





Zinc is an important mineral which plays a key role in protein synthesis and helps in regulation of the cells production in the immune system of the human body.

Where it is found mostly in body?

It is mostly found in the strong muscles of the body, white and red blood cells, eye retina, skin, liver, kidneys, bones and pancreas. In men the semen and prostate gland constitute considerable zinc amount.

Approximately over 300 enzymes require zinc for the normal functioning.

A Normal human body consists of total 2-3 gms of Zinc.

Zinc and its role in Metabolism:

As we read above, the total body zinc content has been estimated to be around 2 grams. Skeletal muscle accounts for approximately 60 percent of the total body content and bone mass. Zinc concentration of lean body mass is approximately 0.46 mmol/g (30 mg/g). Plasma zinc has a fast turnover rate and it represents only about 0.1 percent of total body zinc content. Zinc is an essential component of over 300 enzymes participating in the synthesis and degradation of carbohydrates, lipids, proteins, and nucleic acids as

well as in the metabolism of other micronutrients.

Does Zinc helps in wound healing?



Awesome

Human body contains zinc dependent enzymes, which promote the synthesis of collagen that thereby aids in wound healing.



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What are recommended dietary allowances for Zinc?

Age	Male	Female	Pregnancy	Lactation
0-6 months	2mg*	2mg*	NA	NA
7-12 months	3 mg	3 mg	NA	NA
1-3 years	3 mg	3 mg	NA	NA
4-8 years	5 mg	5 mg	NA	NA
9-13 years	8 mg	8 mg	NA	NA
14-18 years	11 mg	9 mg	NA	NA
19+years	11mg	8 mg	11 mg	12 mg

* Adequate Intake (AI)

Source - http://ods.od.nih.gov/factsheets/Zinc-HealthProfessional/
Ref - Institute of Medicine, Food and Nutrition Board. Dietary Reference Intakes for Vitamin A, Vitamin K,
Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molyhdenum, Nickel, Silicon, Vanadium, and Zinc

What happens if we do not take inadequate intake of zinc?

Pale skin Rough skin Hair loss Low blood pressure White spots under finger nails Growth retardation Weight loss

Loss of sense of smell and taste **Retarded bones**



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Does Zinc play any role in prevention/treatment of Cancer?

In males damage to prostate gland can lead to problems like cancer. Zinc plays an

important role in the prostate gland and prevents it from the early damage thus ultimately prevents from cancer.

A Study on role of Zinc in Cancer prevention.

Nutr Cancer. 2009; 61 (6): 879-87.

Zanc in cancer prevention.

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Abstract

Essentiality of zinc for humans was discovered 45 yr ago. Deficiency of zinc is prevalent worldwide in developing countries and may affect nearly 2 billion subjects. The major manifestations of zinc deficiency include growth retardation, hypogonadism in males, cell-mediated immune dysfunctions, and cognitive impairment. Zinc not only improves cell mediated immune functions but also functions as an antioxidant and anti-inflammatory agent. Oxidative stress and chronic inflammation have been implicated in development of many cancers. In patients with head and neck cancer, we have shown that nearly 65% of these patients were zinc deficient based on their cellular zinc concentrations. Natural killer (NK) cell activity and IL-2 generation were also affected adversely. Th2 cytokines were not affected.

cytokines were not affected. In our patients, zinc status was a better indicator of tumor burden and stage of disease in comparison to the overall nutritional status.

Zinc status also correlated with number of hospital admissions and incidences of infections. NF-kappa B is constitutively activated in many cancer cells, and this results in activation of antiapoptotic genes, VEGF, cyclin DI, EGFR, MMP-9 and inflammatory cytokines. Zinc inhibits NF-kappa B via induction of A-20. Thus, zinc supplementation should have beneficial effects on cancer by decreasing angiogenesis and induction of inflammatory cytokines while increasing apoptosis in cancer cells. Based on the above, we recommend further studies and propose that zinc should be utilized in the management and chemoprevention of cancer.

Zinc stabilizes the molecular structure of cellular components and membranes and thus contributes to the maintenance of cell and organ integrity. Furthermore, zinc is said to be playing an essential role in polynucleotide transcription and thus in the process of genetic expression. Its involvement in such essential activities probably accounts for the essentiality of zinc for all life forms.

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