

Selenium - The Power Mineral

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mainly in the thyroid gland.

Selenium, like most minerals, is difficult to measure due to being stored in organs and tissues. It's best to measure alongside other minerals and inhibitors such as heavy metals, mainly through hair or urine testing.

Function of Selenium

Think of the thyroid gland as the conductor of all functions and systems in the body, making sure that all functionality in the body is at just the right speed and balance from body warmth, digestion, weight, mood, cognition to every cellular function in the body.

Lifestyle, diet, genetics, and toxins can disturb this, which is why when the thyroid is slightly out of balance, we know about it.

Depression, peri-menopause/menopause, joint pain, hair loss and irritable bowel symptoms may mask thyroid disease as symptoms include hair thinning, weight gain or loss, low mood, being jittery, constipation, low libido, and cold extremities which are also thyroid disease symptoms.

One of the key components of thyroid health is selenium. Selenium is called the power mineral as we need very little, though a little goes a long way in supporting:

- **Glutathione**, the most powerful antioxidant in the body. We produce this endogenously (from inside our bodies) and selenium is an essential ingredient for optimal production of this vital antioxidant. Glutathione supports

Selenium is described as a trace mineral that our body requires in small amounts to support cognition, immune function, thyroid hormones, and DNA protection.

Selenium is stored in muscle tissue and

detoxification and immune function and also lowers inflammation.

- **The production of triiodothyronine (T3)** the most potent thyroid hormone, four times more potent than thyroxine (T4). The thyroid gland produces 80% of T4 and only 20% of T3, then the rest of the conversion of T4 to T3 is converted in the periphery (outside of the gland) tissues. In other words, selenium is essential for the most powerful thyroid hormone, T3. Without selenium T3 cannot be produced as the enzyme deiodinase is dependant on this.

Testing for Thyroid Balance

When checking thyroid health within the NHS, they routinely check for thyroxine (FT4) along with thyroid stimulating hormone (TSH) only. This only gives a snapshot, as the most potent hormone, T3, is not tested for. Therefore, if you are feeling any symptoms of imbalanced thyroid always check your FT3 levels.



If TSH is below or above "normal", then this may be corrected through nutrition. Please do not wait to be diagnosed with a thyroid disorder as medication will be needed. Prevention is always better, if possible. Subclinical thyroid imbalance may be corrected with supplementation.

Low Levels of T3 can also be due to genetic polymorphisms found in gene DIO2. Again, this may be corrected through supplementation.

How much Selenium do I need?

Recommended supplementation is 200mcg selenium to support thyroid health. Food that contains selenium:

- Brazil nuts, 3-4 nuts contain around 200mcg
- 100g of halibut and sardines and other sea food contains approximately 45mcg
- 100g of cottage cheese and chicken contain 20mcg

The safe upper limit for selenium is 400mcg per day, above this is considered toxic. Toxicity signs

are nausea, vomiting, nail discolouration, brittleness, hair loss and fatigue.

Diet rich in selenium may not be enough

Selenium levels can be depleted through excessive rainfall, climate change, insufficient crop rotation and metal toxicities. In addition, selenium deficiency has been reported in chronically ill patients with irritable bowel disease. Symptoms of selenium deficiency are muscular weakness, muscle wasting and heart disease although, it's rarely an isolated cause or pathology.

Environmental toxins (amalgam fillings, sea food, fertilizers/pesticides) and inflammation may block selenium uptake.

Selenium has been shown to counteract the toxicity of heavy metals such as cadmium and mercury. Excess mercury blocks selenium. The main cause of excess mercury is found in over consumption of seafood, especially shellfish although, no official limit has been set.

The Centre for Environmental, Food and Toxicological Technology Centre reported heavy metals found in sushi. It's the larger fish that contain the most toxicity including sword fish, tuna,



and marlin. I suggest sushi is a once per week treat at the most, rather than a way of life. As research is still ongoing in this area.

Testing and other vitamins

A quick hair analysis test will be able to give you a snapshot of heavy metals v mineral content, including selenium.

When looking at supplementation there are a number of other nutrients that work well with

Selenium:

- Vitamin A, iodine, magnesium, and zinc for general thyroid health
- Vitamin C, vitamin A, vitamin E and vitamin D for immune support
- Complex B vitamins, Coq10, copper, and vitamin A for cardio support

High Selenium Recipe Brazil Fudge

Serves 20

Ingredients

- 3/4 cup raw organic Brazil nuts
- 1/2 cup raw organic almonds
- 1/3 cup pumpkin seed butter
- 2 medium dates, pitted
- 1/3 cup raw organic cacao powder
- 1/2 teaspoon maca
- 1 teaspoon vanilla extract
- 4 tablespoons coconut sugar
- 1/2 small ripe banana
- 1/2 teaspoon sea salt
- 1/2 cup raw organic cacao powder

Method

1. In a food processor, combine the Brazil nuts and almonds. Process until a flour-like texture forms.
2. Add the pumpkin seed butter, dates, cacao powder, maca, vanilla and coconut sugar. Blend well until moist and sticky.
3. Add the banana and salt and process again to combine.
4. Be aware that over processing will bring out the oil in the nuts and make the fudge hard to spread.
5. Transfer the mixture onto parchment paper and use a spatula to spread it about 2-inches thick. If you would like a thicker fudge that's fine. It will just yield fewer pieces.
6. Once it's spread, score the fudge into even squares and place in the freezer. The fudge should be set in one hour. Top with cacao powder and serve.

If you would like to take advantage of our Heavy Metals and Mineral Testing (checking for selenium) please send us an email. We look forward to collaborating with you towards optimal nutrition.

In the meantime, follow us on Instagram @melissacohennutrition or drop us an email at melissa@melissa-cohen.com