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Life Extension Update Exclusive

Selenium supplementation may suppress HIV progression

An article published in the January 22, 2007 issue of the American Medical Association journal *Archives of Internal Medicine* revealed the discovery of Barry E. Hurwitz, PhD of the University of Miami and colleagues that consuming a daily selenium supplement is associated with suppression of the progression of HIV viral load and improvement of immune function in patients infected with human immunodeficiency virus-1 (HIV-1).

For the current study, two hundred sixty-two HIV-1 positive men and women were randomized to receive a placebo or 200 micrograms per day selenium from a high selenium yeast supplement. Blood selenium levels, CD4 count (a measure of immune function which, when low, increases the risk of secondary infections), and HIV viral load (the number of copies of the virus in the blood) were assessed at the beginning of the study and after nine months.

One-hundred seventy-four participants completed the nine-month treatment period. Not surprisingly, blood selenium levels rose in the group that received the mineral. Greater selenium levels predicted a decline in HIV viral load, which subsequently predicted increased CD4 counts. Participants in the selenium group who did not respond were found to have a greater incidence of poor adherence to the treatment regimen. No adverse events occurred.

Although the mechanism of selenium against HIV infection has not been defined, one hypothesis suggests that the mineral's antioxidant property repairs the damage inflicted on immune cells by oxidative stress, which is increased in HIV patients. Additionally, the HIV-1 virus may need selenium to produce some of its enzymes, which contributes to depletion of its host's selenium reserves. The authors note that chronically ill or impoverished populations frequently have dietary deficiencies, and the resulting increase in oxidative stress can increase the virulence of some pathogenic viruses.

The authors conclude that "Given the challenges of using conventional pharmacotherapy to achieve and maintain virologic suppression in HIV-spectrum disease, our results support the use of selenium as a simple, inexpensive and safe adjunct therapy."

Health Concern

HIV/AIDS

In the earliest stages of infection, it is unlikely a person with HIV will experience any alarming symptoms, making early detection of the virus difficult. HIV operates by entering immune system cells known as CD4+ T-cells (hereafter referred to simply as T-cells) and replicating within these host cells. During this first stage of infection, the viral load increases sharply, while there is a corresponding dip in the number of T-cells in the blood. However, after about 6 months, the immune system mounts an effective

response: the viral load decreases, and the number of T-cells rises again. This marks the end of the acute phase of primary HIV infection (Bart PA et al 2003; Cohen OJ et al 2001; Fauci AS et al 2004; Hirschel B 2003; Masur H et al 1989).

Because of their disease, patients with HIV/AIDS have nutritional deficiencies, and are subject to much greater oxidative stress than healthy people. In 1985, the Life Extension Foundation was among the first organizations to propose that patients with HIV/AIDS would benefit from taking high doses of antioxidants. Since then, many scientific studies have examined a wide range of nutrients and supplements for use in HIV/AIDS.

Selenium is required for proper functioning of the immune system (Look MP et al 1997). It is also essential in the synthesis of glutathione. Selenium's many benefits include protecting the central nervous system from dementia caused by HIV (Shor-Posner G et al 2002a) and infection with *Mycobacterium tuberculosis* (Shor-Posner G et al 2002b); slowing the loss of T-cells (Look MP et al 1997); and decreasing the effect of inflammatory cytokines, which may reduce the risk of developing neurological damage (Bjugstad KB et al 1998; Ryan LA et al 2001; Seilhean D et al 1997), Kaposi's sarcoma (a common HIV-associated cancer), and wasting syndrome. Selenium also suppresses the enhancing effect of cytokines on HIV replication (Hori K et al 1997; Tolando R et al 2000).

http://www.lef.org/protocols/infections/hiv_aids_01.htm

Featured Products



Super Selenium Complex & Vitamin E

As an essential cofactor of glutathione peroxidase, selenium is an important antioxidant. It is also involved with iodine metabolism, DNA repair, immune function, and the detoxification of heavy metals. High doses of vitamin C (over 1 gram) may reduce the absorption of selenium. This mineral is best taken one hour before or 20 minutes after taking vitamin C supplements.

<http://www.lef.org/newshop/items/item00578.html>



Super Booster Softgels with Advanced K2 Complex

Increasing evidence indicates that it may be dangerous to use the alpha-tocopherol form of vitamin E without also taking gamma-tocopherol. According to the *Proceedings of the National Academy of Sciences*, alpha-tocopherol displaces critically important gamma-tocopherol in the cells. While alpha-tocopherol inhibits lipid peroxidation, gamma tocopherol is needed to quench dangerous free radicals such as peroxynitrite.

Studies show that when sesame lignans are added to the diet of rats, a measurement of free radical activity is reduced by 82 percent. Sesame lignans augment the antioxidant effects of both alpha and gamma-tocopherol. A human study showed that gamma-tocopherol plus sesame lignans was 25 percent more effective at suppressing measurements of free radical damage than gamma-tocopherol and tocotrienols.

<http://www.lef.org/newshop/items/item00980.html>



Events - New Medicine Expo

Sunday, January 28, 2007
10 am - 6 pm
Deerfield Beach Hilton
Deerfield Beach, FL 33441

Speakers include George Dubec, Nightingale-Conant Speakers Bureau; Dr Scott Denney, MultiCare Rehabilitation, LLC; Steven Joyal MD, Life Extension Pharmacy; Dr Edward Scarlett, AP Center for Health.

Sponsors: Center For Health, Heart & Soul/Performix, Life Extension Pharmacy.

<http://www.lef.org/event.html>

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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