

# Nutrients, Vitamins, and Minerals

## Daily Recommendations

Key: N = nonpregnant, P = pregnant, L = lactating (breastfeeding / chestfeeding)  
 g = grams, mg = milligrams, mcg = micrograms; 1 g = 1000 mg, 1 mg = 1000 mcg, IU = international units

Nutrient	Important Functions	Major Sources	Comments
Calories, Calorie Sources, and Fluids			
Calories N: 2,450 P: 2,450 (First trimester – no extra needed) P: 2,790 (Second trimester: add 340 to pre-pregnancy) P: 2,900 (Third trimester + 450) L: 2,750 (+300)	<ul style="list-style-type: none"> <li>• Provide energy for tissue building, increased metabolic requirements.</li> </ul>	Carbohydrates, fats, proteins	Your base calorie requirements (the N number) vary depending on your prepregnancy weight, size, and activity level. For customized guidelines, see: <a href="https://www.myplate.gov/">https://www.myplate.gov/</a>
Carbohydrates N: 130 g or more P: 175 g L: 210 g (45-65% of calories)	<ul style="list-style-type: none"> <li>• Energy source</li> <li>• Fiber helps minimize constipation, maintain blood sugar levels.</li> </ul>	Complex: whole grains, legumes, starchy vegetables, nuts Simple: refined grains, fruits, milk products	Focus on high-quality, nutrient-dense carbs that are high in fiber. Have fewer refined grains. Minimize added sugars.
Fat Total fat: 20-35% of day's calories (Max saturated fat: 28g per day - less than 10% of calories)	<ul style="list-style-type: none"> <li>• Energy source</li> <li>• Essential for brain growth and cognitive function.</li> <li>• Aids with absorption of vitamins A, D, E, K.</li> </ul>	Best: Flaxseed oil, fish Next best: Olive oil. Soybeans, nuts, seeds. Avocado. Third best: vegetable oils like safflower, sunflower, corn and peanut oil, Minimize: dairy fats, eggs, fat from meats Avoid: hydrogenated oil, shortening, lard	Essential fatty acids (omega-3s) can lower risk of preterm labor and depression, and can possibly lead to shorter labor, less gestational hypertension, and benefits for the growing baby. Many experts recommend supplements of 300 or more mg/day of omega-3s.

<p>Protein N: 46 g P: 71 g L: 71 g (10-35% of calories)</p>	<ul style="list-style-type: none"> <li>• Major structural component of all cells; builds and repairs tissues.</li> <li>• Helps build blood, amniotic fluid, and placenta.</li> <li>• Helps form antibodies.</li> </ul>	<p>Meat, fish, poultry, soy, eggs, milk, cheese, dried beans and peas, lentils, peanut butter, nuts, whole grains</p>	<p>Fetal requirements increase by about 1/3 in late pregnancy during the baby's biggest growth period.</p>
<p>Water and other liquids ~64 ounces</p>	<ul style="list-style-type: none"> <li>• Carry nutrients to cells and carry waste products away for mother and baby.</li> <li>• Provide fluid for increased blood, tissue, and amniotic fluid volume.</li> <li>• Aid digestion, prevent constipation, excessive swelling.</li> <li>• Prevent dehydration, which can lead to premature labor.</li> </ul>	<p>Water, juices, milk. Foods that are high in liquids: soup, fruit.</p>	<p>Minimize sugary beverages like juice and soda, and caffeine.</p>
<p>Minerals</p>			
<p>Calcium N/P/L: &lt;18 yrs: 1,300 mg 19-50 yrs: 1,000 mg</p>	<ul style="list-style-type: none"> <li>• Helps build bones and teeth.</li> <li>• Proper levels assist with transmission of nerve impulses and muscle contractions.</li> <li>• Important in blood clotting.</li> <li>• Some evidence suggests that inadequate calcium is associated with hypertension in pregnancy.</li> </ul>	<p>Yogurt, cheese, milk, canned fish with bones, greens (collard, kale, bok choy, chard, spinach, other greens) tofu (with calcium sulfate), sesame seeds, almonds, fortified juice and milk substitutes.</p>	<p>Prenatal vitamins often have little or no calcium, so if you're not getting calcium in your diet, you may need a calcium supplement as well. Calcium carbonate is best.</p>
<p>Phosphorus N/P/L: &lt;18 yrs: 1,250 mg 19-50 yrs: 700 mg</p>	<ul style="list-style-type: none"> <li>• Helps build bones and teeth.</li> <li>• Maintains healthy blood pH levels (acid-base balance).</li> </ul>	<p>Milk, cheese, lean meats, peas</p>	<p>Calcium and phosphorus exist in a constant ratio in the blood. Excess phosphorus limits the use of calcium.</p>
<p>Iron N: 15-18 mg</p>	<ul style="list-style-type: none"> <li>• Helps to ensure red blood cell quantity and</li> </ul>	<p>Liver, red meats, egg</p>	<p>Needed to provide adequate iron stores</p>

P: 27 mg L: 9–10 mg	quality. <ul style="list-style-type: none"> <li>• Carries oxygen to baby and to every cell in your body.</li> <li>• Deficiency (anemia) can lead to fatigue, preterm delivery, low birth weight.</li> </ul>	yolks, poultry, fish, raisins and prunes, enriched breads and cereals, leafy vegetables, milk, legumes.	for baby. Vitamin C enhances absorption of iron. If taking iron supplements, you may want to also take supplements of 15 mg zinc, 2 mg copper as iron blocks absorption of these.
Zinc N: 8 mg P: 11–12 mg L: 12–13 mg	<ul style="list-style-type: none"> <li>• Component of insulin</li> <li>• Important in growth of skeleton and nervous system.</li> <li>• Deficiency associated with labor complications and preterm delivery.</li> </ul>	Meat, liver, eggs, seafood (especially oysters)	Deficiency has been associated with poor fetal growth and development.
Sodium N/P/L: 1,500—2,300 mg	<ul style="list-style-type: none"> <li>• Sodium maintains the fluid balance in the body.</li> </ul>	Naturally occurring in foods. Some prepared foods have excessive amounts.	If you eat a lot of prepared foods, check the labels to make sure you don't overload on sodium.
Iodine N: 150 mcg P: 220 mcg L: 290 mcg	<ul style="list-style-type: none"> <li>• Important in thyroid function, and for the baby's developing brain and nervous system.</li> </ul>	Seafoods, iodized salt	Deficiency may cause goiter in mother and developmental disorders in infants.
Choline N: 425 mg P: 450 mg L: 550 mg	<ul style="list-style-type: none"> <li>• Helps your baby's brain and spine develop.</li> </ul>	Eggs, meat, poultry, seafood, dried beans, peas, lentil, soy, peanuts	
Magnesium N/L: <18 yrs: 360 mg 19–50 yrs: 310-320 mg P: <18 yrs: 400 mg >19: 350 mg	<ul style="list-style-type: none"> <li>• Helps with cell energy and protein metabolism.</li> <li>• Enzyme activator</li> <li>• Helps tissue and nerve growth and function; development of healthy bones and teeth.</li> </ul>	Green leafy vegetables, meat, nuts, soy, seeds, brown rice, wheat germ, and oatmeal.	Most is stored in bones. Deficiency may cause neuromuscular dysfunction. Supplements may help treat nighttime leg cramps.
Potassium N: 4,700 mg/day P: 2900 mg L: 2,500-2,800	<ul style="list-style-type: none"> <li>• Maintains fluid volume of cells.</li> <li>• Aids healthy function of heart, kidney,</li> </ul>	Leafy greens, fruit from vines, root vegetables (carrots,	Potassium appears to affect the levels of other minerals, such as calcium and

	<p>muscles, nerves, and digestive system.</p> <ul style="list-style-type: none"> <li>• May help reduce risk of osteoporosis.</li> </ul>	<p>parsnips, turnips), bananas, dairy, meat</p>	<p>sodium.</p>
<b>Fat-Soluble Vitamins</b>			
<p>Vitamin A N: 700 mcg P: 770 mcg L: 1,300 mcg Max safe level: 3,000 mcg</p>	<ul style="list-style-type: none"> <li>• Helps growth and development of bones, teeth, gums, vision.</li> <li>• Maintains skin and mucous membranes.</li> <li>• Helps protect against infection.</li> </ul>	<p>Liver, fish oils, dairy products, eggs, orange vegetables (pumpkins, yams, sweet potato, squash, carrots), dark green vegetables.</p>	<p>Excessive amounts (over 3,000 mcg/10,000 IU) in the first 7 weeks of pregnancy increase the risk of birth defects.</p>
<p>Vitamin D N/ P/L: 600 IU (equal to 15 mcg) If you have dark skin and/or minimal sun exposure, you need a higher dose.</p>	<ul style="list-style-type: none"> <li>• Aids absorption of calcium and phosphorus from the blood.</li> <li>• Needed for mineralization of bones and teeth.</li> <li>• Deficiency can cause rickets—bone softening and fetal malformations.</li> <li>• Deficiency associated with low birth weight.</li> </ul>	<p>Sunlight (vitamin D is made by the body with exposure to sunlight on skin—at least 10-15 minutes of direct sunlight to hands, face, or arms 3 times a week), fortified milk, fish liver oils, fatty fish, egg yolks</p>	<p>Your caregiver may recommend a supplement of 400 IU per day. Supplements with vitamin D3 are more effective than D2 and better for most people. Vegans may choose D2, because D3 is derived from an animal source.</p>
<p>Vitamin E N/P: 15 mg L: 19 mg</p>	<ul style="list-style-type: none"> <li>• Needed for tissue growth and for the developing nervous system.</li> <li>• Protects cell wall integrity.</li> </ul>	<p>Vegetable oils, whole grains, meat, eggs, milk, nuts, seeds</p>	<p>Enhances absorption of vitamin A. It is an antioxidant.</p>
<p>Vitamin K N/P/L: &lt;18 yrs: 75 mcg 19–50 yrs: 90 mcg</p>	<ul style="list-style-type: none"> <li>• Essential for blood clotting.</li> </ul>	<p>Leafy green vegetables</p>	<p>Produced in the body by intestinal flora.</p>
<b>Water-Soluble Vitamins</b>			
<p>Folic acid (folate) N: 400 mcg P: 600 mcg</p>	<ul style="list-style-type: none"> <li>• Helps to form blood cells and the DNA and RNA inside all cells.</li> </ul>	<p>Fortified cereals, breads and pastas and</p>	<p>Supplements recommended for all women of</p>

L: 500 mcg	<ul style="list-style-type: none"> <li>• Needed for metabolism of amino acids and protein synthesis.</li> <li>• May help prevent stroke, colon and breast cancer.</li> </ul>	naturally occurs in legumes, green leafy vegetables, citrus fruit, whole wheat bread.	childbearing age. Low folate can cause anemia, preterm delivery, and neural tube defects (1 in 3,000 pregnancies).
Thiamin (B1) N: 1.0–1.1 mg P/L: 1.4 mg	<ul style="list-style-type: none"> <li>• Helps convert food to energy.</li> <li>• Plays a role in initiating nerve impulses.</li> <li>• Helps maintain healthy blood sugar.</li> </ul>	Whole grains, fortified grain products (breads, cereals), pork, organ meats, seeds, nuts	
Riboflavin (B2) N: 1.0–1.1 mg P: 1.4 mg L: 1.6 mg	<ul style="list-style-type: none"> <li>• Essential for energy and metabolism of protein, fat, and carbohydrates.</li> </ul>	Organ meats, milk products, whole and fortified grains	
Niacin (B3) N: 14 mg P: 18 mg L: 17 mg	<ul style="list-style-type: none"> <li>• Helps release energy from carbohydrates.</li> <li>• Needed for protein metabolism.</li> <li>• Aids production of lipids, hormones, and red blood cells.</li> </ul>	Meats, peanuts, fortified cereals, whole grains, beans, peas	
Vitamin B6 (Pyridoxine) N: 1.2–1.5 mg P: 1.9 mg L: 2.0 mg Max: 100 mg	<ul style="list-style-type: none"> <li>• Important in amino acid metabolism and protein synthesis.</li> <li>• Important in production of serotonin, other neurotransmitters.</li> <li>• Deficiency can lead to depression, neurological disorders.</li> <li>• Improves immunity.</li> </ul>	Chicken, fish, organ meats, pork, eggs, whole grains, wheat germ, soybeans, walnuts, legumes, cabbage, beets, oranges.	May help reduce nausea in early pregnancy. (Research trials have used 3 doses per day, with each dose being 10-25 mg.)
Vitamin B12 (Cobalamin) N: 2.4 mcg P: 2.6 mcg L: 2.8 mcg	<ul style="list-style-type: none"> <li>• Essential in protein metabolism and tissue synthesis.</li> <li>• Important in formation of red blood cells.</li> <li>• Maintains nerve fibers.</li> <li>• Necessary for activation of folic acid</li> </ul>	Animal products: organ meats, milk products, clams, oysters, eggs. Fortified soymilks, tofu, and cereal.	Deficiency leads to anemia and central nervous system damage. All vegans should take a B12 supplement. B12 may help relieve depression.
Pantothenic acid N: 5 mg P / L: 7 mg	<ul style="list-style-type: none"> <li>• Helps convert food into energy.</li> <li>• Aids production of</li> </ul>	Meats, potatoes, oats, tomatoes, organ meats,	

	lipids, hormones, and neurotransmitters.	broccoli	
Biotin N: 30 mcg P: 35 mcg L: 35 mcg	<ul style="list-style-type: none"> <li>• Aids energy metabolism.</li> <li>• Synthesizes and breaks down fatty acids.</li> </ul>	Liver, egg yolks, soybeans, yeast	
Vitamin C N: 65–75 mg P: 80–85 mg L: 115-120 mg Smokers: add 35 mg	<ul style="list-style-type: none"> <li>• Helps tissue formation.</li> <li>• Is “cement” substance in connective and vascular tissue, strengthens blood vessels.</li> <li>• Promotes iron absorption.</li> <li>• Aids in healing wounds; resisting infection, maintaining healthy tissues.</li> </ul>	Citrus fruits, berries, melons, tropical fruits. Veggies: tomatoes, peppers, broccoli, brussels sprouts, cabbage, cauliflower, watercress, potatoes.	Megadoses of vitamin C have not been proven effective in reducing incidence of colds, though supplements may reduce duration or severity of cold.

These are all accurate for a 30 year old female who is 5’4” and whose pre-pregnancy weight is 160. Some values do adjust slightly for people of different sizes, ages, and gender.

Sources for General Recommendations:

The U.S. Department of Health and Human Services and the U.S. Department of Agriculture, [I]Dietary Guidelines for Americans[I], (2020 – 2025).

<https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials>

Food and Nutrition Board, Institute of Medicine, “Dietary Reference Intakes (DRIs): Recommended dietary allowances and adequate intakes.” (2011)

<https://www.ncbi.nlm.nih.gov/books/NBK56068/>