

### *SOURCES OF BIOTIN*

Food	Amount	Micrograms
Yeast	3.5 ounces	85
Liver, beef	3 ounces	82
Oatmeal, cooked	1 cup	58
Soybeans, cooked	1/2 cup	22
Egg, whole, cooked	1 medium	13
Salmon	3 ounces	10
Milk, whole	1 cup	10
Mushrooms, canned	1/2 cup	7
Halibut	3 ounces	7
Banana	1 medium	6
Peanut butter	1 tablespoon	6
Cantaloupe	1/4 melon	3
Cottage cheese	1/2 cup	2
Wheat germ	1 tablespoon	1.3
Cheese, cheddar	1 ounce	1

### *SOURCES OF FOLATE*

Foods with higher contents listed first

Food	Amount	Micrograms
Kidney beans, cooked	1 cup	725
Liver, chicken	3 ounces	654
Brewer's yeast	1 tablespoon	313
Pinto beans, cooked	1 cup	294
Black beans, cooked	1 cup	256
Navy beans, cooked	1 cup	255
Black-eyed peas, cooked	1 cup	210
Liver, beef	3 ounces	187
Asparagus, cooked	1 cup	172
Turnip greens, cooked	1 cup	170
Split peas, cooked	1 cup	127
Spinach, cooked	1 cup	109
Green peas, cooked	1 cup	101
Soybeans, dried	1/4 cup	90
Sunflower seeds	1/4 cup	82
Broccoli, cooked	1 cup	62
Lima beans, cooked	1 cup	40

### *SOURCES OF PANTOTHENIC ACID*

Food	Amount	Milligrams
Liver, beef, cooked	3 ounces	6.04
Egg, whole	1 medium	1.1
Avocado	1/2 medium	1.1
Mushrooms, canned	1/2 cup	1.0
Milk, skim	1 cup	1.0
Soybeans, cooked	1/2 cup	0.5
Banana	1 medium	0.5
Orange, raw	1 medium	0.5
Collard greens, cooked	1/2 cup	0.4
Potato, baked	1 medium	0.4
Broccoli	1/2 cup	0.3
Cantaloupe	1/4 melon	0.3
Peanut butter	1 tablespoon	0.2
Apple	1 medium	0.2
Wheat germ	1 tablespoon	0.1

### ***Vitamin B - Biotin***

Biotin is a water soluble B vitamin. Major dietary sources of biotin include yeast, organ meats, milk, egg yolks, nuts, legumes (dried beans), and whole grains. Excess intake of biotin is excreted.

#### ***Beneficial Properties:***

- Aids in carbohydrate, protein and fat metabolism
- Promotes healthy hair

#### ***Deficiency Indicators:***

- Anorexia (lack or loss of appetite), nausea and vomiting
- Glossitis (inflammation of the tongue)
- Dermatitis (dryness and inflammation of the skin)
- Depression
- Exhaustion, drowsiness, muscle pain
- Grayish skin color

#### ***Excessive Intake and Toxicity Symptoms:***

- No evidence of Biotin toxicity has been noted from oral intake

#### ***RDA***

Adults 30-100 micrograms

#### **SOURCES OF BIOTIN**

***Vitamin B - Choline***

Very important in controlling fat & cholesterol buildup in the body; prevents fat from accumulating in the liver.

***Beneficial Properties:***

- Facilitates the movement of fats in the cells
- Helps regulate the kidneys, liver & gallbladder
- Important for nerve transmission
- Helps improve memory.

***Deficiency Indicators:***

- May result in cirrhosis and fatty degeneration of the liver
- Hardening of the arteries
- Heart problems
- High blood pressure
- Hemorrhaging kidneys

### ***Vitamin B - Pantothenic Acid***

Major dietary sources of pantothenic acid include liver, yeast, eggs, legumes (dried beans), milk and whole grain breads and cereals. Excess intake of pantothenic acid is excreted. Pantothenic acid is sensitive to heat.

#### ***Beneficial Properties:***

- Aids in carbohydrate, protein and fat metabolism
- Synthesizes hormones and cholesterol
- Improves the body's resistance to stress
- Aids in the utilization of other vitamins
- Helps in cell building
- Development of the central nervous system
- Helps the adrenal glands
- Fights infections by building antibodies.

#### ***Deficiency Indicators:***

- Burning feet
- Skin abnormalities
- Retarded growth
- Dizzy spells
- Digestive disturbances, vomiting
- Restlessness
- Stomach stress
- Muscle cramps
- Infertility
- Fatigue
- Irritability

#### ***Excessive Intake and Toxicity Symptoms:***

- Doses of 10 to 20 grams may result in diarrhea and water retention

#### ***RDA***

Estimated safe for adults 4-7 mg

### **SOURCES OF PANTOTHENIC ACID**

***Vitamin B Folate - Folic Acid***

Folic acid is necessary for DNA & RNA synthesis. DNA/RNA is essential for the growth and reproduction of all body cells. It is essential to the formation of red blood cells by its action on the bone marrow. Folic acid assists in amino acid metabolism. Major dietary sources of folic acid include green leafy vegetables, organ meats, meat, poultry, seafood, legumes, seeds, and whole grain breads and cereals. Folic acid requirements increase during pregnancy. Excess intake of folic acid is excreted. Folic acid is sensitive to heat, oxygen and ultraviolet light. Folic acid leaches into cooking water.

***Beneficial Properties:***

Acts with vitamin B12 in the formation of red blood cells

***Deficiency Indicators:***

Gastrointestinal disorders  
Vitamin B-12 deficiency  
Pre-mature gray hair  
Pernicious anemia (large cell type)  
Depression

***Excessive Intake and Toxicity Symptoms:***

May mask symptoms of vitamin B12 deficiency

***RDA***

Adults 180-200 micrograms

**SOURCES OF FOLATE**



## **WATER SOLUABLE VITAMINS**

B-COMPLEX vitamins are important membrane stabilizers. They are natural anti-stress vitamins. They are important vitamins to help nerve function. B-complex vitamins contain PABA an important element needed for protecting the skin against the harmful effects of ultra-violet radiation. PABA functions as a UV screening agent. They may also to protect against the development of skin cancer or sun-induced skin damage such as wrinkling. Individuals with fair complexions may benefit by supplementing their diet with B complex vitamins. People with red hair, blue or green eyes tend to be sun sensitive (actinic sensitive). Women using oral contraceptives increase their utilization of the B vitamins and should supplement their diet with B-complex. B vitamins are not stored in the body as are beta carotene and vitamin E. B-complex must be taken with food already in the stomach. If taken on an empty stomach, pain and nausea are not uncommon. Indications that the B-complex is being absorbed - urine will be bright yellow and have a pungent odor caused by the riboflavinoids present.



**Vitamin B - Biotin**

**Vitamin B - Choline**

**Vitamin B Folate - Folic Acid**

**Vitamin B - Pantothenic Acid**

**PABA (Para Amino Benzoic Acid)**

**Vitamin B1 - Thiamin**

**Vitamin B2 - Riboflavin**

**Vitamin B3 - Niacin**

**Vitamin B6 - Pyridoxine**

**Vitamin B12 - Cobalamin**

**Vitamin C - Ascorbic Acid**



