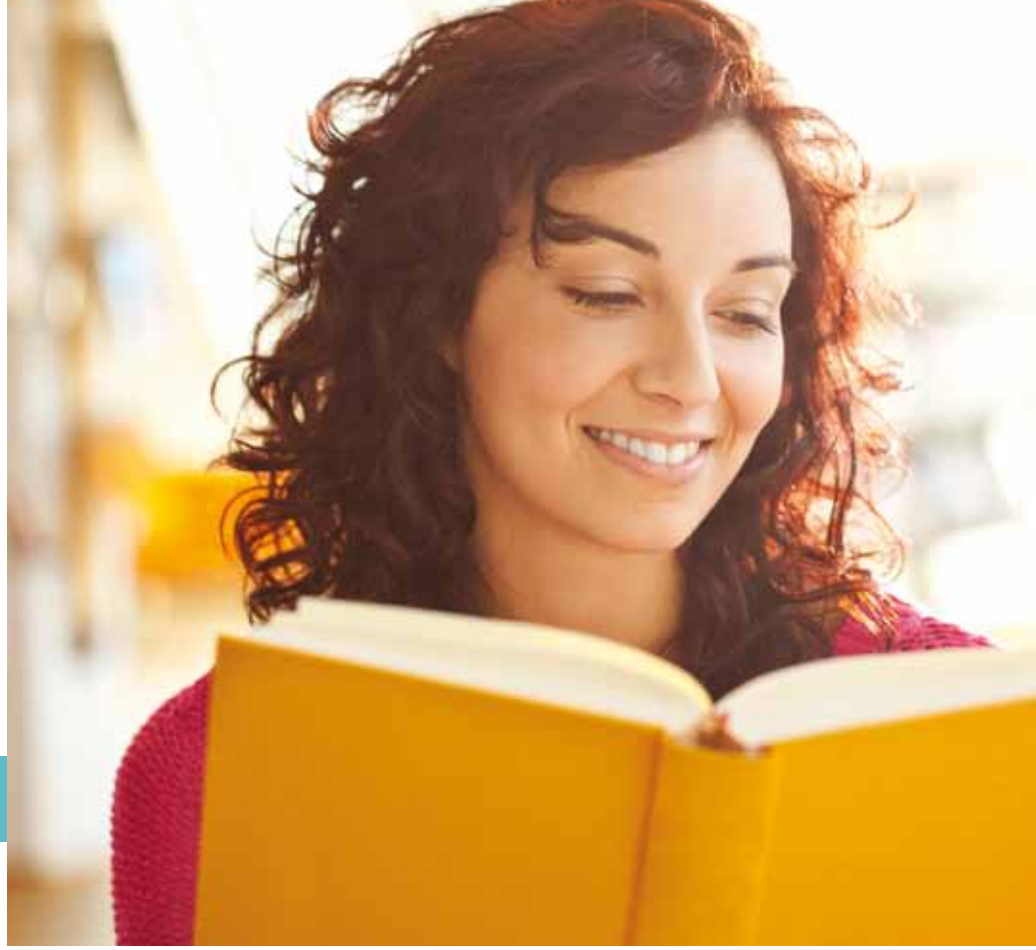

A diet rich in berries may protect brain function from declining as we age.

effects of aging on cognitive function. Could it be due to differences in diet and other lifestyle habits? Recent research suggests it may. A diet rich in berries–blueberries, grapes, strawberries and other berry fruits may protect brain function from declining as we age. In addition to their well known antioxidant effects, berries contain flavonoids that appear to directly affect the brain by boosting its signaling functions, preventing inflammation in the brain and protecting cognition and motor control.[5] The scientific support for the brain health benefits of berries was recently boosted by one of the longest and largest studies of its kind. Researchers at Brigham and Women's Hospital analysed data from the Nurses Health Study, a cohort of 16,010 women age 70 and older who completed dietary surveys every four years, beginning in 1980 and who were tested for memory and other cognitive functions every two years between 1995-2001. Publishing their findings in the *Annals of Neurology* researchers found that women who consumed more berry fruits (such as a half cup of blueberries per week) saw slower declines in cognition equal to 2½ years of delayed cognitive aging.[6]

Fatten Up Your Brain

Although some of the strongest scientific evidence for the beneficial effects of omega-3 fatty acids is in the area of heart health[7], latest research continues to show that consuming a diet rich in omega-3 fatty acids from fish oil may also offer brain health benefits. In a new study published in the journal *Neurology*, researchers took blood samples from 1,575 participants with an average age of 67 from the long running Framingham Offspring Cohort. They measured blood levels of omega-3 fatty acids and then compared them to performance on cognitive tests and MRI scans of the brain. What they discovered was that study participants with the lowest omega-3 levels scored the worst on tests of visual memory, executive function and abstract thinking. Lower levels of omega-3s were also associated with lower brain volume as measured by MRI.[8] The smaller brain volumes were estimated to be equivalent to about 2 years of structural age-related brain aging. Although this study did not measure changes in brain function and size over time, it does provide more evidence that consumption of omega-3 fatty acids may be beneficial to cognitive health and aging.

B Vitamins Can Slow Brain Shrinkage

Occasional forgetfulness can be a normal part of getting older, but more advanced memory loss and declines in thinking skills can be a sign of mild cognitive impairment (MCI), a condition affecting 10-20% of people over the age of 65. Although not always the case, having MCI may increase the risk of developing other forms of dementia including Alzheimer's disease. The cause of MCI is not well understood but many cross-sectional and prospective studies have shown that elevated blood levels of homocysteine, a by-product of the body's metabolism of the essential amino acid methionine, is associated with cognitive impairment and Alzheimer's disease.[9]

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One approach to lowering homocysteine levels has been the use of a combination of B vitamins (B_6, B_{12} and folic acid) and studies have previously shown that B vitamin supplements can slow brain shrinkage in elderly subjects with mild cognitive impairment.[10] In a very recent study published in the *Proceedings of the National Academy Sciences* researchers wanted to know if B vitamins would be effective in preventing the shrinkage of regions in the brain affected by Alzheimer's and whether or not the effect would change with baseline blood homocysteine levels.[11] To answer these questions they assessed the effects of a combination of B_6, B_{12} and folic acid over a 2 year period among elderly subjects who met the criteria for the diagnosis of MCI. MRI brain scans were conducted at baseline and again at 2 years and subjects were randomly assigned to either a B vitamin supplement intervention or a placebo. Researchers found that subjects who received the B vitamins showed a significant reduction in brain shrinkage compared to the placebo group in the regions of the brain that were affected by Alzheimer's disease. The average loss of grey matter over 2 years was 3.7% in the placebo group compared with only 0.5% in the B vitamin group. Furthermore, in subjects with high homocysteine levels, areas of the brain associated with Alzheimer's disease shrank eight times slower in the B vitamin group than in the placebo group.

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Choline - Essential for Brain & Body

Choline is an essential nutrient needed for proper liver, brain, and nerve function, memory and transporting nutrients throughout the body. This nutrient is especially important during pregnancy and lactation because of its very important role in infant brain development, memory function, and life-long learning ability. In fact, studies have shown that women deficient in choline have a four times greater risk for having babies with neural tube defects such as spina bifida.[12] Therefore, it's critically important for pregnant women to get enough choline.

Choline is important for men, too. When choline stores are inadequate there is a diminished ability to metabolise the amino acid methionine, leading to increases in plasma homocysteine. Elevated homo-cysteine levels are associated with greater risk of several chronic diseases including heart disease, one of the leading causes of mortality in men worldwide. Choline also appears to play a role in reducing inflammation, and inflammation has been linked to obesity, heart disease and cognitive decline. Based on findings from the ATTICA study, subjects whose diets were rich in choline and betaine (a metabolite of choline), had the lowest levels of several inflammatory markers including C-reactive protein, homocysteine, interleukin-6 and tumour necrosis factor.[13]

Your Brain Needs Inositol

Inositol, also known as myo-inositol, is a vitamin-like substance. Like choline, inositol appears to play an important role in the brain and nervous system. In fact, it is highly concentrated in the brain and serves as a key component of cell membranes influencing what moves in and out of brain cells.[14] As a second messenger, inositol helps relay signals received at the surface of cell receptors and triggers a cascade of events within brain cells, including the release of neurotransmitters like serotonin. As such, this has lead to the investigation and study of inositol for alleviating symptoms of stress and anxiety as well as the management of panic and other mood disorders.[15] Although the body can endogenously make it's own inositol, studies suggest a sustained supply is needed to maintain cell membrane phospholipids and produce the second messenger, inositol 1,4,-triphosphate (IP3). Eating a well balanced diet including plenty of fruits, grains, nuts and beans plus filling in nutritional gaps with inositol-containing supplements, is an excellent way to ensure your brain gets the inositol it needs. ■

For a Healthier Mind & Body	Selected GNLD Nutritionals Product Solutions	
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