

ZINC

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What Is Zinc?

Zinc is an essential trace element required for over 300 enzymatic reactions in the human body. It is necessary for proper immune system function, wound healing, growth/development, DNA synthesis, and gene expression (to name a few).

How Much Do I Need?

Gender (age in years)	Recommended Dietary Allowance (mg/day)	Tolerable Upper Intake Level (mg/day)
Females (19+)	8	40
Males (19+)	11	40
Pregnancy (19-50)	11	40
Lactation (19-50)	12	40

Source: Food and Nutrition Board of the Institute of Medicine. (2001). *Dietary Reference Intakes for vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, molybdenum, nickel, silicon, vanadium and zinc*. Washington, D.C.: National Academy Press.

What Are Good Food Sources of Zinc?

Shellfish such as oysters (2 oz = 19 mg/zinc), red meats, and organ meats are the richest and best absorbed sources of zinc. Whole grains, nuts and seeds, legumes, and fortified cereals (e.g., Total) are good sources, but not as readily absorbed. Fruits, vegetables, milk, and egg whites are low in zinc.

Who Is At Risk For Deficiency?

Vegetarians may be at risk for deficiency because plant proteins have compounds known as phytates that impair zinc absorption. It has been estimated that these individuals may require double the RDA for zinc. Breastfeeding over 6 months puts the infant and mother at risk for zinc deficiency; therefore, infants should receive formula containing zinc after this period of time. Alcoholics often have marginal zinc status because of poor dietary choices and increased excretion of zinc in the urine. Chronic diarrhea and malabsorption conditions increase zinc excretion and delay absorption. Athletes may require additional zinc to support protein synthesis and replace losses through sweat. Adults 65+ have been shown to have zinc intakes below the RDA for zinc, ranging from 7-10 mg/day.

Should I Supplement With Zinc?

Supplementing with zinc above what is required by the body has not been warranted as needs can be met through good food sources. In the US, recent evidence has shown that zinc intake is adequate because of the increase in zinc-fortified food products. However, in developing countries where zinc deficiency is more common, supplementing with zinc has led to an improvement in growth rates and sexual maturation in children. Supplementation has also been shown beneficial in certain conditions that increase zinc losses such as malabsorption and Crohn's disease.

Can I Get Too Much Zinc?

The tolerable upper intake level for zinc has been set at 40 mg/day for adults. This includes zinc from food, water, and supplements. Zinc is relatively non-toxic; however, chronic intakes ranging from 100-300 mg of zinc/day have led to copper deficiency, immune system suppression, and reduction of HDL (good) cholesterol.

Zinc and Weight loss?

Zinc deficiency in animals and humans has been associated with a decrease in thyroid hormone levels and metabolic rate. It has also been associated with elevated triglyceride levels and increased fat storage in overweight children. Zinc supplementation has been shown to improve thyroid hormone levels in certain populations; although, it has not been shown to increase metabolic rate or aid in weight loss.

References: Collipp, P. J. (1984). New developments in medical therapy of obesity: thyroid and zinc. *Pediatric Annals*, 13(6), 465-472; Fleet, J. C. (2000). Zinc, copper, and manganese. In M. H. Stipanuk (Ed.), *Biochemical and physiological aspects of human nutrition* (1st ed.), (pp. 741-760). Philadelphia: W.B. Saunders Company; Fosmire, G. J. (1990). Zinc toxicity. *The American Journal of Clinical Nutrition*, 51(2), 225-227; Ganapathy, S., & Volpe, S. L. (1999). Zinc, exercise, and thyroid hormone function. *Critical Reviews in Food Science and Nutrition*, 39(4), 369-390; Prasad, A. S. (1985). Clinical, endocrinological and biochemical effects of zinc deficiency. *Journal of Clinical Endocrinology and Metabolism*, 14(3), 567-589; Wada, L., & King, J. C. (1986). Effect of low zinc intakes on basal metabolic rate, thyroid hormones and protein utilization in adult men. *Journal of Nutrition*, 116(6), 1045-1053.