

B B-Complex Vitamins B

The group of vitamins known as the B-complex vitamins is essential for growth, development and a variety of other bodily functions. They play a major role in the activities of enzymes, proteins that regulate chemical reactions in the body, which are important in turning food into energy and other needed substances. B-vitamins are found in many plant and animal food sources. B vitamins are an important part of the diet and are needed to help avoid many health problems. All B vitamins help turn food into fuel.

The B vitamins are vitamin B1, B2, B5, B6, B7, B9 and B12. Originally, scientists thought that these vitamins were all very similar, because they were commonly discovered in the same foods. However, each B vitamin should be thought of as distinct, with its own function within the body.

1. Vitamin B1 (thiamin) and vitamin B2 (riboflavin) help the body produce energy and affect enzymes that influence the muscles, nerves and heart. Thiamine is sometimes called an 'anti-stress' vitamin because it may strengthen the immune system and improve the body's ability to withstand stressful situations
2. Vitamin B3 (niacin) has a role in energy production in cells and helps keep the skin, nervous system and digestive system healthy.
3. Vitamin B5 (pantothenic acid) influences normal growth and development
4. Vitamin B6 (pyridoxine) helps the body break down protein and helps maintain the health of red blood cells, the nervous system and parts of the immune system
5. Vitamin B7 (biotin) helps break down protein and carbohydrates and helps the body make hormones
6. Vitamin B9 (folic acid or folate) helps the cells in the body make and maintain DNA and is important in producing red blood cells (in a separate handout)
7. Vitamin B12 (cobalamin) plays a role in the body's growth and development. It also has a part in producing blood cells, nervous system function and how the body uses folic acid and carbohydrates (in a separate handout).

Sources of B complex vitamins:

A balanced diet that includes 5 daily servings of fruits and vegetables, as well as grains, gives most people all the B vitamins they need. Only small amounts of these vitamins are needed to reach the recommended dietary intakes. But many people do not eat enough fruits, vegetables, or other healthy foods to get the recommended amounts. And people don't absorb vitamin B12 as well when they get older.

- B1 and B2 are found in cereals, whole grains, and enriched refined grains. B1 is also found in potatoes, pork, seafood, liver, and kidney beans. B2 is found in enriched bread, dairy products, liver, and green leafy vegetables.

- B3 is found in liver, fish, chicken, lean red meat, nuts, whole grains, dried beans, and enriched refined grains.
- B5 is found in almost all foods.
- B6 is found in fish, liver, pork, chicken, tofu, potatoes, onions, bananas, watermelon, and dried beans.
- B7 is made by intestinal bacteria and is also in peanuts, liver, egg yolks, bananas, mushrooms, watermelon, and grapefruit.
- B9 is in green leafy vegetables, liver, citrus fruits, mushrooms, nuts, peas, dried beans, and wheat bread.



Symptoms of B-complex vitamin Deficiency:

It is very rare to have a deficiency in one of the B-complex vitamins (apart from vitamin B12 and folate). Mostly, it is people who are alcoholics, or who have gastrointestinal disorders that are deficient in these vitamins.

- B1 (thiamine) - fatigue, irritability, depression and abdominal discomfort. People with thiamine deficiency also have trouble digesting carbohydrates. That allows a substance called pyruvic acid to build up in their bloodstream, causing a loss of mental alertness, difficulty breathing, heart damage and a disease known as beriberi.
- B2 - first symptoms of a deficiency are a sore throat, the appearance of sores on the skin, cracks located at the corners of the mouth, and a sore, red, or burning tongue. As symptoms get worse, the tongue and throat may become a swollen or inflamed.
- B3 - An early sign of vitamin B3 deficiency is a lack of appetite. Other symptoms include a coated tongue, mouth sores, low blood sugar, dizziness, chronic headaches, skin lesions, anemia, diarrhea, forgetfulness, insomnia, irritability, nervousness and Pellagra.
- B5 - symptoms of a vitamin B5 deficiency may include fatigue, insomnia, depression, irritability, vomiting, stomach pains, burning feet, and upper respiratory infections.
- B6 - anemia, seizures, dermatitis, swollen tongue, depression and confusion, and weakened immune function. If you have a mild deficiency, you might not

Beriberi

Beriberi is caused by not getting enough thiamine in your diet. Symptoms include swelling, tingling, or burning sensation in the hands and feet, confusion, trouble breathing because of fluid in the lungs, and uncontrolled eye movements called nystagmus. Beriberi is still endemic in Asia, and can affect south-east Asian schoolchildren who are infected with hookworms. Beriberi can also occur in human milk fed infants whose nursing mothers are deficient. It also occur in adults with high carbohydrate intakes mainly from milled rice and with intakes of anti-thiamine factors that are in certain raw fish. Thiamine, or vitamin B₁, is contained in the outer husk and coating of the rice kernel. When the technology for polishing rice became available, people took to eating white rice in preference to brown rice, but that process removed thiamine, causing beriberi, or thiamine deficiency, in many people, as well as heart and nerve diseases. Rice is fortified with Thiamine in many countries.

Pellagra:

Pellagra is a vitamin B3 deficiency disease. This disease is caused by a severe and prolonged deficiency of vitamin B3. Pellagra is characterized by bilateral dermatitis, dementia, and diarrhea.

show any symptoms for months or even years. In infants, vitamin B6 deficiency causes irritability, abnormally acute hearing, and convulsive seizures.

- B7 - Hair loss, fatigue and depression, nausea, muscle pains and anemia



Sores and cracks around the mouth



Pellagra



Headaches

What to do if you are deficient in B-complex vitamins:

It is very rare for someone to be deficient in these vitamins without an underlying cause, such as alcoholism, gastrointestinal disorder or severe malnutrition. If you are deficient in these vitamins, it is important to talk to a doctor. You should increase the number of foods with B-complex vitamins in your diet, and you might need to take vitamins.