VITAMIN DEFICIENCIES

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B 12 DEFICIENCY

Symptoms of B12 deficiency often go undiagnosed. This is largely because there are a variety of symptoms and very often they can be mistaken for something else. For example, many of the early B12 vitamin deficiency symptoms are often brushed off as the normal signs of aging. At the other end of the spectrum, some people experience very dramatic symptoms even when they are only experiencing moderately low (or low/normal) levels. In these cases, most of the time a B12 deficiency is not considered as a potential cause of the problem because the symptoms are so significant that it does not seem possible that moderately low or borderline B12 levels could be the culprit. Sadly, it is not at all uncommon for B12 deficiency symptoms to be mis-diagnosed or the signs of B12 deficiency to be ignored altogether!

Here are some of the common symptoms of Vitamin B12 deficiency:

**Neurological B12 Vitamin Deficiency Symptoms**

Mental confusion, Delusions, Paranoia, Headaches, Depression, Pins and needles in the extremities, Balance issues

**Gastrointestinal Symptoms of B12 Vitamin Deficiency**

Nausea, Vomiting, Heartburn, Bloating, Loss of Appetite, Weight Loss, Diarrhea, Constipation

**Other Symptoms of B12 Vitamin Deficiency**

Fatigue, Paleness, Shortness of breath that results from only very light exertion, White spots on the skin (typically the forearm) due to decreased melatonin, Hair loss, Bruising that occurs without reason, Dizziness

These varied B12 deficiency symptoms’ are the result of the body not creating sufficient
Red blood cells due to the decreased levels of B12. Red blood cells are required to carry oxygen to all of your cells so having insufficient red blood cells essentially starves your body of oxygen.

Most people, and particularly those with autoimmune diseases, should be tested for a B-12 deficiency, and for anemia. Once diagnosed, in addition to your doctor's recommendations regarding treatment for anemia and any suggested iron supplementation, you can also consider the following recommendations:

- Eat more foods that are good sources of iron. Concentrate on green, leafy vegetables, lean, red meat, beef liver, poultry, fish, wheat germ, oysters, dried fruit and iron-fortified cereals.
- Help your body absorb iron better by eating foods high in vitamin C.
- Red meat can supply iron, but also helps your body absorb iron from other foods.
- Limit your use of tea, except herbal teas. The tannins in tea can inhibit iron absorption.
- Avoid antacids, phosphates (found in soda, beer, ice cream, candy bars, etc.) and the food additive EDTA. These block iron absorption.
- Increase dietary fiber to prevent constipation.

For our cells to multiply properly, an adequate level of vitamin B12 is required. The human body produces millions of red blood cells every minute. This production goes down if your vitamin B12 levels are deficient, resulting in anemia as the red blood cell count drops. The most common symptoms of anemia are:

- Fatigue (tiredness)
- Panting (shortness of breath)
- Palpitations (disagreeable sensations of irregular or heavy beating of the heart).

B12 deficiency anemia may also be caused by a lack of intrinsic factor - pernicious anemia. The patient's digestive system cannot absorb B12 properly.

Signs and symptoms of pernicious anemia may include:

- Fatigue
- Shortness of breath
- Palpitations. Anemia may also have the following signs and symptoms:
- A sore mouth or tongue
- Weight loss
- Pale or yellowish skin
- Diarrhea (sporadic)
- Menstrual problems
- Higher susceptibility to infections. If the deficiency continues untreated the patient may have the following neurological signs and symptoms:
  - Tingling or numbness of the fingers
  - Tingling or numbness of the toes
  - General muscle weakness
  - Difficulty walking properly (staggering)
  - Irritability
  - Confusion
  - Forgetfulness
  - Tender calves.

**Risk of brain shrinkage**  - Elderly people with low-vitamin B$_{12}$ are more likely to suffer from brain Shrinkage and cognitive decline in recent studies.

The team performed a study on 121 seniors, all aged 65 years or more. They took blood samples to check levels of vitamin B$_{12}$ and B$_{12}$-related metabolites, which can also help detect a deficiency. Their memories and other cognitive skills were also assessed.

Fifty-two months later MRI scans were done of their brains to check their size, as well as to determine whether there were any signs of brain damage. The team found that those with four of five vitamin B$_{12}$ deficiency markers were much more likely to have lower cognitive test scores and smaller total brain volumes.

**Pernicious anemia**

Pernicious anemia is caused by an autoimmune disease; a person's own immune system attacks good parts of the body, as if they were bacteria or viruses.
The immune system of patients with pernicious anemia creates antibodies which attack the lining of the stomach, damaging cells that produce intrinsic factor. Intrinsic factor is a substance that is secreted by the gastric mucous membrane (lining of the stomach) and is vital for the absorption of vitamin B₁₂ in the intestines. If the production of intrinsic factor is undermined, vitamin B₁₂ cannot be absorbed into the body properly.

**Foods High In B₁₂**

Sardines, salmon, tuna, cod, lamb, shrimp, scallops, beef, yogurt, and milk.

It can be difficult to meet the daily requirement of B₁₂ if you are a vegetarian or vegan, or if you are elderly. It is also more difficult for anyone suffering from digestive diseases that inhibit absorption such as celiac disease.

**LOW B₆ symptoms:**

Vitamin B₆ - may be associated with less than optimum health conditions (low intake, malabsorption, or dysbiosis). Supplementation with B6 or a multivitamin may be beneficial. Low B₆ symptoms: Twitching, seizures, convulsions, mood or mental changes, anemia, fatigue, heart rate irregularities, pale skin, dizziness, headaches, cold extremities, unusual body sensations (numbness, tingling or burning in feet or hands), anxiety, chronic fatigue, insomnia, indigestion, skin rashes, extreme pms, restlessness, hair loss, cracks on tongue or lips, weakness, trigger finger, carpal tunnel, swollen hands, thumb-wrist-joints painful.

**Foods High In B₆**

Sweet potatoes, potatoes, spinach, cabbage, turnip greens, garlic, winter squash, bok choy, bell peppers, avocado, green peas, tuna, chicken, turkey, beef, salmon, lentils, lima beans, pinto beans, bananas, and sunflower seeds.

**Low B₁ (Thiamine) symptoms:**

Deficiency of vitamin B₁ may lead to chronic diseases. One of them is Beriberi which is a neurological and cardiovascular disease. This has been associated with cardiovascular disease and is one of the most chronic symptoms of the deficiency of vitamin B₁. In addition, B₁ vitamin benefits include prevention of lung congestion, increased heart rate, as well as heart failure. Once again, B₁ vitamin benefits include prevention of abnormal development of muscles and nerves, pricking and burning sensation in the toes and feet, leg cramps and atrophy or wasting of the muscles. More symptoms include weight low, weakness, irregular heart rate, emotional disturbances, night terrors, panic attacks, poor memory, gastro issues, hair loss (such as alopecia, etc.), Alzheimer’s, cataracts.

**Foods High In B₁**

Asparagus, Brussels sprouts, green peas, beet greens, spinach, sweet potatoes, navy beans,
black beans, pinto beans, lima beans, kidney beans, lentils, peanuts, unpolished rice, barley, oats, sunflower seeds, sesame seeds, flax seeds, watermelon, oranges, and liver.

**Low B2 (riboflavin) symptoms:**

Riboflavin deficiency symptoms include:

- Bloodshot eyes
- Sore tongue and lips
- Infection in the mouth and throat
- Extreme and unusual sensitivity to light
- Irritability in the eyes
- Chapped lips & Migraines

Women need to take special care to ensure that they don't have a vitamin deficiency as riboflavin deficiency causes problems in the reproduction system, growth and repair of body tissues, as well as problems in the immune system. A vitamin B2 deficiency affects the metabolism of carbohydrates, fats, ketone bodies, and proteins in the body. So it can be said that a vitamin deficiency directly affects a person's energy level. Another factor is that vitamin B2 deficiency results in other vitamin deficiencies as well.

**Foods High In B2** Beet greens, spinach, asparagus, mushrooms, collard greens, sweet potatoes, green peas, eggs, turkey, tempeh, sardines, and tuna.

**LOW VITAMIN B3**

Low Vitamin B3, also called niacin and niacinamide, is an important water-soluble vitamin that can be found in many common foods including certain types of meat and organ meat, tuna fish, seeds, mushrooms, and others. Vitamin B3 helps maintain skin health, supports brain function, lowers cholesterol, can help treat diabetes, lowers inflammation, helps with joint mobility and to treat arthritis.

When a vitamin B3 niacin deficiency is seen, the following are signs and symptoms:

- Pellagra- characterized by skin inflammation, hallucinations, digestive distress. Usually occurs in malnourished people or those with alcoholism and can include rash, stomatitis, diarrhea, and mental problems
- Mucous membrane swelling- symptoms which affect the mouth, vagina and urethra tongue can cause pain in the mouth, increased salivation, and edema of the tongue, and ulcers
- Skin symptoms include several types of lesions and acne
- Gastrointestinal (digestive) disturbances- symptoms include burning in the pharynx and esophagus, stomach and abdominal discomfort, constipation, nausea, vomiting, and diarrhea
- Brain impairment and psychosis- impaired consciousness, cognitive decline (dementia), disorientation, confusion, depression, mania, or paranoia.

Food high in B3 (niacin): beef liver, tuna, chicken breast, sunflower seeds, lamb, salmon, split green peas, sardines, turkey, mushrooms, Tuna.
Low B5 (Pantothenic acid) symptoms: Signs and Symptoms of Deficiency:

Fatigue, Elevated cholesterol, Burning and pain in the arms and legs, Burning feet, Nausea, Indigestion, Irritability, Fainting, Hair loss, Elevated heart rate, Susceptibility to infection, Premature graying of the hair, Gluten sensitivity intolerance or celiac disease

Vitamin B5 has been shown to be beneficial for the following conditions:

Depression, Dermatitis, Adrenal disease (adrenal burn out or failure), Headaches, Insomnia, High Cholesterol, Chronic Fatigue syndrome, Fibromyalgia

Foods High In B5

Avocado, crimini and shiitake mushrooms, sweet potatoes, green peas.

Low Vitamin C Symptoms:

The first symptoms of vitamin C deficiency tend to be:

- Tiredness and weakness.
- Muscle and joint pains.
- Easy bruising.
- Spots that look like tiny, red-blue bruises on the skin. Other symptoms can include:
  - Dry skin.
  - Splitting hair.
  - Swelling and discoloration of the gums.
  - Spontaneous bleeding from the gums.
  - Nosebleeds.
  - Poor healing of wounds.
  - Problems fighting infections.
  - Bleeding into joints, causing severe joint pains.
  - Changes in the bones.
  - Tooth loss.
  - Weight loss. If not diagnosed and treated, vitamin C deficiency can lead to jaundice, generalized edema (swelling), and shortness of breath, nerve problems, fever and convulsions. Bleeding inside the brain and around the heart can cause death in some people with untreated vitamin C deficiency.
**SEROTONIN Deficiency symptoms:**

The following are common symptoms of serotonin deficiency:

- Anxiety in typically low stress situations
- Impatience without explanation
- Fatigue when you should feel rested and energized
- Cognitive impairment (inability to focus, poor memory, lack of mental clarity)
- Negative thoughts with no apparent cause
- Agitation
- Mania/obsession
- Mood swings
- Strong sugar cravings
- Indifference to situations you typically would care deeply about
- Excessive worrying
- Inability to fall and stay asleep
- Moderate to overwhelming sadness  Feeling worse and agitated during bad/dark weather

**Dopamine deficiency signs/symptoms:**

- Reduced ability to feel pleasure
- Flat, bored, apathetic and low enthusiasm
- Depressed
- Low drive and motivation
- Difficulty getting through a task even when interesting
- Procrastinator/little urgency
- Difficulty paying attention and concentrating
- Slowed thinking and/or slow to learn new ideas
- Crave uppers (e.g. caffeine/nicotine/diet soft drinks) Use these to improve energy/motivation/mood
- Prone to addictions (e.g. alcohol)/addictive personality
- Shy/introvert
- Low libido or impotence
- Mentally fatigued easily and physically fatigued easily
- Sleep too much and trouble getting out of bed
- Put on weight easily
- Family history of alcoholism/ADD/ADHD

Dopamine can be raised effectively using either nutrient based therapies or medications. Dopamine is synthesized form the amino acid tyrosine.