

COPPER

Copper is an essential trace element for humans. It facilitates the activity of several enzymes and acts an important role in the development and maintenance of the immune, cardiovascular systems, the vascular system, and the skeletal system, the normal function of brain, and the structure and function of the nervous system.

Copper is needed for blood cell formation, protein metabolism and also needed in cellular energy production and collagen formation. Copper is a critical functional component of a number of enzymes, including cytochrome c oxidase activity, lysyl oxidase activity, dismutase activity, peptidyl glycine alpha-amidating mono-oxygenase activity and diamine oxidase activity.

Copper is found in a wide variety of foods in organ meat, seafood, nuts and seeds being major contributors. Wheat bran cereal and whole grain products are also good sources of copper. The amount of copper derived from water would normally be less than 10% of the total intake. In major Australian reticulated water supplies, total copper concentrations are typically in the range of about 0.05mg/L. The taste threshold for copper is 3mg/L.

Nutrient Interactions

Iron

Adequate copper nutritional status appears to be necessary for normal iron metabolism and red blood cell formation. Very high level of iron supplement intake can affect copper absorption in adults and infants.

Zinc

High supplement zinc intakes of 50mg/day or more for extended periods of time may result in copper deficiency. In contrast, high copper intakes have not been found to affect zinc nutritional status.

Copper deficiency

Copper deficiency in humans was identified in Florida, USA and Holland in 1931. In Australia during 1973, cerebral palsy in lambs was found to be the result of copper deficiency in ewes during the early stages of pregnancy, due to grazing on copper deficient soils.

Symptoms associated with copper deficiency include:

- White hair
- Grey hair
- Dry brittle hair
- Ptosis (sagging tissue- eye lids, skin, breast, stomach)
- Hernias
- Varicose veins
- Aneurysms
- Anemia
- Hypo and hyper thyroid
- Liver cirrhosis
- Arthritis
- Cerebral palsy
- High blood cholesterol
- Iron storage disease
- Reduced glucose tolerance

The average healthy, well-nourished human body contains between 80-120mg of copper. Daily requirement of copper can range from 0.08mg in babies to 0.03mg in adults per kilogram of body weight.

Copper is needed for blood cell formation, protein metabolism, the production of RNA and enzyme activity. It is a critical functional component for the formation of Super-Oxide-Dismutase (SOD) – a powerful antioxidant.

Copper is also needed in cellular energy production and collagen formation.

There are more information on

<http://www.nrv.gov.au/nutrients/copper>

<http://lpi.oregonstate.edu/infocenter/minerals/copper/index.html>

<http://www.healthy.net/scr/Article.asp?Id=2059&xcntr=1>

It does not in any way purport to give medical advice or recommendations.
Remember that nothing will replace a good diet and regular exercise.