



B-6/B-5/B-12/CARNITINE/ARGININE

25MG/25MG/0.5MG/15MG/15MG TROCHE

Vitamin B6 is a water-soluble vitamin that is naturally present in many foods, added to others, and available as a dietary supplement. It is the generic name for six compounds (vitamers) with vitamin B6 activity: pyridoxine, an alcohol; pyridoxal, an aldehyde; and pyridoxamine, which contains an amino group; and their respective 5'-phosphate esters. Pyridoxal 5' phosphate (PLP) and pyridoxamine 5' phosphate (PMP) are the active coenzyme forms of vitamin B6 [1,2]. Substantial proportions of the naturally occurring pyridoxine in fruits, vegetables, and grains exist in glycosylated forms that exhibit reduced bioavailability [3].

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For more information, please reference link:

<https://ods.od.nih.gov/factsheets/VitaminB6-HealthProfessional/>

Vitamin B5 is a medication used in the management and treatment of nutrient deficiencies. It is in the dietary supplement class of medications. This activity reviews the indications, actions, and contraindications for vitamin B5 as a valuable agent in treating nutritional deficiencies. This activity will highlight the mechanism of action, adverse event profile, and other key factors in the treatment of patients with nutritional deficiencies and related conditions.

For more information, please reference link:

<https://www.ncbi.nlm.nih.gov/books/NBK563233/>

Vitamin B12 is required for the development, myelination, and function of the central nervous system; healthy red blood cell formation; and DNA synthesis [1,4,5]. Vitamin B12 functions as a cofactor for two enzymes, methionine synthase and L-methylmalonyl-CoA mutase [1-3,5]. Methionine synthase catalyzes the conversion of homocysteine to the essential amino acid methionine [1,2]. Methionine is required for the formation of S-adenosylmethionine, a universal methyl donor for almost 100 different substrates, including DNA, RNA, proteins, and lipids [3,5].

L-methylmalonyl-CoA mutase converts L-methylmalonyl-CoA to succinyl-CoA in the metabolism of propionate, a short-chain fatty acid [2].

For more information, please reference link:

<https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/#en2>

Carnitine, derived from an amino acid, is the generic term for several compounds, including L-carnitine, acetyl-L-carnitine, and propionyl-L-carnitine [1]. Carnitine is naturally present in many foods—especially foods of animal origin—and is available as a dietary supplement. Carnitine is also synthesized endogenously in the liver, kidneys, and brain from the amino acids lysine and methionine [2,3]. Carnitine is a conditionally essential nutrient because the requirements for carnitine exceed an individual's ability to synthesize this nutrient only under certain conditions (e.g., premature birth or kidney dysfunction) [2].

Carnitine plays a critical role in energy production. It is an essential cofactor that helps transport long-chain fatty acids into the mitochondria so that they can be oxidized to produce energy in the form of adenosine triphosphate (ATP) [4]. Carnitine also helps transport some toxic compounds out of the mitochondria [4].

For more information, please reference link:

<https://ods.od.nih.gov/factsheets/Carnitine-HealthProfessional/>

Arginine is an essential amino acid in juvenile humans, Arginine is a complex amino acid, often found at active site in proteins and enzymes due to its amine-containing side chain. Arginine may prevent or treat heart and circulatory diseases, combat fatigue, and stimulate the immune system. It also boosts production of [nitric oxide](#), relaxing blood vessels, and treating angina and other cardiovascular problems. Arginine is also an important intermediate in the [urea](#) cycle and in detoxification of nitrogenous wastes. (NCI04)

For more information, please reference link:

<https://pubchem.ncbi.nlm.nih.gov/compound/Arginine>