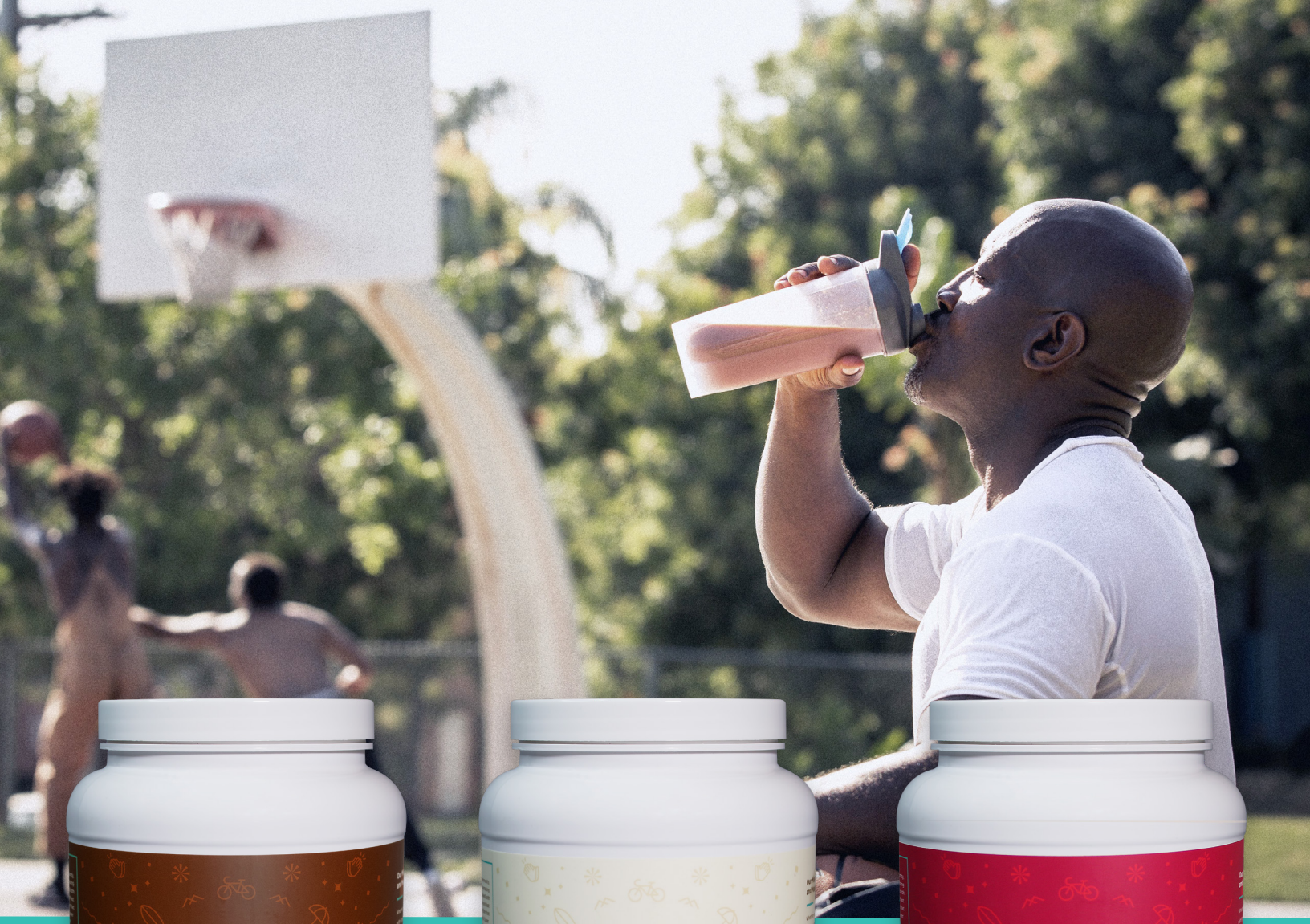
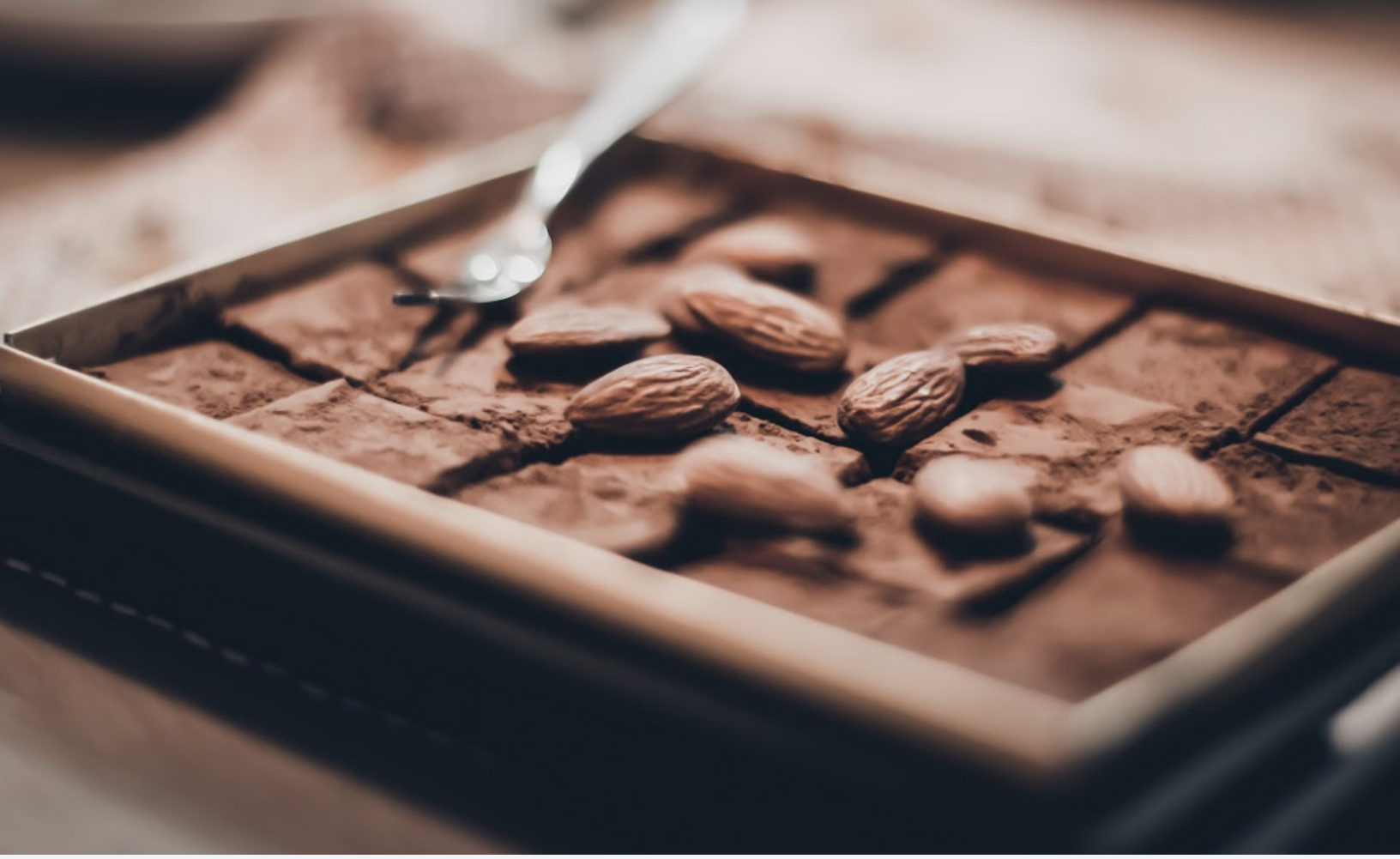


WHAT'S IN SWEE2OOTH'S SUPERBLEND?

The Science Behind Our Ingredients & How They Impact Blood Sugar



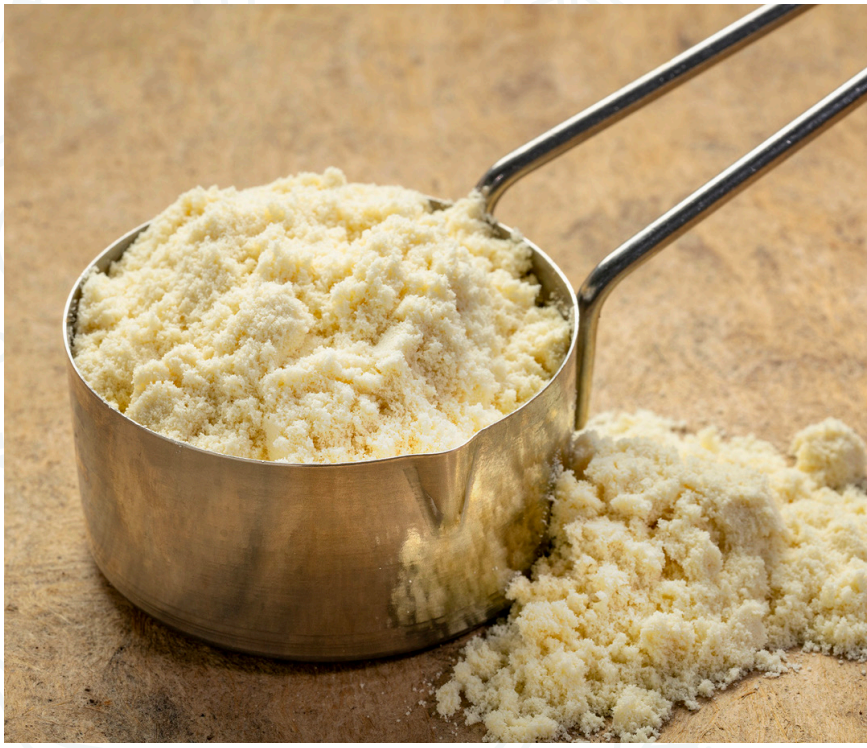
The Power of *Whey*

We have developed a proprietary whey protein "Super Blend" that includes whey isolate, whey concentrate, and micellar casein—all while delivering the incredible taste our customers expect from all Swee2ooth products.

Whey protein is a food ingredient and dietary supplement that is a byproduct of the cheese-making process. In general, whey proteins have many nutritional advantages: they are highly bioavailable (quickly absorbed by the body), have beneficial effects on insulin/glucose metabolism, and have a high concentration of branched-chain amino acids (BCAAs—including leucine, isoleucine, and valine), which are quickly incorporated into protein by muscle tissue.

Whey protein is superior at augmenting protein synthesis rapidly. However, this protein-building effect is short-lived. Consuming repeated doses of whey protein allows the body to sustain higher blood levels of amino acids and allows repeated bursts of protein synthesis, thus providing superior effects on muscle-protein balance. Whey proteins are the choice of many athletes today because of this rapid absorption after a workout that can help the body transition from a catabolic (muscle breakdown) to an anabolic (muscle-building) state.

Whey's Beneficial Effects On Insulin & Glucose Metabolism:



Whey protein can be reconstituted at the time of consumption with the addition of water, juice, milk, or other liquids. These proteins can also be mixed or dissolved into many foods to take advantage of their nutritional value. Powdered concentrates have extended shelf-lives.

Whey isolate is a highly purified form of whey protein that is typically atleast 90% protein. Manufactured either by ion exchange, microfiltration, and/or ultrafiltration, this purified product is almost completely lactose-free, cholesterol-free, fat-free, and carbohydrate-free.

Casein is the most abundant protein found in milk. Like whey protein, casein is an excellent source of all of the amino acids used by the body for protein synthesis. Unlike whey protein, casein is a slow-digesting protein.

The micellar form of casein has a unique molecular structure that dissolves slowly in the stomach and upper intestines, resulting in prolonged periods (up to 7 hours) of elevated levels of amino acids in the bloodstream. This allows the body to build and repair muscle after exercise for prolonged periods of time. The micellar form of casein is the only protein shown to be "anti-catabolic," meaning that it will prevent oxidative breakdown of muscle tissue during and after intense exercise.

Micellar casein breaks down in the upper GI tract to produce "bioactive peptides" (protein fragments) that include glycomacropeptide (GMP), casomorphins, and casein-phospho-peptide (CPP). These casein breakdown products have appetite-suppressant, mood-calming, antibacterial, and immune system benefits. Additionally, these peptides ensure the rapid absorption of calcium and phosphorus—the building blocks of our skeletal system.

In summary, whey and casein proteins have different, but complementary nutritional effects. Whey proteins provide a quick burst of protein synthesis, while casein sustains longer periods of protein synthesis. At Diabetes Health Sciences, we believe that the whey-casein blend provides the perfect metabolic platform for our nutritional shakes.

STUDY

Whey Protein in Type 2 Diabetes

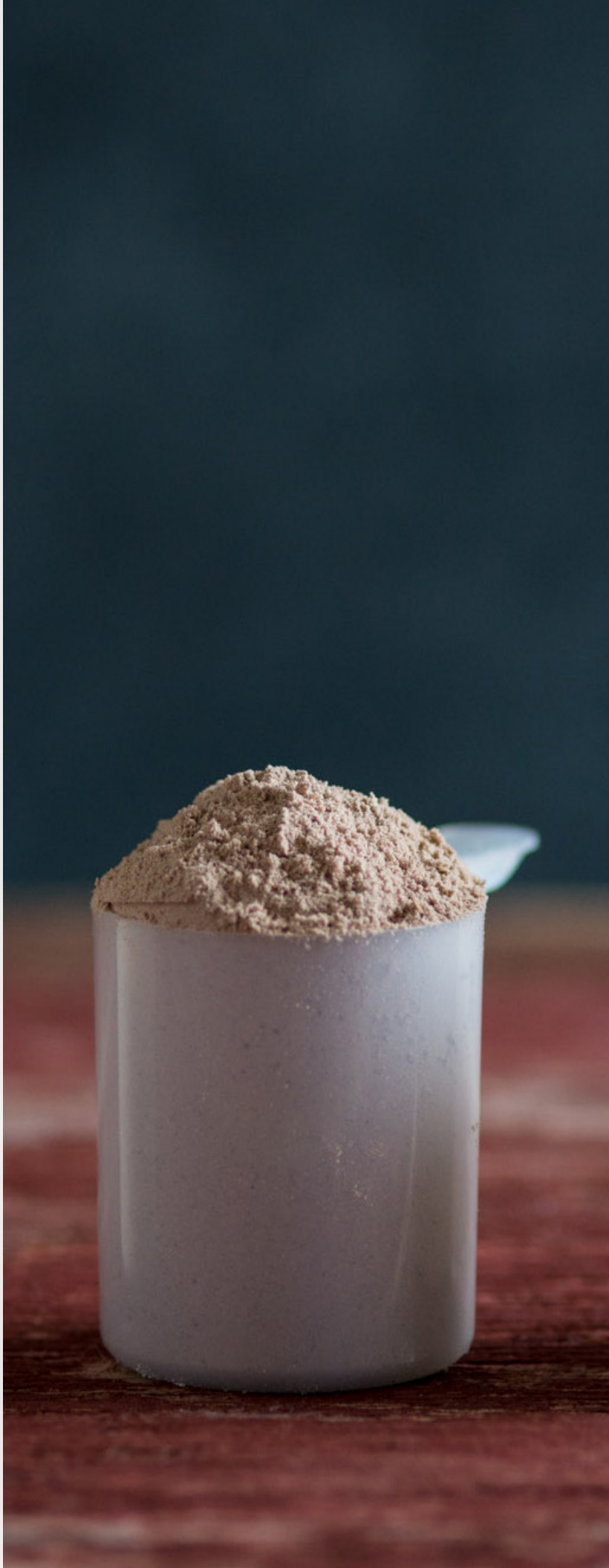
A 2014 study published in the journal "Diabetologia" suggested that consuming whey protein before breakfast could stimulate insulin secretion, resulting in lower blood glucose levels. This study tested the blood sugars of fifteenth (15) type 2 diabetics three hours after high glycemic index meals to assess the effect of whey protein on blood sugar levels.

RESULTS:

Glucose levels were 28% lower in those consuming whey protein prior to meals compared to those who did not. Interestingly, the insulin response within the first 30 minutes of a meal was 96% higher after eating whey protein versus placebo. This finding was highly significant because diabetics need insulin most immediately after a meal.

The authors concluded, "In summary, consumption of whey protein shortly before a high-glycemic index breakfast increased the early and late post-meal insulin secretion improved glucgon-like-peptide (GLP-1) responses and reduced post-meal bloodsugar levels in type 2 diabetic patients.... Whey protein may therefore represent a novel approach for enhancing glucose-lowering strategies in type 2 diabetes."

Scientifically, whey protein has been shown to encourage production of GLP-1, a hormone in the small intestine that stimulates the production of insulin (glucose-dependent stimulation of insulin). A study published in 2005 in "The American Journal of Clinical Nutrition" showed that insulin responses were heightened after meals when whey was included in mashed potatoes and meatballs.



Swee2ooth "Super Blend" *Components*

MAGNESISUM BLEND (Providing 100% of the RDI)

Rationale:
Low magnesium has been seen in 13.5% to 47.7% of patients with type 2 diabetes. Low magnesium has been associated with poor blood sugar control, coronary artery disease, hypertension, diabetic retinopathy, diabetic kidney disease, neuropathy, and foot ulcers. A large clinical study of over 2000 patients showed that adding magnesium to the diet may help protect against the development of type 2 diabetes.

Many studies suggest that taking magnesium supplementation may help blood sugar control and insulin sensitivity in people with diabetes or pre-diabetes. Our current formulation contains different forms of magnesium to ensure maximum absorption through the GI tract.

American Diabetes Association
Clinical Journal of American Society of Nephrology
World Journal of Diabetes
PLOS One

CinnulinPF®

Rationale:
This is a proprietary, purified water-soluble extract from cinnamon, which is known to have a variety of health benefits. In a 2007 study by Ziegenfuss et al, this compound was found to statistically lower blood sugar by 8%. Additional findings included lower body fat, enhanced lean body mass, lower blood pressure, and improvements in various antioxidant measures.

IN-Ingredients
National Center for Biotechnology Information
National Center for Biotechnology Information

ALPHA-LIPOIC ACID

Rationale:
Alpha-lipoic acid (ALA) is a synthetic version of lipoic acid, a naturally occurring compound produced by the body. ALA is a potent antioxidant that is vital to cellular energy production. As nutrients

are converted to energy by the process of oxidation, free radicals are generated, which can be quite harmful to cells.

ALA helps to minimize oxidative damage to the cells, thus protecting the cell's vital components and increasing the cell's metabolic efficiency. From a type 2 diabetes perspective, ALA helps to increase insulin sensitivity at the cellular level and may be particularly helpful in addressing "metabolic syndrome." ALA has been found to be useful for the treatment of diabetic neuropathy at a dose of 200-300 mg/day.

National Center for Biotechnology Information
National Center for Biotechnology Information

GTF CHROMIUM

Rationale:
Available evidence suggests that chromium supplementation can improve glucose metabolism in glucose intolerant patients and can improve cholesterol ratios despite the status of glucose tolerance. While long-term benefits of chromium supplementation are not completely clear, the ability of chromium to potentiate insulin sensitivity in animals is well supported.

National Center for Biotechnology Information

CHROMIUM PICOLINATE

Rationale:
FDA tried and tested for maximum chromium uptake.

NutraIngredients-USA
National Center for Biotechnology Information

GLUCOMANNAN

Rationale:
Traditionally used in Eastern medicine for more than 2000 years, recent studies have shown that dietary supplementation with glucomannan can lower plasma cholesterol, improve carbohydrate metabolism, and improve colonic (gastrointestinal) health.

National Center for Biotechnology Information

BIOTIN

Rationale:
Biotin is a B-complex water-soluble vitamin and coenzyme that is thought to decrease insulin resistance and nerve symptoms related to type 2 diabetes. As a cofactor of enzymes required for fatty acid synthesis and liver gluconeogenesis from glucose, biotin is generally believed to have a glucose-lowering effect. A 2006 pilot study combining biotin and chromium picolinate supplementation in diabetic patients suggested improved glucose management and certain lipid measurements.

National Center for Biotechnology Information
WebMD.com
Oregon State University

FURTHER CLINICAL SUPPORT "Backed by Science":

- Whey protein: The "whey" forward for treatment of type 2 diabetes?
- Whey Proteins Reduce Appetite, Stimulate Anorexigenic Gastrointestinal Peptides and Improve Glucometabolic Homeostasis in Young Obese Women
- Two small studies indicate benefits of whey protein for type 2 diabetes control
- Extraordinary Reasons Why Whey Protein Is Good For Diabetes
- Effects of Pre-Meal Drinks with Protein and Amino Acids on Glycemic and Metabolic Responses
- Metabolic Responses of Healthy or Prediabetic Adults to Bovine Whey Protein and Sodium Caseinate Do Not Differ