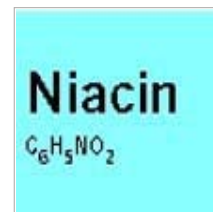

Original Article: http://www.mayoclinic.com/health/niacin/NS_patient-niacin

Niacin (Vitamin B3, Nicotinic acid), Niacinamide

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Background



Vitamin B3 is made up of niacin (nicotinic acid) and its amide, niacinamide, and can be found in many foods, including yeast, meat, fish, milk, eggs, green vegetables, and cereal grains. Dietary tryptophan is also converted to niacin in the body. Vitamin B3 is often found in combination with other B vitamins including thiamine, riboflavin, pantothenic acid, pyridoxine, cyanocobalamin, and folic acid.

Synonyms

3-Pyridine carboxamide, anti-blacktongue factor, antipellagra factor, B-complex vitamin, benicot, Efacin®, ENDUR-ACIN®, Enduramide®, Hexopal®, NIAC®, Niacor®, Niaspan®, Nicalex®, nicamid, Nicamin®, Nico-400®, Nicobid®, Nicoliar®, Nicotinex®, nicosedine, Nico-Span®, nicotinamide, nicotinic acid amide, nicotinic amide, nicotylamidum, Papulex®, pellagra preventing factor, Slo-Niacin®, Tega-Span®, Tri-B3®, Wampocap®.

Evidence

These uses have been tested in humans or animals. Safety and effectiveness have not always been proven. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider.

Uses based on scientific evidence**Grade*****High cholesterol (niacin)**

Niacin is a well-accepted treatment for high cholesterol. Multiple studies show that niacin (not niacinamide) has significant benefits on levels of high-density cholesterol (HDL or "good cholesterol"), with better results than prescription drugs such as "statins" like atorvastatin (Lipitor®). There are also benefits on levels of low-density cholesterol (LDL or "bad cholesterol"), although these effects are less dramatic. Adding niacin to a second drug such as a statin may increase the effects on low-density lipoproteins. The use of niacin for the treatment of dyslipidemia associated with type 2 diabetes has been controversial because of the possibility of worsening glycemic control. Patients should check with a physician and pharmacist before starting niacin.

A

Pellagra (niacin)

Niacin (vitamin B3) and niacinamide are FDA approved for the treatment of niacin deficiency. Pellagra is a nutritional disease that develops due to insufficient dietary amounts of vitamin B3 or the chemical it is made from, tryptophan. Symptoms of pellagra include skin disease, diarrhea, dementia and depression.

A

Atherosclerosis (niacin)

Niacin decreases blood levels of cholesterol and lipoprotein (a), which may reduce the risk of atherosclerosis ("hardening" of the arteries). However, niacin also can increase homocysteine levels, which may have the opposite effect. Overall, the scientific evidence supports the use of niacin in combination with other drugs (but not alone) to decrease cholesterol and slow the process of atherosclerosis. More research is needed in this area before a firm conclusion can be drawn.

B

Prevention of a second heart attack (niacin)

Niacin decreases levels of cholesterol, lipoprotein (a), and fibrinogen, which can reduce the risk of heart disease. However, niacin also increases homocysteine levels, which can increase this risk. Numerous studies have looked at the effects of niacin, alone and in combination with other drugs, for the prevention of heart disease and fatal heart attacks. Overall, this research suggests benefits of niacin, especially when combined with other cholesterol-lowering drugs.

B

Alzheimer's disease/ cognitive decline

Dementia can be caused by severe niacin insufficiency, but it is unclear whether variation in intake of niacin in the usual diet is linked to neurodegenerative decline or Alzheimer's disease (AD). Further research is needed before a conclusion can be drawn. C

Osteoarthritis (niacinamide)

Preliminary human studies suggest that niacinamide may be useful in the treatment of osteoarthritis. Further research is needed before a recommendation can be made. C

Key to grades

A Strong scientific evidence for this use

B Good scientific evidence for this use

C Unclear scientific evidence for this use

D Fair scientific evidence against this use (it may not work)

F Strong scientific evidence against this use (it likely does not work)

[✎ Grading rationale](#)**Uses based on tradition or theory**

The below uses are based on tradition or scientific theories. They often have not been thoroughly tested in humans, and safety and effectiveness have not always been proven. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider.

Acne, age-related macular degeneration, alcohol dependence, anti-aging, anxiety, arthritis, Bell's palsy, blood circulation improvement, blood vessel spasms, bone marrow damage from chemotherapy, cancer prevention, cataract prevention, central nervous system disorders, cholera, chronic diarrhea, confusion, coronary heart disease (CHD), depression, diagnostic test for schizophrenia, digestion improvement, drug-induced hallucinations, ear ringing, edema, glucose intolerance, hearing loss, high blood pressure, HIV prevention, hypothyroidism (reduced thyroid function), insomnia, intermittent claudication (painful legs from clogged arteries), ischemia-reperfusion injury prevention, kava-related skin disorders, leprosy, liver disease, low blood sugar, memory loss, Meniere's syndrome, migraine headache, motion sickness, multiple sclerosis, orgasm improvement, painful menstruation, peripheral vascular disease, photosensitivity, pregnancy problems, premenstrual headache prevention, premenstrual syndrome, prostate cancer, psoriasis, psychosis, Raynaud's phenomenon, schizophrenia, scleroderma, sedative, seizure, skin disorders, smoking cessation, stomach ulcer, tardive dyskinesia, taste disturbances (diminished/distorted sense of taste), tuberculosis, tumor detection, vertigo.

Dosing

The below doses are based on scientific research, publications, traditional use, or expert opinion. Many herbs and supplements have not been thoroughly tested, and safety and effectiveness may not be proven. Brands may be made differently, with variable ingredients, even within the same brand. The below doses may not apply to all products. You should read product labels, and discuss doses with a qualified healthcare provider before starting therapy.

Adults (18 years and older)

Taking niacin with food may reduce stomach upset and the risk of stomach ulcer. Doses are usually started low and gradually increased to minimize the common side effect of skin flushing. Taking aspirin or non-steroidal anti-inflammatory drugs (NSAIDs) at the same time during the first one to two weeks may reduce this flushing. Use of an antihistamine 15 minutes prior to a niacin dose may also be helpful. The flushing response may decrease on its own after one to two weeks of therapy. Extended release niacin products may cause less flushing than immediate release (crystalline) formulations, but may have a higher risk of stomach upset or liver irritation. In general, not all niacin products are equivalent. Patients switching from one product to another may have an increase or decrease in side effects.

The dietary reference intake established by the Food and Nutrition Board for niacin (in the form of niacin equivalents, 1 milligram niacin = 60 milligrams tryptophan) ranges from 16 to 18 milligrams daily for adults, with a maximum intake of 35 milligrams daily. 50 milligrams to 6 grams has been taken in divided doses for other conditions based on physician and pharmacist recommendations.

Children (younger than 18 years)

There is not enough scientific evidence to recommend the safe use of niacin or niacinamide in children. Niacinamide has been studied in children at daily doses of 150 to 300 milligrams per year of the child's age, or 25 milligrams per kilogram daily, for the prevention of type 1 diabetes mellitus in "high-risk" individuals. No serious side effects have been reported, although safety and effectiveness are not clear. Patients should speak with a qualified health care provider if considering this therapy.

Safety

The U.S. Food and Drug Administration does not strictly regulate herbs and supplements. There is no guarantee of strength, purity or safety of products, and effects may vary. You should always read product labels. If you have a medical condition, or are taking other drugs, herbs, or supplements, you should speak with a qualified healthcare provider before starting a new therapy. Consult a healthcare provider immediately if you experience side effects.

Allergies

Rarely, anaphylactic shock (severe allergic reaction) has been described after intravenous or oral niacin therapy.

Side Effects and Warnings

Most people taking niacin experience skin flushing and a warm sensation, especially of the face, neck, and ears when they begin treatment or increase dose. This reaction is usually mild, but has been intolerable enough to cause up to half of participants in studies to stop therapy. Dry skin and itching is also commonly experienced. Taking aspirin or non-steroidal anti-inflammatory drugs such as ibuprofen (Advil®, Motrin®), naproxen (Naprosyn®), or indomethacin (Indocin®) can reduce the flushing. Use of an antihistamine 15 minutes prior to a niacin dose may also be helpful. Slow-release niacin products may have less skin flushing than regular release niacin preparations or may simply delay the appearance of flushing. The flushing response often decreases on its own after one to two weeks of therapy. Mild stomach upset, nausea, vomiting and diarrhea also may occur when beginning niacin therapy, and usually resolve with continued use.

More serious side effects include liver toxicity, worsening of stomach ulcers, altered blood sugar or insulin levels or uric acid concentrations. Numerous case reports describe liver toxicity, including increased liver enzyme levels in the blood, skin yellowing (jaundice), fluid in the abdomen (ascites), or liver failure. Monitoring of liver blood tests while using niacin is recommended. While slow-release niacin products may have less skin flushing than regular release niacin preparations, they may worsen stomach and liver side effects. High doses of niacin may also cause low blood pressure.

Lactic acidosis, muscle cell damage (myopathy) and increased blood levels of creatine kinase (a marker of muscle damage) have been reported in studies.

Abnormal heart rhythms and heart palpitations have occurred in niacin studies. Based on human research, taking niacin alone or with colestipol may increase blood homocysteine levels. High levels of homocysteine have been associated with an increased risk of heart disease.

Blood clotting problems have been reported during treatment with sustained-release niacin. Low white blood cell number (leukopenia) and slightly increased blood eosinophils have also been reported.

Rarely reported side effects include headache, tooth or gum pain, dizziness, breathing difficulty, increased anxiety, panic attacks, and decreased thyroid function (hypothyroidism). There are published accounts of temporary side effects of the eye including macular swelling and blurred vision as well as toxic amblyopia ("lazy eye"). These side effects resolved when niacin was stopped.

Pregnancy and Breastfeeding

Use of niacin supplementation during pregnancy or breastfeeding is not recommended due to lack of sufficient research of safety and effectiveness.

Methodology

This patient information is based on a professional level monograph edited and peer-reviewed by contributors to the Natural Standard Research Collaboration (www.naturalstandard.com).

[Monograph methodology](#)

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