Can chromium supplements help body shape?

A research team at Toronto General Hospital found a statistical link between low chromium levels in the blood and HIV infection, particularly in HAART users. The Toronto team also noted that some of the symptoms of chromium deficiency are similar to the metabolic problems—higher-than-normal levels of blood sugar and insulin and the weakened effects of insulin—in some HIV positive people. So the team later conducted a double-blind study with a modest dose of chromium vs. placebo in people with HIV infection. Their findings suggest that chromium supplementation may confer some benefit(s) in people with HIV/AIDS (PHAs) in the short-term.

Study details

Researchers recruited 59 HIV positive volunteers (4 females and 55 males) who had at least one of the following abnormalities:

- high blood sugar – greater than 6 nmol/l
- moderately elevated triglycerides – 2 mmol/l or greater
- elevated total cholesterol – 5.5 mmol/l or greater
- low levels of so-called good cholesterol (HDL-c) – less than 0.9 mmol/l
- abnormal body fat redistribution

Additionally, researchers assessed the volunteers’ potential for having insulin resistance—a condition in which the body does not respond as effectively as it should to the effect of insulin. Out of the 59 volunteers, 50 who had insulin resistance were enrolled into the study and randomly assigned to one of the following arms, or groups:

- chromium, formulated as chromium nicotinate, 400 micrograms (mcg) per day
- fake chromium (placebo)

The trial lasted for four months and 25 participants in each group completed the study.

Participants who received placebo tended to be slightly older (average 50 years) compared to chromium recipients (47 years).

Results

During the study there were significant changes in the following assessments in participants who received chromium:

- decreased insulin levels in the blood
- decreased insulin resistance
- decreased triglycerides
- decreased body fat
- increased muscle mass

These differences between chromium and placebo groups were statistically significant; that is, not likely due to chance alone.

Other changes that occurred in the placebo group were also statistically significant:

- increased levels of so-called bad cholesterol (LDL-c)
increased trunk fat

An increase in belly fat occurs in some HAART users. Among participants who had this problem before entering the study and who received chromium while in the study, belly fat decreased by 600 grams (or more than one pound). In people on placebo, belly fat increased by 1,500 grams (about 3.3 pounds) during the study. This difference in belly fat changes between the two groups was statistically significant.

This controlled study strongly suggests that modest doses of chromium supplementation (400 mcg/day) can help HIV positive people who have certain metabolic abnormalities over the short-term.

Another pilot study, conducted in the United States, found that a daily dose of 1,000 mcg of chromium (in the form of chromium picolinate) in eight HIV positive participants was able to significantly improve the body’s sensitivity to insulin after two months. Two of the eight people developed abnormal liver enzyme levels and another developed excess levels of urea in the blood. The reasons for these changes are not clear.

Still, the results from the Canadian study using chromium nicotinate are promising but further research needs to do the following:

- confirm the Canadian study’s results, hopefully with larger numbers of HIV positive volunteers, including women
- demonstrate that the benefits of chromium supplementation can last more than four months
- assess the safety and effectiveness of higher doses of chromium and possibly other formulations of chromium
- explore the impact of other nutrients, such as vanadium, that might also have a favourable impact on blood sugar and insulin levels.

REFERENCES:


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