

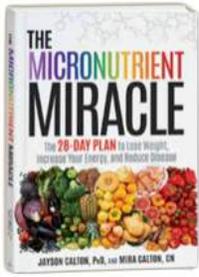
# THE MICRONUTRIENT MIRACLE QUICK START



## Overweight / Obesity

An In-Depth Look at Some of  
the Micronutrients Used in the  
Prevention and Treatment

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# THE MICRONUTRIENT MIRACLE

## GUIDE TO:

### Overweight/ Obesity

#### An In-Depth Look at Some of the Micronutrients Used in the Prevention and Treatment

**A, B1, B3, B6, B12 C, D, E, K, calcium, chromium, iodine, iron, magnesium, potassium, selenium, zinc, omega-3, alpha-lipoic acid, CoQ10**



Obesity affects many of us, and what we can learn from those suffering from this condition may help us all better understand what lies at the root of this global pandemic. A small number of nutritional theorists are thinking outside the box and connecting the dots between micronutrient deficiency and obesity in a whole new way. In a paper titled, “The Metabolic Tune-Up: Metabolic Harmony and Disease Prevention,” Bruce N. Ames, Ph.D., writes about the connection between micronutrient deficiency and obesity. “We hypothesize that a micronutrient deficiency counteracts the normal feeling of satiety [feeling full] after sufficient calories are eaten. This may be a biological strategy for obtaining missing nutrients, which is important in fertility. Thus part of the reason for the obesity epidemic may be that energy-dense, micronutrient-poor diets leave the consumer deficient in key micronutrients, e.g., calcium, and constantly hungry.”

If these contemporary theoretical perspectives were to be combined with current scientific research concerning the link between micronutrient deficiency and obesity, being overweight or obese would be viewed in an entirely different light. Instead of being wrongfully perceived as lazy, undisciplined overeaters, overweight and obese people would be seen for what they most likely are—individuals who are simply biochemically more in tune with their body’s need for their required essential micronutrients and are trying to achieve micronutrient sufficiency the only way that their bodies know how—by eating more food.

Given their role as essential cofactors in proper carbohydrate, fat and protein metabolism, as well as their assisting of neurotransmitters and other hormones in the hunger process, it only makes sense that deficiencies, as a result of eating “naked calories,” provide a disconnect between the mind and body, leading to overconsumption and obesity. Ok, and to kind of tie up this whole idea that being micronutrient sufficient can prevent or reverse overweight obesity lets end this section with at a landmark study published in the journal of Economics and Human Biology. In the study, researchers revealed that micronutrient-deficient women had an 80.8 percent higher chance of being overweight or obese than non-deficient women.

## OMEGA-3 FATTY ACIDS

Omega-3 fatty acids increase oxidation of fat by activating genes that break down fat. Moreover, the introduction of omega-3 not only intensified fat breakdown, it also reduced the number of overall fat cells. In a study presented at the North American Association for Study of Obesity (NAASO), twenty women with severe obesity who were already on a restricted low-calorie diet were observed. Researchers divided the women into two groups and gave one group omega-3 fatty acids. The women that were given the omega-3 fatty acids reduced their weight 20 percent more than the placebo group and reduced their BMI by up to 15 percent in only three weeks. This means that an increase in omega-3 brought an increase in weight loss and a decrease in BMI.

## VITAMIN A

Vitamin A and its precursors play a variety of roles with respect to obesity. Studies have indicated its deficiency is linked to increased adipogenesis (creation of fat cells) and insulin resistance, as well as decreased glucose tolerance. Moreover, supplementation with Vitamin A has been shown to increase insulin sensitivity, reduce fat mass and help modulate circulating leptin levels.

## YOUR B VITAMINS

The B vitamins play an essential role in metabolism and thermoregulation and are commonly deficient in individuals who are overweight or obese. Vitamin B1 (thiamine) is an essential catalyst in glucose metabolism and diets high in sugar can rapidly increase its utilization, resulting in deficiency. Moreover, research has found that its supplementation is essential for maintaining adequate levels during weight loss. Niacin (B3), B6, biotin (B7), folate (B9) and cobalamin (B12) deficiencies may impair energy metabolism, subsequently increasing lipogenesis and adipogenesis. Supplementation with B6 and B12 has been shown to increase fat oxidation and insulin sensitivity and decrease weight gain. Moreover, when supplemented in conjunction with vitamins C & E, the B vitamins improved inflammatory markers associated with obesity and metabolic syndrome.

## VITAMIN C

Vitamin C is essential for fat oxidation and its deficiency is associated with a decline in this process. Supplementation has shown reductions in abdominal fat, particularly in women, as well as improves insulin sensitivity and glucose tolerance in response to the stress response. Moreover, supplemented with the B vitamins and vitamin E, it can improve inflammatory markers associated with obesity and metabolic syndrome. Another way that vitamin C may be linked to obesity is that it is an important component in the creation of carnitine, which helps your body turn fat into fuel. But here is the big news - Researchers at Arizona State University proved that individuals with low levels of vitamin C burned 25 percent fewer calories during the same period of exercise than those who had adequate vitamin C levels. (33% more)

## VITAMIN D

Vitamin D deficiency is associated with a myriad of diseases including cancer, cardiovascular disease, depression, immune function, osteoporosis, as well as metabolic syndrome and obesity. Research has linked vitamin D deficiency to higher BMI, increased insulin resistance, and subsequent development of type 2 diabetes; moreover, supplementation has shown improvement in blood markers, increased satiety and energy expenditure, and subsequent decreases in body fat. In fact, a study from Children's Hospital in Los Angeles found that women who were deficient in vitamin D were, on average, 16.3 pounds heavier than women who were not vitamin D deficient. The researchers believe that vitamin D may slow the growth of fat cells; furthermore, vitamin D deficiency lowers blood levels of leptin, a hormone that tells your brain you are full. If you often find yourself eating more than you should, you may want to consider the possibility that due to a vitamin D deficiency, your brain simply doesn't get the message that you are full. Individuals deficient in vitamin D, which is now being touted as the "skinny" vitamin, are at a higher risk of obesity. This is great news because this means that being sufficient in vitamin D could then reduce this risk. The best way to help meet sufficiency of vitamin D is to get some good relaxing time in the sun, but unfortunately that is not always an option due to geographic and weather conditions, thus supplementation is vital.

## VITAMIN E

Vitamin E is actually two groups of molecules termed the tocopherols and the tocotrienols; while both are essential as antioxidants in combatting inflammation, the tocotrienols in particular appear to play a role in decreasing adipogenesis, triglycerides and fat mass, improving glucose tolerance, as well as modulating leptin signaling. Moreover, when supplemented with the B vitamins and vitamin C, it can improve inflammatory markers associated with obesity and metabolic syndrome.

## CALCIUM

Similar to its biological partner, Vitamin D, calcium deficiency is associated with a myriad of diseases including cancer, cardiovascular disease, osteoporosis, as well as metabolic syndrome and obesity. Calcium helps regulate thermogenesis and the lipogenesis/lipolysis process. On top of that, it is associated with cravings, which are often the number 1 reason most people fall off a diet and gain back their lost weight. According to Michael Tordoff, Ph.D., a researcher at Philadelphia's Monell Chemical Senses Center, craving salt is due to a calcium deficiency. Ingesting sodium temporarily increases calcium in the blood, which tricks your body into thinking the calcium deficiency is over. However, while this may temporarily satisfy your salt craving, the secreted bone calcium leads to an exacerbated calcium deficiency and further salt cravings. Its supplementation has been demonstrated to accelerate fat loss, increase fat oxidation, insulin sensitivity and satiety. These benefits are associated with both calcium/vitamin D supplementation and increased dairy intake.

## CHROMIUM

Chromium plays an essential role in controlling blood sugar, as it is a component of the glucose tolerance factor. Its supplementation has been demonstrated to improve insulin resistance and glucose metabolism, as well as decrease carbohydrate cravings and weight gain.

## IRON

Iron deficiency is common in obesity. Both environmental factors, such as phytic and oxalic acid chelation, and bioavailability issues in this deficiency. Anemia, as a result of iron deficiency, can lead to fatigue and result in a more sedentary lifestyle. Unfortunately, obesity promotes further reductions in the bioavailability of iron. It plays a role in promoting fat oxidation. Interestingly, however, iron overload is linked to increased insulin resistance.

## MAGNESIUM

Similar to calcium, magnesium deficiency is associated with very specific cravings. For all you sweet tooth's out there, this applies to you too. Studies show that being deficient in magnesium, can induce sugar cravings. However, once magnesium levels are increased, the cravings diminish. But what happens if you give in and grab something sugary sweet? Similar to salt cravings, giving in is actually making your cravings worse. This is because Sugar is an EMD, which blocks the absorption of essential minerals, including magnesium and calcium. So, you feel a craving for something sugary, you eat it, and the sugar in the food itself blocks the absorption of the minerals calcium and magnesium, causing further depletion and now you have salt cravings and sugar cravings. So while magnesium won't necessarily help you burn more body fat, being deficient in can really set you up weight, or specifically fat, regain.

## SELENIUM

Selenium is required for proper thyroid hormone synthesis, secretion and metabolism and its deficiency is inexorably linked to hypothyroidism, which in turn can lead to an overall decline in metabolism. Studies have shown improvement to both thyroid structure and function from supplementing with selenium. Moreover, selenium has insulin-like properties and may play a positive role in its regulation. However, too much of a good thing isn't always better, as research has indicated that chronically excess selenium can promote insulin resistance.

## ZINC

Zinc is required for a number of biological processes, including as a cofactors in the metabolism of carbohydrates, fats and protein, as well as activation of hormone receptors. Its deficiency is linked to increased insulin resistance and decreased thyroid function. Supplementation with zinc has been shown to improve blood sugar, insulin and leptin

# Vitamin A

RDI:5000 IU

## Why you need it?

The primary function of this fat-soluble vitamin is to preserve eyesight. Vitamin A is also essential for the formation and development of bone, teeth, and connective tissue. It also maintains the integrity of the skin and the linings of your urinary tract, lungs, and digestive system. It is required for DNA translation and both male and female reproductive processes. Vitamin A also helps fight viral infections and is thought to help fight cancer as well.

## What you should know?

There are two types of vitamin A. Preformed vitamin A (also called retinoid) includes retinol, one of the most usable forms of vitamin A. This type is found only in foods of animal origin. The second type, found in plants, is called pro-vitamin A, and includes certain members of the carotenoid family, such as beta-carotene. While many people consider beta-carotene to be the same as vitamin A, it is really an inactive precursor to vitamin A, and only converts to vitamin A in the body at a rate thought to be approximately 21:1.

## Where you get it?

### Vitamin A

- Liver (polar bear liver contains the most with 100,000 IU per ounce!)
- Kidney
- Cod liver oil
- Butter
- Egg yolk
- Whole milk/cream
- Shrimp

### Beta-Carotene

- Sweet Potatoes
- Carrots
- Winter Squash
- Dark Leafy Greens
- Romaine Lettuce
- Bok Choy



## How it is destroyed in preparation?

Light and air exposure can partially deplete the vitamin A content in our foods; however, vitamin A is relatively stable when exposed to heat and is not significantly affected by cooking. In fact, chopping, puréeing and cooking carotenoid-containing vegetables can make the carotenoids (i.e. beta-carotene) more bioavailable.



- Frequent viral infections or colds
- Night blindness (nyctalopia)
- Dry eyes (xerophthalmia)
- Goose bump-like appearance of the skin known as hyperkeratosis.
- Bone deformities or poor growth in children.
- Irritability, Stress & Depression
- Hypothyroidism

# Vitamin B1 (Thiamine)

RDI: 1.5 mg

## Why you need it?

Thiamine was the first of the B vitamins to be discovered, and it is imperative for energy production. This water-soluble vitamin is necessary for the proper functioning of the nervous system and muscles and conversion of amino acids and fatty acids into proteins, hormones, and enzymes. Thiamine can help to prevent cataracts. Deficiency can cause depression, irritability, memory loss, cardiovascular disease, and insomnia.

## What you should know?

A deficiency in thiamine can cause beriberi, a potentially deadly disease that was widespread during the late 19th and early 20th century particularly in Asia.

## Where you get it?

- Brewers yeast
- Lamb
- Seeds (sunflower)
- Pork
- Green peas
- Organ meats
- Fish (trout, salmon, tuna)
- Poultry
- Beans
- Asparagus
- Spinach
- Whole wheat
- Romaine lettuce
- Mushrooms
- Wheat germ
- Eggs
- Watermelon
- Nuts
- Blackstrap Molasses



## How it is destroyed in preparation?

Vitamin B1 is extremely unstable and is easily damaged by heat, acid, and chemicals. The processing of grains used for cereals and breads reduces B1 content by more than half. This is because most of the vitamin B1 is found in the germ of grain, which is removed during the milling of grain. Both sulfites and nitrites, which are often used in food preservation, inactivate vitamin B1. Sulfur dioxide used as a preservative in food depletes B1.

## What are some signs of vitamin B1 deficiency?



- Loss of appetite
- Sensation of "pins and needles"
- Numbness in legs
- Calf muscle soreness, tender muscles
- Depression, irritability and memory loss in elderly
- Anxiety & stress
- Cardiovascular symptoms include edema, increased pulse rate, and palpitations.
- Insomnia
- Extreme deficiency cause deficiency disease beriberi
- Eye pain
- Constipation

# Vitamin B2 (Riboflavin)

RDI: 1.7 mg

## Why you need it?

Vitamin B2 is essential for normal growth and development, physical performance, reproduction, lactation, and well-being. It is utilized in essential biochemical reactions, especially energy production. Like all the B vitamins, B2 is water-soluble and must be supplied daily. Additionally, it is necessary for growth and reproduction and the healthy growth of skin, hair, and nails. Riboflavin is critical for the metabolism of carbohydrates, fats, and protein. It assists with antioxidant activity and prevents oxygen-based damage. It is part of the enzyme glutathione reductase. Glutathione is a protein like "antioxidant" molecule that reduces this damage and must constantly be recycled. Vitamin B2 allows for that recycling to take place

## What you should know?

The activated form of B2 is Riboflavin-5-phosphate. This is the ingredient you want to see on your supplement facts. It is the vitamin responsible for turning urine bright yellow.

## Where you get it?

- Liver
- Milk
- Cheese
- Asparagus
- Meats
- Eggs
- Dark green vegetables
- Almonds
- Salmon and tuna
- Avocados
- Mushrooms
- Wheat germ



## How it is destroyed in preparation?

While heat and air have no large damaging effect on B2, light is a factor. In fact, riboflavin rich foods should be stored in opaque containers, and cooked in covered pots. This includes pasta and milk, which are better purchased in boxes than see through bags and light blocking cartons rather than clear containers. Along with vitamin B1, B2 is found in the germ of grain, which is removed during the milling and processing of grain.

## What are some signs of vitamin B2 deficiency?



- Migraines
- Cataracts
- Sore throat
- Depression, irritability and memory loss in elderly
- Chelosis, which is characterized by cracks in the corners of the mouth, burning lips, mouth, and tongue.
- Red eyes that tear, burn or itch and are light sensitive
- Scaly skin on face around the nose and genitalia
- Dull or oily hair
- Split nails
- Irritability, stress & depression

# Vitamin B3 (Niacin & Niacinimide)

RDI: 20 mg.

## Why you need it?

Vitamin B3 can be found naturally in foods or can be synthesized in humans by converting the amino acid tryptophan to niacin (vitamins B1, B6, and iron are necessary for this conversion). It is imperative for energy production, helps to lower cholesterol, and protects against DNA damage and cancer. This water-soluble vitamin aids in the regulation of insulin and stabilization of blood sugar. Vitamin B3 protects against heart attacks, Alzheimer's disease, and cognitive decline. Niacin is part of about 200 enzymes, each of which are necessary for chemical reactions in the body to occur, which clearly shows just how important this B vitamin is to your health.

## What you should know?

Most multivitamins contain only niacinamide. However, the two forms of vitamin B3 perform completely different functions in your body. Niacinamide controls blood sugar, but only niacin, a completely different form of vitamin B3 that is usually not found in multivitamins, is the form that has been shown to lower LDL (bad cholesterol) and raise HDL (good cholesterol). Nutreince, our reinvention of the multivitamin, contains both forms because when we say complete, we mean it.

## Where you get it?

- Fish (tuna, salmon, mackerel)
- Organ meats
- Poultry
- Beef
- Yeast
- Peanuts
- Legumes
- Crimini mushrooms



## How it is destroyed in preparation?

Great News! Heat, air, and light have little damaging effect on vitamin B3.

## What are some signs of vitamin B3 deficiency?



- Dermatitis- dry patchy scaly skin.
  - Digestive problems including swollen tongue
  - Muscular weakness
  - Mental confusion and delirium in advanced
  - Lack of energy
  - Insomnia
  - Migraines
  - Irritability
  - Anxiety
- Pellagra- A severe deficiency of B3 is known as pellagra which means rough skin. It is characterized by the four D's – dermatitis, dementia, diarrhea, and death. It is common in areas where corn is the main food staple.

# Vitamin B5 (Pantothenic Acid)

RDI: 10 mg

## Why you need it?

Once absorbed, pantothenic acid is converted into co-enzyme A (CoA), which is the only known biologically active form of vitamin B5. CoA is required for the chemical reactions that generate energy from food (carbohydrates, fats, and proteins) and in the synthesis of the essential fats, steroid hormones, cholesterol, the neurotransmitter acetylcholine, and the hormone melatonin. It controls fat metabolism, is essential for the brain and nerves, and helps to maintain healthy skin and hair. This water-soluble vitamin helps to fight stress by keeping the adrenal glands functioning properly and aids in the detoxification of alcohol.

## What you should know?

D-calcium pantothenate is the natural form of pantothenic acid and is the most commonly used supplemental form of this vitamin. It is more stable than free pantothenic acid and is well absorbed in the digestive tract.

## Where you get it?

- Avocado
- Yogurt
- Liver
- Chicken
- Fish (trout, salmon)
- Sunflower Seeds
- Shiitake Mushrooms
- Legumes
- Sweet Potato
- Broccoli
- Whole Eggs



## How it is destroyed in preparation?

Cooking, freezing and commercial processing can significantly deplete Pantothenic acid. Frozen foods, and canned foods and fruit juices all show depletion ranges from 7-70%.

## What are some signs of vitamin B5 deficiency?



- Fatigue
- Sensations of weakness
- Numbness, tingling or burning sensations in the feet.
- Acne
- Muscle tremors or spasms
- Teeth grinding
- Anxiety or tension
- Irritability
- Depression

# Vitamin B6 (Pyridoxal 5 Phosphate)

RDI: 2 mg

## Why you need it?

Vitamin B6 is part of more than 100 enzyme reactions. Many of the activities of vitamin B6 are related to the metabolism of amino acids and other proteins, including hemoglobin, serotonin, hormones, and prostaglandins. This water-soluble vitamin is also essential for brain function and helps to balance sex hormones. Moreover, it is a natural diuretic and antidepressant and may decrease the risk of colon cancer. It promotes the breakdown of sugar and starches. It is key for heart health because vitamin B6 works alongside vitamin B9 (folate) and vitamin B12 to keep blood levels of homocysteine, an amino acid, within a normal range. It supports your nervous system. The production of neurotransmitters that foster communication between nerve cells is made possible by a compound that contains vitamin B6. It reduces inflammation that can cause type 2 diabetes, cardiovascular disease, and obesity. Those individuals with inflammation actually need more vitamin B6.

## What you should know?

The bioactive form of Vitamin B6 is Pyridoxal 5 Phosphate. However, many inferior multivitamin products utilize Pyridoxine HCL, which is not the active form of this B vitamin.

## Where you get it?

- Wheat Germ
- Liver
- Peanuts
- Legumes
- Pork
- Bananas
- Yellowfin Tuna
- Salmon
- Poultry
- Potatoes with skin on



## How it is destroyed in preparation?

Large amounts of vitamin B are lost during most forms of cooking and processing. Approximately 38% of B6 is lost from canning of fruits, 15% from freezing of fruits, 70% from the canning of vegetables, and up to 75% in the conversion of fresh meat into meat by-products. In general, the more acidic a food, the more B6 is lost during cooking.

## What are some signs of vitamin B6 deficiency?



- Depression & Anxiety
- Sleep disturbances
- Nerve inflammation
- PMS
- Nausea & vomiting
- Convulsions or seizures
- Skin disorders including eczema
- Lethargy
- Anemia
- Altered mobility
- Elevated homocysteine
- Infrequent dream recall
- Water retention

# Vitamin B7 (Biotin)

RDI: 300 mcg

## Why you need it?

Biotin is essential for the activity of many enzyme systems. It aids in the metabolism of fat and sugar and converts sugar to its usable chemical energy. Biotin is also required for an enzyme called CoA carboxylase to put together the building blocks for the production of fat in the body. Fat, a part of every cell membrane, aids in separating the inner workings of cells from their environment. This is especially important for cells that must be rapidly replaced, such as skin cells.

## What you should know?

Avidin, a protein found in egg whites, can bind with biotin and prevent its absorption. However, thoroughly cooking the egg whites denatures avidin, allowing body to absorb biotin.

## Where you get it?

- Liver
- Milk
- Egg Yolk
- Yeast
- Pork
- Salmon
- Avocado
- Cheddar Cheese
- Peanuts
- Swiss Chard
- Cauliflower
- Almonds



## How it is destroyed in preparation?

Great news! Biotin is fairly stable when exposed to heat, light and oxygen.

## What are some signs of vitamin B7 deficiency?



- Hair loss
- Loss of hair color
- Depression
- Scaly dermatitis
- Lesions on the nose and mouth
- Anorexia
- Numbness and tingling of the extremities
- Nausea
- Muscle pain
- Cardiac irregularities.
- Seizures
- Poor muscle tone
- Anxiety & stress

# Vitamin B9 (Folate)

RDI: 400 mcg

## Why you need it?

Folate is often publicized for its importance in pregnancy to prevent neural tube defects (spina bifida). It has been shown that mothers with folate deficiency give birth to a greater number of infants with neural tube defects. Additionally, it also works with vitamins B6 and B12 to lower homocysteine levels. Deficiency in folate can lead to megaloblastic anemia, but it is important to note that megaloblastic anemia caused by a folate deficiency is identical to the anemia caused by a vitamin B12 deficiency, making a B12 deficiency hard to identify. B9, a water-soluble vitamin, also reduces dementia and Alzheimer's, prevents bone fractures and aids in healthy circulation. One of folate's most important duties is cell reproduction. B9 is necessary for making the nucleic acids DNA and RNA, which act as instruction manuals for your cells.

## What you should know?

Research published in the American Journal of Epidemiology shows that more than 34% of the U.S. population may have a genetic enzyme defect known as MTHFR mutation that makes it difficult for them to convert folic acid into biologically active L-5-MTHF, and new estimates suggest that up to 60% of the population may be affected. For these individuals and many others, L-5-MTHF may be a more effective method of folate supplementation. Nutreince is one of the only multivitamins to contain the full RDI of 400 mcg of L-5-MTHF.

## Where you get it?

- Romaine Lettuce
- Spinach
- Asparagus
- Liver
- Beans (Garbanzo)
- Lentils
- Broccoli
- Whole Grain - Wheat Germ
- Eggs



## How it is destroyed in preparation?

Plants (like spinach) can lose up to 40% of their folate content from cooking, while folic acid in meat is far more stable when cooked. Despite the fact that processing of grains causes up to 70% of folic acid to be depleted, folic acid is not one of the micronutrients that is enriched in these products.

## What are some signs of vitamin B9 deficiency?



- Irritability
- Mental fatigue and forgetfulness
- Depression & Anxiety
- Fatigue
- Hair loss
- Gingivitis
- Cleft palate
- Periodontal disease
- Vitiligo (loss of skin pigmentation)
- Dry skin

# Vitamin B12 (Cobalamin)

RDI: 6 mcg

## Why you need it?

Vitamin B12 works with folate (B6) and vitamin B6 to regulate elevated homo- cysteine levels, a risk factor for cardiovascular disease. This water-soluble vitamin is also an essential growth factor and plays a role in the metabolism of cells. B12 helps to maintain the nervous system in that it is required for the synthesis of myelin, the insulation around nerves. Moreover, deficient levels of B12 are also thought to play a role in Alzheimer's disease and depression. Vitamin B12 is naturally available only in animal products. Gastric acid in the stomach is needed to properly separate B12 from our food and create free form B12, which can then be absorbed (supplemental B12 is already in its free form so it does not require gastric acid). However, proper B12 absorption is dependent on it binding with a protein made in the stomach called intrinsic factor, which helps B12 make its way from the gastrointestinal tract—the stomach and intestines—into the rest of the body. Without intrinsic factor, vitamin B12 cannot gain access to the rest of the body where it is needed. People who do not eat animal foods and who don't consume the suggested amount of vitamin B12 from dietary supplements are prone to vitamin B12 deficiency. Additionally, as you age, the risk of inadequate vitamin B12 absorption rises. A deficiency can cause pernicious anemia, a condition in which red blood cells fail to develop properly. B12 is also unique among water-soluble vitamins in that a relatively large amount can be stored in the liver.

## What you should know?

The standard source of B12, cyanocobalamin, is not a natural source. In fact, it's not found anywhere in nature and must be converted by the liver into methylcobalamin in order to be utilized in humans (and all other animals). Cyanocobalamin is typically found in inexpensive products offered in grocery stores. Methylcobalamin is the form of vitamin B12 active in the central nervous system. It is essential for cell growth and replication.

## Where you get it?

- Clams
- Mussels
- Crab
- Salmon
- Snapper
- Liver
- Oysters
- Venison
- Shrimp
- Scallops
- Beef
- Cheese



## How it is destroyed in preparation?

B12 in animal foods is well preserved during cooking. Approximately 70% of this vitamin remains after heating animal foods for a period of about 30 minutes.

## What are some signs of vitamin B12 deficiency?



- Dandruff
- Nervousness/Anxiety
- Decreased blood clotting
- Numbness or tingling in feet
- Decreased reflexes
- Paleness
- Depression
- Red or sore tongue
- Difficulty swallowing
- Fatigue/Weakness
- Heart palpitations
- Memory problems
- Weak pulse
- Menstrual problems

# Vitamin C

RDI: 60 mg.

## Why you need it?

Vitamin C is so critical to living creatures that almost all mammals can make it with in their own bodies. However, humans—along with gorillas, chimpanzees, bats, birds, and guinea pigs—are among the few species that cannot make vitamin C. Optimal doses of vitamin C have been associated with the improvement of many health conditions, including cardiovascular diseases, cancers, joint diseases, cataracts, and the common cold. It is also the cure for scurvy, for which it was first discovered. This water-soluble vitamin plays a roll in collagen and elastin synthesis, both necessary elements in bone matrix, skin, tooth dentin, blood vessels, and tendons. This powerful antioxidant helps to protect against oxygen-based damage to our cells (free-radicals). It is required for fat synthesis and because of its antiviral and detoxifying properties, it can even help to heal wounds.

## What you should know?

Science has shown us that more is not always better when it comes to the amount of vitamin C one should be taking if they are currently taking a statin drug. The anti-inflammatory effect of cholesterol lowering statin drugs can be inhibited by taking megadoses of vitamin C (more than 200 mg). A multivitamin should not contain more than 200 mg of vitamin C to be within the safe range for statin takers. While vitamin C has not been proven to cause kidney stones, in some individuals its metabolic pathway produces high amounts of oxalic acid, which could lead to calcium oxalate stones. Therefore, people with a history of gout, kidney stones, or kidney disease should not take more than 500 mg of vitamin C daily without medical supervision.

## Where you get it?

- Yellow Bell Peppers
- Strawberries
- Oranges (and Juice)
- Grapefruit (and Juice)
- Limes
- Broccoli
- Liver (Beef, Calf, Pork, Chicken)
- Oysters
- Kale
- Snow Peas
- Cauliflower
- Watermelon
- Cabbage
- White Potato



## How it is destroyed in preparation?

Vitamin C is highly sensitive to light, air and heat, so you'll get the most vitamin C if you eat fruits and vegetables raw or lightly cooked. Approximately, 25% of vitamin C is lost during the blanching (prior to freezing), boiling, or thawing processes. Cooking for about 20 minutes can cause over half of this vitamin to be destroyed. Reheated canned vegetables only contain a third of the original vitamin C content.

## What are some signs of vitamin C deficiency?



- Inability to heal wounds
- Frequent infections, colds or flu
- Lung-related problems
- Easy bruising
- Tender swollen joints
- Lack of energy
- Bleeding gums/ Tooth decay
- Nosebleeds
- Anxiety and stress

# Vitamin D

RDI: 400 IU

## Why you need it?

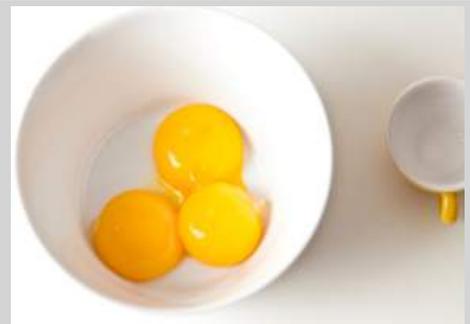
Vitamin D is unique in that it is the only vitamin that can be made when our skin comes into contact with strong ultraviolet B rays from the sun. Because of this, vitamin D is also known as the “sunshine vitamin.” In fact, this fat-soluble vitamin is actually a hormone triggered by sunlight called calcitrol, 1,25-dihydroxy vitamin D3. This vitamin was first discovered as a cure to help prevent the bone development disease, rickets, in children. Vitamin D helps regulate our metabolism, bone and teeth development, muscle function, immune function, insulin activity, calcium balance, and phosphorous balance. It is imperative for maintaining cognitive function and cancer prevention and aids in the reduction of inflammation. It is imperative for healthy heart function. Due to a major micronutrient synergy, without enough vitamin D circulating in your bloodstream, it’s impossible to absorb all the calcium you need.

## What you should know?

There are two forms of vitamin D available in supplemental form: vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). D3 is the form that is produced in our skin when we are exposed to sunlight. It is more biologically active and superior for supplementation. In fact, supplementation with D2 has shown a reduction in serum vitamin D levels rather than an increase.

## Where you get it?

- Egg Yolks
- Liver (Fish, Beef)
- Salmon, Herring, Sardines (wild caught fish are higher in D)
- Shiitake Mushrooms
- Oysters



## How it is destroyed in preparation?

Vitamin D is fairly stable, approximately 1/4 of the D content will be lost when cooked a temperatures above 400°F or 200°C.

## What are some signs of vitamin D deficiency?



- Muscle weakness, pain or twitching
- Frequent fall in elderly or stunted growth in children
- Asthma
- Lowered immunity
- Depression
- Autoimmune disorders
- Hearing loss due to loss of bone in the middle ear
- Pale skin
- Obesity
- Arthritis
- Tooth decay
- Anxiety
- Thyroid disfunction

# Vitamin E (Tocopherol/Tocotrienol)

RDI: 30 IU

## Why you need it?

Vitamin E is a powerful antioxidant shown to help repair muscle tissue. Recent research on muscle cells indicates that one of vitamin E's main functions is its antioxidant repair mechanism, which aids in repair of cell membranes that have been compromised. This new finding may have implications for enhanced athletic performance as well as with genetic muscle-wasting diseases such as muscular dystrophies or amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease. As a powerful antioxidant, this fat-soluble vitamin prevents cell damage from free radicals. This is important for heart health as it decreases platelet adhesion and prevents LDL cholesterol from being oxidized. It promotes healthy skin by protecting the skin from ultraviolet radiation (UV light). Vitamin E can also prevent the oxidation of the fatty portion of the cell membranes in the lens of your eye, which protects against AMD and cataracts.

## What you should know?

Vitamin E is split into two families the tocopherols and the tocotrienols, each containing four unique derivatives (alpha, beta, gamma, and delta). Smart supplements (like out patented multivitamin, nutreince) contain the full spectrum of each. Additionally, you should search for a natural source of mixed tocopherols (vitamin E) not a synthetic source of alpha-tocopherol (just one of four tocopherols). According to research published in the American Journal of Clinical Nutrition researchers found that levels of natural vitamin E (d-tocopherol) in the blood and in the organs were double that of synthetic vitamin E (dl-tocopherol) when compared, showing natural vitamin E is better retained and more biologically active than synthetic. Finally, for those taking a statin it has been recommended to keep daily vitamin E intake to 100 IU or less as both vitamin E and vitamin C have been shown to inhibit the anti-inflammatory effects of statins.

## Where you get it?

- Almonds/Hazelnuts/Peanuts/Sunflower Seeds
- Sunflower, Safflower and Olive Oils
- Mustard Greens/Chard/Kale
- Chili peppers
- Wheat germ
- Avocado
- Papaya
- Spinach
- Sweet Potato



## How it is destroyed in preparation?

Vitamin E is greatly depleted by factory processing. In the wheat flour that is used to make 90% of all bread and pasta sold in the US, nearly 90% of the vitamin E (alpha tocopherol) and 43% of the beta tocopherols have been removed. This is because the majority of the vitamin E in wheat is found in the germ, which is removed during commercial processing. To protect vitamin E in oils make sure they are kept in airtight containers. High temperature cooking is also quite destructive.

## What are some signs of vitamin E deficiency?



- Liver and gallbladder problems
- Easy bruising
- Thyroid dysfunction/Hypothyroid
- PMS/Hot flashes
- Eczema/Psoriasis
- Poor wound healing
- Tingling in extremities
- Sterility
- Anxiety
- Dry Skin

# Calcium

**RDI: 1000 mg**

## Why you need it?

Calcium is the most abundant mineral in the human body, making up 1.5% of total body weight. About 99% of calcium is found in the bones and teeth, with the remaining 1% found in cells and body fluids. A calcium deficiency is one of the causative factors of osteoporosis; a disease characterized by brittle and porous bone that affects more than 20 million Americans. Additionally, studies have shown that a sufficiency in calcium may reduce the risk of colon cancer and prevent or treat moderate hypertension. It is also required for muscle contraction, blood clotting, and nerve transmission.

## What you should know?

Choose a supplement that delivers the maximum amount of calcium that can be absorbed by the body at one time (500- 600mg). This is the only micronutrient that should be less than 100% RDI. While pills and capsules should utilize calcium citrate as it is more absorbable, liquids and powders have an extra advantage. Combining calcium carbonate with non-GMO citric acid stimulates the conversion of the calcium carbonate to calcium citrate in water. Thus supplying the best absorption in a liquid form. Additionally, while media has reported that calcium should not be supplemented because it causes calcification of the arteries, the truth is that it is essential to the human body. This calcification can be completely eliminated by making sure that supplements also contain vitamin K2 so that it can direct the calcium into the bones where it belongs.

## Where you get it?

- Milk/Dairy Products
- Sardines
- Sesame Seeds
- Broccoli
- Legumes
- Canned (bone-in) Salmon
- Bone Broth (minimal)
- Green Leafy Vegetables



## How it is destroyed in preparation?

Great News! Cooking and storing do not have an adverse effect on Calcium.

## What are some signs of calcium deficiency?



- Osteoporosis or rickets
- Bone pain or fractures
- Muscle pain
- Numbness or tingling in extremities
- Growth retardation in children
- Insomnia
- High blood pressure
- Tooth decay
- Sugar Cravings
- PMS
- Anxiety and stress

# Chromium

AI: 120 mcg

## Why you need it?

Chromium plays important role in the regulation of blood sugar levels, the enhancement of insulin effectiveness and the activation of various enzymes for energy production. It also seems to help lower elevated serum cholesterol and triglycerides.

## What you should know?

Research has suggested that chromium picolinate may be linked to causing DNA damage. While the jury is still out, the safest, most absorbable form of chromium is chromium polynicotinate - a pure niacin-bound form of chromium, identified by U.S. government researchers as the active component of true GTF (Glucose Tolerance Factor) - which regulates the bodies use of glucose and helps balance blood sugar levels. This is an extremely important micronutrient for those with diabetes. According to Dr. Walter Mertz, M.D. former director of the USDA Human Nutrition Research Center, "Type II Diabetes is not a disease. It is the lack of a natural ingredient known as GTF Chromium."

## Where you get it?

- Broccoli
- Onions
- Tomatoes
- Whole Grains - Wheat Germ
- Romaine Lettuce
- Lean Meats
- Cheese
- Legumes
- Nuts



## How it is destroyed in preparation?

Chromium is found in the germ and bran of whole wheat and is usually removed when processed. Chromium also naturally found in sugar cane, but it is removed during the process of making sugar.

## What are some signs of chromium deficiency?



- Impaired glucose tolerance.
- Diabetes
- Cardiovascular disease
- High Cholesterol
- High blood pressure
- Cold hands
- Decreased Fertility
- Need for frequent meals
- Cold sweats
- Metabolic Syndrome
- Depression & Anxiety
- Obesity

# Iodine

RDI: 150 mcg

## Why you need it?

Iodine's main function is the synthesis of thyroid hormones, (T4) thyroxine and (T3) triiodothyronine, and is essential for normal thyroid function. Cells in the thyroid, a small gland located in the front of the neck just under the voice box, are the only cells capable of absorbing iodine. Thyroid cells capture iodine and combine it with an amino acid, tyrosine, to produce thyroid hormones that are then released into the bloodstream. A deficiency of dietary iodine causes the thyroid to become unable to make thyroid hormones, which control a variety of biological and physiological activities including body temperature, physical growth, reproduction, neuromuscular function, the synthesis of proteins, and the growth of skin and hair. In some cases of iodine deficiency, the thyroid will enlarge (this is known as a goiter). If the thyroid gland is absent or damaged, and individuals basal metabolic rate (BMR) can decline to as low as 55% of its normal rate, resulting in impaired growth and development; conversely, if the thyroid gland is hyperactive, and individuals BMR can go up to as high as 160%, causing tachycardia, nervousness, and excitability.

## What you should know?

Iodine can have a normalizing effect on the thyroid gland, meaning thin people with thyroid trouble, due to iodine deficiency, can gain weight and obese people can lose weight simply by becoming sufficient in iodine. Many people with low salt diets can fall short in this mineral, as iodized table salt is the primary source of iodine in the U.S. diet. Kelp, or supplements containing kelp are an excellent natural source of iodine.

## Where you get it?

- Seaweed
- Iodized salt
- Cod
- Seafood
- Milk
- Yogurt
- Eggs
- Potato (with Peel)
- Turkey
- Navy Beans
- Strawberries



## How it is destroyed in preparation?

Iodine does not lose potency in preparation or cooking. Instead, it is added into many processed foods in the form of iodized table salt

## What are some signs of iodine deficiency?



- Goiter
- Depression
- Hypothyroid/Hashimotos
- Weakness/Fatigue
- Weight gain

# Iron

RDI: 18 mg

## Why you need it?

Iron is an essential micronutrient that is found in every cell in the human body. The primary functions of iron include oxygen transport within blood and muscle, and the conversion of blood sugar into energy. About 70% of the iron in the body is stored in the blood in the form of hemoglobin. Dietary iron is found in two forms: heme iron and non-heme iron; however, heme iron is primarily found in animal sources and has an absorption rate of ~30% compared to the ~3% rate absorbed from non-heme iron. Vitamin C can enhance the absorption of iron, particularly of non-heme iron. A deficiency in iron leads to the inability of the red blood cells to carry oxygen needed by the cells; when this happens, anemia may result. This mineral is needed for optimal immunity and aids in fatty acid metabolism as well as liver detoxification.

## What you should know?

Iron is a vital mineral your body needs to function normally. However, the National Institutes of Health's Office of Dietary Supplements, has indicated that too much iron can cause serious health complications. Because of this, you may want to take an iron-free multivitamin to avoid iron overload, a medical condition that causes excess iron to be stored in vital organs such as the liver and heart. Too much iron may be toxic—and even fatal. In general, iron supplementation is not recommended for adult males and postmenopausal women. If you are a child, teen, pre-menopausal woman, an athlete that works out for more than 6 hours a week, or a strict vegan/vegetarian you may want to consider iron supplementation. Additionally, iron is an extremely competitive nutrient, having competitions with 10 other vitamins and minerals. Because of this iron should always be taken away from one's multivitamin.

## Where you get it?

- Liver
- Oysters, Mussels
- Beef/Fish/Poultry
- Kidney Beans/Lentils
- Dried Fruits (Prunes/Raisins)
- Potato, with Skin
- Cashew Nuts
- Black-Strap Molasses
- Tofu



## How it is destroyed in preparation?

Refining and processing of grain removes about 75% of the iron. However, some is added back in through fortification, but this type is less absorbable. While many people believe that spinach is a good form of iron, the oxalic acid in raw spinach depletes the availability by as much as 97%.

## What are some signs of Iron deficiency?



- Weakness/Fatigue
- Headaches
- Brittle nails
- Anxiety & Depression
- Poor immune system
- Inability to concentrate
- Pale skin
- Thyroid dysfunction

# Magnesium

RDI: 400 mg

## Why you need it?

Magnesium is involved in over 300 essential metabolic reactions in the body and is necessary for the transmission of muscular activity, nerve impulses, temperature regulation, blood pressure regulation, detoxification reactions, and for the formation of healthy bones and teeth. It is also involved in the synthesis of DNA and RNA and in energy production. Deficiency in magnesium can compromise cellular activity, especially in the tissues of the heart, kidneys and nerves. In our bodies, the majority of magnesium is found mostly in our bones (~60-65%) and muscles (25%), but as with all minerals, it cannot be made in our body and thus needs to be plentiful in the diet in order for us to remain healthy. Moreover, a magnesium deficiency can cause a sugar craving.

## What you should know?

Most multivitamins supply small amounts of magnesium because of its bulky size. Locate supplements that supply 400 mg of magnesium, a micronutrient responsible for over 300 essential metabolic reactions in the body as well as controlling sugar cravings. Similarly to calcium carbonate, in water, the magnesium carbonate is converted to magnesium citrate, one of the most bioavailable forms, through ionic conversion utilizing non-GMO citric acid.

## Where you get it?

- 100% Bran Cereal
- Oat Bran
- Brown Rice
- Nuts/Seeds
- Legumes
- Dark Leafy Vegetables
- Broccoli
- Potato Skin
- Banana
- Milk/Cheese
- Fish/Shellfish



## How it is destroyed in preparation?

Blanching, steaming and boiling can cause a major completion of magnesium. For example, spinach loses 1/3 of the magnesium when blanched, and beans can lose up to 65%. Processing of grain causes major magnesium depletion. Approximately 85% is lost when white flour is produced.

## What are some signs of magnesium deficiency?



- Weakness
- Muscle cramps
- Loss of appetite
- GI disorders
- Fear & irritability
- High blood pressure
- Anxiety & Depression
- Insomnia
- Increased heart rate
- Imbalanced blood sugar levels

# Potassium

AI: 4700 mg

## Why you need it?

Along with sodium and chloride, potassium is one of the body's three major electrolytes, which means they have the ability to conduct electricity when dissolved in water and are the main particles responsible for osmotic pressure and body fluids. Potassium is the primary electrolyte functioning inside our cells, while sodium and chloride predominately function outside the cell. Potassium is important in regulating the frequency and degree to which our muscles contract and the degree to which our nerves become excitable. This essential mineral helps regulate pH levels in body fluids, blood pressure as well as muscle, and nerve activity, including the beating of the heart.

## What you should know?

Potassium is readily absorbed through the intestinal tract, and excess is efficiently excreted in the urine via the kidneys. However, kidney failure, the use of potassium-sparing diuretics, or a large oral dose of potassium (more than 18g) may lead to dangerously elevated potassium concentrations (hyperkalemia). Symptoms are tingling of hands and feet, muscular weakness, and temporary paralysis. This can lead to an abnormal heart rhythm and eventual cardiac arrest.

## Where you get it?

- Potato with Skin
- Prunes
- Raisins
- Banana
- Acorn Squash
- Lima Beans
- Green Leafy Vegetables
- Crimini Mushrooms
- Coconut Water
- Meat
- Pumpkin
- Cauliflower
- Dairy Products



## How it is destroyed in preparation?

Losses from cooking are extensive (~50%). It is easily leached out by water.

## What are some signs of potassium deficiency?



- Fatigue
- Heart problems
- Muscle weakness
- Irritability
- Cellulite
- Thyroid dysfunction/ Hypothyroid
- High blood pressure

# Selenium

RDI: 70 mcg

## Why you need it?

Humans and animals require selenium for the synthesis of selenium-dependent enzymes called selenoproteins. Selenium plays important roles in detoxification and antioxidant defense mechanisms in the body and seems to have a strong protective synergy with vitamin C and E. A deficiency in selenium may put one at risk for impaired immune function, viral infection, certain types of cancer and cardiovascular diseases. Adequacy of selenium can help to protect against the free radicals that are generated by everyday living, and in response to cigarette smoke, pollution, heavy metals, and other environmental factors including today's modern toxins found in foods as well as in home and beauty products. Like iodine, selenium is essential for proper functioning of the thyroid gland. It helps to regulate how much T3 (a version of the thyroid hormone) is produced.

## What you should know?

Selenomethionine is a superior bioavailable form.

## Where you get it?

- Brazil Nuts
- Seafood (tuna, halibut, lobster, salmon)
- Liver
- Dairy (Human Breast Milk contains 6x more Selenium than Cow's Milk)
- Eggs
- Muscle Meats
- Whole Grains
- Garlic
- Cabbage
- Celery



## How it is destroyed in preparation?

Selenium in beans and vegetables is easily destroyed by boiling (~50%). In addition, 75% of the Selenium is depleted when wheat is turned into white flour. Processing of rice is equally as devastating (brown rice has 15x more Selenium than white rice). Selenium in meat sources is quite stable when cooked.

## What are some signs of selenium deficiency?



- White nail beds
- Discoloration of skin and hair
- Weakness in the muscles
- Anxiety and depression
- Thyroid dysfunction
- Signs of premature aging
- Cataracts
- High blood pressure
- Infertility

# Zinc

RDI: 15 mg

## Why you need it?

Zinc is an essential micronutrient that is required for the functioning of over 300 different enzymes and plays a vital role in an enormous number of biological processes. Additionally, zinc is necessary for the regulation of genetic activity and protein and cell membrane structure. In humans, the highest concentrations of zinc are found in the liver, pancreas, bone, kidneys and muscles, but it is also highly concentrated in parts of the eye, prostate gland, sperm, skin, hair and nails. This essential mineral helps to regulate a wide variety of immune system activities. Zinc supports smell and taste because Gustin, a small protein that is directly related to taste, must be attached to zinc for taste to work. Taste and smell are so entwined that this then affects smell. Additionally, zinc is necessary for dark adaptation and night vision, wound healing, thyroid function, metabolic rate, sexual function, and blood sugar balance.

## What you should know?

Zinc is relatively non-toxic and although the toxicity has been reported in humans, it is uncommon. Zinc deficiency can be due to diets high in foods containing large amounts of phytic acid, which has an absorption blocking effect on the zinc.

## Where you get it?

- Oysters, mussels, crab
- Liver
- Dairy
- Dungeness Crab
- Beef
- Dark Meat Chicken
- Eggs
- Pork
- Whole Grain
- Lamb
- Nuts
- Green Peas



## How it is destroyed in preparation?

Food processing removes 75% of zinc content from grains. Like most minerals, zinc incurs great losses in the presence of water. Boiling and blanching should be avoided.

## What are some signs of zinc deficiency?



- Growth failure (dwarfism, hypogonadism and failure to mature sexually).
- Anxiety & Depression
- Impaired sense of taste and/or smell
- Poor immune system
- Poor appetite
- Night blindness
- Stretch marks
- Acne
- Hypothyroid/Thyroid dysfunction

# Omega-3

RDI 1.6 g

Omega-3 fatty acids (ALA, EPA, DHA) are one of the two classes of micronutrients called essential fatty acids (EFAs). As their name implies, EFAs are essential to mammals because we cannot synthesize them. A major source of their benefits can be found in their anti-inflammatory properties. Omega-3 is a structural component of cell membranes. DHA may have an especially important role in vision and nervous system function in that it is selectively incorporated into postsynaptic neuronal cell membranes, as well as retinal cell membranes. Studies indicate that DHA is required for the normal development and function of the retina, where DHA is found in high concentrations. DHA is found in high proportions in the phospholipids of the gray matter of the brain. A deficiency of DHA may be related to learning defects. Research shows that both omega-3 and omega-6 fatty acids may actually have the ability to modulate the expression of our genes, including genes involved in inflammation and fatty acid metabolism. Omega-3s are also heart protective, as they serve as the raw materials for making compounds that are critical to proper blood clotting, helping arteries to relax and contract properly.

## What you should know?

Omega-3s can be found in both plant and animal sources; however, plant sources only contain a kind of omega-3 known as alpha linolenic acid (ALA) and do not contain EPA or DHA. Conversely, animal/algae sources naturally contain both EPA and DHA, which do not require conversion and can be directly absorbed. This is important because ALA has not been shown to have the same cardiovascular benefits as EPA and DHA. While it is true that humans can convert ALA into EPA and then DHA in the body, this elongation process only takes place at efficiency rate of ~5-10% and ~2-5%, respectively.

## Where you get it?

- Herring/Sardines (all fish should be wild caught)
- Salmon (Chinook, Atlantic, then Sockeye)
- Oysters/Dungeness Crab
- Rainbow Trout
- Canned, White Tuna (and Light)
- Flaxseeds/Flaxseed (linseed) Oil
- Chia Seeds
- Walnuts (English)/Walnut Oil
- Grass-Fed Beef
- Pastured Eggs
- Mammal Brains and Eyes (Lamb, Pork, etc.)



## How it is destroyed in preparation?

All polyunsaturated oils, including omega-3 and omega-6 fatty acids are extremely susceptible to oxidation (becoming rancid) from heat, light and oxygen. Whole food sources such as flaxseeds as opposed to flaxseed oil are better protected. Omega-3 oil's should be stored in a dark or opaque glass container in a refrigerator or freezer and should never be heated on the stove for sautéing, as this will damage the oil. Instead, use these oils cold in yogurt or on salad.

## What are some signs of Omega-3 deficiency?



- Dry scaly rash
- Decreased growth in infants and children
- Decreased immune system
- Poor wound healing
- Health conditions marked by inflammation (-itis)
- Anxiety & Depression

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### **Omega-3 Fatty Acids**

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