

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





# The Menstrual Cycle

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# What is the menstrual cycle?

- Menstruation is cyclical shedding of endometrium > cyclical production of estrogen and progesterone Under influence of hypothalamic-pituitary hormones
- The process in which females ripen or release one mature egg.
- The average menstrual cycle will repeat itself about every 28±7 days, but normal menstrual cycles can range from 21 to 35 days.

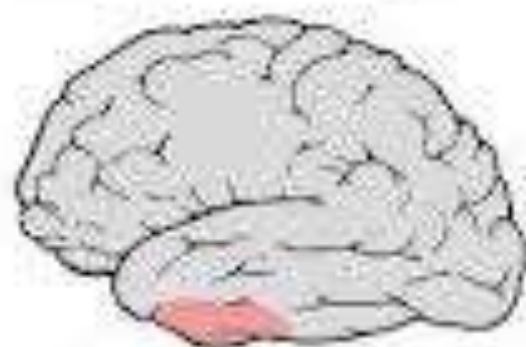
# Menstrual Cycle

- ▶ AGE of menarche.....13
- ▶ Menopause.....51

# OVARIAN CYCLE

- ▶ GnRh ...>>>>>>Anterior pitutary....>>>>>FSH and LH
- ▶ FSH.....follicular phase
- ▶ LH.....OVULATION

## The normal menstrual cycle

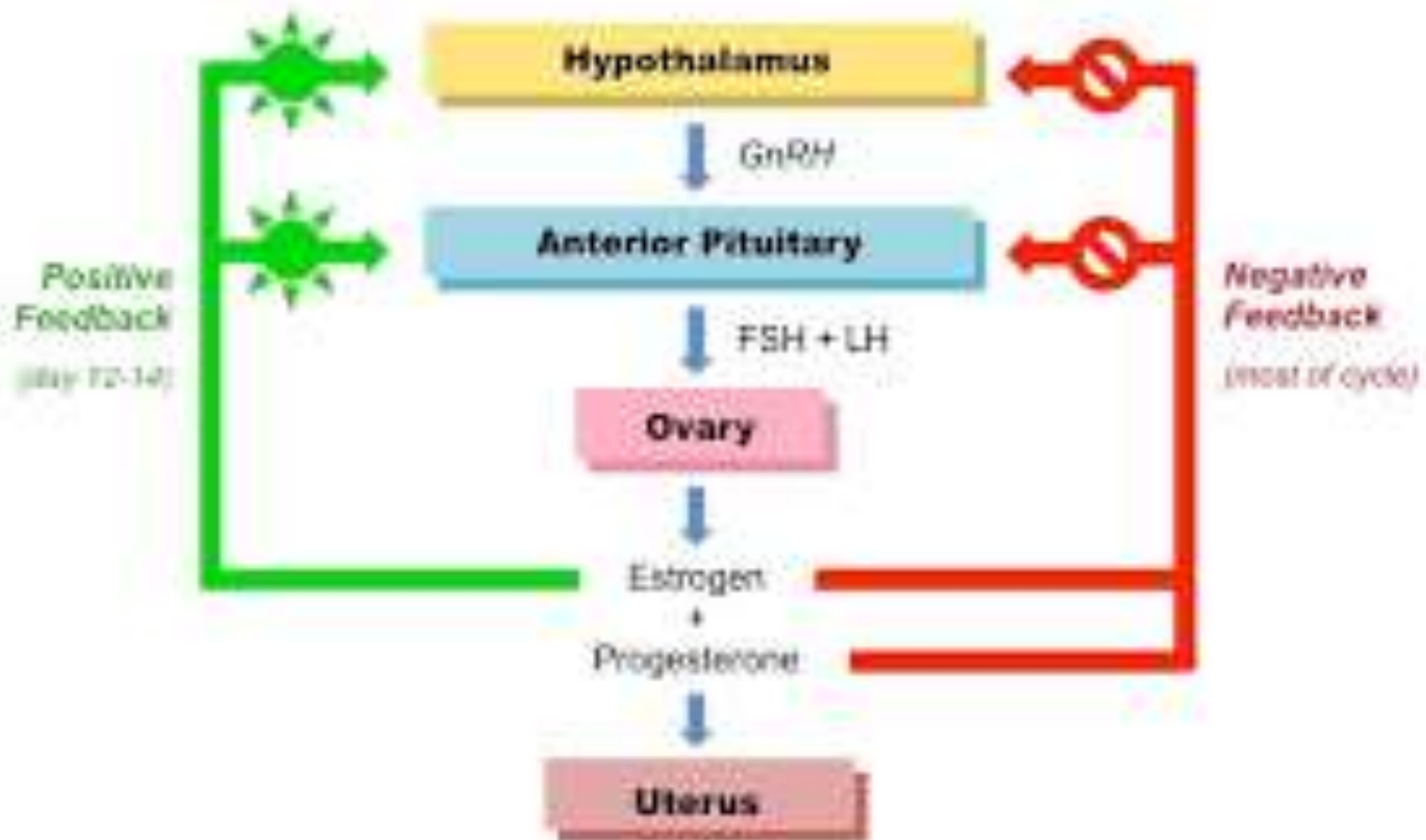


Pituitary gland



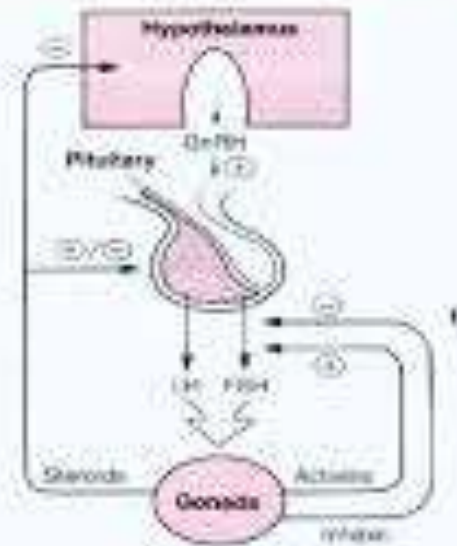
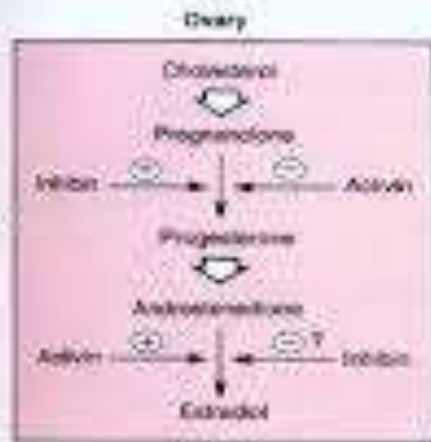
Ovary



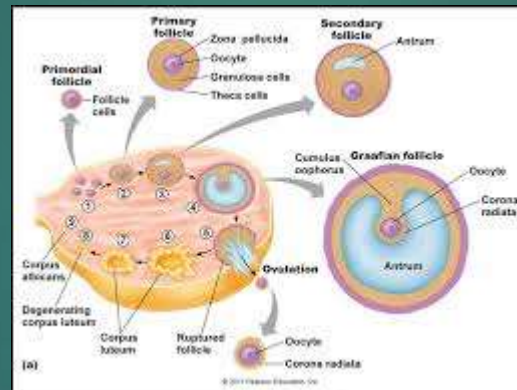


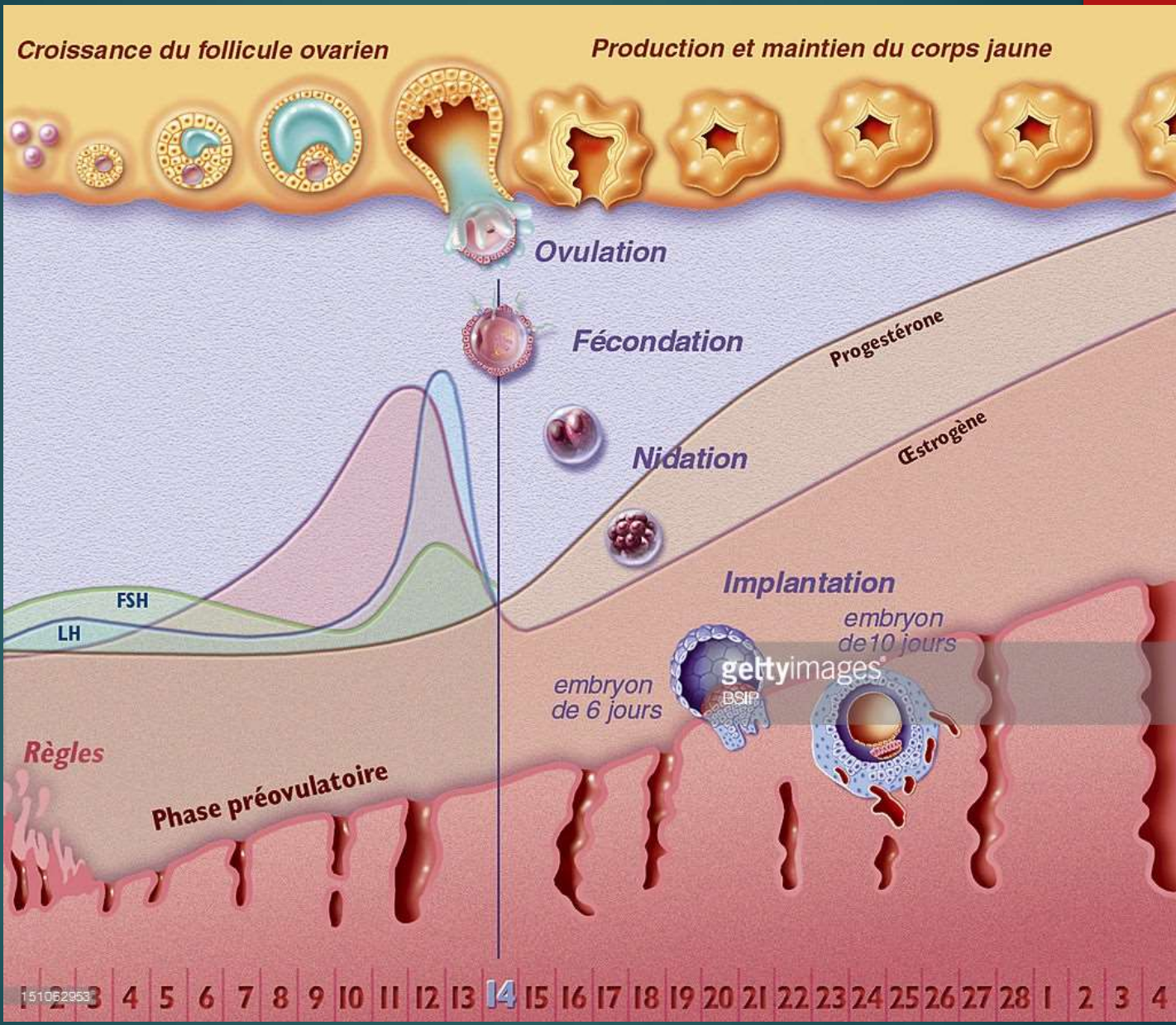


# HYPOTHALAMIC- PITUITARY- OVARIAN AXIS



FSH acts on granulosa cell to release estrogen which in turns causes follicular growth





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BSIP

# Changes in **Pituitary Hormones**

## Days 1-14:

- ▶ During the first half of the cycle (Days 1-14) the pituitary produces **FSH**, which stimulates egg production.
- ▶ This hormone also triggers the release of estrogen from the ovaries.

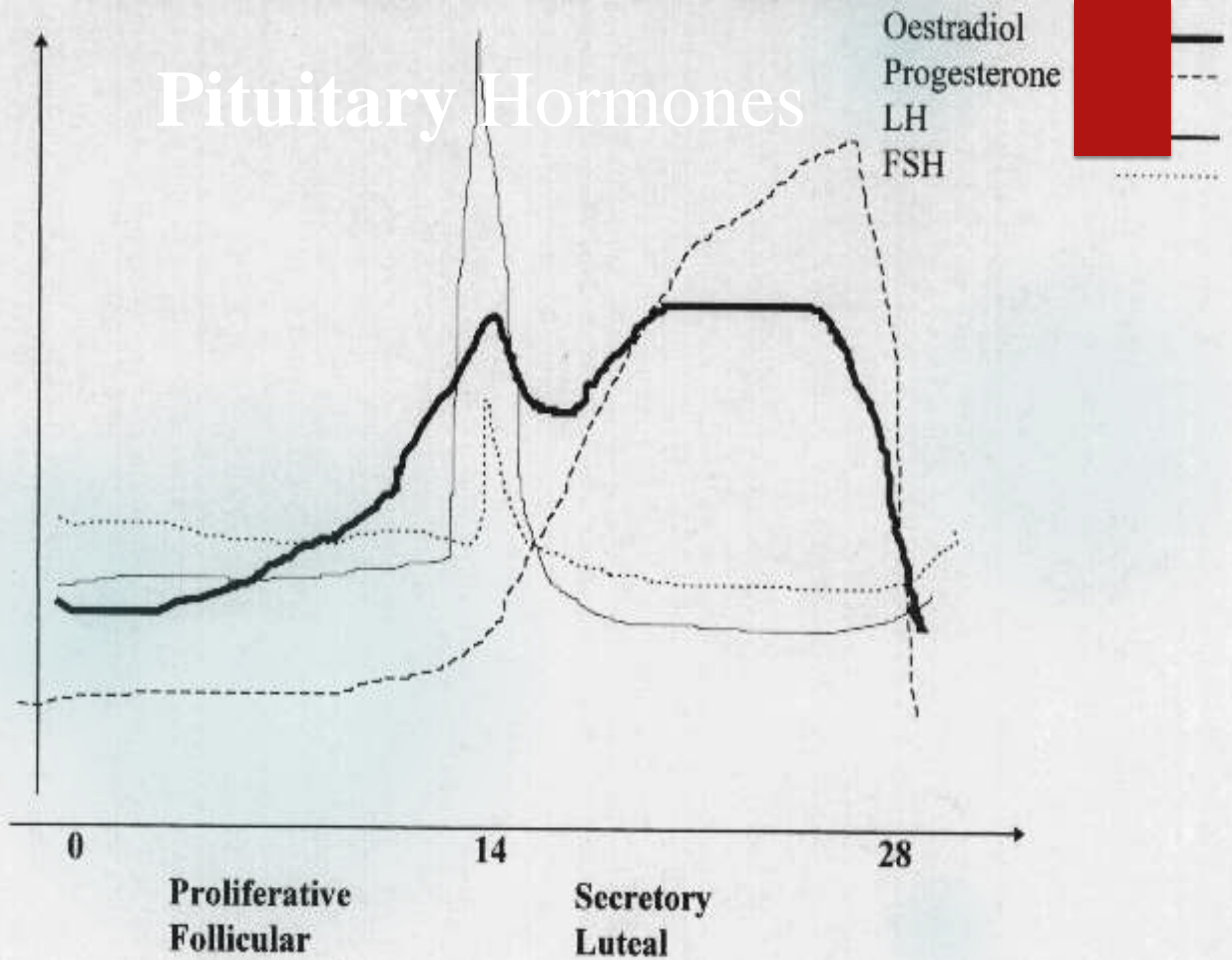
# Changes in Pituitary Hormones

Days 14-28:

- ▶ On the 14th day the pituitary begins releasing LH causing ovulation
- ▶ LH also directs the production of progesterone which maintains the growth of the endometrium.
- ▶ If the egg is not fertilized upon arrival in the uterus progesterone levels drop causing estrogen levels to drop leading to menstruation.



# Pituitary Hormones



# Changes in the Ovaries:



**Stage 2 - egg continues to ripen; follicle growth**

**Stage 1 - ovum begins to develop.**

**Stage 3 - Ovulation fully mature egg bursts out of follicle.**

**Stage 4 - Egg enters fallopian tube follicle remains and forms the corpus luteum.**

Ovum released

This diagram shows a large, dark, spherical ovum being released from a follicle. The follicle is shown as a smaller, lighter-colored structure. The ovum is labeled 'Ovum released'.

# Changes in the Ovaries:

- **Stage 1** - An egg is beginning to mature within a cluster of cells called a follicle
- **Stage 2** - Rapid follicle and egg growth
- **Stage 3** - Ovulation occurs; fully mature egg bursts out of the follicle (fertile) empty follicle transforms into the corpus luteum
- **Stage 4** - Egg travels through fallopian tube (7 days) if not fertilized upon arrival in uterus the corpus luteum shrinks triggering menstruation and ripening of new egg.



# Changes in Ovarian Hormones:

- ▶ **Estrogen** -gradually increases during days 1-14; signals body to thicken the lining of the uterus. Levels drop sharply after ovulation.
- ▶ **Progesterone** -Levels remain low during the first half of the cycle and then increase sharply during the second half of the cycle. Maintaining the growth of the endometrium lining.

# Menstrual Cycle



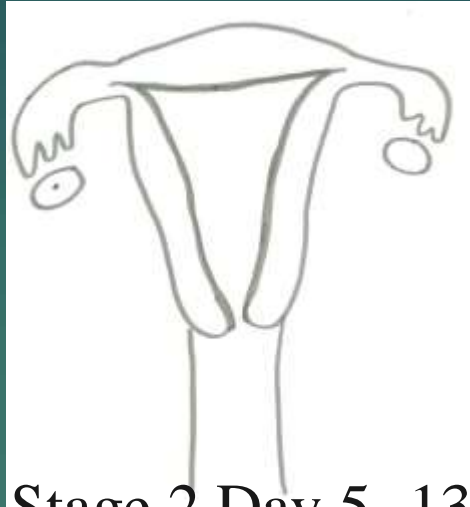
**Endometrial Layer of the Uterus**



# Changes in the Uterus:



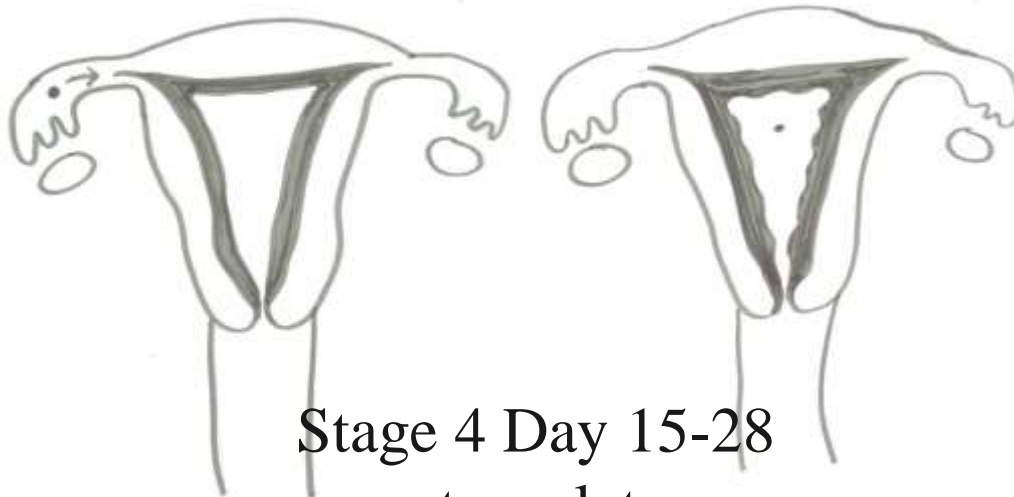
Stage 1- Day 1-5  
menstruation



Stage 2 Day 5- 13  
pre-ovulatory stage

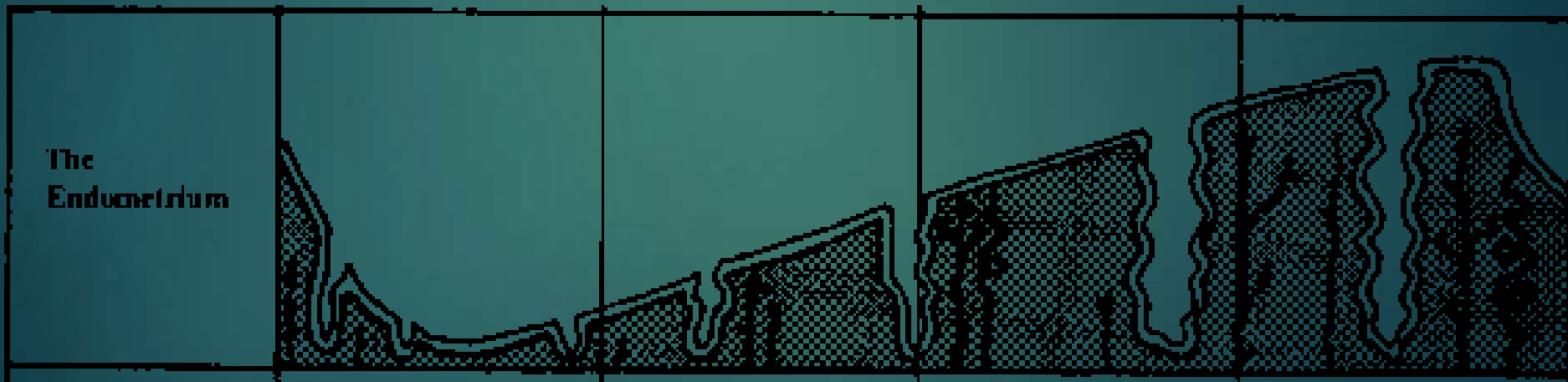


Stage 3 Day 14  
Ovulation



Stage 4 Day 15-28  
post-ovulatory  
stage

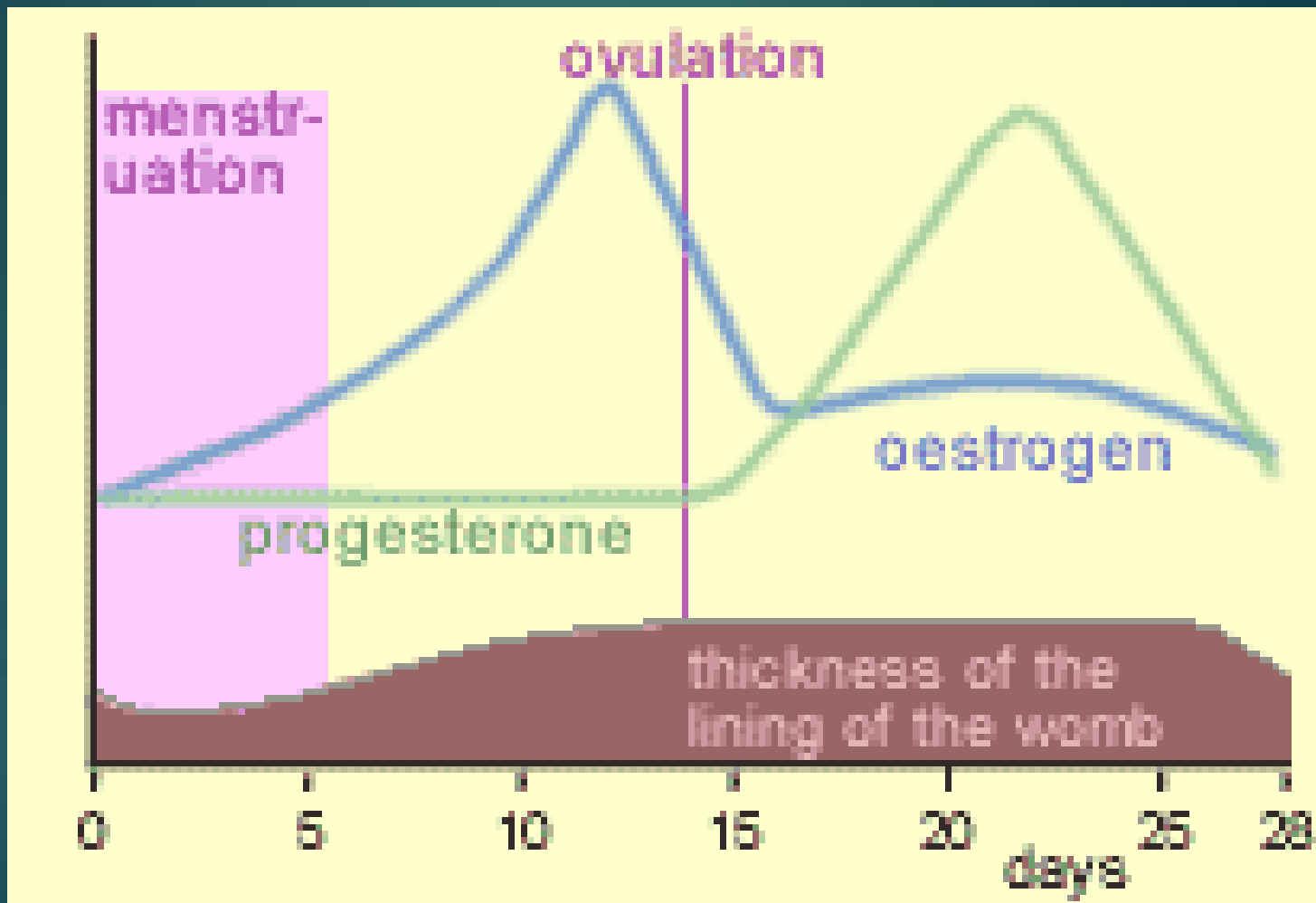
The uterine lining slowly thickens from day 5 through day 28



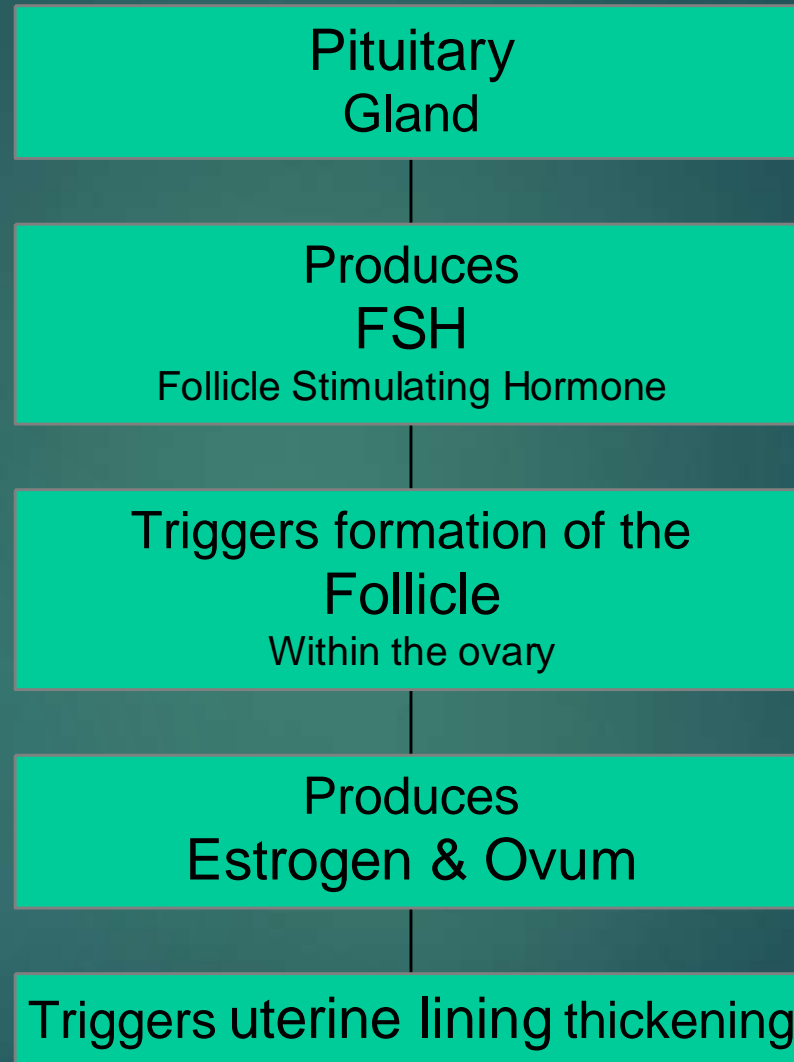
# Changes in the Uterus:

- ▶ **Stage 1**- Menstruation- Endometrium breaks down and blood, mucus, tissue, and the egg are shed through the vagina.
- ▶ **Stage 2**- Menstrual flow stops & endometrium begins to thicken.
- ▶ **Stage 3**- Endometrium continues to thicken.
- ▶ **Stage 4**- The endometrium is at it's thickest point.

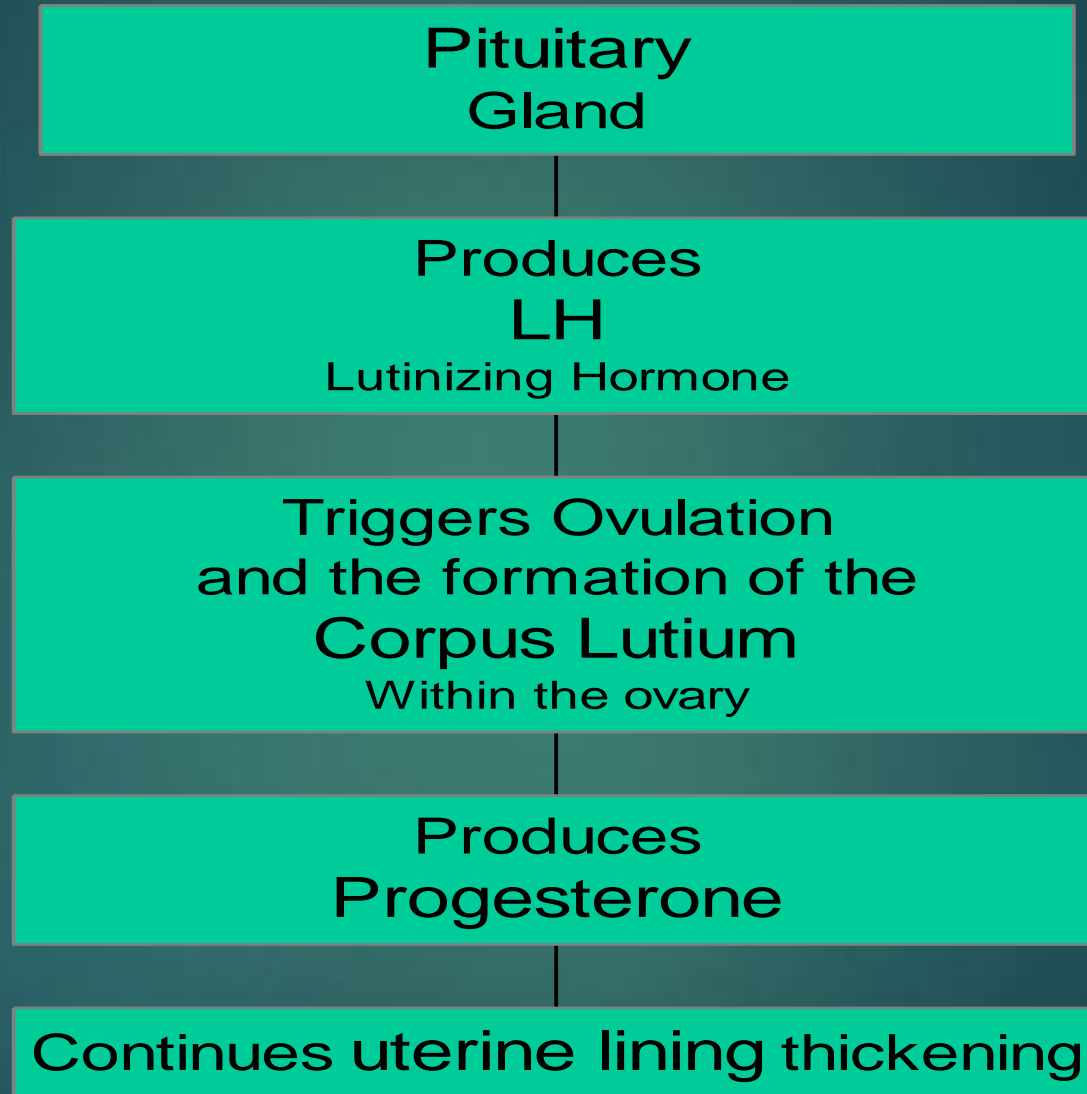
# Ovarian Hormones



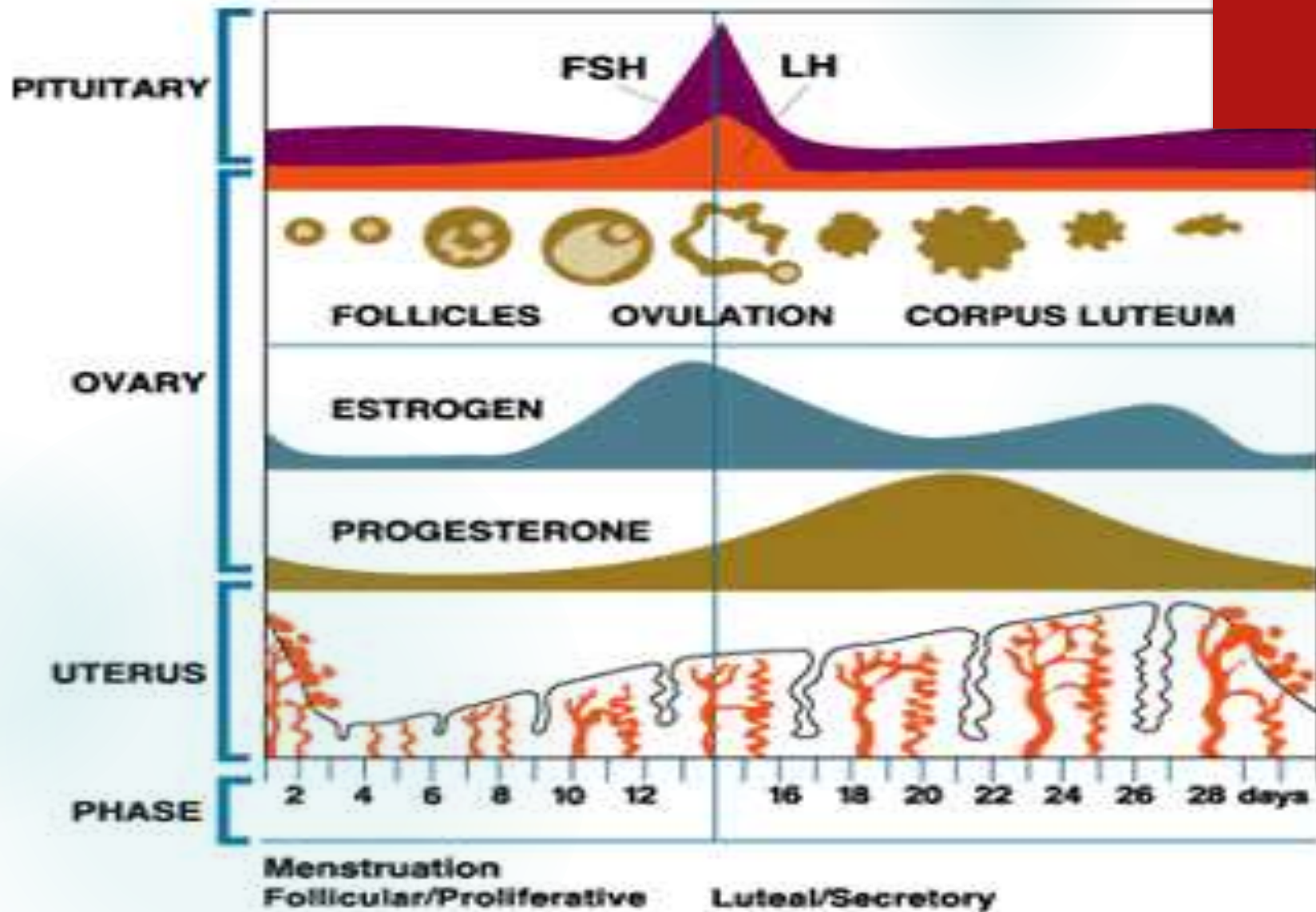
# Days 1-14



# Days 14 - 28







# The Menstrual Cycle



Any  
Questions?

Hope Happiness finds  
you every where !

A dark background filled with out-of-focus, colorful light spots in shades of red, orange, yellow, and blue, creating a bokeh effect. A horizontal black bar is centered across the image, containing the text "THANK YOU!".

THANK YOU!