

CHROMIUM, DIABETES AND TELL-TALE TOENAILS



Harvard researchers have been studying 15 year-old toenails in their attempts to discover whether there is a link between levels of chromium in the body and incidences of diabetes.

After analyzing the toenails of over 33 000 men aged 40 to 75, scientists from the Harvard School of Public Health found that men with a higher incidence of diabetes and heart disease have lower levels of chromium in their body. The chromium levels were obtained by measuring content of toenail samples from study participants. Because toenails hold trace minerals, using them for this type of study helps identify dietary intake, nutrient requirement, deficiency and disease. The study appears in the September issue of Diabetes Care, the journal of the American Diabetes Association.

Chromium for Glucose Tolerance By Sheila Buff

The trace mineral chromium helps improve insulin resistance and cut sugar cravings. Scientists have long known that a deficiency of the essential trace mineral chromium (need to stop all these Atkins links) causes glucose intolerance and insulin resistance. And the equation also works the other way: Supplemental chromium can help improve glucose tolerance and insulin resistance for many people with unstable blood sugar.1 Not only that, many of these people report that taking chromium supplements helps them control their sugar cravings and stick to their controlled carb way of eating. Let's take a closer look at a supplement that may be of real help in weight control.

The Chromium Connection

Chromium is an essential trace mineral—a mineral you must have in tiny amounts for good health. How tiny? Exactly how much you need hasn't been officially established, but a safe and adequate intake range for adults is anywhere from 50 to 200 micrograms. Even though the amount you need is so small, dietary surveys show that up to 90 percent of all Americans get fewer than 50 micrograms a day from their food.(2) Chromium works together with insulin in your body as part of your natural mechanism for controlling your blood-sugar levels. Researchers still aren't sure exactly how chromium helps insulin work more efficiently, but it's probably because the trace mineral is needed for your body to produce glucose tolerance factor (GTF), a compound that helps regulate your insulin levels. GTF helps steady your blood sugar and may also help increase insulin sensitivity, lower blood sugar and control your appetite. For many people, chromium is particularly helpful for controlling sugar cravings.

A number of good scientific studies support the use of supplemental chromium for Type 2 diabetics and people who are having trouble regulating their blood sugar. A 1997 study, for example, looked at the effects of chromium supplements on 180 people with Type 2 diabetes. For four months, 60 people were given 100 mcg of chromium picolinate [Here link to the below article] twice a day; 60 received 500 mcg of chromium picolinate (LINK) twice a day; and 60 got a placebo (sugar pill) twice a day. The subjects continued with their usual diet and medications during this time. At the end of two months, the group taking 500 mcg twice a day had significant improvements in blood-sugar levels. At the end of four months, both the 500 mcg and 100 mcg groups had significant improvements in blood-sugar levels, but there was no improvement in the placebo group. As a bonus, the people in the chromium group also showed improved blood-cholesterol levels.(3)

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The evidence from this study has since been backed up by a number of others. A study in China, for example, supports the idea that supplemental chromium can improve blood-sugar levels and insulin resistance.³ Other studies suggest that your need for extra chromium is related to how severe your glucose intolerance is. For those with only mild glucose intolerance, an extra 200 mcg seems to be enough; people with more severe glucose intolerance or diabetes need larger doses.⁽⁴⁾

Your body absorbs chromium from supplements best in the form of chromium picolinate (make this a link to our sell sheet on InterHealth type... We recommend XX) or chromium polynicotinate. If you're interested in trying chromium as a way to help control your blood sugar and put a stop to sugar cravings, be sure to discuss it with your doctor first. Chromium supplements may affect any medications you're taking for diabetes, blood-sugar control or cholesterol. If you're taking diabetes medication, it's especially important to keep track of your blood-sugar levels when taking chromium. As your blood sugar improves, you may need to adjust your medication dose. Never do this on your own—always discuss it with your doctor first.

Rumors and Reality

Chromium has gotten some bad publicity lately. The hit movie Erin Brockovich was based on a real environmental hazard in which a substance called hexavalent chromium caused health problems among people who came into contact with it. Trivalent chromium, also known as chromium (III), the form used in dietary supplements, is very different from the hexavalent form and is generally safe even in large doses.

In the 1980s a number of studies seemed to show that chromium supplements helped to increase muscle mass and decrease body fat. There were some serious questions about some of these studies, however, and other studies showed the supplements had no effect. Based on the evidence, chromium may indeed be somewhat helpful for reducing body fat, but it's not some sort of miracle fat-burning, muscle-building pill. But this didn't stop some irresponsible supplement manufacturers from making wildly exaggerated claims about how chromium could "melt pounds away." The claims got so out of hand that the Federal Trade Commission had to crack down on the manufacturers.

More seriously, some recent lab studies seem to suggest that very large doses of chromium picolinate (Another link) could cause DNA damage.^(5, 6) Of course, it's a long, long way from hamster ovary cells in a test tube and fruit flies to cancer in human beings, and the doses used were extremely large. There's plenty of good evidence for the overall safety of chromium supplements in doses of up to 1,000 mcg (1 milligram) a day.

Sheila Buff is a health writer and the coauthor of Dr. Atkins' Age-Defying Diet (St. Martin's, 2000).

Selected References

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ChromeMate® Found More Effective Than Four Other Chromium Compounds Tested

Increased blood pressure and free radicals often occur when insulin becomes less efficient at maintaining normal blood sugar levels. Chromium, an essential trace mineral, enhances the action of insulin and has previously been shown to protect against the adverse effects of a high-sugar diet on blood pressure in animals. This study compared the effects of different chromium compounds on sugar-induced high blood pressure and free radical production. Animals that spontaneously develop hypertension were fed diets supplemented with one of five chromium compounds: ChromeMate® niacin-bound chromium, Cr-picolinate, Cr-acetate, Cr-chloride and a chromium nicotinic acid/amino acid complex (NA-AA), then given sugar water (5% and 10% sucrose) to elevate blood pressure. All of the chromium compounds except NA-AA effectively prevented the sugar-induced rise in systolic pressure compared to non-supplemented control animals. ChromeMate®, Cr-acetate and Cr-picolinate also lowered levels of the biomarker for long-term blood sugar control, HbA1C. Only ChromeMate® and acetate significantly reduced free radical damage to fats in both the liver and kidneys as measured by TBARS, while picolinate lowered damage in the kidneys. These results demonstrate that chromium from various compound forms can act as an antioxidant and offset the effects of sugar-induced blood pressure in this animal model, though only ChromeMate® showed significant beneficial effects on all of the parameters measured.

Source: Preuss HG, Grojec PL, Lieberman S and Anderson RA, Effects of Different Chromium Compounds on Blood Pressure and Lipid Peroxidation in Spontaneously Hypertensive Rats, *Clinical Nephrology*, 47:325-330, 1997.

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About Proven Results Health (Diab-X) <http://www.provenresultshealth.com>

Helping diabetics and pre-diabetics get to healthier lives (in 90 Days). Find results 3 Times faster than exercise and diet alone. Key ingredients in Diab-X help by promoting healthy body weight BMI, normal blood sugar levels, proper insulin function, healthy cholesterol, and normal blood pressure. Strong clinical research backs this breakthrough product. Diabetics can actually read 200 supporting studies on this site.

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