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On The COVER

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Nettle leaf extract

Surprisingly, the leaves of the common stinging nettle (*Urtica dioica*) have been found to contain substances that affect cytokine levels in the human body, particularly TNF- α . Nettle leaf extract has a long tradition as a medical remedy in Germany for inflammatory conditions such as rheumatoid arthritis and allergic rhinitis.

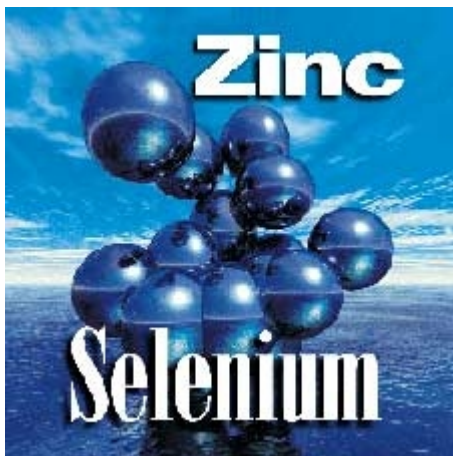


A study by Obertreis, Giller et al. (1996) showed that nettle leaf inhibits the expression of several cytokines as well as the formation of pro-inflammatory leukotrienes and prostaglandins, but its mode of action has remained unclear. It has now been discovered that this seemingly insignificant herb reduces TNF- α levels by inhibiting a genetic transcription factor, known as nuclear factor kappa beta (NF- κ b), that controls the expression of numerous enzymes and proinflammatory products including TNF- α (Riehemann K et al., 1999).

In a study on healthy volunteers (Obertreis B, Ruttkowski T et al., 1996) lipopolysaccharide was used to stimulate the secretion of pro-inflammatory cytokines. When nettle leaf extract was given simultaneously, TNF- α concentration was significantly reduced in a dose-dependent manner. Already known as a healing remedy in Germany, this plant extract deserves to be known also in this country as a youth promoting and vitalizing nutrient.

Micronutrients

Deficiency of micronutrients (the vitamins, minerals and other compounds needed in small amounts for normal metabolism) is very common in the US population (Wilson et al., 1997). This deficiency has been shown to have serious DNA-damaging effects, similar to radiation and chemicals. Lack of micronutrients is even considered a possible explanation for the strong evidence that we now have for an association between cancer and low consumption of fruits and vegetables (Ames BN, 1998).



Zinc and selenium are two examples of micronutrients whose deficiency compromises immunity and free radical defense. The trace mineral zinc plays a central role in immunity and thymic function. Zinc is necessary for the normal development and function of immune cells. In addition, the thymic hormone thymulin as well as many enzymes crucial to immunity are dependent upon zinc. Fortunately, age-related changes in thymus structure and function can be partially corrected by mild oral zinc supplementation. Zinc deficiency, on the other hand, can bring about a premature transition from the efficient antiviral/anticancer mode of cellular immunity known as Th1 (see sidebar, "The immune system") to the less desirable Th2 mode of humoral immunity (Prasad AS, 1998).

Another trace mineral associated with immune health, selenium is also a powerful antioxidant. The National Cancer Institute's list of foods that can reduce the risk of developing cancer contains quite a few foods rich in selenium. Many studies have linked low selenium levels to higher incidence of cancer as well as myocardial infarction (heart attacks) (Clark LC et al., 1996; Kaardinal AFFJ et al., 1997). Selenium-containing compounds have been shown to protect DNA from damage caused by the powerful oxidant peroxynitrite (Roussyn I et al., 1996).

A number of studies have shown that the combination of zinc and selenium enhances immunity in the elderly. A pioneering study published in *The Lancet* (Chandra RK, 1992) found that seniors taking modest doses of a multivitamin/multimineral supplement containing zinc and selenium showed a general reduction in infection and required antibiotics for significantly fewer days annually. A more recent study brings the effect of these two minerals into sharper relief. This well-designed study (randomized, placebo-controlled, double-blind) found that seniors taking zinc and selenium had significantly fewer infections over a two year period, but that vitamin supplementation alone did not have a major effect (Girodon F et al., 1997). The zinc and selenium supplement cut the number of infections by nearly two thirds compared to placebo. A follow-up study demonstrates that seniors supplemented with zinc and selenium show improved antibody response to the flu vaccine (Girodon F et al., 1999).

These interesting research results indicate that supplementation with nutrients such as lipoic acid, acetyl L-carnitine, carnosine, nettle leaf extract, zinc and selenium, in addition to the more well-known antioxidants vitamin C and E, may be of great value in slowing down the aging process and keeping diseases at bay, while we are getting older.

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