

SOD Protects Against a Host of Degenerative Diseases

While SOD (SuperOxide Dismutase) has been linked to youthfulness, longevity and protection against chronic illnesses, the body's production of SOD drops dramatically with advancing age.¹ Conditions associated with free-radical damage that may benefit from increased SOD levels include a host of inflammatory and degenerative diseases:

- Nowhere are the signs of ageing more visible than in the skin, where the effects of free-radical damage accumulate and produce visible signs of skin ageing. SOD may help to protect against age-related skin wrinkling by arresting the breakdown of collagen, an essential protein that tones and strengthens the skin.²
- A chronic illness with many serious complications, diabetes is associated with increased oxidative stress. Increasing SOD levels may help fight the onset and progression of diabetes.⁴
- SOD's powerful antioxidant properties could have important therapeutic applications in preventing and managing cancer.⁵⁻⁷ Scientists now believe that genetically based deficiencies of SOD are linked to an increased susceptibility of certain people to breast and pancreatic cancers.^{5,6} Ensuring adequate SOD levels may help protect against these potentially deadly malignancies.
- By shielding the body from superoxide radicals, SOD may help prevent the cellular and tissue damage associated with cardiovascular disease.⁸⁻¹⁰ While mainstream medicine promotes high cholesterol as the primary culprit in atherosclerosis and cardiovascular disease, low levels of SOD and other antioxidants may be even more important factors in elevating cardiovascular risk¹¹ Providing the body with optimal antioxidant support could protect against America's leading cause of premature death.
- The nervous system is highly susceptible to oxidative stress. Because of its ability to protect against superoxide radicals, SOD may guard against the cellular and tissue damage tied to neurological disease.⁸ Specific neurological diseases linked to abnormalities in SOD include multiple sclerosis¹² and Alzheimer's and Parkinson's diseases.¹³⁻¹⁵
- Superoxide radicals help perpetuate the chronic pain associated with inflammation. SOD's ability to neutralize superoxide radicals is associated with pain relief,¹⁶ with potential benefits for numerous conditions, including fibromyalgia, a chronic source of muscle pain.¹⁷
- Superoxide radicals also underlie the pain and inflammation of arthritis. Research demonstrates that patients with rheumatoid arthritis have lower dietary levels and reduced activity of SOD and glutathione peroxidase (a related antioxidant enzyme) than do healthy subjects.¹⁸ Rheumatoid arthritis sufferers also exhibit lower levels of

SOD in joint-cushioning cartilage cells known as chondrocytes, leaving these cells vulnerable to the damaging effects of nitric oxide and oxygen radicals.^{19,20} These findings suggest that depleted levels of critical antioxidants such as SOD perpetuate crippling rheumatoid arthritis.

Scientists have linked inflammation to many chronic diseases that accompany ageing. SOD improved the function of white blood cells of the immune system known as macrophages. Although macrophages subjected to oxidative stress release the inflammatory compound called tumor necrosis factor, those treated with SOD release the anti-inflammatory cytokine interleukin-10 (IL-10) instead.¹

Studies have shown that people who reach the age of 90 or 100 have high blood levels of IL-10, which may protect them from the ravages of ageing and from developing cancer by reducing inflammation.²¹ By promoting the release of IL-10, SOD may help the body ward off inflammation, in a manner similar to that seen in individuals who survive to a very old age.

Other studies similarly suggest that SOD may be an important determinant of life span and longevity. Among various mammal species, those that produce higher tissue and serum levels of SOD live longer than those who do not.^{22,23} This findings suggests that boosting SOD levels may be an important strategy for extending the healthy human life span.

In sum, a wealth of scientific evidence indicates that optimizing SOD levels may help to avert the many diseases associated with inflammation and ageing,²⁴ including diabetes, heart disease, neurological conditions, cancer, skin ageing, and arthritis.

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