



Vitamins A + D

Cod Liver Oil is one of the few natural sources of Omega-3 fatty acids and Vitamins A & D, which help to maintain our bones, eyes, skin, brain and cardiovascular system healthy.

Omega-3 Fatty Acids

Omega-3 fatty acid is rich in polyunsaturated fatty acids, mainly EPA and DHA. Human body cannot synthesize these fatty acids. [1] Taking dietary supplements may be a good choice to ensure sufficient intake of omega-3 fatty acids to promote health benefits.

Omega-3 fatty acids can help nourish the skin, lubricate the joints, and also keep your heart, blood vessels, eyes, brain and peripheral nervous system healthy. [1-2] DHA is one of the important elements in neurotransmission in the brain and a component of the photoreceptors on the retina. [2] It is crucial to the optimal development of the brain, nervous system and retina in infancy and childhood. [3]

Vitamin A

Vitamin A is an essential fat-soluble vitamin which play a significant role in vision, bone growth, reproduction, cell division and cell differentiation. [4] It helps maintain healthy skin, teeth, skeletal and soft tissue, and mucus membranes. Vitamin A is an essential component of rhodopsin, a protein that absorbs light in the retinal receptors. [5,6] Therefore, vitamin A promotes good vision, especially in dim light.

Vitamin A is important in maintaining an adequate level of circulating natural killer cells that have antiviral activity and at the same time in promoting white blood cell production and activation. [6]

Vitamin A is required for growth and regeneration of the skin, and differentiation of epithelial tissue and extracellular matrix. [6] This is important because our skin ages over time, resulting in wrinkles, roughness, discoloration, and thinning.

Vitamin A also serves as an antioxidant. [7] Antioxidants protect cells from free radicals, which are damaging particles that would contribute to certain chronic diseases and play a role in the aging processes.

Vitamin A Deficiency

Vitamin A deficiency (VAD) can result in a variety of medical problems. Prolonged deficiency would cause loss of visual sensitivity and eventual shrinkage and loss of photoreceptor outer segments. Night blindness is one of the first signs of VAD. [8] It is also one of the top causes of preventable blindness in children. [5]

VAD weakens our ability to fight infections. When there is not enough vitamin A, cells lining the respiratory tract reduce their ability to remove disease-causing microbes, which may be partly responsible for some cases of respiratory diseases. [9] VAD can also alter intestinal microflora and interfere with the integrity of the gastrointestinal mucosal layer, making it a risk factor for diarrheal disease. [10]

As vitamin A is important for postnatal brain development, VAD can cause learning and spatial memory deficits. [11]

Vitamin D

Vitamin D, also known as calciferol, is a fat-soluble vitamin found in cells throughout the body. Cod liver oil contains vitamin D3, the form of vitamin D which is same as those synthesized by the skin. [12]

The main biologic function of vitamin D is to promote calcium absorption in the gut. [13] Vitamin D also elevates calcium level in blood which is required for mineralization of bone, muscle control, vasodilation and nerve transmission. [13] Therefore, adequate intake of vitamin D is essential for maintaining strong bones and other body functions.

Vitamin D Deficiency

Risk factors of vitamin D deficiency (VDD) includes low dietary intake, limited exposure to outdoor sunlight, or disability to convert vitamin D into its active form in the kidney. [13] Synthesis of vitamin D in the skin also decreases with age. [12]

In children, VDD causes rickets, where the bones become soft and bend. In adults, VDD leads to osteomalacia, causing bone pain and muscle weakness. [12,13] Osteoporosis, a disease characterized by low bone mass and structural deterioration of bone tissue, could increase the risk of bone fracture. It is common in older adults, the bed-ridden, postmenopausal women and those on chronic steroid therapy. They are more probable to have low vitamin D and calcium levels [13] and may need to take vitamin D supplement to compensate for the deficiency.

Recommended daily dose:

For Adults take 1 softgel capsule daily or as recommended by physicians.

Reference:

1. Food and Agriculture Organization of the United Nations. Fats and fatty acids in human nutrition. Report of an expert consultation. Food Nutr Pap. 2010;91:1-166.
2. Querques G, Forte R, Souied EH. Retina and Omega-3. J Nutr Metab. 2011;2011:748361.
3. Hadders-Algra M. Effect of Long-Chain Polyunsaturated Fatty Acid Supplementation on Neurodevelopmental Outcome in Full-Term Infants. Nutrients. 2010;2(8):790-804.
4. NIH Osteoporosis and Related Bone Diseases ~ National Resource Center, National Institutes of Health. Vitamin A and Bone Health. Last update: Jan 2012. Available at: http://www.niams.nih.gov/Health_Info/Bone/Bone_Health/Nutrition/vitamin_a.asp.
5. Office of Dietary Supplements, National Institutes of Health. Vitamin A – Health Professional Fact Sheet. Last update: 14 May 2012. Available at: <http://ods.od.nih.gov/factsheets/VitaminA-HealthProfessional/>.
6. Institute of Medicine (U.S.), Panel on Micronutrients.. Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Washington, D.C.: National Academy Press, 2001. In Print.
7. U.S. National Library of Medicine, National Institute of Health. Vitamin A: MedlinePlus Medical Encyclopedia. Last update: 2 Aug 2011. Available at: <http://www.nlm.nih.gov/medlineplus/ency/article/002400.htm>.
8. McBain VA, Egan CA, Pieris SJ, Supramaniam G, Webster AR et al. Functional observations in vitamin A deficiency: diagnosis and time course of recovery. Eye (Lond). 2007;21(3):367-76.
9. Kim SC, Lee HJ, Joo JH, Yoon JH, Choi JY. Vitamin A deficiency induces fluid hyopsecretion from the airway submucosal glands of mice. J Nutr. 2012;142(4):739-43.
10. Amit-Romach E, Uni Z, Cheled S, Berkovich Z, Reifen R. Bacterial population and innate immunity-related genes in rat gastrointestinal tract are altered by vitamin A-deficient diet. J Nutr Biochem. 2009;20(1):70-7.
11. Jiang W, Yu Q, Gong M, Chen L, Wen EY et al. Vitamin A deficiency impairs postnatal cognitive function via inhibition of neuronal calcium excitability in hippocampus. J Neurochem. 2012;121(6):932-943.
12. Ross AC, Taylor CL, Yaktine AL, Del Valle HB (eds). DRI, Dietary Reference Intakes: Calcium, Vitamin D. Washington, DC: National Academies Press, 2011. In Print.
13. Office of Dietary Supplements, National Institutes of Health. Vitamin D – Health Professional Fact Sheet. Last update: 24 Jun 2011. Available at: <http://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional/>.