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| Title | Human Physiology |
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| Section | “A” |

**Q 2. Give clinical differentiation between hypothyroidism and hyperthyroidism.**

1. ***Hypothyroidism:***

*Hypothyroidism occurs when the gland is underactive. This can present itself at any age, but the risk increase as you get older, and it is the most commonly triggered by genetics. Women are three times more likely than men to develop hypothyroidism.*

* ***Common causes of hypothyroidism:***

*Genetics*

*Low iodine diet*

*Radiation exposure from cancer treatment*

*Certain medication used to treat cancer, heart problems and psychiatric conditions*

*Surgical removal of thyroid*

* ***Symptoms of hypothyroidism:***

*Unexpected weight gain or trouble losing weight*

*Fatigue*

*Depression*

*Hair lose and dry hair*

*Muscle cramps*

*Dry skin*

*Goiter (swelling of thyroid gland)*

*Slow heart rate*

*Irregular period*

*Sensitivity to cold*

*Constipation*

*Carpal tunnel syndrome*

1. ***Hyperthyroidism:***

*Hyperthyroidism is basically the opposite of hypothyroidism. It occure when the thyroid is over active, producing too much thyroid hormone.*

* ***Common causes of hyperthyroidism:***

*Graves disease*

*Swollen thyroid*

*Thyroid nodules*

* ***Symptoms of hyperthyroidism:***

*Unexpected weight lose*

*Feeling wired or anxious*

*Racing heartbeat*

*Shakiness*

*Sweating spells*

*Feeling hot, frequently*

*Itchy red skin*

*Fine hair and hair loss.*

Q 3. **Classify enzymes and their function in digestion?**

***Enzymes:***

*There are main types of digestive enzymes. They are categorized based on the reaction they help catalyze:*

* ***Amylase:***

*It breaks down starches and carbohydrates into sugars.*

*Function:*

*Amylase is produced in the salivary glands, pancreas and small intestine. One type of amylase called ptyalin, is made in the salivary glands and starts to act on starches while food is still in your mouth. It remain active even after you swallow.*

*Pancreatic amylase is made in the pancreas and delivered to the small intestine. Here it continues to break down starches molecule to sugars, which are ultimately digested into glucose by other enzymes. This is then absorbed into the body blood circulation through the wall of the small intestine.*

* ***Protease:***

*It breaks down proteins into amino acid.*

*Function:*

*Protease is produced in the stomach, pancreas and small intestine. Most of the chemical reactions occur in the stomach and small intestine. In the stomach pepsin is the main digestive enzyme attacking proteins. Several other pancreatic enzymes go to work when protein molecules reach the small intestine.*

* ***Lipase:***

*It breaks down lipids, which are fats and oils, into glycerol and fatty acids.*

*Function:*

*Lipase is produced in the pancreas and small intestine. A type of lipase is also found in breast milk to help a baby more easily digest fat molecules when nursing. Lipids play many roles, including long term energy storage and supporting cellular health.*

**Q 1. Explain homeostatic mechanism regarding the control of calcium in the body with reference to parathyroid hormone and calcitonin.**

*Excessive calcium store in the bone blood also have some amount of calcium. Some time inbalancing hemostasis occur this inbalancing is control by parathyroid gland.*

***Parathyroid gland:***

*It secreted parathormon and thyroid gland secrete calcitonin.*

***Control of calcium in blood by homeostatic function of parathyroid:***

*When there is deficiency of calcium in blood by over secretion of calcitonin (because calcitonin deposit all blood calcium in bone so blood have less level of ca) then parathyroid gland become active and release parathormine.*

***Role of parathormine:***

*The parathormine act on bone and release ca from bone by various action on kidney, bone, intestine so the release calcium is the re enter in blood.*

*Hence the level of Ca in blood is retain. Homeostatis is done by antagonistic action of calcitonin and parathormone.*