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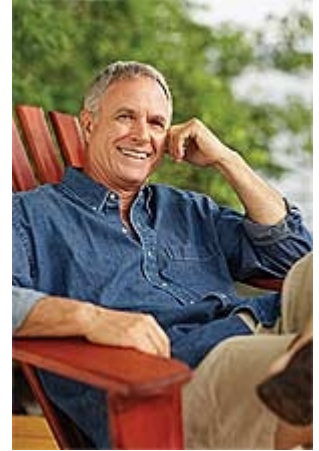
IN THE
NEWS**Low Testosterone Associated with Endothelial Dysfunction in Men**

Men with low levels of plasma testosterone are at increased risk of endothelial dysfunction,¹ an underlying cause of cardiovascular disease,² according to a compelling Japanese study.

The investigators studied endothelial function and serum hormone levels in 187 men (average age 47 years) with risk factors for coronary disease. Flow-mediated vasodilation of the brachial artery was measured using ultrasound to assess elasticity of the endothelium (blood vessel lining).¹

Low levels of free and total testosterone correlated with worse endothelial function, regardless of high blood pressure, advanced age, high body mass index, smoking, or elevated blood lipids.¹

This study highlights that men must maintain optimal testosterone levels in order to sustain healthy endothelial function and cardiovascular health. Low testosterone in men has also been linked with an increased risk of dying from all causes within two decades,³ and is related to declining metabolic function and increased inflammation.⁴



—Dale Kiefer

Reference

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2. Balakumar P, Kaur T, Singh M. Potential target sites to modulate vascular endothelial dysfunction: Current perspectives and future directions. *Toxicology.* 2007 Dec 23 [Epub ahead of print].
3. Available at: <http://health.ucsd.edu/news/2007/6-5-Testosterone.htm>. Accessed March 17, 2008.
4. Tang YJ, Lee WJ, Chen YT, Liu PH, Lee MC, Sheu WH. Serum testosterone level and related metabolic factors in men over 70 years old. *J Endocrinol Invest.* 2007 Jun;30(6):451-8.

Rhodiola Shows Promising Anti-Aging Activity

Rhodiola rosea is an arctic herb popular with traditional Chinese and Eastern European medical practitioners, who believe its roots alleviate depression, relieve stress, and eliminate fatigue. Classified by modern scientists as an “adaptogen,” it evidently helps the body resist a variety of chemical, biological, and physical stressors. Evidence also suggests that rhodiola exhibits cardioprotective and anticancer benefits.¹

Now scientists at the University of California, Irvine, say rhodiola may also offer previously undiscovered anti-aging benefits.² Working with the common fruit fly, investigators conducted a simple experiment. One group of flies received rhodiola in the diet, while a control group did not. Rhodiola “significantly increased the life span” of test flies, which “exhibited decelerated aging,” compared with control flies. Results did not reveal the specific mechanism at work, but researchers noted the effect did not rely on dietary manipulation, “strongly suggesting that rhodiola is not a mere dietary restriction mimetic,” a reference to the fact that calorie restriction is known to extend life span in a variety of organisms.

—Dale Kiefer

Reference

1. Kelly GS. Rhodiola rosea: a possible plant adaptogen. *Altern Med Rev*. 2001. Jun;6(3):293-302.
2. Jafari M, Felgner JS, Bussel II, et al. Rhodiola: A promising anti-aging Chinese Herb. *Rejuvenation Res*. 2007 Dec;10(4):587-602.

EPA from Fish Oil May Prevent Schizophrenia

Fish oil, especially eicosapentaenoic acid (EPA), could help prevent the development of schizophrenia in teenagers and young adults, according to a promising study from Australia.¹ Omega-3 fatty acid deficits have previously been noted in a variety of neuropsychiatric disorders, including schizophrenia, depression, and Alzheimer's disease.²

For three months researchers gave 1.5 g fish oil or placebo to young people at risk of developing schizophrenia. At one-year follow-up, only 5% of the fish oil group showed signs of psychosis, while 28% of the placebo group had developed psychosis.¹ The scientists noted that early prevention may have been key to averting the disorder.

In an earlier study, the researchers found that adding EPA to standard antipsychotic drug therapy “may accelerate treatment response and improve the tolerability of antipsychotic medications” in schizophrenia patients.³ Other studies have similarly noted that EPA holds promise as an adjuvant treatment approach for the disorder.^{4,5}

—Dale Kiefer

Reference

1. Available at: http://www.healthse.com/article.php?title=Schizophrenia_Risk_Possibly_Reduced_by_Fish_Oil. Accessed March 6, 2008.
2. Song C, Zhao S. Omega-3 fatty acid eicosapentaenoic acid. A new treatment for psychiatric and neurodegenerative diseases: a review of clinical investigations. *Expert Opin Investig Drugs*. 2007 Oct;16(10):1627-38.
3. Berger GE, Proffitt TM, McConchie M, et al. Ethyl-eicosapentaenoic acid in first-episode psychosis: a randomized, placebo-controlled trial. *J Clin Psychiatry*. 2007 Dec;68(12):1867-75.
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5. Emsley R, Myburgh C, Oosthuizen P, van Rensburg SJ. Randomized, placebo-controlled study of ethyl-eicosapentaenoic acid as supplemental treatment in schizophrenia. *Am J Psychiatry*. 2002 Sep;159(9):1596-8.

Pomegranate Inhibits Prostate Cancer: New Evidence

Exciting new research reveals yet another way in which pomegranate may help fight prostate cancer—through inhibiting angiogenesis, the process whereby tumors grow new blood vessels to support their growth.¹ Previous studies have suggested that pomegranate juice and extracts slow the progression of prostate cancer and kill prostate cancer cells grown in the laboratory.^{2,3}

When mice that had been injected with human prostate cancer cells received dietary pomegranate extract, tumor size decreased. The density of blood vessels supplying the tumors declined, and levels of two important markers of angiogenesis also diminished.¹

“These results demonstrate that an ellagitannin-rich pomegranate extract can inhibit tumor-associated angiogenesis as one of several potential mechanisms for slowing the growth of prostate cancer,” concluded investigators.¹

—Dale Kiefer

Reference

1. Sartippour MR, Seeram NP, Rao JY, et al. Ellagitannin-rich pomegranate extract inhibits angiogenesis in prostate cancer in vitro and in vivo. *Int J Oncol*. 2008 Feb;32(2):475-80.
2. Pantuck AJ, Leppert JT, Zomorodian N, et al. Phase II study of pomegranate juice for men with rising prostate-specific antigen following surgery or radiation for prostate cancer. *Clin Cancer Res*. 2006 Jul 1;12(13):4018-26.
3. Malik A, Mukhtar H. Prostate cancer prevention through pomegranate fruit. *Cell Cycle*. 2006 Feb;5(4):371-3.

Alpha and Gamma Tocopherol Reduce Oxidative Stress, Inflammation in Metabolic Syndrome

Supplementing with alpha and gamma-tocopherol reduces oxidative stress and inflammation in men and women with metabolic syndrome.*

Eighty men and women who had at least three metabolic syndrome features (such as increased waist circumference, elevated triglycerides, hypertension, elevated fasting blood sugar, or low HDL [high-density lipoprotein]) supplemented with 800 milligrams alpha tocopherol, 800 milligrams gamma tocopherol, 800 mg alpha tocopherol plus 800 milligrams gamma tocopherol, or a placebo daily for six weeks.

Those who received both tocopherols experienced reduced levels of the inflammatory marker, C-reactive protein. The combination group as well as those who received only alpha tocopherol experienced a reduction in tumor necrosis factor-alpha. Oxidative stress biomarkers declined in all the supplemented individuals.

“The combination of alpha tocopherol and gamma tocopherol supplementation appears to be superior to either supplementation alone on biomarkers of oxidative stress and inflammation and needs to be tested in prospective clinical trials to elucidate its utility in cardiovascular disease prevention,” the authors concluded.

—Dayna Dye

Reference

* Devaraj S, Leonard S, Traber MG, Jialal I. Gamma-tocopherol supplementation alone and in combination with alpha-tocopherol alters biomarkers of oxidative stress and inflammation in subjects with metabolic syndrome. *Free Radic Biol Med*. 2007 Dec 23 [Epub ahead of print].

Curcumin May Prevent and Reverse Heart Enlargement

Curcumin may help prevent or even reverse cardiac enlargement, a prelude to heart failure, according to recent animal and laboratory studies.^{1,2} Heart failure occurs when the heart cannot pump enough blood to satisfy the body's demands.

In a Canadian study, curcumin helped overcome cardiac hypertrophy, inflammation, and heart muscle scarring in living mice and mouse cells by switching off genes that code for proteins involved in enlargement of the heart muscle.¹

In a related report, Japanese investigators showed that curcumin prevented heart enlargement in rats with high blood pressure and in rats that had undergone experimentally induced heart attack.²

Curcumin is a highly bioactive polyphenol derived from the curry spice turmeric. Curcumin's protective activity in rodent models of human heart disease suggests that it may find important applications in averting cardiovascular disease, the number one killer of adults in the industrialized world.

—Dale Kiefer

Reference

1. Li HL, Liu C, de Couto G, et al. Curcumin prevents and reverses murine cardiac hypertrophy. *J Clin Invest*. 2008 Mar 3;118(3):879-83.
2. Morimoto T, Sunagawa Y, Kawamura T, et al. The dietary compound curcumin inhibits p300 histone acetyltransferase activity and prevents heart failure in rats. *J Clin Invest*. 2008 Mar 3;118(3):868-78.

Soy Isoflavones Offer Multiple Benefits for Menopausal Women's Bone Health

Soy isoflavones not only help inhibit bone resorption and increase bone formation, they also improve spinal bone mineral density, according to two meta-analyses conducted by Japanese scientists.^{1,2}

The first meta-analysis involved 432 perimenopausal or postmenopausal women who consumed high-isoflavone soy protein or isoflavone tablets for 4-48 weeks. Scientists measured a urinary marker of bone resorption and a serum marker of bone formation before and after treatment periods. They concluded, “isoflavone intervention significantly inhibits bone resorption and stimulates bone formation.”¹

The second meta-analysis included 608 perimenopausal or postmenopausal subjects who ingested soy products or isoflavones for 3-48 months. Spine bone mineral density increased by 20.6 mg/cm³ in those receiving isoflavones compared with those receiving placebo. Bone mineral content also increased, but to a lesser extent. "The results clearly suggested that isoflavones contributed significantly to the increase of spinal bone mineral density, especially in postmenopausal women," the scientists concluded.

These findings pave the way for large randomized clinical trials exploring the role of isoflavones in building bones and preventing fractures.

—Dayna Dye

Reference

1. Ma DF, Qin LQ, Wang PY, Kato R. Soy isoflavone intake inhibits bone resorption and stimulates bone formation in menopausal women: meta-analysis of randomized controlled trials. *Eur J Clin Nutr.* 2008 Feb;62:155-61.
2. Ma DF, Qin LQ, Wang PY, Kato R. Soy isoflavone intake increases bone mineral density in the spine of menopausal women: meta-analysis of randomized controlled trials. *Clin Nutr.* 2008 Feb;27(1):57-64.

Zinc Reduces Diarrhea in Children

Supplemental zinc reduces the duration and severity of diarrhea in children, as reported in a recent meta-analysis.¹ In children younger than five years, diarrheal disease is a significant cause of morbidity in the United States² and mortality worldwide.³

Twenty-two randomized, controlled trials were identified in which diarrhea was treated with either oral zinc supplementation or placebo. The studies included 16 analyses of acute diarrhea (15,231 children) and six of persistent diarrhea (2,968 children).¹ Children who received zinc had a significantly shorter duration of diarrhea compared with the placebo group, which amounted to a 15% decrease in duration for both acute diarrhea and persistent diarrhea. Stool frequency declined after zinc supplementation, by 18.8% for acute diarrhea and 12.5% for persistent diarrhea. Zinc reduced the likelihood of diarrhea by 18% compared with placebo for both types.

Vomiting was more frequent with zinc treatment. Nevertheless, these results confirm previous reports of the benefits of zinc for diarrhea treatment and prevention.

—Laura J. Ninger, ELS

Reference

1. Lukacik M, Thomas RL, Aranda JV. A meta-analysis of the effects of oral zinc in the treatment of acute and persistent diarrhea. *Pediatrics*. 2008 Feb;121(2):326-36.
2. Fischer TK, Viboud C, Parashar U, et al. Hospitalizations and deaths from diarrhea and rotavirus among children <5 years of age in the United States, 1993-2003. *J Infect Dis*. 2007 Apr 15;195(8):1117-25.
3. Kosek M, Bern C, Guerrant RL. The global burden of diarrhoeal disease, as estimated from studies published between 1992 and 2000. *Bull World Health Organ*. 2003;81(3):197-204.

DHEA Sulfate Associated with Cognitive Ability

Naturally high levels of dehydroepiandrosterone sulfate (DHEAS) are associated with better cognitive function in healthy women, according to a study from Australia.* Dehydroepiandrosterone is a steroid precursor that is converted into estrogen, testosterone, and other hormones.

Study participants were 295 healthy women aged 21-77 years (average age 55 years) who were recruited from the community. The women underwent blood sampling for DHEAS and a battery of tests of cognitive function that measured verbal ability, spatial and working memory, attention and concentration, and speed and accuracy.

Women with higher levels of DHEAS performed better than women with lower levels on a test of executive function (general cognitive ability). Among women with at least 12 years of education, those with higher DHEAS also scored better on tests of concentration and working memory.

The results confirm previous research that suggested beneficial effects of DHEA and DHEAS on the nervous system and on cognitive ability.

—Laura J. Ninger, ELS

Reference

- * Davis SR, Shah SM, McKenzie DP, Kulkarni J, Davison SL, Bell RJ. DHEA sulfate levels are associated with more favorable cognitive function in women. *J Clin Endocrinol Metab*. 2008 Mar;93(3):801-8.

Broccoli Sprouts Help Prevent Bladder Cancer

In a recent issue of *Cancer Research*, scientists reported that an extract of broccoli sprouts given to rats dramatically reduced the development of bladder tumors.*

When rats were exposed to a carcinogenic agent in their drinking water, 96% developed bladder tumors. But when rats received low-dose broccoli sprout extract beginning two weeks prior to carcinogen exposure, just 74% developed tumors. Only 38% of animals who consumed high-dose broccoli sprout extract prior to carcinogen exposure developed bladder cancer.



The cancer-preventive effect of broccoli and other cruciferous vegetables such as cabbage appears to be the result of their isothiocyanates—phytochemicals that have been associated with cancer protection in numerous other studies. Broccoli sprouts contain 30 times more isothiocyanates than mature broccoli, and the compound used in the study provides 600 times more.

“Although this is an animal study, it provides potent evidence that eating vegetables is beneficial in bladder cancer prevention,” one of the authors stated.

—Dayna Dye

Reference

* Munday R, Mhawech-Fauceglia P, Munday CM, et al. Inhibition of urinary bladder carcinogenesis by broccoli sprouts. *Cancer Res.* 2008 Mar 1;68(5):1593-600.

Exercise Reduces Fatigue Among Inactive Adults

While some people complain they are too tired to exercise, a new study shows that exercise actually improves feelings of low energy and fatigue in healthy sedentary adults.* Earlier studies have reported that regular exercise increases energy and stamina in patients with heart disease, cancer, or chronic fatigue syndrome, but until now it has been unclear if exercise boosts energy in inactive but disease-free young adults.

Thirty-six subjects with self-reported “persistent fatigue” and lack of energy were randomly assigned to undergo moderate-intensity exercise, low-intensity exercise, or no exercise for six weeks. Subjects reported to an exercise laboratory three times weekly, and feelings of vigor and fatigue were assessed at the beginning of the third exercise session each week.



Fatigue was alleviated best by the low-intensity exercise regimen, but perceptions of energy level improved almost equally well in response to either the low-intensity or the moderate-intensity exercise regimens.

—Dale Kiefer

Reference

* Puetz TW, Flowers SS, O'Connor PJ. A randomized controlled trial of the effect of aerobic exercise training on feelings of energy and fatigue in sedentary young adults with persistent fatigue. *Psychother Psychosom.* 2008 Feb 14;77(3):167-74.

Green Tea Extract Increases Fat Burning, Improves Insulin Sensitivity

Ingestion of a green tea extract significantly increases fat burning and improves insulin sensitivity among healthy men, according to a recent report by British researchers.¹

One-dozen healthy men performed 30 minutes of moderate-intensity exercise both before and after receiving either a green tea extract, or placebo. Fat oxidation was 17% greater among men who received the extract, compared with placebo. Additionally, fat burning was a greater contributor to total energy expenditure among subjects who consumed green tea extract. In a second arm of the study, investigators measured subjects' oral glucose tolerance, both before and after ingesting the green tea extract,

or placebo. Extract and placebo subjects experienced improvements in insulin sensitivity.¹

In related news, Japanese researchers noted that adults with visceral-type obesity consuming a high-catechin green tea extract experienced reductions in body fat, blood pressure, and low-density lipoprotein (LDL), compared with those who consumed placebo.²

Together, these findings suggest an important role for green tea extracts in supporting fat-burning and healthy weight management.

—Dale Kiefer

Reference

1. Venables MC, Hulston CJ, Cox HR, Jeukendrup AE. Green tea extract ingestion, fat oxidation, and glucose tolerance in healthy humans. *Am J Clin Nutr.* 2008; 87(3) 778-84.
2. Nagao T, Hase T, Tokimitsu I. A green tea extract high in catechins reduces body fat and cardiovascular disease risks in humans. *Obesity (Silver Spring).* 2007 Jun;15(6):1473-82.

Cancer Patients Seek Benefits of Supplements

Cancer patients and survivors report a high level of supplement use and a tendency to begin use after a cancer diagnosis, according to a literature review.¹

The review summarized 32 US studies published between 1999 and 2006 of vitamin and mineral supplement use by adult cancer patients. In studies of various cancers, about 64-81% of patients used some type of vitamin or mineral supplement, and 26-77% used some type of multivitamin. By comparison, about 50% of individuals in the general population use supplements. Up to 32% of cancer patients began supplement use after their diagnosis. Predictors of use were female gender and a high level of education. Meanwhile, their treating physicians had no knowledge of supplement use 68% of the time.¹

Supplements may have several benefits for cancer patients. Coenzyme Q10 may reduce the cardiotoxicity of chemotherapy drugs,² omega-3 fatty acids may ameliorate cancer-related cachexia (weight loss),³ and replenishment of vitamin C deficiency could improve survival.⁴

—Laura J. Ninger, ELS

Reference

1. Velicer CM, Ulrich CM. Vitamin and mineral supplement use among US adults after cancer diagnosis: a systematic review. *J Clin Oncol.* 2008 Feb 1;26(4):665-73.
2. Conklin KA. Coenzyme q10 for prevention of anthracycline-induced cardiotoxicity. *Integr Cancer Ther.* 2005 Jun;4(2):110-30.
3. Hardman WE. Omega-3 fatty acids to augment cancer therapy. *J Nutr.* 2002 Nov;132(11 Suppl):3508S-3512S.
4. Mayland CR, Bennett MI, Allan K. Vitamin C deficiency in cancer patients. *Palliat Med.* 2005 Jan;19(1):17-20.

Magnesium Lessens Stroke Risk in Male Smokers

Men who smoke may acquire some protection against stroke by consuming greater amounts of the mineral magnesium, according to a new report from the Archives of Internal Medicine.*

More than 26,000 Finnish men aged 50-69 years old were evaluated for their dietary magnesium intake at the study's onset. After nearly 14 years of follow-up, more than 2,700 cerebral infarctions (the most common type of stroke involving blockage of blood flow to the brain) occurred.

Men whose magnesium intake was highest (at an average of 589 mg/day) had a 15% lower risk of cerebral infarction than men whose magnesium intake was lowest (at an average of 379 mg/day). Men who were under 60 years old appeared to derive the greatest benefit from the mineral.

The scientists noted that magnesium could act through numerous mechanisms to reduce stroke risk, including favorable effects on blood pressure, lipid levels, blood sugar metabolism, inflammatory markers, and endothelial function.

—Dayna Dye



Reference

* Larsson SC, Virtanen MJ, Mars M, et al. Magnesium, calcium, potassium, and sodium intakes and risk of stroke in male smokers. Arch Intern Med. 2008 Mar 10;168(5):459-65.

Mother's Omega-3 Fatty Acid Deficit Impairs Infant's Neurological Development

The typical North American diet fails to provide adequate amounts of omega-3 fatty acids, leaving infants at risk of impaired neurological development, according to a new report.*

Investigators assigned 135 pregnant women to a placebo or a daily omega-3 fatty acid supplement equivalent to two fatty fish meals per week, beginning on the 16th week of gestation until delivery.

Women who consumed large quantities of meat and low amounts of fish had omega-3 fatty acid deficiencies (as measured by blood samples) at weeks 16 and 36, and their children failed to perform as well on eye tests (an indication of neurological maturity) as infants born to mothers who were not deficient.

“Omega-3 fatty acids are important for the baby's developing eyes and brain,” explained one of the study authors. “During pregnancy and breastfeeding, fat consumed by the [mother] is transferred to the developing baby and breastfed infant, and this fat is important for the baby's developing organs.”

—Dayna Dye

Reference

* Available at: <http://www.sciencedaily.com/releases/2008/03/080307133659.htm>. Accessed March 11, 2008.

Vitamin D Deficiency is Common, Even in Sunny Climate

Even individuals who live in sunny climates are at risk of vitamin D deficiency, and certain ethnic groups are particularly vulnerable, according to recent findings.¹

Researchers analyzed serum levels of 25-hydroxyvitamin D in 637 residents of southern Arizona. Vitamin D deficiency, which was defined as 25-hydroxyvitamin D below 20 ng/mL (50 nmol/L), was found in 25% of the residents. Deficiency was more common in blacks (56%) and Hispanics (38%) than in whites (23%). Only 22% of participants had optimal vitamin D status, defined as greater or equal to 30 ng/mL (75 nmol/L) in this study.¹

Many scientists now believe that optimal serum levels of 25-hydroxyvitamin D are within the range of 30-50 ng/mL (75-125 nmol/L).²

Deficiency of vitamin D in residents of a sunny region is a significant public health concern because, "Recent work has associated suboptimal concentrations of circulating 25-hydroxyvitamin D with a number of diseases, including cancer, diabetes, and heart disease."¹

—Laura J. Ninger, ELS



Reference

1. Jacobs ET, Alberts DS, Foote JA, et al. Vitamin D insufficiency in southern Arizona. *Am J Clin Nutr.* 2008 Mar;87(3):608-13.
2. Grant WB, Holick MF. Benefits and requirements of vitamin D for optimal health: a review. *Altern Med Rev.* 2005 Jun;10(2):94-111.

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