Listed below are all the vitamins and nutritionally essential minerals and their functions, some common dietary sources, and the intake recommendations set by the Institute of Medicine. The Linus Pauling Institute’s recommendations are noted when different. All recommendations are for adults 19 years and older and expressed in micrograms (µg), milligrams (mg), or International Units (IU).

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| **Vitamin A (Retinol)**    | *Retinol*: beef liver, fortified cereal, eggs, butter, fortified milk  
β-Carotene: sweet potatoes, pumpkins, carrots, cantaloupes, mangoes, spinach, broccoli, kale, collards, butternut squash | Men: 900 µg RAE*  
Women: 700 µg RAE  
Pregnancy: 770 µg RAE  
Breast-feeding: 1,300 µg RAE  
*Retinol Activity Equivalents |
| **Thiamin (Vitamin B₁)**   | Fortified cereal, bread, pork, enriched white rice, brown rice, peas, macadamia nuts, sunflower seeds, beans, lentils, cantaloupes | Men: 1.2 mg  
Women: 1.1 mg  
Pregnancy: 1.4 mg  
Breast-feeding: 1.4 mg |
| **Riboflavin (Vitamin B₂)**| Milk, fortified cereal, bread, eggs, almonds, clams, spinach, chicken, beef, asparagus, salmon, cheese, broccoli | Men: 1.3 mg  
Women: 1.1 mg  
Pregnancy: 1.4 mg  
Breast-feeding: 1.6 mg |
| **Niacin (Vitamin B₃)**    | Fortified cereal, bread, fish, light-meat chicken and turkey, beef, mushrooms, peanuts, avocados | Men: 16 mg  
Women: 14 mg  
Pregnancy: 18 mg  
Breast-feeding: 17 mg |
| **Pantothenic Acid (Vitamin B₅)** | Avocados, yogurt, chicken, sweet potatoes, milk, lentils, eggs, peas, mushrooms, fish, broccoli | Adults: 5 mg  
Pregnancy: 6 mg  
Breast-feeding: 7 mg |
| **Vitamin B₆**             | Turkey, chicken, fortified cereal, bread, potatoes (with skin), fish, prunes, bananas, hazelnuts, walnuts, pork, beans | Adults: 1.3 mg  
Pregnancy: 1.9 mg  
Breast-feeding: 2.0 mg  
Men over 50: 1.7 mg  
Women over 50: 1.5 mg |
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| **Biotin (Vitamin B7)**   | Beef liver, eggs, salmon, avocados, yeast, whole-wheat bread, pork, cheese | Adults: 30 μg  
Pregnancy: 30 μg  
Breast-feeding: 35 μg |
| • Assists the release of energy from fat, carbohydrates, and protein  
• Assists in glucose production | | |
| **Folate (Vitamin B9)**   | *Folate*: beans, lentils, asparagus, spinach, peanuts, peas, corn, chicken, orange juice  
*Folic Acid*: enriched rice or products made with enriched flours, such as cereal, pasta, or bread | Adults: 400 μg DFE*  
Pregnancy: 600 μg DFE  
Breast-feeding: 500 μg DFE |
| • Required for DNA synthesis  
• Assists red blood cell production  
• Prevents neural tube defects  
• Folic acid, found in supplements and fortified food, is more readily absorbed than naturally occurring folate | | *Dietary Folate Equivalents |
| **Vitamin B12**           | Clams, mussels, crab meat, salmon, beef, rockfish, milk, cheese, eggs, chicken, turkey, fortified cereal | Adults: 2.4 μg  
Pregnancy: 2.6 μg  
Breast-feeding: 2.8 μg  
*LPI*: 100-400 μg from supplements for adults over 50 |
| • Assists the release of energy from fat and protein  
• Assists hemoglobin and red blood cell production  
• Required for nerve function | | |
| **Vitamin C**             | Chili peppers, sweet peppers, guavas, kiwifruits, strawberries, oranges, kale, spinach, broccoli, grapefruit, potatoes, tomatoes | Men: 90 mg (125 mg*)  
Women: 75 mg (110 mg*)  
Pregnancy: 85 mg  
Breast-feeding: 120 mg  
*LPI*: At least 400 mg for all adults |
| • Antioxidant in blood and cells  
• Augments functional activity of immune cells  
• Assists collagen, carnitine, serotonin, and adrenaline production | | * Smokers |
| **Vitamin D**             | Dietary: fish (especially salmon, tuna, herring, sardines, and mackerel), eggs, fortified soy milk, fortified orange juice, fortified milk, fortified cereal  
Sunlight: influenced by season, latitude, skin pigmentation, area of skin exposed, sunscreen use, and age | Adults: 600 IU  
Pregnancy: 600 IU  
Breast-feeding: 600 IU  
Adults over 70: 800 IU  
*LPI*: 2,000 IU from supplements for all adults |
| • Maintains calcium and phosphorus balance  
• Promotes bone health and immune function  
• Influences cell growth and development | | |
| **Vitamin E**             | Olive oil, safflower oil, sunflower oil, almonds, hazelnuts, peanuts, spinach, carrots, avocados | Adults: 22.5 IU  
Pregnancy: 22.5 IU  
Breast-feeding: 28.5 IU |
| • Antioxidant in cell membranes  
• Supports normal nerve function  
• Augments functional activity of immune cells | | |
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| **Vitamin K**             | Kale, chard, parsley, broccoli, spinach, watercress, leaf lettuce, cashews, peas, soybean oil, canola oil, olive oil, mayonnaise, naturally fermented food | Men: 120 µg  
Women: 90 µg  
Pregnancy: 90 µg  
Breast-feeding: 90 µg |
| **Calcium**               | Milk, yogurt, cheese, tofu (calcium set), fortified beverages, fortified cereal, rhubarb, spinach, almonds, white beans, bok choy, kale, pinto beans, red beans, broccoli | Adults: 1,000 mg  
Pregnancy: 1,000 mg  
Breast-feeding: 1,000 mg  
Men over 70: 1,200 mg  
Women over 50: 1,200 mg |
| **Chromium**              | Broccoli, grape juice, sweet potatoes, orange juice, beef, turkey, chicken, apples (with peel), green beans, tomatoes, bananas | Men: 35 µg  
Men over 50: 30 µg  
Women: 25 µg  
Pregnancy: 30 µg  
Breast-feeding: 45 µg  
Women over 50: 20 µg |
| **Copper**                | Beef liver, oysters, crab meat, clams, sunflower seeds, kale, cashews, lentils, beans, mushrooms, cocoa powder, raisins, peanut butter | Adults: 900 µg  
Pregnancy: 1,000 µg  
Breast-feeding: 1,300 µg |
| **Fluoride**              | Fluoridated water, crab meat, beans, black tea, raisins, cereal, fish, fruit juice | Men: 4 mg  
Women: 3 mg  
Pregnancy: 3 mg  
Breast-feeding: 3 mg |
| **Iodine**                | Cod, iodized salt, potatoes (with skin), milk, shrimp, turkey, navy beans, tuna, eggs, seaweed | Adults: 150 µg  
Pregnancy: 220 µg  
Breast-feeding: 290 µg |
| **Iron**                  | Beef, fortified cereal, beans, oysters, molasses, lentils, firm tofu, kidney beans, cashews, spinach, potatoes (with skin), shrimp, light tuna, eggs, tomatoes, dark-meat chicken and turkey, raisins, prunes | Men: 8 mg*  
Women: 18 mg  
Pregnancy: 27 mg  
Breast-feeding: 9 mg  
Adults over 50: 8 mg*  
*Men and postmenopausal women should avoid taking iron-containing supplements.|
| **Magnesium**             | Pumpkin seeds, almonds, cashews, beans, spinach, milk, figs, brown rice, cocoa powder, molasses, peanuts, pineapple, okra, milk, bananas | Men: 400 mg  
Men over 30: 420 mg  
Women: 310 mg  
Women over 30: 320 mg  
Pregnancy: 350-360 mg  
Breast-feeding: 310-320 mg |
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| **Manganese**             | Brown rice, oatmeal, spinach, pineapples, almonds, pecans, molasses, whole-wheat bread, sesame seeds, peanuts, beans, sweet potatoes, tea | Men: 2.3 mg  
Women: 1.8 mg  
Pregnancy: 2.0 mg  
Breast-feeding: 2.6 mg |
| **Molybdenum**            | Beans, lentils, peas, grain, nuts | Adults: 45 µg  
Pregnancy: 50 µg  
Breast-feeding: 50 µg |
| **Phosphorus**            | Milk, yogurt, salmon, halibut, lentils, beef, peanuts, sunflower seeds, beans, chicken, turkey, almonds, cheese, eggs, whole-wheat bread | Adults: 700 mg  
Pregnancy: 700 mg  
Breast-feeding: 700 mg |
| **Potassium**             | Beans, potatoes (with skin), prunes, raisins, acorn squash, bananas, spinach, tomato juice, artichokes, molasses, tomatoes, oranges | Adults: 4,700 mg  
Pregnancy: 4,700 mg  
Breast-feeding: 5,100 mg |
| **Selenium**              | Brazil nuts (from selenium-rich soil)*, crab meat, salmon, halibut, pasta, pork, shrimp, whole-wheat bread, brown rice, beef, light-meat chicken, milk, black walnuts | Adults: 55 µg  
Pregnancy: 60 µg  
Breast-feeding: 70 µg |
| **Sodium**                | Baked goods, processed meat, restaurant food, pizza, canned soups, table salt | Adults: 1,500 mg*  
Pregnancy: 1,500 mg  
Breast-feeding: 1,500 mg  
Adults over 50: 1,300 mg  
Adults over 70: 1,200 mg  
* the amount found in about 2/3 tsp of table salt |
| **Zinc**                  | Oysters, beef, crab meat, dark-meat chicken and turkey, pork, yogurt, milk, cashews, chickpeas, almonds, peanuts, cheese | Men: 11 mg  
Women: 8 mg  
Pregnancy: 11 mg  
Breast-feeding: 12 mg |

*Except for selenium, the amounts recommended for all ages are likely to meet the needs of almost all healthy people.*

This information and more can be found in the Linus Pauling Institute’s Micronutrient Information Center: [lpi.oregonstate.edu/mic](http://lpi.oregonstate.edu/mic)