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In this issue

Life Extension Update Exclusive

Got nicotinamide riboside?

Health Concern

Caloric restriction

Featured Products

Resveratrol Capsules

Life Extension Cat Mix

Life Extension magazine

May 2007 issue online now

Life Extension Update Exclusive

Got nicotinamide riboside?

The May 3, 2007 issue of the journal *Cell* reported the finding of Dartmouth University researchers that a vitamin recently discovered in milk extends the life span of yeast in a manner similar to that of calorie restriction. The vitamin is nicotinamide riboside (NR), a cousin of niacin, and is a precursor to nicotinamide adenine dinucleotide or NAD, a cellular factor essential for all life.

Dartmouth associate professor of genetics and biochemistry Charles Brenner and associates determined that providing NR to yeast activates the antiaging gene product Sir2, which is analogous to human sirtuins—gene products involved in energy expenditure and longevity that are activated by calorie restriction and may be responsible for some of its benefits. Yeast cells that were capable of dividing thirteen times divided more than 23 times after receiving NR.

Two pathways were found by which yeast can raise NAD levels, improve gene expression control, and live longer in the presence of high glucose.

“It’s surprising that no one was able to elevate NAD with a small molecule before,” Dr Brenner stated. “We showed that that we could improve Sir2-dependent gene silencing with NR and increase the longevity of yeast grown in high glucose conditions.”

The beneficial effects of NR are similar to those found for resveratrol, a compound that occurs in grapes and other plants, which also activates sirtuins. Noting that they increase sirtuin activity via different mechanisms, Dr Brenner stated that “the two compounds could be complementary or synergistic.”

“If we could do this in humans -- give people a drug or vitamin that would mimic effects of calorie restriction without having to skip lunch -- we would be able to provide some of the benefits of calorie restriction, which are pretty striking in model organisms,” Dr Brenner observed. “As a natural product found in milk, we expect the compound to be much safer than most drugs, and to be a more specific remedy than most vitamins.”

Health Concern

Caloric Restriction

Many individuals find radical caloric restriction difficult and are unable to sustain the lifestyle. Consequently, a number of attempts have been made to develop a pill that would substitute for, or be used in conjunction with, caloric restriction. Although there is no such pill yet, researchers are pursuing several promising avenues.

Researchers found they could extend the life spans of mice by 18 percent by blocking insulin receptors located in fat tissue. These mice ate more than their normal counterparts, yet had 70 percent less body fat at 3 months of age (Blüher M et al 2003).

These studies suggest a pharmaceutical agent that downregulates or blocks only the insulin receptors in fatty tissue that might mimic some of the effects of caloric restriction.

Scientists at the University of California at Riverside found that giving the drug metformin (a gluco regulatory agent used to treat diabetes) to mice produced many of the gene expression changes found in long-lived mice on CRON (Dhabhi JM et al 2005). A recent study by scientists at the N. N. Petrov Research Institute of Oncology in Saint Petersburg, Russia, found that metformin extended the mean life span of transgenic mice by 13.1 percent and their maximum life span by 1 month. In this study, metformin also significantly decreased the incidence and size of mammary tumors (Anisimov VN et al 2005). A large life span study of long-lived mice funded by the Life Extension Foundation is underway at the BioMarker Pharmaceuticals laboratory in northern California.

http://www.lef.org/protocols/lifestyle_longevity/caloric_restriction_01.htm

Featured Products

Resveratrol Capsules

Findings from published scientific literature indicate that resveratrol may be the most effective plant extract for maintaining optimal health.¹ Resveratrol, a constituent of red wine and possessing diverse biochemical and physiological actions, including estrogenic, anti-platelet, and anti-inflammatory properties, has long been suspected to have cardioprotective effects.

<http://www.lef.org/newshop/items/item00970.html>



Life Extension Cat Mix with Resveratrol

Life Extension Dog Mix and Life Extension Cat Mix are among the best products for protecting your animal's health. Just two scoops per day provide the vitamin insurance your pet needs to stay healthy and strong. Life Extension Dog Mix contains significant amounts of high-grade nutrients usually reserved for the most expensive human supplements. It contains flavonoids, amino acids, antioxidants, probiotics, essential fatty acids, methylation enhancers, and more.

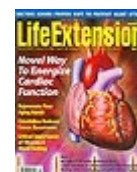
Resveratrol, a powerful antioxidant, has been added to both mixes. Resveratrol is an extract from red grapes and other plants. A tremendous number of studies indicate that resveratrol provides multi-faceted health benefits. Among resveratrol's many benefits is its ability to help treat pain, regulate bacterial growth, support immune system, protect DNA, and many other conditions.

<http://www.lef.org/newshop/items/item00793.html>



Life Extension magazine

May 2007 issue now online!



On the cover

On the cover: Enhancing cardiac energy with D-ribose, by Stephen T. Sinatra, MD, and James C. Roberts, MD

Reports

A common heartburn remedy complements conventional cancer therapy, by Cynthia Haines, MD

Guarding against the dangers of vitamin D deficiency, by Tiesha D. Johnson, BSN, RN

Pomegranate: Powerful protection for aging arteries—and much more, by Tiesha D. Johnson, BSN, RN

VAP cholesterol testing: Advanced technology uncovers hidden cardiovascular risks, by Michael D. Ozner, MD

The Life Extension Foundation: At the forefront of longevity research, by Dave Tuttle

As we see it

A lethal misconception of epidemic proportion, by William Faloon

In the news

FDA approves trial of intravenous vitamin C as anti-cancer therapy; vitamin D guards against breast, colorectal cancers; olive polyphenols may ward off ulcers, stomach cancer; vegetables, nutrients lower risk of BPH; and more.

Super foods

Almonds--benefits for body weight, heart health, and more, by Dale Kiefer

Ask the doctor

Protecting the hands against aging, by Gary Goldfaden, MD

Wellness profile

Dr. Donald Morse, Renaissance man and life extensionist, by Dave Tuttle

May 2007 abstracts

Pomegranate, vitamin D, and cimetidine

http://www.lef.org/magazine/mag2007/mag2007_05.htm

If you have questions or comments concerning this issue or past issues of Life Extension Update, send them to ddye@lifeextension.com or call 954 202 7716.

For longer life,



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