

Life Extension Update

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Printer Friendly

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Life Extension magazine

May 2005 issue now online!

Life Extension Update Exclusive

More evidence for free radical theory of aging

A study published online on May 5 2005 in the journal *Science* (<http://www.sciencemag.org/>) reports the finding of researchers at the University of Washington and other centers of a way to significantly extend the lifespan of laboratory animals while reducing the effects of aging.

University of Washington School of Medicine professor of pathology Dr. Peter Rabinovitch and colleagues studied mice bred to produce human catalase, the enzyme that converts hydrogen peroxide into water and oxygen. Hydrogen peroxide is produced during metabolism and is a precursor of free radicals that lead to cell damage, which causes the generation of even more free radicals. The team targeted delivery of the catalase to the cytoplasm of the cell where catalase normally decomposes hydrogen peroxide, the nucleus, which is the center of the cell, and the mitochondrion, which are the cell's energy producing organelles.

While mice with elevated catalase levels in the nucleus and cytoplasm experienced small increases in lifespan, animals that produced catalase in their mitochondria were found to experience a 20 percent increase in average and maximum lifespan and had healthier heart tissue. This adds credence to the theory that the mitochondria are a major source of free radicals generated as a byproduct of energy production. Dr Rabinovitch stated, "This study is very supportive of the free-radical theory of aging. It shows the significance of free-radicals, and of reactive oxygen species in particular, in the aging process."

He added, "People used to only focus on specific age-related diseases, because it was believed that the aging process itself could not be affected. What we're realizing now is that by intervening in the underlying aging process, we may be able to produce very significant increases in 'healthspan,' or healthy lifespan."

The discovery may lead to the development of new antioxidant drugs that could protect the body from free radicals and reduce some age-related conditions.

Protocol

Prevention

For the greater part of the 20th century, mainstream medicine was openly hostile to the idea of healthy people taking vitamin supplements. This antivitamin position began to change in the 1990s as irrefutable evidence emerged that supplements could reduce the risk of age-related disease without inducing toxicity.

In the April 9, 1998, issue of the *New England Journal of Medicine*, an editorial was entitled "Eat Right and Take a Multi-Vitamin." This article was based on studies indicating that certain supplements could reduce homocysteine serum levels and therefore lower heart attack and stroke risk. This was the first time this prestigious medical journal recommended vitamin supplements (Oakley 1998).

An even stronger endorsement for the use of vitamin supplements was in the June 19, 2002, issue of the *Journal of the American*

Medical Association (JAMA). According to the Harvard University doctors who wrote the JAMA guidelines, it now appears that people who get enough vitamins may be able to prevent such common illnesses as cancer, heart disease, and osteoporosis. The Harvard researchers concluded that suboptimal levels of folic acid and vitamins B6 and B12 are a risk factor for heart disease and colon and breast cancers; low levels of vitamin D contribute to osteoporosis; and inadequate levels of the antioxidant vitamins A, E, and C may increase the risk of cancer and heart disease (Fairfield et al. 2002).

One of the most compelling reports that high-potency supplements extend lifespan in humans was by Losonczy et al. in the August 1996 issue of the American Journal of Clinical Nutrition. This study involved 11,178 older individuals who participated in a trial to establish the effects of vitamin supplements on mortality. The study showed that the use of vitamin E reduced the risk of death from all causes by 34%. Effects were strongest for coronary artery disease, where vitamin E resulted in a 63% reduction in death from heart attack. In addition, the use of vitamin E resulted in a 59% reduction in cancer mortality. When the effects of vitamins C and E were combined, overall mortality was reduced by 42% (compared to 34% for vitamin E alone) (Losonczy et al. 1996). These results provided significant evidence about the value of vitamin supplementation, yet the media failed to report on it.

<http://www.lef.org/protocols/prtcl-131.shtml>

Featured Products

Life Extension Mix Capsules

Life Extension Mix is one of the most complete multinutrient formulas on the market. This formula saves time and money by combining the most popular nutrient supplements into one product, eliminating the need to take separate bottles of B-complex, vitamins C and E, mineral supplements, and much more that would be required to achieve the same effects.

Life Extension Mix is the cornerstone of a comprehensive supplement program because it provides so many well-studied nutrients.

Life Extension Mix™ contains 92 unique vegetable, fruit, herbal extracts, amino acids, vitamins, minerals, and special antioxidants. The Life Extension Mix formula is fortified with botanical extracts that help to maintain health. Consumption of these types of plants is being recommended based on research emanating from the most prestigious medical centers in the world.

<http://www.lef.org/newshop/items/item00764.html>



Mitochondrial Energy Optimizer with SODzyme

As the mitochondria burn fatty acids to produce cellular energy, it generates a host of free radicals in the process. That is why a mitochondrial antioxidant like lipoic acid is so critical. This comprehensive formula provides a much more potent form of lipoic acid (called R-lipoic acid) than its predecessor, ChronoForte, along with a more effective form of carnitine, called acetyl-L-carnitine-arginate.

Fatty acids that serve as the fuel for the mitochondria are pulled across the mitochondrial membrane by carnitine and other forms, like acetyl-L-carnitine. As we age, we lose the ability to pull fatty acids across the membrane because of damage that occurs inside the mitochondria. From birth we have a 1-2% leakage of reactive oxygen species from the respiratory chain in the mitochondria that increases dramatically with age; generating huge amounts of free radicals. We call this leakage the "loss of respiratory control."

Mitochondrial Energy Optimizer formula helps restore mitochondrial respiratory control by lowering natural antioxidant leakage and boosting cellular levels of R-lipoic acid, acetyl-L-carnitine, and endogenous antioxidant enzymes.

<http://www.lef.org/newshop/items/item00768.html>



Life Extension Magazine

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Reports

Cover story: 7-keto DHEA, the fat-burning metabolite of DHEA, by Dave Tuttle

New findings on fiber, by Stephen Laifer

The lifesaving benefits of annual blood screening by Penny Baron

Antiaging benefits of creatine by Will Brink

As we see it

As we see it: Doctors overlook novel methods to prevent heart attack, by William Faloon

In the News

In the news: DHEA alleviates symptoms of midlife depression, Vitamin E lowers risk of cataracts, Garlic slows growth of atherosclerotic plaque, Childhood smoke exposure elevates lung cancer risk, Acetyl-L-carnitine reduces oxidative damage in brains, Fish oil improves cognition in older adults, CoQ10 counters harmful side effects of statins

All about supplements

Lutein: A powerful promoter of eye health, by Chris D Meletis, ND

Profile

Pamela Wartian Smith, MD, MPH: An ER physician transitions to antiaging medicine, by Sue Kovach

Ask the doctor

The importance of silicon in maintaining bone health, by Johan Brike, MD

May 2005 abstracts

7-keto, fiber, hypertension

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