PROTOCOL FOR LIFE BALANCE®

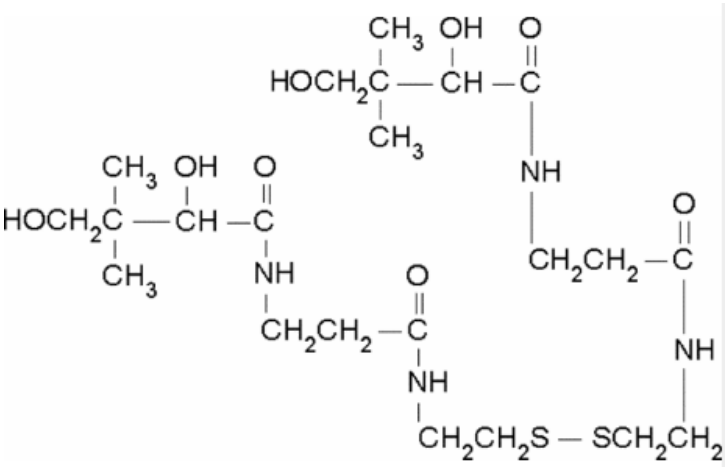
Dietary Supplement Information
for Physicians with Naturokinetics®
PRODUCT CODE: P0487
CATEGORY: B VITAMINS

Pantethine 300 mg Softgels

TECHNICAL SUMMARY

Pantethine, a biologically active form of pantothenic acid (vitamin B_5), is the precursor of coenzyme A (CoA) and acyl-carrier protein (ACP), which are both essential cofactors in the metabolism of carbohydrates, lipids and amino acids.* Pantethine has been shown to promote liver and vascular health through its ability to support healthy lipid metabolism in these tissues.* Clinical and non-clinical studies suggest that pantethine can support healthy serum lipid levels that are already within the normal range.*

Structure formula:



Chemical name: D-bis-(N-Pantothenyl-B-aminoethyl)-disulfide.

Allergen and Additive Disclosure: Not manufactured with yeast, wheat, gluten, soy, milk, egg, fish or shellfish ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.
Delivery Form: Softgel

ROLE AS NUTRIENT/FUNCTION

Pantethine, as the biologically active form of pantothenic acid (Vitamin B_5), plays a crucial role in various metabolic functions.* It serves as a precursor to Coenzyme A (CoA), which is essential for the metabolism of carbohydrates, lipids, and amino acids.* Additionally, it supports the synthesis of fatty acids and cholesterol, as well as steroid hormones, and vitamin D.* Pantethine also assists in modifying proteins like microtubules, which are critical for the cytoskeleton.* Its ability to promote healthy lipid metabolism is particularly notable, helping to regulate serum lipid levels, which in turns supports healthy liver function and cardiovascular health.*

NATUROKINETICS®

Liberation: Dissolution of the softgel capsule is tested in water using a USP testing method with dissolution between zero and 60 minutes.

Absorption: Pantethine is absorbed in the small intestine and results in a significant increase in plasma pantothenate levels approximately 2.5 hours after ingestion (T_{max}) as shown in human volunteers (Fig 1). In a pharmacokinetic clinical trial with healthy volunteers, administration of a single Pantethine softgel (Protocol for Life Balance®, P0487 providing 300 mg of pantethine) resulted in increase in serum pantothenic acid concentration with T_{max} of 2 hours.

Distribution: Immediately following absorption by the intestines, pantethine is distributed throughout the body by red blood cells with its free acid form, pantothenic acid, transported in the plasma and distributed throughout the body according to organ perfusion. Cysteamine, one of its metabolites, is predominantly found in the kidneys.

Supplement Facts

Serving Size 1 Softgel

Amount Per Serving	
Pantethine (Coenzyme A Precursor)	300 mg**

** Daily Value not established.

SUGGESTED USAGE: Take 1 softgel 2 to 3 times daily with food, or as directed by your healthcare practitioner.

- **Supports Healthy Serum Lipids Already Within the Normal Range***
- **Biologically Active Form of Vitamin B_5**

Other Ingredients: Softgel Capsule [bovine gelatin (BSE-free), glycerin, water, carob], Rice Bran Oil, Sunflower Lecithin and Beeswax.

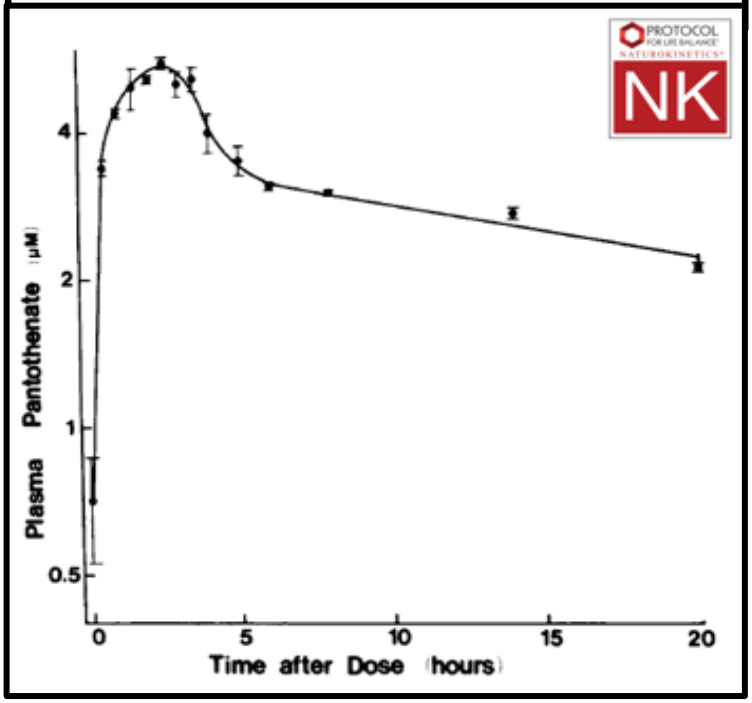


Fig. 1. Plasma concentration of pantothenate after a single oral dose of pantetheine in human volunteers (62 mg/kg).

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Metabolism: Each molecule of pantethine provides two molecules of pantotheine, which can either serve as precursor for Coenzyme A or be further hydrolyzed into pantothenate and cysteamine.

Elimination: Pantetheine is excreted primarily through urine in the form of pantothenate and cysteamine. Clinical studies have shown that the amount of pantothenic acid excreted is less than the amount ingested, suggesting the vitamin can be stored. Elimination half-life ($t_{1/2}$) of pantothenate is approximately 28 hours.

CLINICAL VALIDATION

- **Lipid Metabolism Support.*** In a randomized triple-blind, placebo-controlled clinical trial involving 120 participants at low to moderate cardiovascular (CVD) risk, supplementation with 600 mg per day of pantethine for weeks 1-8 and 900 mg per day for weeks 9-16 combined with lifestyle changes resulted in significant (P<0.05) reductions in total cholesterol and LDL levels as compared to placebo group with lifestyle changes (Figure 2).* Additionally, there was a significant 5% reduction in apolipoprotein level the treated group with pantethine.* This evidence suggests that pantethine can play a meaningful role in maintaining healthy serum lipid levels*

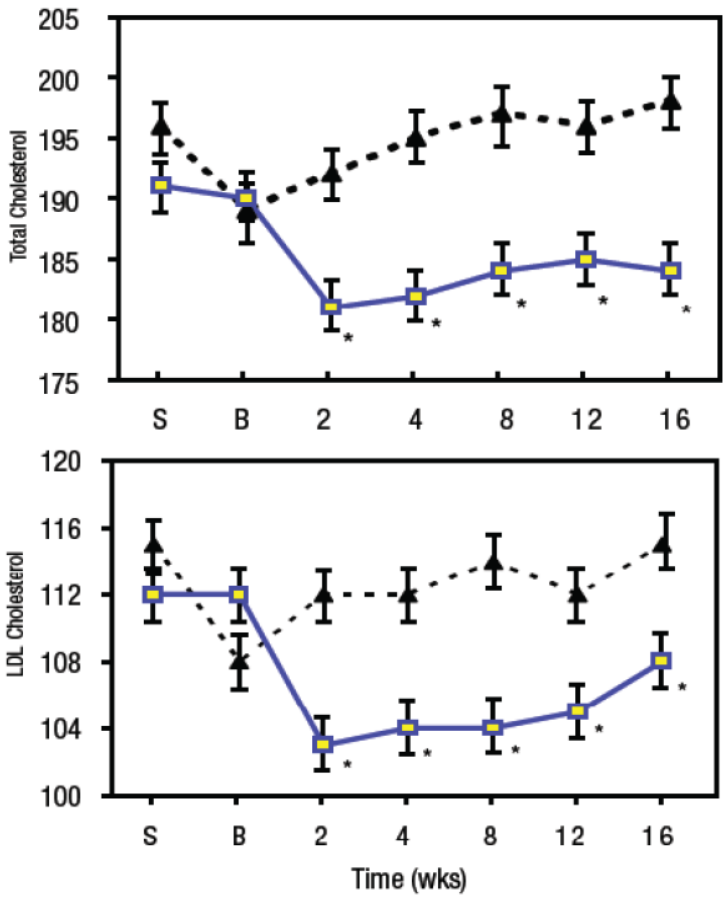


Fig. 2. Mean ± Sem total cholesterol (mg/dl), LDL cholesterol (mg/dl) at screening (S), baseline (B) and over the period of 16 weeks during supplementation with pantethine (yellow square) or placebo (Δ) in human volunteers (*P<0.05 as compared to baseline)

SAFETY INFORMATION

Tolerability: Pantethine is generally well tolerated. It has been clinically tested in doses ranging from 300 mg to 1,800 mg/d. Daily doses 1,500 mg/d or higher may result in occasional GI discomfort such as softening of stool, nausea, and modest laxation.

Contraindications: Pantethine has been shown to exhibit anti-platelet effects and could increase the risk of bleeding. Individuals with bleeding disorders should be advised to use with caution.

INTERACTIONS

Drug Interactions: Concomitant use of pantethine with anti-coagulant/anti-platelet medications (such as Plavix®, Coumadin® and aspirin) may increase the risk of bleeding.

Supplement Interactions: Pantethine may increase the risk of bleeding when taken alongside supplements that exhibit anti-platelet effects. These include, but are not limited to, don quai, garlic, *Ginkgo biloba*, clover, and ginseng.

Interaction with Lab Tests: None known.

STORAGE

Store in cool dry environment in a tightly sealed container.