

Thyroid Vitamins and Minerals

Your Thyroid Health and Essential Vitamins & Minerals

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Vitamin D

Vitamin D is a fat-soluble vitamin. It is made in the body when you get your skin exposed to the ultraviolet radiation in the sun. Vitamin D is very important for calcium balancing, immune function, and decreased inflammation. Your thyroid hormone production depends on it too! The darker your skin is – the longer you have to stay in the sun to get enough Vitamin D.

It is definitely problematic if you live in a cold state like Michigan, but so far I do not see many optimal Vitamin D levels without supplementation in Arizona either. The UV-blocking sunscreens prevent Vitamin D formation. Moreover, you have to be outside at certain times of the day. For example, during winter in Arizona, most days you have to be in the sun between 10 am and 2 pm for 20+ minutes to get any Vitamin D

benefit.

Vitamin D deficiency has been linked to pre-eclampsia during pregnancy, low birth weight, preterm delivery. and gestational diabetes.

A lower level of Vitamin D was associated with a higher TSH level and enlarged thyroid gland. It may mean that low vitamin D is one piece of a puzzle when it comes to the progression of an autoimmune disease process such as Hashimoto's. Making sure that Vitamin D is optimal at 50-80 per blood test results may help to decrease autoimmunity and to upregulate the anti-inflammatory genes.

Zinc

Zinc is a trace element that is required for the synthesis of thyroid hormones. Deficiency in zinc can result in hypothyroidism.

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Thyroid hormone supplementation alone may not help to decrease the symptoms of hypothyroidism (hair loss, fatigue, etc.) if zinc is deficient.

Thyroid hormones are important for the absorption of zinc, so if thyroid hormone is insufficient, zinc absorption may be impaired and will result in an acquired zinc deficiency.

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Signs of Zinc Deficiency:

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1. Skin (acne), nails (white spots), and hair (hair loss, brittle hair)
2. Impaired smell and taste.
3. Diarrhea.
4. Weak Immune system.
5. Cognitive function and hedonic tone.
6. Loss of appetite.
7. Psychological disorders (depression, anxiety).
8. Decreased testosterone production.

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Did supplementation with zinc help you to overcome your symptoms?

Vitamin C

Vitamin C (ascorbate) is used in the formation of cartilage, rebuilding of collagen, blood vessels, and in the function of adrenal glands. Vitamin C is used by the adrenals to produce stress hormones epinephrine, norepinephrine, and cortisol. Vitamin C also increases the absorption of iron from foods, which is very helpful for women who need a constant supply of iron to rebuild the blood lost during the menses.

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Signs of Vitamin C Deficiency:

- Bleeding gums (extreme - scurvy)
- Bone and muscle pain
- Dry skin
- Easy bruising
- Swollen joints
- Poor wound healing
- Spoon-Shaped Fingernails With Red Spots or Lines (micro bleeding)
- Bright red hair follicles

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Vitamin C combats oxidative stress and protects the thyroid gland from the oxidative damage. Vitamin C enhances the absorption of synthetic thyroid hormones such as levothyroxine. Vitamin C improves memory, lowers cortisol and supports the adrenal glands, helps with the cholesterol management.

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See "Effect of vitamin C on the absorption of levothyroxine in patients with hypothyroidism and gastritis."
<https://www.ncbi.nlm.nih.gov/pubmed/24601693>

Vitamin A

Vitamin A (retinol) is extremely important in the optimally functioning thyroid gland! Vitamin A is necessary for the rebuilding of intestinal lining, thus, decreasing the higher intestinal permeability (aka "leaky gut"). Mucus membranes in the GI tract, urinary tract, and respiratory tract also depend on Vitamin A.

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The Symptoms of Vitamin A Deficiency may be the following:

- Decreased vision at night (night blindness)
- Impaired immune system (getting sick too often)
- Dry skin
- Dry eyes
- Infertility and trouble conceiving
- Acne

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Be careful and do not overdose Vitamin A as you may develop the signs of Vitamin A excess. Vitamin A is a fat-soluble vitamin that is not easy to "pee" out. Consult your healthcare medical provider to find out the optimal dose of Vitamin A for you.

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Spectracell Testing for nutrient deficiencies or Nutr-Eval by Genova will evaluate the minerals and vitamins within the cells, not just in blood serum.

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"The effect of vitamin A supplementation on thyroid function in premenopausal women." at <https://www.ncbi.nlm.nih.gov/pubmed/23378454>

Magnesium

Magnesium is an essential mineral needed for more than 300 enzymatic reactions. It has an effect on blood pressure, bone health, and cardiovascular health. Magnesium deficiency is associated with chronic fatigue, impaired glucose metabolism, symptoms of anxiety, muscle cramps/twitching, heart beat irregularities.

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Magnesium deficiency during pregnancy may provoke preterm labor and pre-eclampsia.

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Magnesium is very important for detoxification of harmful estrogens and other hormones.

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Magnesium citrate is very helpful to improve symptoms of constipation, while magnesium glycinate does not have a laxative effect. Avoid magnesium oxide as it has shown extremely low bioavailability (cannot be absorbed by the body).

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The current recommended daily allowance (RDA) for magnesium in women is 310-320 mg per day. Pregnant women should take a higher dose of up to 400 mg per day. Drinking coffee will increase magnesium waste via urine, so you may need to have higher doses of magnesium.

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My patients who take magnesium report fewer symptoms of anxiety, less bleeding during menses due to proper detoxification of estrogens.

Vitamin E

Vitamin E is an antioxidant that is made of 4 types of tocopherols and tocotrienols. Antioxidant means that it prevents damage from Free Radicals to our DNA.

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Vitamin E Deficiency Signs:

- Ataxia (coordination and walking problems)
- Decrease in vision
- Muscle weakness
- Impaired immune system
- Fibrocystic breast disease
- Premenstrual symptoms (bloating, irritability, moodiness, tender breasts)

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Curious to find out how Vitamin E affects thyroid health?

See below:

1. "Levothyroxine replacement therapy with vitamin E supplementation prevents oxidative stress and cognitive deficit in experimental hypothyroidism."

<https://www.ncbi.nlm.nih.gov/pubmed/23001627>

2. "Effects of vitamin E deficiency on the thyroid gland of the rat."

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1395247/>

Iodine

Every cell in the body contains iodine! Iodine is especially concentrated in the thyroid gland and mammary glands. Iodine is very important for the growth and normal development in children; severe cases of iodine deficiency in children cause cretinism (mental deficiency).

Iodized salt has 77 mcg of iodine/gram of salt in the United States. The Recommended Daily Allowance (RDA) of iodine is 150 mcg for adult men and women, 220 mcg for the pregnant women, and 290 mcg for lactating women.

Do you use iodized salt and believe that you are sufficient in iodine? I would consider stopping the consumption of the chemically processed highly refined iodized salt! If you are using Morton's Iodized salt, turn the box over and see the list of the ingredients. You may find anti-caking agents like limestone, etc. added to your favorite salt! I am not sure about you, but I don't like the chalky salt:) Moreover, the research has not shown the increase in iodine in those who consume the iodized salt. Probably, the iodine in the iodized salt is not bioavailable.

Why are we deficient in iodine?

1. Our soil is depleted due to poor farming techniques. If there is no iodine (magnesium, selenium, fill in the blank) in

the soil, there will be no iodine in the food grown on that soil.

2. Replacement of iodine in the bread with bromine, a harmful halide that takes the place of iodine in the thyroid and other cells and blocks iodine from getting into the cells.

3. Exposure to fluorinated and chlorinated water (fluoride, chlorine, and bromine are toxic halides). Fluoride is also present in many prescription medications.

4. Radioactive iodine that is a part of many medical procedures.

The research as for the iodine and thyroid health is highly controversial. Some studies point at the increase of autoimmune thyroid conditions that were “triggered” by ingesting moderately high doses of iodine. Other studies state that people feel better and have better thyroid levels once the iodine deficiency was re-established. I have personally tried micro-doses of iodine (RDA 150 mcg) paired with 200 mg Selenium at the beginning of my Hashimoto’s journey and my anti-thyroglobulin antibodies sky-rocketed from 1,500 to 3,000+. As soon as I stopped it, the antibodies went down to their “normal” 1,500 range. Some possible effects of HIGH doses of iodine could be HYPERthyroid (too much thyroid hormone produced by the thyroid gland) or HYP0thyroid (too little hormone) to name a few. Some of the reactions to iodine could be caused by detoxifying bromine from the body! So, iodine can be magical, but it also can be hard on your body. I did not know as much about iodine and Hashimoto’s when I just started my journey and it took me several years to look into iodine again, especially due to its’ role in supporting breast health and prevention of breast cancer.

So, what do we do? A lot of hypothyroid patients report feeling better when adding iodine to their vitamin and mineral regimen. It is just not possible to know how the person will

react to any substance, so starting slowly is the key.

1. Definitely, check your iodine status first via iodine-loading test (and preferably halide levels of bromine). See, if you are truly deficient. If your body does not need iodine, it will excrete it in urine (>90% excretion is a number to score!)
2. Depending on the level of deficiency, decide with a knowledgeable practitioner what dose of iodine you should start.
3. Check your thyroid function and thyroid antibodies before and 2-4 weeks after you start iodine.
4. Pay attention to your symptoms as you take iodine: any heart palpitations, more energy, less fatigue, more or less focus?

If you are intrigued and would like learn more about iodine, Dr. David Brownstein (West Bloomfield, Michigan – by coincidence I lived there for 6 years) wrote a book “Iodine: Why You Need it, Why You Can’t Live Without it”.

Riboflavin (Vitamin B2)

Vitamin B2 (riboflavin) is essential for metabolizing proteins, carbohydrates, and fats. It is of utmost importance for maintaining the energy of our bodies and helps convert consumed carbs into adenosine triphosphate (ATP) which is produced in our mitochondria.

Riboflavin mainly exists as part of the coenzymes, namely, flavin adenine dinucleotide (FAD) and flavin mononucleotide (FMN).

Riboflavin deficiency has been linked to preeclampsia in pregnant women. Vitamin B2 also supports eye health, prevents migraines and B vitamin deficiency anemia, helps to regulate energy levels, may help reduce the risk of breast and colon

cancers.

The RDA of riboflavin for women is 1.1 mg/day (1,000 mcg/day) and for men 1.3 mg/day (1,300 mcg/day).

Foods Rich in Vitamin B2:

- Beef Liver
- Spinach
- Almonds
- Dairy
- Eggs
- Lamb

The conversion of riboflavin into FAD and FMN is impaired in hypothyroidism and adrenal insufficiency

Signs of Riboflavin Deficiency:

- angular stomatitis
- cheilosis
- glossitis

Who is at risk for riboflavin deficiency?

- pregnant women
- people suffering from alcoholism
- athletes and people who do a lot of physical work

If you are hypothyroid, have low levels of thyroid hormone thyroxine – T4, you may not be able to convert riboflavin into its' active coenzymes FAD and FMN.

You can read more about riboflavin here:
<https://ods.od.nih.gov/factsheets/Riboflavin-HealthProfessional/>

and

Here: “Riboflavin metabolism in the hypothyroid human adult”
at <https://www.ncbi.nlm.nih.gov/pubmed/3809170>