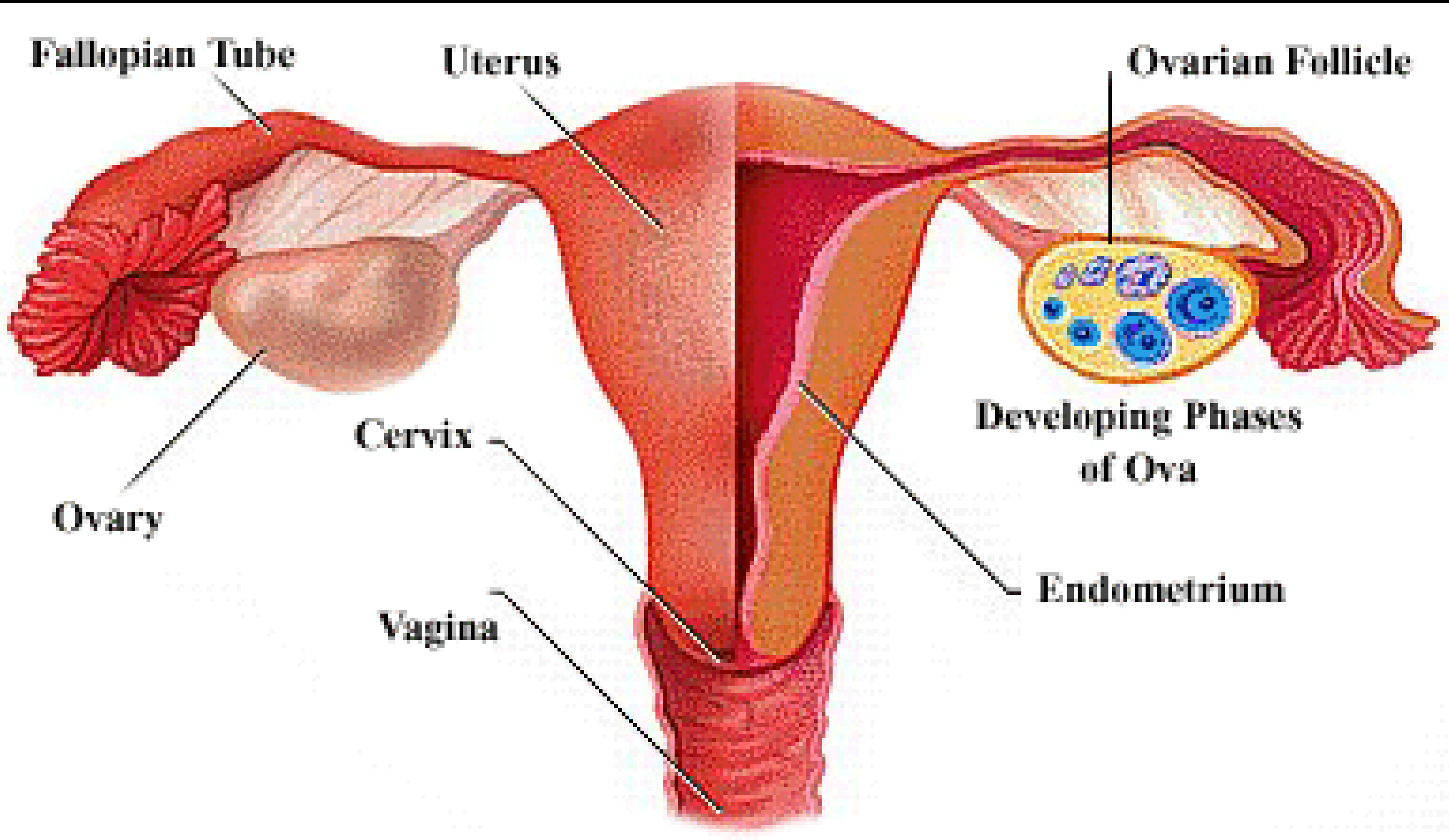
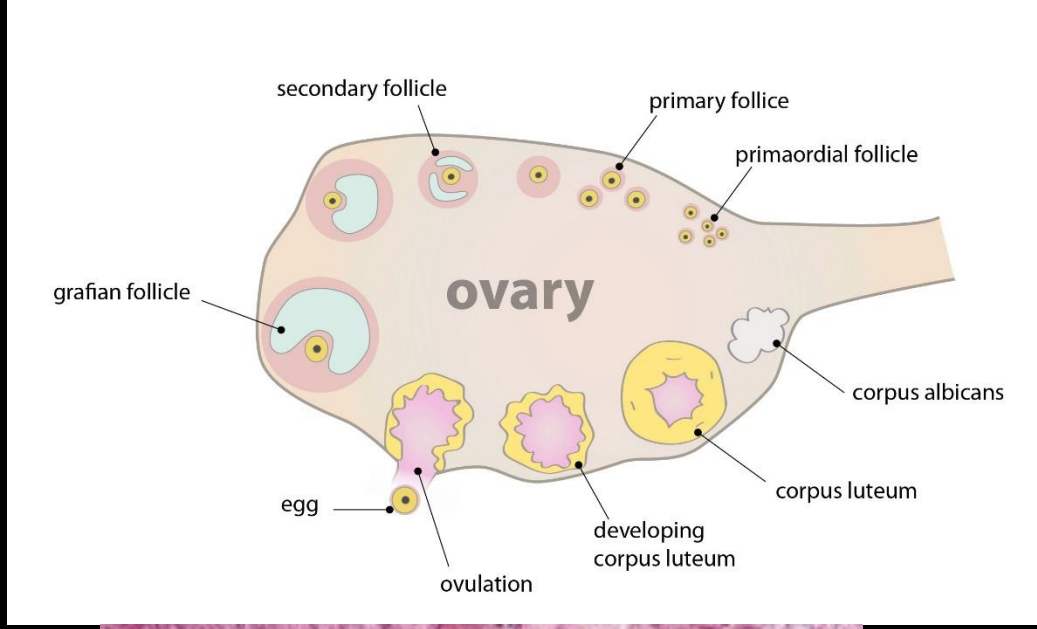
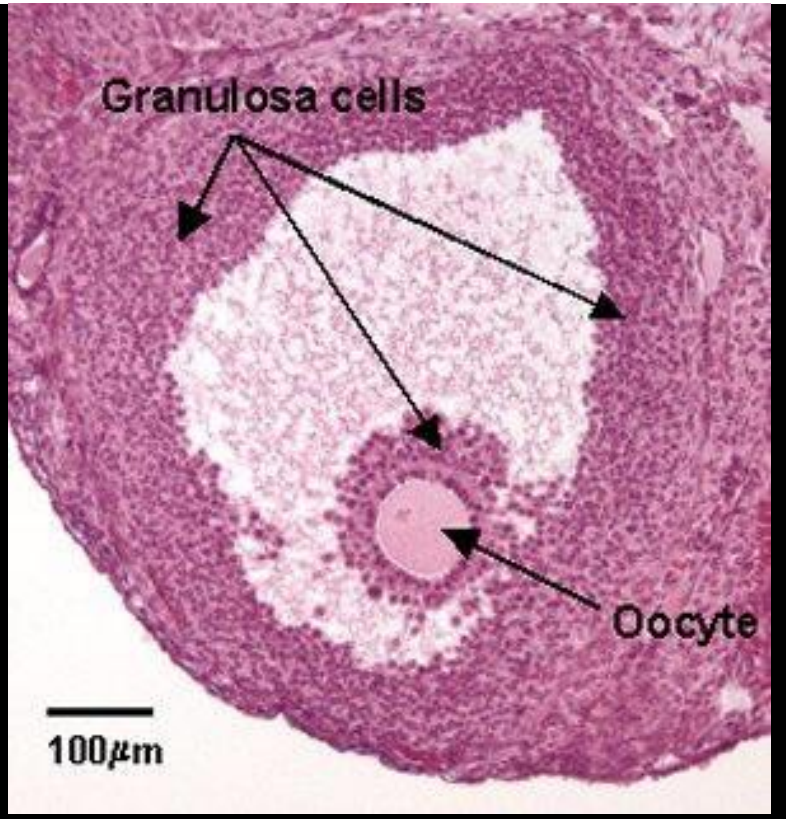
The Endocrine System and Pregnancy


Fallopian Tube
Uterus
Ovarian Follicle
Developing Phases of Ova
Ovary
Cervix
Endometrium
Vagina

Your Cycle

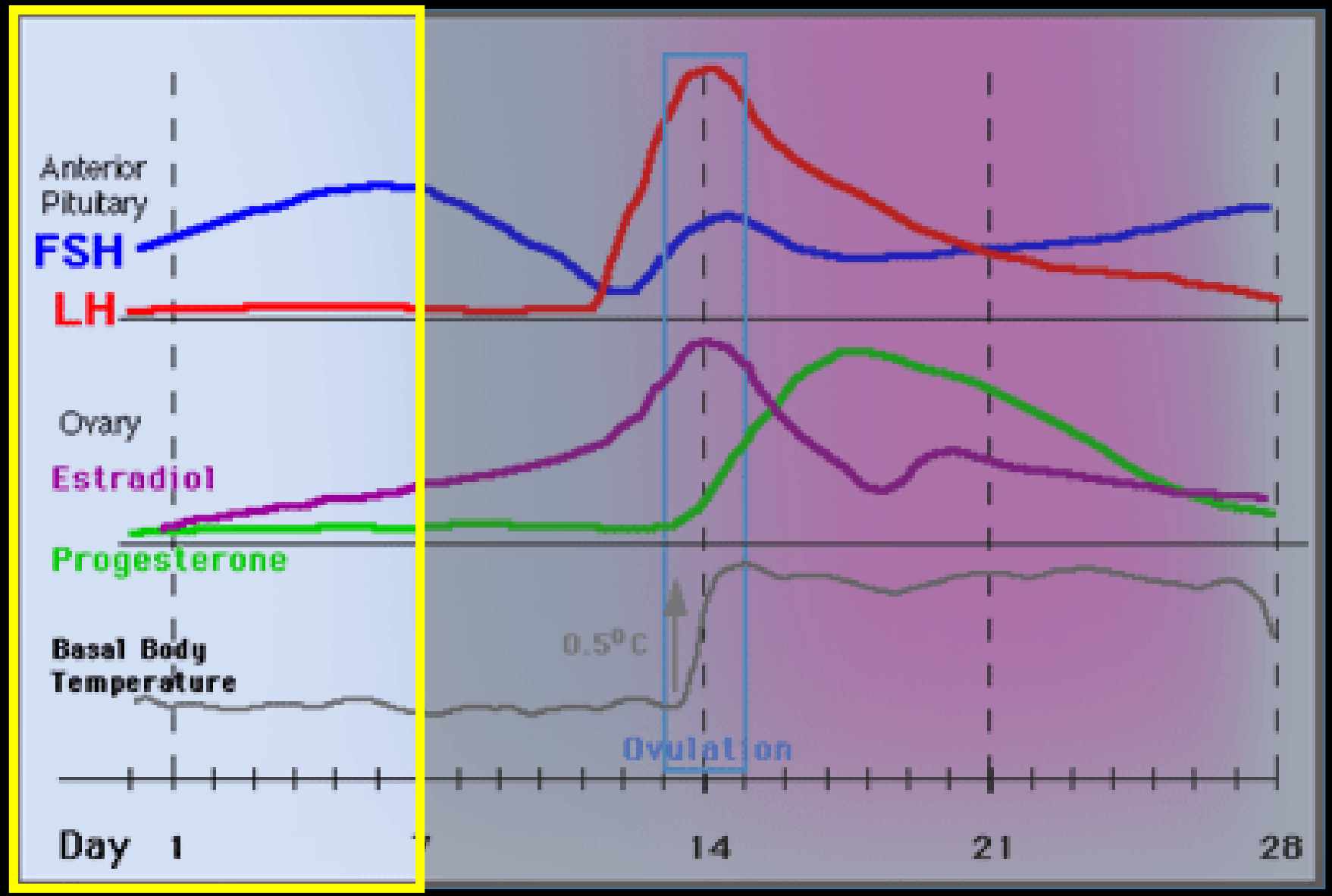
- **Follicular Phase**
  - Folliculogenesis – ovarian follicles will begin to mature
  - Gonadotropin-releasing hormone stimulating two other agents: FSH and LH.
    - FSH = *folliculogenesis* with by-product of estrogens to prepare womb
    - LH = triggers ovulation and begins building corpus luteum





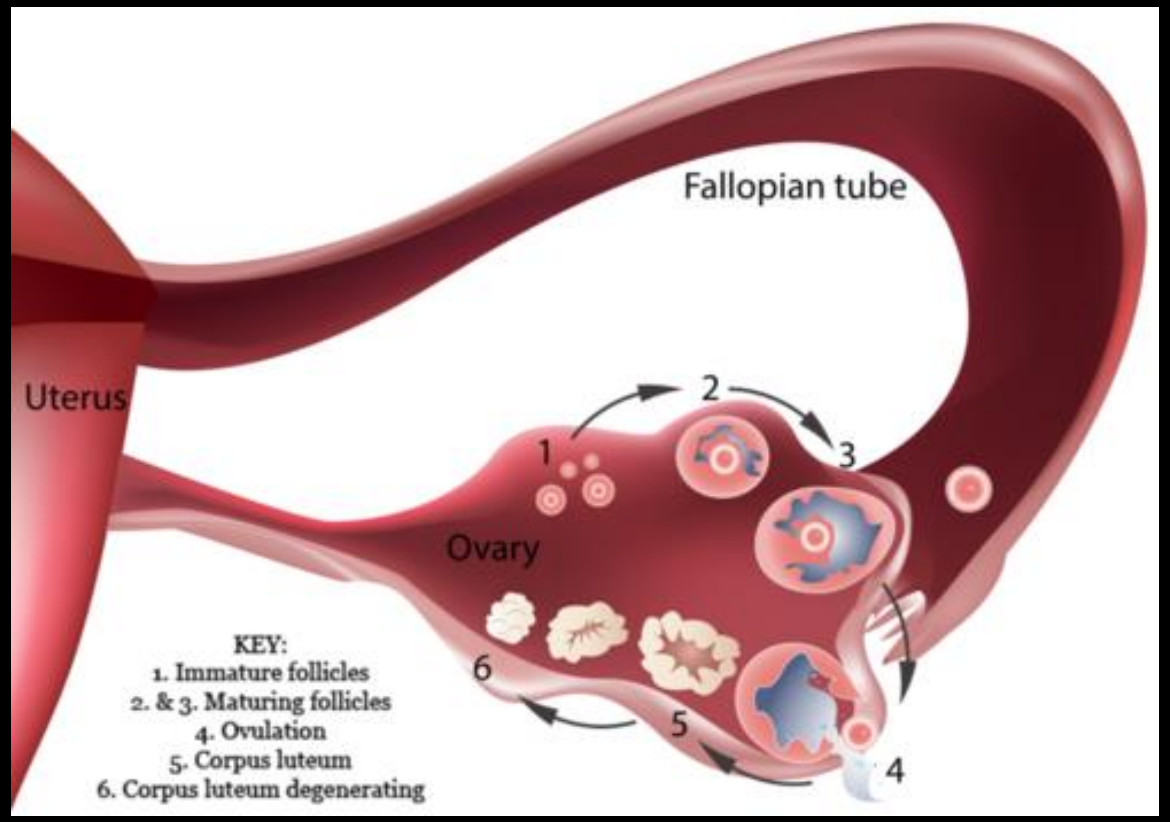
Your Cycle

- Week 1:
  - gradual build-up of LH and estrogens
  - peak of FSH



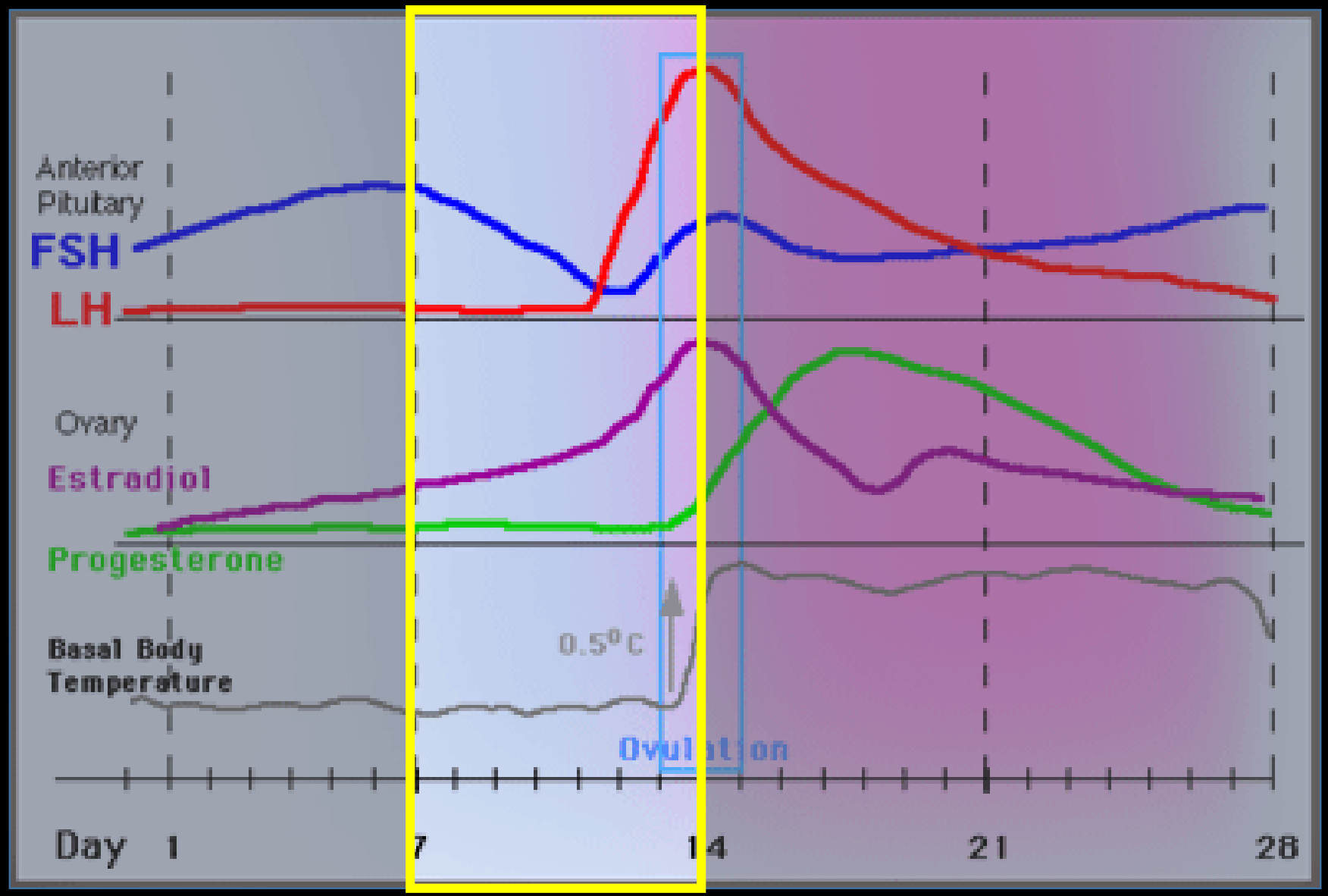
Your Cycle

- **Follicular Phase Part 2**
  - FSH fades
  - If an egg "drops", then LH peaks to push the egg "out of the nest“ by weakening the wall of the ovarian follicle.



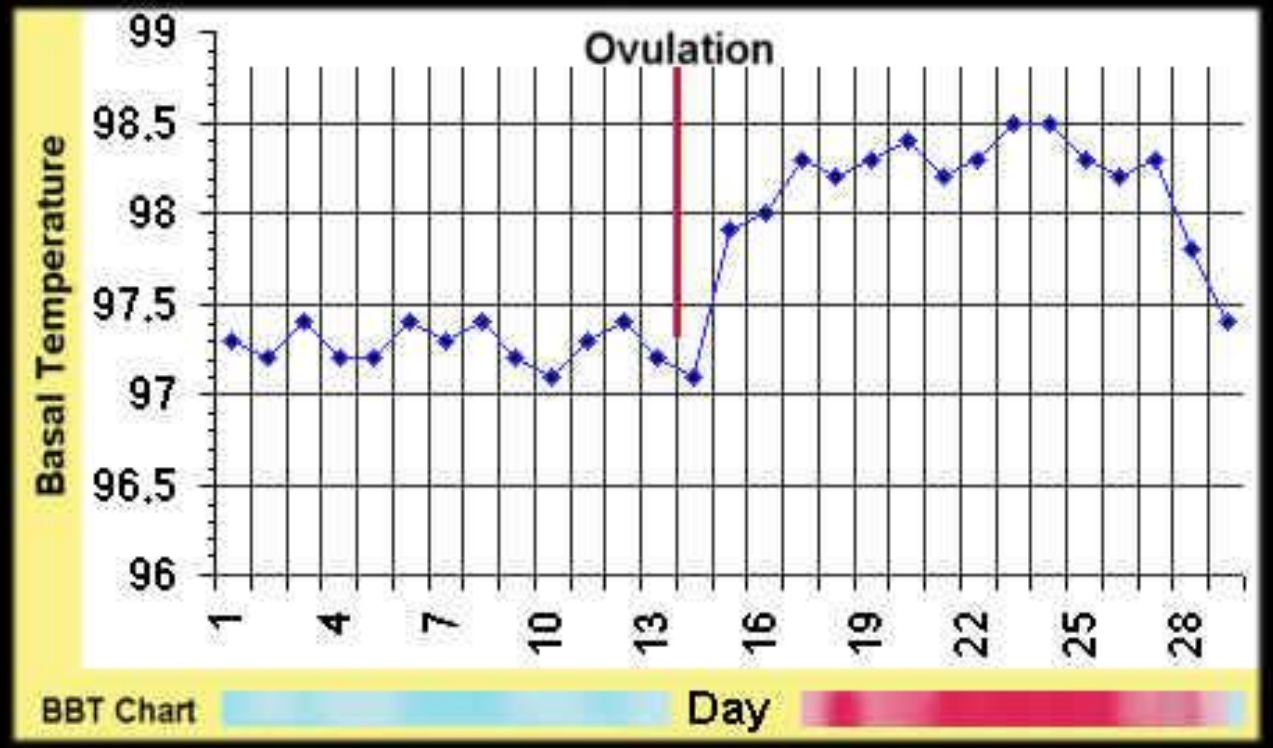
Your Cycle

- Week 2:
  - FSH drops
  - LH peaks
  - Estrogen peaks



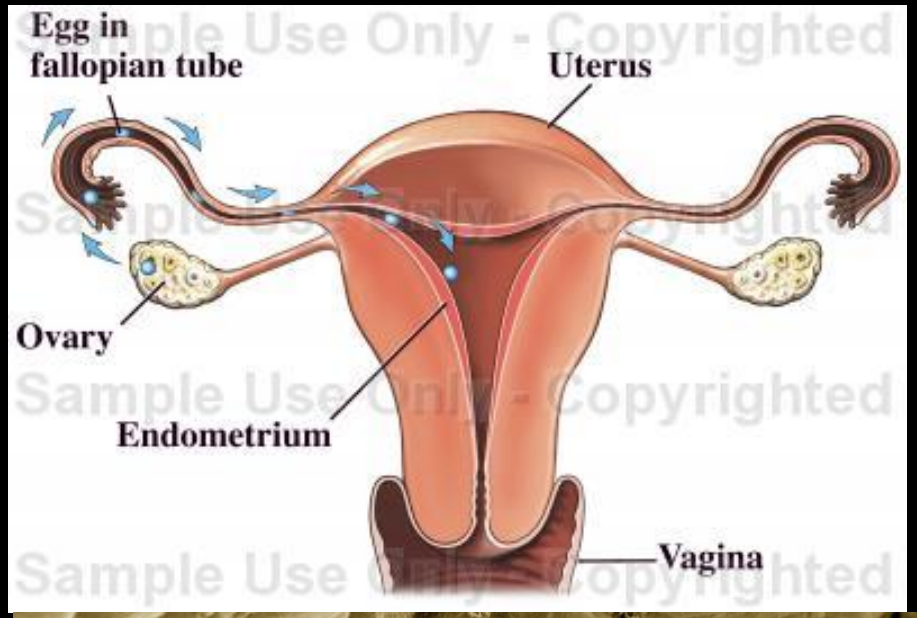
Your Cycle

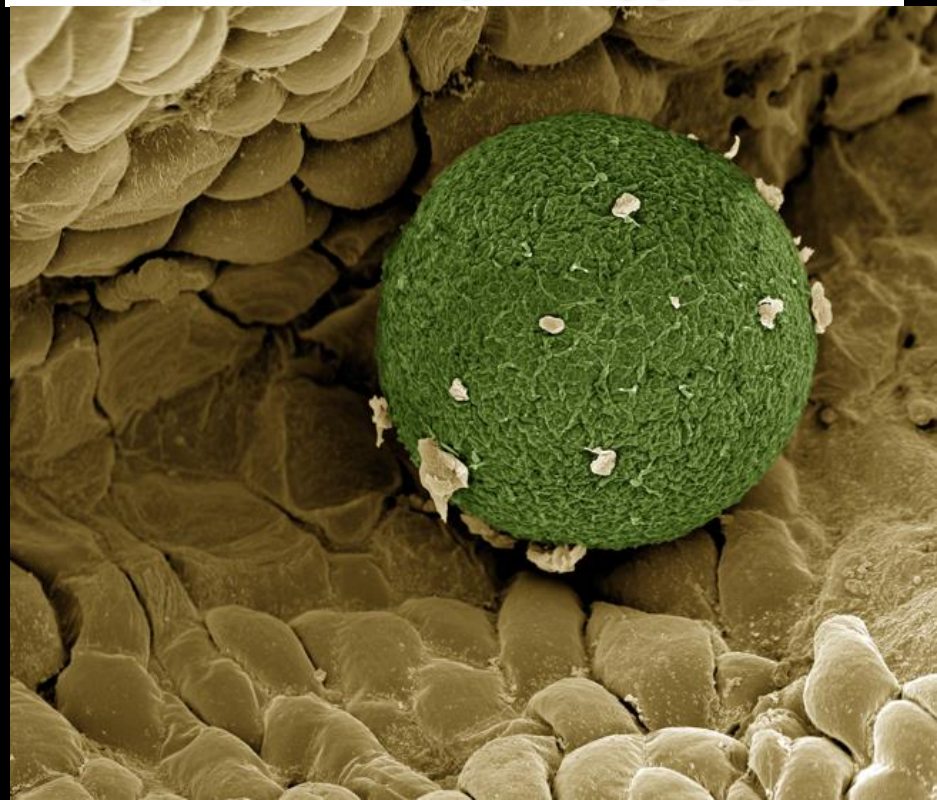
- The Luteal Phase
  - Progesterone warms the body in prep for pregnancy, signaling that ovulation has occurred.



Your Cycle

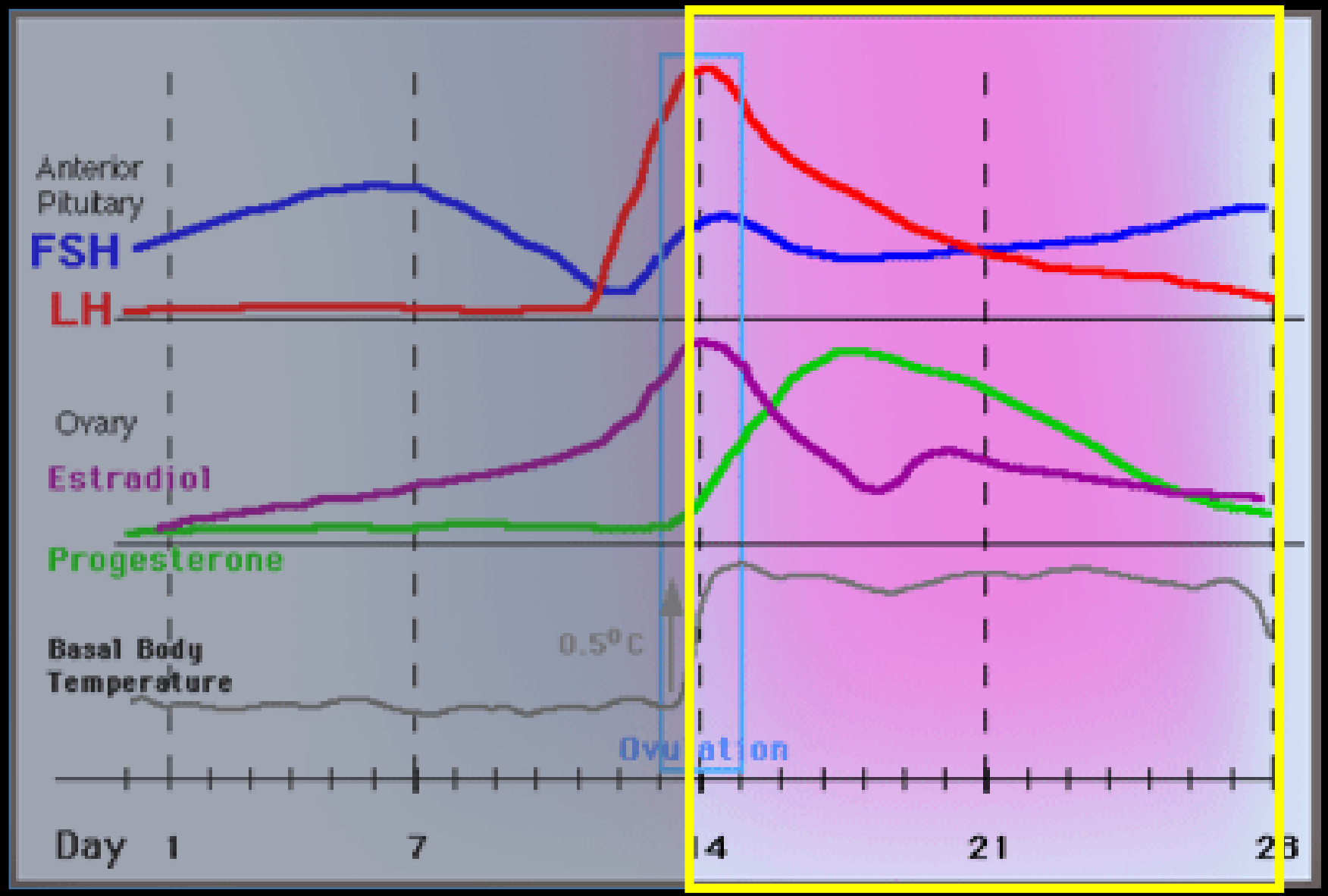
- The Luteal Phase
  - About a week following the union of sperm and egg, the embryo finds a warm, snug spot in your womb to makes its 9-month home.
  - hCG tells luteal body to keep making progesterone preventing the onset of your period.





Your Cycle

- Week 3 and 4:
  - LH and estrogen drops
  - Progesterone peaks



Pregnancy – hCG

- hCG is the pregnancy hormone
- Typically, during first 10 weeks of pregnancy, hCG will doubles every two days
- After circulation, it is eliminated via urine

Side Note: No one is entirely sure what causes morning sickness, but many doctors believe it is most likely connected to your rising HCG levels. Women with higher levels of HCG often experience more nausea and vomiting.

Pregnancy – Progesterone

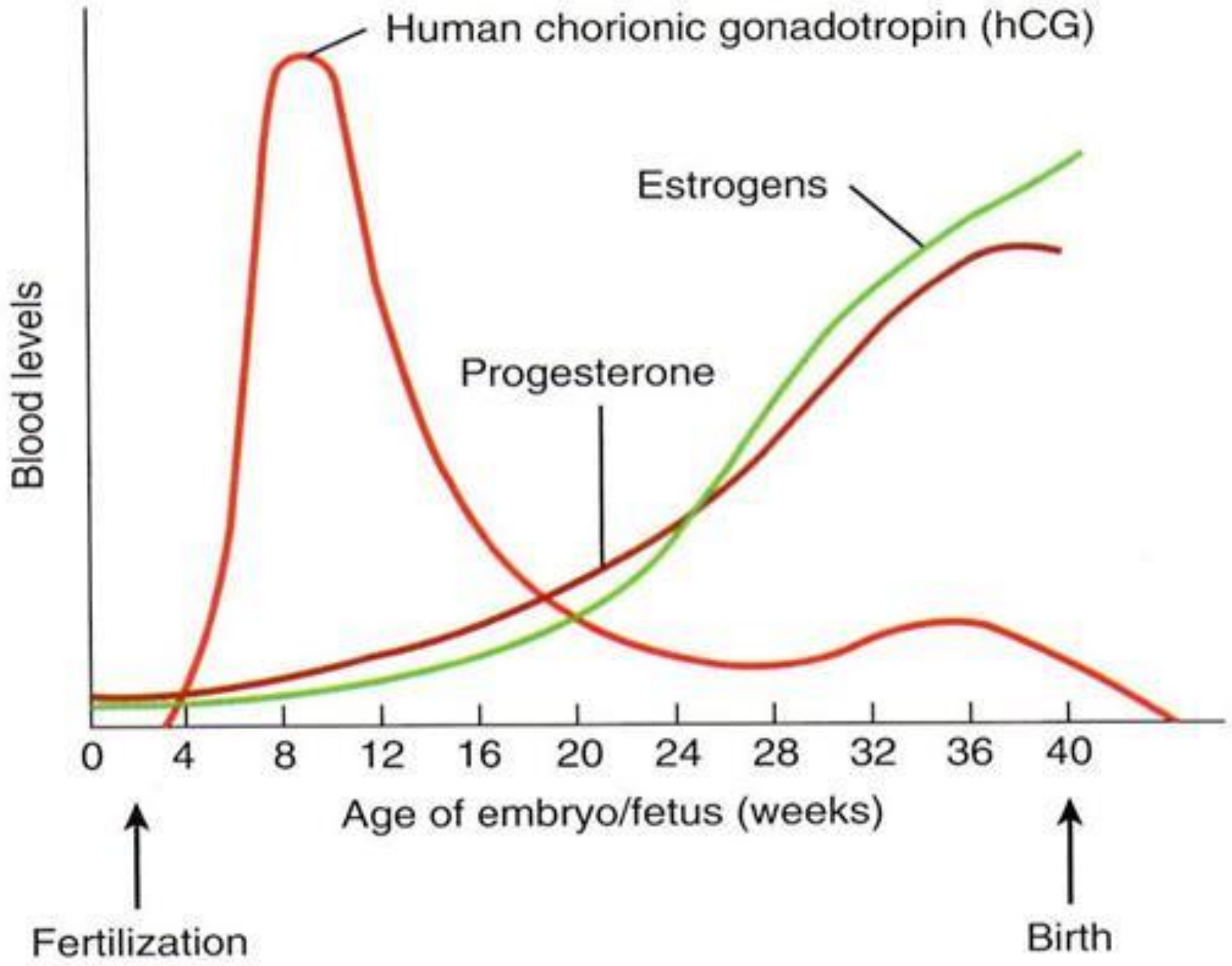
- Keeps the uterus muscle relaxed
- Plays a role in the immune system helping the body tolerate foreign DNA

Side Note: Relaxes all smooth muscle and blood vessels in the body. Prompts lower than normal blood pressure and occasionally dizziness, as well as all the not-so-fun gastrointestinal issues.

Pregnancy – Estrogen

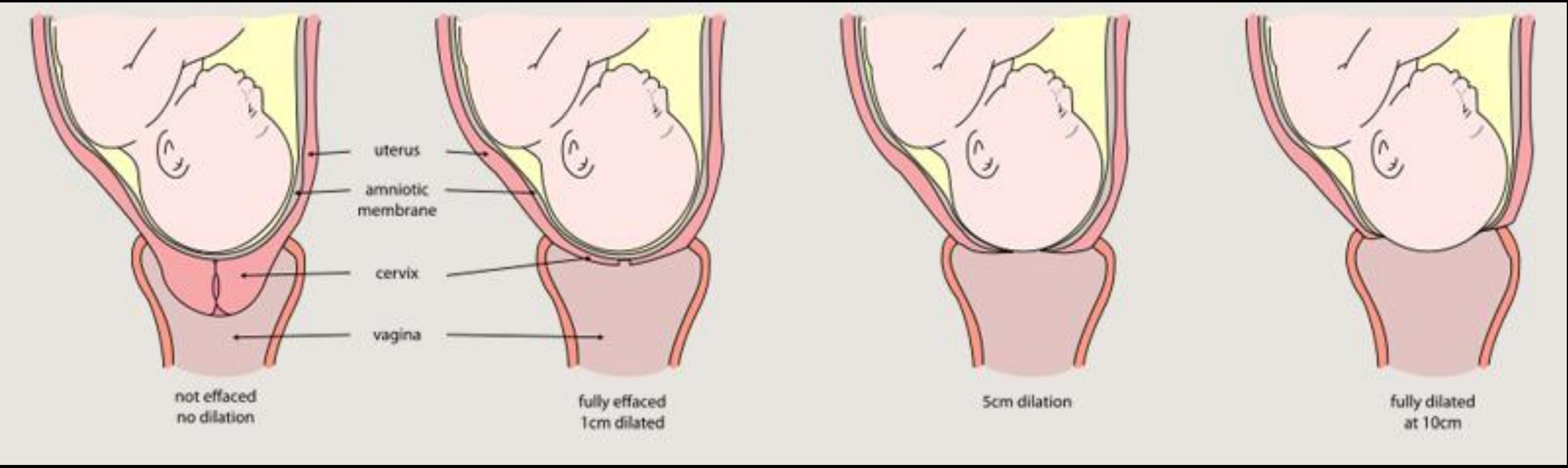
- Triggers development of fetus organs
- It helps to stimulate hormone production in the fetus's adrenal gland
- It enhances the mother's uterus, enabling it to respond to oxytocin

Side Note: May prompt spider veins, nausea, increased appetite, and skin changes. Some women, however, are lucky enough to experience the upside of a pregnancy 'glow.'


Human chorionic gonadotropin (hCG)
Estrogens
Progesterone
Blood levels
0
4
8
12
16
20
24
28
32
36
40
Age of embryo/fetus (weeks)
Fertilization
Birth

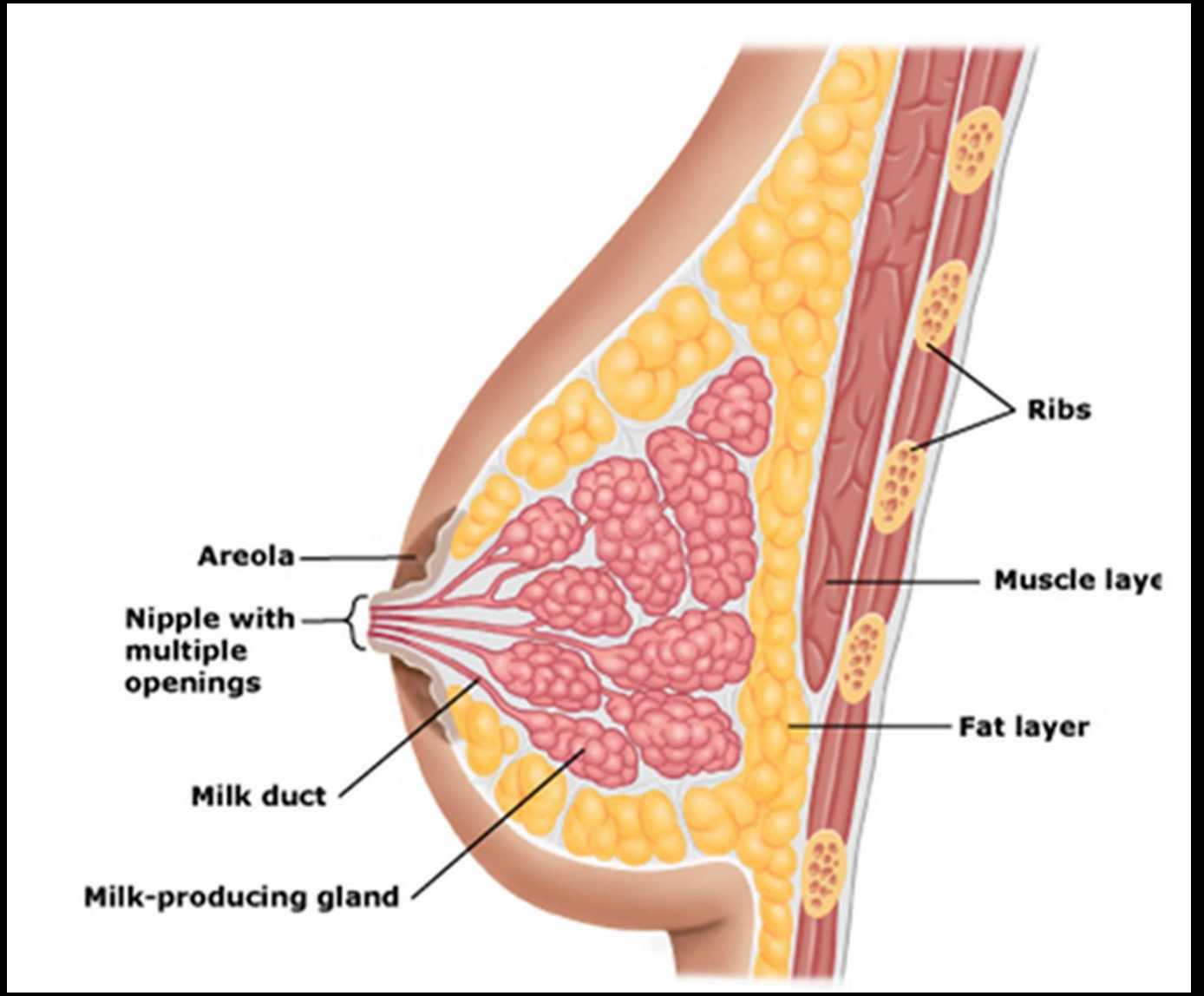
Pregnancy – Oxytocin

- Causes contractions
- Stretches cervix, stimulates nipples to produce milk



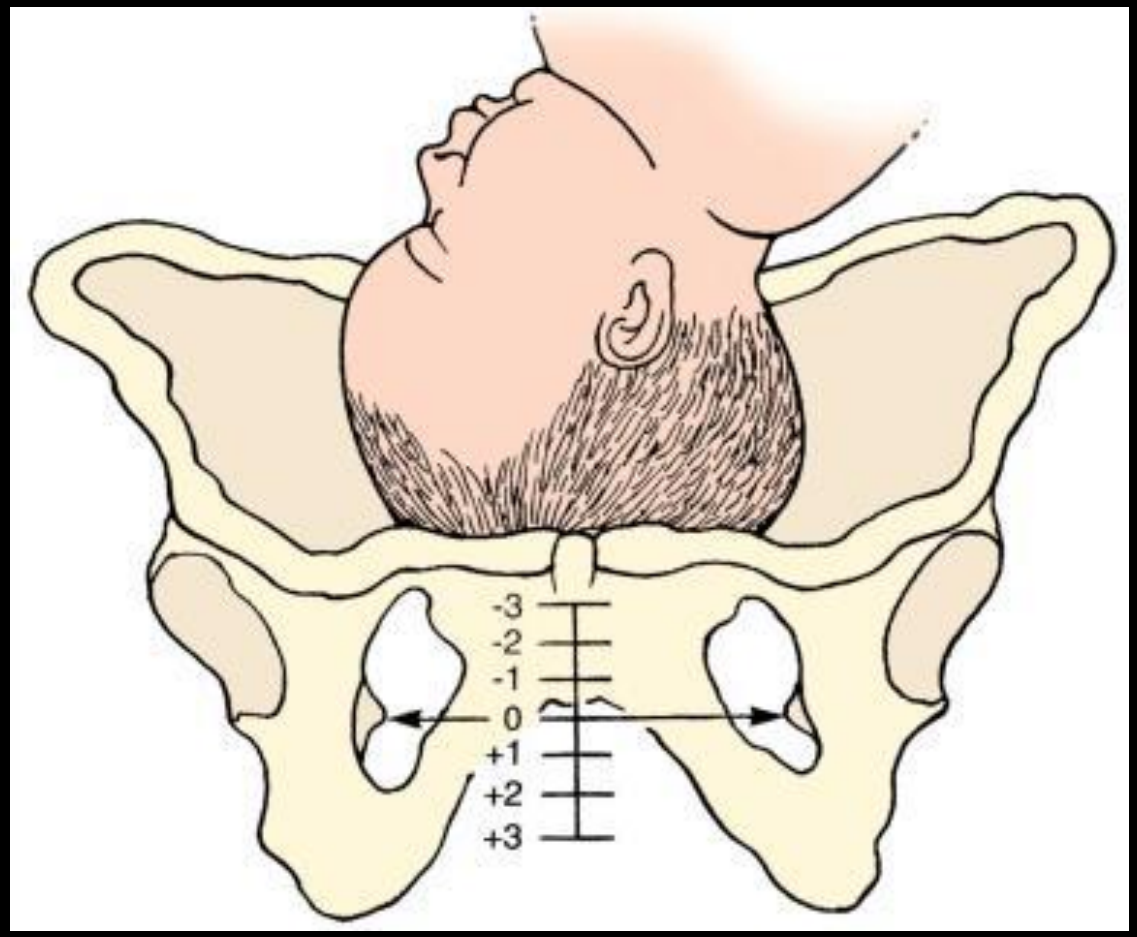
Pregnancy – Prolactin

- Prepares breast tissue for lactation and milk release



Pregnancy – Relaxin

- Loosens ligaments to hold pelvic bones together
- Relaxes uterine muscles



Pregnancy hormones interact with other systems

- **Blood Glucose:** Pregnancy hormones can block insulin
- **Blood Pressure:** 50% increase in maternal blood volume without resulting in hypertension
- **Thyroid:** demand for thyroid increases for two