Selenium

Function:

The trace mineral selenium functions primarily as a component of the antioxidant enzyme, glutathione peroxidase. Glutathione peroxidase activity, which requires selenium for activity, facilitates the recycling of vitamins C and E, in optimizing the performance of the antioxidant system. Low levels of selenium have been linked to a higher risk for cancer, cardiovascular disease, inflammatory diseases, and other conditions associated with free radical damage, including aging and cataract formation. Selenium is also essential for healthy cell-mediated immune function, stimulating immune properties of lymphocytes. Selenium is also needed for the activation of thyroid hormones.

Deficiency Symptoms:

Chronic low selenium intake is associated with an increased risk for heart disease, cancer and depressed immune function. Selenium appears to provide protection against heart disease and stroke. Selenium supplementation (100 ugm/day) increases the ratio of HDL to LDL and inhibits platelet aggregation.

Selenium and glutathione peroxidase activity are low in patients with rheumatoid arthritis, eczema, psoriasis and most inflammatory conditions. This is related to the increased synthesis of proinflammatory prostaglandins and leukotrienes. Immune system function is enhanced by selenium, by contributing to higher natural killer cell (NKC) activity. Natural killer cells have the ability to destroy cancer cells and bacterial and viral agents. Heavy metal toxicity symptoms may be alleviated by selenium, acting as an antagonist. Selenium deficiency may also contribute to male infertility.

Repletion Information:

Selenium is safe at the level generally used for supplementation (100-200 mcg/day). However, taking more than 750 mcg of selenium per day may cause toxicity. Reactions such as loss of fingernails, skin rash, and neurological aberrations. In the presence of iodine deficiency goiter, selenium supplementation has been reported to exacerbate low thyroid function.

Selenium is available in several different forms. Studies indicate that inorganic salts like sodium selenite are less effectively absorbed and not as biologically active as organic forms of selenium, such as selenomethionine or high-selenium content yeast. Righest sources of dietary selenium are found in:

- Wheat Germ
- Brazil Nuts
- Whole Wheat Bread
- Brown Rice
- Bran
- Red Swiss Chard
- Oats
- Turnips

The adult RDA for selenium is 50ug/day.