

# Parturition

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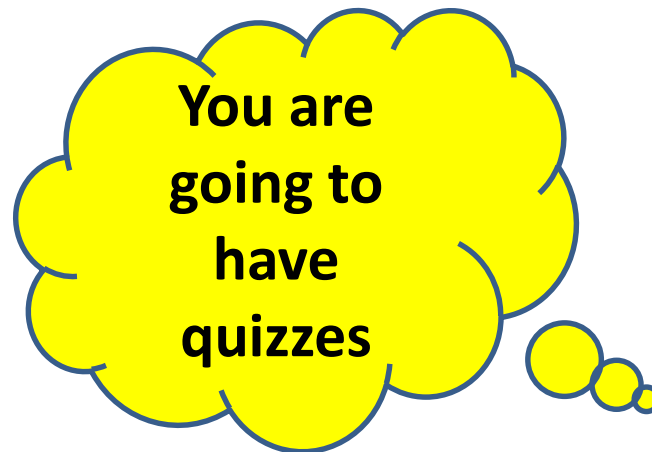
Physiology dept.

# objectives

1. Explain the process of parturition
2. Involution of uterus after parturition

# Read page 1064 - 1066

- List the factors that increase uterine contractility,
- Compare the actions of progesterone and estrogen on uterus during pregnancy
- Define the 3 stages of labor and write their durations



# PARTURITION( page 1064)

## (birth of the baby)

Uterus develops such strong rhythmic contractions that the baby is expelled.

**Hormonal  
Factors That  
Increase  
Uterine  
Contractility**

**Mechanical  
Factors That  
Increase  
Uterine  
Contractility**

# Quiz

A woman has history of preterm labor in her last pregnancy, she is pregnant again and has consulted you for the prevention of preterm labor , from which month will you start prescribing progesterone

- A. 4<sup>th</sup>
- B. 5<sup>th</sup>
- C. 6<sup>th</sup>
- D. 7<sup>th</sup>
- E. 8<sup>th</sup>

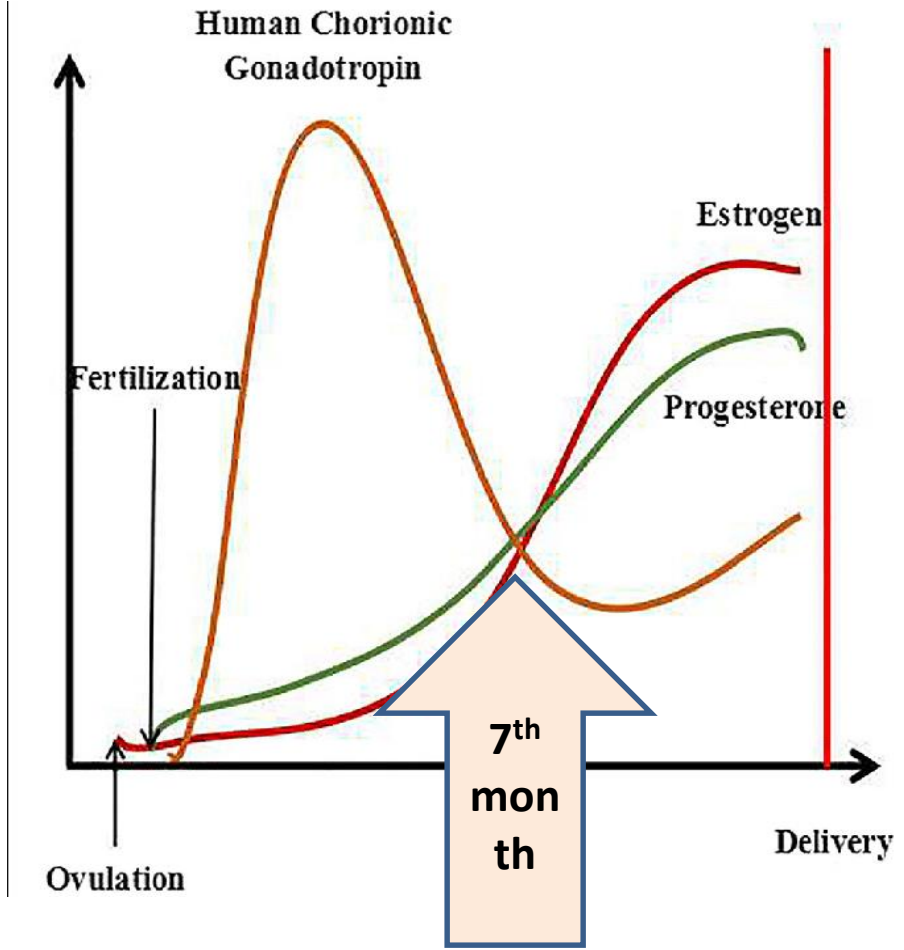
# Maternal hormones (Increased Ratio of Estrogens to Progesterone in late pregnancy)

**Estrogen**

**progesterone**

Increase size of uterus,  
Increase the degree of uterine contractility  
(increase the number of gap junctions)

Storage of nutrients in endometrial cells  
inhibits uterine contractility  
Secretion of nutrient rich fluid in fallopian tubes



# Quiz

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# Fetal hormones

Pituitary  
gland

Oxytocin

Adrenal  
gland

Cortisol

Membranes

Prostaglandins



# Mechanical Factors That Increase Uterine Contractility

Stretch of the Uterine Musculature

Stretch or Irritation of the Cervix

Abdominal muscle contractions during labor

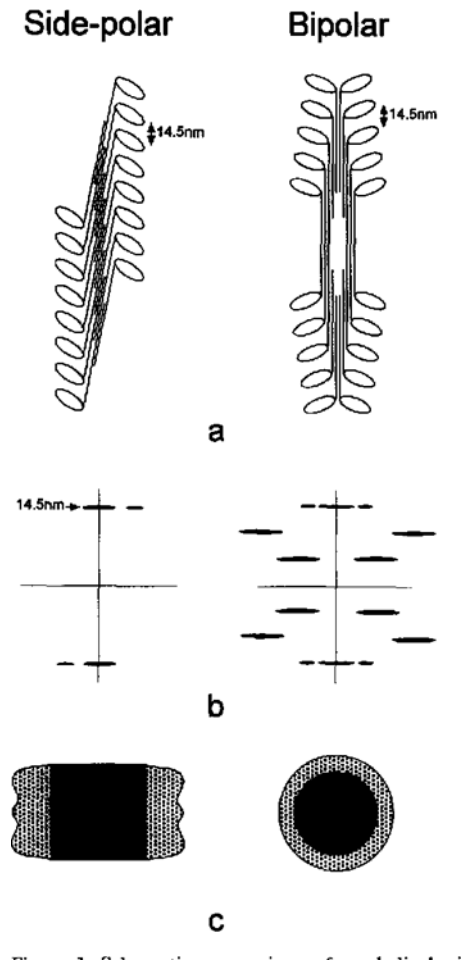
- twins are born, on average, 19 days earlier than a single child

- rupturing the membranes so the head of the baby stretches the cervix

- stretch receptors in the vagina activate a neural reflex that triggers contractions of the abdominal wall in synchrony with the uterine contractions.

# Mechanical factors

- Stretch of smooth muscle
- Side polar cross bridges, 80 time more force of contraction
- Sustained ( slow cross bridge cycle take up to 30seconds), slow recycling
- unitary smooth (more gap junction)

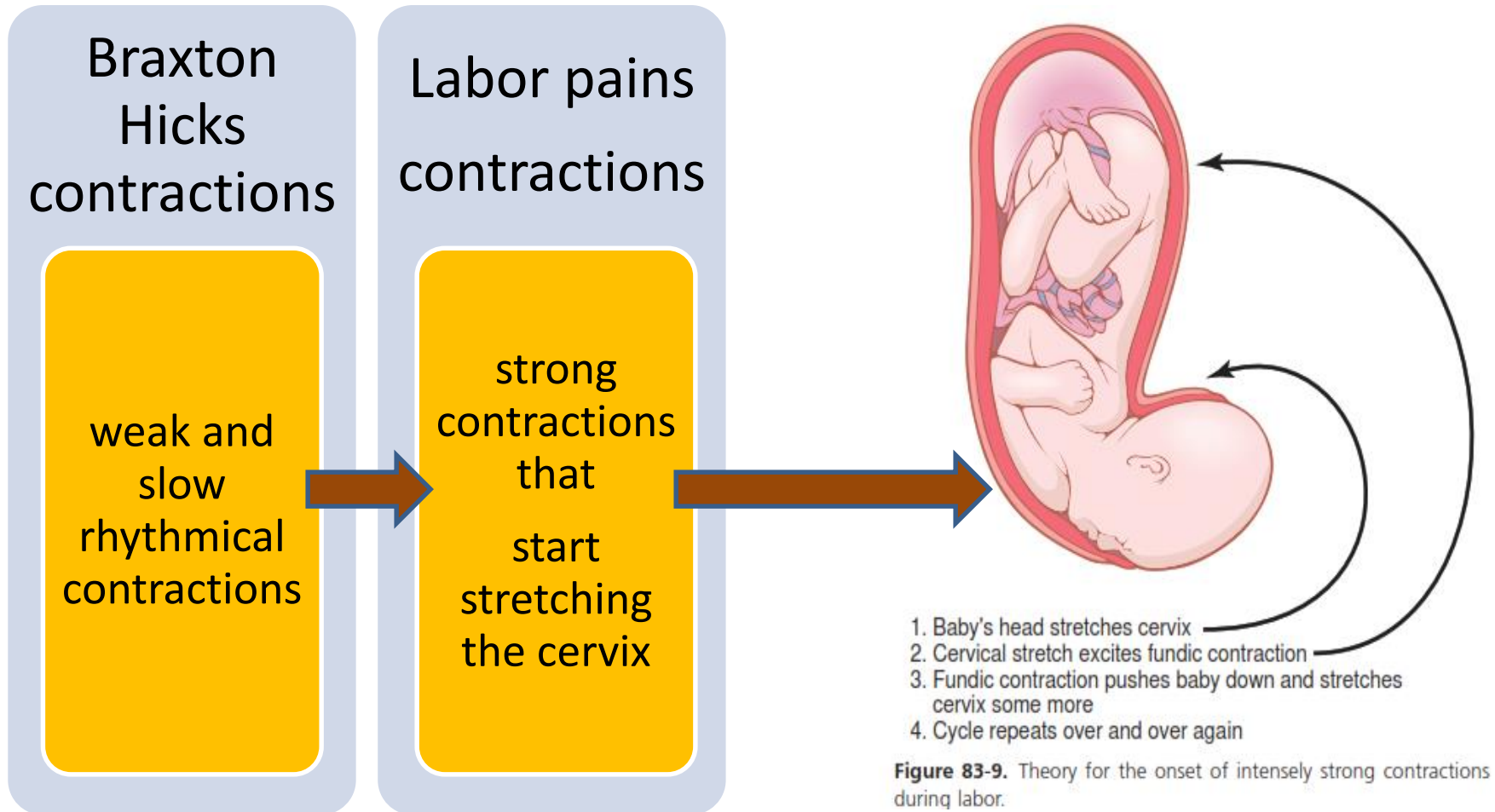


- An obstetrician wants to induce labor in a pregnant lady , she can do one of the following
  - A. Giving estrogen locally
  - B. Prostaglandin inhibitors
  - C. Irritating cervix by rupturing membrane
  - D. Oxytocin inhibitors
  - E. Reducing stretch on uterus

# Irritating cervix by rupturing membrane mechanism for inducing contraction in uterus

- Irritation of cervical nerves reflexively cause contraction in fundus
- Direct myogenic transmission of signals to uterus
- Stimulate pituitary gland to release oxytocin

# ONSET OF LABOR—A POSITIVE FEEDBACK MECHANISM FOR ITS INITIATION



# Parts of a Positive Feedback Loop

- **Stimulus**

(stretch and irritation of cervix )

- **Sensor**

A sensor detects the change in homeostasis. nerve cells in the cervix detect pressure placed on it from the head of the fetus during labor. Nerve impulses from a sensor will travel to the control center.

- **Control Center**

A control center is the part of the body that responds to the change and takes action. The pituitary gland in this case secretes oxytocin in response to stimuli.

- **Effector**

An effector is any organ or cell that ultimately responds to the stimulus. In this case, the uterus is the effector organ.

④ Hypothalamus sends efferent impulses to posterior pituitary, where oxytocin is stored

pituitary releases  
and; oxytocin  
uterine

nds  
ly  
es  
to  
birth

③ Afferent impulses to hypothalamus

② Pressoreceptors in cervix of uterus excited

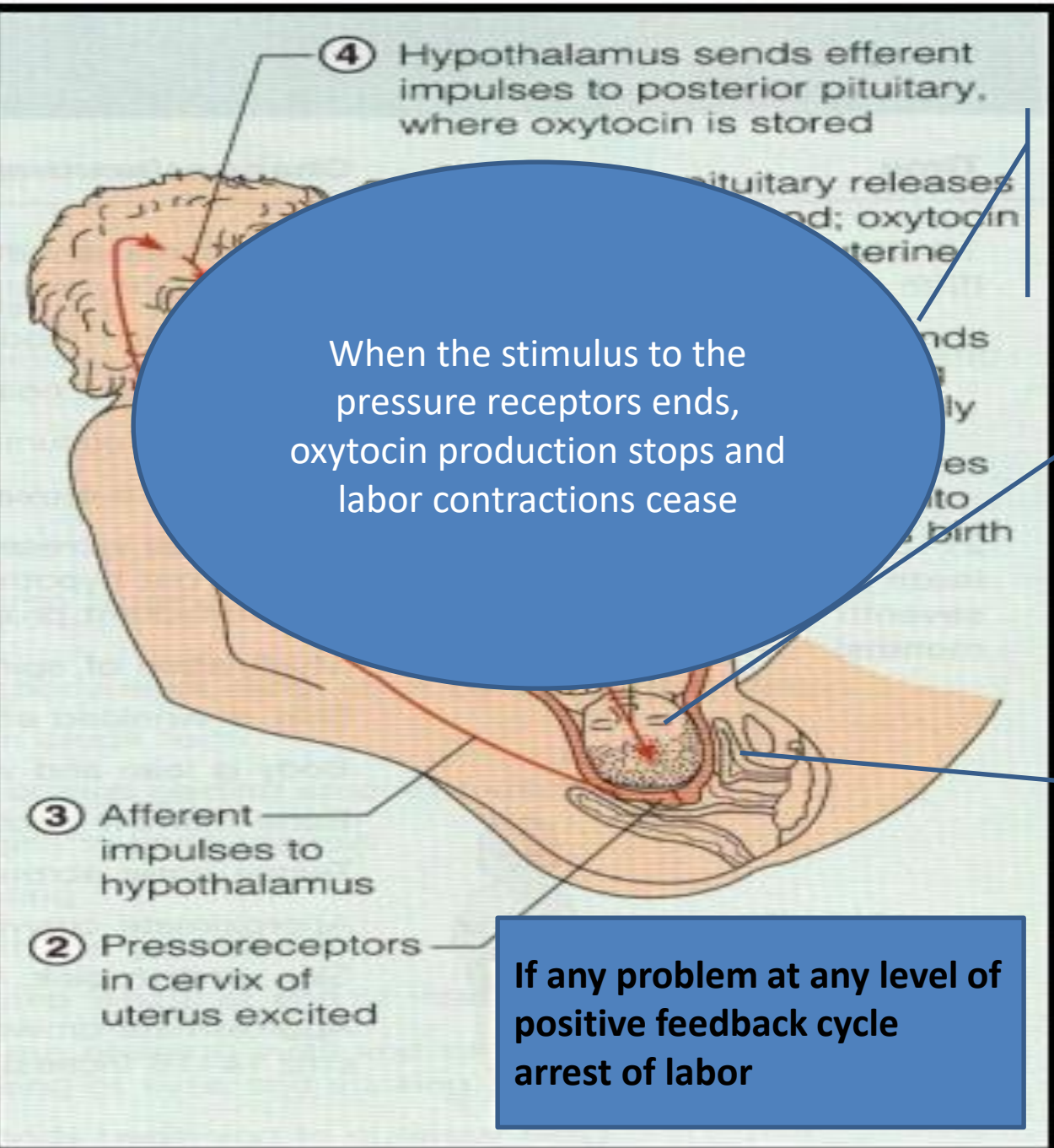
When the stimulus to the pressure receptors ends, oxytocin production stops and labor contractions cease

If any problem at any level of positive feedback cycle arrest of labor

Hypotonic uterine dysfunction

size, presentation, and position of the fetus

Cephalo-pelvic disproportion (reduced stretched) Poliomyelitis Dwarfism Fibroid



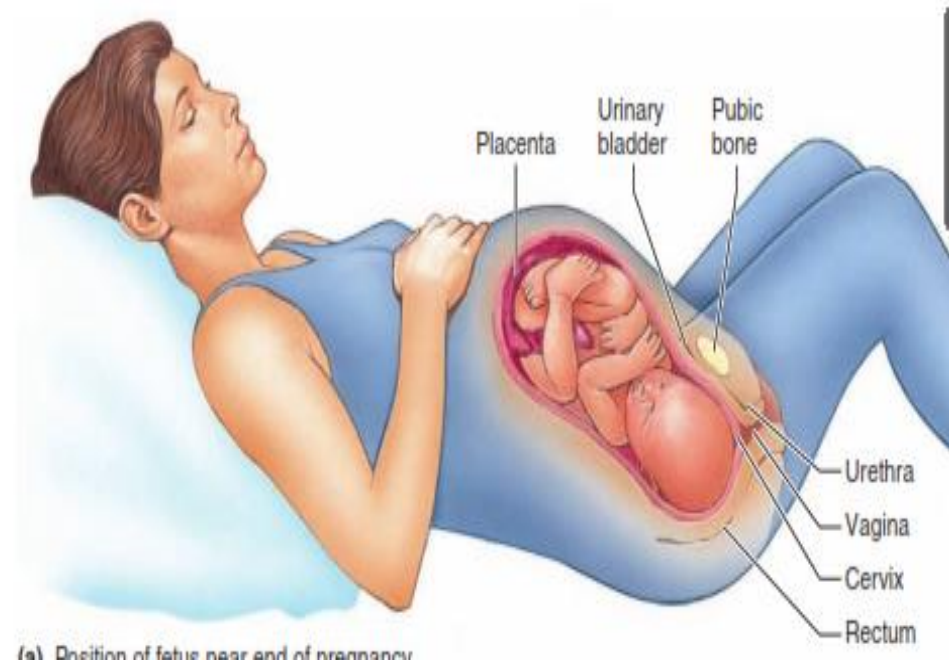
# Role of abdominal contraction

- Adds to force that expels the fetus



# Mechanics of Parturition

- Early part of labor, contraction every  min
- As labor progresses, once every
- the duration of contractions lengthens from 30 to 60 seconds in early labor to 60–90 seconds in later labor.



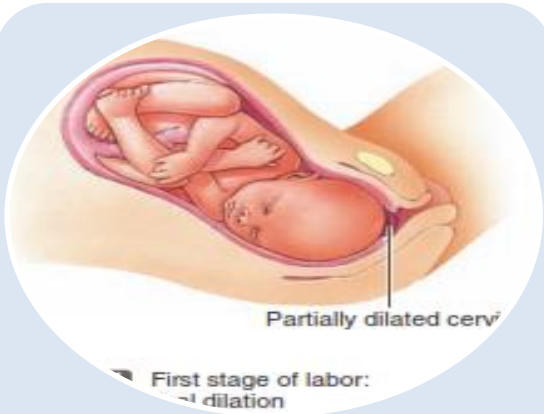
# Uterine contractions

- Intermittent not constant

- 

**What happens if excess oxytocin is administered**

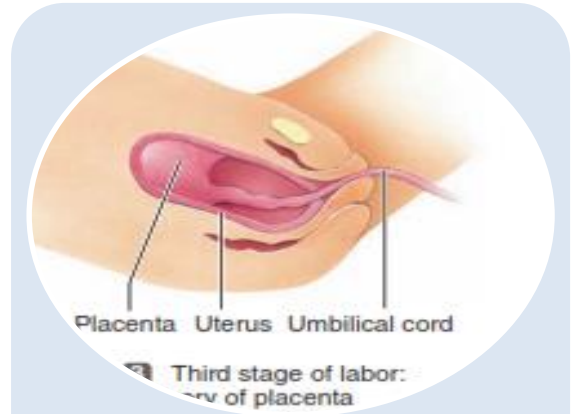
# Stages of labor



**first stage of labor is a period of progressive cervical dilation,**



**second stage of labor, baby in birth canal**




**10 to 45 minutes after birth of the baby, the uterus continues to contract to a smaller and smaller size, which causes a shearing effect between the walls of the uterus and the placenta, separating it**

?

# How bleeding is stopped after placental separation

- Smooth muscle fibers of the uterine musculature Are arranged in figures of eight around the blood vessels as the vessels pass through the uterine wall.
- Prostaglandins are vasoconstrictors

# Uterine involution

- The uterus shrinks to its pre gestational size, a process known as **involution**,
- Takes 
- Placental site on the endometrial surface autolysis, causing a vaginal discharge known as lochia
- After 10 days endometrium re- epithelize

Stay blessed  
And  
healthy