

SuperNutrition is a family owned and operated vitamin company founded in 1977 in the San Francisco Bay Area. We strive to produce the most effective, comprehensive, optimal potency multi-vitamin formulas because we are passionate about improving people's health. We welcome your questions and comments.

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References:

These studies are all publicly available, and can be located on the internet by searching by title and the first author's name.

1. Lin Y, and associates. Variability of the conversion of beta-carotene to vitamin A in women measured by using a double-tracer study design. American Journal of Clinical Nutrition 2000 Jun;71(6):1545-54.
2. Hickenbottom SJ, and associates. Variability in conversion of beta-carotene to vitamin A in men as measured by using a double-tracer study design. American Journal of Clinical Nutrition 2002 May;75(5): 900-907. <http://www.ajcn.org/cgi/content/abstract/75/5/900>
3. Nierenberg DW, and associates. Effects of 4 y of oral supplementation with beta-carotene on serum concentrations of retinol, tocopherol, and five carotenoids. American Journal of Clinical Nutrition 1997 Aug;66(2):315-319
4. Atkuna D, and associates. Beta-carotene, vitamin A and carrier proteins in thyroid processes. Acta Medica Austriaca 1993;20(1-2):17-20.
5. Community Nutrition Mapping Project, CNMap, Version 2. United States Department of Agriculture. Available at: <http://ars.usda.gov/Services/docs.htm?docid=15656>.
6. Mejia LA, and associates. The relationship between vitamin A deficiency and anemia. Clinical Research 1976;24:133A.
7. Mejia KA, and associates. Anemia in vitamin A deficiency. Clinical Research 1976;24:315A
8. Roodenburg AJC, and associates. Comparison between time dependent changes in iron metabolism of rats as induced by marginal deficiency of vitamin A or iron. British Journal of Nutrition 1996;71:687.
9. Suharno D, and associates. Supplementation with vitamin A and iron for nutritional anaemia in pregnant women in West Java, Indonesia. Lancet 1993 Nov 27;342(8883):1325-8.
10. Radhika MS, and associates. Effects of vitamin A deficiency during pregnancy on maternal and child health. British Journal of Gynecology 2002 Jun;109(6):689-93.
11. Hustead VA, and associates. Relationship of vitamin A (retinol) status to lung disease in the preterm infant. Journal of Pediatrics 1984 Oct;105(4):610-5.
12. Arora P, and associates. Vitamin A status in children with asthma. Pediatrics and Allergy Immunology 2002 Jun;13(3):223-6.
13. Bloem MW, and associates. The role of universal distribution of vitamin A capsules in combating vitamin A deficiency in Bangladesh. Journal of Epidemiology 1995 Oct 15;142(8): 843-855.
14. Rayner RJ, and associates. Night blindness and conjunctival xerosis caused by vitamin A deficiency in patients with cystic fibrosis. Archives of Diseases of Children 1989 Aug;64(8):1151-1156.
15. Rosen DS, and associates. Vitamin A deficiency and xerophthalmia in western Yemen. European Journal of Clinical Nutrition 1996 Jan;50(1):54- 7.

16. Gerster H. Vitamin A functions, dietary requirement and safety in humans. International Journal for Vitamin Nutrition Research 1997;67(2):71-90.
17. Radhika MS, and associates. Effects of vitamin A deficiency during pregnancy on maternal and child health. British Journal of Gynecology 2002 Jun;109(6):689-93.
18. Arrieta AC, and associates. Vitamin A levels in children with measles in Long Beach, California. Journal of Pediatrics 1992 Jul;121(1):75-78.
19. Azais-Braesco V. Vitamin A in pregnancy: requirements and safety limits. American Journal of Clinical Nutrition 2000 May;71(5 Suppl):1325S-233S.
20. Usha N, and associates. Assessment of preclinical vitamin A deficiency in children with persistent diarrhea. Journal of Pediatric Gastroenterology and Nutrition 1991 Aug;13(2):168-75.
21. Evain-Brion D, and associates. Vitamin A deficiency and nocturnal growth hormone secretion in short children. The Lancet 1994;343:87-88.
22. Food and Nutrition Board, Institute of Medicine. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium and Zinc. National Academies Press <http://books.nap.edu/books/0309072794/html/82.html>
23. Safe vitamin A dosage during pregnancy and lactation. World Health Organization 1998 WHO/Nut/98.4
24. <http://ivacg.ilsa.org/publications/pubslst.cfm?pubentityid=16&publicationid=218>.
25. Humphrey J, and associates. Neonatal vitamin A supplementation: effect on development and growth at 3 years of age. American Journal of Clinical Nutrition 1998;68:109-117.
26. Sklan D. Vitamin A in human nutrition. Progressive Food and Nutrition Sciences 1987;11(1):39-55.
27. Promislow JE, and associates. Retinol intake and bone mineral density in the elderly: The Rancho Bernardo Study. Journal of Bone and Mineral Research 2002;17(8):1349-1358.
28. Feskanich D, and associates. Vitamin A intake and hip fractures among postmenopausal women. Journal of the American Medical Association (United States), Jan 2, 2002, 287(1):47-54.
29. Barker ME, and associates. Serum retinoids and beta-carotene as predictors of hip and other fractures in elderly women. Journal of Bone and Mineral research 2005; 20(6):913-920.
30. Chiu F, and associates. Long-term vegetarian diet and bone mineral density in postmenopausal Taiwanese women. Calciferous Tissue International 1997;60:245-249.

This is a summary of SuperNutrition's in-depth look at Vitamin A. To read the full report ask for our SuperNutrition Research Review: Vitamin A (Retinol) and Beta-Carotene. Call toll-free (800) 262-2116, or visit our web site at www.supernutritionusa.com and click on "Learn about Nutrition" to view this document.

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WHY TAKE VITAMIN A



Conversion from Beta-Carotene Is Poor

Dietary Sources Are Insufficient

Required for Healthy Pregnancy

Required for Children's Health

Required for Bone Health

Safe & Effective Forms

Super Nutrition
Scientifically Proven Potencies
Formulas You Feel
San Francisco Bay Area
Family Owned & Operated Since 1977

Beta-Carotene Conversion

Many People Do Not Adequately Convert Beta-Carotene to Vitamin A

Vitamin A (retinol) is an essential vitamin. This means that you must have it to stay alive. It is required for the health of the eyes, lungs, skin, bones, intestines, and immune system, and for red blood cell production. Beta-carotene, which theoretically converts to vitamin A in the body, is not an essential nutrient and is not required for life. While it is commonly assumed that beta-carotene always converts to vitamin A as needed, published studies indicate that almost half (45%) of normally healthy people cannot convert beta-carotene into vitamin A adequately.^{1,2,3} Hypothyroid women, who make up about 40% of women over 40 years of age, have a problem converting beta-carotene to vitamin A because thyroid hormone is required for the conversion.⁴ Therefore, beta-carotene cannot substitute for vitamin A (retinol) for millions of people.

Dietary Vitamin A

Many People Do Not Get the Daily Value of Vitamin A (Retinol) from Diet



Dietary vitamin A (retinol) comes from animal products like fish, eggs and dairy, not from vegetables or fruits, which supply beta-carotene. Vitamin A (retinol) in Super Nutrition formulas is manufactured, and is

not derived from animal products. Scientists agree that if you obtain the Daily Value (DV) of vitamin A from diet, you do not need supplemental vitamin A. However, according to the most recent data from "What We Eat in America", the dietary intake interview component of the National Health and Nutrition Examination Survey provided by the United States Department of Agriculture Community Nutrition Map, only 45.7% of Americans get enough vitamin A.⁵ Many people need to take a multi-vitamin with vitamin A (retinol) to reduce the risk of a vitamin A deficiency.

Vitamin A & Iron

Vitamin A (Retinol) Reduces Anemia and Is Required for Iron Excretion

Vitamin A is critically involved in the production of red blood cells⁶ and mobilization of iron.^{7,8} In an eight-week, double-blind, placebo-controlled study of 251 anemic pregnant women, iron alone eliminated anemia in 68% of the women, while iron combined

with 5,000 IU of vitamin A eliminated anemia in 97%.⁹ Vitamin A deficiency impairs mobilization of iron, allowing it to accumulate in the liver and spleen,^{7,8} so vitamin A deficiency should also be considered if there is excess iron storage (as shown by high serum ferritin).

Healthy Pregnancy, Healthy Kids

Vitamin A Is Required for Healthy Pregnancy and Children's Health

The World Health Organization recommends vitamin A (retinol) supplementation for a healthy pregnancy. Pregnant women who are vitamin A deficient are more likely to be anemic, which may result in pre-term or low birth weight babies.¹⁰ Pre-term babies who are vitamin A deficient are more likely to have chronic lung disease.¹¹ Children who are vitamin A deficient are four times more likely to have asthma.¹² They are also more likely to have vision problems,^{13,14,15} hearing loss,¹⁶ anemia,¹⁷ measles,¹⁸ pneumonia,¹⁹ diarrhea²⁰ and stunted growth.²¹ The Daily Value of vitamin A from a combination of diet and supplementation is 5,000 IU.²² While this is the recommended total daily vitamin A amount for healthy pregnancy, vitamin A is known to be safe for pregnancy up to a supplemental daily dose of 10,000 IU. The World Health Organization says, "There is no...risk [of birth defects] from preformed vitamin A supplements of 10,000 IU."²³



Deficiency in Children

Recommendations for Vitamin A Deficient Children

The International Vitamin A Consultative Group (IVACG), in collaboration with the World Health Organization, recommends that physicians give children likely to be vitamin A-deficient three 50,000 international unit (IU) doses of vitamin A concurrently with infant vaccines during the first 6 months of life.²⁴ This dose has been shown to reduce all causes of infant death over the first year by 64% and symptoms of pneumonia, a leading cause of child death, by 50%.²⁵ This is considered to be safe, and is necessary to maintain the baby's vitamin A stores, even when the lactating mother is also given 200,000 IU twice within the first 6 weeks after delivery.²³ Note: These are recommendations for



physician-administered vitamin A for vitamin A-deficient populations; they are not recommendations for routine administration. However, while routine high-dose vitamin A was formerly only given to children in developing countries, it is now being given by some physicians in the United States to ensure optimal status in children.

Vitamin A Forms

Two Safe, Natural Forms of Vitamin A: Retinol Palmitate & Retinol Acetate

While palmitate, a commonly used carrier for supplemental vitamin A, is manufactured for use in dietary supplements, it is also made naturally in the body as a carrier for vitamin A.²⁶ Acetate, another vitamin A carrier, also occurs naturally and is the primary acid flavor in organic balsamic vinegar. In supplemental Daily Value levels, vitamin A in both the retinol palmitate and retinol acetate forms has been shown to be safe and effective, and able to provide prudent insurance for optimal health. The Institute of Medicine says that the lowest dose where Vitamin A toxicity may be seen is 21,600 IU per day taken over a period of time. The No Observed Adverse Effect Level and Tolerable Upper Limit for long-term use of Vitamin A are each 10,000 IU per day.²²

Bone Health

Vitamin A Is Essential for Optimal Bone Health

Vitamin A is required for bone health. In 2002, two studies raised questions about the potential of vitamin A to cause bone loss in some people.^{27,28}

However, when this notion was tested in a precisely controlled study that looked at vitamin A blood levels, vitamin A was shown to cause no problem with bone and to actually improve bone density and reduce the risk of fracture in senior women.²⁹

Increased Risk of Deficiency for Vegans

Vegans May Be at an Increased Risk of Bone Fracture from Vitamin A Deficiency

Because there is no source of vitamin A (retinol) in their diets and there may be poor conversion of beta-carotene to vitamin A, vegan vegetarians have an increased risk of bone fracture due to vitamin A deficiency.³⁰ For these people, vitamin A supplementation can provide essential insurance for bone health.

(see reverse for references)