



MicroNutrient Testing				Patient Handout
Nutrient	Potential	What It Does	Where It's Found	Symptoms and Problems
Vitamin E	Very common	Antioxidant, regulates oxidation reactions, stabilizes cell membrane, immune function, protects against cardiovascular disease, cataracts, macular degeneration	Wheat germ, liver, eggs, nuts, seeds, cold-pressed vegetable oils, dark leafy greens, sweet potatoes, avocados, asparagus	Skin, hair, rupturing of red blood cells, anemia, bruising, PMS, hot flashes, eczema, psoriasis, cataracts, wound healing, muscle weakness, sterility
Calcium	Very common	Bones, teeth, helps heart, nerves, muscles, body systems work properly, needs other nutrients to function	Dairy, wheat/soy flour, molasses, Brewer's yeast, Brazil nuts, broccoli, cabbage, dark leafy greens, hazelnuts, oysters, sardines, canned salmon	Osteoporosis, osteomalacia, osteoarthritis, muscle cramps, irritability, acute anxiety, colon cancer risk
Chromium	Common	Assists insulin function, increases fertility, carbohydrate/fat metabolism, essential for fetal growth/development	Supplementation, Brewer's yeast, whole grains, seafood, green beans, broccoli, prunes, nuts, potatoes, meat	Metabolic syndrome, insulin resistance, decreased fertility
Magnesium	Very common	300 biochemical reactions, muscle/nerve function, heart rhythm, immune system, strong bones, regulates calcium, copper, zinc, potassium, vitamin D	Green vegetables, beans, peas, nuts, seeds, whole unprocessed grains	Appetite, nausea, vomiting, fatigue ramps, numbness, tingling, seizures, heart spasms, personality changes, heart rhythm
Selenium	Common	Antioxidant, works with vitamin E, immune function, prostaglandin production	Brewer's yeast, wheat germ, liver, butter, cold water fish, shellfish, garlic, whole grains, sunflower seeds, Brazil nuts	Destruction to heart/pancreas, sore muscles, fragility of red blood cells, immune system
Zinc	Most common	Supports enzymes, immune system, wound healing, taste/smell, DNA synthesis, normal growth and development during pregnancy, childhood and adolescence.	Oysters, red meat, poultry, beans, nuts, seafood, whole grains, fortified breakfast cereals, dairy	Growth retardation, hair loss, diarrhea, impotence, eye and skin lesions, loss of appetite, taste, weight loss, wound healing, mental lethargy
CO Q10	Common	Powerful antioxidant, stops oxidation of LDL cholesterol, energy production, important to heart, liver and kidneys	Oily fish, organ meats, whole grains	Congestive heart failure, high blood pressure, angina, mitral valve prolapse, fatigue, gingivitis, immune system stroke, cardiac arrhythmias

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Carnitine	Less common	Energy, heart function, oxidize amino acids for energy, metabolize ketones	Red meat, dairy, fish, poultry, tempeh (fermented soybeans), wheat, asparagus, avocados, peanut butter	Elevated cholesterol, liver function, muscle weakness, reduced energy, impaired glucose control
N-acetyl Cysteine (NAC) and Glutathione	Most common	Glutathione production, lowers homocysteine, lipoprotein (a), heal lungs, inflammation, decrease muscle fatigue, liver detoxification, immune function	Meats, ricotta, cottage cheese, yogurt, wheat germ, granola, oat flakes	Free radical overload, elevated homocysteine, cancer risk, cataracts, macular degeneration, immune function, toxin elimination
Alpha Lipoic Acid	Common	Energy, blood flow to nerves, glutathione levels in brain, insulin sensitivity, effectiveness of vitamins C, E, antioxidants	Supplementation, spinach, broccoli, beef, Brewer's yeast, some organ meats	Diabetic neuropathy, reduced muscle mass, atherosclerosis, Alzheimer', failure to thrive, brain atrophy, high lactic acid
Copper	Less common	Bone formation, involved in healing process, energy production, hair and skin coloring, taste sensitivity, stimulates iron absorption, helps metabolize several fatty acids	Oysters, seeds, dark leafy vegetables, organ meats, dried legumes, whole grain breads, nuts, shellfish, chocolate, soybeans, oats, blackstrap molasses	Osteoporosis, anemia, baldness, diarrhea, general weakness, impaired respiratory function, myelopathy, decreased skin pigment, reduced resistance to infection
Vitamin B1	Very common	Carb. conversion, breaks down fats and protein, digestion, nervous system, skin, hair, eyes, mouth, liver, immune system	Pork, organ meats, wholegrain and enriched cereals, brown rice, wheat germ, bran, Brewer's yeast, blackstrap molasses	Heart, age-related cognitive decline, Alzheimer's, fatigue
Vitamin B2	Very common	Metabolism, carb. Conversion, breaks down fats and protein, digestion, nervous system, skin, hair, eyes, mouth, liver	Brewer's yeast, almonds, organ meats, whole grains, wheat germ, mushrooms, soy, dairy, eggs, green vegetables	Anemia, decreased free radical protection, cataracts, poor thyroid function, B6 deficiency, fatigue, elevated homocysteine
Vitamin B3	Less common	Energy, digestion, nervous system, skin, hair, eyes, liver, eliminates toxins, sex/stress hormones, improves circulation	Beets, Brewer's yeast, meat, poultry, organ meats, fish, seeds, nuts	Cracking, scaling skin, digestive problems, confusion, anxiety, fatigue
Vitamin B6	Common	Enzyme, protein metabolism, RCB production, reduces homocysteine, nerve and muscle cells, DNA/RNA, B12 absorption, immune function	Poultry, tuna, salmon, shrimp, beef liver, lentils, soybeans, seeds, nuts, avocados, bananas, carrots, brown rice, bran, wheat germ, whole grain flour	Depression, sleep and skin problems, confusion, anxiety, fatigue
Vitamin B12	Very common	Healthy nerve cells, DNA/RNA, red blood cell production, iron function	Fish, meat, poultry, eggs, milk, milk products	Anemia, fatigue, constipation, loss of appetite/weight, numbness and tingling in the hands and feet, depression, dementia, poor memory, oral soreness
Biotin	Less common	Carbs, fat, amino acid metabolism (the building blocks of protein)	Salmon, meats, vegetables, grains, legumes, lentils, egg yolks, milk, sweet potatoes, seeds, nuts, wheat germ	Depression, nervous system, premature graying, hair, skin

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Folate	Very common	Mental health, infant DNA/RNA, adolescence and pregnancy, with B12 to regulate RBC production, iron function, reduce homocysteine	Supplementation, fortified grains, tomato juice, green vegetables, black-eyed peas, lentils, beans	Anemia, immune function, fatigue, insomnia, hair, high homocysteine, cardiovascular disease
Pantothenate	Less common	RBC production, sex and stress-related hormones, immune function, healthy digestion, helps use other vitamins	Meat, vegetables, whole grains, legumes, lentils, egg yolks, milk, sweet potatoes, seeds, nuts, wheat germ, salmon	Stress tolerance, wound healing, skin problems, fatigue
Vitamin A	Less common	Eyes, immune function, skin, essential cell growth and development	Milk, eggs, liver, fortified cereals, orange or green vegetables, fruits	Night blindness, immune function, zinc deficiency, fat malabsorption
Vitamin C	Common	Enzyme activation, second messenger roles (transmitting hormonal information), blood clotting, cell and cell organelle membrane function, nerve impulse transmission and muscular contraction, tone and irritability	Calcium supplements multiple vitamin/mineral supplements with calcium, tofu, milk, yogurt, cheeses, bone meal, canned salmon sardines (with bones)	Muscular and nervous irritability, muscle spasms, muscle cramps and tetany, tooth decay, periodontal disease, depression, possibly hypertension
Vitamin D	Very common	Calcium and phosphorus levels, calcium absorption, bone mineralization	Sunlight, milk, egg yolks, liver fish	Osteoporosis, calcium absorption, thyroid
Vitamin K	Less common	Aids in the formation of clotting factors and bone proteins and the formation of glucose into glycogen for storage in the liver	Kale, green tea, turnip greens, spinach, broccoli, lettuce, cabbage, beef liver, asparagus, watercress, cheese, oats, peas, whole wheat	Excessive bleeding, a history of bruising, appearance of ruptured capillaries or menorrhagia (heavy periods)
<b>References</b>				
<ul style="list-style-type: none"> <li data-bbox="117 1003 604 1029">Spectracell Laboratories, <a href="http://www.spectracell.com">www.spectracell.com</a></li> </ul>				