### A to zinc: a guide to vitamins and minerals

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<thead>
<tr>
<th>Vitamin</th>
<th>Role in the body</th>
<th>Best sources</th>
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| **A (retinol, carotene)**      | • growth and tissue repair  
• immune system functions  
• vision | • liver  
• eggs  
• dark green & yellow fruits and vegetables  
• dairy products |
| Males: 900 µg  
Females: 700 µg |                                                                                 |                                                                               |
| **B1 (thiamin)**               | • processing of carbohydrates and amino acids (protein)  
• appetite regulation  
• nervous system functions | • wheat germ  
• pork  
• whole & enriched grains  
• beans  
• peas |
| Males: 1.2 mg  
Females: 1.1 mg |                                                                                 |                                                                               |
| **B2 (riboflavin)**            | • processing of carbohydrates, proteins & fats  
• cell respiration and maintenance  
• anti-oxidant activity | • dairy products  
• green leafy vegetables  
• legumes  
• beef  
• salmon  
• almonds  
• eggs |
| Males: 1.3 mg  
Females: 1.1 mg |                                                                                 |                                                                               |
| **B3 (niacin, nicotinic acid)**| • processing of carbohydrates, proteins & fats  
• energy metabolism  
• DNA repair  
• nerve function  
• circulation of blood | • meat  
• fish  
• whole & enriched grains  
• beans  
• peas  
• nuts |
| Males: 16 mg  
Females: 14 mg |                                                                                 |                                                                               |
| **B5 (pantothenic acid)**      | • converting nutrients into energy  
• vitamin utilization  
• production of many important compounds used by the body | • whole-grain cereals  
• legumes  
• meats  
• avocado  
• sweet potato |
| Males: 5 mg  
Females: 5 mg |                                                                                 |                                                                               |
| **B6 (pyridoxine, pyridoxal, pyridoxamine)** | • processing of carbohydrates, proteins & fats  
• red blood cell formation  
• cardiovascular health  
• formation of antibodies & neurotransmitters | • fish  
• poultry  
• red meat  
• whole grains  
• fortified cereal  
• potatoes  
• spinach |
| Males: 1.3–1.7 mg  
Females: 1.3–1.5 mg |                                                                                 |                                                                               |
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| **B12 (cobalamin)**     | ▪ converting proteins & fats into energy  
▪ nervous system functions  
▪ formation of blood cells  
▪ cardiovascular health    | ▪ lean beef  
▪ fish  
▪ poultry  
▪ eggs  
▪ dairy products  
▪ clams |
| Males: 2.4 µg  
Females: 2.4 µg |                                                                                  |                                   |
| **Folate (folic acid)** | ▪ cell division and growth  
▪ DNA synthesis  
▪ red blood cell formation  
▪ processing of proteins | ▪ green leafy vegetables  
▪ dried beans  
▪ fortified cereals  
▪ oranges  
▪ pasta  
▪ rice |
| Males: 400 µg  
Females: 400 µg*  
*Pregnancy: 600 µg |                                                                                  |                                   |
| **C (ascorbic acid)**   | ▪ anti-oxidant activity  
▪ collagen maintenance  
▪ wound healing  
▪ infection resistance  
▪ healthy gums and blood vessels | ▪ citrus fruits  
▪ tomatoes  
▪ green & red peppers  
▪ melons  
▪ berries  
▪ broccoli |
| Males: 90 mg  
Females: 75 mg |                                                                                  |                                   |
| **D (calciferol)**      | ▪ bone & tooth formation  
▪ immune functions  
▪ mineral balance (calcium and phosphorous) | ▪ egg yolk  
▪ salmon  
▪ sardines  
▪ fortified milk  
▪ Vitamin D is produced in the skin when exposed to sunlight |
| Males: 400–600 IU  
Females: 400–600 IU |                                                                                  |                                   |
| **E (α-tocopherol)**    | ▪ anti-oxidant activity (free radical scavenger)  
▪ possible immune system support | ▪ wheat germ  
▪ nuts  
▪ whole grains  
▪ vegetable & nut oils  
▪ dark green vegetables |
| Males: 15 mg  
Females: 15 mg |                                                                                  |                                   |
| **K**                   | ▪ blood clotting  
▪ bone metabolism | ▪ green leafy vegetables (e.g., spinach, broccoli, collards)  
▪ olive oil  
▪ soybean oil |
| Males: 120 µg  
Females: 90 µg |                                                                                  |                                   |
| **H (biotin, vitamin B7)** | ▪ cell growth  
▪ production of fatty acids  
▪ processing of fats and amino acids  
▪ maintain blood sugar levels  
▪ strengthen hair and nails | ▪ liver  
▪ eggs  
▪ meat  
▪ wheat bran  
▪ cheese  
▪ yeast  
▪ avocado |
| Males: 30 µg  
Females: 30 µg |                                                                                  |                                   |
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<th>Recommended daily amount for adults</th>
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<td><strong>calcium</strong></td>
<td>Males: 1000–1200 mg  Females: 1000–1200 mg</td>
<td>▪ support and formation of bones, and teeth  ▪ regulates heartbeat, muscle action, nerve function &amp; blood clotting</td>
<td>▪ low-fat or nonfat milk products  ▪ cheese  ▪ red beans  ▪ spinach  ▪ broccoli  ▪ rhubarb  ▪ kale  ▪ calcium-set tofu</td>
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<tr>
<td><strong>chromium</strong></td>
<td>Males: 30–35 µg  Females: 20–25 µg</td>
<td>▪ needed for using glucose as an energy source  ▪ increases effectiveness of insulin  ▪ metabolizes fat and protein</td>
<td>▪ whole grains  ▪ peas  ▪ beans  ▪ beef  ▪ processed turkey  ▪ broccoli</td>
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<tr>
<td><strong>copper</strong></td>
<td>Males: 900 µg  Females: 900 µg</td>
<td>▪ formation of red blood cells  ▪ needed for bone health  ▪ iron metabolism  ▪ involved in the normal function of the nervous system  ▪ anti-oxidant activity</td>
<td>▪ organ meats  ▪ shellfish  ▪ nuts  ▪ seeds  ▪ oysters  ▪ cocoa powder  ▪ whole grain products</td>
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<td><strong>fluoride</strong></td>
<td>Males: 4 mg  Females: 3 mg</td>
<td>▪ prevention of tooth decay  ▪ stimulates new bone formation</td>
<td>▪ seafood  ▪ tea  ▪ grape juice  ▪ Fluoridated water (and food prepared in fluoridated water) and fluoridated dental products (e.g., toothpaste) will contain fluoride</td>
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<tr>
<td><strong>iodine</strong></td>
<td>Males: 150 µg  Females: 150 µg</td>
<td>▪ thyroid functioning</td>
<td>▪ iodized salt  ▪ cod  ▪ shrimp  ▪ cow’s milk  ▪ potatoes</td>
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<tr>
<td><strong>iron</strong></td>
<td>Males: 8 mg  Females: 18 mg*  *post-menopausal women: 8 mg/day</td>
<td>▪ formation of components of red blood cells that supply and transport oxygen  ▪ DNA synthesis  ▪ anti-oxidant activity</td>
<td>▪ red meat  ▪ poultry  ▪ fish  ▪ liver  ▪ beans  ▪ whole &amp; enriched grains  ▪ green leafy vegetables  ▪ tofu  ▪ oysters</td>
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<tr>
<td><strong>magnesium</strong></td>
<td>Males: 420 mg  Females: 320 mg</td>
<td>▪ enzyme activation  ▪ nerve &amp; muscle function  ▪ bone structure  ▪ energy production</td>
<td>▪ nuts  ▪ beans  ▪ bran cereal  ▪ spinach  ▪ green leafy vegetables  ▪ whole &amp; enriched grains  ▪ banana</td>
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<td>manganese</td>
<td>Males: 2.3 mg &lt;br&gt; Females: 1.8 mg</td>
<td>▪ bone growth &amp; development &lt;br&gt; ▪ wound healing &lt;br&gt; ▪ metabolism of carbohydrates, amino acids, and cholesterol &lt;br&gt; ▪ anti-oxidant activity</td>
<td>▪ nuts &lt;br&gt; ▪ whole grains &lt;br&gt; ▪ tea &lt;br&gt; ▪ coffee</td>
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<tr>
<td>molybdenum</td>
<td>Males: 45 µg &lt;br&gt; Females: 45 µg</td>
<td>▪ biological reactions &lt;br&gt; ▪ processing of sulfur-containing amino acids, drugs, and toxins</td>
<td>▪ beans &lt;br&gt; ▪ lentils &lt;br&gt; ▪ peas</td>
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<tr>
<td>phosphorous</td>
<td>Males: 700 mg &lt;br&gt; Females: 700 mg</td>
<td>▪ bone structure &lt;br&gt; ▪ energy production and storage</td>
<td>▪ dairy products &lt;br&gt; ▪ meats &lt;br&gt; ▪ fish</td>
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<tr>
<td>potassium</td>
<td>Males: 4.7 g &lt;br&gt; Females: 4.7 g</td>
<td>▪ fluid balance &lt;br&gt; ▪ normal body function &lt;br&gt; ▪ heart activity &lt;br&gt; ▪ muscle contraction &lt;br&gt; ▪ nervous system functions</td>
<td>▪ orange juice &lt;br&gt; ▪ potatoes &lt;br&gt; ▪ bananas &lt;br&gt; ▪ tomato juice</td>
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<td>sodium</td>
<td>Males: 1.5 g &lt;br&gt; Females: 1.5 g</td>
<td>▪ maintenance of blood volume and blood pressure &lt;br&gt; ▪ transmission of nerve impulses &lt;br&gt; ▪ heart activity &lt;br&gt; ▪ muscle contraction &lt;br&gt; ▪ various internal functions</td>
<td>▪ table salt &lt;br&gt; ▪ processed meats (e.g., bacon, sausage, ham) &lt;br&gt; ▪ canned soups and vegetables</td>
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<tr>
<td>selenium</td>
<td>Males: 55 µg &lt;br&gt; Females: 55 µg</td>
<td>▪ anti-oxidant activity &lt;br&gt; ▪ regulation of thyroid hormone</td>
<td>▪ cereals (e.g., corn, wheat, and rice) &lt;br&gt; ▪ brazil nuts &lt;br&gt; ▪ walnuts &lt;br&gt; ▪ pork</td>
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<tr>
<td>zinc</td>
<td>Males: 11 mg &lt;br&gt; Females: 8 mg</td>
<td>▪ taste &amp; smell sensitivity &lt;br&gt; ▪ growth and development &lt;br&gt; ▪ healing &lt;br&gt; ▪ immune system function</td>
<td>▪ lean meat &lt;br&gt; ▪ oysters &lt;br&gt; ▪ eggs &lt;br&gt; ▪ seafood</td>
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