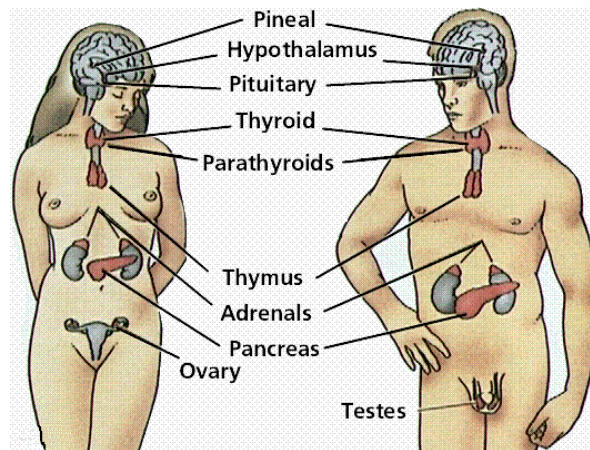


1. **Hormone** is:

- a) A chemical substance produced in minute quantities by an endocrine gland.
- b) It is transported in the blood stream to target organs.
- c) It alters the activity of one or more target organs.
- d) After performing their function, they are destroyed by the liver and removed by the kidneys.
- e) Excessive or insufficient hormones production will affect the body functions.

2. **Exocrine glands** (Glands with duct): **Sweat glands, Salivary Glands, Tear Glands.** These glands produce secrets which leave the gland through a duct to the target organs.

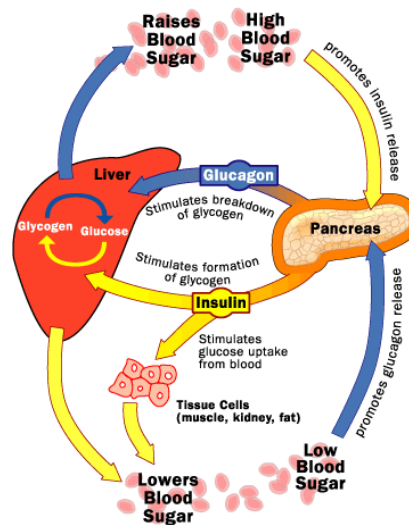
3. **Endocrine System** (Glands without duct): The hormone produced by a ductless gland is secreted directly into the bloodstream, which then distributes the hormone around the body.



<b>GLANDS AND HORMONE PRODUCTION</b>	
<b>Glands</b>	<b>Function</b>
Adrenal	These are attached to the kidney surface. Their hormones control growth, sugar metabolism, kidney function and stress.
Hypothalamus	Found at the base of the brain. The main controlling gland. Its hormones control most body functions and all other glands, together with sexual activity.
Ovaries	Produce the female hormones oestrogen and progesterone.
Pancreas	Located in a fold of the duodenum. Produces insulin to control sugar metabolism.
Parathyroids	Located near the thyroid glands in the neck. Control calcium and phosphorus deposition.
Pituitary	Found at the base of the brain. Hormones control growth, reproduction, lactation and stress.
Placenta	Afterbirth membranes that cover the foetus. Maintains pregnancy and produce female hormone.
Testicles	Produce the male hormone testosterone.
Thyroid	Controls metabolism and growth.

- Important hormones: **Adrenaline, Thyroxine, Oestrogen, Progesterone, Testosterone, Insulin, Glucagon.**

4. Effect of Insulin and Glucagon on blood sugar level



- Effect of **Insulin** on liver and body cells:
  - Increase the permeability of cell membrane to increase the glucose uptake by the cells.
  - Stimulate liver and muscles cells to convert glucose into glycogen for storage.
  - Increase the rate of glucose respiration by the tissues.
- **Lack of Insulin** lead to diabetes:
  - Excess blood glucose cannot be converted to glycogen for storage.
  - Glucose present in the urine.
  - Wounds take a long time to heal.
  - Body grows weak and loses weight continuously.
  - Increase risk of infection and blindness.
- **Excessive Insulin** lead to:
  - Abnormal decrease in blood glucose level.
  - Coma and death.
- Effect of **Glucagon** on liver:
  - Stimulate conversion of glycogen, fats and lactic acid to glucose

5. Comparing Nervous System & Hormone system

<i>Nervous system</i>	<i>Hormone system</i>
a) -Involves nerve pulses (electrical signals)	-Involves hormones (chemical substances)
b) -Impulses are transmitted by neurons	-Hormones are transported by blood
c) -Quick response	-Usually slow response
d) -Response are short-lived	-Response may be short-lived or long-lived
e) -May be voluntary or involuntary	-always involuntary
f) -Usually localized	-Tend to affect more than one target organ