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THE THYROID GLAND
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The thyroid's main role in the endocrine system is to regulate your metabolism, which is your body's ability to break down food and convert it to energy. Food essentially fuels our bodies, and our bodies each "burn" that fuel at different rates. This is why you often hear about some people having "fast" metabolism and others having "slow" metabolism. The pituitary gland and hypothalamus both control the thyroid. When thyroid hormone levels drop too low, the hypothalamus secretes TSH Releasing Hormone (TRH), which alerts the pituitary to produce thyroid stimulating hormone (TSH). The thyroid responds to this chain of events by producing more hormones.

Anatomy of the Thyroid. The thyroid is a butterfly-shaped gland located in front of the windpipe and just below the larynx or Adam's apple in the neck. It is comprised of two lobes (right and left), which are attached by a band of thyroid tissue called the isthmus.

During development, the thyroid is actually located in the back of the tongue and has to migrate to the front of the neck before birth. There are rare instances when the thyroid migrates too far or too little. There are even cases when the thyroid remains in the back of the tongue—this is known as lingual thyroid.

Hormones of the Thyroid. The two main hormones the thyroid produces and releases are T3 (tri-iodothyronine) and T4 (thyroxin). A thyroid that is functioning normally produces approximately 80% T4 and about 20% T3, though T3 is the strongest of the pair. To a lesser extent, the thyroid also produces calcitonin, which helps control blood calcium levels.

Diseases and Disorders of the Thyroid:

1. **Goiters:** A goiter is a bulge in the neck. A toxic goiter is associated with hyperthyroidism, and a non-toxic goiter, also known as a simple or endemic goiter, is caused by iodine deficiency.
2. **Hyperthyroidism:** Hyperthyroidism is caused by too much thyroid hormone. People with hyperthyroidism are often sensitive to heat, hyperactive, and eat excessively. Goiter is sometimes a side effect of hyperthyroidism. This is due to an over-stimulated thyroid and inflamed tissues, respectively.
3. **Hypothyroidism:** Hypothyroidism is a common condition characterized by too little thyroid hormone. In infants, the condition is known as cretinism. Cretinism has very serious side effects, including abnormal bone formation and mental retardation, sensitivity to cold, little appetite, and an overall sluggishness.
4. **Solitary thyroid nodules:** Solitary nodules, or lumps, in the thyroid are actually quite common—in fact, it's estimated that more than half the population will have a nodule in their thyroid. The great majority of nodules are benign. Usually a fine needle aspiration biopsy (FNA) will determine if the nodule is cancerous.
5. **Thyroid cancer:** Thyroid cancer is fairly common, though the long-term survival rates are excellent. Occasionally, symptoms such as hoarseness, neck pain, and enlarged lymph nodes occur in people with thyroid cancer. Thyroid cancer can affect anyone at any age, though women and people over thirty are most likely to develop the condition.
6. **Thyroiditis:** Thyroiditis is an inflammation of the thyroid that may be associated with abnormal thyroid function (particularly hyperthyroidism). Inflammation can cause the thyroid's cells to die, making the thyroid unable to produce enough hormones to maintain the body's normal metabolism. There are five types of thyroiditis, and the treatment is specific to each.