

# Migraines, Sleeplessness, Heart Attacks – Magnesium?

Forrest H. Nielsen

October 23 2006, Grand Forks Human Nutrition Research Center

Magnesium is the fourth most abundant mineral element in the human body, following calcium, sodium and potassium. Magnesium enables many biochemical reactions necessary for life. However, much attention has been directed recently towards another role of this element: The movement of electrically charged ions of calcium and potassium as well as organic molecules across nerve cell membranes to transmit a signal.

These roles are important for nerve conduction, muscle contraction, blood vessel relaxation and tensing and thus blood pressure, and a normal heart beat. Epidemiological findings and supplementation trials show that people's magnesium status is associated with the severity and frequency of migraine headaches, some forms of heart attacks, high blood pressure, sleep disorders and mood disturbances. Carefully controlled human studies at the Grand Forks Human Nutrition Research Center (GFHNRC) and elsewhere are being done to conclusively show that inadequate magnesium intake can result in these maladies.

For instance, in studies on women past menopause at the GFHNRC, [it was] found that a low magnesium diet resulted in heart rhythm changes, which were halted by a diet providing about 300 mg of magnesium daily. In a much more severe form, some of these changes in heart rhythm or beat can result in heart muscle contractions that do not move blood throughout the body and lead to death. **Magnesium is definitely needed for a healthy heart.**

The same studies also showed that a diet inadequate in magnesium caused changes in brain waves--electrical activity in the brain--when women were at rest. Other researchers have found in both human and animal studies that magnesium deficiency results in sleep disturbances, such as agitated sleep and frequent periods of awakenings. This has been related to changes in electrical activity in the brain. It looks like magnesium is important for a good night sleep.

Studies show that about half of migraine headache sufferers have a low amount of ionized magnesium in the blood, which suggests a low magnesium status. Magnesium supplementation reduces the number and duration of migraines, including menstrual migraines, in some people. The findings suggest that too little magnesium can worsen the suffering from migraine headaches.

The Food and Nutrition Board of the National Academy of Sciences recently provided new recommended intakes for magnesium. The Dietary Reference Intake, or DRI, is the new term for Recommended Dietary Allowance (RDA). For magnesium, the DRI is 400 milligrams per day for men aged 19 to 30 years, and 420 milligrams per day for males over age 30. The DRI is 310 milligrams per day for women aged 19 to 30 years and 320 milligrams per day for women over age 30.

Dietary surveys show that the diet of many Americans does not consistently provide the DRI for magnesium. Older people are especially prone to consuming a diet inadequate in magnesium. Good sources of magnesium are leafy vegetables, nuts, [cayenne pepper, concentrated sea minerals,] and whole grains.