

Pantothenic Acid

Physiological Functions

Pantothenic acid is a constituent of coenzyme A (CoA) and acyl carrier protein (ACP). CoA functions in the oxidative decarboxylation of ketones, branched chain amino acids, and Krebs cycle intermediates. It is also involved in beta oxidation of fatty acids and hepatic synthesis of cholesterol. ACP is part of the fatty acid synthetase complex that promotes endogenous synthesis of fatty acids.

Deficiency

Pantothenic acid deficiencies are rare because the vitamin is widely distributed in the food supply. Considerable losses can occur in highly processed foods. Experimentally induced deficiency produced headache, fatigue, listlessness, weakness, personality changes, sleep disturbances, impaired motor coordination, and gastrointestinal symptoms

Toxicity

Toxicity to pantothenic acid has not been reported.

- ❖ *The upper limit of safety for pantothenic acid has not been determined due to lack of data substantiating adverse effects at high intakes. The Food and Nutrition Board of the Institute of Medicine recommends that pantothenic acid should be consumed only from food sources to prevent intake of potentially toxic levels.*

Requirements

The Daily Reference Intakes (DRI) for vitamin B₁₂ are shown in the table below.

	Pantothenic Acid (mg/day)
Infants	
0-6 mo	1.7
7-12 mo	1.8
Children	
1-3 y	2
4-8 y	3
Males	
9-13 y	4
14-18 y	5
19-30 y	5
31-50 y	5
51-70 y	5
70 y	5
Females	

9-13 y	4
14-18 y	5
19-30 y	5
31-50 y	5
51-70 y	5
70	5
Pregnancy	
18 y	6
19-30 y	6
31-50 y	6
Lactation	
18 y	7
19-30 y	7
31-50 y	7

Dietary Sources

Pantothenic acid is available in a wide variety of foods. See table for dietary sources of pantothenic acid.

Dietary Sources of Pantothenic Acid	
FOOD	Pantothenic Acid (mg)
Liver, beef, braised, 3.5 oz	5.3
Sunflower seeds, _ cup	2.3
Low fat yogurt, 1 cup	1.5
Salmon, baked, 3.5 oz	1.4
Chicken, turkey, dark meat, w/o skin, baked, 3.5 oz	1.3
Chicken, turkey, white meat, w/o skin, baked, 3.5 oz	1.0
Peanuts, _ cup	1.0
Avocado half	1.0
Mushrooms, ckd, _ cup	.84
Milk, nonfat, 1 cup	.80
Ice milk, soft serve, 1 cup	.78
Corn, cooked, _ cup	.72
Potato, baked, one	.70
Sweet potato, _ cup	.68
Dates, 10	.65
Wheat germ, raw, _ cup	.65
Liverwurst, 1 slice	.53
Cheese, blue, 1 oz	.49
Oatmeal, regular, cooked, 1 cup	.47
Broccoli, boiled, _ cup	.40

Papaya, _ cup	.33
Cheese, cottage, 2% fat, _ cup	.27
Peanut butter, creamy, 2 T	.26
Strawberries, _ cup	.25
Orange juice, _ cup	.24