The Complete Guide To

B Vitamins

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Key Nutrients For Your Good Health

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Attaining Balance In Nutrition

For our bodies to properly function and remain healthy, it's imperative that you follow a nutritious diet.

We can categorize the foods that we eat into 6 different nutrient classes, these are

Macronutrients

- Fats
- Proteins
- carbohydrates

Micronutrients

- Vitamins
- Minerals

Water

Failure to achieve the right balance of the 6 will make it difficult to live a healthy life and macronutrients are the backbone of achieving any fitness or weight loss goals you may have. As we break down each of these, you'll see why they're so essential to a healthy lifestyle.

- Protein – Foods containing protein are broken down as amino acids, which repair and build muscle tissue. Protein is especially helpful for active people who exercise regularly. It improves the speed of recovery, so it's vital that your body gets enough of it. It also aids the nervous and immune systems.

- Carbohydrates – Think of your body as a racecar, and nutritious foods fuel that racecar. Racecars have their tires and oil changes to ensure its performance is maintained. The same must be done for your body, because failure to do so will result in it breaking down. Carbs provide you with the energy you need to properly function

through your day. When you eat carbs, the pancreas releases insulin, which helps with carb storage.

- Fats – You may have heard that eating fats makes you fat; this is false because without proper fat intake you'll die. Fat stores in the body are the main source of energy, *and* keep us warm in the winter months. Fats oil the joints, keeping muscles mobile for improved workouts, keeping muscles mobile for improved exercise. Additionally, vitamins A, D, E, and K re stored in body fat. The problem comes when people don't take the time to understand the difference between healthy and unhealthy fats and balancing their intake. This means eating more healthy fats, including monounsaturated, and polyunsaturated fats, less of saturated fats and avoiding trans fats.

- Vitamins & Minerals – Our bodies need these nutrients to function, and also to facilitate a faster rate of chemical reaction. These are just as necessary to our health as the three macronutrients we discussed above, but in smaller amounts. Vitamins and minerals support a wide variety of internal body process, and B vitamins offer key health benefits, including the breakdown of carbohydrates to provide the body with energy.

- Water – One of the main issues that unhealthy (or overweight) people are guilty of is not properly hydrating. Rather than drinking a sufficient amount of water, they drink sugary fruit juices, or sodas. Water makes up a large portion of our body, and it's critical to our survival. It's vital to a healthy diet, and acts as a cleanser to the body.

What Are B Vitamins

B vitamins are actually a group of eight distinct vitamins known as the vitamin B complex, which includes:

- B1
- B2
- B3
- B5
- B6
- B7
- B9
- B12

B vitamins play a crucial role in maintaining our bodies, one of which is the function of converting food to fuel in support of sustained energy throughout the day. Many of these vitamins work together, but each of them has their own specific benefits, from preventing migraines and memory loss to promoting healthy skin.

That doesn't mean you have to jump into stockpiling the vitamins just yet, because if you're eating a healthy, well-balanced diet you should be getting plenty of them in the foods that you eat.

People do turn to supplements, though. Often the elderly, vegans and vegetarians, heart patients, obese people, and alcoholics suffer from vitamin B deficiencies. These deficiencies have been linked to memory function, dementia, cognitive impairment, depression, and psychiatric disorders.

Advocates claim that B vitamins can help with acne, skin problems, fatigue, depression, anxiety, PMS, and even heart disease.

Additionally, those who do take vitamin B vitamins tend to see an increase in energy, improved mood and memory, stress relief, and hair growth.

We'll break down each of the B vitamins, their food sources, why you need it, and how much you should be getting.

Vitamin B1 (Thiamin)

This is known as the anti-stress vitamin, as it works to protect the immune system. It also helps to create new cells in the body. It's vital in carb loading cases because it helps break down simply carbohydrates.

Food Sources

You can find vitamin B1 in wheat germ, beans, whole grains, kale, peanuts, spinach, and blackstrap molasses.

Vitamin B1 Deficiency

A vitamin B1 deficiency affects the brain, nervous system, and heart, though it's fairly uncommon in developed countries. Conditions that impair vitamin B1 levels include anorexia, alcoholism, Crohn's disease, those taking loop diuretics, or patients on kidney dialysis.

There are two major health issues that the deficiency can cause: Wernicke-Korsakoff syndrome and beriberi.

The former is two different disorders, with Wernicke's causing mental decline, a loss of muscle coordination, visual impairments and affecting the nervous system. If it is not treated, it results in Korsakoff syndrome, which permanently impairs the brain's memory functions.

Beriberi affects alertness, breathing, heart function, and eye movements. The disease is a result of pyruvic acid building in the bloodstream; this is an effect of the body failing to convert food to fuel.

Both of these diseases can be treated with thiamine supplements or injections, however, it cannot repair the permanent damage Korsakoff syndrome does to the memory.

The daily-recommended allowance from the National Academy of Sciences is as follows:

- Men aged 19 and older 1.2 mg
- Women aged 19 and older 1.1 mg
- Breastfeeding or pregnant women - 1.4 mg

Vitamin B2 – (Riboflavin)

Vitamin B2 is an antioxidant, and it fights free radicals that cause oxidative stress and promote premature aging. It can prevent heart disease and early aging. It's also vital for the production of red blood cells, which we require to transport oxygen through the body.

While sunshine is good for the body, it can reduce the vitamin B2 content of food. Milk is an excellent example of this, which is why it should be purchased from in an opaque container that protects the vitamin content.

Food Sources

You can find vitamin B2 in almonds, eggs, yogurt, wild rice, leafy green vegetables, spinach, soybeans, chicken, turkey, fish, kidney beans, Brussels sprouts, and kidney beans.

Vitamin B2 Deficiency

Vitamin B2 deficiencies aren't common in developed nations, as many of our refined carbohydrates are riboflavin fortified. It's also contained in meat and eggs, which are commonly, consumed products.

However, there are a number of symptoms related to a deficiency of vitamin B2, including: anemia, nerve damage, sores or cracks around the mouth, fatigue, sore throat, sluggish metabolism, mood swings, depression, anxiety, and inflamed skin.

Vitamin B2 is water soluble, so you need to be sure to get it daily in order to prevent a deficiency. The best way to get your recommended daily allowance is by eating a healthy, balanced diet. It's vital to the function of every cell within the body, in reducing

inflammation, balancing hormones, the digestive system, and metabolism, as well as the health of the nerves, blood, skin, health, and eyes.

The recommended daily allowance, according to The National Academy of Sciences:

- Women aged 19 and older- 1.1 mg
- Men aged 19 and older- 1.3 mg
- Pregnant or breastfeeding women - 1.4 mg

Vitamin B3 – (Niacin)

Niacin is a member of the B complex vitamin family; it shouldn't be confused with nicotinate, tryptophan, niacinamide, or inositol niacinamide. It's taken by those with high levels of cholesterol, as well as to treat circulation issues, migraines, dizziness, diarrhea (as caused by cholera), and Meniere's syndrome. It can also be used in treating schizophrenia, Alzheimer's, muscle spasms, edema, alcohol dependence, muscle spasms, motion sickness, hallucinations, depression, and swelling of the blood vessels.

Food Sources

You can find vitamin B3 in yeast, chicken, fish, beans, red meat, eggs, nuts, green vegetables, and whole grains.

It serves many purposes in the body, including aiding in the function of the skin, nervous system, and digestive system. Just like the rest of the B vitamin family, it helps in the breakdown of macronutrients, as well as in liver function.

Its role is to produce hormones in the adrenal glands, detoxifying the liver. In addition to treating high cholesterol, it can be used for stroke patients. Strokes are the result of blood vessel obstructions, and niacin can aid the growth of new blood vessels.

It can also aid in maintaining an erection for men with severe ED, for acne, and in helping cancer patients.

The recommended daily allowance, according to The National Academy of Sciences:

- Women - 14 mg
- Men - 16 mg
- Pregnant women, up it to 18 mg
- Breastfeeding Women - 17 mg

Vitamin B5 – (Pantothenic acid)

This essential nutrient creates and absorbs fats, proteins, and carbohydrates. It has a wide variety of uses, including acne, yeast infections, alcoholism, baldness, ADHD, asthma, allergies, depression, dandruff, low blood sugar, low blood pressure, MS, insomnia, celiac disease, cystitis, colitis, osteoarthritis, nerve pain, PMS, chronic fatigue syndrome, dizziness, and skin disorders.

Food Sources

There are many foods which are great sources of vitamin B5 including eggs, legumes, avocados, meat, legumes, and yogurt.

Vitamin B5 has several health benefits and practical uses, mainly: the metabolism. It's great for energy, as the carbs released by the body are broken down into converting energy. It's also useful for maintaining healthy hair, skin, eyes, and a properly functioning liver.

It also helps the body in the production of red blood cells, and sex hormones and is associated with relieving stress. It keeps the gastrointestinal tract healthy; because it helps the body produce healthy cholesterol, thus reducing the bad cholesterol.

The recommended daily allowance, according to The National Academy of Sciences:

- Men age 18 and older – 5mg
- Women age 18 and older - 7 mg
- Women who are breastfeeding or pregnant - 6 mg

Vitamin B6 – (Pyridoxine)

Vitamin B6 helps regulate levels of homocysteine, an amino acid, which are associated with heart disease. It's a major player when it comes to sleep patterns and mood, because it assists the body's production of melatonin, serotonin, and the stress hormone norepinephrine. It can also be helpful in reducing inflammation for conditions such as rheumatoid arthritis.

It assists in many systems within the body, it's vital for the health of the nervous system, immune system, digestive system, cardiovascular system, and the muscular system. It's also necessary for the proper development of the brain, and in producing the neurotransmitters, serotonin, norepinephrine, and melatonin.

Food Sources

Food sources that contain vitamin B6 include: carrots, chicken, cheese, turkey, sunflower seeds, salmon, brown rice, tuna, beef, lentils, bananas, papaya, beans, spinach, whole grains, and chickpeas.

Vitamin B6 deficiencies feature short-term memory loss, muscle weakness, lack of focus, nervousness, depression, and irritability.

The recommended daily allowance, according to The National Academy of Sciences:

- Men and women between the ages of 19 and 50 - 1.3 mg
- Men age 50 and older – 1.7 mg
- Women age 50 and older - 1.5 mg
- Breastfeeding women - 2.0 mg
- Pregnant women – 1.9 mg

Vitamin B7 – (Biotin)

Vitamin B7 is associated with healthy nails, skin, and hair and often referred to as the beauty vitamin hence it being a main ingredient in many skin creams. It can also benefit diabetics in controlling their glucose levels and in pregnancy to encourage the baby's development.

Vitamin B7 is important because the body requires it to process amino acids, fats, and carbohydrates. It's also often found in cosmetic skin and hair products.

Food Sources

The ideal food course for vitamin B7 include: barley, nuts, egg yolks, liver, pork, cauliflower, yeast, fish, pork, chicken, potatoes, Swiss chard, bananas, mushrooms, milk, and oats.

Vitamin B7 Deficiency

Deficiencies are incredibly rare, however, can be caused by consuming raw egg whites over the course of a few years. This is because raw eggs whites contain avidin, a protein that binds to the vitamin. People who have genetic disorders are also susceptible to deficiencies.

The symptoms of B7 deficiency include anorexia, birth defects, fungal infections, hair loss, brittle hair, muscle pain, hallucination, anemia, mild depression, rashes, and lethargy.

The recommended daily allowance, according to The National Academy of Sciences:

- Men and women age 19 and older - 30 mcg a day
- Pregnant women – 30 mcg daily
- Breastfeeding women - 35 mcg

Vitamin B9 – (Folic acid)

Vitamin B9 is more commonly known as folic acid, the synthetic from that is used in fortified foods and in supplements. It can also prevent memory loss, relieve symptoms of depression, and is vital for the growth and development of babies during pregnancy.

B9 works with B12 and B6, as well as other nutrients, to control the levels of homocysteine in the blood. High homocysteine levels are linked to heart disease, though researchers don't know whether it's simply a market indicating the presence of heart diseases or the cause of it.

It's necessary for the healthy immune, nervous, and digestive systems, and also for producing energy, red blood cells forming, cell division, and the synthesis of DNA and RNA. It's necessary in replicating DNA, as well as sustaining the bone marrow's healthy level of red blood cells.

For pregnant women it's vital, especially in early pregnancy, in preventing birth defects relating to the brain and the spine. Pregnant women who do not consume enough give birth to premature babies and deliver babies with low birth weights.

Food Sources

There are plenty of food sources that provide vitamin B9 including beans, dark leafy greens, bulgur wheat, asparagus, milk, salmon, beets, root vegetables, chicken, whole grains, nuts, citrus fruits, and broccoli.

Vitamin B9 Deficiency

Vitamin B9 deficiency is fairly common, and there are issues, which can cause the deficiency, including celiac disease, alcoholism, and inflammatory bowel disease. There are also medications that can reduce the levels of B9 in the system.

The symptoms or result of a vitamin B9 deficiency include: tongue inflammation, diarrhea, poor growth, gingivitis, mental sluggishness, irritability, loss of appetite, forgetfulness, and shortness of breath.

The recommended daily allowance, according to The National Academy of Sciences:

- Men and women over the age of 18 - 200 mcg
- Breastfeeding women - 350 mcg
- Pregnant women - 400 mcg

Vitamin B12 – (Cobalamin)

This B vitamin is the quintessential team player. It works alongside B9 to produce red blood cells, and works with iron to get the job done. It is only in animal products, so vegans and vegetarians are the most likely to lack this vitamin. For those people supplements are a must.

The positive effects of vitamin B12 include preventing heart disease, managing dementia, boosting energy, and improving athletic performance. Dementia is a result of homocysteine, and vitamin B12 (in combination with vitamins B6 and B9) can reduce those levels. However, it is unknown whether B12 is effective in the treatment or the prevention of dementia. As far as athletic performance, you've probably heard references to B12 vitamin shots taken by athletes as a way to increase their energy and endurance levels.

Food Sources

Good food sources of B12 are shellfish, eggs, milk, beef, cheese, and fish.

Vitamin B12 Deficiency

Why do you need Vitamin B12? Well, deficiencies result in constipation, weakness, loss of appetite, tiredness, and megaloblastic anemia. In addition, it can also result in tingling and numbness in the feet and hands. That is just for starters, more severe symptoms include confusion, memory issues, depression, dementia, balance issues, and soreness in and around the mouth. It can result in severe damage to the nervous system, so it's vital that deficiencies are dealt with immediately.

One of the hallmarks of a B12 deficiency is megaloblastic anemia, which can be hidden with large amounts of vitamin B9. However, this doesn't *correct* the issue. Therefore, it's vital to stick to the recommended daily allowance of *all* B vitamins, but especially folic acid.

The recommended daily allowance, according to The National Academy of Sciences:

- Men and women over 18 - 2.4 mcg
- Pregnant women - 2.6 mcg
- Breastfeeding women - 2.8 mcg

Final Thoughts

It's important to remember that the members of the vitamin B family are delicate, and water soluble, which means that they *must* be replenished daily. Our bodies have a limited capacity to store the majority of the group (the exclusions being vitamins B9 and 12, as they are stored within the liver), so a continued poor diet (over just a couple of months) will eventually result in a vitamin B deficiency.

What is clear is that healthy levels of the B vitamin complex (which is made up of eight water-soluble vitamins) can be obtained through maintaining a healthy, well balanced diet. They are vital in the body's metabolic processes.

Also, note that because they are so delicate it is easy to destroy them during the process of cooking, and when mixed with alcohol. Processing foods reduces the presence of B vitamins, especially when making white breads, rice, and flours, which is why they are less healthy options compared to whole grain options.

It's fairly uncommon for people living in developed countries to suffer from vitamin B deficiencies, however, it is of particular importance that strict vegetarians and vegans taken the necessary supplements to make up for the lack of vitamin B12 in their diet. These supplements can mask other vitamin deficiencies, however, so never self-diagnose your deficiency, see your doctor. If you take vitamins incorrectly, they can be toxic, so always speak to a medical professional before starting any regimen.

The main takeaway of this is that once again, a healthy diet is critical to your overall health and wellbeing, and the only way to get an adequate amount of the vitamins and minerals necessary for your health.