

Chromium

Facts:

- ◆ Chromium is an essential element required for proper sugar and fat metabolism. It acts as a potentiator of insulin and is involved in normal carbohydrate metabolism.
- ◆ According to *Prescription for Nutritional Healing*, two out of three Americans are hypoglycemic, pre-hypoglycemic, or diabetic. The ability to maintain normal blood sugar levels is further jeopardized by the lack of chromium in the soil and water supply and by a diet high in refined white sugar, white flour and junk foods.¹ Dietary surveys have shown a significant number of Americans receive less than 20 micrograms (mcg.) per day, which is considered generally inadequate to meet the established nutritional requirement.²
- ◆ The biologically active form of chromium is called glucose tolerance factor or GTF chromium.

Functions:

- ◆ Chromium potentiates insulin action and, therefore, is involved in the metabolism of glucose and is vital in the synthesis of cholesterol, fats, and protein.
- ◆ Studies have indicated that chromium picolinate (chromium chelated with picolinate, a naturally occurring amino acid metabolite) promotes weight loss and increases lean muscle tissue.¹
- ◆ Some studies have indicated that individuals with low plasma chromium levels can be an indication of coronary heart disease.¹

Requirements:

There is currently no Recommended Daily Allowance or Daily Value for chromium. Because chromium is of benefit for carbohydrate and lipid metabolism, an Estimated Safe and Adequate Daily Dietary Intake (ESADDI) has been established.³ These intakes are as follows⁴:

Age:	ESADDI (micrograms):
Infants: 0 -6 mos	10 to 40 mcg
6 mos.-1 year	20 to 60 mcg
1-3 yr.	20- 80 mcg
4-6 yr.	30 -120 mcg
7 and older	50 to 200 mcg

Signs of Deficiency:

Symptoms of a chromium deficiency include: fatigue, anxiety and glucose intolerance (particularly individuals with diabetes), inadequate metabolism of amino acids, elevated plasma free fatty acids, neuropathy, and increased risk of arteriosclerosis.¹

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Safety:

Individuals with diabetes should first consult with a physician or health care professional before taking supplemental chromium, especially chromium picolinate as chromium can affect insulin requirements. Individuals with low blood sugar may experience symptoms of hypoglycemia if an excess of chromium is taken.⁵ Pregnant women and nursing mothers should avoid doses greater than the ESADDI.

Signs of Toxicity:

According to *Prescription for Nutritional Healing*, excessive intake of chromium (which is not defined) can produce gastric irritation, ulcers, kidney and liver impairment.¹

Current Research:

Gestational diabetes: According to researchers at Sansum Medical Research Foundation in Santa Barbara, Calif., insufficient intakes of chromium, magnesium, potassium, and vitamin B-6 might lead to a tendency towards hypoglycemia in gestational diabetic women.⁶

Heart Disease: Recent findings indicate that chromium supplementation can reduce one's risk factors for developing cardiovascular disease. Researchers at Shaare Zedek Medical Center in Israel found that supplementation of 250 mcg. of chromium lowered serum triglyceride levels and raised high density lipoprotein (HDL) levels in 76 patients diagnosed with atherosclerosis. In animals, the same researchers discovered that chromium supplementation reduced "...aortic intimal surface covered by plaque, aortic weight and cholesterol concentrations in rabbits."^{6,7}

Diabetes: Chromium has been shown to improve glucose tolerance, insulin and hemoglobin of persons in China with Type 2 diabetes. In a study performed in China, the use of 1,000 micrograms of chromium per day (five times above the upper limit of the ESADDI and is not recommended) was highly effective in relieving many of the symptomatic manifestations of type 2 diabetes mellitus.⁸ In a separate study, 200 mcg of chromium was administered to persons with slightly elevated blood sugar levels and persons with moderately low blood sugar levels (hypoglycemia). In the subjects with slightly elevated blood sugar levels, there was a considerable drop of roughly 20 points in blood sugar levels. In persons with hypoglycemia, chromium supplementation was affiliated with a 10-point increase in blood sugar levels.⁹

Weight Loss: In a recent review of the literature on chromium, two researchers conclude, "In addition to type-2 diabetes mellitus, chromium supplementation may be useful to direct overall weight decrements specifically towards fat loss with the retention of lean body mass and to ameliorate many manifestations of aging."⁸

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References:

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