

Testing for Micronutrient Deficiencies

Nutrients are often divided into two groups. There are *macronutrients*, which the body needs in large quantities, such as carbohydrates, proteins, and fats. On food labels, these macronutrients are measured in grams (g). And then there are *micronutrients* – vitamins and minerals that the body needs in much smaller quantities, for normal growth, development, and function. Quantities of micronutrients are given in milligrams (mg).

While macronutrients get the most press – in the context of diets to lose weight, reduce fat, increase muscle mass, and increase energy – it is often micronutrients that steal the headlines in news stories related to illness and preventing infection.

Elemental
Nutritional
Requirements of
Plant life

Basic Nutrients



Macronutrients

Primary



Secondary

Micronutrients



Others



Take, for example, the recent worldwide COVID-19 outbreak. Many articles, as well as published reports, highlight the potential benefits of vitamins C and D and the mineral zinc in boosting the body's immune system to fight this deadly virus and other disease-causing microbes.

However, micronutrients are also important for supporting the health and function of not only the immune system but other systems in the body, including the cardiovascular, respiratory, gastrointestinal, endocrine, nervous, muscular, skeletal, and reproductive systems.

According to the World Health Organization (WHO), the major micronutrient issues affecting populations in developed and developing countries are shown in the following table:

Micronutrient	Deficiency Prevalence	Major Deficiency Disorders
Iodine	2 billion at risk	Goiter, hypothyroidism, iodine deficiency disorders, increased risk of stillbirth, birth defects, infant mortality, and cognitive impairment
Iron	2 billion	Anemia, reduced learning and work capacity, increased maternal and infant mortality, low birth weight
Zinc	Estimated high in developing countries	Poor pregnancy outcome, impaired growth (stunting), genetic disorders, decreased resistance to infectious diseases
Vitamin A	254 million preschool children	Night blindness, xerophthalmia, increased risk of mortality in children and pregnant women

Folate (Vitamin B6)	Insufficient data	Megaloblastic anemia, neural tube and other birth defects, heart disease, stroke, impaired cognitive function, depression
Cobolamine (Vitamin B12)	Insufficient data	Megaloblastic anemia (associated with Helicobacter pylori induced gastric atrophy)
Thiamine (Vitamin B1)	Insufficient data, estimated as common in developing countries and in famines, displaced persons	Beriberi (cardiac and neurologic), Wernicke and Korsakov syndromes (alcoholic confusion and paralysis)
Riboflavin (Vitamin B2)	Insufficient data, estimated to be common in developing countries	Non-specific – fatigue, eye changes, dermatitis, brain dysfunction, impaired iron absorption
Niacin (Vitamins B3)	Insufficient data, estimated as common in developing countries and in famines, displaced persons	Pellagra (dermatitis, diarrhea, dementia, death)

Vitamin B6	Insufficient data, estimated as common in developing countries and in famines, displaced persons	Dermatitis, neurological disorders, convulsions, anemia, elevated plasma homocysteine
Vitamin C	Common in famines, displaced persons	Scurvy (fatigue, hemorrhages, low resistance to infection, anemia)
Vitamin D	Widespread in all age groups, low exposure to ultraviolet rays of sun	Rickets, osteomalacia, osteoporosis, colorectal cancer
Calcium	Insufficient data, estimated to be widespread	Decreased bone mineralization, rickets, osteoporosis
Selenium	Insufficient data, common in Asia, Scandinavia, Siberia	Cardiomyopathy, increased cancer and cardiovascular risk
Fluoride	Widespread	Increased dental decay, affects bone health

Here at BioDesign Wellness Center, we frequently see micronutrient deficiencies associated with the following illnesses:

- Autism and other spectrum disorders

- Autoimmunity
- Cancer
- Cardiovascular disease
- Chronic inflammation, which is associated with many chronic illnesses
- Diabetes
- Environmentally acquired illness (EAI)
- Fatigue
- Fertility issues
- Mood disorders
- Neurological disorders/Alzheimer's
- Osteoporosis
- Sports performance optimization
- Weight issues

Micronutrient Testing

We test for micronutrients using the micronutrient test from SpectraCell Laboratories, which is covered by Medicare and many insurance plans. By using advanced technologies, SpectraCell has become one of the nation's leaders in nutritional testing. The Houston-based company's micronutrient test is run before and after intravenous (IV) or oral nutrient supplementation therapies. It requires a blood draw, which we do at our [Tampa functional medicine](#) office, and then we send the blood sample to the lab for testing.

Most of our patients have two to four deficiencies of essential vitamins and minerals; many more have sufficient but not optimal levels. We prescribe supplements, as needed, with the objective of bringing patients to optimal micronutrient levels to make the body more resilient to infection and disease.

While the conventional healthcare system focuses on B12, Folate, and Vitamin D, research clearly indicates that every micronutrient, including zinc, selenium, and B1 are vitally

important to prevent disease and optimize health.

In our experience, many people who are aware of supplements are taking poor-quality bulk supplements or taking less than what they need of certain micronutrients and not hitting the targets. At BioDesign, we correct any deficiencies using clinical grade supplements and adequate dosing, which we determine on an individual basis.

About SpectraCell's Micronutrient Test

SpectraCell's Micronutrient test provides a comprehensive nutritional analysis by measuring functional deficiencies at the cellular level. It is an assessment of how well your body utilizes 31 vitamins, minerals, amino/fatty acids, antioxidants, and metabolites. The body needs these nutrients to produce enzymes, hormones, and other substances essential for proper growth, development, and good health. Repletion recommendations are made, based on need.

What makes this testing unique is that it measures the *functional level and* capability of micronutrients present within white blood cells, where metabolism takes place and where micronutrients do their job, thus taking each person's biochemical individuality into account. Unlike static serum measurements, which assess only the concentration of nutrients present outside of the cell (*extracellular*) and only provide a glimpse of a person's health, SpectraCell's Micronutrient test is a long-term assessment (four to six months) that addresses the *functional impact* (performance) of micronutrients – what really matters.

Evaluating micronutrient status can be the first step in identifying metabolic inadequacies while shedding light on the possible underlying causes of complex chronic conditions.

Have Your Micronutrient Levels Tested

We encourage you to have your micronutrient levels tested regularly, for diagnostic or preventive purposes, regardless of whether you are feeling ill or run-down. Identifying and addressing micronutrient deficiencies early can help to prevent development of serious illnesses while enabling you to look, feel, and perform at your highest level.

If you would like to have your micronutrient levels tested, please feel free to reach out to our customer experience manager, Lori, by calling (813) 445-7770.

Disclaimer: *The information in this blog post about testing for micronutrient deficiencies is provided for general informational purposes only and may not reflect current medical thinking or practices. No information contained in this post should be construed as medical advice from the medical staff at BioDesign Wellness Center, Inc., nor is this post intended to be a substitute for medical counsel on any subject matter. No reader of this post should act or refrain from acting on the basis of any information included in, or accessible through, this post without seeking the appropriate medical advice on the particular facts and circumstances at issue from a licensed medical professional in the recipient's state, country or other appropriate licensing jurisdiction.*