Evidence-based Vitamin B6 Usage

Name(s): Pyridoxine.

Description: Vitamin B6 is a water-soluble vitamin that is sensitive to light and alkali. This vitamin plays a major role in the biological pathway called glycolysis. Pyridoxine is essential for RNA and DNA synthesis and is responsible for proper functioning of over 60 enzymes. The production of red blood cells and immune system cells is dependent upon this vitamin. The regulation of fluids by sodium and potassium is maintained by vitamin B6. This vitamin also acts like a coenzyme in the utilisation and breakdown of fats, carbohydrates and proteins.[1]

Absorption/Storage: Pyridoxine is absorbed through the intestine and is exclusively found in the muscles. Since it is water-soluble it is excreted through the urine. Due to this, vitamin B6 must be replenished every 5-6 hours.[1]

Recommended Dietary Allowance/Dietary Reference Intake: [2]

Persons	U.S. (mg)
Birth to 3 years of age	0.1-0.5
4 to 8 years of age	0.6
9 to 13 years of age	1.0
Adolescent and adult males	1.3-1.7
Adolescent and adult females	1.2-1.5
Pregnant females	1.9
Breast-feeding females	2.0

Optimum Daily Allowance (Adult): 50-100 mg.[3]

Tolerable Upper Intake Levels: [2]

Persons	U.S. (mg)
Birth to 3 years of age	ND-30
4 to 8 years of age	40
9 to 13 years of age	60
Adolescent and adult males	80-100
Adolescent and adult females	80-100
Pregnant females	80-100
Breast-feeding females	80-100

Principal Uses: Asthma,[4-7] autism,[8-13] carpal tunnel syndrome,[14-17] Chinese restaurant syndrome (high MSG intake),[18-20] depression (especially in women on birth control pills and premarin),[21-25] diabetes and gestational (caused by pregnancy) diabetes,[26-31] heart disease, high homocysteine and athrosclerosis (supplement with folic acid and vitamin B12),[32-39] kidney stone prevention (supplement with magnesium),[40-45] nausea of morning sickness,[46-48] and premenstrual syndrome.[49-54]

Proposed Uses: Age-related cognitive decline, canker sores, depression (associated with premenstrual syndrome), low back pain (in combination with vitamin B1 and vitamin B12), schizophrenia and vertigo.[55]

Traditional Uses: Acne, alcohol withdrawal support, Alzheimer's disease (in combination with iron and coenzyme Q10), amenorrhoea, attention deficit disorder, celiac disease, eating disorders (for bulimia), epilepsy, fibrocystic breast disease, heart attack, HIV support, hypoglycaemia, Osgood-Schlatter disease (in combination with manganese and zinc), osteoporosis (to lower homocysteine) Parkinson's disease (with Sinemet® or Eldepryl®), photosensitivity, pre- and post-surgery health, preeclampsia, cradle cap/seborrhoeic dermatitis, sickle cell anaemia, stroke and tardive dyskinesia.[55]

Healthy Sources:
High (40%+ US RDA): Brewer's yeast, dry soybeans, sunflower seeds, torula yeast and toasted wheat germ.[29]

Medium (25-39% US RDA): bananas, dry blackeye peas, brown rice, buckwheat flour, dry garbanzo beans, hazelnuts, dry lentils, dry lima beans, dry navy beans, dry pinto beans soybean flour and walnuts.[29]

Contraindications: If you are taking this dietary supplement without a prescription, carefully read and follow any precautions on the label. For pyridoxine, the following should be considered:

Allergies--Tell your health care professional if you have ever had any unusual or allergic reaction to pyridoxine. Also tell your health care professional if you are allergic to any other substances, such as foods, preservatives, or dyes.

Pregnancy--It is especially important that you are receiving enough vitamins when you become pregnant and that you continue to receive the right amount of vitamins throughout your pregnancy. The healthy growth and development of the foetus depend on a steady supply of nutrients from the mother. However, excessive doses of pyridoxine taken

during pregnancy may cause the infant to become dependent on pyridoxine.

Breast-feeding--It is especially important that you receive the right amounts of vitamins so that your baby will also get the vitamins needed to grow properly. You should also check with your health care professional if you are giving your baby an unfortified formula. In that case, the baby must get the vitamins needed some other way. However, taking large amounts of a dietary supplement while breast-feeding may be harmful to the mother and/or baby and should be avoided.

Children--Problems in children have not been reported with intake of normal daily-recommended amounts.

Older adults--Problems in older adults have not been reported with intake of normal daily-recommended amounts.

Medicines or other dietary supplements--Although certain medicines or dietary supplements should not be used together at all, in other cases they may be used together even if an interaction might occur. In these cases, your health care professional may want to change the dose, or other precautions may be necessary.[56]

Interactions:

Decreases Vitamin Availability:	Carbidopa, erythromycin, gentamicin, hydralazine, neomycin, phenelzine, and sulfonamides,[55] anticonvulsants, corticosteroids, cycloserine, isoniazid, levodopa, oestrogens, oral contraceptives, penicillamine, tetracyclines,[55,57] alcohol, cancer drugs, charcoal, individually supplemented B vitamins, fibre supplements, hydralizine, procarbazine, progesterone, theophylline, thiosemicarbizide and tuberculosis drugs.[57]
Increases Vitamin Availability:	Potassium, vitamins B complex and C,[3] magnesium and selenium.[57]
Is Decreased By Vitamin Availability:	Levodopa, phenobarbital, side effects of fenofibrate, fluorouracil, mixed amphetamines, risperidone,[55] and side effects of disulfiram.[57]
Is Increased By Vitamin Availability:	Hydroxychloroquine, tricyclic antidepressants,[55] calcium, copper, iron, magnesium, selenium and vitamin C.[57]
Adverse Reactions:	Phenytoin.[57]

Deficiency: People may become sensitive to insulin when deficient in vitamin B6, causing a decrease in the blood sugar tolerance. Hair loss, slow learning, neuritis, arthritis, and an increase in urination are all problems caused by the deficiency of pyridoxine.[1] Vitamin B6 deficiency can cause impaired immunity, skin lesions, and mental confusion.[55]

Toxicity/Side Effects: Along with its needed effects, a dietary supplement may cause some unwanted effects. Although pyridoxine does not usually cause any side effects at usual doses, check with your health care professional as soon as possible if you notice either of the following side effects:

With large doses (chronic use of >50mg/day)
- Clumsiness; numbness of hands or feet

Also check with your health care professional if you notice any other unusual effects while you are taking pyridoxine.[56]

When pyridoxine is discontinued, symptoms will lessen. It may take 6 months for sensation to normalise. Drug dependence has been noted in adults withdrawn from 200 mg/day.[58]

Treatment for Overdose: None.[59]

Storage: To store this dietary supplement:
- Keep out of the reach of children.
- Store away from heat and direct light.
- Do not store the capsule or tablet form of this medicine in the bathroom, near the kitchen sink, or in other damp places. Heat or moisture may cause the dietary supplement to break down.
- Do not keep outdated dietary supplements or those no longer needed. Be sure that any discarded medicine is out of the reach of children.[56]

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