

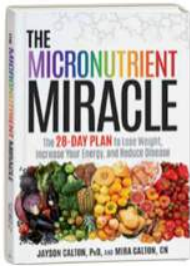
THE **MICRONUTRIENT MIRACLE** QUICK START GUIDE TO:

## Hashimoto's & Hypothyroid

An In-Depth Look at 10 Micronutrients  
Used in the Prevention and Treatment



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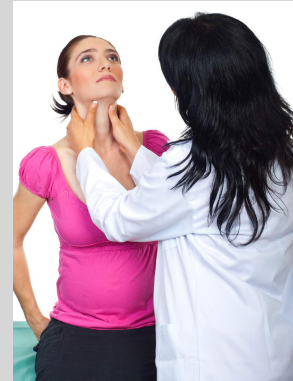
# THE MICRONUTRIENT MIRACLE

## GUIDE TO:

### Hashimoto's & Hypothyroid

#### An In-Depth Look at 10 Micronutrients Used in the Prevention and Treatment

**A, B1, B2, B3, B5, B6, B7, B9, B12, C, D, E, iodine, iron, manganese, potassium, selenium, zinc, Omega-3**



**Do you or someone you love have Hashimoto's Thyroiditis or Hypothyroid?** What you may not know is just how important being sufficient in your essential micronutrients (i.e. vitamins, minerals, EFAs, and amino acids) is to your overall health. In fact, medical and nutritional science has proven that a deficiency in one or more of the essential micronutrients is at the root cause of nearly every health condition and disease most people are suffering from today! In this Micronutrient Miracle Quick Start Guide To Hashimoto's and Hypothyroid, we'll focus in on the specific micronutrients that peer-reviewed research studies has shown to be essential for a healthy thyroid. We will also give you an in-depth evaluation on each of these individual micronutrients so that you can make informed decisions concerning your dietary and supplemental needs. Who knows - when you get your micronutrients properly balanced you might even have a Micronutrient Miracle of your own!

Did you know that according to our very good friend Dr. Isabella Wentz, the author of the NYT bestselling book **Hashimoto's The Root Cause**, 80% of all hypothyroid cases are actually Hashimoto's, nearly 90% of all individuals with Hashimoto's are women, and that Hashimoto's affects up to 10% of the U.S. population? Wow, that is more than 35 million people suffering from one of these two debilitating conditions. The fact is hypothyroidism and Hashimoto's are actually two very different health conditions that can end up with similar symptoms. Typical hypothyroidism (also known as underactive thyroid) is most commonly caused by a deficiency in your essential micronutrients, most notably iodine, selenium, and zinc, and can present itself in three distinct manners: primary, secondary and tertiary. Primary hypothyroidism is the result of problems directly in the thyroid gland, specifically your thyroid gland not producing enough T3 and T4 hormones. With secondary hypothyroidism the problem isn't with the thyroid gland itself, rather the pituitary

gland is not stimulating the thyroid to produce enough hormones. In other words the thyroid gland is not receiving messages via the pituitary produced *thyroid-stimulating hormone* (TSH). The same is true with tertiary hypothyroidism, but this time symptoms result from problems with the hypothalamus not producing enough *thyrophin-releasing hormone* (TRH), which impedes TSH release from the pituitary. Hashimoto's, however, is an autoimmune condition whereby your own immune system attacks and can destroy your thyroid cells, which can result in swings between both hyper- and hypothyroidism! As an autoimmune condition, Hashimoto's thyroiditis a genetic condition that seems to require three factors for development, genetic predisposition, exposure to an antigen (or trigger) and intestinal permeability.

Just because an individual has a genetic predisposition for Hashimoto's does not mean they will ever develop symptoms. Research shows that exercise, reducing stress and a healthy diet can all prevent hypothyroidism/Hashimoto's. Common foods such as grains, particularly all gluten and corn, soy, nightshades (tomatoes, potatoes, peppers and eggplant), nuts and seeds can all trigger a response.

While the current standard medical view is that Hashimoto's is irreversible, research has shown that this is not true. In fact, thyroid function spontaneously returned to normal in 20% of patients. Thyroid ultrasounds have shown that once the autoimmune attack ceases, the damaged thyroid has the ability to regenerate! If the essential micronutrients required for a healthy thyroid are sufficient you may be able to work with your doctor to slowly reduce and finally eliminate your thyroid medication all together. To see if you can be weaned off your thyroid medication – your doctor can do a TRH (Thyroid Releasing Hormone) test, which will cause an increase in T3 and T4 if your thyroid has recovered. This will indicate to your doctor that your thyroid may be healthy enough to reduce or eliminate your thyroid medication.

Hypothyroidism is typically characterized by cold intolerance, constipation, fatigue, hair loss and weight gain. Hashimoto's patients also exhibit acid reflux, anemia, food sensitivities, gum disorders, hypoglycemia, intestinal permeability and micronutrient deficiencies on top of the more “traditional” symptoms. Given what we know about the importance of reaching micronutrient sufficiency, this last one is particularly concerning for us!

## VITAMIN A

Vitamin A and its precursors, such as the popular beta carotene, act as antioxidants that can help combat free radical damage to our cells associated with autoimmune conditions, like Hashimoto's. When the thyroid processes iodine, the resultant hydrogen peroxidase release can cause damage. Studies have indicated that supplementation with Vitamin A may support proper thyroid function by helping regulate thyroid hormone metabolism.

## **YOUR B VITAMINS**

The B vitamins are commonly deficient in patients with Hashimoto's due to malabsorption issues. Vitamin B1 (thiamine) is needed for the proper release of stomach acid. Low stomach acid is common with Hashimoto's and is often the cause of indigestion/heartburn symptoms (not too much acid). Low stomach acid also affects vitamin B12 absorption (a vitamin only found in foods of animal origin). In order to release the B12 from food, the body requires the activity in the stomach of hydrochloric acid and the protease enzyme. This is why B12 supplementation is essential for both vegans and those with low stomach acid inasmuch as supplements provide B12 in a free form state. Sublingual B12 and B12 injections bypass the need for intrinsic factor, a binding protein required for B12 absorption that is also typically low in individuals with low stomach acid. One study found supplementation with thiamine to be beneficial in the treatment of fatigue associated with Hashimoto's.

## **VITAMIN D**

Vitamin D deficiency is associated with a myriad of diseases including cancer, heart disease, depression, osteoporosis and is essential for proper immune function. With an autoimmune condition, like Hashimoto's, this becomes even more critical. Research has linked vitamin D deficiency to higher prevalences of Hashimoto's and one study in fact found a genetic variant in the vitamin D receptor site in those with Hashimoto's. 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 works synergistically with selenium, one of the most important micronutrients for proper thyroid function. It acts as an antioxidant that can help combat free radical damage to our cells. Moreover, it improves the associated inflammation.

## **IODINE**

Iodine is a bit of a double-edged sword when it comes to hypothyroidism. Typical hypothyroidism is often characterized by an iodine deficiency, whereas excess iodine is deleterious for Hashimoto's! When there is an excess, iodine results in an increase in thyroid peroxidase, which can cause oxidative damage. Fortunately, supplemental selenium, possibly the most important micronutrient in hypothyroidism, can mitigate the effects of excess iodine by acting as an antioxidant. That being said, in cases of actual iodine deficiency, supplemental iodine has shown to be very beneficial for improving hypothyroidism. As such, it is crucial to insure sufficiency in both iodine and selenium.

## **IRON**

As previously discussed, hypothyroidism can lead to decreased stomach acid production which can result in malabsorption of iron. Low iron levels lead to anemia, which includes symptoms similar to hypothyroidism, such as brain fog, depression, fatigue, hair loss and weakness. Moreover, iron deficiency will reduce the conversion of the thyroid hormone T4 into T3.

## SELENIUM

Selenium is required for proper thyroid hormone synthesis, secretion and metabolism and its deficiency is inexorably linked to hypothyroidism and Hashimoto's thyroiditis. There are a number of mechanisms by which selenium acts, including reducing TSH levels, scavenging free radicals from producing oxidative damage to cells and inhibiting inflammatory chemicals. Studies have shown improvement to both thyroid structure and function from supplementing with selenium.

## ZINC

As with many other micronutrients, hypothyroidism can lead to decreased stomach acid production which can result in malabsorption of zinc. Zinc is needed to produce TSH and as the body produces excess, as presented in hypothyroidism, it creates a cycle leading to further zinc deficiency. Moreover, just like in iron deficiency, zinc deficiency reduces the conversion of the thyroid hormone T4 into T3. Unfortunately, if both zinc and iron levels are low, taking them concurrently will impede zinc absorption, inasmuch as zinc and iron are micronutrient competitors. Supplemental zinc has shown dramatic improvements in hypothyroid conditions.

## Medications And The Micronutrients They Deplete

<b>Levothyroxine</b> (Synthroid, Levoxyl, Levothroid, Unithroid)	Hypothyroid	Calcium
<b>Proton-pump inhibitors:</b> lansoprazole (Prevacid), omeprazole (Losec, Prilosec), rabeprazole (Aciphex), pantoprazole (Pantoloc, Protonix), Nexium	Gastroesophageal reflux disease (GERD); severe gastric ulceration	A, B1, B9, B12, C, calcium, iron, zinc
<b>H2 inhibitors/ H2 blockers:</b> Axid, Pepcid, Mylanta, Tagamet, Zantac	Over-the-counter self medicating for GERD	B1, B9, B12, D, calcium, copper, iron, magnesium, phosphorous, potassium, zinc

# 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.

## What are some signs of vitamin A deficiency



- 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
- Eggs
- Yeast
- Peanuts
- Legumes
- Crimini mushrooms
- Whole wheat



## 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 deficiencies.
- Lack of energy
- Insomnia
- Migraines
- Irritability
- Anxiety
- Depression
- 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 homocysteine 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 its 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 role 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 at 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 dysfunction



# 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 our 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

# 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

# Manganese

RDI: 2 mg

## Why you need it?

Manganese is a cofactor that aids in the activation of a wide variety of enzymes; these enzymes influence many biological activities, including the synthesis of collagen and the maintenance of connective tissue and cartilage, metabolism of amino acids, fats, carbohydrates, and cholesterol, regulation of blood clotting, bone development and antioxidant function. A deficiency in manganese has been shown to result in poor growth and impaired reproduction in animals and may be related in some way to osteoporosis, diabetes mellitus and seizure disorders in humans.

## What you should know?

The name manganese comes from the Greek word for magic, which still is appropriate today in that science is still working to understand the balance between manganese potential for toxicity (when inhaled or in large dosages) and the health consequences of its deficiency.

## Where you get it?

- Nuts/Seeds
- Dried Beans
- Cereal Grains
- Pineapple
- Green Tea
- Green Leafy Vegetables
- Cinnamon
- Berries



## How it is destroyed in preparation?

Manganese is significantly lost due to the processing of whole grains to produce white flour. Approximately 60% of the manganese in beans is lost when cooked, proving manganese to be susceptible to heat.

## What are some signs of manganese deficiency?



- Deficiency is rare because magnesium is capable of substituting for many of manganese's enzyme-related functions.
- Skeleton abnormalities
- Weak ligaments
- Hearing loss
- Skin rash
- Vomiting and nausea
- Low cholesterol
- Inferior reproductive system

# 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

## Why you need it?

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?

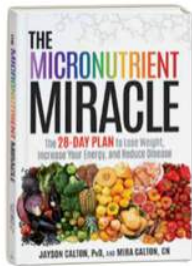
All polyunsaturated oils, including omega-3 and omega-6 fatty acids are extremely susceptible to oxidation (becoming rancid) from heat, light and oxygen. Whole food sources such as flaxseeds as opposed to flaxseed oil are better protected. Omega-3 oil's should be stored in a dark or opaque glass container 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





# THE MICRONUTRIENT MIRACLE

## GUIDE TO:

### Smart Supplementation Guidelines



How do you choose a well-formulated multivitamin?

The answer is simple as the ABCs.

During our years of research studying micronutrients, we identified 4 major formulation flaws in the typical multivitamin. These pitfalls stand as roadblocks on your journey to achieving the extraordinary health you deserve. Until the multivitamin industry eliminates these problematic pitfalls you are simply wasting your money on supplements that just don't work. Luckily, because of our need for a multivitamin that would help Mira reverse her advanced osteoporosis, we developed our own delicious, easy to drink, multivitamin beverage called nutreince, which uses cutting edge, patented technology to eliminate the 4 flaws of multivitamin formulation and finally unlock the health producing benefits of the micronutrient.

In the process of developing nutreince, we created an easy to remember acronym to help consumers identify superior supplements. We call it the ABCs of Optimal Supplementation Guidelines. The letters A, B, C and S all stand for 1 of the 4 formulation flaws that make other multivitamins deliver less than they should.

### NUTREINCE IS THE ONLY MULTIVITAMIN FORMULATED TO FOLLOW THE



- ✔ **Nutreince is convenient** for the 40% of men, women and children who have a hard time taking pills or tablets.
- ✔ **All the great tasting, naturally flavored** nutreince options are sweetened with all natural stevia leaf, while nutreince natural contains no flavor or sweetener for the purest at heart. Nutreince never contains insulin spiking sugars or artificial sweeteners.
- ✔ **Nutreince replaces micronutrient depleting beverage choices**, such as soda and energy drinks, with healthy micronutrient packed hydration.
- ✔ **Nutreince's single serving packets** lock out the light and air to protect the potency of your multivitamin.
- ✔ **Nutreince is free of binders, fillers, preservatives, and allergens** including starch, wheat, seeds, nuts, and fish. nutreince is also free of sugar, HFCS, gluten, caffeine, lactose, and fat.
- ✔ **Nutreince is great for everyone** – including low calorie, low carbohydrate and low fat dieters and is vegan/vegetarian and paleo/primal friendly.
- ✔ **Nutreince replaces handfuls of pills** and supplies 100% of the daily value (DV) of 20 essential vitamins and minerals adults and children need—more than any other major brand.

## NUTREINCE SUPPLIES BENEFICIAL QUANTITIES AND FORMS

Wouldn't you be angry if you thought you purchased a Porsche, but you received a Yugo? That kind of bait and switch is common in the multivitamin world. Most manufactures use cheap, inferior forms of vitamins and minerals. Or worse yet...they don't include them at all. That's right. Many times, those so called "complete" multivitamins are "completely lacking" at providing the beneficial quantities you need for each essential micronutrient. And don't be fooled by misleading manufactures supplying you with mega-doses of certain micronutrients either. In the world of multivitamin formulation, more is not always better. Here is a brief overview of the beneficial quantities and forms for some of the amazing micronutrients you will find in nutreince.

- ✔ **Vitamin A:** *Preformed Vitamin A and Beta-Carotene, Astaxanthin, and Zeaxanthin.* Some multivitamins only contain beta-carotene, an inactive form of vitamin A (provitamin A), which must be converted in the body to retinal (preformed), an active form (conversion rate of 21:1). Due to the poor conversion rate of beta-carotene, a supplement should be formulated to include at least 2,500 IU of preformed vitamin A (retinyl acetate or palmitate). nutreince contains 2500 IU preformed vitamin A and 2500 IU beta-carotene.
- ✔ **Lutein:** Most multivitamins do not contain lutein at all, but we have added 6 milligrams of lutein to nutreince because this is the amount that is recommended to prevent/reverse Age-Related Macular Degeneration (AMD). Lutein is also a potent antioxidant!
- ✔ **Vitamin B2 (Riboflavin):** nutreince is formulated with riboflavin 5 phosphate, the principal form in which vitamin B2 is found in cells and tissues - readily absorbed.
- ✔ **Vitamin B3 (Niacin & Niacinimide):** There are two forms of vitamin B3 - Niacin and Niacinimide. Most multivitamins only contain niacinamide. However, the two forms of vitamin B3 perform completely different functions in your body. Niacin has a "flushing" effect, and has been shown to lower LDL (bad cholesterol) and raise HDL (good cholesterol), where as niacinimide does not have these effects, and instead has been shown to be anti-inflammatory and beneficial in Alzheimer's disease, nutreince contains both forms.
- ✔ **Vitamin B5 (Pantothenic Acid):** 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.
- ✔ **Vitamin B6:** nutreince contains the active co-enzyme form of B6, pyridoxal-5-phosphate (P-5-P.) However, many inferior products use pyridoxine HCl, which is not the active form of this B vitamin.
- ✔ **Vitamin B9 (Folate):** Research published in the American Journal of Epidemiology shows that more than 34% of the US 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 contains 400 mcg of L-5-MTHF (quatrefolic).
- ✔ **Vitamin B12 (Methylcobalamin):** 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 products such as Centrum and One-A-Day. Methylcobalamin is the form of vitamin B12 active in the central nervous system. It is essential for cell growth and replication making it the best choice for nutreince!
- ✔ **Vitamins C & E:** nutreince contains statin safe quantities of vitamins C and E. Science has shown us that more is not always better when it comes to the amount of vitamin C and E 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 mega doses of either vitamin C (more than 200 mg) or vitamin E (more than 100 IU). nutreince contains only the RDI of both of these vitamins (60 mg, 30 IU respectively), well within the safe range for statin takers.

- ✔ **Vitamin D:** nutreince includes 2000 IU of vitamin D, (the amount emerging science is currently recommending for optimal health) and in the best D3 form. There are two forms of vitamin D available in supplements: vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). D3 is the form that is produced in our skin when we are exposed to sunlight, and is more biologically active and superior for supplementation. In fact, research published in *The American Journal of Clinical Nutrition*, found that vitamin D2 supplementation actually caused a reduction in overall serum concentrations of vitamin D (25(OH)D) over 28 days, with serum levels actually falling below baseline (starting) levels! The researchers concluded that that vitamin D2 should no longer be regarded as a nutrient appropriate for supplementation or fortification of foods.
- ✔ **Vitamin E:** Vitamin E is split into two families: the tocopherols and the tocotrienols, each containing four unique derivatives (alpha, beta, gamma, and delta). nutreince contains the full spectrum of each. Look on the label for “full spectrum d-tocopherols and d-tocotrienols.” University of California studied the two families and found that tocotrienols are 40–60% more effective as antioxidants. new research suggests that delta-tocotrienol can completely prevent the erosion of the bone surface, and was also effective in increasing bone formation and preventing bone reabsorption. Additionally, avoid the synthetic form of this vitamin that starts with a “dl-”. According to a study 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.
- ✔ **Vitamin K:** This micronutrient is often omitted from many multivitamin formulations, but is essential for bone strength/building and heart health. It is important for a supplement to include both K1 and K2 and it is even more superior and rare if it also includes both forms of vitamin K2 (MK-4 and MK-7), like nutreince does. Vitamin K1 plays a role in blood clotting, while K2 is a more important inducer of bone mineralization in human osteoblasts (bone-building cells). Vitamin K2 has been proven in studies to be as effective as prescription drugs in reducing the incidence of bone fractures. Additionally, because K2 directs calcium out of the arteries and into the bones where it is needed, K2 is essential for the prevention of coronary heart disease. While many people think vitamin K should be avoided when taking a blood thinner (like warfarin/coumadin), it is safe to take nutreince as long as you consult your physician prior to doing so. Based on your individual situation, your physician may wish to adjust the dosage of your blood thinner. It is also important to let your physician know if you stop taking nutreince as your doctor may have to readjust your blood thinner.
- ✔ **Calcium:** nutreince delivers the maximum amount of calcium that can be absorbed by the body at one time (600 mg). This is the only micronutrient that should be less than 100% RDI. While pills and capsules should use calcium citrate or malate as they are more absorbable, liquids and powders have an additional option. 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.
- ✔ **Chromium:** nutreince is formulated with Chromium polynicotinate (not picolinate) Research has suggested that chromium picolinate may be linked to causing DNA damage. While the jury is still out on whether or not this is true, we decided to use the safest, most absorbable form of chromium in nutreince - 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 body's use of glucose and helps to balance blood sugar levels. This is an extremely important micronutrient for those with diabetes.
- ✔ **Iodine:** nutreince contains kelp, a natural form of iodine that can have a normalizing effect on the thyroid gland. This means that thin people with thyroid trouble due to an iodine deficiency can gain weight by become sufficient in iodine, and obese people can lose weight. Many people with low salt diets can fall short in this mineral as ionized table salt is the primary source of iodine in the U.S. diet.
- ✔ **Magnesium:** 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. Similar to calcium, in water magnesium carbonate is converted to magnesium citrate, one of the most bioavailable forms, through ionic conversion using non-GMO citric acid.

- ✔ **Selenium:** nutreince contains selenomethionine, generally considered to be the best absorbed and utilized form of selenium.
- ✔ **Vanadium:** In studies this mineral has been shown to possibly improve glucose tolerance. Nutreince is formulated with Vanadyl Sulfate Hydrate a form that is best absorbed.
- ✔ **CoQ10:** This is a micronutrient you won't find on the label of most multivitamins - it is just too expensive to include! However, we need CoQ10 to combat free radicals, maintain a healthy blood pressure, support our nervous and immune systems and to energize every cell in our body. For those individuals who are taking statins it is essential to replenish their CoQ10 levels because statin drugs directly deplete CoQ10.
- ✔ **Carnitine and Choline:** Just when you thought nutreince can't get any better - here is the icing on the cake. Did you know that the combination of choline and carnitine has been called the "nutritional equivalent to liposuction"? nutreince includes all three forms of carnitine (L-Carnitine, N-Acetyl L-Carnitine & Propionyl L-Carnitine) because like the micronutrients we discussed earlier (vitamins B3 and E), each form is thought to have unique benefits. nutreince also contains 425 mg. of choline - an essential micronutrient rarely found in multivitamins.
- ✔ **Alpha Lipoic Acid, Quercetin and Grape seed extract:** We hear a lot about the importance of antioxidants, but do you know why alpha lipoic acid is often referred to as the "King" of all antioxidants? It is because it is nature's only known "universal" antioxidant. This means that it is both fat-soluble and water-soluble and because of this is able to work throughout the entire body. Additionally, while most antioxidants are "used up" after they attack free radicals, scientific evidence suggests that alpha lipoic acid has the unique ability to regenerate these other antioxidants - making it so they can attack free radicals over and over again. By combining alpha lipoic acid with quercetin and grape seed extract (two of the most powerful antioxidants on the planet) we exponentially enhanced the ability of nutreince to fight free radicals and enhance your health. Additionally, grape seed extract shares a synergistic relationship with vitamin C, boosting vitamin C absorption by 50 percent.

## YOUR MULTI SHOULD NOT CONTAIN

- ✔ **Copper:** Taking a multivitamin with copper is generally not recommended because too much can hinder your body's ability to destroy the proteins that form the plaques found in the brain of Alzheimer's patients. Many Alzheimer's patients have elevated levels of copper, and in studies, it was determined that many of those affected took multivitamins with copper. Additionally, pregnant women should avoid copper in multivitamins because copper levels can nearly double during pregnancy, making toxicity a concern. Cramps, abdominal pain, vomiting, nausea, and diarrhea are all common when taking supplements that include copper. **nutreince is copper-free**
- ✔ **Iron:** 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 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. However, you should know that iron competes with ten (10) other micronutrients – making multivitamins formulated with iron highly susceptible to poor absorption rates. If you choose to use an iron supplement, you should take it at a separate time from your daily multivitamin. **nutreince is iron-free**

## NUTREINCE'S PATENTED ANTI-COMPETITION™ TECHNOLOGY INCREASES THE MULTIVITAMINS EFFICACY BY UP TO 80% DUE TO THE ELIMINATION OF MICRONUTRIENT COMPETITIONS AND ENHANCED SYNERGIES



While the A and B in our ABCs of Optimal Supplementation Guidelines are important, pay close attention now, because the C and S are the real game changers in supplemental science. Vitamins and minerals are absorbed by the body by attaching to receptor sites, or absorption pathways, which act as docking locations for specific micronutrients. However, the process of absorption can be more like an epic battle scene than a harmonious event. This display of combative behavior between micronutrients is one of the topics most commonly ignored by multivitamin manufacturers. It is called micronutrient competition. Just as only one football team can win the Super Bowl, certain micronutrients compete with one another for absorption pathways (receptor sites) in your body. These competitive micronutrients will duke it out for domination of the receptor site, resulting in the absorption of one at the expense of the other.

Scientists have identified over 45 micronutrient competitions that have been shown to reduce the absorption, metabolism and/or utilization of individual micronutrients when combined in a typical multivitamin or nutritional supplement. **(Take a look at the massive web of competitions that this creates.)** This is one of the main reasons why medical science says that multivitamins don't work and nearly 80% of the vitamins and minerals they contain are literally flushed right down the toilet.

This is what makes Nutreince's formulation so far superior to other multivitamins. It is same reason that Mira's bones were able to rebuild. Eliminating these competitions allowed the vitamins and minerals to finally do their jobs. It is literally like unlocking the door to the individual benefits of every micronutrient. This technology is so advanced that we were granted a U.S. patent on what we call **Anti-Competition™ Technology**. It works by separating these competing vitamins and minerals into different formulas to be taken at separate times during the day in order to eliminate the competitions between them. Just as antibiotics work to eliminate the dangerous effects of certain bacteria, Anti-Competition™ Technology eliminates the negative effects of micronutrient competition. **Nutreince™, is the first and only multivitamin in the world to be formulated using Anti-Competition™ Technology to unlock the health enhancing power of the micronutrient.**

And equally as important are the synergistic relationships between micronutrients, which work best when they work together. While micronutrient competition can completely block the benefits of competing micronutrients, **micronutrient synergy can increase the absorption of certain micronutrients by as much as 200 percent!** To put it metaphorically, consider the dynamic duo of Sherlock Holmes and Dr. Watson. They needed to work as a team to solve difficult cases, harnessing Holmes's intellectual prowess and Dr. Watson's scientific background. The same is true in the case of making the right micronutrients match. Some micronutrients work best when working together.

Nutreince provides more than 85 of these health-enhancing micronutrient synergies to greatly increase the absorption and utilization of many essential micronutrients resulting in greater health benefits. **(Check out the dynamic duos of synergies here)** But make no mistake, these synergies can only take place if the competitions have first been eliminated



## BUT FIRST, **WHO ARE WE?** AND WHY ARE WE SO PASSIONATE ABOUT MICRONUTRIENTS?



*J*  
M. Calton

WE ARE DR. JAYSON CALTON AND CERTIFIED NUTRITIONIST MIRA CALTON AND WE BELIEVE THAT **HEALTH** IS OUR MOST PRECIOUS COMMODITY.

We created Nutreince out of a desperate need to reverse Mira's advanced osteoporosis and give her back her health. We knew that our research into properly formulated vitamins and minerals had really paid off, when after only 2 years the debilitating bone disease had been reversed. Now it is our mission to work as the world's leading experts on the topic of creating micronutrient sufficiency to help both adults and children to achieve sustainable weight loss and reverse health and disease conditions.

*Our research into micronutrient competition led us to realize that the health benefits of more than 80% of the vitamins and minerals in the typical multivitamin were potentially being negated.* We have always been inspired by innovative thinkers whose visionary ideas have improved the world. We believe that the technology behind Nutreince will propel the multivitamin into the 21st century—and will improve your health and that of millions of others.

You should really be **paying attention now** if you are currently suffering from any of the following common health complaints:

- ✓ Difficulty sleeping<sup>(2)</sup>
- ✓ Low energy<sup>(3)</sup>
- ✓ Slow metabolism and weight gain<sup>(4)</sup>
- ✓ Depression or mood swings<sup>(5)</sup>
- ✓ Hormone Imbalance<sup>(6)</sup>
- ✓ Declining memory or brain fog<sup>(7)</sup>
- ✓ Food cravings<sup>(8)</sup>
- ✓ Poor eyesight<sup>(9)</sup>
- ✓ High Cholesterol or Blood Pressure<sup>(10)</sup>
- ✓ Low Immune System<sup>(11)</sup>
- ✓ Osteoporosis or Osteopenia<sup>(12)</sup>



**CLICK HERE TO LEARN MORE ABOUT  
THE PATENTED REINVENTION OF THE  
MULTIVITAMIN : NUTREINCE**