## MANGANESE

Major dietary sources of Manganese include whole grains, nuts, legumes (dried beans), vegetables, fruit, instant coffee, tea, and cocoa powder.

## **Beneficial Properties**

- An antioxidant nutrient
- Important in the blood breakdown of amino acids
- Necessary for the metabolism of Vitamin B-1 and Vitamin E
- Activates various enzymes which are important for proper digestion
- A catalyst in the breakdown of fats and cholesterol
- Helps nourish the nerves and brain
- Necessary for normal skeletal development
- Maintains sex hormone production
- Vital to reproduction
- Necessary in energy metabolism
- Aids in blood, cartilage and bone formation

#### Deficiency Indicators

- May result in paralysis
- Convulsions
- Dizziness
- Ataxia
- Loss of hearing
- Digestive problems
- Blindness and deafness in infants.
- Possibly nausea and vomiting

#### Excessive Intake and Toxicity Symptoms:

- No evidence of toxicity has been noted from dietary intake
- Excess may interfere with iron absorption

RDA

Adults 2.0-5.0 mg

#### SOURCES OF MANGANESE

## MOLYBDENUM

Major dietary sources of Molybdenum include milk, whole grains, liver, legumes (dried beans) and dark green leafy vegetables.

## **Beneficial Properties**

- Activates certain enzymes in the body
- Necessary in energy metabolism
- Aids in blood, cartilage and bone formation

#### Deficiency Indicators

- Deficiency is rare
- Irritability
- Amino acid intolerance

# Excessive Intake and Toxicity Symptoms:

May interfere with copper absorption Gout like symptoms

RDA

Adults 75-250 mg

## SOURCES OF MOLYBDENUM

#### SELENIUM

An anti-oxidant with activity as a free radical scavenger. Populations with high blood selenium levels are found to have lower death rates due to cancer. Cancer patients have low selenium blood levels. Selenium works in harmony with vitamin E. Selenium toxicity can occur. Major dietary sources of Selenium include fish, shellfish, red meat, grains (depending on soil content), eggs, garlic and liver.

# **Beneficial Properties**

- Major antioxidant nutrient
- Protects cell membranes
- Prevents free radical generation
- May decreasing the risk of disease of the heart and blood vessels.
- Preserves tissue elasticity
- Slows down the aging and hardening of tissues through oxidation
- Helps in the treatment and prevention of dandruff
- Prevents oxidation of unsaturated fatty acids
- Helps with proper function of the heart
- Needed for proper immune function

# **Deficiency Indicators**

- May result in premature aging
- Heart disease
- Dandruff
- Loose skin.
- Muscular discomfort and weakness

Excessive Intake and Toxicity Symptoms:

Nausea, abdominal pain and diarrhea Peripheral neuropathy, fatigue and irritability

RDA

Adults 55-70 mcg

#### SOURCES OF SELENIUM

# SOURCES OF MANGANESE

Foods with higher contents listed first

Food	Amount	Milligrams
Brown rice	1 cup	6.93
Wheat germ	1/4 cup	3.83
Spinach, cooked	1 cup	1.68
Oatmeal, cooked	1 cup	.95
Black beans	1 cup	.76
Almonds	1/4 cup	.65
Kale, cooked	1 cup	.54
Brewed tea	1 cup	.52
Strawberries	1 cup	.43
Liver, beef	3 ounces	.36

# SOURCES OF MOLYBDENUM

Foods with higher contents listed first

Food	Amount	Micrograms
Spinach, cooked	1 cup	46
Strawberries	1 cup	20
Milk, whole	1 cup	17
Beef, sirloin, cooked	3 ounces	6
Halibut	3 ounces	3

# SOURCES OF SELENIUM

Food	Amount	Micrograms
Halibut	3 ounces	51
Liver, beef	3 ounces	48
Sardines, canned	3 ounces	29
Shrimp	3 ounces	27
Chicken breast	3 ounces	23
Oatmeal, cooked	1 cup	20
Crab, cooked	3 ounces	19
Egg, hard boiled	1	12
Wheat bread	1 slice	11
Kidney beans	1 cup	9

# SOURCES OF ZINC

Food	Amount	Milligrams
Pacific oysters, steamed/boiled	3 ounces	28.2
Liver, beef	3 ounces	5.1
Wheat germ	1/4 cup	4.7
Tenderloin, beef	3 ounces	4.5
Ground beef, lean	3 ounces	4.4
Raisin bran cereal	3/4 cup	3.8
Special K cereal	1 1/3 cup	3.7
Crab, cooked	3 ounces	3.6
Garbanzo beans	1 cup	2.5
Pumpkin seeds	1 ounce	2.1
Kidney beans	1 cup	1.5
Almonds	1 ounce	1.4
Collard greens, cooked	1 cup	1.2

# 🔰 Trace Minerals

Minerals that occur in small amounts or traces. Play a major role in health. Even minute portions can powerfully affect health. They are essential in the assimilation and utilization of vitamins and other nutrients. They aid in digestion and provide the catalyst for many hormones, enzymes and essential body functions and reactions. they also aid in replacing electrolytes lost through heavy perspiration or extended diarrhea and protects against toxic reaction and heavy metal poisoning.

<b>1</b>	<u>CHROMIUM</u>
<u>111</u>	
	<u>COPPER</u>
<u>111</u>	
<b></b>	<u>IODINE</u>
<u> </u>	
	FLUORIDE (FLUORINE)
100 B	
	<u>MANGANESE</u>
100 B	
	<u>MOLYBDENUM</u>
100 B	
<b>a</b>	<u>SELENIUM</u>
100 B	
	<u>ZINC</u>

# ZINC

Zinc is a trace mineral. Major dietary sources of Zinc include meat, liver, shell fish, milk, whole grains and wheat germ.

# **Beneficial Properties**

- An antioxidant nutrient
- Necessary for protein synthesis; wound healing
- Vital for the development of the reproductive organs
- Assists prostate functions and male hormone activity
- Governs the contractility of muscles
- Important for blood stability
- Maintains the body's alkaline balance
- Helps in normal tissue function
- Aids in the digestion and metabolism of phosphorus.
- Important for the activity of enzymes
- Necessary for cell division, growth
- Necessary for proper functioning of the immune system
- Plays a role in taste and smell acuity
- Important in carbohydrate metabolism and replication of DNA

# Deficiency Indicators

- May result in delayed sexual maturity
- Prolonged healing of wounds
- White spots on finger nails
- Retarded growth
- Stretch marks
- Fatigue
- Decreased alertness
- Susceptibility to infections.
- Loss of appetite (related to impaired taste acuity)
- Skin changes
- Immunological abnormalities
- Hypogonadism and dwarfism
- Developmental disorders in infants

# Excessive Intake and Toxicity Symptoms:

Vomiting and intestinal irritation May impair copper status Impairment of immune response

# RDA

Adults 12-15 mg

# SOURCES OF ZINC