



METAMETRICS
LABORATORY

VEGAN NUTRIENT TEST

Discover micronutrient deficiencies that can stem from plant-based diets.

Why You Need Vegan Nutrient Testing

The Importance of Nutrition in Plant-Based Diets

Vegan or plant-based diet relying mostly on vegetables, grains, nuts, fruits, and other edible plant byproducts are usually high in dietary fiber but low on saturated fat and cholesterol. Vegans tend to be slimmer, have lower cholesterol, and lower blood pressure, therefore reducing their risk of heart disease. However, complete abstinence from animal-based foods can increase the risk of certain nutritional deficiencies.¹

Some nutrients like vitamin B12, iron, vitamin D, and complete proteins are not commonly found in plant-based sources and can put a vegan or vegetarian's health at risk.² Measuring these macro- and micronutrients can help determine if a patient's diet and supplementation habits are providing adequate levels of nourishment.

Proactive Approach Through the Vegan Nutrient Test

This test provides clinicians with accurate and actionable assessment of critical nutrients, allowing for personalized dietary and supplementation plans to address nutrient deficiencies among high-risk vegan patients.

- ✓ Measures the level of vitamin B12, iron, calcium, vitamin D, omega-3 fatty acids, and 24 amino acids (essential, non-essential, and conditional amino acids)
- ✓ Detects nutritional imbalances like protein, iron, calcium, and others that are most common with vegan and vegetarian diets

Nutritional deficiencies can impact a vegan's health in a variety of ways, like weakened immune system, higher risk of bone fractures, high blood pressure, or fatigue.



VEGAN NUTRIENT TEST

Analytes Tested:

Cobalamin (or vitamin B12) that is sourced mainly from meat, eggs, and dairy products is essential for the formation and division of red blood cells and protection of the nervous system.³ Cobalamin deficiency is most common among vegans, which can cause anemia, neurological disorders, weakness, fatigue, reduced growth and healing, poor digestion and malabsorption, and poor serotonin and melatonin metabolism.⁴

Vitamin D protects against multiple cancers and chronic diseases, and helps strengthen bones and teeth. Vegans depending on sun exposure or vitamin D-fortified foods have the lowest mean intake.⁵ Deficiency of this vitamin can increase the risk of osteoporosis, multiple sclerosis, depression, muscle wasting, and reduced strength.⁶

Calcium is essential for the development, growth, and maintenance of bone, as well as heart and muscle functions. Vegans might not obtain sufficient calcium because of abstinence from dairy foods and this increases the risk of developing hypocalcemia. Severe symptoms will develop as the condition progresses and these include memory loss, hallucinations, muscle spasms, and easy fracturing of the bone.⁷ Conversely, too much calcium can inhibit the absorption of both non-heme and heme iron, which can increase the risk of iron deficiency.⁸

Iron is crucial for absorbing oxygen into the blood and transporting it to the body cells. Heme, a type of iron only found in meat, is much better absorbed by the body as compared to plant-based iron. Heme iron also improves the absorption of plant-sourced iron, which makes vegetarians and vegans more prone to anemia.⁹ Iron deficiency can cause weakness, fatigue, difficulty concentrating, and impaired cognitive function, while an oversupply can lead to gastric upset, constipation, nausea, abdominal pain, vomiting, and faintness.¹⁰

Protein (measured via Amino Acid Panel) is important for maintaining muscle and bone mass, and keeping the immune system strong. Protein from plant sources is usually incomplete, lacking at least 1 essential amino acid, which requires supplementation or eating certain food combinations in order to complete.¹¹ Low protein supply may cause changes in body composition over time, such as muscle cramping, weakness, and soreness.¹²

Essential Fatty Acids are useful in energy production and oxygen transportation throughout the body. Omega-3 fatty acids are particularly vital for a healthy heart, eyes, and brain.¹³ A deficiency of either omega-3 or omega-6 can cause rough, scaly skin, and dermatitis.¹⁴

1 Craig, Winston. 2009. Health Effects of Vegan Diets. The American Journal of Clinical Nutrition 89 (5). Retrieved March 3, 2020 (<https://academic.oup.com/ajcn/article/89/5/16275/4596952>)

2 Fields, H., Ruddy, B., Wallace, M., Shah, A., Millstine, D., & Mark, L. 2015. How to Monitor and Advise Vegans to Ensure Adequate Nutrient Intake. The Journal of the American Osteopathic Association. Retrieved March 1, 2020 (<http://jaoa.org>)

3 Crane, M., Sample, C., Patchett, S., & Register, U. 2009. Vitamins B12 Studies in Toal Vegetarians (Vegans). Journal of Nutritional Medicine 4 (4). Taylor & Francis Online

4 See Footnote 2

5 See Footnote 1

6 McManus, Katherine. 2020. With a Little Planning, Vegan Diets can be a Healthful Choice. Harvard Health Publishing. Retrieved March 3, 2020 (<https://www.health.harvard.edu/blog/with-a-little-planning-vegan-diets-can-be-a-healthful-choice-2020020618766>)

7 Schafer, A. & Shoback, D. 2016. Hypocalcemia: Diagnosis and Treatment. MDText.com, Inc., South Dartmouth

8 Iron Disorders Institute. 2009. Achieving Iron Balance with Diet. Iron Disorders Institute. Retrieved March 25, 2020 (<http://www.irondisorders.org/diet/>)

9 See Footnote 6

10 See Footnote 8

11 See Footnote 2

12 See Footnote 6

13 See Footnote 1

14 See Footnote 8

TEST INFORMATION

Specimen : 25 mL whole blood
Result TAT : 7 working days
Method : Microassay, LC-MS/MS, GC, UPLC

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