

# Glucose Balance



## CLINICAL APPLICATIONS

- *Helps Maintain Normal Blood Sugar Levels*
- *Supports Healthy Body Weight and Metabolism*
- *Promotes a Feeling of Fullness and Reduces Cravings*
- *Strengthens Cardiovascular Health*

## GLYCEMIC SUPPORT

Glucose Balance is a drink mix formula that supports blood sugar balance already within normal levels. Glucose Balance provides fiber, protein, omega-3 fatty acids, lipoic acid, chromium and vanadyl sulfate, with no added sugar. Glucose Balance is available in delicious chocolate and vanilla flavors.

### Overview

Maintaining normal blood sugar levels has become a concern for many in the United States and across the globe. The prevalence of refined sugars and carbohydrates and the low presence of fiber in the Western diet have been directly linked to many of the blood sugar challenges of this century. **Glucose Balance** provides a helpful blend of nutrients that support the body's response to sugar, signal optimal glucose disposal, increase cellular sensitivity to insulin, reduce glucose absorption and support microcirculation.

### Glucomannan<sup>†</sup>

Glucomannan is a water-soluble dietary fiber derived from konjac root (*Amorphophallus konjac*). A meta-analysis of 14 randomized controlled trials of glucomannan found 2.0-3.87 g/day significantly balanced total blood fats, reduced body weight by 0.79 kg and supported normal blood sugar levels.<sup>1</sup> In one 28-day study, 3.6 g/day of glucomannan supplementation, given to 22 individuals, significantly promoted healthy blood fat and cholesterol profiles, Apo B and before-meal blood sugar levels, compared to placebo.<sup>2</sup> A review of seven clinical trials on glucomannan supplementation (2-4 g/day, for eight weeks) found the supplement significantly reduced body weight by 3.08-5.5 lbs, even without dietary restrictions.<sup>3</sup> Even at low

doses of 1 g/day, over an eight-week period, consumption of glucomannan resulted in significant mean weight loss (5.5 lbs) in 20 subjects.<sup>4</sup>

### Guar Gum Fiber<sup>†</sup>

Viscous dietary fibers are effective in maintaining satiety but challenging to apply in normal serving sizes in foods due to their viscosity and required high amounts. Guar gum fiber is a near non-viscous soluble fiber that has been proven effective in providing several physiological benefits. According to a 2016 summary of clinical research on the topic, regular intake of guar gum fiber provided significant sustained post-meal satiety effects and minimized the inter-meal calorie intake by about 20% in normal subjects. The intake of guar gum fiber alone or its combination with protein showed acute satiety effects in normal subjects.<sup>5</sup>

### Alpha Linolenic Acid<sup>†</sup>

Flax seeds are a generous source of omega-3 fatty acids and fiber. The organic flax seeds in **Glucose Balance** provide a total of 1.3 g of alpha linolenic acid per scoop, while contributing additional protein, lignans and numerous micronutrients.

### Alpha Lipoic Acid<sup>†</sup>

Alpha lipoic acid (ALA) is an antioxidant that has a potent effect on blood sugar metabolism. Recent studies have shown that ALA's ability to regulate insulin is mediated by its activation of AMP-activated protein kinase (AMPK), which acts as a type of cellular fuel sensor to upregulate activity in the peripheral skeletal muscle. While in the hypothalamus, ALA downregulates AMPK, thereby reducing appetite. Administration of alpha lipoic

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acid in animal models was found to increase AMPK activity and fatty acid oxidation in skeletal muscle. ALA was also found to increase insulin-stimulated glucose disposal, both in whole body and in skeletal muscle.<sup>6</sup> One study, using oral dosing, showed that ALA increases insulin sensitivity by 27%.<sup>7</sup> Other research has found that a dose of 600 mg/day of ALA over three months lead to a 36% reduction in blood fats and a 38% improvement in the oxidative stress to oxidative defense ratio.<sup>8</sup> ALA has also been shown to increase GLUT4 stimulated glucose transport, independent of insulin, to lower oxidative stress and to increase nerve conductivity in related neuropathy.

### Chromium<sup>†</sup>

Chromium is a critical element in the GTF, a complex shown to be crucial for glucose uptake into the cells. Studies using 1,000 mcg/day of chromium showed a significant improvement in markers of blood sugar balance, insulin sensitivity and blood fats.<sup>9-11</sup> In a study of 43 patients receiving either 600 mcg of chromium and 2 mg biotin a day or placebo, a significantly greater improvement for blood sugar was seen after four weeks, during the two-hour oral sugar test.<sup>12</sup>

### Vanadyl Sulfate<sup>†</sup>

Vanadyl sulfate (VS) stimulates glucose uptake within cells helping to use blood sugar more efficiently and support blood sugar balance already within normal levels. VS increases GLUT-4 synthesis, a glucose transport protein which allows glucose to enter the cell. This improved glucose consumption promotes increased muscle cell sensitivity to insulin. 100 mg/day of VS was shown to support insulin sensitivity (fasting plasma glucose and HbA1c) in those with blood sugar imbalances.<sup>13</sup> In a three-week study, VS given at 100 mg/day significantly improved hepatic and peripheral muscle sensitivity in individuals with elevated blood sugar levels within the normal range.<sup>14</sup> VS was also shown to decrease endogenous glucose production by 20%.

### Directions

Mix 2 scoops (34.7 grams) of **Glucose Support** with 8-10 ounces of the beverage of your choice to the desired thickness, once daily or as recommended by your health care professional.

### Does Not Contain

Gluten, yeast, artificial colors and flavors.

### Cautions

If you are pregnant or nursing, consult your physician before taking this product. As with all dietary supplements, some individuals may not tolerate or may be allergic to the ingredients used. Please read the ingredient panel carefully prior to ingestion. Cease taking this product and consult your physician if you have negative reactions upon ingestion. **Glucose Balance** contains a high amount of soluble fiber and pre-

biotic nutrients. Some individuals may experience increased gas discomfort for the first 3-5 days of use until bowel microflora have adjusted to the fiber intake. To reduce this effect, use ½ of the recommended dose for the first 3-5 days. Increase to full dose once you have become accustomed to the product. Because glucomannan is a bulk-forming fiber, the drink becomes viscous within 20 minutes of its preparation. Without drinking enough liquid, the product may swell in the throat, causing blockage or choking. Avoid use if you ever had esophageal narrowing or swallowing difficulties.

## Supplement Facts <sup>V11</sup>

Serving Size 2 Scoops (34.7 Grams)  
Servings Per Container 14

2 scoops contain	Amount Per Serving	% Daily Value
Calories	150	
Total Fat	3.5 g	4%*
Saturated Fat	1 g	5%*
Total Carbohydrate	17 g	6%*
Dietary Fiber	12 g	43%*
Total Sugars	1 g	**
Protein	10 g	20%*
Calcium	30 mg	2%
Iron	1 mg	6%
Chromium (as O-polynicotinate) <sup>†</sup>	400 mcg	1,143%
Sodium	50 mg	2%
Potassium	60 mg	1%
<b>Proprietary Blend</b>	30.3 g	
Rice Protein		**
Flaxseed Flour (Organic)		**
Guar Gum Fiber (Sunfiber®)		**
Inulin		**
Gum Arabic ( <i>Acacia senegal</i> )		**
Glucomannan (from Konjac Root)		**
Alpha Linolenic Acid (from Organic Flaxseed Flour)	1.3 g	**
Alpha Lipoic Acid	100 mg	**
Vanadyl Sulfate Hydrate	5 mg	**

\* Percent Daily Values are based on a 2,000 calorie diet.  
\*\* Daily Value not established

### Glucose Support (Vanilla)

ID# 922934 Net Wt. 1 lb 1.1 oz (17.1 oz) (485.8 g)

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# Supplement Facts <sup>v10</sup>

Serving Size 2 Scoops (37.4 Grams)  
Servings Per Container 14

2 scoops contain	Amount Per Serving	% Daily Value
Calories	160	
Total Fat	4 g	5%*
Saturated Fat	1.5 g	8%*
Total Carbohydrate	17 g	6%*
Dietary Fiber	12 g	43%*
Total Sugars	1 g	**
Protein	10 g	20%*
Calcium	30 mg	2%
Iron	2 mg	11%
Chromium (as O-polynicotinate)†	400 mcg	1,143%
Sodium	50 mg	2%
Potassium	240 mg	5%
<b>Proprietary Blend</b>	<b>30.3 g</b>	
Rice Protein		**
Flaxseed Flour (Organic)		**
Guar Gum Fiber (Sunfiber®)		**
Inulin		**
Gum Arabic ( <i>Acacia senegal</i> )		**
Glucomannan (from Konjac Root)		**
Alpha Linolenic Acid (from Organic Flaxseed Flour)	1.3 g	**
Alpha Lipoic Acid	100 mg	**
Vanadyl Sulfate Hydrate	5 mg	**

\* Percent Daily Values are based on a 2,000 calorie diet.  
\*\* Daily Value not established

## Glucose Support (Chocolate)

ID# 920977 Net Wt. 1 lb 2.5 oz (18.5 oz) (523.6 g)

## References

- Sood, N., Baker, W., Coleman, C. Effect of glucomannan on plasma lipid and glucose concentrations, body weight, and blood pressure: systematic review and meta-analysis. *AM J Clin Nutr* 2008;88(4):1167-75.
- Chen, H. L., Sheu, W. H. et al. Konjac supplement alleviated hypercholesterolemia and hyperglycemia in type 2 diabetic subjects--a randomized double-blind trial. *J Am Coll Nutr*.2003; 22(1):36-42.
- Keithley, J. and Swanson, B. Glucomannan and obesity: a critical review. *Altern Ther Health Med*. 2005; 11(6):30-34.
- Walsh, D. E., Yaghoubian, V. et al. Effect of glucomannan on obese patients: a clinical study. *Int J Obes*. 1984; 8(4):289-293.
- Rao TP. Role of guar gum fiber in appetite control. *Physiol Behav*. 2016 Oct 1;164(Pt A):277-83.
- Lee,WJ, Song,KH, Koh,EH, Won,JC, Kim,HS, Park,HS, Kim, MS, Kim,SW, Lee,KU, Park,JY: Alpha-lipoic acid increases insulin sensitivity by activating AMPK in skeletal muscle. *Biochem Biophys Res Commun* 332:885-891, 2005.
- Osler,ME, Zierath,JR: Minireview: adenosine 5'-monophosphate-activated protein kinase regulation of fatty acid oxidation in skeletal muscle. *Endocrinology* 149:935-941, 2008.
- Ruderman,NB, Saha,AK, Kraegen,EW: Minireview: malonyl CoA, AMP-activated protein kinase, and adiposity. *Endocrinology* 144:5166-5171, 2003.
- Anderson RA et al. Elevated intakes of supplemental chromium improve glucose and insulin variables in individuals with type 2 diabetes. *Diabetes* 1997; 46(11): 1786-91.
- Morris BW et al. Chromium homeostasis in patients with type II (NIDDM) diabetes. *J Trace Elem Med Biol* 1999;13(1-2):57-61.
- Ghosh D et al. Role of chromium supplementation in Indians with type 2 diabetes mellitus. *J Nutr Biochem*. 2002 Nov; 13(11): 690-697.
- Singer GM, G eohas J. The effect of chromium picolinate and biotin supplementation on glycemic control in poorly controlled patients with type 2 diabetes mellitus: a placebo-controlled, double-blinded, randomized trial. *Diabetes Technol Ther*. 2006; 8(6): 636-43.
- Cohen N et al. Oral vanadyl sulfate improves hepatic and peripheral insulin sensitivity in patients with non-insulin-dependent diabetes mellitus. *J Clin Invest* 1995; 95(6):2501-9.
- Halberstam M, Cohen N, Shlimovich P, Rossetti L, Shamon H. Oral vanadyl sulfate improves insulin sensitivity in NIDDM but not in obese nondiabetic subjects. *Diabetes* 1996; 45(5):659-66.

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