What is the Anatomy of the Thyroid Gland?

Worksheet

The thyroid gland is a butterfly-shaped endocrine gland in the anterior neck with two lobes joined by an isthmus; it produces triiodothyronine (T3), thyroxine (T4), and calcitonin.

Questions

1. Which structure connects the two lobes of the thyroid gland?

A) Isthmus
B) Pyramidal lobe
C) Parathyroid gland
D) Hyoid bone

2. Which cells secrete calcitonin?

A) Follicular cells
B) Parafollicular (C) cells
C) Oxyphil cells
D) Chief cells

3. The superior thyroid artery is a branch of which vessel?

A) Subclavian artery
B) Thyrocervical trunk
C) External carotid artery
D) Brachiocephalic trunk

4. Which nerve is most at risk during thyroidectomy?

A) Vagus nerve
B) Recurrent laryngeal nerve
C) Hypoglossal nerve
D) Phrenic nerve

5. Trace the path of iodine from the bloodstream to thyroid hormone release.

6. Identify the two lobes and the structure connecting them.

7. List the arteries supplying the thyroid gland and their origins.

8. Define: Where is the thyroid gland located?

9. Define: What connects the two thyroid lobes?

10. Define: What hormones does the thyroid produce?

Answer Key

1. A) Isthmus - The isthmus is the thin tissue bridge anterior to the trachea joining the right and left lobes.

2. B) Parafollicular (C) cells - Parafollicular (C) cells, scattered between follicles, secrete calcitonin.

3. C) External carotid artery - The superior thyroid artery arises from the external carotid artery.

4. B) Recurrent laryngeal nerve - The recurrent laryngeal nerve courses near the inferior thyroid artery and thyroid lobes.

5. Iodine is absorbed from blood into follicular cells via the sodium-iodide symporter (NIS) It is oxidized and bound to tyrosine residues on thyroglobulin (organification) Coupling of iodotyrosines forms T3 and T4 within the colloid TSH stimulates endocytosis and proteolysis, releasing T3/T4 into the bloodstream

6. The thyroid has a right lobe and a left lobe, each lying lateral to the trachea The isthmus is a thin band of tissue connecting the two lobes anterior to tracheal rings 2-3 A pyramidal lobe may extend upward from the isthmus in some individuals

7. Superior thyroid artery arises from the external carotid artery and supplies the upper pole Inferior thyroid artery arises from the thyrocervical trunk (subclavian artery) and supplies the lower pole A thyroid ima artery, when present, arises directly from the aorta or brachiocephalic trunk

8. In the anterior neck, anterior to the trachea, spanning roughly the C5-T1 vertebral level.

9. The isthmus, a thin band of tissue anterior to tracheal rings 2-3.

10. T3 (triiodothyronine), T4 (thyroxine) from follicular cells, and calcitonin from parafollicular (C) cells.