B Vitamin Basics

Vitamin B1 Thiamin #1 in a series on B vitamins.

Discovered in 1930, water soluble thiamin's odour and flavour are similar to yeast. Vitamin B1 has several active forms including thiamin monophosphate and thiamin pyrophosphate. It can be destroyed by cooking.

Thiamin or thiamine helps many body functions. It has a metabolic role, helps in fatty acid and sterol production, and is important in the health of nerves and the nervous system including the myelin sheath. B1 is also used to treat beriberi, fatigue, irritability, depression and numerous mental illness affecting nerves.

Foods containing vitamin B1 include brewer's yeast also known as nutritional yeast, brown rice, rice husks, wheat germ, blackstrap molasses, egg yolks, fish, legumes, peanuts, peas, pork, oats, millet, spinach, cauliflower, Brazil nuts, pecans and pine nuts.

B1 is absorbed the best when it is taken or eaten with the other B vitamins.

Recommended reading:
-Staying Healthy With Nutrition by Elson M. Haas MD and Buck Levin, Chapter 5 or Kindle location 3706.
-Vitamin B by DK Publishing, pages 6 & 7.

Vitamin B2 Riboflavin #2 in a series on B vitamins.

Riboflavin is a building block for 2 important coenzymes for energy production. It is also needed for cell respiration by helping cells use oxygen. It is used for vision problems, eye fatigue, cataracts, burning eyes, excess tearing, blurry vision caused by eye strain, addiction, digestion problems, leg cramps and migraines.

B2 deficiency can show up as ariboflavinosis. Riboflavin is stable to heat, acid and oxidation but it is sensitive to light. It is not stored in the body. The most easily absorbed form is riboflavin-5-phosphate.

Foods that contain B2 include almond, broccoli, nori seaweed, wild rice, cheese, green leafy vegetables like collards, spinach, asparagus, egg yolks, oily fish, legumes, animal milk, organ meats, poultry, soy, spinach, whole grains, yogurt, mushrooms, avocado and sunflower seeds.

Vitamin B3 Niacin #3 in a series on B vitamins.

Niacin is a involved in over 50 vital body functions. It has 2 forms nicotinic acid and niacinamide. It is resistant to heat, light, air, acid and alkali. It is soluble in both water and alcohol.

B3 deficiency can show up as pellagra. Niacin is readily absorbed from the small intestine and is stored in small amounts in the liver. Tryptophan is a precursor of niacin.

There are only small amounts of niacin in foods. Foods that contain B3 include liver and other organ meats, poultry, fish, peanuts, yeast, dried legumes, seeds, whole grains, avocado, dates, figs and prunes.

Vitamin B5 Pantothenic Acid #4 in a series on B vitamins.

Pantothenic acid is essential for growth, reproduction, normal physiologic functions and over 100 metabolic functions. It is required by all cells in the body.

B5 deficiency is rare, usually from starvation. Symptoms can include fatigue, headache and nausea. Pantothenic acid helps build red blood cells and in making bile. It is a potent memory booster helping make the neurotransmitter acetylcholine. B5 works together with vitamins B1, B12 and vitamin C.

Most plants and animals have some B5. Foods that contain B5 include liver and other organ meats, pork, saltwater fish, soybeans, brewer's yeast, eggs, lentils, dried legumes, sweet potatoes, wheat germ, avocado, peas, brown rice and corn.

Vitamin B6 #5 in a series on B vitamins.

Water soluble vitamin B6 is a generic name for 6 compounds known as vitamers. These include pyridoxine, pyridoxal-5-phosphate, and pyridoxamin. B6 in coenzyme form is involved in over 100 enzyme reactions in the body.

The richest sources of B6 from highest to lowest include chickpeas, fish, beef liver and other organ meats, potatoes and other starchy vegetables, non-citrus fruits like banana, cottage cheese and winter squash.

Vitamin B7 Biotin #6 in a series on B vitamins.

Biotin is essential to many body functions. B7 is most well known from advertising as a beneficial ingredient in shampoo, conditioner and skin cream. It is more important on the inside where it helps metabolize carbohydrates, fat and protein. Biotin aids cell growth and is essential for the body to make fatty acids. It is needed in order to metabolize other B vitamins. The good gut intestinal bacteria lactobacillus produces biotin.

B7 deficiency can cause dry, flaky skin, fatigue, insomnia, high cholesterol, sensitivity to touch, inflamed eyes, hair loss, muscle weakness, muscle cramps, lack of coordination, appetite loss, nausea, vomiting, depression and impaired fat metabolism. A number of enzymes need B7 to function properly.

Foods with the highest concentration of B7 are beef, liver, brewer's yeast, unpolished rice, peanuts, almonds, carrots, tomato, chard, onion, cabbage, broccoli, egg yolks, kidneys, cow milk, nuts, poultry, saltwater fish, soybeans, sunflower seeds, sweet potatoes and whole grains.

Vitamin B12 Cobalamin #7 in a series on B vitamins.

B12 is the only vitamin that contains cobalt, an essential mineral. It requires a mucoprotein enzyme (intrinsic factor) made in the stomach in order to be absorbed in the last part of the small intestine. Hydrochloric acid helps absorption. The body stores B12. Deficiency can cause pernicious anemia, malformed myelin sheath on nerves, low energy, fatigue and it also stunts growth. Cobalamin is required for metabolism of nerve tissue. It is one of the most difficult vitamins to get from the diet.

B12 is found in animal protein including organ meats, fermented foods, oily fish, shellfish, egg yolk, and cow dairy-especially kefir and live culture yogurt. Cobalamin occurs naturally in foods. Cyanocobalamin is manufactured and has a cyanide molecule attached to the cobalt.

B Vitamin Basics

Vitamin B9 Folic Acid #8 in a series on B vitamins.

B9, also known as folate and folacin, helps prevent low birth weight babies, neural tube defects and premature birth. It is important to nervous system function. It helps red and white blood cell production and for immune system function. It can also help reduce high blood levels of homocysteine. High homocysteine is a high risk factor for many types of cardiovascular disease.

Folic acid foods include leafy green vegetables, apricots, artichokes, asparagus, avocados, banana, barley, bean sprouts, beets and beet greens, boysenberries, Brussels sprouts, dried beans, brewer's yeast, brown rice, cantaloupe, celery, corn, eggs, fish, lentils, loganberries, mushrooms, nuts, okra, oranges, organ meats, parsnips, peas, pineapple, root vegetables, seeds, soy flour, strawberries, tempeh, wheat bran, wheat germ. Intestinal bacteria can make vitamin B9.

It is found in so many foods that you should be able to get enough in your diet no matter what type of whole food diet you consume be it standard, vegetarian or vegan. The avocado corn soup below is a good source of folic acid.

Other B Vitamins

There are less well known B vitamins which include choline (Ch), inositol (Ino), para-aminoben-zoic acid (PABA), B13 orotic acid, B15 pangamic acid, and B17 laetrile.

Supplements

It is important when taking a B vitamin supplement to take a B complex formula to ensure you get all the different B vitamins required for each to be properly absorbed. Look for the most absorbable form of each B vitamin. Always consult a health care practitioner before starting B vitamin supplements be they tablets, capsules or injections.

Examples of Vitamin B Complex formulae:

AOR Advanced B Complex
Ingredients
B1 (Benfotiamine) .....100 mg
B2 (Riboflavin-5-phosphate sodium).....7.5 mg
B3 (Niacin - from 388 mg inositol hexanicotinate)..... 353 mg
B5 (Panthethine, calcium D-pantothenate).....300 mg
B6 (Pyridoxal-5'-phosphate).....100 mg
B9 Folic acid (calcium L-5-MTHF).....1000 mcg
B7 Biotin.....500 mcg
B12 (Methylcobalamin).....1000 mcg
Choline bitartrate (provides 240 mg of choline).....600 mg
Inositol (from inositol hexanicotinate, inositol).....393 mg

Jamieson B100 Complex
Ingredients
B1 (Thiamine Mononitrate)…..100 mg
B2 (Riboflavin)…..100 mg
B3 (Niacinamide)…..100 mg

B5 (Pantesin trademark of Kyowa Pharma Chemical Co.).….10 mg
B6 (Pyridoxal 5-Phosphate)…..10 mg
B9 Folic Acid…..1000 mcg
B7 Biotin…..200 mcg
B12 (Methylcobalamin)…..500 mcg
Choline Bitartrate…..10 mg
Inositol…..10 mg

Life Brand B 100 Complex
Ingredients
B1 (Thiamine Mononitrate)…..100 mg
B2 (Riboflavin)…..100 mg
B3 (Niacinamide)…..100 mg
B5 (Pantothenic Acid Calcium D-pantothenate)…..100 mg
B6 (Pyridoxine Hydrochloride)…..100 mg
B7 Biotin…..100 mcg
B9 Folic Acid (Folate)…..1 mg
B12 (Cyanocobalamin)…..100 mcg
Choline Bitartrate…..100 mg
Inositol…..100 mg

NOW B-100 Complex
Ingredients
B1 (Thiamine Hydrochloride)…..100 mg
B2 (Riboflavin)…..100 mg
B3 (Niacinamide)…..100 mg
B5 (Pantothenic Acid Calcium pantothenate)…..100 mg
B6 (Pyridoxine Hydrochloride)…..100 mg
B7 Biotin…..100 mcg
B9 Folic Acid…..400 mcg
B12 (Cyanocobalamin)…..100 mcg
Choline Bitartrate…..10 mg
Inositol…..10 mg
PABA…..10 mg

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