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## Chromium

The number of people who are overweight is approaching 70% in North America. Concurrent with that rise is an increase in the number of people who are insulin resistant and at risk for developing type 2 diabetes. The numbers are not just theoretical; more and more people are being told by their doctors to get their blood sugar under control or start treatment. As a result, I'm frequently asked about the mineral chromium to control blood sugar and help lose weight, so I'm going to go over the research. What you may find out is that chromium can have several health benefits. More about that later.

The best source of chromium in foods that most of us eat is lettuce, but not just any lettuce: romaine. The critical factor is that we usually eat romaine raw; onions and tomatoes are also good sources of chromium, but cooking leeches out the chromium. Chromium can also be obtained from dietary supplements.

## Overweight and Insulin Resistance

Overweight people tend to become insulin resistant. That means that while they make plenty of insulin, their body does not use it effectively, hence the word "resistant." One explanation is that the insulin receptors are modified in some way and won't let insulin bind to them to bring glucose into cells. If the insulin receptors can be activated again, blood sugar can be controlled by allowing cells to utilize the insulin being produced. The question is how to get insulin receptors to do what they're supposed to do. Before I talk about chromium, let's look at other ways to control blood sugar.

### Weight Loss

Weight loss is the simplest solution but not necessarily the easiest. Many people including your author has lost and regained a couple hundred pounds. That's why I started The 30 Pound Club: so all of us can get this under control once and for all by changing our lifestyle. *Eat less and move more* is our mantra and we're going to continue to strive for that goal. But here's the cool thing: losing and maintaining as little as 5% of your weight can help improve insulin resistance (1). The critical point is to keep trying no matter how many times you've failed, and that's what The 30 Pound Club is all about.

### Diet

The typical American diet is high in refined carbohydrates and low in vegetables and fruits—that's a diet with a high glycemic index (GI). Switching from a diet with a high GI to one with a low GI may help improve insulin resistance. Researchers found improvements in insulin resistance in as little as six days when subjects followed a low-GI diet (2). One of the reasons may be that eating refined carbohydrates contributes to the loss of chromium.

### Exercise

You've probably heard that if exercise were a pill, it would be the most prescribed medication in the world. There's a reason for that: it can help improve insulin resistance in as little as three days. In a study I conducted at Michigan State University, insulin binding improved in the 72 hours after the initial workout and continued to improve over the course of a six-month study. Walk, bike, swim, dance, or whatever—get moving and stay moving for 30 to 60 minutes every day. And don't forget the [Bit Fills](#), either.

## Chromium Research

Vitamin D has been the sweetheart of the medical field for the past couple of years. Research has identified that a sub-clinical deficiency of vitamin D is related to an increase in diseases that were never thought to be related to vitamin D such as depression, cancer, multiple sclerosis, and cardiovascular disease. In my opinion, chromium will be the next nutrient that fits into that category of sub-clinical deficiency.

Chromium is an essential mineral found in very low concentrations in the human body. It's a primary component of a chemical made in the body called glucose tolerance factor (GTF) that works with insulin to activate the insulin receptors, thus allowing glucose to be moved from the bloodstream into the cells where it can be used to make energy. Could insulin resistance be something as simple as a lack of chromium in the diet? Nothing is ever that simple, but according to the University of Maryland Medical Center, up to 90% of all Americans' diets are low in chromium, but few people are deficient in chromium. The problem goes back to what I said about sub-clinical deficiencies: we may be getting enough chromium to just skim along but not enough to really help with blood sugar control.

Dr. Richard Anderson is one of the leading experts in chromium research in the world. In a recent lecture to review the research on chromium and insulin sensitivity, he indicated that poor blood sugar control is only one of a number of maladies attributed to chromium deficiencies (3); elevated triglycerides, decreased high-density lipoprotein cholesterol (HDL), hypertension, and visceral obesity are also associated with chromium deficiencies. Put in plain English, what does he mean? He means that if you're deficient in chromium, you may have a tendency to store weight around your waist, your good cholesterol will be low, your blood fats will be high, and you'll have problems with blood sugar. There's also evidence that chromium deficiency contributes to increased cortisol levels, also known to be associated with obesity.

Research on chromium and weight loss has been equivocal. However, while chromium can help with insulin resistance almost immediately, it can take six months or longer for it to help with weight loss. That means that this is one nutrient you should start to take and keep taking long term.

### Chromium Picolinate

Chromium picolinate is one of the most researched dietary supplements for helping control blood sugar and losing weight. The research has been equivocal; some researchers found good results while others have not. Part of the reason is that not all subjects in every study were insulin resistant or overweight. That's one of the problems with using nutrients as if they were medication—you give it to healthy people and wonder why it didn't help. Well, they weren't insulin resistant or overweight to begin with, so what was giving them a nutrient supposed to help with? If you don't have a problem, how do you know when you've solved it?

If you already monitor your blood sugar, that's great. If you don't, talk with your doctor about whether it's a good idea for you to do so. Remember, although it might be normal for a long time, you can still be insulin resistant. If you add chromium picolinate to your diet and there's a consistent lowering of blood sugar, it may be just the nutrient you needed together with diet and exercise to get blood sugar under control. Take it long enough and the other symptoms such as belly fat and low-HDL cholesterol may respond as well.

How much chromium picolinate should you take? A reasonable approach would be to use 100 to 200 mcg of chromium picolinate with every meal. Taking it with the meal isn't a big deal because it's not working on that meal. You're trying to raise the levels of chromium in the body, so the timing isn't critical—just take it when you can best remember to take it, but at least two doses during the day.

The question always comes up: if some is good, more has to be better, right? Not necessarily. There's no Upper Tolerable Limit for chromium but that doesn't mean you should over-do it. Most studies use the amounts I recommended above; stick with those because they're best supported by research.

If you want to know more about how reading food labels can help you monitor the nutrients in your diet, I've just posted a new Research Update called [Daily Value](#) that explains what you'll find on Nutrition Facts labels. I've also added a [Body Mass Index chart](#) where you can determine what your body mass index is and what it should be—without doing any math.

## The Bottom Line

There are no miracles in a bottle. Losing weight and controlling blood sugar by changing your lifestyle is possible. Approach it in a step-wise manner that includes diet, exercise, and supplementation with chromium—you may find it wasn't as difficult as you thought it would be. But know this: if chromium doesn't work for you, it may be time to discuss other options with your physician. If that means medications, so be it. It's more important to keep your blood sugar under control for your overall health. Do what you have to do. Period.

What are you prepared to do today?

**Dr. Chet**

**Reference:**

1. Mayo Clin Proc. 2008;83(8):897 – 907.
2. Arch of Iran Med. 2008; 11(1): 57 – 64.
3. Proceedings of the Nutrition Society (2008), 67, 48–53.

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