



What Causes Hypothyroid Conditions ?



Dr. Kate Thomsen and Silky

"I have brain fog, I'm always cold, I'm constipated, my eyebrows are falling out, my skin is dry, my nails are breaking, my joints hurt, my muscles ache, I'm always tired, my periods are heavy, my hair is falling out, I'm gaining weight and I'm depressed..." This sounds like the monologue of Roseanne Roseannadanna, the kvetching character created by Gilda Radnor for Saturday Night Live. Ms. Roseannadanna may have had hypothyroidism, a condition where her thyroid gland was not working effectively. The thyroid gland sits low on the front of the neck, below the Adam's apple, like a little bow tie. It secretes several hormones, collectively called the thyroid hormones. The main hormone is thyroxine, known as T4. This hormone is made from an amino acid, tyrosine that you get from eating protein. There are 4 iodine molecules attached to the tyrosine, hence T4.

T4 acts as a floating reservoir of thyroid hormone as it circulates in the blood throughout the body. As it passes through the liver, some T4 is made into T3 (1 iodine is removed.) T3 is the active thyroid hormone that binds to a target cell. You can think of thyroid hormone as your motor. Thyroid hormone regulates the way your body uses energy. It affects virtually every cell in your body. Low availability of thyroid hormone results in Hypothyroidism and

slow metabolism. Excess thyroid hormone availability results in Hyperthyroidism and fast metabolism in the cells. Thyroid hormone affects breathing and body temperature, brain development, heart and nervous system functions, cholesterol, weight, muscle strength, skin dryness, fertility, and menstruation. Conservative estimates on the prevalence of hypothyroidism among the US population are 1 in 300. Some studies suggest it could be as high as 1 in 7 adults. Currently it is believed that 13 million American adults do not know they have an under-functioning thyroid gland.

One of the reasons is that there is no unified consensus on how to diagnose or treat hypothyroidism. In many areas of medicine, clinicians will disagree on the best way to help different patients because we see individuals, not algorithms in textbooks. In functional medicine, we are taught to look for antecedents, mediators, and triggers and to treat the root cause or the functional imbalance. Minimizing imbalances help to reduce associated conditions that may not show up until years later.

By far, most hypothyroidism is the result of an autoimmune condition called Hashimoto's Thyroiditis. This is where an individual's own immune system will attack their thyroid proteins. People who already have autoimmune conditions like Type 1 diabetes, vitiligo and celiac disease or who have a family history of autoimmune disease are more likely to get Hashimoto's. Other risk factors include a family history of thyroid disease, a personal history of radiation treatment to the head, neck, chest and tonsil area, and growing up or living/working near or at a nuclear energy plant.

It's important to know if you are getting enough nutrients needed to make thyroid hormone. You need to be able to get the amino acid tyrosine from protein in your diet. You need iodine as well. Iodine deficiency has been increasing in the US probably due to the reduction in use of iodized salt. Too much iodine can also cause hypothyroidism and we see this in people ingesting excess sea vegetables or iodine supplements. Other necessary ingredients for the production of thyroid hormone include: Vitamins E, B2, B3, B6, Vitamin C, antioxidants and iron. Nutrients that help convert T4 to the active T3 include zinc and selenium. In hypothyroid conditions, these two minerals may be deficient in the diet or they may be being diverted to other critical functions in the body. Factors assisting in thyroid hormone binding to its target cell receptor include Vitamin A, zinc and appropriate amounts of exercise.

Environmental and lifestyle exposures can inhibit the proper production of thyroid hormones. These include: stress (physical and psychological), infection, trauma, radiation, low calorie diets, inflammation, excess estrogen, medications, toxins (pesticides, mercury, cadmium, lead) and the other "halide" molecules which look like and can displace iodine. These halides are fluoride (from fluorinated water, fluorinated medications...), chloride (from household bleach, fertilizers, pesticides, water treatment, ground water supply...), and bromide (from PCBs, PBDEs, brominated foods and medications...). In these "exposure" situations, the body will be adapting to significant stress and calling for more energy efficiency. This is protective in the short term but

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will be "maladaptive" in the long term.

In any health condition, a lot can be gained by eliciting a history of risk factors, symptoms and a thorough lifestyle/nutrition analysis. Nutritional testing can further determine imbalances.

A physical exam can find thyroid nodules or goiter (diffusely enlarged gland) and other signs of thyroid imbalance. The next article will review thyroid blood testing and treatment of hypothyroidism.

Dr. Kate Thomsen's office for holistic health care is located in Pennington, NJ. She is board certified in Family Medicine, certified in Integrative/Holistic Medicine, and an Institute for Functional Medicine Certified Practitioner. She has been practicing Functional Medicine for over 15 years. For more information see www.drkatethomsen.com or call the office at 609-818-9700. You can find additional articles on nutrition on the website.