



Chromium - Essential Mineral for Health and Why

by Charlie Skeen

Chromium and Blood Sugar

The mineral chromium is required by the body for glucose tolerance, or the proper use of blood sugar, called glucose, for energy. Without chromium and insulin, a hormone produced by the pancreas, our blood sugar can damage our cells. This is known as glucose intolerance. Diabetics who get damaged eye retinas and blood vessels do so not because of a lack of insulin but because of the improper reactions of the blood sugar (glucose) reacting with the various cells. These harmful reactions can be caused by any number of factors including a lack of insulin, chromium, manganese, and even defective cells.

While it's true that ones blood sugar can be controlled by avoiding refined carbohydrates (sugar and flour products, especially white flour) and/or insulin injections, total control can only be achieved when the body receives the proper amount of trivalent chromium, in a GTF configuration, and other important minerals such as manganese, magnesium, and zinc.

Chromium and Cardiovascular Disease

Researchers have discovered that when we are deficient in chromium we are at greater risk for cardiovascular disease. Cholesterol and triglyceride levels go up with a poor ratio of HDLs (high-density lipoproteins) to LDLs (low-density lipoproteins). This means instead of our body carrying the cholesterol from our blood stream to the liver by use of the HDLs where it is eliminated, our body carries cholesterol by use of the LDLs from the liver to the cells throughout the body.

It's interesting to note that in countries that have high tissue levels of chromium there is very little atherosclerosis, plaque on the lining of the arteries, and very low occurrences of heart attacks and strokes. On the other hand, areas of the world where there are low tissue levels of chromium cardiovascular disease is greater. It's been discovered that people who have died of heart disease have almost no chromium in their aortas, the main blood vessels to the heart, while those who do not suffer from heart disease or plaque deposits in the aortas have healthy levels of aortic chromium.

GTF - Glucose Tolerance Factor

It's important to understand that although chromium is essential, to be effective it must be in the form of GTF, (Glucose Tolerance Factor). This means that the mineral chromium in its organic form, which is trivalent chromium (Cr+3), must combine in the body with nicotinic acid/B3, and a tri-peptide amino acid called glutathione which is made up of glycine, cysteine, and glutamic acid. When the body is healthy and functioning properly and all of the nutrients just mentioned are available, the body can combine them to create GTF chromium.

Studies have revealed that GTF binds both to the insulin molecule and the insulin receptor which increases the hormonal effect of insulin up to three fold, thereby enhancing glucose tolerance. But, as people grow older, and due to other health complications, they can no longer form the GTF contributing to diabetes, and/or elevated cholesterol and triglycerides increasing the risk of cardiovascular complications.

To insure that this process of making GTF chromium occurs in the body it is essential to take organic chromium that is a true chelate for maximum absorption and have the nicotinic acid/B3 combined with it. After the chromium enters the blood stream it will then combine with glutathione to produce a GTF chromium.

Of the three amino acids, glycine, cysteine, and glutamic acid, required to produce GTF chromium, cysteine is the only one that could be in short supply. Glycine and glutamic acid are very abundant and are almost never lacking. To insure adequate levels of cysteine are present make sure that sulfur containing foods such as eggs, especially the yolks, red peppers, muscle proteins, garlic, onions, cabbage, broccoli, asparagus, cauliflower, mustard, and horseradish are consumed regularly. Also, one could supplement with cysteine amino acid capsules.

Proper levels of cysteine will allow the body's liver to produce adequate amounts of the tri-peptide amino acid gluathione so that when the true chelate organic chromium, preformed with nicotinic acid/B3 is taken, they will combine and produce GTF chromium for healthy blood sugar control to prevent diabetes, and/or elevated cholesterol and triglycerides increasing the risk of cardiovascular complications.

As we can see chromium and its co-factors in forming GTF are far more critical to our health than just simply a weight loss supplement.

Other Areas that Trivalent GTF Chromium is Beneficial are;

1. Reduces our craving for sweets by its involvement with the hormone Serotonin, a neurotransmitter in the brain.
2. Stabilizes blood sugar thereby reducing the appetite.
3. Assists in the activation of an enzyme that clears fats from our bloodstream which requires insulin to activate.
4. Plays a key role in many metabolic enzymes and hormones.
5. Improves amino acid utilization.
6. Improves utilization of the amino acids lysine and arginine into the brain.
7. Assists in protein production and blood transport.
8. Assists in maintaining a healthy heart and longevity as it is required for the production of heart protein.
9. Necessary for carbohydrate metabolism.
10. Required for proper muscle development and energy production.
11. Growth and wound healing.
12. Reduces our need for insulin.
13. Makes insulin more effective at removing glucose from the blood improving its burning in the cells for energy, preventing fat storage of the glucose.
14. Works with the thyroid and is part of maintaining the metabolic rate for effective calorie burning.
15. Plays an important role in fighting stress and maintaining the immune system by reducing cortisol levels.

Needs to Be Replenished Daily

Chromium is not stored in the body and needs to be replaced daily. Excretion occurs mainly through the kidneys. Losses of 10-300% of chromium occur due to increased insulin production from the intake of too many refined sugars and carbohydrates. Also, our soil has become depleted contributing to this deficit, while processing of our food removes 80% of this essential mineral. Other factors that contribute to further losses are infections, aging, injuries, surgeries, stress, extreme heat and cold, and trauma.

Exercise of any sort no matter how mild, increases chromium losses twice the normal rate. Urinary losses when exercising more vigorously, such as running six miles, are five times the norm. Carbo-loading and eating simple carbohydrates in the form of sugars cause losses 3 times the norm.

Research has confirmed that chromium is indeed essential in maintaining a healthy, disease free body. Especially in light of the fact that the number one killer in the United States is heart disease. Also, more people than ever before are becoming diabetic. This is becoming an epidemic of huge proportions costing billions of dollars annually, as well as affecting many lives in a negative way.

Formulation of A Superior Chromium Supplement - Chromium Nicotinate Glycinate Chelate

Desiring to provide the public with the most effective form of chromium I decided to use Albion Labs patented chromium nicotinate glycinate chelate which is completely natural and non-toxic to the body. In addition, chromium nicotinate glycinate chelate has been combined with three very important co-factors, magnesium

glycinate, manganese glycinate, and zinc glycinate, all of which are patented true chelated minerals, and work with chromium nicotinate glycinate chelate to more effectively control blood sugar. All four of these crucial true chelated minerals make up a supplement called Neo Chrome™.

Premier Labs Neo Chrome™ with Co-Factors

This supplement which contains the patented chromium called chromium nicotinate glycinate chelate from Albion Labs is produced by a patented process that combines organic trivalent chromium (Cr+3) with nicotinic acid/B3, and the amino acid glycine to produce a safe, organic, non-toxic form of chromium. Blood study analysis revealed that the total chromium absorbed from chromium nicotinate glycinate chelate was 57.5%.

While chromium nicotinate glycinate chelate is an organic form of chromium that has a high absorption rate and biological activity, it takes more than just high absorption levels for chromium to be effective, it must also be in a form that the tissues of the body will use by being preformed with nicotinic acid/B3. This is especially essential because many people lose the ability to preform the organic chromium with nicotinic acid/B3 due to disease and aging.

Chromium nicotinate glycinate chelate has no negative side effects, is completely non-toxic and safe. In fact, extensive research done by Dr. D. N Mowat at the University of Guelph has shown that chromium nicotinate glycinate chelate to be safe and tremendously effective.

Chromium nicotinate glycinate chelate is a true mineral chelate using the amino acid glycine as the chelator, or carrier, of the chromium into the blood stream.

Synergistic Co-Factors

Neo Chrome™ contains three other important minerals that work with chromium nicotinate glycinate chelate in controlling blood sugar. These three co-factors are:

Magnesium (as Chelazome® amino acid chelate) - involved in activating over 300 enzymes, some of which are required to properly use fat, carbohydrates, and protein in the cells. Activates metabolic processes that burn sugar (glucose) and fats to produce ATP (adenosinetriphosphate) in the glycolytic and Krebs energy cycles. Slows secretion of insulin preventing hypoglycemia and diabetes. Involved in RNA and DNA production for healthy cellular replication of cells in tissues and organs involved in blood-sugar control.

Manganese (as Chelazome® amino acid chelate) - required for proper use of glucose for energy, normal pancreas function and development. A deficiency will result in a reduced production of insulin because of defective cells in the pancreas as well as a fewer number of islet cells which contain fewer beta cells that manufacture insulin. In 1964, Dr. L.G. Konsenko found manganese levels in diabetics to be approximately half of those of non-diabetics.

Zinc (as Chelazome® amino acid chelate) - a key component in the function of insulin. Zinc is required for DNA synthesis, critical to cellular replication of the cells of organs and tissues involved in maintaining healthy blood sugar levels, energy production, muscle building, fat utilization and activates over one hundred enzymes needed in many complex metabolic processes. A deficiency results in reduced glutathione levels in the blood needed for GTF formation with organic chromium.

Patented Process for Superior Absorption

As mentioned earlier, it is important to understand that chromium nicotinate glycinate chelate and the three minerals being used from Albion Labs, magnesium, manganese, and zinc, are true mineral chelates being complexed to the amino acid glycine by a patented process making them highly absorbable and nutritionally functional to the body. Minerals that are not true chelates break apart in the stomach and digestive tract causing intestinal distress and will have poor absorption into the bloodstream. Albion's patented process of creating chelated minerals with glycine will allow the chelates to remain intact throughout the pH range of the gastrointestinal tract allowing for efficient absorption of the minerals. But, once the chelates enter the bloodstream the minerals are released from the glycine becoming available to the biological tissues that require them.

Glycine-An Essential Nutritionally Functional Mineral Chelate

Glycine is the simplest (smallest) nonessential amino acid making it an excellent ligand, or carrier, for maximum transport of minerals into the bloodstream. Now even though it is called nonessential, it is very essential to the health of the body in many areas. Nonessential just simply means that the body can make glycine from the essential amino acids. The daily intake of glycine in the United States of the average adult is 3 to 5 grams while the amount excreted is 0.1 gram. The body can also manufacture glycine through transamination of glyoxylate and conversion of serine, another amino acid. Another process the body uses is called degradation where the complex amino acid threonine is used to produce glycine.

The importance of glycine is revealed to us when we see the many roles it plays in the complexity of the human body. Please note some of these roles listed below.

1. Glycine serves as a neurotransmitter necessary for Central Nervous System function.
2. Glycine helps to slow the degeneration of muscle tissue as one of the three components needed to produce creatine.
3. Glycine is needed for healthy prostate function in males.
4. Glycine is used to form nonessential amino acids for the immune system.
5. Glycine is used along with other amino acids in the Krebs Cycle, the energy system of the body responsible for the production of glycogen in the liver and muscles.
6. Glycine is needed for the manufacture of skin proteins, collagen, glutathione, and DNA, which as you will recall is critical to cellular replication of cells throughout our body.
6. Research has confirmed glycine's ability to assist in the recovery of the liver from alcohol-induced liver damage **(1)**, protect the liver from carcinogens such as hypolipidemic drugs, chemical solvents, and industrial plasticizers, **(2)** minimizes alcohol-induced liver damage by preventing ethanol from reaching the liver by activating first-pass metabolism in the stomach, **(3)** displays significant anti-ulcer and cytoprotective properties against chemically induced gastric ulcers, **(4)** dietary glycine was found to be safe and effective in reducing kidney toxicity by cyclosporines **(5)** (Cyclosporines are fungi of a group of biologically active metabolites of the fungi *Tolypocladium inflatum* Gams. This would include certain other fungi as well), and a 5% glycine diet prevented death and reduced liver and lung injury in animals exposed to endotoxin shock **(6)** (Endotoxin shock is a result of toxin contained in the cell walls of some microorganisms, especially gram-negative bacteria, being released when the bacterium dies and is broken down in the body).

As can be seen the amino acid glycine is not only an excellent agent for chelating minerals for superior absorption and is safe, but is a useful nutrient to the body.

Premier Labs Neo Chrome™ with co-factors is a superior chromium supplement based on sound research and science. And, science now knowing more fully the implications of this trace mineral chromium on disease prevention and maintaining a healthy body, makes Premier Labs [Neo Chrome™](#), an important part of a healthy lifestyle.

References

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