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Question no 1 Answer:

Thyroid Hormone: Thyroid is an endocrine gland situated at the root of the neck on either side of the trachea.

The secretes T3 (9%) , T4 (90%) and calcitonin.

The potency of T3 is four times more than that of T4.

Namely triiodothyronine (T3) and thyroxine (T4). They are tyrosine based hormones that are primarily responsible for the regulation of metabolism.

T3 and T4 are partially composed of iodine. A deficiency of iodine leads to decreased production of T3 and T4 enlarges the thyroid tissue and will cause the disease it is called simple goiter. The major form of thyroid hormone in the blood is thyroxine T4, which has a longer half-life than T3.

Edward Calvin Kendall was responsible for the isolation of thyroxine in 1915. In 2016 levothyroxine, a manufactured form of thyroxine, was the most prescribed medication in the United States with more than 114 million prescriptions.

Functions of thyroid hormone: There are many function which are the following

The thyroid hormones act on nearly every cell of the body

They work to increase basal metabolic rate.

Action on fat metabolism

Action on carbohydrates metabolism

Affect protein synthesis help regulate long bone growth (synergy with growth hormone)

Action on body weight

Action on cardiovascular system

The thyroid hormones are essential to proper development and differentiation of the cells of the human body.

Maturation and the body's sensitivity to catecholamine (such as adrenaline) by permissiveness.

Measurement of plasma level of T3 and T4:

For hyperthyroidism or hypothyroidism, the most accurate diagnostic test the direct measurement of concentration of "free" thyroid hormones in the plasma, i.e. T3 and T4

Measurement of TRH and TSH:

There is almost total absence of these two hormones in hyperthyroidism but increase in hypothyroidism. It is because of negative feedback mechanism, by the increased

Question no 2 Answer:

Adrenocortical hormones:

Their function is to regulate the concentration of electrolyte circulating in the blood .

For example:

Aldosterone functions to raise blood sodium levels and lower blood potassium levels by targeting the kidneys.

Explanation:

In human and other animals the adrenocortical hormones are produced by the adrenal cortex, the outer region of the adrenal gland.

These polycyclic steroid hormone have a variety of role that is crucial for the body response to stress.

For example;

The fight or flight response and they also regulate other functions in the body.

Treats to homeostasis, such as injury, chemical imbalances, infections, or psychological stress, can initiate a stress response.

Classification:

Adrenocortical hormones are divided into three classes by function:

Mineralocorticoids

Glucocorticoids

Androgens

Mineralcorticoids:

Hormones are synthesized in the outermost layer of adrenal cortex as know as zona glomerulus
Their function is to regulate the concentration of electrolyte circulating in the blood

Glucocorticoid:

A hormone in synthesized in the middle layer of adrenal cortex know as fasciculate.
This hormone regulate the processing of proteins fats and carbohydrates by the human body

Androgens: A hormone in synthesized in inner layer of adrenal cortex know as zona reticularis.

Question no 3 Answer:

Hyperthyroidism Definition: overactivity of the thyroid gland, resulting in a rapid heartbeat and an increased rate of metabolism.

Explanation: Hyperthyroidism (overactive thyroid) occurs when your thyroid gland produce too much of the hormone thyroxine. Hyperthyroidism can accelerate your body's metabolism causing unintentional weight loss and a rapid or irregular heartbeat.

Several treatments are available for hyperthyroidism. Doctors use anti-thyroid medications and radioactive to slow the production of thyroid hormones. Sometimes, hyperthyroidism treatment involves surgery to remove all or part of your thyroid gland.

Signs and symptoms: There are many symptoms of the hyperthyroidism which are under

Irregular heartbeat

Increased appetite

Sweating

Nervousness, anxiety, and irritability

Changes in menstrual patterns

Toxic goiter

Polycythemia

Decreased body weight

Diarrhea

Muscular weakness etc.

Hypothyroidism Definition: Abnormally low activity of thyroid gland, resulting in retardation of growth and mental development in children and adults

Explanation: Hypothyroidism (underactive thyroid) is a condition in which your thyroid gland doesn't produce enough of certain crucial hormones.

Hypothyroidism may not cause noticeable symptoms in the early stages. Over time, untreated hypothyroidism can cause a number of health problems such as obesity, joint pain, infertility, and heart disease.

Signs and symptoms: There are many symptoms of hypothyroidism which are following

Fatigue

Dry skin

Increased sensitivity to cold

Constipation

Puffy face

Muscle weakness

Anemia

Somnolence with sleeping disturbance

Decreased cardiovascular functions such as reduction in rate and force of contraction of the heart, cardiac output and blood volume.

Depressed hair growth.

Increase in body weight.

Impaired memory.

Question no 4 Answer:

Calcium regulations:

1) Calcium metabolism:

Is the movement and regulation of calcium ions (Ca^{2+}) in via the gut and out (via the gut and kidneys) of the body, and between body compartments:

the blood plasma,

The intracellular and extracellular fluids, and bone. Bone acts as a calcium storage centre for deposits and withdrawals as needed by the blood via continual bone remodelling.

An important aspects of calcium metabolism is plasma Calcium homeostasis, the regulation of calcium ions in the blood plasma within narrow limits the level of the calcium in plasma is regulated by the hormones parathyroid hormone (PTH) calcitonin.

2) Osteomalacia:

Is a disease characterized by the softening of the bones caused by impaired bone metabolism primarily due to inadequate levels of available phosphate, calcium and vitamin D, or because of resorption of calcium. The impairment of bone metabolism causes inadequate bone mineralization.

Question no 5 Answer :

Sex Hormones:

A steroid hormone that is produced by the ovaries and testes and adrenal cortex and effect the function of reproductive organs or the development of secondary sex characteristics.

Female sex hormones:

Estrogen

Progesterone

- 1) Estrogen:** It primarily female sex hormone responsible for the development and regulation of female reproductive system and secondary sex characteristics.
- 2) Progesterone:** A steroid hormone which released from the corpus LEUTUM, stimulate the uterus to prepare for pregnancy.

Function:

Development of endometrium
Stimulate mammary gland
Does not retain NACL and water

Male sex hormone:

Testosterone
Estrogen

1) Testosterone:

It is a hormone produced in humans in the testicles. It affects the appearance of a man's sexual development. It stimulates sperm production and also a man's sex drive. It also helps build bone and muscles.

Disease:

Lack of testosterone induces hypogonadism.

Normal levels of testosterone but defective receptors induce testicular feminization.

2) Androgen:

It is a group of hormones that play a role in male traits and reproductive activity.