Zinc

Zinc (ZN) is an element and mineral the nutritionally essential for proper growth and development, immunity, and general body function. In its pure form, Zinc is brittle and a metallic blue-grey. It has an isometric crystal system, meaning the crystals have a distinctly symmetrical, geometric appearance. For centuries, Zinc has been used industrially and understood to have vital nutritional and medicinal benefits.

The History of Zinc

The recorded history of zinc begins in ancient India, where industrial and medicinal applications of zinc have been recorded since 800 B.C.E. Zinc mining in India can be traced back to 1300-1000 B.C.E. While India and China had figured out how to extract pure zinc be 1000 B.C.E, western civilization was only aware of zinc in the context of its alloys (substances made of two or more elements), such as brass until 1597. Today, we also have a growing understanding of the nutritional value of the essential mineral.

Nutritional Role of Zinc

Zinc is an essential trace mineral found naturally in most food groups. It can also be artificially added to a product or consumed as a supplement. The most notable nutritional benefits of zinc are increased immune function and wound healing.

Immune function. Zinc is an essential part in the forming of white blood cells, thus supporting a healthy immune system. There is a strong correlation between low zinc levels and susceptibility to a variety of diseases, including pneumonia, digestive diseases, and the common cold. Zinc supplements are often recommended to boost immune function. There is also some consensus that zinc in the form of tablets and syrups can reduce the severity of the common cold.

Wound healing. Evidence of zinc being used to heal wounds goes back to Ancient China and India. The skin membrane uses zinc to maintain its function. Modern studies have shown zinc to help heal certain types of ulcers.

Consumption of Zinc

The recommended daily zinc intake is 11mg for male adults and 9mg for female adults. Although most people meet these needs through their regular diets, zinc can also be consumed through supplements and fortified foods.

Food sources. Zinc can be found in almost every food group. Oysters have the highest zinc content of any food at 74 mg per serving (673% of the recommended daily intake). Red meat, other shell fish, beans are also rich sources of zinc. Some foods, such as breakfast cereals, are also fortified with zinc alongside other vitamins and minerals.

Dietary supplements. There is no substantial research on whether zinc is absorbed better when consumed as a supplement or when consumed in whole foods. There are a variety of Zinc supplements on the market, including tablets, syrups, and cold lozenges.

Risks Associated with Zinc

Consistently consuming less that the daily recommended amount of zinc will result in zinc deficiency. Consuming more than 200mg of zinc in one sitting or 50-100mg of zinc daily will result in toxicity. Depending on the severity of either the deficiency of toxicity, both can lead to severe long term health effects.

Deficiency. Lack of zinc can lead to lethargy, diarrhea, and reduced immune function. More severe cases can include symptoms like alopecia, weight loss, macular degeneration, impaired taste and smell, and impaired wound healing. Pregnancy can put someone at higher risk for zinc deficiency. Since meat is a rich source of zinc, vegetarians are also at an increased risk. Also at risk are people suffering from a variety of diseases including diabetes, kidney disease, liver disease, and sickle cell disease.

Toxicity. Consuming an excess of zinc can lead to nausea, vomiting, and diarrhea. Regular intake of excessive amounts of zinc can also lead to chronic heart problems, impaired copper and iron absorption, and reduced immune function. People with kidney disease are at a risk for zinc toxicity. People who work with pesticides or paints and dyes may also be at risk for toxicity.

Resources

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