

# Copper sustains life

Virtually every cell in the body utilises copper, and together with iron and zinc, copper makes up the trio of minerals essential to our wellbeing. Copper is vital to the health of the body from fetal development right through to old age. Quite simply without copper our brains, nervous systems and cardiovascular systems could not function normally.

## A multi-talented mineral

### Copper

- accelerates **wound healing** by increasing blood flow to the affected area.
- is necessary to help **move oxygen** around the body.
- ensures our **immune system** functions correctly.
- is an essential element in the growth of the supple yet solid connective tissue that gives our **bones their strength**.
- helps the body **absorb iron**. So to keep winter colds away, it's best to take a combination of iron, copper and zinc.
- is vital for the synthesis of thyroid hormones.
- influences our **cholesterol levels**. A low-copper diet results in higher levels of "bad" cholesterol and lower levels of "good" cholesterol.
- dependant enzymes are needed for the synthesis of **neural transmitters**.

From available data on human exposures worldwide, but particularly in Europe and the Americas, there is a greater risk of health defects from deficiency of copper intake than from excess copper intake.<sup>1</sup>

#### Severe copper deficiency increases the risk of:

- ♀ Osteoporosis
- ♀ Rheumatoid arthritis
- ♀ Cardiovascular disease
- ♀ Chronic conditions involving bone, connective tissue, heart and blood vessels
- ♀ Colon cancer

#### ♀ Copper Development Association

A **mild copper deficiency**, which affects a much larger percentage of the population, can impair health in subtle ways. Indeed, anaemia is one of the most common manifestations of copper deficiency.

Marginal copper deficiency, ie. when the **daily copper intake of an adult is less than 1 mg**, may impair good health in subtle ways, such as contributing to:

- ♀ Lowered resistance to infections
- ♀ General fatigue
- ♀ Impaired brain function
- ♀ Cardiovascular illness

#### Those who are more susceptible to copper deficiency are:

- ♀ The elderly, athletes and those engaged in hard physical work
- ♀ Vegetarians, particularly those who do not consume dairy products
- ♀ Pregnant women and their fetus
- ♀ Premature infants, especially those with very low birth weights
- ♀ Full-term infants who are fed unfortified formula or cow's milk (which contains low concentrations of copper bound to milk proteins)

<sup>1</sup> Environmental Health Criteria, 2001. Copper. World Health Organisation, Geneva 1998

## A healthy start to life

Copper helps to ensure a high rate of growth and development right from conception as it **helps babies develop all-important red blood cells.**

Babies are born with a natural reserve of copper built up during the last three months of pregnancy. After birth, their copper requirements are met by the copper reserve built up and the copper available in their milk.

Breast milk is the best source of copper to build up the baby's own reserves after birth. Cow's milk has a very low copper content and switching a baby's diet to cow's milk too early can lead to a copper deficiency.

The interaction between iron and copper is essential and although it is common for iron supplements to be given to infants, copper intake is rarely monitored. And yet, if the amount of copper is insufficient, iron cannot be properly converted into its usable form to carry oxygen and be absorbed by the body.

Copper deficiency is also associated with impaired weight gain in infants recovering from malnutrition and increased regularity of infections of the respiratory tract.

Recent animal studies also revealed that exposure of the mother to nicotine reduces the level of copper in the lungs of the fetus. The use of a copper supplement during both gestation and nursing has been shown to restrict the negative effects of nicotine on lung development.

Several animal studies look likely to show that a copper deficiency can have serious consequences on in utero development. As many women have a low-copper diet, nutritionists recommend that **during pregnancy, women ensure their dietary copper intake is adequate.**

## Appearing youthful

Copper is essential to the strength, flexibility, and elasticity of the skin. Copper peptides actually boost collagen production, while copper's antioxidant qualities help to neutralise free radicals that would otherwise cause stress and ageing.

As we age however the body absorbs less copper, which is one of the reasons our skin starts to age. Women may benefit from skincare products containing copper peptides.

## Ageing

As our ability to naturally absorb copper is reduced with age we need to supplement our diets more. As our bones get more brittle, copper helps to keep them strong and cope with the additional pressures of getting older. Copper bracelets may help reduce the affects of conditions such as rheumatoid arthritis and osteoporosis..



## Dietary sources of copper

Eating a balanced diet, with a range of food from different food groups, is the best way to avoid copper deficiency. The recommended daily requirement is 1.2mg for adults and 0.5 mg for children.

**All food items contain traces of copper**, though concentration is highest in mineral-rich foods. Natural sources of copper include seafood, beans and pulses, grains, nuts, potatoes, green leafy vegetables, red meat and some fruits, such as coconuts and apples.

Cocoa powder contains an astonishing 36.4mg of copper per kg, providing one valid scientific reason to eat chocolate!

