

Vitamin A

NEW ADVICE ABOUT VITAMIN A

Vitamin A is essential for good health—notably for eyes and skin, immune function, reproduction, and bone growth. That's why nonfat and low-fat milk, margarine, and many breakfast cereals are fortified with it. However, high doses of vitamin A taken over time can be dangerous, especially for pregnant women (the vitamin is fat-soluble and is stored in the body, so levels can build up). Now a Harvard study suggests that Levels of vitamin A once considered safe and healthful may weaken women's bones and increase the risk of fractures.

The study of 70,000 postmenopausal nurses found that those who consumed the most vitamin A (equal to at least 6,600 international units, or IUs) from foods and/or supplements over an 18-year period had nearly double the risk of fractures compared with those consuming the least. A Swedish study in 1998 had similar findings, though other studies have found no such increased risk. It's theorized that moderate to high levels of vitamin A reduce bone growth and interfere with the ability of vitamin D to help the body utilize calcium.

However, both the Harvard and Swedish studies found that only "preformed" vitamin A, also called retinol, was linked to bone loss and fractures. The body converts beta carotene and many other carotenoids in vegetables and fruits into vitamin A, as needed. *The studies found no adverse effect from carotenoids.*

Sorting through the numbers

The newly revised daily Recommended Dietary Allowance (RDA) for vitamin A is equal to 2,333 IU daily for women, and 3,000 IU for men. The labels on foods and supplements use an older set of daily requirements called the "Daily Values," which includes 5,000 IU for vitamin A. Multivitamins typically contain 100% of the Daily Value. Recently, the Institute of Medicine, which determines the RDAs, set 10,000 IU as the safe upper limit for A.

So the amount found to be risky in the Harvard study (6,600 IU) is nearly three times the RDA for women, and one-third more than the Daily Value. But it is far below the "upper limit." That's why this finding is surprising.

(Note: To add to the confusion, two different units of measure are used for vitamin A. We've used IU here because that's what the FDA uses for the Daily Values—and thus that's what you'll see on the labels of foods and supplements. However, researchers express vitamin A activity in micrograms [a millionth of a gram]. The Institute of Medicine also uses micrograms for the RDA. If you want to convert IUs to micrograms, [click here.](#))

Where it comes from

- Liver, which stores the vitamin, is very rich in it: a whop-ping 30,000 IU in 3 ounces of beef liver, and 13,000 IU in the same amount of chicken liver.
- Fish oil, from fish livers, is the most concentrated source of A (though the flesh of most fish has only modest amounts of the vitamin).
- Fortified breakfast cereals, including most instant oatmeal, have a fair amount—usually 500 to 1,000 IU (10 to 20% of the Daily Value) per serving.
- Whole milk has 300 IU per cup; nonfat and low-fat milk (which are fortified with A), 500 IU; butter or margarine, 400 to 500 IU per tablespoon; most hard cheese, about 250 IU per ounce.
- Most multivitamins contain 5,000 IU of vitamin A. But in some brands, 20 to 50% is in the form of beta carotene. Half the women in the Harvard study took multivitamins, which were the single largest source of A.

All you need to know

If you're a postmenopausal woman, keep track of your vitamin A intake:

- If you take a multivitamin, check the label. It should contain no more than 5,000 IU of vitamin A, and at least 20% of this should be in the form of beta carotene (the label will say, for instance, "50% as beta carotene" under vitamin A). There is no reason to stop taking your multi, which contains many nutrients important for healthy bones.
- Don't take separate vitamin A supplements. Even more important, women of childbearing age must not take them (doses as low as 10,000 IU a day increase the risk of birth defects). Men don't need them either.

- Don't worry about the vitamin A in milk or most other foods. It is hard to get high levels of vitamin A just from food, unless you eat liver or several servings of highly fortified cereal every day.
- Don't worry about carotenoids. These do not endanger your bones, since your body carefully regulates their conversion to vitamin A.
- Don't take cod liver oil.
- Don't go overboard and try to avoid vitamin A altogether. However, if you eat a variety of fruits and vegetables, which are rich in carotenoids, you don't need to worry about getting enough vitamin A.

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Good news: Some makers of multivitamins have announced that they will soon lower the amount of preformed vitamin A in their pills and/or substitute more beta carotene for it. Similarly, in many margarines, some of the added vitamin A has already been replaced by beta carotene. Check the labels.

DRI / RDA for B-Complex Vitamins:

Dietary Reference Intake (DRI) is the latest term replacing daily dietary reference values such as Adequate Intake (AI), Tolerable Upper Intake Level (UL), Estimated Average Requirements (EAR), Nutrient Reference Value (NRV), and *Recommended Dietary Allowance / Intake (RDA / RDI)*.

Vitamin B1 - Thiamine: Vitamin B2 - Riboflavin:

DRI (RDA): DRI (RDA):

0-6 months 0.3mg 0-6 months 0.4mg
 6-12 months 0.5mg 6-12 months 0.6mg
 1-18 years 1-1.5mg 1-18 years 1-1.5mg
 18 years + 1.5mg 18 years + 1.7mg
 pregnant / lactating + 0.5mg pregnant / lactating + 0.5mg

Therapeutic Range: 50mg - 1000mg+ **Therapeutic Range:** 50mg - 500mg+

Low Levels / Deficiency - Symptoms and/or Risk Factors:

Vitamin B1: Vitamin B2:

Beriberi, gastrointestinal disorders, nausea, Light sensitivity, cracks / inflammation of lips, vomiting, fatigue, depression, low adrenals, tongue, corners of mouth, dizziness, insomnia,

High levels / Overdose / Toxicity / Negative Side Effects - Symptoms and/or Risk Factors:

Vitamin B1: Vitamin B2:

Heart palpitation, insomnia, agitation, high blood Nausea, vomiting, fatigue, anemia, low blood pressure, skin eruptions, hypersensitivity, pressure, [yellow urine],

Vitamin B3/4 - Niacin / Niacinamide: Vitamin B5 - Pantothenic Acid:

(also called Calcium Pantothenate)

DRI (RDA): DRI (RDA):

0-6 months 6mg 0-6 months 2.5mg

6-12 months 8mg 6-12 months 3mg

1-18 years 10-15mg 1-18 years 4-7mg

18 years + 15-20mg 18 years + 10mg

pregnant / lactating + 4mg pregnant / lactating + 3mg

Therapeutic Range: 100mg - 2,000mg+ Therapeutic Range: 250mg - 20g+

Low Levels / Deficiency - Symptoms and/or Risk Factors:

Vitamin B3/4: Vitamin B5:

Pellagra (dementia, death), nausea, vomiting, loss of appetite, fatigue, swollen red tongue, dermatitis, kidney stones, burning feet, insomnia, joint pains, gouty arthritis, edema,

High levels / Overdose / Toxicity / Negative Side Effects - Symptoms and/or Risk Factors:

Vitamin B3/4: Vitamin B5:

Flushing (Vit B3), nausea, vomiting, headaches, Edema, severe fatigue, joint pains, reduced high blood sugar, high uric acid, jaundice, sweating, protein metabolism, gastrointestinal symptoms, skin rash, raised stomach acid, insomnia, joint pains, raised VLDL triglycerides, calcification, calcium loss, increased choline requirements, dehydration, depression,

Vitamin B6 - Pyridoxine / P5P: Vitamin B7 - Biotin:

DRI (RDA): DRI (RDA):

0-6 months	0.3mg	0-6 months	35mcg
6-12 months	0.6mg	6-12 months	50mcg
1-18 years	1-2mg	1-18 years	100-200mcg
18 years +	2-2.5mg	18 years +	300mcg
pregnant / lactating	+ 0.6mg	pregnant / lactating	+ 50mcg

Therapeutic Range: * 50mg - 1,000mg+* **Therapeutic Range:** 50mcg - 15mg

* When supplementing more than 50mg of Vitamin B6 / Pyridoxine per day, the tablets should contain a small percentage of the Vitamin as Pyridoxal-5-Phosphate (P5P).

Low Levels / Deficiency - Symptoms and/or Risk Factors:

Vitamin B6:

Numbness (pins and needles) in hands and/or feet, depression, mental disorders, seborrheic dermatitis, PMS, dizziness, insomnia, irritability, kidney stones, abnormal electroencephalogram (EEG), anemia, convulsions, edema (water retention), hypothyroid, migraine-headaches, glossitis, lymphopenia,

Biotin:

Skin disorders, hair loss, brittle nails, anemia, seborrheic dermatitis in infants, depression, fatigue, nausea, loss of appetite, muscular pains, increased total cholesterol levels, hypoglycemia, glossitis,

High levels / Overdose / Toxicity / Negative Side Effects - Symptoms and/or Risk Factors:**Vitamin B6:**

Numbness in hands and/or feet (from high intake of pyridoxine, *not* pyridoxal-5-phosphate), depression, suicidal tendencies, severe fatigue, low blood sugar, mood swings, migraine-headaches, heart palpitations, hyperthyroid, hypothyroid (long-term supplementation), spinal / nerve degeneration (all forms of Vitamin B6), muscle spasms / cramps, osteoporosis, arthritis, higher blood pressure (short-term supplementation), lower blood pressure (long-term supplementation), abnormally high phosphorus-sodium ratio (low pH), abnormally high magnesium-calcium ratio, severe calcium deficiency, severe manganese deficiency, PMS, decreased estrogen, decreased prolactin, restlessness, increased dream activity, insomnia,

Biotin:

Reduced / slowed insulin release, increased Vitamin C requirements, increased Vitamin B6 requirements, skin eruptions, increased blood sugar,

Vitamin B9 - Folic Acid / Folate:*

Vitamin B12 - Hydroxy / Cyanocobalamin:

(also available as adenosyl / methylcobalamin)

DRI (RDA):

0-6 months	30mcg
6-12 months	50mcg
1-18 years	100-400mcg
18 years +	400mcg
pregnant / lactating	+ 400mg

DRI (RDA):

0-6 months	0.5mcg
6-12 months	1.5mcg
1-18 years	2-4mcg
18 years +	4-6mcg
pregnant / lactating	+ 1mcg

Therapeutic Range: 400mcg - 20mg+

Therapeutic Range: 50mcg -10mg

* Folate is the natural form, folic acid is the synthetic form. Folic acid is about twice as potent as folate.

Low Levels / Deficiency - Symptoms and/or Risk Factors:

Folic Acid:

Hemolytic and megaloblastic anemia, low energy, abnormal fetal development (neural tube defect), high homocysteine levels / vascular degeneration, mental disorders, confusion, forgetfulness, insomnia, irritability, depression, cervical dysplasia, higher risk to develop some cancers, high blood pressure,

Vitamin B12:

Pernicious anemia (numbness and tingling in hands and feet / nerve damage), shortness of breath, severe fatigue, sore tongue, nausea, loss of appetite, weight loss, confusion, poor memory, dementia, depression, headaches, reduced WBCs and platelet formation,

High levels / Overdose / Toxicity / Negative Side Effects - Symptoms and/or Risk Factors:

Folic Acid:

Kidney damage, abdominal bloating / distention,

Vitamin B12:

Can cause folic acid-related anemia if low,

nausea, loss of appetite, increased cholesterol LDL / HDL ratio, increased zinc and potassium requirements, may mask pernicious anemia from Vitamin B12 deficiency,

numbness or tingling in right arm or right side of face, anxieties, panic-anxiety attacks, heart palpitations, hyperthyroid, optic nerve atrophy (in someone with Leber's disease), insomnia, some types of leukemia, liver, kidney diseases, may worsen symptoms of mitral valve prolapse, may increase tumor / cancer cell division,

Vitamin B8 - Inositol - Vitamin B11 - Choline:

Vitamin B10 - PABA:

(Para-aminobenzoic Acid)

DRI (RDA): 40mg (B8) 200mg (B11)

DRI (RDA): 25mg

Therapeutic Range: 100mg - 3,000mg+

Therapeutic Range: 50mg - 1000mg+

Low Levels / Therapeutic Indications:

Low Levels / Therapeutic Indications:

Inositol / Choline:

PABA:

Oxidative cell damage, cardiovascular disease, liver disease, low bile production, low total and low HDL cholesterol, low blood pressure, mood or mental disorders, gallstones (choline), poor memory / reduced learning capacity (choline), kidney stones (choline), peripheral neuropathy (inositol), panic-anxiety attacks (inositol),

Vitiligo (depigmentation of some areas of the skin), increased estrogen breakdown by the liver, hyperthyroid,

High levels / Overdose / Toxicity / Negative Side Effects - Symptoms and/or Risk Factors:

Inositol / Choline:

Nausea, vomiting, dizziness, high blood pressure, liver disease, kidney disease, cardiovascular disease, increased magnesium requirements, may increase potassium requirements, acne-like skin rash,

PABA:

Liver disease, jaundice, nausea, vomiting, increased Vitamin C requirements, increased Vitamin B6 requirements, decreased estrogen breakdown by the liver, hypothyroid.

Lecithin:

Vitamin B15 - Pangamic Acid:*

(also called Calcium Pangamate)

DRI (RDA):* 500mg

DRI (RDA):* 25mg

* estimated / suggested daily intake

* no USRDA [may be substituted with **DMG**].

Therapeutic Range: 1,200mg - 7,200mg+

Therapeutic Range: 50mg - 500mg

Low Levels / Therapeutic Indications:

Low Levels / Therapeutic Indications:

Lecithin:

Oxidative cell damage, cardiovascular disease, high LDL cholesterol, high VLDL triglycerides, atherosclerosis, arteriosclerosis, calcification, osteoarthritis, edema, fatigue, kidney stones, joint pains, burning feet, tardive dyskinesia,

Vitamin B15:

Angina (right-sided), coronary artery spasms (right-sided), some types of panic-anxiety disorders, headaches, Vitamin B12 overdose (from Vit B12 injection), some types of high blood pressure, shortness of breath, asthma, increased lactic acid, learning difficulties,

High levels / Overdose / Toxicity / Negative Side Effects - Symptoms and/or Risk Factors:

Lecithin:

Gout, kidney disease, nausea, high blood pressure, dizziness, kidney stones, insomnia, osteoporosis, joint pains, edema, burning feet, increased zinc and increased calcium requirements, acne-like skin rash,

Vitamin B15:

Severe fatigue, pernicious anemia (long-term very high intake), depression, headaches, skin rash, shortness of breath, nausea,

Vitamin B12 sources:

Meat, dairy, eggs, seafood. [Vitamin B12 is only found in animal products, but has been obtained through insect / feces-contaminated grains, fruits, or vegetables],

Typical food sources for all other B-Vitamins:

Brewer's yeast, unrefined whole grains, liver, all meats, eggs, green leafy vegetables, nuts, seeds. ☞

General recommendations for nutritional supplementation: To avoid stomach problems and promote better tolerance, supplements should always be taken earlier, or in the middle of a larger meal. When taken on an empty stomach or after a meal, there is a greater risk of some tablets causing irritation, or eventually erosion of the esophageal sphincter, resulting in Gastroesophageal Reflux Disease (GERD).

It is also advisable not to lie down immediately after taking any pills.

When taking a very large daily amount of a single nutrient, it is better to split it up into smaller doses to not interfere with the absorption of other nutrients in food, or nutrients supplemented at lower amounts.



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... بال 'جلد' اور ناضج کی حفاظت اور مناسب علاج ...