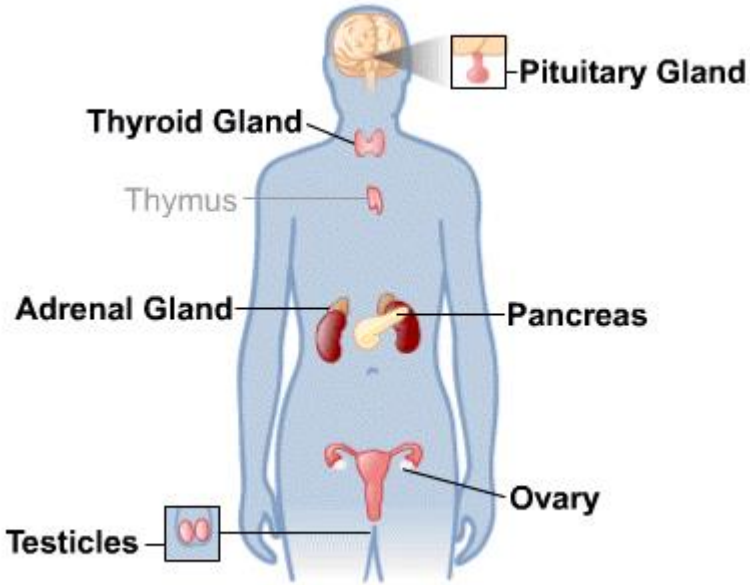
Biology Topic B11: Hormonal control

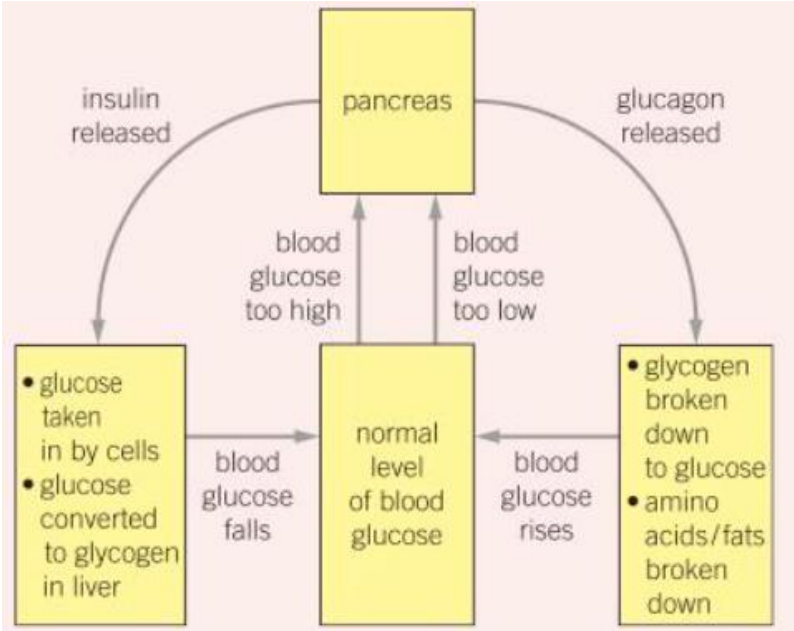
1. Hormonal control: Endocrine system	
Endocrine system	Glands secrete hormones into the blood which make changes around the body
Glands	Produce specific chemical (hormones)
Secrete	Release

2. Major glands in the body	
Pituitary gland	The 'master gland' makes hormones which affect other glands.
Thyroid gland	Controls metabolism
Adrenal gland	Makes adrenaline
Pancreas	Controls blood sugar levels
Ovary	Produces female sex hormones
Testes	Produces male sex hormone



3. Control of blood glucose levels	
Type 1 diabetes	When the pancreas is damaged from infection and cannot make insulin. Needs injections to treat
Type 2 diabetes	When poor diet and obesity cause body cells to not respond to insulin anymore. Treated with diet and exercise
Insulin	Hormone made in pancreas that reduces glucose levels in the blood
glycogen	The long term store of sugar in the body. Made in the liver

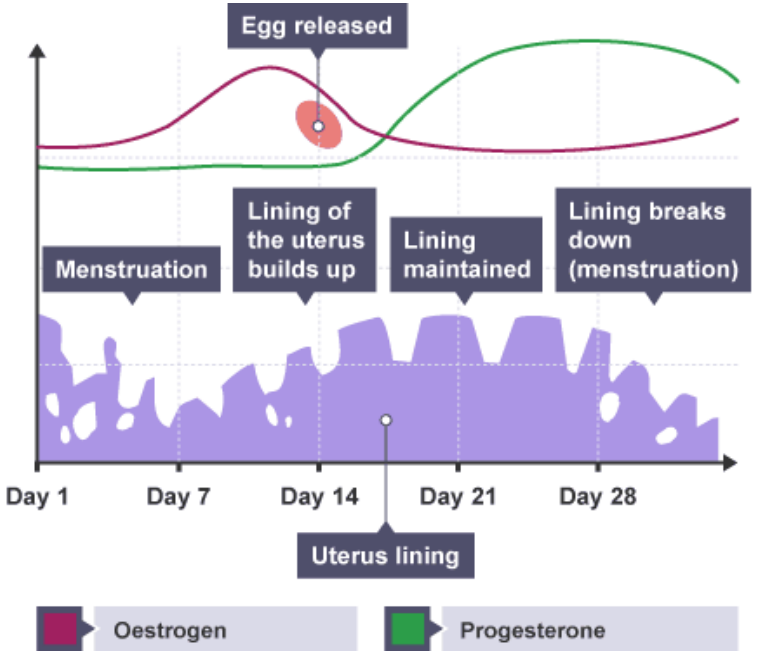
4. Control of blood glucose continued (HT ONLY)	
Glucagon	A hormone which reduces blood glucose concentration by turning it into glycogen



5. Reproductive hormones

Hormone	Made in	Function
Testosterone	**Testes**	Creates male sexual changes at puberty, sperm production
Oestrogen	**Ovary**	Creates female sexual changes at puberty, ovulation
Follicle stimulating hormone (FSH)	**Pituitary gland**	Causes egg to mature in ovary
Luteinising hormone (LH)	**Pituitary gland**	Causes egg to be released by ovary
Progesterone	**Ovary**	Maintains lining of womb

6. Menstrual cycle (HT ONLY)



7. Contraception

Type	How it works
Oral (the pill)	Stops FSH so no egg released
Injection/implant	Releases hormones, prevents egg maturation.
Barrier (condoms)	Prevent sperm and egg meeting
The coil	Prevents embryo implanting
Spermicides	Kill sperm
Abstinence	Not having sex
Surgical	Surgically sterilising the adult permanently

8. Hormones in fertility (HT ONLY)

Fertility drugs	Stimulate the production and release of eggs. (FSH + LH)
IVF	The process of creating an embryo in the lab.

Stages of IVF:

1. FSH and LH stimulate production of many eggs
2. Eggs are harvested and fertilised by fathers sperm in a lab
3. Fertilised eggs grow in lab
4. A few embryos are implanted into mother womb

Possible risks of IVF	Physical and emotional fatigue Low success rate Risk of multiple births simultaneously

9. Negative feedback (HT ONLY)

Negative feedback	The product reduces the stimulus to return the change to normal levels
Adrenaline	Fight or flight. Increases heart rate and supply of oxygen and glucose
Thyroxine	Controls metabolic rate, growth and development.