

Al-Mamoun university collage

Physiology

Medical lab Tech

Second stage

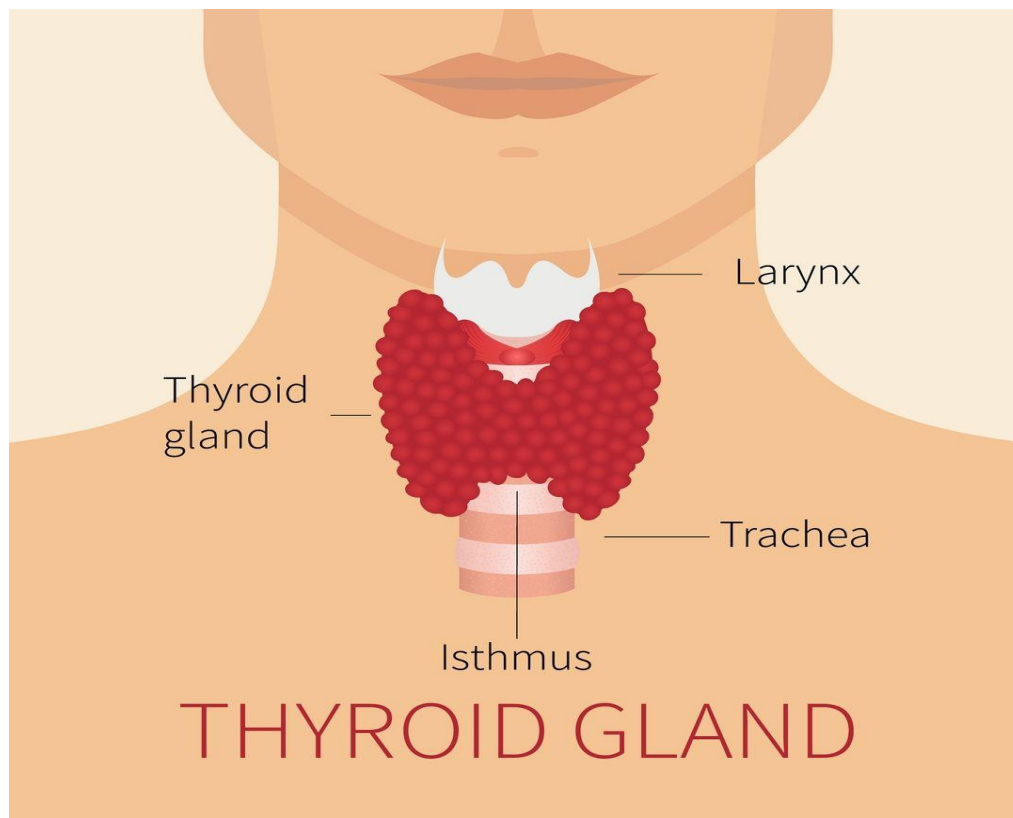
Ass.lec Dhuha Ali Abass

2023/2024

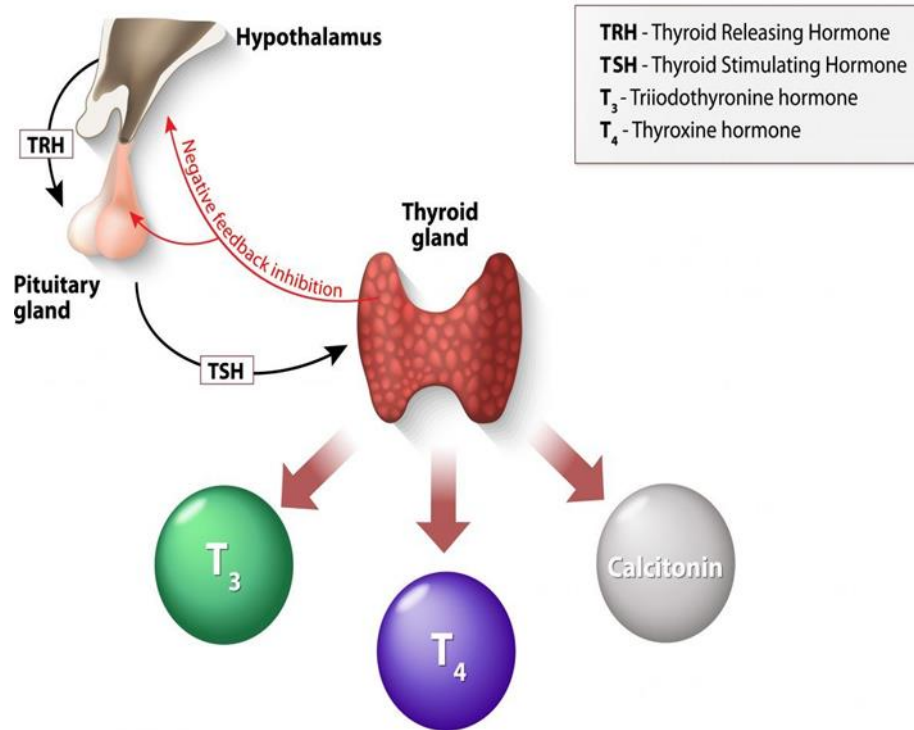
Lecture 10

Thyroid gland and parathyroid gland

Thyroid is a small, butterfly-shaped gland located at the front of your neck under your skin. It's a part of [endocrine system](#) and controls many of your body's important functions by producing and releasing (secreting) certain hormones. Your thyroid's main job is to control the speed of your metabolism (metabolic rate), which is the process of how your body transforms the food you consume into energy. All of the cells in your body need energy to function.

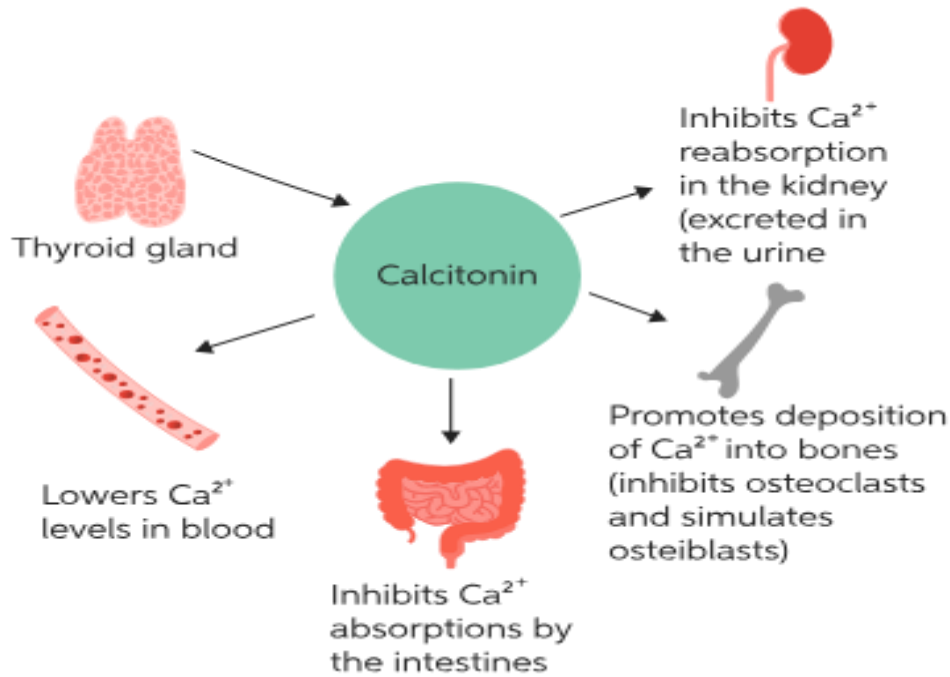


THYROID HORMONES



Thyroid makes and secretes hormones. Your thyroid produces and releases the following hormones:

1. **Thyroxine (T₄):** This is the primary hormone your thyroid makes and releases. Although your thyroid makes the most of this hormone, it doesn't have much of an effect on your metabolism. Once your thyroid releases T₄ into your bloodstream, it can convert to T₃ through a process called **Deiodination**.
2. **Triiodothyronine (T₃):** Your thyroid produces lesser amounts of T₃ than T₄, but it has a much greater effect on your metabolism than T₄.
3. **Calcitonin:** This hormone helps regulate the amount of calcium in your blood.



Thyroid hormones affect the following bodily functions:

- How your body uses energy (metabolism).
- Heart rate.
- Breathing.
- Digestion.
- Body temperature.
- Brain development.
- Mental activity.
- Skin and bone maintenance.
- Fertility

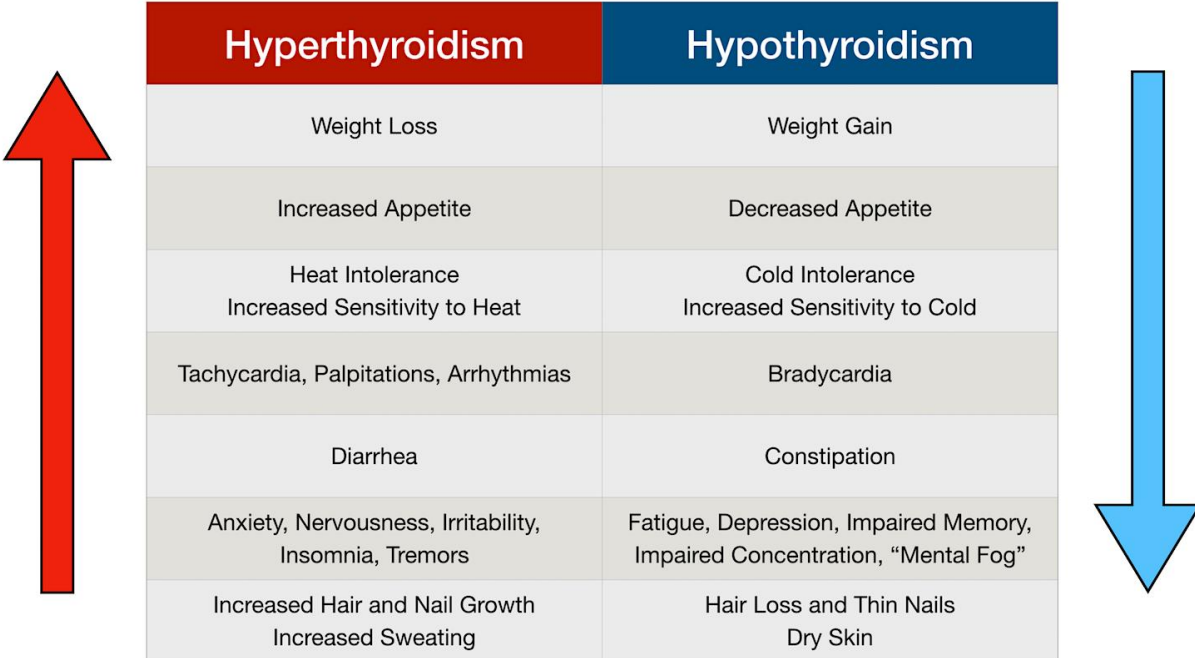
Problems with the thyroid include a variety of disorders that can result in the gland producing too little thyroid hormone (hypothyroidism) or too much (hyperthyroidism). Thyroid disorders can affect heart rate, mood, energy level, metabolism, bone health, pregnancy and many other functions.

Hyperthyroidism

Hyperthyroidism can lead to Graves' disease, which has many symptoms, including sweating, arrhythmia (irregular heartbeat), weight loss, protruding eyes and nervousness.

Hypothyroidism

Symptoms of **hypothyroidism** can include tiredness, weight gain, depression, abnormal bone development and stunted growth. The most common cause is autoimmune: the production of antibodies that attack the thyroid gland.

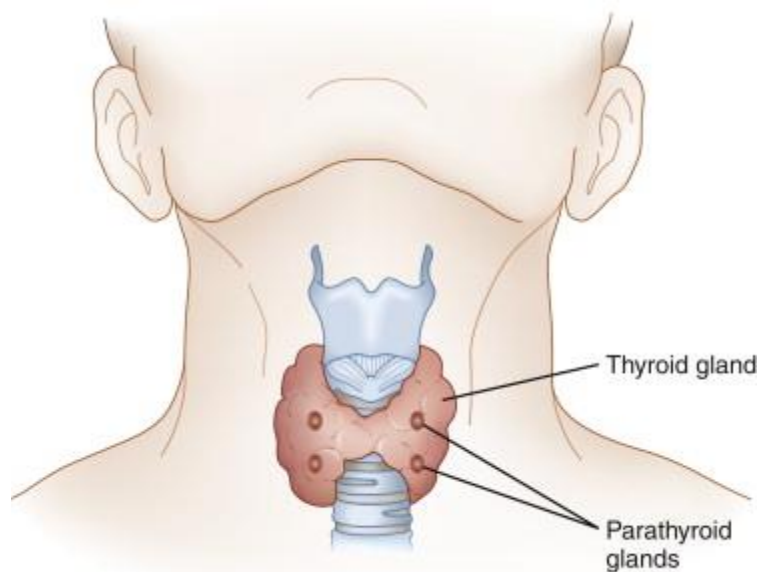


Hyperthyroidism	Hypothyroidism
Weight Loss	Weight Gain
Increased Appetite	Decreased Appetite
Heat Intolerance Increased Sensitivity to Heat	Cold Intolerance Increased Sensitivity to Cold
Tachycardia, Palpitations, Arrhythmias	Bradycardia
Diarrhea	Constipation
Anxiety, Nervousness, Irritability, Insomnia, Tremors	Fatigue, Depression, Impaired Memory, Impaired Concentration, "Mental Fog"
Increased Hair and Nail Growth Increased Sweating	Hair Loss and Thin Nails Dry Skin

Hypothyroidism and Pregnancy

Thyroid hormones pass from mother to fetus, and adequate amounts are important for normal growth and brain development. **Hypothyroidism during pregnancy** can be treated safely with thyroid hormone medications

Parathyroid gland



The parathyroid is comprised of 4 small glands embedded in the posterior aspect of the thyroid gland. Its main function is the production and secretion of parathyroid hormone (PTH), a polypeptide hormone responsible for maintaining serum calcium homeostasis.

Parathyroid hormone

