

Chromium Overview

Chromium is a trace mineral found in high amounts in brewer's yeast. When brewer's yeast was found to reverse abnormal glucose tolerance in animals, the search for the active component found trivalent chromium. Thus, chromium is an essential trace mineral that has been found to assist in glucose metabolism, regulation of insulin levels, and maintenance of healthy blood levels of cholesterol and other lipids. Chromium forms part of a compound in the body known as glucose tolerance factor (GTF), which is involved in regulating the actions of insulin in maintaining blood sugar levels and, possibly, in helping to control appetite. The main focus of use and research for chromium are on lowering blood sugar; increasing insulin sensitivity; reducing body fat; controlling hunger and suppressing appetite; reducing cholesterol and triglyceride levels; increasing lean body mass and muscle mass.

From deficiency experiments researchers found that lack of chromium leads to glucose intolerance and insulin resistance – symptoms in diabetics. Since chromium helps regulate the actions of insulin (as a constituent of glucose tolerance factor), chromium supplements may help support the many functions of insulin in the body, such as maintaining blood sugar and cholesterol levels and controlling appetite (particularly sweet cravings). Because chromium is poorly absorbed, many supplements are typically combined with another, more efficiently absorbed compound such as a vitamin (like niacin in polynicotinate versions) or an amino acid derivative (like picolinic acid, a derivative of tryptophan, in picolinate versions). Other studies suggest that chromium supplements (200mcg per day) may be associated with anabolic effects (increased muscle mass and reduced body fat).

We know that chromium deficiency results in insulin resistance that can be easily corrected by supplements and it is estimated that 90% of Americans consume less than the recommended amount of chromium each day. In diabetic and overweight individuals, chromium supplements have been shown to reduce triglyceride levels by almost 20%, improve glucose tolerance and normalize insulin levels. Supplements of 400 mcg have helped overweight women lose about 50% more fat in 3 months compared to a placebo group.

Dietary Sources: brewer's yeast, whole grain cereals, broccoli, prunes, mushrooms and beer. The most widely available supplements are chromium salts such as chromium polynicotinate, chromium picolinate and chromium chloride - which help increase the absorption and availability compared to isolated chromium.

Dosage: No Recommended Dietary Allowance (RDA) has been established for chromium, but the ESADDI (estimated safe and adequate daily dietary intake) is 50-200 mcg. Natural forms of supplemental chromium, such as chromium-rich yeast, may be absorbed somewhat more efficiently than inorganic forms of chromium, such as chloride, found in some supplements.

Side Effects: Although the vast majority of studies of chromium supplementation reveal no side effects except mild gastrointestinal upset, they tend to be of short duration (a few weeks to a few months). The chromium picolinate form is not recommended after some laboratory studies showing harmful side effects in test tubes and rodents. Supplemental chromium differs from the toxic hexavalent chromium (CrO₃) in the workplace, which is irritable to the skin, lungs, and GI tract and can cause perforation of the nasal septum and carcinoma of the lung

(Source: www.supplementwatch.com)

Research Overview

Deficiency in chromium contributes to:

1. Increased risk for diabetes
2. Increased risk for cardiovascular disease
3. Glucose intolerance in Turner's Syndrome
4. Hypoglycemia
5. Inability to use glucose for energy
6. Nerve damage
7. Abnormal nitrogen metabolism

Chromium supplementation has been shown to:

1. Improve insulin resistance in type II diabetes
2. Improve insulin binding to red blood cells
3. Reverse steroid induced diabetes
4. Lower serum triglycerides
5. Lower serum LDL
6. Increase serum HDL

7. Reduce cholesterol
8. Reduce plaque in the aorta
9. Reduce insulin requirements
10. Enhance immune function and response
11. Improves glucose intolerance, from mild intolerance to type II diabetes
12. Normalizes blood sugar
13. Increase fat loss while increasing lean muscle mass
14. Act as an antioxidant when combined with zinc
15. Combats oxidative stress in diabetes

Some facts about chromium:

1. Regulates blood sugar
2. Chromium increases insulin binding to cells
3. Increases insulin sensitivity
4. Corticosteroid treatment causes depletion of chromium
5. Most people have a diet that is low in chromium
6. Treatment of chronic disease requires larger doses of chromium than RDA
7. Chromium is necessary to carbohydrate metabolism
8. Chromium is necessary to lipid metabolism
9. Chromium may be an effective antidepressant in mild depression
10. Intake of highly refined cereals can result in chromium deficiency
11. Chromium deficiency has been linked to insulin resistance in "Syndrome X"
12. Diets high in sugar, fat and alcohol will be low in chromium
13. Athletes may have depleted chromium stores due to exercise
14. Chromium reduces insulin liver
15. Sugar depletes chromium
16. Cholesterol levels increase when chromium supplementation is discontinued
17. Chromium may be a safe substitute for anabolic steroids

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Chromium: 267 Citations

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