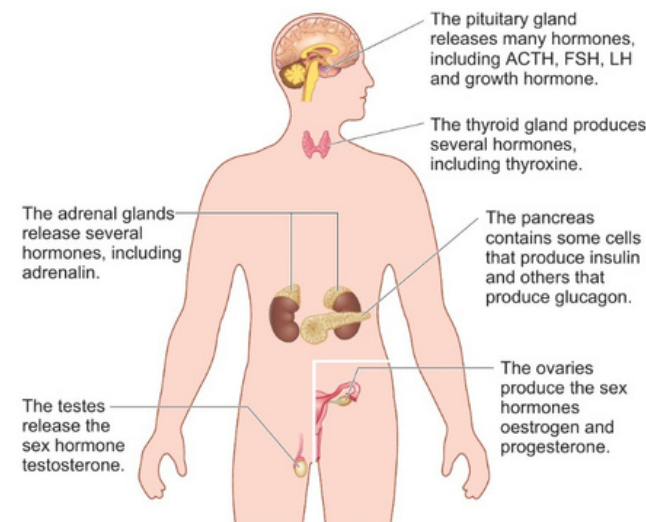


Knowledge Organiser: Biology, SB7a

- 1 The **endocrine system** is composed of glands which secrete **hormones** directly into the bloodstream
- 2 Hormones are made of **protein** and travel in the **blood** to a **target organ** where they produce an effect
- 3 Compared to the nervous system, the effects of the endocrine system are **slower** but act for **longer**
- 4 The **pituitary gland** is the 'master gland' as it produces and secretes many hormones into the blood.
- 5 The **metabolic rate** of the body is the rate at which the energy stored in your food is transferred by all the reactions that take place in your body. The **menstrual cycle**
- 6 lasts 28 days: It is the reproductive cycle in women and is brought about by hormones. **Oestrogen** is the main female reproductive hormone. At puberty, eggs begin to mature and one is released approximately every 28 days. This is called **ovulation** and it occurs half way through the cycle.
- 7 **Fertility** can be controlled by a variety of **hormonal** and **non-hormonal** methods of contraception
- 8 **The pill** is an oral contraceptive that contains oestrogen to **inhibit FSH production** which stops egg development and maturation. Advantage-Very effective, Disadvantage-side effects
- 9 **Barrier methods** such as condoms and diaphragms prevent the sperm reaching an egg. Advantage-Protect against STIs, Disadvantage-Less reliable

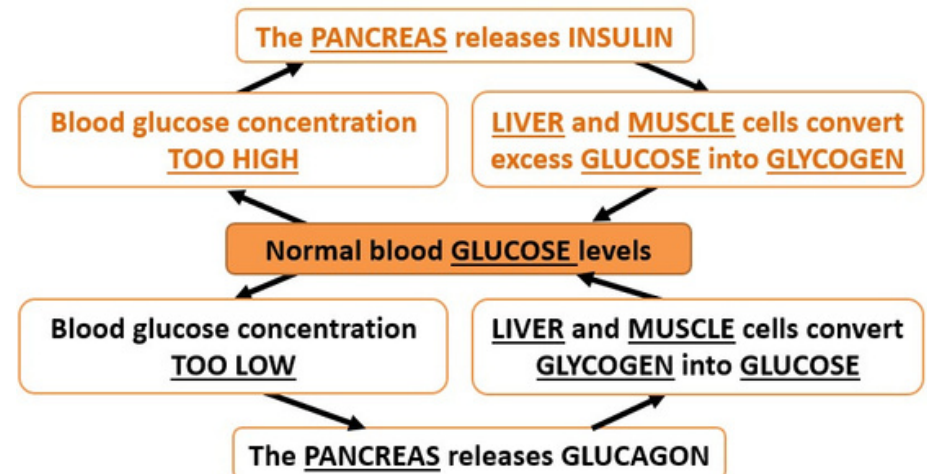
Assisted Reproductive technology can help couples to get pregnant using hormones to stimulate maturation and release of eggs. It is emotionally and physically stressful and success rates are not very high



Hormone	Produced in...	Causes...
FSH Follicle stimulating	Pituitary Gland	Stimulates egg ripening and oestrogen production (in ovaries)
Oestrogen	Ovaries	Lining of the womb to develop. Stimulates pituitary gland to make LH
LH Luteinising hormone	Pituitary Gland	Stimulates egg release and progesterone production in the ovaries
Progesterone	Ovaries	Maintains the lining of the womb

Knowledge Organiser: Biology, SB7b

- 11 **Homeostasis** is the regulation (balance) of the internal conditions.
- 12 **Blood glucose concentration** is monitored and controlled by the pancreas
- 13 The control of blood glucose concentration is an example of **negative feedback** ensuring in any system changes are reversed and returned back to the set level.
- 14 **Diabetes** is a condition that causes a person's blood sugar level to become too high
- 15 **Type 1 diabetes** is where the pancreas fails to produce enough insulin, it is treated with insulin injections
- 16 **Type 2 diabetes** is where the body cells no longer respond to insulin, it is treated with lifestyle changes such as carbohydrate controlled diet and exercise
- 17 **BMI (Body mass indicator)** can be used to calculate whether a person's weight lies within a healthy range.
Waist to hip ratio should be considered alongside the BMI
- 18 The thermoregulatory centre contains receptors sensitive to the temperature of the blood. The skin contains temperature receptors and sends nervous impulses to the thermoregulatory centre.
- 19 Osmoregulation is the regulation of water content in the body. This is important for homeostasis
- 20 The kidneys filter the blood and form urine that is stored in the bladder.



$$\text{BMI} = \frac{\text{mass (kg)}}{(\text{height (m)})^2}$$

