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To Improve Your Memory and Mood, Consider Adding a Little More Sage

The *Salvia* family of herbs – better known as sage – has long been revered for its ability to improve mood and mind. The herbalist Gerard praised sage in 1597 by writing, “It is singularly good for the head and brain and quickeneth the nerves and memory.”

While *Salvia officinalis* is the most common form of sage in the United States, *S. lavandulaefolia* (also known as Spanish or lavender sage) is more popular in Europe. It has smaller leaves and a stronger flavor than *S. officinalis*. In addition, *S. lavandulaefolia* also contains less thujone, a naturally occurring chemical that may be toxic in high dosages.

In a recent study, psychologist Andrew B. Scholey, PhD, of Northumbria University, Newcastle upon Tyne, England, tested the properties of a standardized oil of *S. lavandulaefolia* on 24 apparently healthy male and female students. He found that the sage oil improved some aspects of memory and, perhaps more dramatically, the students’ moods.

Scholey and his colleagues used standard clinical tests to assess the subjects’ memory and mood before the study and then after giving them capsules containing 25 microliters or 50 microliters of the essential oil of sage or placebos. The memory and mood tests were given one, two and one-half, four, and six hours after ingestion of the capsule, and each dose was separated by a one-week “washout” period to avoid any cumulative effect of the herb.

The tests assessed the subjects’ recall of words and photographs, other aspects of memory, and reaction times. Scholey found that the students’ memory improved significantly one hour after taking sage oil supplements, with a trend toward improvement at four hours. No significant improvements occurred following the placebos.

But Scholey noted that the most dramatic improvements related to three aspects of mood after taking sage: feeling alert, calm, and contented. In general, the higher dosage of sage oil was more effective, and some of the benefits to mood lasted several hours. “The improvements in mood seen for

both doses of sage are possibly the most striking findings of the current study,” he wrote.

Scholey wrote that sage may work through a variety of mechanisms. The herb is known to inhibit acetylcholinesterase, an enzyme that breaks down a neurotransmitter – the same mechanism of some anti-Alzheimer’s drugs. It also contains many polyphenolic antioxidants that likely protect against free radicals in the brain.

He concluded that sage might reduce some symptoms of advanced dementia, including agitation and disturbed mood, and that it “may potentially confer long-term protection in the pathogenesis of the disease.”

Reference: Tildesley NTJ, Kennedy DO, Perry EK, et al. Positive modulation of mood and cognitive performance following administration of acute doses of *Salvia lavandulaefolia* essential oil to healthy young volunteers. *Physiology & Behavior*, 2005;83:699-709. □

Perspectives...

What the Numbers Really Mean

It’s an all-too-familiar story: while Nero played his fiddle, Rome burned. Today, while fast-food and junk-food companies aggressively promote the unhealthiest foods ever created – without any apparent moral or ethical reservations – obesity and diabetes run rampant. The impressive reductions in heart disease over the past 40 years will likely vanish within a few years because obesity and diabetes are the preludes to heart disease, as well as significant risk factors for Alzheimer’s disease, cancer, and many other serious disorders.

The numbers should give anyone pause. One-third of American adults are overweight, and another third are obese – at least 30 pounds over their ideal weight. Close to 20 percent of children are overweight and obese. Almost 20 million people have type 2 (diet-related) diabetes, and 50 to 70 million people have some degree of prediabetes.

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And yet physicians commonly seem blasé about testing for signs of diabetes. A “normal” fasting glucose (part of a standard blood test) is between 65 and 120 mg/dl – wide enough to drive a truck through. A more ideal range is 70 to 85 mg/dl. The normal range for HBA1c, an average measure of blood sugar over the previous six weeks, is 4.5% to 5.7%. But a more ideal number would be under 5%, though up to 5.3% would certainly be acceptable.

Perhaps the most important measure of glucose tolerance is that of fasting insulin, which doctors rarely order because insurers don't want to pay for it. Elevated insulin levels push down blood sugar levels so they often appear normal, which is why a so-called normal glucose is often an illusion. High insulin levels are clearly a harbinger of glucose-tolerance problems. While the “normal” insulin range is 6 to 35 mcIU/ml, the ideal number should be under 10 mcIU/ml, and numbers higher than 16 are clearly signs of glucose intolerance.

If you want to see where you stand, insist that your doctor measure your fasting insulin, glucose, and HBA1c. – JC

Mentally Fuzzy? Your Blood Sugar Level May Be Too High and a Sign of Diabetes

If you get tired and mentally fuzzy after lunch, it could be a sign that your blood sugar level has climbed way too high.

To stay mentally sharp, it helps to maintain a relatively normal blood sugar level. High blood sugar levels are more likely to interfere with normal thinking processes and reaction times, according to a study by Daniel J. Cox, PhD, of the University of Virginia Health System, Charlottesville.

Cox and his colleagues asked 196 subjects with type 1 (immune-related) diabetes and 34 people with type 2 (diet-related) diabetes to use hand-held computers to test a variety of cognitive – word and mathematical – skills. Immediately after the tests, the subjects also checked their blood sugar levels.

He found that higher blood sugar levels among the patients were related to various types of cognitive sluggishness. For example, elevated blood sugar levels were associated with reduced mental performance, lowered ability to subtract numbers, slower reaction times, and an increased number of mistakes.

The effects of high blood sugar were highly individualized, so not everyone had a decline in cognitive function. However, about 55 percent of the subjects did experience some cognitive decline.

Blood sugar levels above 270 mg/dl were associated with a slowing of all cognitive tests. Cox wrote that an ideal range for cognitive functioning would be between 72 and 270 mg/dl.

However, a more ideal range for fasting blood sugar would actually be 70 to 85 mg/dl, and less than 140 mg/dl after eating.

Elevated blood sugar and insulin levels can alter neurotransmitter levels in the brain, according to Cox.

Reference: Cox DJ, Kovatchev BP, Gonder-Frederick LA, et al. Relationships between hyperglycemia and cognitive performance among adults with type 1 and type 2 diabetes. *Diabetes Care*, 2005;28: 71-77. □

New Vitamin E Study Shows Reduced Risk of Cardiovascular-Related Death

Researchers and newspaper reporters might have given vitamin E another thumbs down. But the latest study has found that taking 600 IU of natural vitamin E every other day can significantly reduce a woman's risk of dying from cardiovascular disease.

The analysis of data from the Women's Health Study found that vitamin E led to an insignificant 7 percent reduction in heart attacks and strokes. The study tracked almost 40,000 middle-age and elderly women for an average of 10 years.

Although the researchers wrote that there was no significant decrease in cardiovascular “events,” they did report an overall 24 percent reduction in deaths from cardiovascular diseases, according to their report in the *Journal of the American Medical Association*.

Even more significantly, women over age 65 had almost half the risk of death from cardiovascular disease, compared with women taking placebos. This older group of women was also 34 percent less likely to suffer a heart attack.

The vitamin E supplements did not reduce the risk of cancer, but most researchers believe that cancers may take more than 20 years to develop.

Importantly, the researchers found no adverse health effects from vitamin E supplements.

Reference: Lee IM, Cook NR, Gaziano MJ, et al. Vitamin E in the primary prevention of cardiovascular disease and cancer. *JAMA*, 2005;294:56-65. □

Large Amounts of Vitamin B12 Needed to Correct Mild Deficiency

If you're mildly deficient in vitamin B12, you'll need at least 200 times the “recommended” daily allowance to normalize levels of the nutrient. That's according to an article in the *Archives of Internal Medicine*, published by the American Medical Association.

Lead researchers Simone J.P.M. Eussen, MSc, of Wageningen University, the Netherlands, and her colleagues studied 120 people age 70 or older. All had

been diagnosed with mild vitamin B12 deficiency, the risk of which increases with age.

Eussen and her colleagues gave the subjects oral doses of 2.5, 100, 250, 500, and 1,000 mcg of vitamin B12 daily for 16 weeks. To measure deficiency, they tracked levels of methylmalonic acid, which increases when vitamin B12 levels are low.

All of the dosages led to reductions in methylmalonic acid. However, only the higher doses of 500 and 1,000 mcg led to a complete normalization of vitamin B12 and methylmalonic acid levels. The greatest reductions in methylmalonic acid occurred among people consuming 647 to 1,032 mcg of vitamin B12, amounts likely derived from both supplements and food.

Eussen noted that other studies had found oral vitamin B12 supplements as effective as intramuscular injections. The question she sought to answer was how much oral vitamin B12 would be needed to normalize methylmalonic acid levels. At the higher doses of vitamin B12, methylmalonic acid levels declined by 33 percent.

Vitamin B12 deficiency can result from a number of factors besides low dietary levels. It can be caused by a lack of stomach acid and deficiency of "intrinsic factor," a protein needed for vitamin B12 transport. Deficiency symptoms can include tiredness, psychiatric disorders, mental fuzziness, and senility.

The study is noteworthy in that roughly 200 to 400 times the recommended daily amount (2.4 mcg for seniors) are needed to normalize vitamin B12 activity.

Reference: Eussen SJ, de Groot LC, Clarke R, et al. Oral cyanocobalamin supplementation in older people with vitamin B12 deficiency. *Archives of Internal Medicine*, 2005;165:1167-1172. □

Fish Oils May Play Big Role in Building Strong Bones, Preventing Osteoporosis

The omega-3 fish oils are not usually recommended as bone-building nutrients. But according to new research, they may play a key role in maintaining normal bone density as you get older.

Lauren A. Weiss, PhD, of the University of California, San Diego, and her colleagues, analyzed bone density and intake of polyunsaturated fats (PUFAs) among 1,532 middle-age and elderly people participating in the Rancho Bernardo Study.

PUFAs fall into two groups of essential nutrients: omega-6s and omega-3s. Historically, people consumed about equal amounts of each, but changes in food processing and eating habits have led to a higher intake of omega-6s relative to omega-3s. Researchers know that excessive intake of the omega-

6s can promote inflammation, whereas the omega-3s can reduce inflammation and the risk of heart disease.

In the current study, Weiss found that a high ratio of linolenic acid (the predominate dietary omega-6) to alpha-linolenic acid (the predominate dietary omega-3) was associated with lower bone-mineral density in the hips of men and women, regardless of whether the women were taking hormone-replacement therapy. In addition, relatively large amounts of omega-6s were related to lower bone-mineral density in the hips and spines of women, again regardless of whether or not they were taking hormone-replacement therapy.

Weiss cited other research showing that omega-3s promote increased bone density. "Higher omega-3 fatty acid intake enhances calcium absorption, decreases calcium loss, and increases bone calcium."

She recommended that clinical trials be used to test whether fatty acids can improve bone. "If fatty acid supplementation is effective, it could offer a safe, relatively inexpensive approach to the prevention of osteoporosis," she concluded.

Reference: Weiss LA, Barrett-Connor E, von Muhlen D. Ratio of n-6 to n-3 fatty acids and bone mineral density in older adults: the Rancho Bernardo Study. *American Journal of Clinical Nutrition*, 2005;81:934-938. □

More Protein, Relatively Less Carb Related to Smaller Waist Size

You don't have to go on a high-protein Atkins-style diet to lose weight, but replacing some carbs with protein will likely lead to a trimmer body. That's the finding by researchers at McMaster University and the University of Toronto, Canada.

Anwar T. Merchant, PhD, and his colleagues studied the relative amounts of dietary protein and carbohydrates consumed and the waist-hip ratio of 617 Canadians. The people were men and women of European, aboriginal, and Asian ancestry, and Merchant screened out people who were specifically dieting to lose weight.

A higher waist-hip ratio – that is, a bigger waist – is a leading risk factor for diabetes, elevated blood fats, and heart disease.

Merchant found that people who ate more protein and an equivalently lower amount of carbohydrate were less likely to be fat around the middle. Fat consumption did not appear to influence the subjects' waist size.

He also noted that even "a small increase in protein intake" relative to carbohydrates was related to less abdominal fat. Because abdominal obesity

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Quick Reviews of Recent Research

• **CoQ10 may help slow hearing loss**

Researchers identified two patients with a genetic mutation that causes progressive loss of hearing and a third patient with nongenetic hearing loss. Two of the patients (one with the mutation and one without) were asked to take 75 mg of CoQ10 daily for one year. They had experienced a 6 decibel loss of hearing each year, but did not show any further deteriorating during the study. During this time, the third patient (who refused to take CoQ10 supplements) suffered an 11 decibel loss of hearing.

Angeli SI, et al. *Acta Oto-Laryngologica*, 2005; 125:510-512.

• **Antioxidants reduce sperm damage**

Fragmentation of DNA in sperm is known to cause male infertility. Because other studies have found antioxidants helpful in treating infertility, Spanish researchers used vitamins C and E to treat 64 men with fragmentation of sperm DNA. They were given either 1 gram of vitamin C and 1 gram of vitamin E or placebos for two months. The researchers reported that, despite the study's relatively short duration, fragmented DNA in the sperm of men taking the vitamins was significantly reduced.

Greco E, et al. *Journal of Andrology*, 2005;26: 349-353.

• **Vitamin E lowers risk of Parkinson disease**

Researchers analyzed eight studies that had previously studied the role of vitamins E or C and carotenoids in the prevention of Parkinson disease. They found that both a moderate and high intake of dietary vitamin E reduced the risk of Parkinson disease by about one-fifth. Neither vitamin C nor beta-carotene appeared to impact disease risk.

Etminan M, et al. *Lancet Neurology*, 2005;4: 362-365.

Protein, Carbs and Waist Size...

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generally increases triglyceride and lower "good" high-density lipoprotein cholesterol, a little more protein will likely improve blood fat ratios.

"Consuming more protein instead of carbohydrate was associated with less abdominal obesity...These data support the belief that lower carbohydrate-moderate protein diets contribute to reduced abdominal obesity in a multi-ethnic population," Merchant wrote.

Reference: Merchant AT, Anand SS, Vuksan V, et al. Protein intake is inversely associated with abdominal obesity in a multi-ethnic population. *Journal of Nutrition*, 2005;135:1196-1201. □

• **Trans fat boost risk of gallstones in men**

Researchers analyzed the dietary intake of trans fats, found in partially hydrogenated vegetable oils, and the risk of gallstones in almost 50,000 men over a 14-year period. Men consuming the most trans fats were 23 percent more likely to develop gallstones. Most gallstones are made of cholesterol, and trans fats increase the "bad" low-density lipoprotein cholesterol and triglyceride levels.

Tsai CJ, et al. *Archives of Internal Medicine*, 2005; 165:1011-1015.

• **Insulin resistance related to fast foods**

Researchers investigated the relationship between eating at fast food restaurants, being overweight, and the likelihood of developing insulin resistance. They studied more than 3,000 people ages 18 to 30 years old, over 15 years. The researchers found that fast food consumption was directly related to weight gain and insulin resistance. People who ate at fast food restaurants more than twice a week gained an extra 4.5 kilograms (almost 10 pounds) during the study, and they were twice as likely to develop insulin resistance, the hallmark of prediabetes and type 2 diabetes.

Pereira MA, et al. *Lancet*, 2005;365:36-42.

• **Flavonoids act synergistically with Valium**

The drug Valium (diazepam) is used as a treatment for anxiety and as a skeletal muscle relaxant. Researchers analyzed the activity of flavonoids, including hesperidin and methylapigenin, found in *Valerian*, an herb known for its relaxing properties. Hesperidin, which is also found in citrus fruits, has both sedative and sleep-promoting properties. Hesperidin and at least some other flavonoids are synergistic with and may enhance the effects of Valium. All of these substances seem to interact with brain receptors for GABA, a relaxing neurotransmitter.

Fernandez SP, et al. *European Journal of Pharmacology*, 2005;189-198.

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