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Thyroid Function Overview

The thyroid gland produces two related hormones, thyroxine (T4) and triiodothyronine (T3). These hormones play a role in cell differentiation during development and help maintain our body's core temperature and metabolic levels. Disorders of the thyroid gland result primarily from autoimmune processes that either stimulate the overproduction of thyroid hormones (thyrotoxicosis) or cause glandular destruction and hormone deficiency (hypothyroidism). The thyroid gland is found in the neck in front of the windpipe and it consists of two lobes. It is a negative feedback system and it is confusing. I have to quote a textbook here and I am using Harrison's Endocrinology 16th Edition 2006. "Regulation of thyroid hormone synthesis. Thyroid hormones T4 and T3 feed back to inhibit hypothalamic production of thyrotropin-releasing hormone (TRH) and pituitary production of thyroid-stimulating hormone (TSH). TSH stimulates thyroid gland production of T4 and T3. Thyroid follicles are formed by epithelial cells surrounding proteinaceous colloid, which contains thyroglobulin. Follicular cells, which are polarized, synthesize thyroglobulin and carry out thyroid hormone biosynthesis." "The thyroid axis is a classic example of an endocrine feedback loop. Hypothalamic TRH stimulates pituitary production of TSH, which, in turn, stimulates thyroid hormone synthesis and secretion. Thyroid hormones feed back negatively to inhibit TRH and TSH production. The set-point in this axis is established by TSH. Reduced levels of thyroid hormone increase basal TSH production and enhance TRH-mediated stimulation of TSH. High thyroid hormone levels rapidly and directly suppress TSH and inhibit TRH-mediated stimulation of TSH." Clear as mud now? Your doctor will know if you are producing too much or too little by your test results. Just remember this low TSH = hyperthyroidism and high TSH = hypothyroidism.

Symptoms of Hypothyroidism

Tiredness, weakness
Dry skin
Feeling cold
Hair loss
Difficulty concentrating and poor memory
Constipation
Weight gain with poor appetite
Shortness of breath
Hoarse voice
Menstrual irregularities
Numbness
Impaired hearing

Signs of Hypothyroidism

Dry coarse skin, cool extremities
Puffy face, hands and feet
Diffuse Alopecia
Slower heart rate
Swelling of the periphery
Delayed tendon reflex relaxation
Carpal tunnel syndrome

Hyperthyroidism (overactive thyroid) is a condition in which the thyroid gland produces too much of the hormone thyroxine. Hyperthyroidism can mimic other health problems or diseases. Older adults are more likely to have no signs or symptoms or they have very subtle ones.

Signs and Symptoms of Hyperthyroidism

Sudden weight loss

Rapid heart beat

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Signs and Symptoms of Hyperthyroidism (cont.)

Irregular heart rhythm

Increased Appetite

Nervousness, anxiety, irritability, panic attacks

Fine tremor in hands

Sweating

Increased Sensitivity to Heat

Changes in bowel habits (usually more frequent)

Enlarged thyroid gland

Fatigue, muscle weakness

Difficulty sleeping

It is very important to see your doctor if you feel you may have an issue with your thyroid. It is a funny little organ that has so much to do with how our bodies function and respond to things. Is it depression or is our thyroid out of whack?