



# Healthy and Happy Monthly Newsletter

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## This New Years Resolution: Less Stress and More Energy Part One

### Understanding the Effects of B Vitamin Deficiency and Supplementing with B Vitamins

The B vitamin complex comprises a number of vitamins that exist as a family. The B vitamin family consists of: **Vitamin B1** (Thiamine), **Vitamin B2** (Riboflavin), **Vitamin B3** (Niacin), **Vitamin B5** (Pantothenic Acid), **Vitamin B6** (Pyridoxine), **Vitamin B9** (Folic Acid), **Vitamin B12** (Cobalamin)

In today's world many individuals suffer from a vitamin B deficiency for several reasons. The first of which is stress. Be it emotional, physical or spiritual, stress burns through the essential B vitamins in your body, taxing your nervous system and making it have to work harder. Over time, chronic stress can lead to premature aging, adrenal fatigue, cardiovascular disease, dementia, stroke, and more. Having just experienced the holiday season, many of us are feeling stressed and fatigued, and yet we keep going, sometimes to the point of exhaustion. The more stressed you become, the faster your body will burn through these B vitamins, and the less adequately you will be able to cope with the stress. Typically, B vitamin deficiency manifests in symptoms of increased irritability and agitation, brain fog, low energy, and muscle fatigue.

In addition to stress, approximately 62% of the American diet is made up of processed foods, which are also a major reason for vitamin B deficiency and the proliferation of stress, as they are not real foods and so they tax the body in unnatural ways. Another major factor, in concert with processed foods, is that the average person consumes around 140 pounds of refined sugar and 40 pounds of high fructose corn syrup a year, which robs the body of its B vitamin stores, and further stresses the body by causing inflammation, suppressing the immune system and increasing the risk of developing cancer. Would you be interested to know that supplementing with a B complex vitamin is an easy and effective way to combat stress and have more energy? If so read on as we highlight and explain the benefits of each B vitamin, as well as natural sources for B vitamins and how to identify deficiencies before serious health debilitating conditions develop.

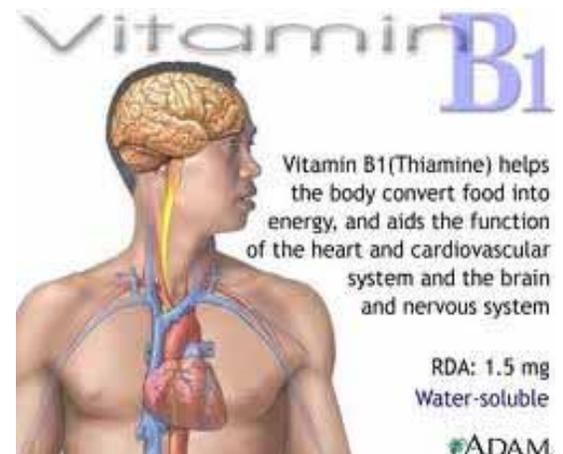
**Vitamin B1 (Thiamine):** The body is unable to store thiamine in large amounts, therefore regular intake is important. Thiamine helps in carbohydrate metabolism and to produce energy, which the body's cells can use. Major causes of vitamin B1 deficiency in today's society are alcoholism, heavy sugar consumption and inadequate intake of vitamin B1, through food sources or supplementation. The most important use of thiamine is to prevent and improve symptoms of beri beri. Beri beri is characterized by neurological as well as cardiovascular symptoms.

**Neurological symptoms:** pain, swelling, and redness of the hands and feet, and or a tickling or burning sensation in the hands and feet. Confusion and loss of memory are also possible symptoms.

**Cardiovascular symptoms:** difficulty breathing, swelling of the legs, rapid heart beat.

Also, studies suggest that thiamine plays an important role in the management of congestive heart failure. Patients taking the diuretic **Lasix (Furosemide)** may be at greater risk for thiamine deficiency, as well as other vitamins and minerals, due to urinary loss. This deficiency can contribute to cardiac insufficiency. Therefore, supplementation with thiamine, Vitamin B1, can reduce the symptoms of the disease.

**Natural sources of Vitamin B1 (Thiamine) Include:** Pork, wheat germ, whole grain cereals, brewer's yeast, white enriched rice, soy milk, sunflower seeds, beans, pasta, peanuts (unroasted). Brewers Yeast is the richest source of Vitamin B1. Although milk, fruits, and vegetables are not rich in vitamin B1, they contribute significantly to maintaining healthy vitamin B1 levels when consumed in sufficient amounts.



**Vitamin B2 (Riboflavin):** Essential to normal tissue respiration and to the generation of energy metabolism from carbohydrates, proteins, and fats. Riboflavin is also necessary for normal development and repair of the immune system and of body tissues like skin, hair, nails, and connective tissue.

Some studies suggest that vitamin B2 may be effective in the treatment of **migraine headaches**. It is proposed that migraines are a function of reduced energy production in the mitochondria of the cells, the power house of the cell, and that riboflavin increases mitochondrial energy efficiency.

The elderly, who's diets are often low in red meats and dairy products, may be more at risk of riboflavin deficiency.

**Symptoms of riboflavin deficiency include:** cracking of the lips and corners of the mouth, swollen, inflamed tongue, visual disturbances such as sensitivity to light and cataract formation, anemia and dermatitis.

**Natural sources of Vitamin B2 (riboflavin) include:** Brewer's yeast, almonds, organ meats, whole grains, wheat germ, wild rice, mushrooms, soybeans, milk, and spinach.

**Therapeutic uses include:** Preventive measures for migraine headaches, can help to relieve rheumatoid arthritis, may be useful for treating or preventing cataracts, helps to relieve carpal tunnel syndrome, **reduces the effects of stress**, helps with skin problems such as acne, rosacea, dermatitis, eczema and ulcers, muscle cramps, enhances immune function, and protects against free radical damage.

**Vitamin B3 (Niacin):** Absorbed in the small intestine and excreted in the urine. Not stored, so needed in frequent small doses. The human body uses niacin in more than fifty biological chemical reactions. Niacin is instrumental in the release of energy from carbohydrates, which fuels all body cells and systems. Niacin is necessary for proper central nervous system (brain) function. Also, it is involved in fat and cholesterol metabolism and the manufacture of many body compounds including sex and adrenal hormones. Helps to regulate blood sugar, and has antioxidant and detoxification reactions.

**Natural sources of Vitamin B3 (Niacin) include:** Fifty percent of the niacin used by the body comes from the conversion of the amino acid tryptophan. Therefore, the richest sources of niacin are protein-rich foods such as extra-lean meats, turkey, chicken, fish, eggs, cooked dried beans and peas, brewer's yeast, liver and other organ meats, nonfat/lowfat milk and cheese, whole grains (except corn). The most abundant vegetable sources are mushrooms and greens. It is better to steam, bake, or stir-fry vegetables, as niacin may be lost in cooking water.

**Therapeutic uses of Vitamin B3 (Niacin) include:** effective in reduction of LDL and triglyceride levels, increases HDL levels, reduces the risk of cardiovascular disease. Has a synergistic effect when combined with cholesterol reducing medications. Can help with osteoarthritis and rheumatoid arthritis, and may be effective in treatment and control of early-onset insulin dependant (type 1) diabetes. In combination with vitamins A and E, niacin helps to prevent and treat heart disease. Vitamin B3 has been successful in the treatment of schizophrenia, anxiety, depression, and other mental illnesses. Used for the treatment of alcoholism. It may be beneficial in the treatment of hypoglycemia. It has also been used as a treatment of insomnia due to its sedative effects.

**Vitamin B5 (Pantothenic Acid):** Known as the "antistress" vitamin, pantothenic acid plays an important role in adrenal function and cellular metabolism. Pantothenic acid is converted into a substance called **coenzyme A**. Coenzyme A is essential to the metabolism of fats, carbohydrates and proteins for energy. It is required for the synthesis of fatty acids, cholesterol, steroids, bile, phospholipids, red blood cells, hormones, and neurotransmitters. Vitamin B5, as coenzyme A, supports the adrenal glands in the making of cortisone and other adrenal hormones that counteract the stress response and enhance metabolism. Also, extremely important, coenzyme A is needed to convert choline, a nutrient, into acetylcholine, an important neurotransmitter involved with neuromuscular reactions. Vitamin B5 is also necessary for proper functioning of the immune system.



**Natural Sources of Vitamin B5 (Pantothenic Acid) include:** The best dietary sources are brewer's yeast, liver, eggs, fish, chicken, cheese, milk, mushrooms, whole-grain breads and cereals, dried beans and peas, nuts (peanuts, pecans, hazelnuts), potatoes, avocados, cauliflower, oranges, and bananas.

**Therapeutic uses of Vitamin B5 include:** B5 vitamin deficiency results in fatigue, depression, digestive problems, problems with blood sugar metabolism, loss of nerve function, and depressed immune response. These problems may manifest symptoms such as vomiting, abdominal cramps, tingling or burning hands or feet, skin problems, muscle cramps, reoccurring infections, and worsening of allergy or asthma symptoms.

Also, vitamin B5 has become increasingly popular as a nutritional supplement due to claims that it boosts energy, increases stamina and athletic performance. It also rejuvenates skin and hair, and decreases the symptoms of allergies, asthma and psoriasis.

**Vitamin B6 (Pyridoxine):** Our bodies use three forms of Vitamin B6: pyridoxine (PN), pyridoxal (PL), and pyridoxamine (PM). Most of the time you will hear vitamin B6 referred to as pyridoxine. Vitamin B6 performs several functions in our body, including breaking down carbohydrates for energy production, and forming hemoglobin.

**Natural Sources of Vitamin B6 (Pyridoxine) include:** Chicken, fish, kidney, liver, eggs, and pork are all excellent sources of vitamin B6. Yeast, wheat germ, whole grain cereals, beans, potatoes, bananas, and oatmeal are also great sources of vitamin B6.

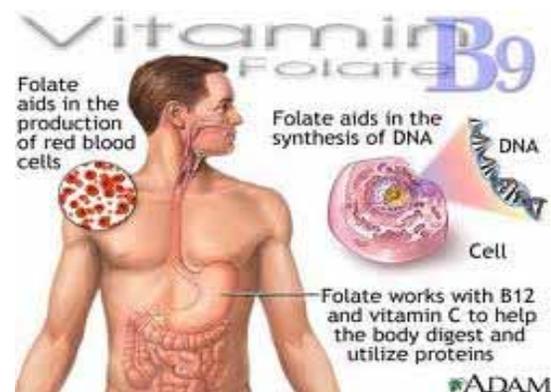
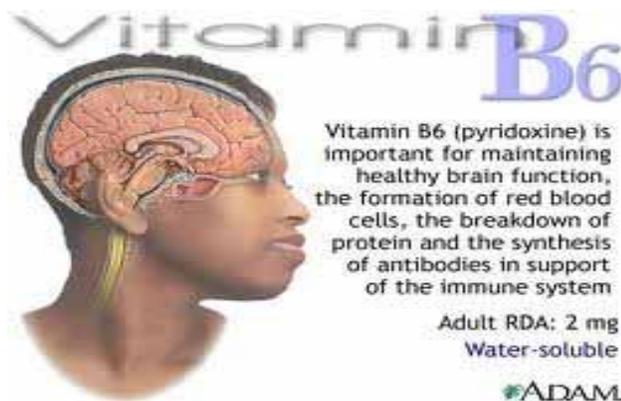
**Therapeutic uses of Vitamin B6 include:** Vitamin B6 is used to improve symptoms of vitamin B6 deficiency. These symptoms include inflammation (redness, swelling, pain) of the mouth, chapped lips, irritability, depression, and confusion. Also used to treat premenstrual syndrome (PMS), to reduce the symptoms of nausea and vomiting during pregnancy. For seniors and people of all ages, it can be used to prevent heart disease. Recent studies show that vitamin B6, vitamin B12, and folate can lower blood levels of homocysteine, a substance that is an independent risk factor for heart disease and stroke.

**Vitamin B9 (Folic Acid):** Folic acid functions with vitamin B12 in many genetic, metabolic, and nervous system processes. Folic acid helps protect against heart disease, birth defects, osteoporosis, and certain cancers. As many as 15% of people have a genetic mutation causing a decrease in the conversion of folic acid to its active form in the body, predisposing them to higher levels of homocysteine (a risk factor for heart disease), and in women of child bearing age an increase in neural tube defects such as spina bifida. Increased homocysteine levels can play a role in osteoporosis by weakening bone and increasing risk of fracture. Folic acid plays a role in the production of neurotransmitters such as serotonin and helps regulate mood, appetite and sleep.

**Natural Sources of Vitamin B9 (Folic Acid) include:** Liver, lentils, rice germ, brewer's yeast, soy flour, black-eyed peas, navy beans, peanuts, spinach, lima beans and asparagus.



**Therapeutic uses of Vitamin B9 (Folic Acid):** In addition to preventing neural tube birth defects and decreasing homocysteine levels, folic acid is used for the prevention of cervical dysplasia and prevention of cervical, lung and colon cancer. Folic acid plays a role in relieving depression, treating rheumatoid arthritis, aiding formation of healthy red blood cells and preventing macrocytic anemia. Folic Acid is also useful for treating **Restless Leg Syndrome**.



**Vitamin B12 (Cobalamin):** Vitamin B12 is an essential coenzyme for the normal function of all cells, affecting DNA synthesis, cell growth and replication. Vitamin B12 is important in the metabolism of amino acids (protein) and carbohydrate and lipid metabolism. Vitamin B12 in concert with Folic Acid plays a role in preventing macrocytic anemia, a blood disorder in which red blood cells are too few, too fragile, and abnormally large. Symptoms often manifests as dementia and neurological problems such as burning or prickling of the hands and feet, loss of balance, confusion, loss of memory and moodiness. B12 deficiency also results in a shrinking of the brain stem in the elderly, another significant risk factor can lead to brain related disorders such as stroke and dementia.

**Natural Sources of Vitamin B12 include:** Foods containing animal protein such as liver, kidney, milk, eggs, fish, cheese, beef and chicken.

**Therapeutic uses of Vitamin B12:** B12 is important for the prevention of macrocytic anemia and heart disease. Most Vitamin B12 deficiency results from malabsorption in the intestinal tract, especially in the elderly. Aging reduces the production of intrinsic factor in the stomach which is required for intestinal absorption of Vitamin B12. This factor makes it important that B12 be replaced in the body with supplementation in the sublingual (under the tongue) form or by injection to ensure absorption. B12 also plays in role with Vitamin B6 and Folic Acid in lowering homocystine levels, thus helping to prevent heart disease.

As we can see, the whole family of B Vitamins is essential to the neurological (nervous system), hematological (blood and cardiovascular), metabolic (energy production from protein, carbohydrate and good fat), and cell repair/replication functions of the body.

Not only does stress deplete B Vitamins, they are also water soluble and generally move through the body within six hours except for B12 which can be stored to a small extent in the liver. Therefore, supplementing with B complex three times a day is best. Neels pharmacist and certified clinical nutritionist, Patty Neels Frieda, recommends our once daily time released B complex which releases over six to eight hours, and provides approximately twelve hours of coverage.

B Vitamins are synergistic and interdependent upon one another for good biological and physical function. Although we have included many natural sources of B Vitamins, the food we eat is often industrially farmed and processed and nutritionally deficient. It is difficult to determine how much B vitamins we are getting per serving, and if those amounts are sufficient to maintain a healthy body. Furthermore, as we age our bodies become less efficient at absorbing nutrients from our intestinal tract, and so daily nutritional supplementation of B Vitamins is recommended to maintain good health.

Founded as a traditional apothecary style pharmacy in 1932, Neels Pharmacy is an established compounding and prescription pharmacy in its fourth generation of family leadership. Today, Neels Pharmacy has evolved into the pharmacy of the future and provides regular and innovative custom compounded prescription medications for humans and animals, as well as the latest and most effective over-the-counter products, including: clinical nutrition, homeopathy (for humans and animals), herbal remedies, therapeutic teas, aromatherapy and essential oils , skin care and high quality personal grooming products.

As a full service pharmacy, Neels Pharmacy offers a variety of services including individualized human and veterinary compounding, and personalized clinical nutrition consultations that are conducted by our in-house clinical nutritionist/ pharmacist, Patty Frieda. Additional services include **free local delivery** of prescription medications and over the counter products, as well as mail, UPS, and express overnight delivery.

Neels Pharmacy accepts most insurance cards, including Missouri Medicaid, Missouri Senior Rx, and more. We want to assure you that your prescription co-pay at Neels Pharmacy will be the same as you pay at any pharmacy location in the area.

**Our goal** is to help you and your family achieve optimal health, wellness and vitality and provide a relaxing and peaceful atmosphere in which you will receive the highest level of customer service from our knowledgeable staff and pharmacists. With each visit to Neels Pharmacy you can depend on a one-on-one pharmacist consultation with every prescription, including drug/vitamin/herb interactions and drug/nutrient depletions. From our family to your family, we respectfully invite you to come experience the Neels Pharmacy difference, and approach your health concerns with confidence.



# B12 DEFICIENCY

## Clinical Symptoms of Vitamin B12 Deficiency

<b>Cardiovascular</b>	<i>Increased risk of stroke or heart attack</i>
<b>Psychiatric</b>	<i>Irritability and overall personality change Mild memory impairment, occasional dementia Psychosis Depression</i>
<b>Hematologic</b>	<i>Megaloblastic anemia Pancytopenia</i>