



GLUCO NUTRIENT TEST

Discern the micronutrient imbalances that contribute to the development, acceleration, and complication of diabetes.

Why You Need Gluco Nutrient Testing

Optimal Nutrition for Blood Sugar Management

Diabetes management and prevention require sufficient nutrient levels for proper metabolism and energy absorption from macronutrients, including carbohydrates. Any nutrient imbalance can contribute to high levels of blood glucose and insulin secretion, which can put an individual at higher risk. Chronic undernutrition can also aggravate cell dysfunction, which can further increase glucose intolerance and potential for complication.¹

Diabetes can be reduced, wholly prevented, and in some cases, reversed.²

The Impact of Gluco Nutrient Testing

The Gluco Nutrient Test reveals subtle micronutrient imbalances that contribute to the disease. Magnesium, for example, is a very common deficiency in diabetics where serum magnesium may seem normal, but intracellular magnesium may be severely depleted, necessitating nutritional intervention for patients and high-risk individuals alike.

- ✓ Measures the level of 16 vitamins, minerals, and co-factors that support optimal glucose metabolism
- ✓ Reveals micronutrient imbalances that contribute to the development, acceleration, and complication of diabetes
- ✓ Determines functional levels of lipoic acid for baseline and monitoring to ensure proper insulin function during treatment and supplementation
- ✓ Evaluates intracellular mineral levels (instead of just serum measurement) like magnesium, calcium, selenium, and zinc
- ✓ Provides clinically actionable information that enables clinicians to develop personalized dietary and supplementation protocol for high-risk individuals and diabetic patients

Diabetes was the 5th leading cause of death worldwide in 2015.³ Proper nutritional interventions can help prevent and manage diabetes and other diseases that may stem from it.⁴



GLUCO NUTRIENT TEST

Micronutrients Tested:

Folate and Cobalamin (vitamins B9 and B12) are co-factors in the metabolism of homocysteine, with deficiencies in these vitamins resulting in homocysteine accumulation. B12 deficiency also increases methylmalonic acid (MMA) in the blood. Homocysteine and MMA toxicities worsen diabetic peripheral neuropathy.⁵

Alpha-Lipoic Acid is the body's own insulin mimetic or non-hormonal hypoglycemic agent (increases peripheral glucose utilization in diabetics) and potent anti-inflammatory agent (inhibits NF-κB). With the antioxidant properties of lipoic acid, diabetic peripheral neuropathy can be prevented with adequate lipoic acid, as shown in clinical and experimental trials.⁶

Vitamin D improves insulin sensitivity and the ability to tolerate glucose. While too much vitamin D can be toxic, optimal levels of vitamin D significantly reduce the risk of type 2 diabetes. The effect of increasing sensitivity to insulin also helps in the management of full-blown diabetes.⁷

Manganese works directly with the enzyme that metabolizes glucose, helping maintain blood sugar levels. Manganese also reduces the risk of neuropathy and helps maintain proper nerve function.⁸

Magnesium aids in cell energy production, as well as the production of various enzymes, such as those associated with blood sugar regulation. Both Type I and Type II diabetic patients often have magnesium deficiencies, which can also cause cardiovascular disease (CVD), vision problems, and high blood pressure.⁹

Biotin (a B vitamin) is involved in important metabolic pathways such as gluconeogenesis, fatty acid synthesis, and amino acid catabolism. It works with chromium to enhance glucose uptake and glucose disposal.⁵

Chromium is an essential mineral that shows to have a beneficial role in the regulation of insulin action and its effects on carbohydrate, protein, and lipid metabolism. It is essential to the glucose tolerance factor (GTF) that enhances insulin sensitivity and blood sugar regulation. Studies show that people with type 2 diabetes have lower blood levels of chromium than those without the disease.¹⁰

Vanadium reduces blood sugar while boosting insulin sensitivity. It can also reduce high glucose levels, as well as levels of triglycerides and cholesterol to lessen CVD risk. As it may lower levels of blood sugar, diabetics taking medication to manage their sugar levels may risk hypoglycemia if vanadium levels are toxic.¹¹

This nutrient panel also tests for **ferritin, vitamin k, calcium, zinc, selenium, sodium, and potassium.**

1 Chronic undernutrition may accentuate the β cell dysfunction of type 2 diabetes. <https://www.sciencedirect.com/science/article/pii/S016882279090022L>

2 <https://www.diabetes.co.uk/reversing-diabetes.html>

3 The top 10 causes of death. <http://www.who.int/mediacentre/factsheets/fs310/en/>

4 Deaths Attributable to Diabetes in the United States: Comparison of Data Sources and Estimation Approaches. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5266275/>

5 Vitamin B status in patients with type 2 diabetes mellitus with and without incipient nephropathy. <https://www.sciencedirect.com/science/article/pii/S0168822714004586>

6 Parekh D. et al. Piolo study to evaluate the effect of short term improvement in vitamin D status on glucose tolerance in patients with type 2 diabetes. *Endocr Pract.* 2010 Jul-Aug;16(4):600-8. <https://www.ncbi.nlm.nih.gov/pubmed/20350923>access20350923&MED&Abstract
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10 A scientific review: the role of chromium in insulin resistance. <https://www.ncbi.nlm.nih.gov/pubmed/15208835>

11 Poucheret P, Verma S, Grynvas MD, Mcneill JH. Vanadium and diabetes. *Mol Cell Biochem.* 1998 Nov;188(1-2):73-80 <https://www.ncbi.nlm.nih.gov/pubmed/9823013>
Verma S, Cam MC, Mcneill JH. Nutritional factors that can favorably influence the glucose/insulin system: vanadium. *J Am Coll Nutr.* 1998 Feb;17(1):11-8 <https://www.ncbi.nlm.nih.gov/pubmed/9477384>

TEST INFORMATION

Specimen : 20 ml. whole blood
Result TAT : 7 working days
Method : HPLC, LC-MS/MS, ICP-MS, Microassay

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