

LE Magazine November 2007

In The NEWS

Resveratrol Suppresses Prostate Cancer Development



Resveratrol, a polyphenol compound found in red wine, suppresses prostate cancer development in a rodent model of the disease, according to a recent report.*

Scientists at the University of Alabama studied mice specially bred to possess genes that lead to the development of human prostate cancer.

One group received resveratrol in the diet beginning at five weeks of age; the second received standard feed. Resveratrol-fed mice enjoyed a 7.7-fold reduction in the incidence of prostate cancer tumors. Among resveratrol-fed mice, there was a significant decrease in cell proliferation and the potent growth factor, IGF-1. Furthermore, they experienced an increase in

a protein believed to act as a tumor suppressor, and decreases in enzymes known to promote tumor growth.

Together, the findings, “provide a biochemical basis for resveratrol suppressing prostate cancer development,” concluded the researchers.

—Dale Kiefer

Reference

* Harper CE, Patel BB, Wang J, Arabshahi A, Eltoum IA, Lamartiniere CA. Resveratrol suppresses prostate cancer progression in transgenic mice. *Carcinogenesis*. 2007 Aug 3; [Epub ahead of print].

Turmeric Compound Helps Immune System Clear Alzheimer’s Plaques

Curcumin, the active ingredient found in turmeric, may help the immune system to fight harmful amyloid-beta plaques, which are characteristic of Alzheimer’s disease, according to a recent study.*

Building on positive findings from earlier studies in animals, Los Angeles-based researchers extracted macrophages (immune cells that destroy amyloid-beta proteins) from the blood of Alzheimer’s disease patients and exposed them to curcumin in vitro. The team discovered that a compound called bisdemethoxycurcumin, the active ingredient in curcumin, stimulated increased uptake of amyloid-beta by macrophages in 50% of patients.

“This is one of the first studies which pays attention to what we believe may be the crucial problem in Alzheimer’s disease: a defective immune system,” the authors commented.

—Dayna Dye

Reference

* Zhang L, Fiala M, Cashman J, et al. Curcuminoids enhance amyloid-beta uptake by macrophages of Alzheimer’s disease patients. *J Alzheimers Dis*. 2006 Sep;10(1):1-7.

Low Vitamin C Levels Linked with Being Overweight



Those who have low levels of vitamin C in the blood are more likely to be overweight or obese, particularly women. These are the findings from a study conducted in 118 adults by nutrition researchers from Arizona State University.*

The scientists recruited 35 men and 83 women aged 20 to 60 years, of whom 24% were overweight and 54% obese. They discovered that higher levels of plasma vitamin C were associated with reduced body mass index, lower body fat percentage, and smaller waist circumference.

They also found plasma vitamin C in women to be directly related to levels of the beneficial hormone adiponectin, although this association disappeared after controlling for body mass. Lowered levels of adiponectin are associated with both diabetes and heart disease and tend to

be more common in obese than non-obese individuals.

Earlier research by this team revealed that individuals with low vitamin C levels had a significant reduction in fat oxidation during exercise. Vitamin C is needed for the body's synthesis of the amino acid carnitine, a deficiency of which leads to an increased accumulation of fat in muscle.

The authors concluded, "Because one-third of Americans have marginal plasma vitamin C concentrations, this is an important observation worthy of further investigation."

—Dayna Dye

Reference

* Johnston CS, Beezhold BL, Mostow B, Swan PD. Plasma vitamin C is inversely related to body mass index and waist circumference but not to plasma adiponectin in nonsmoking adults. *J Nutr.* 2007 Jul;137(7):1757-62.

Vitamin C May Protect Against Arthritic Changes in the Knees



A diet rich in antioxidants may help prevent bone changes associated with knee arthritis, a new study suggests.*

Australian researchers noted the higher a person's dietary levels of vitamin C at the start of the study period, the lower the risk of certain bone changes 10 years later. The same was true when the researchers looked at overall consumption of fruit, a prime source of vitamin C. Certain carotenoids, such as the lutein and zeaxanthin found in green vegetables, were related to a lower risk of cartilage defects in the knee.

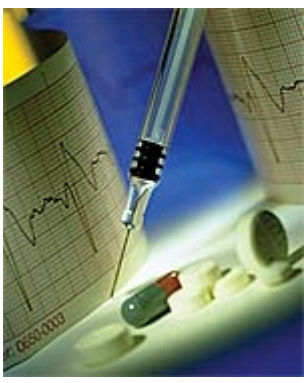
The findings, "highlight the potential of diet to modify the risk of osteoarthritis," the researchers said.

—Cathy Burke

Reference

* Wang Y, Hodge AM, Wluka AE, et al. Effect of antioxidants on knee cartilage and bone in healthy, middle-aged subjects: a cross-sectional study. *Arthritis Res Ther.* 2007 Jul 6;9(4):R66 [Epub ahead of print].

FDA Denial of Anticancer Drug Spurs Lawsuit



A group of disappointed patients and disgruntled investors is suing Food and Drug Administration (FDA) officials over the agency's decision to nix a proposed vaccine Provenge® for advanced prostate cancer.*

The July 30 federal lawsuit, filed by the non-profit Care to Live, claims Provenge® is safe and effective and that the FDA's decision was the result of political infighting. It also accuses the agency of ignoring conflict-of-interest issues, naming Dr. Howard Scher, a leading investigator of a competitor anticancer drug and one of the advisors who reviewed the Provenge® data.

The FDA's denial in May of this year followed a thumbs-up from its own advisory panel two months earlier. Provenge® developer Dendreon, Inc. is hoping to win approval after a larger trial.

—Cathy Burke

Reference

* Available at: http://seattletimes.nwsourc.com/html/business/technology/2003813806_dendreon31.html. Accessed August 13, 2007.

Coenzyme Q10 Improves Endothelial Function



Long known for its heart-health benefits, coenzyme Q10 (CoQ10) offers numerous benefits for patients with coronary artery disease, including enhanced endothelial function.*

In this study, 38 patients took either 300 mg/day of CoQ10 or a placebo for one month. For those taking the supplement, researchers noted increased production of extracellular superoxide dismutase (an antioxidant enzyme), and improved endothelium-dependent vasodilation (blood vessel widening). The CoQ10 group also experienced beneficial increases in peak oxygen consumption and oxygen pulse.

The researchers from the Polytechnic University of the Marche concluded some of the improvements may be related to CoQ10's ability to counteract the oxidation of nitric oxide, while the enhancement of the oxygen consumption and pulse rates could be attributed to the bioenergetic effect of CoQ10.

—Cathy Burke

Reference

* Tiano L, Belardinelli R, Carnevali P, Principi F, Seddaiu G, Littarru GP. Effect of coenzyme Q10 administration on endothelial function and extracellular superoxide dismutase in patients with ischaemic heart disease: a double-blind, randomized controlled study. *Eur Heart J*. 2007 Jul 19; [Epub ahead of print].

Multiple Vitamin/Mineral Boosts Mental Health in Older Adults



A daily multivitamin and mineral supplement improves mood in older adults, a new study suggests.* English researchers, testing 225 elderly hospitalized patients, found those on a daily supplement regimen for six weeks had higher levels of folate and vitamin B12, compared with those on placebo.

Significant differences were also reported for symptoms of depression scores between the groups, with beneficial effects observed for patients on the supplement. Other studies have previously shown an association between deficiencies in folate and vitamin B12 and depression.

“Both folate and vitamin B12 are important for the nervous system at all ages, but in older people where deficiencies are known to be common even in relatively healthy persons, low folate and vitamin B12 status affects mood, cognitive and social functions,” the researchers noted.

Reference

* Gariballa S, Forster S. Effects of dietary supplements on depressive symptoms in older patients: A randomised double-blind placebo-controlled trial. *Clin Nutr*. 2007 Jul 25; [Epub ahead of print].

Low Vitamin D Levels Linked with Increased Blood Pressure



Another new study points to a link between vitamin D levels and cardiovascular health, and may help explain why hypertension seems to afflict more black Americans than other ethnic groups.*

Using data from the Third US National Health and Nutrition Examination Survey, researchers found that individuals with the lowest vitamin D levels had slightly higher blood pressure. Non-Hispanic white Americans had the highest vitamin D blood levels, followed by Mexican Americans, while non-Hispanic black Americans had the lowest levels.

“This finding may have public health significance, as vitamin D levels can easily, and cheaply, be increased by a modest increase in sun exposure or vitamin D supplementation,” researchers noted in the *American Journal of Hypertension*.

Many public health experts now advise that all adults should increase their vitamin D intake to at least 1,000 IU per day and should regularly monitor their blood levels.

—Cathy Burke

Reference

* Scragg R, Sowers M, Bell C. Serum 25-hydroxyvitamin D, ethnicity, and blood pressure in the Third National Health and Nutrition Examination Survey. *Am J Hypertens*. 2007 Jul;20(7):713-9.

Testosterone Cream Increases Women's Libido



A daily dose of the male sex hormone, testosterone, significantly improves libido in postmenopausal women who have undergone a hysterectomy, Australian researchers reported recently.* Thirty-six women participated in the double-blind, randomized, placebo-

controlled, cross-over study. The women had scored low on a standardized test of sexual function, despite being in a stable relationship. They were already taking supplemental estrogen. None suffered from depression.

Subjects applied testosterone cream or placebo to the skin each day for three months. Test and control subjects then blindly switched treatments for another three months.

The testosterone cream significantly improved sexual desire, frequency of sex, receptivity, and initiation, as measured by a standardized assessment of sexual function. “It was effective, easy to use, and had no side effects,” concluded researchers.

—Dale Kiefer

Reference

* El-Hage G, Eden JA, Manga RZ. A double-blind, randomized, placebo-controlled trial of the effect of testosterone cream on the sexual motivation of menopausal hysterectomized women with hypoactive sexual desire disorder. *Climacteric*. 2007 Aug;10(4):335-43.

Osteoarthritis Symptoms Improved by Glycine

Supplementing the diet with the amino acid glycine helps to prevent osteoarthritis, and could be used to treat physical injuries or other conditions related to structural weakness such as osteoporosis, a recent study has revealed.*

Spanish researchers from Tenerife and Granada studied the effect of glycine supplementation in 600 subjects between the ages of 4 and 85 years with osteoarthritis, osteoporosis, or physical injuries. Participants were given

5 grams glycine in the morning and 5 grams in the evening. In all cases, symptoms significantly improved.

Osteoarthritis or arthrosis is the most common osteoarticular condition, which occurs when cartilage degenerates until bone is exposed, resulting in significant pain and impaired mobility. Although the disease is often treated with non-steroidal anti-inflammatory drugs, there is presently no cure.

Although glycine is classified as a non-essential amino acid, meaning that it is not necessary to obtain by dietary means, the team's research indicated that it should be considered essential as the body has limited capacity to synthesize glycine. They concluded that glycine leads to a general improvement in osteoarthritis and similar conditions over time, often between two weeks and four months.

—Dayna Dye

Reference

* Available at: www.medicalnewstoday.com/articles/79021.php. Accessed August 10, 2007.

Broccoli and Cauliflower Reduce Aggressive Prostate Cancer Risk



A diet rich in cruciferous vegetables, particularly broccoli and cauliflower, may be associated with a lower risk of aggressive prostate cancer, a new study reports.*

Previous research has shown that this family of vegetables, which also includes cabbage, kale, and Brussels sprouts, protects against colon, breast, prostate, thyroid, cervical, and other cancers, and slows disease progression.

In this study, Canadian researchers analyzed dietary questionnaires from 29,361 men participating in the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial, including 1,338 men with prostate cancer, of whom 520 had aggressive disease.

Evaluation of questionnaire responses after an average follow-up of 4.2 years revealed that a higher intake of broccoli and cauliflower had a particularly strong protective association against aggressive disease, which is associated with a poor prognosis.

Men who ate more than one serving of broccoli a week had a 45% lower risk of aggressive disease compared with those whose intake was less than once a month. Cauliflower had an even greater benefit, with a 52% risk reduction in men who consumed the vegetable more than once a week. The researchers also noted a possible benefit in cancer risk reduction from consuming spinach.

—Dayna Dye

Reference

Low Testosterone May Signal High Metabolic Syndrome Risk

Age-related decline in the male sex hormone, testosterone, may increase men's risk for metabolic syndrome, a collection of risk factors strongly associated with diabetes and heart disease, according to a recent report.*

Researchers in Taiwan studied nearly 400 men with an average age of about 79 years, looking for relationships between testosterone levels and indicators of metabolic syndrome. Low total testosterone levels were correlated with a high body mass index and elevated values for the following health parameters: body fat, blood sugar, insulin, glycosylated hemoglobin (HbA1c, a long-term indicator of high blood sugar), and high sensitivity C-reactive protein (a marker for ongoing inflammation).

The researchers concluded: "Low total testosterone may be a significant indicator for development of metabolic syndrome in elderly men."

—Dale Kiefer

Reference

* 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.

Calorie Restriction and Glucose Control Workshop Changes Lives

The Calorie Restriction Society presented "The Calorie Restriction and Glucose Control Workshop" at the Sheraton Tarrytown, New York, on August 10-12, 2007. The Workshop is now history, and it's a history that will be built on. One historical aspect is that it was the first time that a workshop was held for the purpose of helping people practice and learn how to integrate Calorie Restriction (CR) into their lives. Many participants said that what they learned in those 2 ½ days would change their lives.

The Workshop attracted people from around the world—Asia, Europe, and North America. And they came for all kinds of reasons—doctors were there for information to improve their patient care. Some LEF members came to learn more about Calorie Restriction to see if they wanted to try out this new longevity lifestyle. Other seasoned CR practitioners attended to find out how to take advantage of new research to guide their CR practices. All the participants were united in the goal of actively pursuing the best health.

The media also had a strong presence—National Geographic attended all three days, and CBS sent a camera crew and reporter to film interviews and some of the scrumptious CR meals.

LONGEVITY AND CELL SIGNALING

The Workshop introduced the concept that in 2007, CR is not so much about weight loss as about cell signaling. Paul McGlothlin, vice president for research of the Calorie Restriction Society (www.calorierestriction.org), opened the Workshop by presenting the basics—how CR works and how to activate the cell signaling that makes CR a real longevity regimen, rather than just another diet. He presented the importance of insulin, the insulin-like growth factor (IGF-I) pathway, and the role of these hormones in aging and in calorie-restriction effects.

RESEARCH PROJECT

The workshop was held as a benefit for the Calorie Restriction Society's research project, the only longitudinal study of CR in humans. Distinguished speakers presented results from the research so far as well as revealing future areas of study.

Luigi Fontana, MD, PhD, the principal investigator of the project, presented background on the research, results so far,¹⁻³ and the plans for future work, e.g. the forthcoming Phase 3 project, which includes testing the genetic effects of long-term CR in humans.

In his presentation of lessons learned from the initial phases of the project, Dr. Fontana particularly cautioned about excessive intake of dietary protein—noting that protein stimulates high IGF-I concentrations, which increase tumor development at least in

part by stimulating cell proliferation. In other research, Dr. Fontana revealed results from a recent study in which a group of individuals on a low-calorie, low-protein diet had lower plasma IGF-I concentrations than lean distance runners and a sedentary control group.⁴

Stephen R. Spindler, PhD, who will lead the genetic testing in Phase 3 of the research project, then went on to present the results of this project's parallel studies in lab mice. The genetic results from the human subjects will be correlated to their clinical markers and compared with the mouse data, with the ultimate aim of developing easy-to-use clinical tools that will indicate how well the CR regimens are doing.

Robert Krikorian, PhD, will lead a new aspect of the research in Phase 3—Personality and Cognition in Calorie Restriction—which will augment the clinical and genetic aspects of the study with measures of personality factors, mood, and working memory ability.

PUTTING CALORIE RESTRICTION INTO PRACTICE

A major part of the conference dealt with applying this new knowledge to everyday life—from food choices to exercise. Participants learned how to use blood glucose meters. In addition, they weighed their food at meal time and used NutriBase—the premier nutrition and fitness software—for an analysis of the calories and nutrients received from the diet. Other aspects of the Workshop showed participants how to integrate calorie restriction into a rich and rewarding holistic lifestyle that includes exercise, meditation, rejuvenating sleep, eating to enhance insulin production, and increase cognitive capabilities. The CR Way by Paul McGlothlin and Meredith Averill—forthcoming from HarperCollins—covers all this and more (www.LivingTheCRWay.com).



BENEFITS OF CALORIC RESTRICTION

An LEF member reading this might say, “What will I really gain if I try calorie restriction?” That question was resoundingly answered at the workshop:

- Protection against cardiovascular disease
 - Lower systolic and diastolic blood pressure
 - Improved diastolic function
 - Decreased low-density lipoprotein (LDL) and triglycerides
 - Reduced arterial plaque formation
 - Possible reversal of accumulated plaque
- Lower body fat—reducing risk of disease
- Protection against diabetes
- Decreased inflammation
- Defense against cancer
- Protection from autoimmune diseases such as rheumatoid arthritis
- Better DNA repair and maintenance

MARK YOUR CALENDAR: UPCOMING CR CONFERENCE

To learn more about CR, mark the dates November 7-11, 2007 in your calendar—this is when the Calorie Restriction Society will be holding its Fifth Conference in historic San Antonio at Sunset Station, (<http://www.calorierestriction.org/Conferences-2007>), during which many famous Calorie Restriction scientists will present their perspectives on CR. Presenters include:

- Steven Austad, PhD, University of Texas Health Science Center at San Antonio
- Rochelle Buffenstein, PhD, University of Texas Health Science Center at San Antonio
- John Holloszy, MD, Washington University School of Medicine at St. Louis
- Jim Nelson, PhD, University of Texas Health Science Center at San Antonio
- Jay Phelan, PhD, UCLA
- Arlan Richardson, PhD, University of Texas Health Science Center at San Antonio
- Walter Ward, PhD, University of Texas Health Science Center at San Antonio
- Bradley Willcox, MD, University of Hawaii

One of the most important aspects of the conference is the warm, friendly camaraderie. You can be sure that you will be warmly

If you would like to have a Calorie Restriction and Glucose Control Workshop conducted for your organization or if you would like to partner with the creators to present a Workshop for additional audiences, please contact: BoardChair@CalorieRestriction.org or 800-929-6511.

—Paul McGlothlin and Meredith Averill

Reference

1. Fontana L, Meyer TE, Klein S, Holloszy JO. Long-term calorie restriction is highly effective in reducing the risk for atherosclerosis in humans. *Proc Natl Acad Sci U S A*. 2004 Apr 27;101(17):6659-63.
2. Meyer TE, Kovács SJ, Ehsani AA, Klein S, Holloszy JO, Fontana L. Long-term caloric restriction ameliorates the decline in diastolic function in humans. *J Am Coll Cardiol*. 2006 Jan 17; 47(2):398-402.
3. Fontana L, Klein S, Holloszy JO, Premachandra BN. Effect of Long-term calorie restriction with adequate protein and micronutrients on thyroid hormones. *J Clin Endocrinol Metab*. 2006 Aug;91(8):3232-5. 4. Fontana L, Klein S, Holloszy JO. Long-term low-protein, low-calorie diet and endurance exercise modulate metabolic factors associated with cancer risk. *Am J Clin Nutr*. 2006 Dec;84(6):1456-62.

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