

## Appendix II. Rise in Cardiovascular Disease occurs with declining Mg intakes

The rise in cardiovascular disease in 20<sup>th</sup> Century USA occurred while Mg intakes declined in that country. The current rise of CVD in other areas of the world occurs as dietary Mg intakes decrease.

Heart disease has risen steadily in the USA throughout the 20<sup>th</sup> century while Mg intakes in that country, during that time, have diminished.

[[Figure 1](#): As Mg intakes have gone down in USA, heart disease has risen.

American Heart Association deaths from heart disease, 1900 – 2000 with concurrent decrease in Mg intake as estimated by J. Marier (full paper available on request). Also, see pg. 5 of “The Magnesium Factor.”]

The steep rise in heart disease deaths in the American Heart Association [Figure 1](#) is not age adjusted. A more accurate visual is found in [Figure 2](#) which shows how the peak in USA coronary heart disease death rates (1968) coincided with that country’s nadir in available food Mg.

[[Figure 2](#). 1968 USA – The Peak in USA Coronary Heart Disease mortality coincides with the Nadir of Mg availability in the USA food supply

USA dietary Mg availability, 1900 – 2006 with age-adjusted coronary heart disease death mortality rates. The peak in coronary heart disease death rate (1968) coincides with the nadir of food Mg availability in this country. From: Rosanoff, A., 2012 Plant & Soil paper ([see full paper](#))

As the modern processed food diet, lower in Mg than traditional diets, spreads around the globe, we see rising death rates from cardiovascular diseases.

[[Figure 3](#). Global Heart Disease Death Rates are Rising as Modern Food Diet (low in Mg) Spreads

World Health Organization chart showing changing pattern of death in world: (non-communicable diseases, which are roughly 50% CVD, are becoming the main cause of death worldwide)].

Full paper of following available upon request:

**Marier J R 1982 Quantitative Factors Regarding Magnesium Status in the Modern-Day World. Magnesium 1, 3-15.**

**Abstract:** A large-scale US survey has shown that the dietary magnesium intake tends to be lower than recommended. The suboptimal intake prevalent among US

adults is consistent with the pattern observed in other North American and European surveys. Several factors are discussed, including the waterborne magnesium factor, the loss of magnesium during food refining and the magnesium content of vegetarian diets, as well as various metabolic situations, e.g., hypertension, pregnancy, osteoporosis, drug therapy, alcoholism, stress and cardiac trauma. The benefits of magnesium supplementation among those with sub-RDA intakes are illustrated.

[\(See full paper of the following\)](#)

**Rosanoff, A. 2012 Changing crop magnesium concentrations: impact on human health, Plant and Soil, DOI 10.1007/s11104-012-1471-5.**

**Abstract:** Aims: Decreasing mineral concentrations in high-yield grains of the Green Revolution have coincided in time with rising global cardiovascular disease (CVD) mortality rates. Given the Magnesium (Mg) Hypothesis of CVD, it's important to assess any changes in food crop Mg concentrations over the past 50+ years.

Methods: Using current and historical published sources, Mg concentrations in "old" and "new" wheats, fruits and vegetables were listed/calculated (dry weight basis) and applied to reports of USA's historic Mg supply, 1900–2006. Resulting trend in USA Mg supply was compared with USA trend in CVD mortality. Human Mg intake studies, old and new, were compared with the range of reported human Mg requirements.

Results: Acknowledging assessment difficulties, since the 1850s, wheats have declined in Mg concentration 7–29%; USA and English vegetables' Mg declined 15–23%, 1930s to 1980s. **The nadir of USA food Mg supply in 1968 coincides with the USA peak in CVD mortality. As humans transition from "traditional" to modern processed food diets, Mg intake declines.** [See Tables 4 & 5 of full text paper](#)

Conclusions: Rising global CVD mortality may be linked to lower Mg intakes as world populations transition from traditional high Mg foods to those low in Mg due to declining crop Mg and processing losses.