

LE Magazine July 2008

IN THE
NEWS**Life Extension Supports Clinical Research on Vitamin D in Prostate Cancer Treatment**

The goal of Life Extension Clinical Research, Inc. is not only to investigate the efficacy of products for Life Extension members, but also to support groundbreaking clinical studies within the scientific community as a whole. Now, Life Extension Clinical Research is supporting a clinical trial examining the use of vitamin D in treating slow-growing recurrent prostate cancer.

An estimated 186,000 new cases of prostate cancer will be diagnosed in the United States in 2008. Frighteningly, one in six men will be diagnosed with prostate cancer in his lifetime.¹ Prostate cancer is a highly variable disease—sometimes it progresses so slowly that it poses little risk to a patient's health, while in other instances it rapidly progresses to a lethal disease.

While radical prostatectomy and radiotherapy typically yield excellent results in prostate cancer, a significant number of treated patients will experience rising levels of serum prostate-specific antigen (PSA)—a warning sign of recurrent disease.² According to a study of 1,184 men who underwent radical prostatectomy, PSA recurrence occurred in 13.9% of patients at a mean follow-up of 2.7 years (range: 0.3-5.1 years).³

While scientists have been unclear regarding the best management strategy for PSA relapse following local treatment for prostate cancer, a 2005 pilot study reported that vitamin D3 supplementation arrested PSA progression in 9 out of 15 such patients.⁴

Now, Charles E. Myers Jr., MD, of the Foundation for Cancer Research and Education is building upon these early findings by conducting a study titled "A Single Site, Phase II Clinical Trial: Treatment of Slow-Growing Recurrent Prostate Cancer with Vitamin D3" in Earlysville, Virginia. Life Extension Clinical Research, Inc. is assisting in this endeavor by providing vitamin D3 products in the strengths of 1,000 IU and 5,000 IU. The scientists hope to find if prostate cancer progression may be slowed or arrested with a treatment that carries low risk and expense, compared with most anticancer treatments.

For further information, contact the Foundation for Cancer Research and Education at (434) 220-4539.

—Dr. Steven Hirsh



Reference

1. Available at: http://www.cancer.org/docroot/CRI/content/CRI_2_4_1X_What_are_the_key_statistics_for_prostate_cancer_36.asp?sitearea=. Accessed April 14, 2008.
2. Bong GW, Keane TE. Salvage options for biochemical recurrence after primary therapy for prostate cancer. *Can J Urol*. 2007 Dec;14 (Suppl 1):2-9.
3. Mouraviev V, Sun L, Madden JF, Mayes JM, Moul JW, Polascik TJ. Prostate cancer laterality does not predict prostate-specific antigen recurrence after radical prostatectomy. *Urology*. 2007 Dec;70 (6): 1141-5.
4. Woo TC, Choo R, Jamieson M, Chander S, Vieth R. Pilot study: potential role of vitamin D (Cholecalciferol) in patients with PSA relapse after definitive therapy. *Nutr Cancer*. 2005;51(1):32-6.

Unlock the Information in Your Genome

A new method that enables you to find out how your genes influence your health and longevity has been developed by BioMarker Pharmaceuticals, a company in San Jose, California, that develops innovative products to help people live longer in good health.

Utilizing the latest scientific discoveries in medical genetics, the newly available Gene Essence™ test uncovers information about your genetic makeup (genotype). The Gene Essence™ Report provides you with the most comprehensive personalized genetic information associated with 90 conditions unique to your genotype among nearly one million single nucleotide polymorphisms (SNPs).



Based on this report, you can find out if you have inherited traits that influence your susceptibility to diseases or other health concerns like cholesterol levels and athletic performance. This major breakthrough can help you determine which therapies could help to lower your risk of becoming afflicted with life-threatening diseases. To learn more about how to take this simple DNA test, visit www.geneessence.com.

—Saul Kent

Increased Dietary Choline May Help Reduce Breast Cancer Risk

Greater intake of the B vitamin choline is associated with a reduction in the risk of breast cancer, according to research funded by the National Institutes of Health (NIH).*

Scientists compared dietary intake data from 1,508 women with breast cancer with 1,556 women who did not have the disease. They focused on choline and other nutrients involved in methylation, which plays a role in cancer development.

Women whose intake of choline was in the highest one-fifth of participants (>455 mg/day) had a 24% lower risk of breast cancer than women whose intake was in the lowest fifth (<196 mg/day).

Despite choline's importance for maintaining normal cellular function, only 10% of Americans are estimated to meet the Institute of Medicine's adequate choline intake level of 425 mg/day for women and 550 mg/day for men and breastfeeding women.

—Dayna Dye

Reference

* Xu X, Gammon MD, Zeisel SH, et al. Choline metabolism and risk of breast cancer in a population-based study. *FASEB J.* 2008 Jan 29 [Epub ahead of print].

Tart Cherries are Anti-Inflammatory “Superfood”

Tart cherries reduce inflammation in animals and may reduce the risk of inflammation-related conditions, such as type 2 diabetes and cardiovascular disease, according to a new study.*

Investigators fed lean and obese rats a typical American-style diet, characterized by high fat and moderate carbohydrates. Feed was also enriched with 1% tart cherries. Both lean rats and obese rats with the metabolic syndrome experienced a sharp decline—up to 50%—in markers of chronic inflammation. Levels of the inflammatory cytokine, TNF-alpha, were reduced by 50% in lean rats. Obese rats experienced a 40% reduction. Levels of interleukin-6 (IL-6) decreased by 31% in obese rats, while lean rats experienced a 38% drop in the inflammatory mediator.



“This study offers further promise that foods rich in antioxidants, such as cherries, could potentially reduce inflammation and lower disease risk,” noted one of the study's authors.

—Dale Kiefer

* Available at: <http://www.bio-medicine.org/medicine-technology-1/Tart-Cherries-May-Reduce-Inflammation—Lower-Risk-for-Type-2-Diabetes—26-Heart-Disease-1689-1/>. Accessed April 30, 2008.

Stress Fractures Reduced by Calcium and Vitamin D Supplementation

Supplementing female military recruits with vitamin D and calcium prevents stress fractures—debilitating overuse injuries that commonly affect this population, a new study reveals.* Stress fractures occur when bones are repetitively stressed over short periods of time without adequate time for repair, and are more common in women than men.

Researchers randomized 5,201 female Navy recruit volunteers to receive 2,000 mg calcium and 800 IU vitamin D daily or placebo during eight weeks of basic training. During the treatment period, 309 participants were diagnosed with a stress fracture. Women who received calcium and vitamin D had a 20% lower incidence of stress fracture than the placebo group.

Supplementing basic training recruits with calcium and vitamin D supplements may significantly reduce debility and financial costs related to stress fractures, the authors concluded. Further, “Supplementation with calcium and vitamin D provides a safe, easy, and inexpensive intervention that does not interfere with training goals.”

—Dayna Dye

Reference

* Lappe J, Cullen D, Haynatzki G, Recker R, Ahlf R, Thompson K. Calcium and vitamin d supplementation decreases incidence of stress fractures in female navy recruits. *J Bone Miner Res.* 2008 May;23(5):741-9.

Pine Nut Oils Significantly Increase Satiety Hormone, Reduce Appetite

Korean pine nut oil reduces appetite by boosting key satiety hormones, according to a new placebo-controlled, double-blind study.*

Eighteen overweight, postmenopausal women randomly received 3 grams of Korean pine nut fatty acids, pine nut triglycerides, or olive oil (placebo), plus a light breakfast. Blood levels of various hunger/satiety hormones were assessed at regular intervals for four hours. Subjects also provided subjective ratings of hunger sensations at each interval. Later, subjects were rotated to receive a different test substance, and again underwent testing.

Compared with placebo, appetite sensation was 36% lower among subjects who received pine nut free fatty acids. Over the four-hour testing period, the satiety hormone, cholecystokinin, was 60% higher among subjects who took pine nut oils versus placebo.

“This study suggests that Korean pine nut may work as an appetite suppressant through an increasing effect on satiety hormones and a reduced prospective food intake,” researchers concluded.

—Dale Kiefer

Reference

* Pasma WJ, Heimerikx J, Rubingh CM, et al. The effect of Korean pine nut oil on in vitro CCK release, on appetite sensations and on gut hormones in post-menopausal overweight women. *Lipids Health Dis.* 2008 Mar 20;7(1):10.

Pycnogenol® Improves Memory in the Elderly

The antioxidant Pycnogenol® may improve memory in the elderly, as reported in a recent Australian study.* Pycnogenol® is a pine bark extract used in many supplements.

The study evaluated the effects of Pycnogenol® on cognitive function tests in 101 individuals aged 60 to 80 years. Patients were divided into two matched groups; one group received 150 mg/day Pycnogenol® and the other took placebo. At three months, working memory was significantly better in the treated group than in the placebo group. Treated patients also had significantly lower concentrations of F2-isoprostanes, a chemical marker of lipid peroxidation.



The results support the theory that cognitive decline is due in part to oxidative damage and confirm previous findings that Pycnogenol® has positive antioxidant effects that preserve cognitive function. The possible role of Pycnogenol® in managing Alzheimer's disease and Parkinson's disease is an exciting topic for future research. The active proanthocyanidins in Pycnogenol® are also found in grapeseed extract.

—Laura J. Ninger, ELS

Reference

* Available at: <http://www.nutraingredients-usa.com/news/ng.asp?id=84024-pycnogenol-memory-oxidation>. Accessed April 30, 2008.

High-Dose Folate May Protect Against Damage Caused by Heart Attack

High-dose folic acid provides significant protection against the damaging effects of myocardial infarction (heart attack) in rats, according to a new report.*

Scientists pretreated rats with 10 mg folic acid/day or placebo for one week prior to inducing myocardial infarction and then restoring blood flow.

Folic acid-treated rats had less heart muscle dysfunction and lower levels of damaging superoxide than placebo recipients. During the simulated heart attack, ejection fraction (amount of blood pumped by the heart) dropped to 27% in the placebo group, but remained near normal at 73% in the folic acid group. Areas of heart tissue death in the treated group were less than 10% the size of those in the control group.

These findings suggest that folate acts as a cardiac energy reserve, “providing much needed energy for muscle contraction, in the form of ATP, at the same time the heart is being starved for oxygen-carrying blood by a blocked artery.”

—Dayna Dye

Reference

* Moens AL, Champion HC, Claeys MJ, et al. High-dose folic acid pretreatment blunts cardiac dysfunction during ischemia coupled to maintenance of high-energy phosphates and reduces post-reperfusion injury. *Circulation*. 2008 Apr 8;117(14):1810-9.

Vitamin D May Relieve Pain of Diabetic Neuropathy

Vitamin D supplementation reduces pain levels in patients with diabetic neuropathy, according to a research letter published in the *Archives of Internal Medicine*.* Diabetic neuropathy occurs when high levels of glucose damage the nerves, and can cause burning, tingling, numbness, and throbbing sensations.

The investigators enrolled 51 type 2 diabetics with neuropathy for the study. All participants had insufficient levels of serum 25-hydroxyvitamin D (<24 ng/mL) at the study's onset, and were given an average dose of 2,000 IU/day of vitamin D for three months.

Lower pain scores were correlated with higher levels of serum vitamin D. At the end of three months, vitamin D treatment reduced pain scores by 39-49%, depending on the pain scale used.

The authors concluded that vitamin D may help relieve neuropathic pain and could also benefit bone health and glycemic control in diabetic patients.

—Dayna Dye

Reference

* Lee P, Chen R. Vitamin D as an analgesic for patients with type 2 diabetes and neuropathic pain. *Arch Intern Med*. 2008 Apr 14;168(7):771-2.

Berry Consumption Moderates Cardiovascular Disease Risk Factors

Moderate berry consumption may help protect cardiovascular health through beneficial effects on blood pressure, cholesterol, and platelet function, according to a recent report.*



In Finland, 72 middle-aged men and women at risk for cardiovascular disease were randomly assigned to consume berries or control foods twice daily. After eight weeks, systolic blood pressure declined in the berry group (-1.5 mmHg) but increased in the control group (+0.5 mmHg); the benefit in the berry group was greatest among participants with hypertension, in whom the reduction reached 7.3 mmHg. Beneficial high-density lipoprotein (HDL) increased significantly more in the berry group (+5.2%) than in controls (+0.6%). Platelet function was inhibited in the berry group (+11%) but not in the controls (-1.4%). Higher plasma concentrations of polyphenols in the berry group may explain the benefits seen.

By favorably altering blood pressure, platelet function, and blood pressure, berries may contribute to cardiovascular disease prevention, the authors concluded.

—Laura J. Ninger, ELS

Reference

* Erlund I, Koli R, Alfthan G, et al. Favorable effects of berry consumption on platelet function, blood pressure, and HDL cholesterol. *Am J Clin Nutr.* 2008 Feb;87(2):323-31.

Vitamin E Supplementation Lengthens Survival in Alzheimer's Disease Patients

Patients with Alzheimer's disease who supplement with vitamin E may live longer than those who do not take the vitamin, according to findings presented at the American Academy of Neurology's annual meeting.*



Investigators followed 847 men and women with Alzheimer's disease for an average of five years. About two-thirds of the participants consumed 1,000 IU vitamin E twice a day along with a cholinesterase inhibitor drug commonly used to treat their disease. Fewer than 10% of the remaining subjects used vitamin E alone, and 15% used neither therapy. Participants who took vitamin E with or without drug treatment had a 26% lower risk of dying than those who did not take the vitamin.

"Vitamin E has previously been shown to delay the progression of moderately severe Alzheimer's disease," one of the authors stated. "Now, we've been able to show that vitamin E appears to increase the survival time of Alzheimer's patients as well."

—Dayna Dye

Reference

* Available at: http://www.abstracts2view.com/aan2008chicago/view.php?nu=AAN08L_P03.076. Accessed May 1, 2008.

GlaxoSmithKline Invests in Resveratrol Research

For years Life Extension magazine has been reporting on the multiple health benefits of resveratrol. We have urged members to incorporate this vital nutrient into their personal life-extension program. Now, pharmaceutical companies see the financial potential of creating a prescription drug from resveratrol compounds in order to treat age-related disease. Recently, pharmaceutical giant GlaxoSmithKline announced that it would acquire all outstanding shares of Sirtris Pharmaceuticals for \$720 million in order to cash in on the life-extending promise of resveratrol-based compounds.¹

Found in red grapes and wine, resveratrol has been credited with extending life span in a variety of organisms.^{2,3} Resveratrol mimics the life-extending properties of caloric restriction by activating enzymes called sirtuins, which influence a variety of aging-related metabolic functions.

Sirtris was founded in 2004 after Dr. David Sinclair of Harvard Medical School began publishing findings regarding resveratrol's

remarkable potential benefits.² Sirtris' stated goal is to discover and develop small molecules with anti-aging potential, and its research efforts have largely focused on enhancing the potency of resveratrol-based compounds.

GlaxoSmithKline evidently hopes to modify the resveratrol molecule to further bolster its bioavailability and effects. Such a modification would also allow the drug company to patent the new molecule and market it exclusively.

—Dale Kiefer

Reference

1. Available at: http://www.gsk.com/media/pressreleases/2008/2008_us_pressrelease_10038.htm. Accessed April 30, 2008.
2. Howitz KT, Bitterman KJ, Cohen HY, et al. Small molecule activators of sirtuins extend *Saccharomyces cerevisiae* lifespan. *Nature*. 2003 Sep 11;425(6954):191-6.
3. Baur JA, Pearson KJ, Price NL, et al. Resveratrol improves health and survival of mice on a high-calorie diet. *Nature*. 2006 Nov 16;444(7117):337-42.

Just One Cup of Green Tea Daily Halves Ovarian Cancer Risk

Green tea consumption may help prevent ovarian cancer in women, according to a recent study.* Because the disease is difficult to detect in its early, treatable stages, and a foolproof screening test is not widely available, an effective means of preventing the disease “remains the only feasible approach to reduce ovarian cancer mortality.”

Scientists evaluated the relationship between caffeine-containing beverages and ovarian cancer risk by comparing 781 women diagnosed with a primary invasive or borderline epithelial ovarian cancer and 1,263 women without the disease. Women who consumed one or more cups of green tea per day experienced a 54% reduction in ovarian cancer risk compared with those who did not drink green tea. Those who reported drinking an average of less than one cup per day experienced a smaller risk reduction.

“Green tea, which is commonly consumed in countries with low ovarian cancer incidence, should be further investigated for its cancer-prevention properties,” the authors concluded. It should be noted that most studies show more than one cup (or one-cup equivalency of green tea) is needed to protect against disease.

—Dayna Dye

Reference

- * Song YJ, Kristal AR, Wicklund KG, Cushing-Haugen KL, Rossing MA. Coffee, tea, colas, and risk of epithelial ovarian cancer. *Cancer Epidemiol Biomarkers Prev*. 2008 Mar;17(3):712-6.

Hypertension is Associated With Poor Cognitive Performance in the Elderly

Uncontrolled elevated blood pressure is associated with worse cognitive function in the elderly, according to a large population-based study.*

Scientists studied a group of 6,163 men and women aged >60 years. For participants aged 60 to 74, severe hypertension was associated with the worst results on cognitive testing, whereas optimal blood pressure (<120/80 mmHg) was associated with the best cognitive performance. Statistical analysis revealed that a higher severity of hypertension was associated with worse cognitive function, particularly at ages 70 and older. When hypertension was present but was well controlled with medication or lifestyle, cognitive capability was nearly the same as in participants without hypertension.

Hypertension predisposes to stroke and Alzheimer's disease. The authors therefore concluded, “Optimal control of blood pressure may be beneficial in attenuating the risk of cognitive decline as the population ages.”

—Laura J. Ninger, ELS

Reference

Cod Liver Oil Reduces Rheumatoid Arthritis Drug Requirement

Patients with rheumatoid arthritis may be able to reduce their dose of nonsteroidal anti-inflammatory drugs (NSAIDs) by adding cod liver oil to their daily regimen, according to the journal *Rheumatology*.*

Researchers enrolled 97 patients with rheumatoid arthritis undergoing NSAID treatment. Participants received a placebo or a daily dose of 10 grams of cod liver oil (providing 2.2 grams of omega-3 fats plus vitamins A, D, and E) for nine months.

After three months, the participants were instructed to gradually reduce their medication usage and to discontinue their drugs if possible. Among those who completed the full nine months of fish oil therapy, 59% successfully lowered their medication dose. They also experienced a modest improvement in pain symptoms compared with the placebo group.

“Fish oil supplementation should be considered in rheumatoid arthritis patients to help them reduce their NSAID intake in order to attenuate the risks of gastrointestinal and cardiovascular adverse events associated with these drugs,” the authors concluded.

—Dayna Dye

Reference

* Galarraga B, Ho M, Youssef HM, et al. Cod liver oil (n-3 fatty acids) as a non-steroidal anti-inflammatory drug sparing agent in rheumatoid arthritis. *Rheumatology (Oxford)*. 2008 May;47(5):665-9.

Magnesium Deficiency Linked with Cellular Aging

Human cells grown in a magnesium-deficient environment undergo accelerated senescence (aging), according to a new report.* Magnesium inadequacy is estimated to affect half the US population and has been linked with aging-related diseases such as cardiovascular disease, hypertension, diabetes, osteoporosis, and some cancers.

Scientists cultured human fibroblasts (structural framework cells) in media containing varying amounts of magnesium. Cells grown in reduced-magnesium media appeared to undergo accelerated senescence. One of the most notable signs of accelerated aging was increased loss of telomere length compared with cells grown in normal-magnesium conditions. Malfunction of telomeres (DNA sequences that cap chromosomes) has been associated with aging and cancer.



Magnesium deficiency may promote cellular senescence by increasing the oxidative stress that damages telomeres. “We are now thinking that cellular consequences of magnesium deficiency may be driving long-term chronic disease,” the authors noted.

—Dayna Dye

Reference

* Available at: <http://www.pnas.org/cgi/content/abstract/0712401105v1>. Accessed May 1, 2008.

taking any medication, or if you have or suspect you might have a health problem. You should not stop taking any medication without first consulting your physician.