Hormones

Definition

- 1. Chemical substance; coordinate growth, development & activity of an organism
- 2. Alters activity of one or more specific target organs
- 3. Produced in small amounts
- 4. Transported in the bloodstream to target organs
- 5. Destroyed in the liver

Insulin

Effects:

- blood glucose level increases above normal
- stimulates islets of langerhans in the pancreas to secrete more insulin.
- Insulin is transported in the bloodstream to the muscles and liver.

INSULIN helps to:

- stimulates liver and muscles to increase permeability to glucose
- excess glucose is converted into glycogen for storage in the liver and muscles.
- causing uptake of glucose to increase

lack of insulin

Results in: Diabetes Mellitus

- glucose can't be stored. So, blood glucose concentration increases.
- muscles lack reserve of glycogen, causing body weakness and continuous weight loss
- body oxidises fats instead of glucose to release energy, causing a production of ketones. when there is too much ketones, it lowers the blood pH to dangerous levels.

Too much insulin

- -**abnorma**l decrease in blood glucose concentration
- -may result in **shock**
- -may cause comas and death

▼ Diabetes

Types:

Types	type 1	type 2
Onset	early	late
Cause	islets of langerhans unable to produce sufficient insulin	body cells not responding well to insulin
Treatment	 insulin injections ensure sufficient sugar in diet to avoid blood glucose level dipping below normal 	 regulate carb intake may need to take med/insulin injection

Signs:

- -High blood glucose concentration
- -presence of sugar in urine (urine is sweet-smelling)
- -slow or difficult healing wounds

Glucagon

when blood glucose concentration decreases below normal,

it stimulates islets of langerhans in the pancreas to secrete glucagon

Blood transports glucagon to liver and muscles.

GLUCAGON

• converts glycogen, fats, amino acids, lactic acid into glucose

Change in Blood Glucose Concentration

- \checkmark ↑ in BGC
 - 1. increases above normal
 - 2. stimulate islets of langerhans in pancreas \rightarrow more insulin
 - 3. insulin to liver and muscle cells
 - 4. insulin stimulate convert excess glucose \rightarrow glycogen (stored in liver and muscles)
 - 5. '' increase permeability of csm to glucose \rightarrow absorbed more quickly by cell
 - 6. '' increase oxidation of glucose during tissue respiration

$\checkmark \downarrow$ in BGC

- 1. decrease below normal
- 2. " \rightarrow glucagon
- 3. glucagon to liver and muscle cells
- 4. glycogen, fats and amino acids and lactic acid \rightarrow glucose