Vitamin B6

En Español (Spanish Version)

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Supplement Forms/Alternate Names
• Pyridoxine; Pyridoxine Hydrochloride; Pyridoxal-5-Phosphate

Principal Proposed Uses
• Nausea of Pregnancy (Morning Sickness)

Other Proposed Uses
• Asthma; Depression; Heart Disease Prevention; HIV Support; Kidney Stones; MSG Sensitivity; Photosensitivity; Reducing Homocysteine Levels; Rheumatoid Arthritis; Schizophrenia; Seborrheic Dermatitis; Tardive Dyskinesia; Vertigo

Probably Not Effective Uses
• Alzheimer's Disease; Autism (B6 Combined With Magnesium); Carpal Tunnel Syndrome; Diabetic Neuropathy; Eczema; Premenstrual Syndrome (PMS); Side Effects of Oral Contraceptives

Vitamin B6 plays a major role in making proteins, hormones, and neurotransmitters (chemicals that carry signals between nerve cells). Because mild deficiency of vitamin B6 is common, this is one vitamin that is probably worth taking as insurance.

However, there is little evidence that taking vitamin B6 above nutritional needs offers benefits in the treatment of any particular illnesses, except, possibly, nausea of pregnancy (morning sickness).

Requirements/Sources

Vitamin B6 requirements increase with age. The official US and Canadian recommendations for daily intake are as follows:

- **Infants**
  - 0-6 months: 0.1 mg
  - 7-12 months: 0.3 mg

- **Children**
  - 1-3 years: 0.5 mg
  - 4-8 years: 0.6 mg
  - 9-13 years: 1.0 mg

- **Males**
  - 14-50 years: 1.3 mg
  - 51 years and older: 1.7 mg

- **Females**
  - 14-18 years: 1.2 mg
  - 19-50 years: 1.3 mg
  - 51 years and older: 1.5 mg

- **Pregnant Women**: 1.9 mg
- **Nursing Women**: 2.0 mg
Severe deficiencies of vitamin B₆ are rare, but mild deficiencies are extremely common. In a survey of 11,658 adults, 71% of men and 90% of women were found to have diets deficient in B₆.¹ Vitamin B₆ is the most commonly deficient water-soluble vitamin in the elderly,² and children, too, often don't get enough.³ In addition, evidence has been presented that current recommended daily intakes should be increased.⁴

B₆ deficiency might be worsened by use of hydralazine (for high blood pressure),⁵ penicillamine (used for rheumatoid arthritis and certain rare diseases),⁶ theophylline (an older drug for asthma),⁷⁻¹¹ MAO inhibitors,¹² and the antituberculosis drug isoniazid (INH),¹³⁻¹⁶ all of which are thought to interfere with B₆ to some degree. Good sources of B₆ include nutritional (torula) yeast, brewer’s yeast, sunflower seeds, wheat germ, soybeans, walnuts, lentils, lima beans, buckwheat flour, bananas, and avocados.

**Therapeutic Dosages**

One study found that 30 mg of vitamin B₆ daily was effective for symptoms of morning sickness.¹² While far above nutritional needs, this dosage should be safe. However, for the treatment of other conditions, B₆ has been recommended at doses as high as 300 mg daily. There are potential risks at this level of vitamin B₆ intake. (See the Safety Issues section below for more information).

**Therapeutic Uses**

The results of a large double-blind, placebo-controlled study suggest that vitamin B₆ at a dose of 30 mg daily may be helpful for treating nausea in pregnancy (morning sickness).¹²

Vitamin B₆ has been proposed for numerous other uses as well, but without much (if any) scientific substantiation. For example, the two most famous uses of vitamin B₆, carpal tunnel syndrome and premenstrual syndrome PMS, have no reliable supporting evidence at all, and the best-designed studies found it ineffective for either of these purposes.¹⁸,⁵⁵

Higher intake of vitamin B₆ reduces the level of homocysteine in the blood, a substance that might accelerate cardiovascular disease (heart disease, strokes, and related conditions.) However, there is as yet no meaningful evidence that reducing homocysteine is beneficial, and considerable evidence that it is not. See the full Homocysteine article for more information.

A series of studies suggests that vitamin B₆ may be helpful for the treatment of TD. In the first study, a 4-week, double-blind crossover trial of 15 people, treatment with vitamin B₆ significantly improved TD symptoms as compared to placebo.⁵¹ Benefits were seen beginning at 1 week of treatment. The subsequent follow-up study tested the benefits of vitamin B₆ used over a period of 26 weeks in 50 people with tardive dyskinesia, and once again the supplement proved more effective than placebo.⁷¹

For the following other conditions, current evidence for benefit with vitamin B₆ remains incomplete and/or contradictory: allergy to monosodium glutamate (MSG), asthma,²⁴,²⁵ depression,²³ diabetes of pregnancy,²⁶ HIV infection,²⁷,²⁸ photosensitivity,²⁸ preventing kidney stones,¹⁹⁻²² schizophrenia,²⁶,³⁷,⁶⁵ seborrheic dermatitis,²⁵ tardive dyskinesia and other side effects of anti-psychotic drugs,²⁹⁻³¹,³⁶,³⁷,⁶⁶,⁶⁷ and vertigo.³³

Despite some claims in the media, vitamin B₆ has not shown benefit for enhancing mental function.⁶⁸ Research investigating the benefits of B₆ (in combination with folate and vitamin B₁₂) as a potential treatment for cognitive decline due to Alzheimer’s disease (AD) has also shown disappointing results.⁵⁸
One study failed to find B₆ at a dose of 50 mg daily helpful for rheumatoid arthritis (despite a general B₆ deficiency seen in people with this condition). ②⁰

Vitamin B₆, alone or in combination with magnesium, showed some early promise for the treatment of autism, but the best designed studies failed to find it effective. ③⁴,⑤⁸

Additionally, current evidence suggests that vitamin B₆ is not effective for treating diabetic neuropathy ①⁶-①³ or eczema ④⁴ or for helping control the side effects of oral contraceptives ⑤³.

What Is the Scientific Evidence for Vitamin B₆?

Nausea and Vomiting

Morning Sickness

Vitamin B₆ supplements have been used for years by conventional physicians as a treatment for morning sickness. In 1995, a large double-blind study validated this use. ②⁸ A total of 342 pregnant women were given placebo or 30 mg of vitamin B₆ daily. Subjects then graded their symptoms by noting the severity of their nausea and recording the number of vomiting episodes. The women in the B₆ group experienced significantly less nausea than those in the placebo group, suggesting that regular use of B₆ can be helpful for morning sickness. However, vomiting episodes were not significantly reduced.

At least 3 studies have compared vitamin B₆ to ginger for the treatment of morning sickness. Two studies found them to be equally beneficial, ⑥⁹,⑦² while the other found ginger to be somewhat better. ⑦³ However, as ginger is not an established treatment for this condition, these studies alone do not provide any additional evidence in favor of B₆.

Chemotherapy-induced Nausea and Vomiting

Researchers also investigated whether vitamin B₆ can reduce the nausea and vomiting that often accompanies chemotherapy. ①⁵ One hundred and forty-two women with ovarian cancer who were undergoing chemotherapy were randomized into 3 groups: acupuncture plus B₆ injection into the P6 acupuncture point (located on the inside of the forearm, about 2 inches above the wrist crease), acupuncture alone, or B₆ alone. Those that received both acupuncture and B₆ experienced less nausea and vomiting compared to the other two groups.

Premenstrual Syndrome (PMS)

A recent, properly designed double-blind study of 120 women found no benefit of vitamin B₆ for PMS. ③⁹ In this study, three prescription drugs were compared against vitamin B₆ (pyridoxine, at 300 mg daily) and placebo. All study participants received 3 months of treatment and 3 months of placebo. Vitamin B₆ proved to be no better than placebo.

Approximately a dozen other double-blind studies have investigated the effectiveness of vitamin B₆ for PMS, but none were well designed; overall the evidence for any benefit is weak at best. ④⁰,④¹ Some books on natural medicine report that the negative results in some of these studies were due to insufficient B₆ dosage, but in reality there was no clear link between dosage and effectiveness.

However, preliminary evidence suggests that the combination of B₆ and magnesium might be more effective than either treatment alone. ④²

Autism
One double-blind, placebo-controlled crossover study found indications that very high doses of vitamin B₆ may produce beneficial effects in the treatment of autism. However, this study was small and poorly designed; furthermore, it used a dose of vitamin B₆ so high that it could cause toxicity.

It has been suggested that combining magnesium with vitamin B₆ could offer additional benefits, such as reducing side effects or allowing a reduced dose of the vitamin. However, the two reasonably well-designed studies using combined vitamin B₆ and magnesium have failed to find benefits. Therefore, it isn’t possible at present to recommend vitamin B₆ with or without magnesium as a treatment for autism.

**Asthma**

A double-blind study of 76 children with asthma found significant benefit from vitamin B₆ after the second month of usage. Children in the vitamin B₆ group were able to reduce their doses of asthma medication (bronchodilators and steroids). However, a recent double-blind study of 31 adults who used either inhaled or oral steroids did not show any benefit. The dosages of B₆ used in these studies were quite high, in the range of 200 to 300 mg daily. Because of the risk of nerve injury, it is not advisable to take this much B₆ without medical supervision (see Safety Issues).

**Safety Issues**

The safe upper levels for daily intake of vitamin B₆ are as follows:

- **Children**
  - 1-3 years: 30 mg
  - 4-8 years: 40 mg

- **Males and Females**
  - 9-13 years: 60 mg
  - 14-18 years: 80 mg
  - 19 years and older: 100 mg

- **Pregnant or Nursing Women**
  - 18 years old and younger: 80 mg
  - 19 years and older: 100 mg

At higher dosages (especially above 2 g daily) there is a very real risk of nerve damage. Nerve-related symptoms have even been reported at doses as low as 200 mg. (This is a bit ironic, given that B₆ deficiency also causes nerve problems.) In some cases, very high doses of vitamin B₆ can cause or worsen acne symptoms.

In addition, doses of vitamin B₆ over 5 mg may interfere with the effects of the drug levodopa when it is taken alone. However, vitamin B₆ does not impair the effectiveness of drugs containing levodopa and carbidopa.

Maximum safe dosages for individuals with severe liver or kidney disease have not been established.

**Interactions You Should Know About**

If you are taking:

- Isoniazid (INH), penicillamine, hydralazine, theophylline, or MAO inhibitors: You may need extra vitamin B₆, but take only nutritional doses. Higher doses of B₆ might interfere with the action of the drug.
Levodopa without carbidopa (for Parkinson's disease): Do not take more than 5 mg of vitamin B₆ daily, except on medical advice.

Antipsychotic medications: B₆ might reduce side effects.

References


36. Rimm EB, Willett WC, Hu FB, et al. Folate and vitamin B6 from diet and supplements in relation to risk of


As of 5/3/2011, additional research published on vitamin B⁶ does not warrant any changes to this article.