NORDIC NEWS
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RESEARCH SPOTLIGHT

Oxidative Stress and the Effects of Aging

New research suggests that both omega-3 essential fatty acids and the antioxidants, resveratrol and green tea extract, promote healthy cellular aging. These nutrients can protect cells from the damaging effects of free radicals associated with aging.

The age-related decline in physical performance affects multiple parameters in life, and appears to be a progressively worsening and costly problem. A study in mice showed that mice fed resveratrol held a significantly higher endurance capacity when compared to mice that were not. The resveratrol-fed mice had a significant increase in oxygen consumption and skeletal muscle mRNA levels of mitochondrial function-related enzymes. This suggests that exercise combined with resveratrol is beneficial for suppressing age-related decline in physical performance.

A similar study was conducted in mice using green tea extract to examine the effects in age-related decline in physical performance. Catechins from green tea are a rich source of polyphenols that exhibit both antioxidant and chemopreventive properties. This study showed that mice fed catechins and given exercise also had significantly increased oxygen capacity and increased skeletal muscle fatty acid ß-oxidation.

The effects of environmental particulate matter have been associated with increased cardiovascular mortality in the elderly and a reduction in heart rate variability. A double-blind study was conducted on 52 residents from a nursing home over a 9 month period to examine the effects of fish oil supplementation on specific oxidative biomarkers that are adversely affected by inhalation of particulate matter. Patients receiving 2 grams a day of fish oil had an increase in superoxide dismutase levels, as well as reduced glutathione levels, allowing them to modulate more effectively their oxidative response to particulate matter exposure.

There appears to be scientific consensus that humans age as a result of accumulating free radical damage over time. Since reducing exposure to oxidative damage is increasingly impossible, protecting cells from free radical damage is considered to be the safest and most effective way to delay the effects of aging.

Romieu , *et al.* The effect of supplementation with omega-3 polyunsaturated fatty acids on markers of oxidative stress in elderly exposed to PM2.5. *Environ Health Perspect* 2008;116:1237–1242.

Murase T, *et al.* Suppression of the aging associated decline in physical performance by a combination of resveratrol intake and habitual exercise in senescence-accelerated mice. *Biogerontology* 2008 Oct 1 (ahead of publishing).

Murase T, *et al.* Tea catechin ingestion combined with habitual exercise suppresses the aging associated decline in physical performance in senescence accelerated mice. *Am J Physiol Regul Integr Comp Physiol* 2008;295:R281–R289.

FEATURED PRODUCT

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