

Common Nutrient Deficiencies

This information refers to the general population, not just the WLS community. Also remember that after gastric bypass surgery we are not fully able to absorb micronutrients (vitamins and minerals) from the food we eat - thus the need to a lifetime of taking vitamins and supplements.

Nutrient	Incidence of Deficiency	Typical Symptoms and Diseases	Natural Sources of Nutrient
Biotin	Uncommon	Dermatitis, eye inflammation, hair loss, loss of muscle control, insomnia, muscle weakness	chard, tomatoes, romaine lettuce, carrots, almonds, chicken eggs, onions, cabbage, cucumber, cauliflower, goat's milk, cow's milk, raspberries, strawberries, halibut, oats, and walnuts.
Calcium	Average diet contains 40 to 50% of RDA*	Brittle nails, cramps, delusions, depression, insomnia, irritability, osteoporosis, palpitations, periodontal disease, rickets, tooth decay	blackstrap molasses, Swiss chard, yogurt, kale, mozzarella cheese, cow's milk, goat's milk, Basil, thyme, dill seed, cinnamon, and peppermint leaves, romaine lettuce, celery, broccoli, sesame seeds, fennel, cabbage, summer squash, green beans, garlic, tofu, Brussel sprouts, oranges, asparagus and crimini mushrooms.
Chromium	90% of diets deficient	Anxiety, fatigue, glucose intolerance, adult-onset diabetes	romaine lettuce, onions, tomatoes, brewer's yeast, oysters, liver, whole grains, bran cereals, and potatoes
Copper	75% of diets deficient; average diet contains 50% of RDA*	Anemia, arterial damage, depression, diarrhea, fatigue, fragile bones, hair loss, hyperthyroidism, weakness	calf's liver, crimini mushrooms, turnip greens, molasses, chard, spinach, sesame seeds, mustard greens, kale, summer squash, asparagus, eggplant, and cashews, peppermint, tomatoes, sunflower seeds, ginger, green beans, potato, and tempeh
Omega 3 Fatty Acids	Very common	Diarrhea, dry skin and hair, hair loss, immune impairment, infertility, poor wound healing, premenstrual syndrome, acne, eczema, gall stones, liver degeneration	Salmon, flax seeds and walnuts, scallops, cauliflower, cabbage, cloves and mustard seeds, halibut, shrimp, cod, tuna, soybeans, tofu, kale, collard greens, and Brussels sprouts.
Folic acid	Average diet contains 60% of RDA*; deficient in 100% of elderly in one study; deficient in 48% of adolescent girls; requirement doubles in pregnancy	Anemia, apathy, diarrhea, fatigue, headaches, insomnia, loss of appetite, neural tube defects in fetus, paranoia, shortness of breath, weakness	romaine lettuce, spinach, asparagus, turnip greens, mustard greens, calf's liver, parsley, collard greens, broccoli, cauliflower, beets, and lentils, squash, black beans, pinto beans, garbanzo beans, papaya and string beans.
Iodine	Uncommon since the supplementation of salt with iodine	Cretinism, fatigue, hypothyroidism, weight gain	Sea vegetables, Yogurt, cow's milk, eggs, strawberries, mozzarella cheese
Iron	Most common mineral deficiency	Anemia, brittle nails, confusion, constipation, depression, dizziness, fatigue, headaches, inflamed tongue, mouth lesions	chard, spinach, thyme, turmeric, romaine lettuce, blackstrap molasses, tofu, mustard greens, turnip greens, string beans, shiitake mushrooms, beef tenderloin, lentils, Brussel sprouts, asparagus, venison, garbanzo beans, broccoli, leeks, kelp

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Magnesium	75 to 85% of diets deficient: average diet contains 50 to 60% of RDA*	Anxiety, confusion, heart attack, hyperactivity, insomnia, nervousness, muscular irritability, restlessness, weakness	Swiss chard, spinach, mustard greens, summer squash, broccoli, blackstrap molasses, halibut, turnip greens, pumpkin seeds, peppermint, cucumber, green beans, celery, kale and a variety of seeds, including sunflower seeds, sesame seeds, flax seeds
Manganese	Unknown, may be common in women	Atherosclerosis, dizziness, elevated cholesterol, glucose intolerance, hearing loss, loss of muscle control, ringing in ears	mustard greens, kale, chard, raspberries, pineapple, romaine lettuce, spinach, collard greens, turnip greens, kale, maple syrup, molasses, garlic, grapes, summer squash, strawberries, oats, spelt, green beans, brown rice, garbonzo beans, ground cloves, cinnamon, thyme, peppermint, turmeric, leeks, tofu, broccoli, beets, beets, whole wheat, tempeh, cucumber, peanuts, millet, barley, figs, bananas, kiwifruit, carrots black beans
Niacin (B3)	Commonly deficient in elderly	Bad breath, canker sores, confusion, depression, dermatitis, diarrhea, emotional instability, fatigue, irritability, loss of appetite, memory impairment, muscle weakness, nausea, skin eruptions and inflammation	mushrooms, tuna, beef liver, halibut, asparagus, sea vegetables, venison, chicken, salmon
Pantothenic acid (B5)	Average elderly diet contains 60% of RDA*	Abdominal pains, burning feet, depression, eczema, fatigue, hair loss, immune impairment, insomnia, irritability, low blood pressure, muscle spasms, nausea, poor coordination	Mushrooms, cauliflower, broccoli, calf's liver, turnip greens, sunflower seeds, tomato, strawberries, yogurt, eggs, winter squash, collard greens, chard and corn.
Potassium	Commonly deficient in elderly	Acne, constipation, depression, edema, excessive water consumption, fatigue, glucose intolerance, high cholesterol levels, insomnia, mental impairment, muscle weakness, nervousness, poor reflexes	chard, crimini mushrooms, spinach, fennel, kale, mustard greens, Brussel sprouts, broccoli, winter squash, blackstrap molasses, eggplant, cantaloupe, tomatoes, parsley, cucumber, bell pepper, turmeric, apricots, ginger root, strawberries, avocado, banana, tuna, halibut, cauliflower cabbage.
Pyridoxine (B6)	71% of male and 90% of female diets deficient	Acne, anemia, arthritis, eye inflammation, depression, dizziness, facial oiliness, fatigue, impaired wound healing, irritability, loss of appetite, loss of hair, mouth lesions, nausea	spinach, bell peppers, turnip greens, garlic, tuna, cauliflower, mustard greens, banana, celery, cabbage, crimini mushrooms, asparagus, broccoli, kale, collard greens, Brussels sprouts, cod, chard

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Riboflavin (B2)	Deficient in 30% of elderly Britons	Blurred vision, cataracts, depression, dermatitis, dizziness, hair loss, inflamed eyes, mouth lesions, nervousness, neurological symptoms (numbness, loss of sensation, "electric shock" sensations), seizures. sensitivity to light, sleepiness, weakness	mushrooms, calf liver, spinach, romaine lettuce, asparagus, chard, mustard greens, broccoli, collard greens venison, turnip greens, chicken eggs, yogurt, cow's milk
Selenium	Average diet contains 50% of RDA	Growth impairment, high cholesterol levels, increased incidence of cancer, pancreatic insufficiency (inability to secrete adequate amounts of digestive enzymes), immune impairment, liver impairment, male sterility	Brazil nuts, button mushrooms, shiitake mushrooms, cod, shrimp, snapper, tuna, halibut, calf's liver, salmon, chicken's eggs, lamb, barley, sunflower seeds, turkey, mustard seeds, oats
Thiamin (B1)	Commonly deficient in elderly	Confusion, constipation, digestive problems, irritability, loss of appetite, memory loss, nervousness, numbness of hands and feet, pain sensitivity, poor coordination, weakness	asparagus, romaine lettuce, mushrooms, spinach, sunflower seeds, tuna, green peas, tomatoes, eggplant and Brussels sprouts.
Vitamin A	20% of diets deficient	Acne, dry hair, fatigue, growth impairment, insomnia, hyperkeratosis (thickening and roughness of skin), immune impairment, night blindness, weight loss	Calf liver, Cow's milk, eggs, carrots, sweet potatoes, spinach, kale, collard greens, and tomatoes
Vitamin B-12	Serum levels low in 25% of hospital patients	Anemia, constipation, depression, dizziness, fatigue, intestinal disturbances, headaches, irritability, loss of vibration sensation, low stomach acid, mental disturbances, moodiness, mouth lesions, numbness, spinal cord degeneration	Snapper, calf's liver, venison, shrimp, scallops, salmon, and beef. Plant sources are less consistently good sources of B-12: sea plants (like kelp), algae (like blue-green algae), yeasts (like brewer's yeast), and fermented plant foods (like tempeh, miso, or tofu)
Vitamin C	20 to 50% of diets deficient	Bleeding gums, depression, easy bruising, impaired wound healing, irritability, joint pains, loose teeth, malaise, tiredness.	broccoli, bell peppers, kale, cauliflower, strawberries, lemons, mustard and turnip greens, brussels sprouts, papaya, chard, cabbage, spinach, kiwifruit, snow peas, cantaloupe, oranges, grapefruit, limes, tomatoes, zucchini, raspberries, asparagus, celery, pineapples, lettuce, watermelon, fennel, peppermint and parsley.
Vitamin D	62% of elderly women's diets deficient	Burning sensation in mouth, diarrhea, insomnia, myopia, nervousness, osteomalacia, osteoporosis, rickets, scalp sweating	salmon, shrimp, vitamin-D fortified milk, cod, eggs
Vitamin E	23% of male and 15% of female diets deficient	Gait disturbances, poor reflexes, loss of position sense, loss of vibration sense, shortened red blood cell life	mustard greens, turnip greens, chard, sunflower seeds, almonds, spinach, collard greens, parsley, kale, papaya, olives, bell pepper, brussels sprouts, kiwifruit, tomato, blueberries, broccoli

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Vitamin K	Deficiency in pregnant women and newborns common	Bleeding disorders	spinach, Brussels sprouts, Swiss chard, green beans, asparagus, broccoli, kale, mustard greens, green peas, carrots.
Zinc	68% of diets deficient	Acne, amnesia, apathy, brittle nails, delayed sexual maturity, depression, diarrhea, eczema, fatigue, growth impairment, hair loss, high cholesterol levels, immune impairment, impotence, irritability, lethargy, loss of appetite, loss of sense of taste, low stomach acid, male infertility, memory impairment, night blindness, paranoia, white spots on nails, wound healing impairment	Calf's liver, crimini mushrooms, spinach, sea vegetables, basil, thyme, spinach, pumpkin seeds, yeast, beef, lamb, beef, lamb, summer squash, asparagus, venison, chard, collard greens, miso, shrimp, maple syrup, broccoli, peas, yogurt, pumpkin seeds, sesame seeds, mustard greens.

