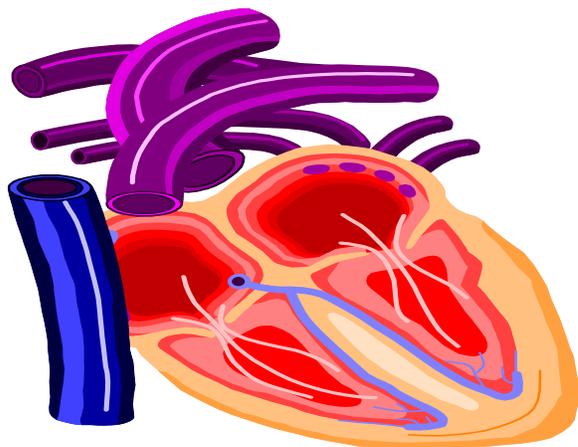


Copper Essential For Healthy Heart, Blood Pressure And Cancer Prevention!

by Frank Murry, contributing editor



Necessary not only for good looks but for nerve and **cardiovascular health**, copper is a must for men as well as women.



“**W**ithout copper nerves would fray like toaster cords,” said Sharon Faelten in *The Complete Book of Minerals for Health*. “Copper helps forge the protective myelin sheath around each of the millions of nerve fibers in our bodies, **calm nerves and clear thinking depend on it**. Copper also builds proteins that give blood vessel walls the strength and flexibility to accommodate the forceful rivers coursing through our veins and arteries. Copper activates a number of enzymes important to energy metabolism. And copper seems to share some of zinc's anti-inflammatory powers, augmenting that mineral's role in healing. Taste perception, too, may be partially influenced by copper.”

The trace mineral copper also helps prevent anemia, bone and skeletal defects, a degeneration of the nervous system, defects in the color and structure of hair, reproductive problems and abnormal cardiovascular problems, said Audrey H. Ensminger in the *Foods & Nutrition Encyclopedia*.

Copper is the key mineral in a special enzyme called lysyl oxidase which intertwines the tough, elastic fibers of **collagen and elastin**, two connective tissue proteins in the body. A combination of collagen and elastin is essential for tissues such as tendons and blood vessels, which must be both strong and flexible. In the aorta, and in other primary coronary arteries, collagen buttresses the vessel walls while elastin, provides elasticity.

“A diet totally devoid of copper would cause hemorrhage severe enough to end life,” said Faelton. “That's not likely, though. The Practical question is, **can major blood vessels—particularly the hearts aorta—survive short periods of low copper without serious harm? Or do the patches heal over.**”

Edward D. Harris, Ph.D., professor of biochemistry at Texas A&M University, College Station speculated that copper deficiency during the early stages

of growth could leave the body more susceptible to damaged blood vessels later in life.

"It is reasonable to suspect that lysyl oxidase must function continuously in the early development of the aorta," Dr. Harris said. "A (short lull) in activity during development could give rise, to an adult protein structure with intrinsic weaknesses throughout, much the same as a bricklayer who, in constructing a wall, omits certain bricks, leaving gaps in the wall."

Dr. Harris added these weak spots obviously are vulnerable to rupture, which could lead to heart problems.

In a U.S. Department of Agriculture (USDA) study, researchers at the Human Nutrition Research Center in Grand Forks, ND, reported women who are deficient in copper and iron are more likely to have problems **sleeping**.

Based on the USDA research, James Penland, Ph.D., Of the department's Agricultural Research Service, said there are many reasons for insomnia, but that inadequate consumption of certain essential trace minerals, particularly copper, for an extended period may be a contributing factor.

When 11 women in the copper study received only 0.8 milligram (mg) of copper daily - less than half the 2 to 3 mg per day considered adequate - they slept for a longer period of time, but they had difficulty getting to sleep and they awoke feeling less rested than when they got an additional 2 mg per day, Dr. Penland said.

According to their 1985 food consumption figures from the USDA's Human Nutrition Information Service, the average copper intake for women ages 19 to 50 is **half the amount** currently considered adequate.

Of the seven elements studied, copper, iron and aluminum most severely affected sleep patterns, Dr. Penland added. By reducing a daily intake of copper or iron, the volunteers reported longer

but less restful sleep.

According to John Sorenson, M.D., in *Trace Elements, Hair Analysis and Nutrition*, copper chelates and complexes are potent antiulcer agents. "Besides localized copper deficiency in the **stomach** lining, it has been found that ulcer

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—Dr. Gershon Lesser

patients average 23 percent less copper in their bodies.

In other tests at the Human Nutrition Research Center researchers found even a mild copper deficiency can elevate **blood pressure**, especially when an individual is under stress. During a hand-grip test at the center, eight healthy young women who were getting only 0.6 to 0.7 mg of copper per day for three months had an above normal increase in systolic pressure and a substantial increase in diastolic pressure.

Another study at the center determined that a copper deficiency reduced circulating iron in both male and female rats, but there was a greater effect on the males' hemoglobin and another clinical indicator of iron status called hematocrit.

Copper is as important as calcium and zinc for bone formation, red blood cell integrity, skin and immune functions, nervous system functions, the conversion of beta-carotene to vitamin A, wrote Gershon Lesser, M.D., in *Growing Younger*.

"Without an adequate supply of copper, skin becomes fragile and will break easily and heal slowly, bones will fracture easily, blood vessels can leak or even burst and cause aneurysm," explained Dr. Lesser.

Copper also may play an important role in cancer prevention, said Patrick Quillin, Ph.D., R.D. in

Healing Nutrients. Copper is bound within the blood in the form of ceruloplasmin, which is one of the more important **antioxidants** in the bloodstream, said Dr. Quillin. "Ceruloplasmin acts to keep hemoglobin iron from rusting; Hemoglobin oxidation could create free radicals (potentially harmful circulating chemicals) that could instigate abnormal growth, such as cancer. Both copper and zinc are involved in a crucial **anti-cancer** enzyme called superoxide dismutase (SOD). There are several different types of SOD enzymes containing different trace minerals. SOD and ceruloplasmin both act as "fire extinguishers" throughout the body to squelch free radicals that could be the beginning of strange growths."

Dr. Quillin added that a copper deficiency in laboratory animals reduces the antibodies available to fight infections. When the animals are infected with dangerous bacteria, therefore, the death rate is considerably higher in the copper deficient animals.

Good sources of copper include shellfish, liver, cherries, nuts, whole grain cereals, eggs, poultry and beans. **Copper is essential for healthy skin, bones and metabolism. It strengthens and protects arteries, veins and nerve fibers.** You definitely need to get enough of this trace mineral in your daily diet.

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