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### **Quercetin prevents viral illness**

A study conducted at Appalachian State University in North Carolina has demonstrated that quercetin, an antioxidant compound found in such foods as red grapes and green tea, reduces viral illnesses and helps maintain mental performance in individuals under extreme physical stress. The finding was presented on February 9, 2007 at the southeastern regional meeting of the American College of Sports Medicine, held in Charlotte, North Carolina.

In research funded by a \$1.1 million dollar contract awarded by the U.S. Department of Defense, Dr David Nieman of Appalachian State University's Department of Health, Leisure and Exercise Science and his colleagues divided forty cyclists to receive 1,000 milligrams quercetin combined with vitamin C and niacin to aid absorption, or a placebo for five weeks. During the third week of the trial, the athletes rode a bicycle to the point of exhaustion three hours per day for three days. Blood and tissue samples were analyzed to ascertain any physiological changes that may have occurred.

Forty-five percent of the participants who received a placebo reported illness after being physically stressed, compared with only 5 percent of the group that received quercetin. No side effects were observed. "That's a highly significant difference," Dr Nieman stated. "When you have a double-blind, placebo-controlled study and you have those kinds of differences, it can't be due to chance."

"These are ground-breaking results," Dr Nieman announced, "because this is the first clinical, double-blind, randomized, placebo-controlled study that has found a natural plant compound to prevent viral illness."

"It appears that it takes significant stress to bring out quercetin's infection-fighting properties," he observed. "This all happened when athletes were under high oxidative stress, when stress hormones were high, and they were also undergoing muscle damage. The athletes taking the quercetin supplement maintained their ability to react to an alertness test when exhausted, whereas those who took the placebo became measurably slower. The infection data and vigilance data are our two biggest findings in this study."

The US Department of Defense's Defense Advanced Research Projects Agency (DARPA) took an interest in quercetin when searching for a therapy to help maintain the immune systems of troops who experience severe physical and mental stress.

"The question that needs to be answered now is will quercetin help members of the general community who are just going through mental stress," said Dr Nieman. "I really want to see if this substance will help the common person. That's what we're gearing up for with our next research project."

Health Concern

## Immune system strengthening

Age, stress, and poor nutrition can sap our immune system of its effectiveness. Influenza provides one example. During young adulthood, when the body can mount a robust immune response to this common virus, influenza is rarely fatal. Among the elderly, however, the virus is associated with significant rates of death and hospitalization (Nichol KL 2005).

A healthy immune system grows ever more important as we age, and immune status is closely associated with nutrition, exercise, and stress reduction. Older people and people with compromised immune systems should talk to their physician about exercising, reducing stress, and designing an active, immune-boosting nutritional program.

Because of their ability to scavenge free radicals, antioxidants are important immune-system boosters. Supplementation with antioxidants like vitamins C and E and the B vitamins may improve immune function (Grimble RF 1997), and supplementation with vitamin A stimulates antibody-mediated immune responses (Cantorna M et al 1995).

Vitamin C (ascorbic acid) is a key component of the immune system and antioxidant defense (Kagan VE et al 1991; Kagan VE et al 1992; Peters E et al 1993). It prevents the production of free radicals and reduces DNA damage in immune cells. Moreover, vitamin C downregulates the production of pro-inflammatory cytokines and participates in recycling vitamin E (Schwager J et al 1998).

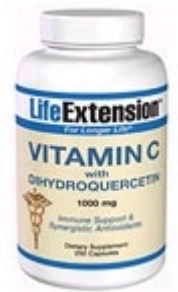
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### Featured Products

#### Vitamin C with Dihydroquercetin

Because humans do not manufacture vitamin C internally, it must be obtained through dietary sources or supplements. Few people realize, however, that vitamin C is a water soluble nutrient that is quickly oxidized and excreted by the body, which limits its efficacy. Until now, those seeking to capture vitamin C's optimal health benefits have had no choice but to consume it several times throughout the day.

Fortunately, a flavonoid antioxidant known as dihydroquercetin functions as a vitamin C "supercharger". Studies demonstrate that dihydroquercetin acts to inhibit the oxidation of vitamin C, thereby helping to maintain its concentration and to recycle vitamin C throughout the body. This synergistic relationship between dihydroquercetin and vitamin C greatly enhances the efficacy of both molecules in the body's organs and tissues.



<http://www.lef.org/newshop/items/item00981.html>

#### Immune Protect with Paractin®

Immune Protect with Paractin® contains a combination of patented ingredients that have been clinically shown to boost immune function, increasing the body's natural ability to combat challenges.

Immune Protect with Paractin® provides 100 milligrams of a proprietary, patented form of beta-glucan that has been proven to activate the immune system's primary defenders: phagocytes and natural killer (NK) cells. The immune cell-priming capabilities of this patented, highly purified yeast derivative exceed those of all other sources of immune supplements tested to date.



<http://www.lef.org/newshop/items/item00955.html>

## Life Extension magazine

### February 2007: Unraveling a centuries old mystery

A fascinating new theory seeks to explain why flu takes hold during the winter months and why it infects so many people, particularly elderly adults. At the heart of this theory is the presence of a vitamin deficiency in certain populations, including aging adults, around the world.

If you have questions or comments concerning this issue or past issues of Life Extension Update, send them to [ddy@lifeextension.com](mailto:ddy@lifeextension.com) or call 954 202 7716.

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