

# Optimizing Your Chromium Levels May Help Regulate Blood Sugar



## STORY AT-A-GLANCE

- The body requires a wide variety of minerals to function properly, either by triggering certain processes to start or by supporting organ systems. One of these minerals is chromium
- Chromium is an essential trace element often overlooked in favor of other vitamins and minerals. However, recent studies now show that optimizing your chromium stores may help protect your heart, bone and brain health



The body requires a wide variety of minerals to function properly, either by triggering certain processes to start or by supporting organ systems. One of these minerals is chromium, an essential trace element needed by the body in relatively minute amounts. It is especially useful in balancing out blood sugar by regulating insulin production. Chromium may also positively affect heart health and depression, although more studies are needed to affirm these benefits.<sup>1,2</sup>

There's no question that chromium is important in the maintenance of human health, but when is supplementation necessary? This article will tackle how essential chromium is, how a deficiency may affect

your health, and how you can maintain healthy levels of this mineral at all times.

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## What Is Chromium?

If this is the first time that you've heard about chromium supplements, no one can blame you. One of the possible reasons why chromium is not held in the same league as iron, calcium and other essential minerals is because it's a trace element that's hard to become deficient in.

However, it's now gaining traction in the medical world as numerous studies are showing the importance of chromium in heart health, blood pressure and blood glucose levels. There are approximately 4 to 6 milligrams of chromium stores in your body, which can be found in the kidneys, liver, muscles, spleen, heart and bones.

The body's ability to store and absorb this mineral often decreases with age, making the elderly especially susceptible to deficiency. Master athletes may also be at high risk, as increased exercise or physical activity triggers the mobilization of chromium into the blood, which is then excreted through the urinary tract.<sup>3</sup>

To deal with deficiency, most people take chromium supplements, which are now widely available in the market. Two of the most popular forms of chromium supplements are chromium picolinate and chromium polynicotinate. The difference between the two lies mainly in the type of acid the chromium is bound to.

Chromium picolinate, the synthetic type of chromium, is bound to picolinic acid, while chromium polynicotinate is bound to either niacin or nicotinic acid.<sup>4</sup> Today, chromium polynicotinate is seen as a much more favorable product, as chromium picolinate has been linked to numerous health issues, including DNA damage with long-term use.<sup>5</sup>

But while chromium supplements are easy to acquire, this does not mean that you can self-prescribe if you suspect you have a chromium deficiency. This may open you up to numerous side effects and complications, especially if you're taking certain medications.

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## Are You at Risk of Being Chromium-Deficient?

Chromium is one of the essential minerals that may be hard to be deficient in. Many people might not even be aware that their diets contain just enough chromium to aid their body systems. But even if it is rare, deficiency is still possible. This is all dependent on a person's age, activity level and any possible underlying conditions. If you belong to any of the categories below, consider optimizing your diet to include more chromium-rich foods:<sup>6</sup>

- Elderly
- Diabetics
- Athletes
- Pregnant women

Chromium deficiency is characterized by elevated circulating insulin levels, cholesterol, triglycerides and fasting blood glucose. Long-term deficiency may lead to serious complications, such as [Type 2 diabetes](#). It has also been linked to metabolic syndrome due to the similarities in their symptoms, but studies are ongoing to affirm that assertion.<sup>7</sup>

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## Where Can You Get Chromium?

A 1989 study showed that about 50 percent of the American population eats a chromium-deficient diet, but this does not mean that this percentage is also reflective of the chromium-deficient population.<sup>8</sup> It's fairly hard to become critically low in chromium reserves.

However, this does not mean that you can ignore the need to eat foods rich in chromium. It's still important that you have a steady source. The good thing is that chromium is found in numerous plant- and animal-based products. To optimize your chromium levels, add the following food to your daily meals as much as frequent as possible:<sup>9,10</sup>

- Organic [pears](#)
- [Organic grass fed beef](#)
- Shellfish, mussels and oysters
- [Grapes](#)
- [Tomatoes](#)
- [Garlic](#)
- Broccoli
- [Asparagus](#)

If you suspect that you are not getting enough chromium, there is always the option of getting chromium supplements to improve your body's supply of this essential mineral. Just make sure that you consult a health professional before starting your supplementation.

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## Improve Your Chromium Levels and You May Get These Benefits

Optimizing your chromium levels may help improve numerous body processes, especially energy expenditure and hormone regulation.

Some of the benefits of maintaining healthy levels of chromium include:

- Improved blood sugar levels** — Chromium may help lower blood sugar levels and regulate insulin levels in the blood by improving sugar metabolism. This may be beneficial for [obese](#) people and patients with Type 2 diabetes.<sup>11</sup>

- Lowers blood pressure** — A few animal studies suggest that chromium supplementation may help regulate blood pressure by lowering LDL and increasing HDL levels in the body.<sup>12</sup>

- Slower bone loss in women** — Chromium may assist in maintaining bone strength, especially in women prone to osteoporosis, or the gradual deterioration of the bones brought on by age. Chromium does this by preventing calcium loss.<sup>13</sup>

- Reduced depression symptoms** — Patients with depression often suffer from increased need for sleep and food intake. Chromium supplements may lessen the [symptoms of depression](#) by increasing tryptophan transport into the brain, which is a precursor of serotonin, or the happy chemical.<sup>14,15</sup>

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## Scientific Studies Done on Chromium

Various studies have been done on chromium supplements to determine their health benefits and possible complications. Chromium's effect on blood glucose has been documented in over 25 studies since the 1960s.<sup>16</sup> In a 2006 study conducted in Taiwan,<sup>17</sup> 60 Type 2 diabetes patients were given either chromium-containing milk or a placebo in a three-month period. The non-placebo group had lower fasting plasma glucose and fasting insulin, especially in the male patients.

But even though some studies claim that chromium may be helpful for regulating glucose levels, there are also studies that show no apparent change in insulin sensitivity. A 2011 study showed that chromium supplementation does not ameliorate insulin sensitivity, which makes it an ineffective therapy for diabetes prevention.<sup>18</sup>

A 2013 study showed that chromium picolinate supplementation may promote weight loss in obese or overweight individuals by increasing insulin activity and glucose metabolism. However, while this study shows that chromium may assist in this, it remains inconclusive.<sup>19</sup> More studies are required to clearly prove this function of chromium.

The link between metabolic syndrome and chromium deficiency has also been discussed in numerous studies, mainly because of the similarities in their symptoms. In a 2015 study, researchers found that maintaining high levels of chromium in early life may significantly lower your risk of developing metabolic syndrome at an older age. This may be due to the positive effect of chromium on regulating blood glucose levels and lipid profiles.<sup>20</sup>

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## Watch Out for These Chromium Side Effects

While chromium is a mineral present in numerous products, supplementation may still cause side effects, especially when taken in higher doses. Some of the side effects that you might suffer from include the following:<sup>21</sup>

- Redness, swelling and scaling of the skin** — People who have leather contact allergies should avoid taking chromium supplements as it may cause skin irritations.

- Low blood sugar levels** — In some cases, chromium may lower blood sugar levels when taken together with certain diabetes medications.

•**Kidney damage** — There have been a few cases where patients suffered from kidney damage when they took chromium picolinate. Patients who have preexisting kidney problems should avoid chromium supplements as much as possible.

•**Liver disease** — Another side effect of chromium picolinate is possible liver complications. There have been at least three cases reported of this side effect.

•**Psychiatric conditions** — Patients with psychiatric conditions may suffer from magnified symptoms as chromium supplements may influence brain chemistry.

Pregnant or breastfeeding women should avoid taking these supplements due to insufficient studies proving its safety. This will ensure that you and your child are not being exposed to any of the possible complications that may accompany chromium supplementation.

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## Chromium Is Just as Important as Other Minerals

You may not be aware that chromium has a specific function in your body, but the good thing is that the information is now spreading about its importance, and what it does to help improve or maintain your health.

However, if you're planning on supplementing with chromium, make sure you take it responsibly to avoid suffering from complications. Furthermore, while chromium supplements may look promising, know that they will not be as effective in solving your health issues if you are not willing to abandon certain unhealthy habits, particularly with your diet. Chromium can be beneficial, but your path to good health does not end there.

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# Frequently Asked Questions (FAQs) About Chromium

## **Q: What is chromium used for?**

**A:** Chromium is primarily known for its positive effect on the regulation of blood sugar, which may be useful for diabetics and obese patients.<sup>22</sup>

## **Q: Is chromium safe?**

**A:** Chromium is relatively safe for consumption, as long as you control your dosage. However, note that chromium picolinate may cause liver damage and other complications when taken in excess or when taken with specific medications.<sup>23</sup>

## **Q: What does chromium do?**

**A:** Chromium is an essential mineral that helps control glucose by enhancing insulin action, thus improving carbohydrate and protein stores in the body. It has also been linked to carbohydrate, fat and protein metabolism.<sup>24</sup>

## **Q: Can I take chromium supplements when I'm pregnant?**

**A:** There are insufficient studies concerning the safety of chromium during pregnancy, but it would be best to stay on the safe side. Refrain from taking chromium supplements to ensure your and your child's safety.<sup>25</sup>