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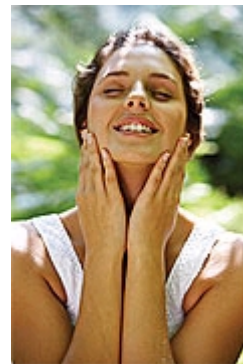
IN THE  
NEWS**Vitamin D Holds Promise For Multiple Sclerosis Prevention**

In an article recently published in the *Journal of Cellular Biochemistry*, researchers from the University of Medicine and Dentistry of New Jersey propose a protective role for vitamin D against the development of autoimmune diseases such as multiple sclerosis (MS).\*

Sylvia Christakos, PhD, and colleagues describe several findings that point to the vitamin's protective benefit. They observe that the incidence of MS declines as vitamin D from sunlight or diet increases. Areas of the world in which fish intake is high also have a low incidence of MS. Fish and fish oils are among the few food sources of the vitamin.

In view of the strong reduction in the risk of MS that has been associated with having higher serum levels of vitamin D3 before the age of 20, the authors suggest that vitamin D supplements may provide a protective benefit if administered to adolescents and young adults.

—Dayna Dye



## Reference

\* Raghuwanshi A, Joshi SS, Christakos S. Vitamin D and multiple sclerosis. *J Cell Biochem*. 2008 Jul 24.

**Berries Protect Against Carcinogens**

The journal *Cancer Research* published the findings of researchers at Ohio State University that consuming black raspberries can prevent some of the genetic changes that result from carcinogen exposure, thereby reducing the risk of cancer.\*

Gary D. Stoner, PhD, and his associates fed rats a normal diet or a diet that contained 5% freeze-dried black raspberry powder for three weeks. During the third week, half of the animals were injected with a carcinogen, and genetic changes were measured.

Among rats that received the carcinogen, 2,261 genes showed a change in activity, yet in animals that received berry powder, 462 of these genes demonstrated activity that was near normal. The majority of these genes were involved in processes related to cancer.

"This suggests to us that a mixture of preventative agents, which berries provide, may more effectively prevent cancer than a single agent that targets only one or a few genes," Dr. Stoner stated.

—Dayna Dye



## Reference

\* Stoner GD, Dombkowski AA, Reen RK, et al. Carcinogen-altered genes in rat esophagus positively modulated to normal levels of expression by both black raspberries and phenylethyl isothiocyanate. *Cancer Res*. 2008 Aug 1;68(15):6460-7.

**Disability Rates May Not Increase With Very Old Age**

A report published in the *Proceedings of the National Academy of Sciences* confirms that increasing rates of disability may not be inevitable among the very old.\*

Kaare Christensen from the Danish Aging Research Center at the University of Southern Denmark and colleagues studied 2,262 Danish men and women born in 1905. The subjects were surveyed in 1998 and in 2000, 2003, and 2005 to evaluate physical functioning, cognitive function, and depression.

At the beginning of the study, 39% of the subjects were classified as independent. This percentage declined by an additional

“modest” 6% by 2005 among the 166 surviving participants. The authors write that with improved medical treatment and education, as well as a reduction in the number of those who smoke among those entering the oldest-old population, a decrease in disability among this age group can be expected.

—Dayna Dye



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#### Reference

\* Christensen K, McGue M, Petersen I, Jeune B, Vaupel JW. Exceptional longevity does not result in exceptional levels of disability. *Proc Natl Acad Sci USA*. 2008 Aug 9;105(36):13274-9.

### ***Boswellia* Extract Improves Symptoms of Osteoarthritis**

An herbal extract, 5-Loxin®, significantly decreases pain and improves mobility in osteoarthritis of the knee, according to a study from India.\* Derived from the herb *Boswellia serrata* (Indian frankincense), 5-Loxin® inhibits the 5-lipoxygenase enzyme to combat inflammation and pain.

In this study, 75 patients aged 40 to 80 years with mild-to-moderate osteoarthritis of the knee were randomly assigned to take 100 mg/day or 250 mg/day 5-Loxin®, or matching placebo, for 90 days. By the study’s end, patients taking 5-Loxin® at either dose reported significant improvements in pain and physical function compared with placebo recipients, and these changes were already present at day seven of treatment with the 250-mg dose. Synovial fluid from both supplemented groups showed significant reductions in levels of matrix metalloproteinase-3 (an enzyme that degrades cartilage). Safety was comparable among groups.

5-Loxin® may represent a safe and effective anti-inflammatory treatment for osteoarthritis with fewer adverse effects than standard therapy.

—Laura J. Ninger, ELS

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#### Reference

\* Sengupta K, Alluri KV, Satish AR, et al. A double blind, randomized, placebo controlled study of the efficacy and safety of 5-Loxin(R) for treatment of osteoarthritis of the knee. *Arthritis Res Ther*. 2008 Jul 30;10(4):R85.

### **Curcumin Shows Promise Against Cold Sore Virus**

Curcumin, a component of the curry spice turmeric, significantly inhibits the growth of herpes simplex virus-1 (HSV-1) in cell culture.\* HSV-1 is the virus responsible for cold sores.

Cells were cultured and then either pretreated with curcumin or left untreated, followed by administration of HSV-1. Curcumin significantly reduced the growth of HSV-1 in the treated cells, as determined by the number of plaques, size of plaques, and viral counts, compared with untreated cells. The results indicate that curcumin aids cells in resisting HSV-1 infection and slows HSV-1 replication (growth). The antiviral effect is due to suppression of HSV-1 gene expression.

Future research is necessary to determine how curcumin works in vivo (i.e., in humans). The authors note that this “is key to developing curcumin as an alternative drug for HSV-1 treatment... our results can be considered as an early step in elucidating the molecular basis of the antiviral activities of curcumin.”

—Laura J. Ninger, ELS



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## Reference

\* Kutluay SB, Doroghazi J, Roemer ME, Triezenberg SJ. Curcumin inhibits herpes simplex virus immediate-early gene expression by a mechanism independent of p300/CBP histone acetyltransferase activity. *Virology*. 2008 Apr 10;373(2):239-47.

## Sleep Loss May Encourage Inflammatory Diseases

Losing sleep for just a portion of one night is sufficient to trigger production of the potent inflammatory mediator, nuclear factor-kappa B (NF-kB), according to a new report.<sup>1</sup> Previous research has linked inadequate sleep with a greater risk of inflammatory diseases, including diabetes, arthritis, cardiovascular disease, and even cancer.<sup>1,2</sup>

Scientists at the University of California, Los Angeles, monitored blood levels of NF-kB, a transcription factor that serves a crucial role in the promotion of the inflammatory cascade, among 14 healthy men and women after sleep. Subjects' blood levels of NF-kB were repeatedly monitored, following a full night's sleep, recovery sleep, and partial sleep deprivation (a night interrupted by remaining awake from 11 pm to 3 am).<sup>1</sup>

“In the morning after a night of sleep loss, mononuclear cell nuclear factor-kappa B activation was significantly greater compared with morning levels following uninterrupted baseline or recovery sleep,” wrote the researchers.<sup>1</sup>

These findings help elucidate how sleep disturbances may play a role in inflammatory disorders.

—Dale Kiefer

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## Reference

- 1.Irwin MR, Wang M, Ribeiro D, et al. Sleep loss activates cellular inflammatory signaling. *Biol Psychiatry*. 2008 Sep 15;64(6):538-40.
- 2.Davis S, Mirick DK. Circadian disruption, shift work and the risk of cancer: a summary of the evidence and studies in Seattle. *Cancer Causes Control*. 2006 May;17(4):539-45.

## Green Tea Extract Improves Blood Glucose Control

Supplementation with green tea powder for two months significantly reduces levels of hemoglobin A1c, an indicator of long-term glucose control, in Japanese patients with borderline diabetes.\*

Participants were 60 male and female volunteers with elevated blood glucose who were divided into two groups. The early-intervention group drank a supplement of green tea extract (containing 544 mg polyphenols) each day for two months, followed by two months of observation without supplement, and the later-intervention group followed the opposite schedule.

During the study, blood levels of hemoglobin A1c declined significantly in the early-intervention group from baseline (6.2%) to two months (5.9%) and four months (5.8%); levels in the later-intervention group were 6.1%, 6.1%, and 5.9%, respectively. Healthy hemoglobin A1c levels usually range from 4% to 5.9%. Diastolic blood pressure also modestly decreased with supplementation.

These findings suggest that modulating long-term blood glucose control may represent yet another health benefit of green tea extracts.

—Laura J. Ninger, ELS

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#### Reference

\* Fukino Y, Ikeda A, Maruyama K, Aoki N, Okubo T, Iso H. Randomized controlled trial for an effect of green tea-extract powder supplementation on glucose abnormalities. *Eur J Clin Nutr.* 2008 Aug;62(8):953-60.

## Flaxseed Extract Reduces Male Urinary Symptoms

A recent clinical trial shows that a flaxseed lignan extract significantly improves lower urinary tract symptoms among men with benign prostatic hyperplasia (BPH).\* The extract contained 33% secoisolariciresinol diglucoside (SDG), the principal ingredient.

In this study, 87 men with an enlarged prostate were randomly assigned to take 300 or 600 mg/day SDG, or placebo (no supplement), for four months. Both supplement groups had significant improvements in the International Prostate Symptom Score, the Quality of Life score, and the number of patients with a change in overall urinary symptoms from “moderate/severe” to “mild” compared with baseline; changes were not significant for the placebo group. Improvements in urinary symptoms were correlated with plasma concentrations of total lignans, SDG, and other active ingredients.



The authors note that the benefits of flaxseed extract appear comparable to the therapeutic effects of common treatments for BPH.

—Laura J. Ninger, ELS

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#### Reference

\* Zhang W, Wang X, Liu Y, et al. Effects of dietary flaxseed lignan extract on symptoms of benign prostatic hyperplasia. *J Med Food.* 2008 Jun;11(2):207-14.

## Vitamin D Deficiency Raises Risk of Hip Fracture

A low serum level of vitamin D is associated with a higher risk of hip fracture in postmenopausal women, according to a large nationwide case-control study.\*

The eligible study population was recruited from the Women's Health Initiative Observational Study of the National Institutes of Health and included 39,793 postmenopausal women aged 50 to 79 years. Of these, 400 experienced hip fractures during seven years of follow-up, and 400 women were selected as matched controls. Vitamin D status was measured as serum 25-hydroxyvitamin D.

Women with hip fracture had significantly lower average levels of 25-hydroxyvitamin D than the controls. When vitamin D serum levels were divided into four groups, the researchers found that the lowest levels of vitamin D were associated with the highest risk of hip fracture. Physical condition, body mass index, number of falls, kidney function, and levels of sex steroid hormones did not affect this association.

This study highlights the importance of maintaining optimal serum levels of vitamin D for good bone health.

—Laura J. Ninger, ELS

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### Reference

\* Cauley JA, Lacroix AZ, Wu L, et al. Serum 25-hydroxyvitamin D concentrations and risk for hip fractures. *Ann Intern Med.* 2008 Aug 19;149(4):242-50.

## Vitamin B12 May Help Prevent Brain Shrinkage

In a study published in the journal *Neurology*, researchers report an association between decreased levels of vitamin B12 and a decline in brain volume.\* Decreased brain volume (atrophy) has been linked with Alzheimer's disease.

The study included 107 participants who did not have cognitive impairment upon enrollment. MRI scans of the brain, blood testing, and cognitive assessments were conducted annually over a five-year period.

Comparison of MRI images obtained at the beginning of the study with those scanned after five years found a greater amount of brain volume loss among participants with low vitamin B12. Subjects whose B12 levels were among the lowest one-third of participants had a six times greater adjusted risk of increased brain volume loss than those whose levels were in the top two-thirds.

"Vitamin B12 deficiency is a public health problem, especially among the elderly, so more vitamin B12 intake could help reverse this," lead author Anna Vogiatzoglou, MSc, advised.

—Dayna Dye



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### Reference

\* Vogiatzoglou A, Refsum H, Johnston C, et al. Vitamin B12 status and rate of brain volume loss in community-dwelling elderly. *Neurology.* 2008 Sept 9;71(11):826-32.

## Broccoli May Reverse Blood Vessel Damage in Diabetes

Consuming broccoli may reverse the damage caused by diabetes to blood vessels, according to a new study.<sup>1</sup> Currently, 8% of Americans suffer from diabetes and two out of three diabetics will die from heart attack or stroke, conditions that have been linked to blood vessel damage.<sup>2</sup>

Scientists subjected human endothelial cells, which line vessel walls, to the broccoli compound sulforaphane after the cells had been exposed to high glucose levels. Hyperglycemia significantly increases levels of reactive oxygen species and other inflammatory compounds that harm human cells.<sup>1</sup>

The researchers found sulforaphane activated the compound nrf2, which protected the cells from damage by increasing levels of antioxidant and detoxifying enzymes. They also recorded a 73% reduction of reactive oxygen species molecules in cells exposed to sulforaphane.<sup>1</sup>

These findings build upon the established health benefits of consuming cruciferous vegetables (such as broccoli, cauliflower, and Brussels sprouts), and give scientists a potential mechanism by which vascular damage in diabetics may be controlled. Clinical studies on the benefits of broccoli for diabetics are planned.

—Michael J. Hall, ND

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#### Reference

1. Xue M, Qian Q, Antonysunil A, Rabbani N, Babaei-Jadidi R, Thornalley PJ. Activation of NF-E2-related factor-2 reverses biochemical dysfunction of endothelial cells induced by hyperglycemia linked to vascular disease. *Diabetes*. 2008 August 4.
2. Available at: <http://www.diabetes.org/heart-disease-stroke.jsp>. Accessed August 28, 2008.

## Complementary Medicine Used by 61% of Cancer Survivors

More than half of US cancer survivors report using complementary medicine therapies, according to a study from the American Cancer Society.\*

The study used data on 4,139 cancer survivors gathered from across the United States. Patients were interviewed at 10 to 24 months after the diagnosis of any one of 10 common types of cancer and were asked about their use of up to 19 types of complementary medicine.

The top five alternative-medicine practices among survivors were prayer (61%), relaxation (44%), faith/spiritual healing (42%), nutritional supplements/vitamins (40%), and meditation (15%). Overall, women were more likely than men to use every type of complementary medicine studied. Patients most likely to use complementary medicine were also younger and white, had higher levels of education and income, and had a more advanced cancer stage at diagnosis. Among the cancer types, breast and ovarian cancer survivors were the most likely to use complementary medicine.



These findings indicate that many patients find complementary therapies an important aspect of comprehensive cancer care.

—Laura J. Ninger, ELS

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#### Reference

- \* Gansler T, Kaw C, Crammer C, Smith T. A population-based study of prevalence of complementary methods use by cancer survivors: a report from the American Cancer Society's studies of cancer survivors. *Cancer*. 2008 Sept 1;113(5):1048-57.

## Goji Berry Juice Enhances Energy, Well-Being

Drinking goji berry juice for 14 days improves well-being, mental performance, and gastrointestinal function compared with placebo in a recent study.\* Goji berry (*Lycium barbarum*) has been used in Asia since ancient times for its benefits against aging and for vision, kidney, and liver function.

Thirty-five healthy adults were randomly assigned to take a standardized preparation of 120 mL/day goji berry juice (17 subjects), equivalent to 150 grams of fresh fruit, or matching placebo drink (18 subjects). Before and after supplementation, subjects rated various symptoms of fatigue, memory, mental acuity, sleep, and physical health.

After two weeks, the supplemented group expressed significantly better energy level, sleep quality, mental focus, mental acuity, calmness, happiness, and overall health, as well as better gastrointestinal function, compared with baseline. They indicated lower levels of fatigue and stress. In the placebo group, the only significant improvements were reduced heartburn and greater happiness.

—Laura J. Ninger, ELS

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#### Reference

\* Amagase H, Nance DM. A randomized, double-blind, placebo-controlled, clinical study of the general effects of a standardized *Lycium barbarum* (goji) juice, GoChi™. *J Altern Complement Med*. 2008 May;14(4):4032.

## Low EPA Levels Increase Mortality Risk in Older Population

A recent issue of the *American Journal of Clinical Nutrition* published the results of a study that found an increased risk of dying among older hospital patients with low plasma concentrations of eicosapentaenoic acid (EPA), an omega-3 fatty acid that is present in oily fish.\*

The study included 254 frail patients with an average age of 82.1 years who were admitted to a hospital in Norway. EPA levels were used as a marker for marine fatty acid status. The patients were followed for three years.

Participants whose plasma EPA levels were in the top 75% of participants averaged nearly half the risk of dying from all causes compared with those whose levels were in the lowest 25%.

“The results suggest that a moderate dietary intake of omega-3 fatty acids in the elderly reduces their overall mortality if they become acutely ill,” the authors concluded.

—Dayna Dye



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#### Reference

\* Lindberg M, Saltvedt I, Sletvold O, Bjerve KS. Long-chain n-3 fatty acids and mortality in elderly patients. *Am J Clin Nutr*. 2008 Sep;88(3):722-9.

## This Flu Season, Try Quercetin

The *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology* reports a study conducted by researchers at the University of South Carolina that has found quercetin helps protect against influenza in mice.\*

One group of mice was given quercetin for seven days while the remainder received no quercetin. Half of the mice in each group were exercised to fatigue on the last three days of the treatment period. The animals were inoculated with influenza following the final exercise session and monitored for 21 days.

Of the mice that underwent intense exercise, 91% developed signs of the flu, compared with 63% of non-exercising animals. Among those that received quercetin, the same rate of influenza occurred as in mice that did not exercise.

“This is the first controlled experimental study to show a benefit of short-term quercetin feedings on susceptibility to respiratory infection following exercise stress,” lead author J.M. Davis announced.

—Dayna Dye

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#### Reference

\* Davis JM, Murphy EA, McClellan JL, Carmichael MD, Gangemi JD. Quercetin reduces susceptibility to influenza infection following stressful exercise. *Am*

## Complementary Medicine an Effective Adjunct For Perinatal Depression

Omega-3 fatty acids and folic acid are effective and safe additions to the treatment of perinatal depression, according to a recent review.\* Perinatal depression is defined as a depressive disorder during pregnancy or after delivery.

Because medication use during pregnancy poses safety concerns, this study reviewed the efficacy and safety of various complementary and alternative medicine therapies for perinatal depression. Of those options with adequate study, omega-3 fatty acids and folic acid are beneficial for both maternal health and fetal and infant development, and both have shown antidepressant effects. Intake of omega-3s is deficient among US women, especially since warnings were issued about mercury content in fish, but high-quality purified fish oil capsules reduce this risk. Folic acid is well known for preventing birth defects and is recommended for all pregnant women.



S-adenosyl methionine (SAME) and St. John's wort were also cited for their antidepressant effects, although St. John's wort may interact with certain medications and further study is needed before it can be recommended during pregnancy.

—Laura J. Ninger, ELS

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### Reference

\* Freeman MP. Complementary and alternative medicine for perinatal depression. J Affect Disord. 2008 Aug 7.

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