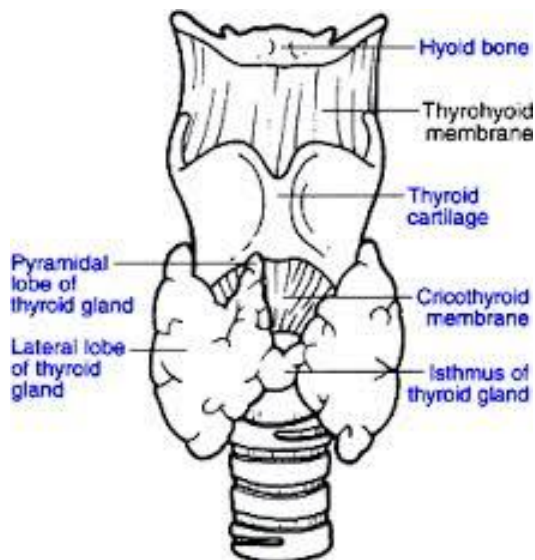


ENDOCRINE GLANDS

1. THYROID GLAND

The thyroid gland is situated in the neck near the trachea. It consists of two lobes connected by a narrow band called isthmus. Each lobe is highly vascular and is formed of numerous follicles.



Hormones of Thyroid Gland:

Cells lining the thyroid follicles secrete two hormones:

- *Thyroxine/ tetraiodothyronine (T₄)*
- *Triiodothyronine (T₃)*

Both are iodinated tyrosine derivatives. Thyroxine is more abundant than triiodothyronine. The main functions of thyroid hormones are:

- *Growth* - Thyroid hormones are essential for normal growth and maturation of most of the tissues of the body.
- *Metabolism* - Thyroid hormones are important regulators of cellular oxidative mechanisms and maintain the metabolism at an optimal level.
- *Cardiovascular System* - Thyroid hormone increase heart rate and cardiac output. These hormones have a direct action on the heart.
- *Skeletal System* - Optimal thyroxine levels are necessary for efficient muscle contraction.
- *Nervous System* - Thyroid hormone is essential for development of brain and CNS.
- *Reproductive System* - The normal functioning of reproductive system requires the hormone thyroxine at an optimal concentration.

Abnormalities connected with Thyroid Hormones:

Cretinism: It occurs in children due to hypothyroidism. It is characterized by:

→ *Stunted growth, mental retardation, low metabolic rate, low body temperature & low heart rate.*

Myxoedema: It occurs in adults due to hypothyroidism. It is also called gull's disease. It is characterized by:

→ *Obesity, waxy skin, puffy face, swollen tissues, reproductive failures, low metabolic rate & low body temperature.*

Simple goitre: It occurs in both children and adults due to the deficiency of iodine. In this condition the thyroid gland enlarges as an effort to produce more thyroxine. Administration of iodine can prevent simple goitre.

Grave's disease: It is due to hyperthyroidism. It is characterized by:

→ *Bulged eye balls, high metabolic rate, high pulse rate & weight loss*

Biosynthesis of Thyroid Hormones:

Thyroid hormones are synthesized by the follicular cells of the thyroid lobes by iodination of aminoacid tyrosine. Dietary iodine is absorbed in small intestine as iodide. Thyroid gland has a great avidity for the iodides in blood.