Normal Labor and Delivery



Ina S. Irabon, MD, FPOGS, FPSRM, FPSGE
Obstetrics and Gynecology
Reproductive Endocrinology and Infertility
Laparoscopy and Hysteroscopy

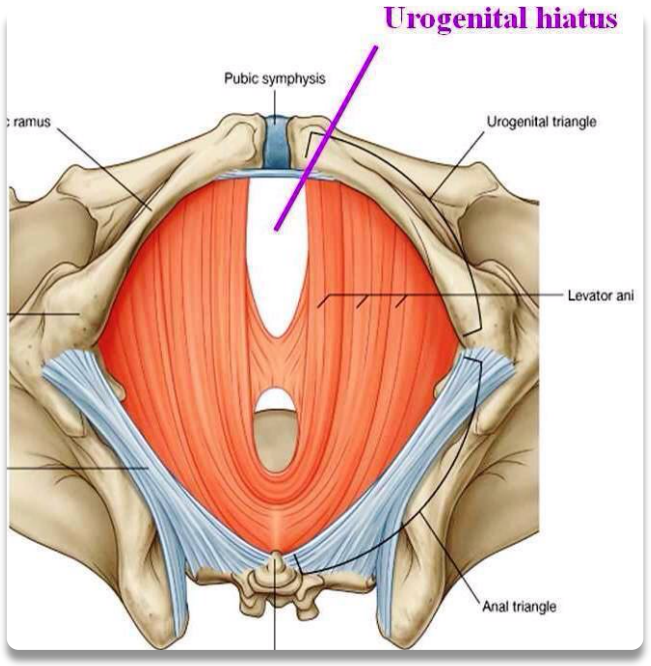
Reference

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Outline

- Mechanism of labor
- Definition of labor
- 4 Stages of labor
- 2 phases of labor
- 3 functional divisions of labor
- Management of first stage of labor
- Management of second stage of labor
- Management of the third stage of labor

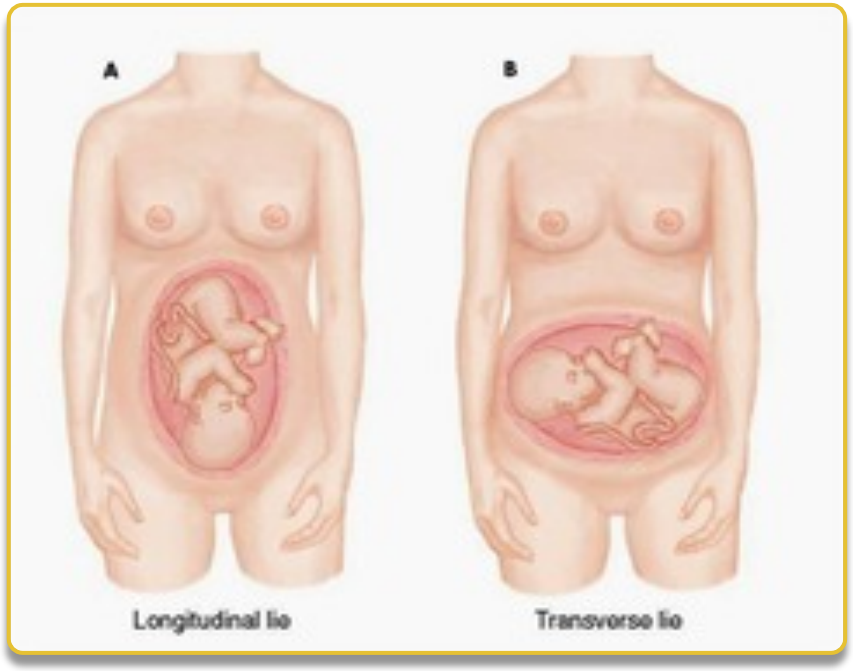
Mechanisms of normal labor: Pelvic floor changes



- urogenital hiatus area significantly becomes larger at 37 weeks AOG and at 6 weeks postpartum, compared with early pregnancy → goes back to its original size by 6 months postpartum

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

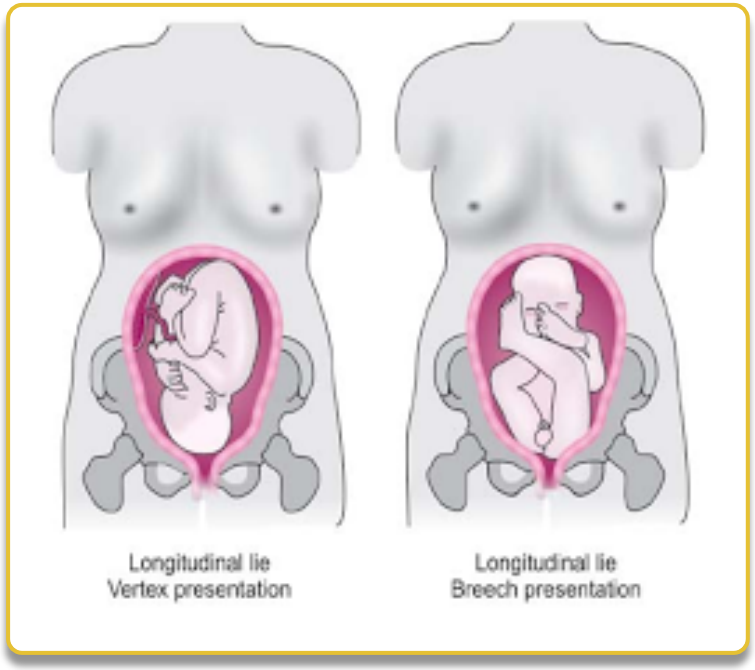
Mechanisms of normal labor: fetal lie



- describes the relationship of the fetal long axis to that of the mother.
  1. Longitudinal
  2. Transverse
  3. Oblique

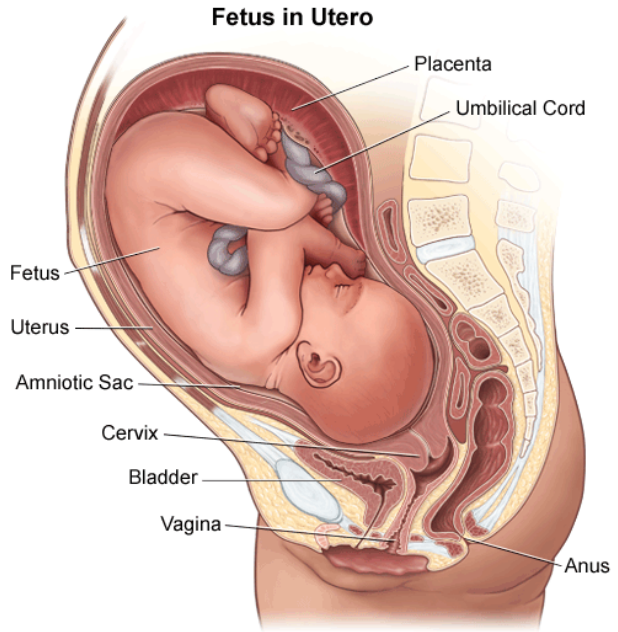
- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Mechanisms of normal labor: fetal presentation



- portion of the fetal body that is either foremost within the birth canal or in closest proximity to it
- Can be felt through the cervix during vaginal examination
  - Cephalic, breech, shoulder, compound

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor



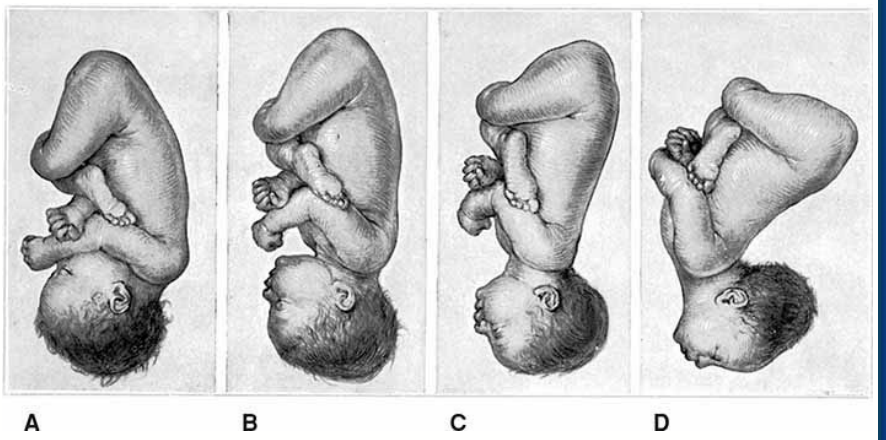
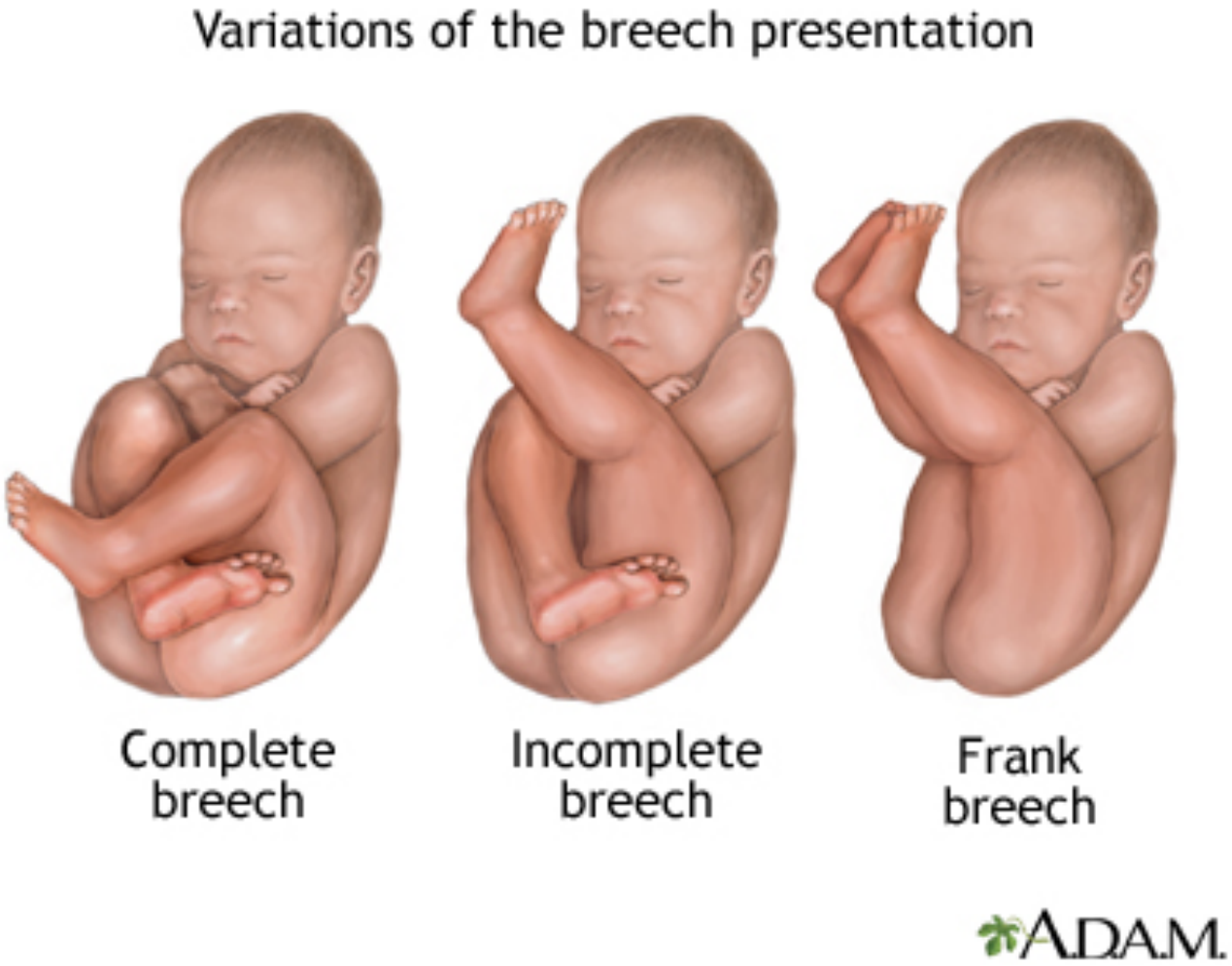


FIGURE 22-1 Longitudinal lie. Cephalic presentation. Differences in attitude of the fetal body in **(A)** vertex, **(B)** sinciput, **(C)** brow, and **(D)** face presentations. Note changes in fetal attitude in relation to fetal vertex as the fetal head becomes less flexed.

Cephalic presentation

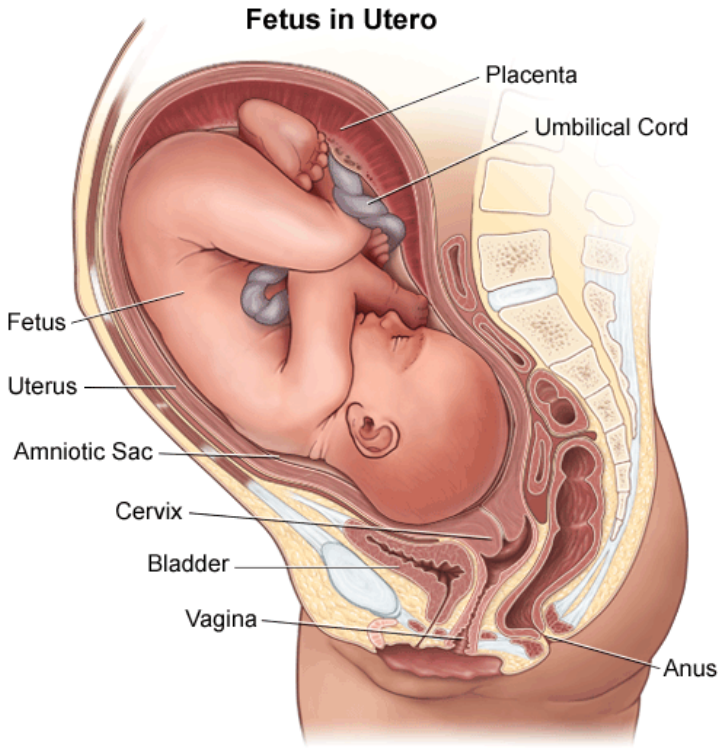
- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

breech presentation



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

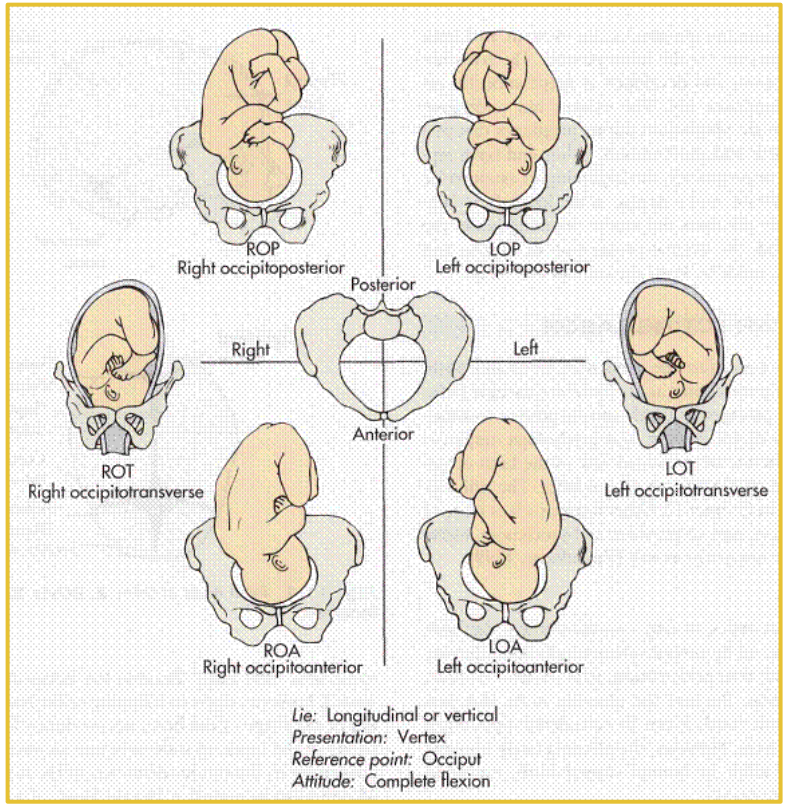
Mechanisms of normal labor: fetal attitude



- Fetal posture/habitus
- As a rule, the fetus forms an ovoid mass that corresponds roughly to the shape of the uterine cavity → the fetus becomes folded upon itself to create a convex back

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

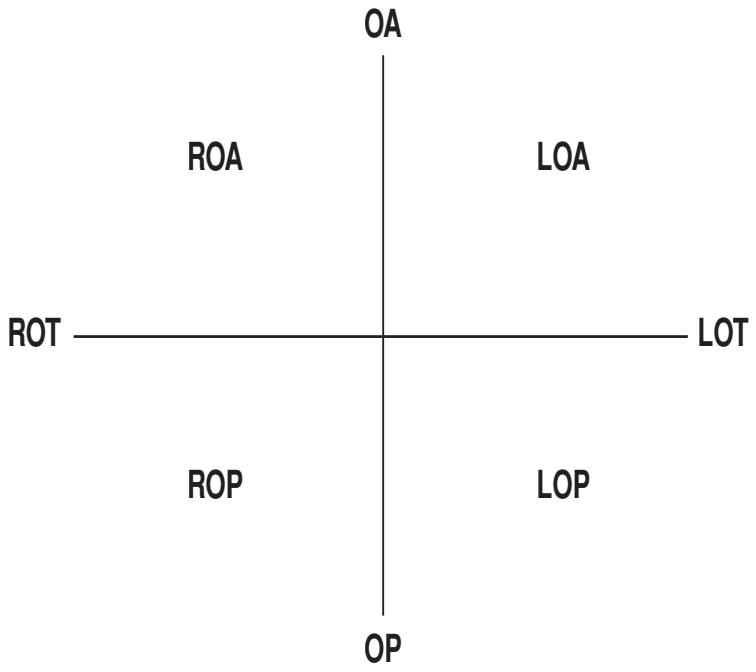
Mechanisms of normal labor: fetal position

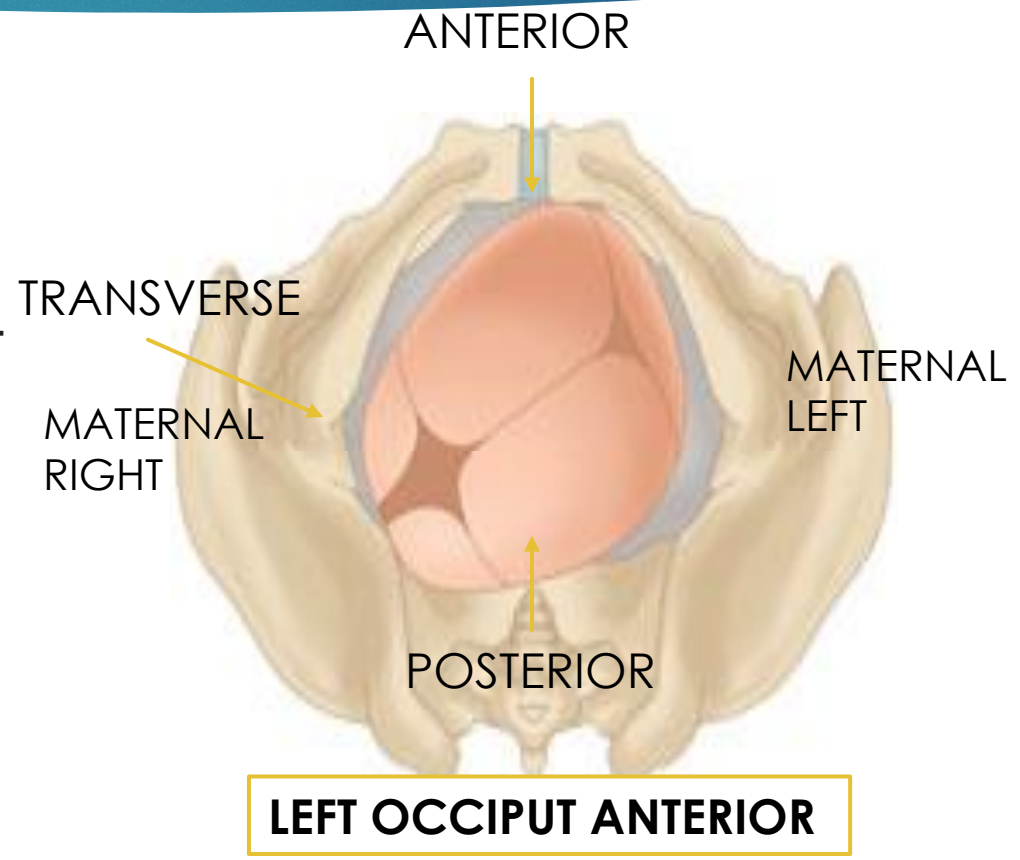


- relationship of an arbitrarily chosen portion of the fetal presenting part to the right or left side of the birth canal.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Fetal Position



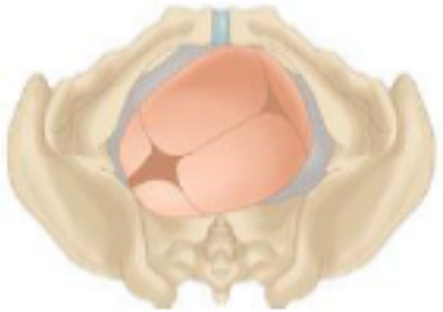


LEFT OCCIPUT ANTERIOR

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

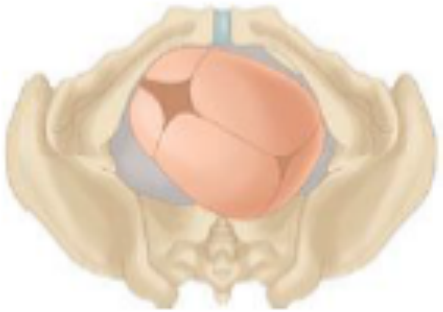
Practice

A



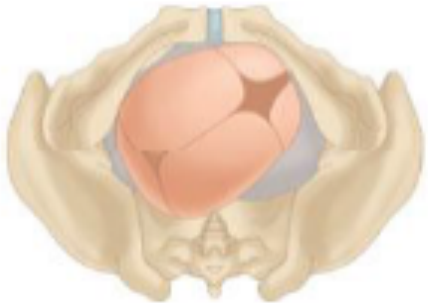
LEFT OCCIPUT ANTERIOR

B



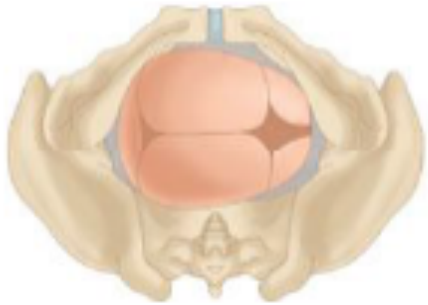
LEFT OCCIPUT POSTERIOR

A



RIGHT OCCIPUT POSTERIOR

B



RIGHT OCCIPUT TRANSVERSE

Fetal position

- In defining position, the following determining points are used:
- **O** – occiput (cephalic/vertex presentation)
- **M** – mentum or chin (face presentation)
- **S** – sacrum (breech presentation)
- **A** – acromion or scapula (shoulder presentation)

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

practice

Left mentum anterior

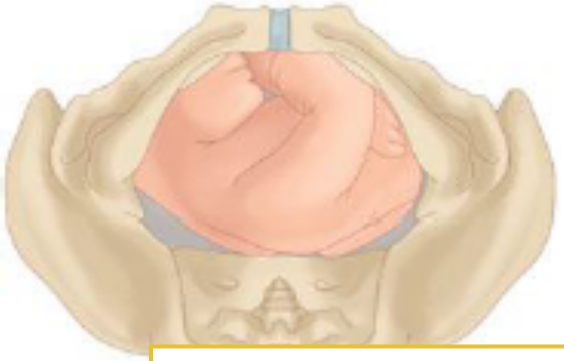


Right mentum anterior



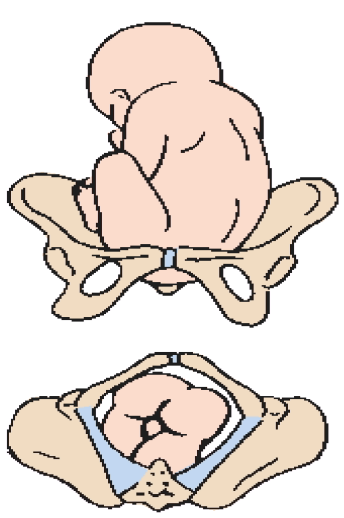
Right mentum posterior



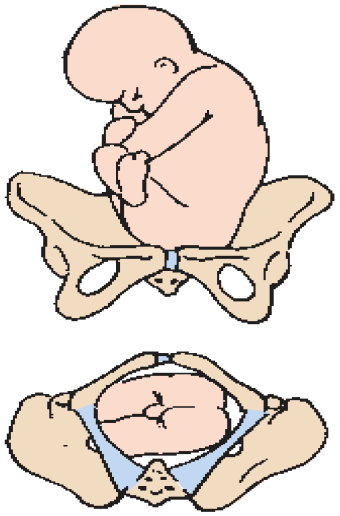


Right acromiodorsoposterior

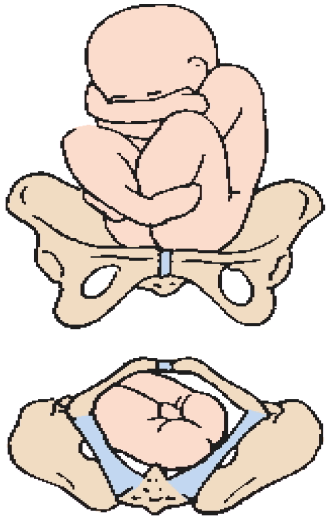
practice



Left sacroanterior



Left sacrotransverse



Left sacroposterior

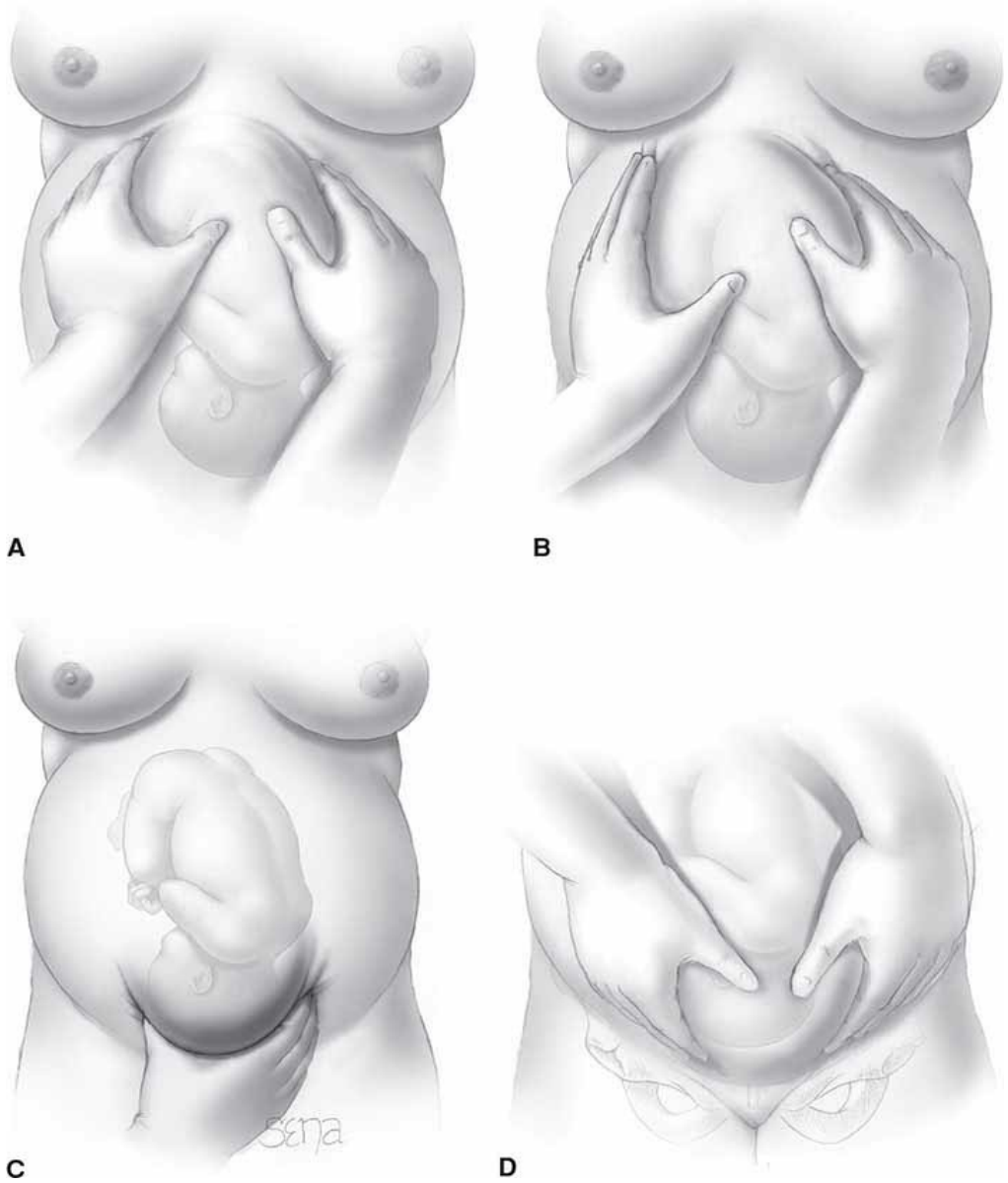


FIGURE 22-8 Leopold maneuvers **(A–D)** performed in fetus with a longitudinal lie in the left occiput anterior position (LOA).

Diagnosis: Leopold Manuevers

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

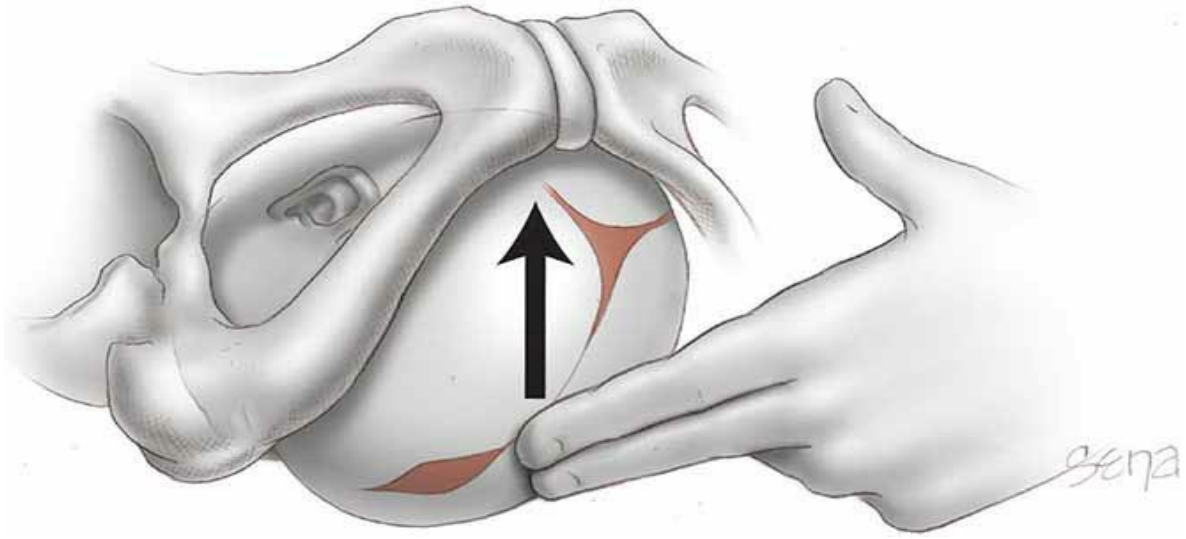


FIGURE 22-9 Locating the sagittal suture by vaginal examination.

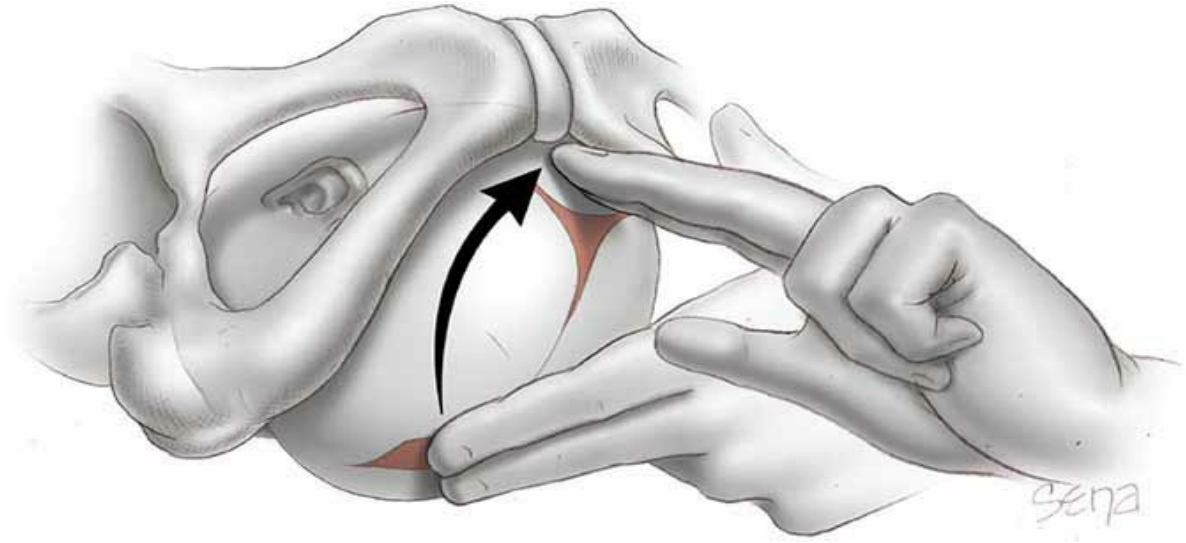


FIGURE 22-10 Differentiating the fontanels by vaginal examination.

Diagnosis: Vaginal examination

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Mechanisms of normal labor: fetal head shape changes



- Caput succedaneum
  - swelling or edema of the fetal scalp
  - Usually develops over the most dependent portion of the fetal head
- Molding
  - Changes in the bony fetal head hpe due to external compressive forces

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Normal Labor

- **WHAT is LABOR?**

  → uterine contractions that bring about demonstrable effacement and dilatation of the cervix

- **WHEN IS THE START OF LABOR?**

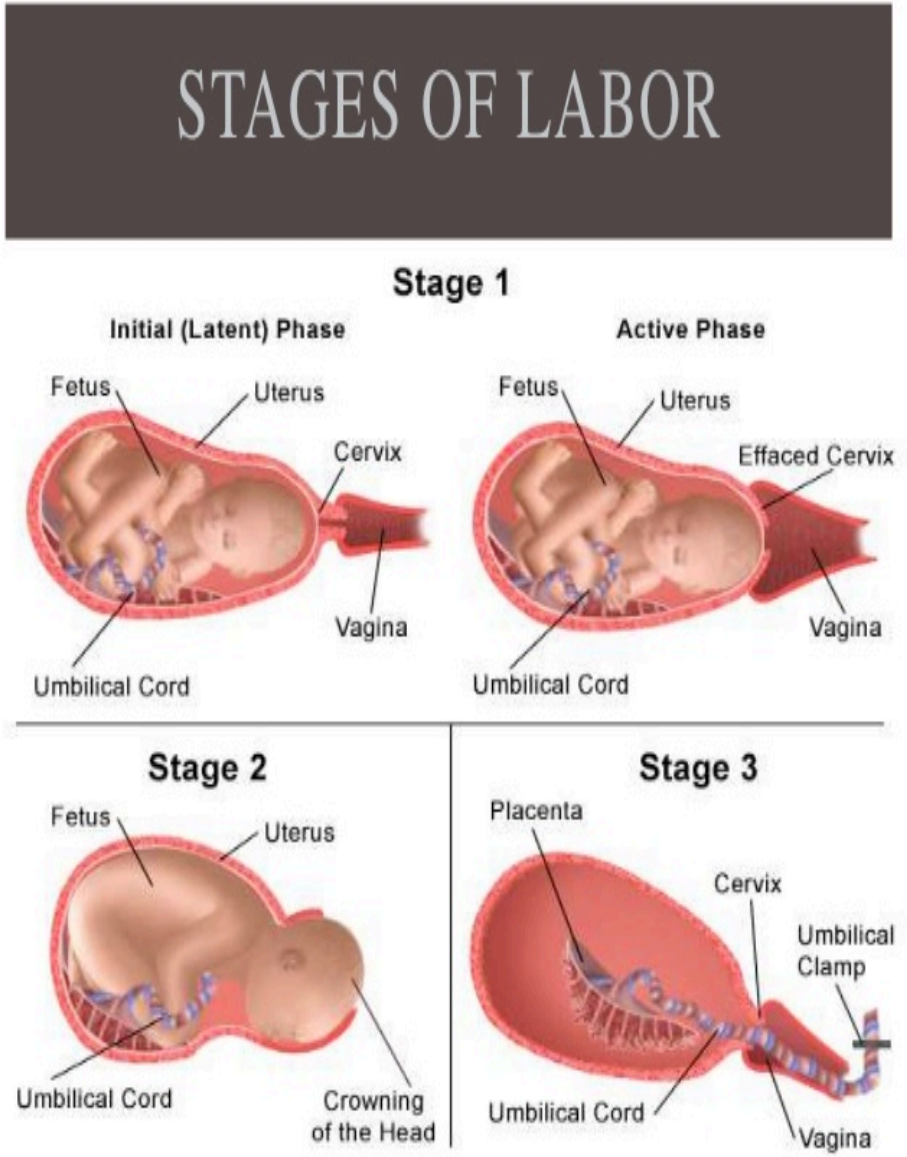
  → the clock time when painful contractions become regular.

  → clock time when a woman recalled regular painful contractions every 3-5 minutes, that led to cervical change

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Stages of Labor

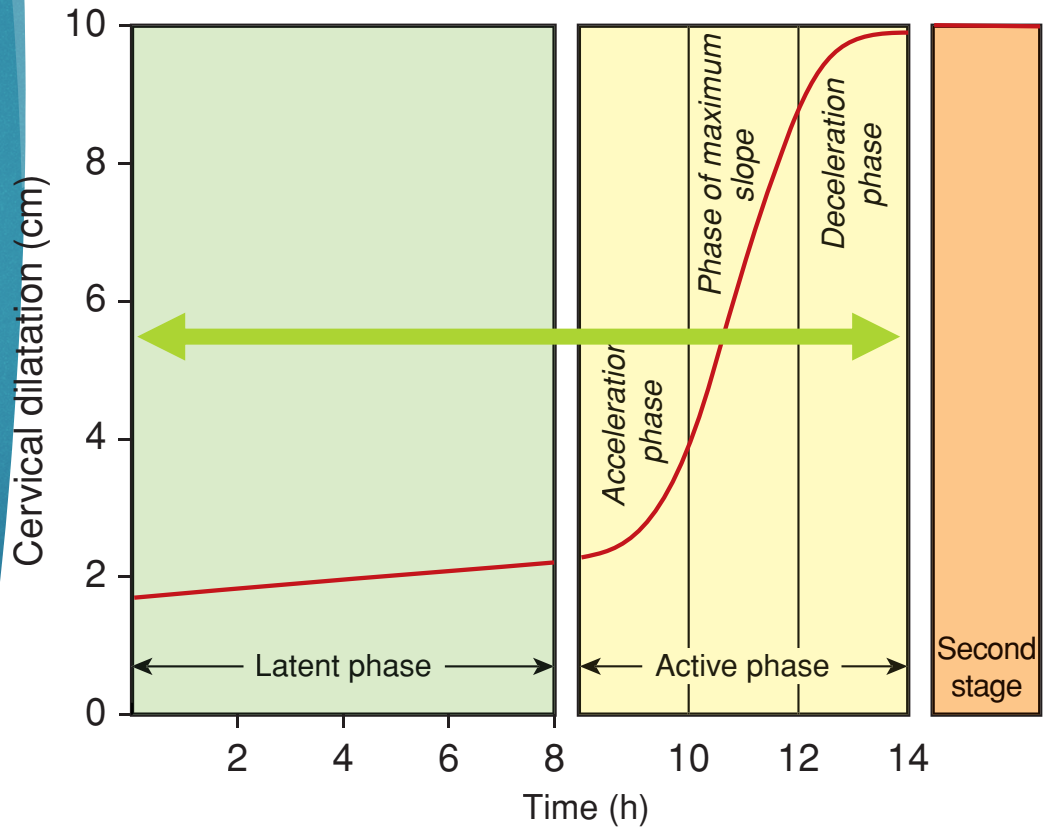
- **First Stage:** From onset of regular contractions up to full cervical dilatation (10 cms)
- **Second Stage:** from full cervical dilatation (10 cms) up to delivery of the fetus
- **Third Stage:** From delivery of fetus to delivery of placenta
- **Fourth stage:** 1 hour from delivery of placenta



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

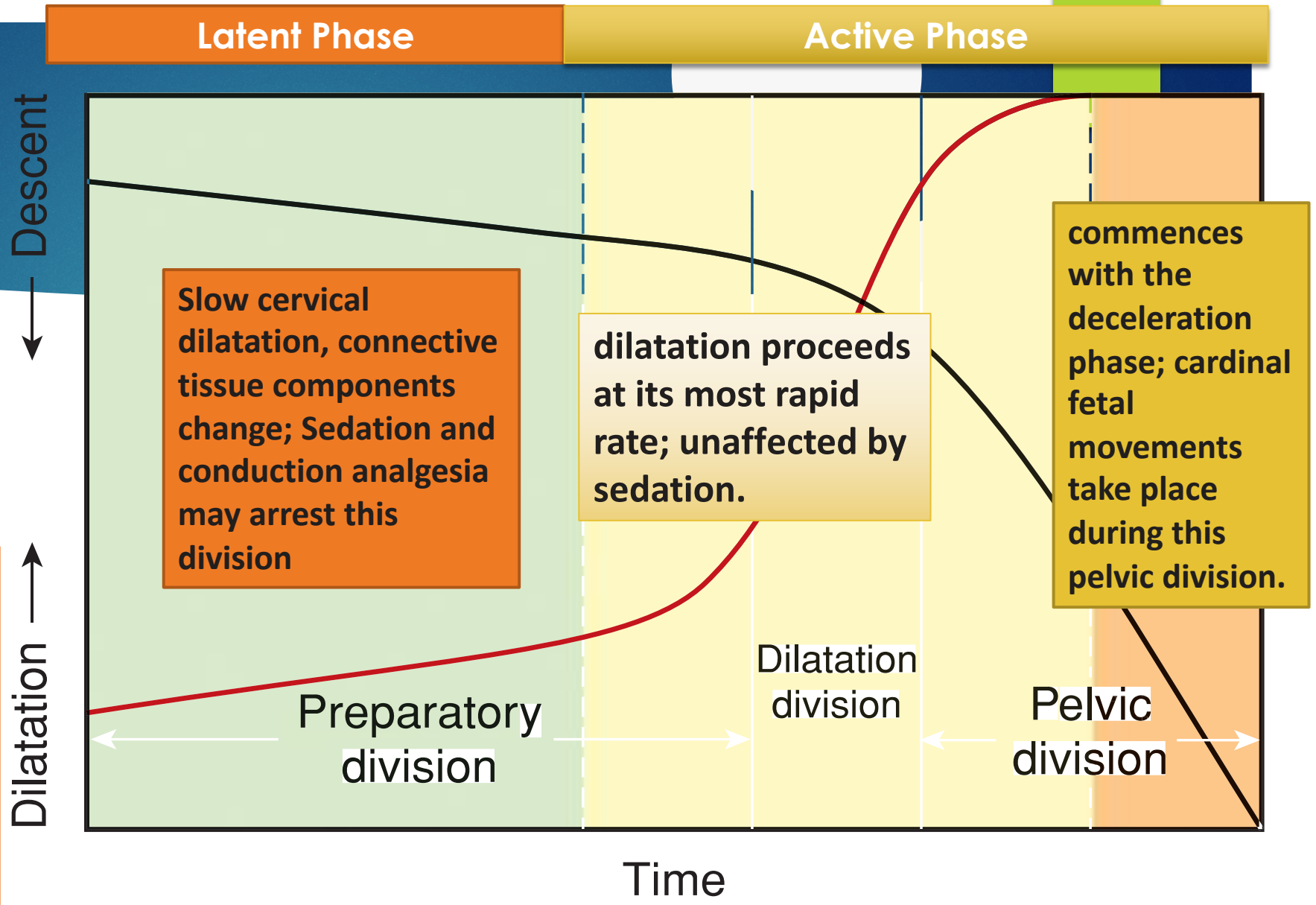
FIRST STAGE OF LABOR

Commences from onset of regular contractions up to full cervical dilatation



3 Functional Divisions of Labor

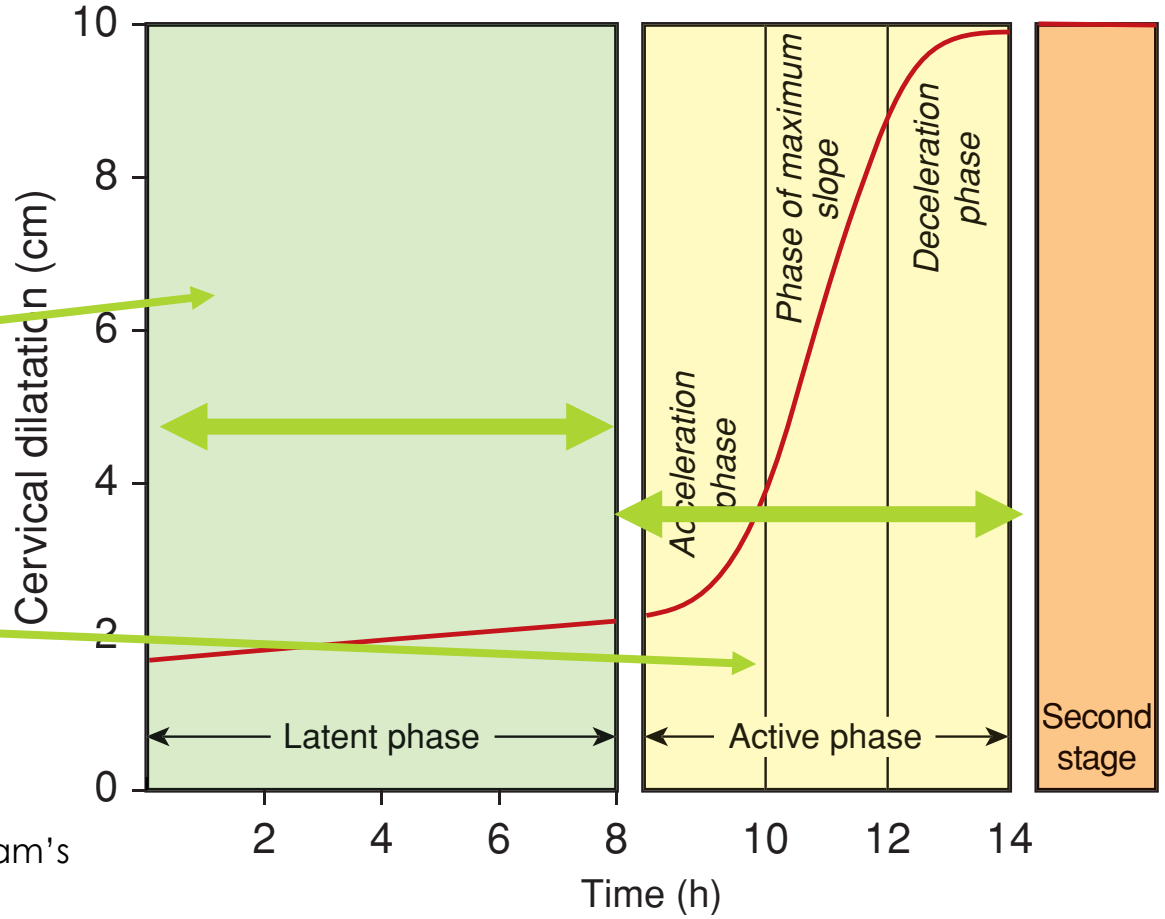
1. **Preparatory** (latent phase)
2. **Dilatation** (active phase)
3. **Pelvic** (active phase)



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

First stage of labor

- the pattern of cervical dilatation during the preparatory and dilatational divisions of normal labor is a sigmoid curve.
- latent phase corresponds to the preparatory division
- active phase corresponds to the dilatational and pelvic division.



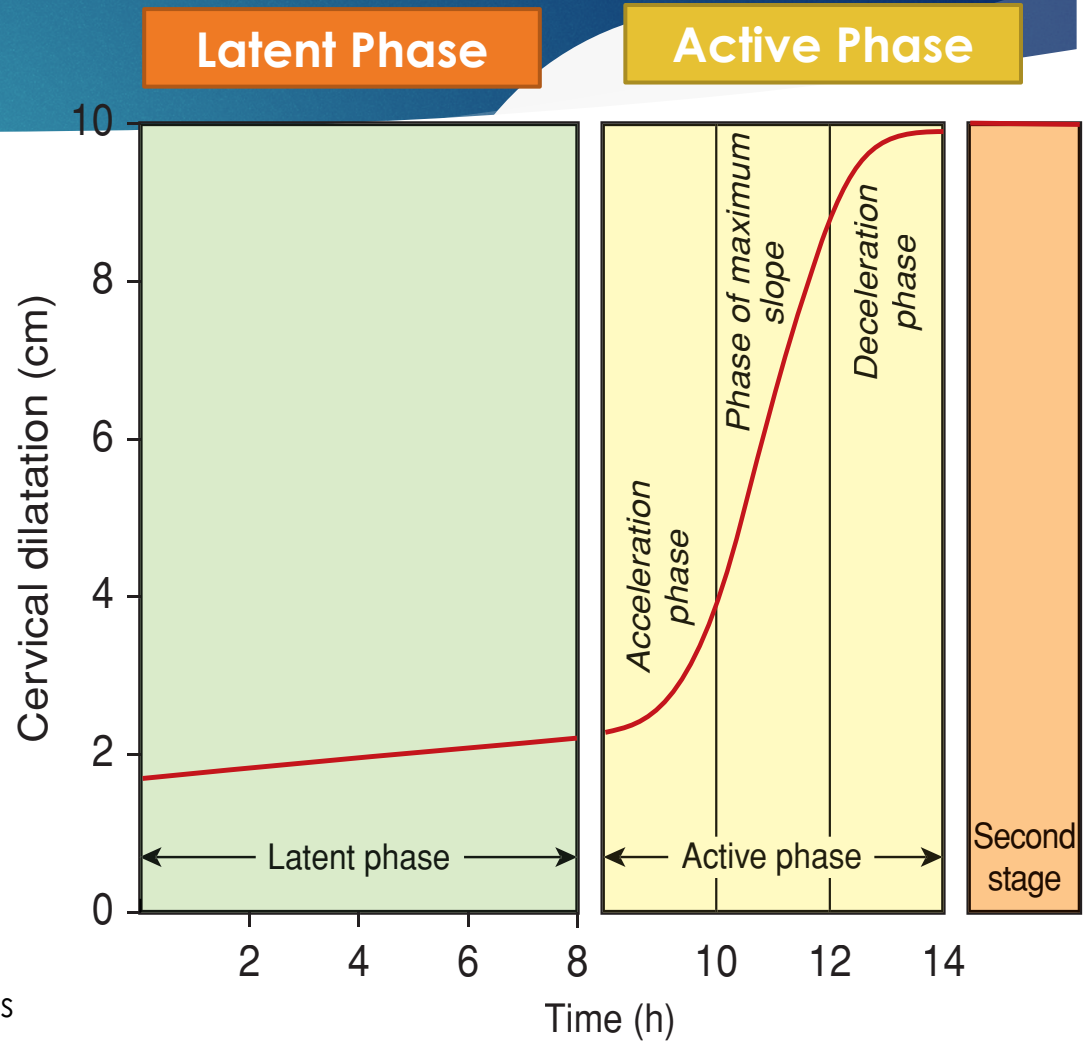
- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Phases of Labor:

First stage of labor:

1. Latent Phase

- The point at which the mother perceives regular contractions
- Traditionally ends once cervical dilatation 3-5 cm is achieved
- Consensus committee (2016) redefined active labor to begin at 6cm



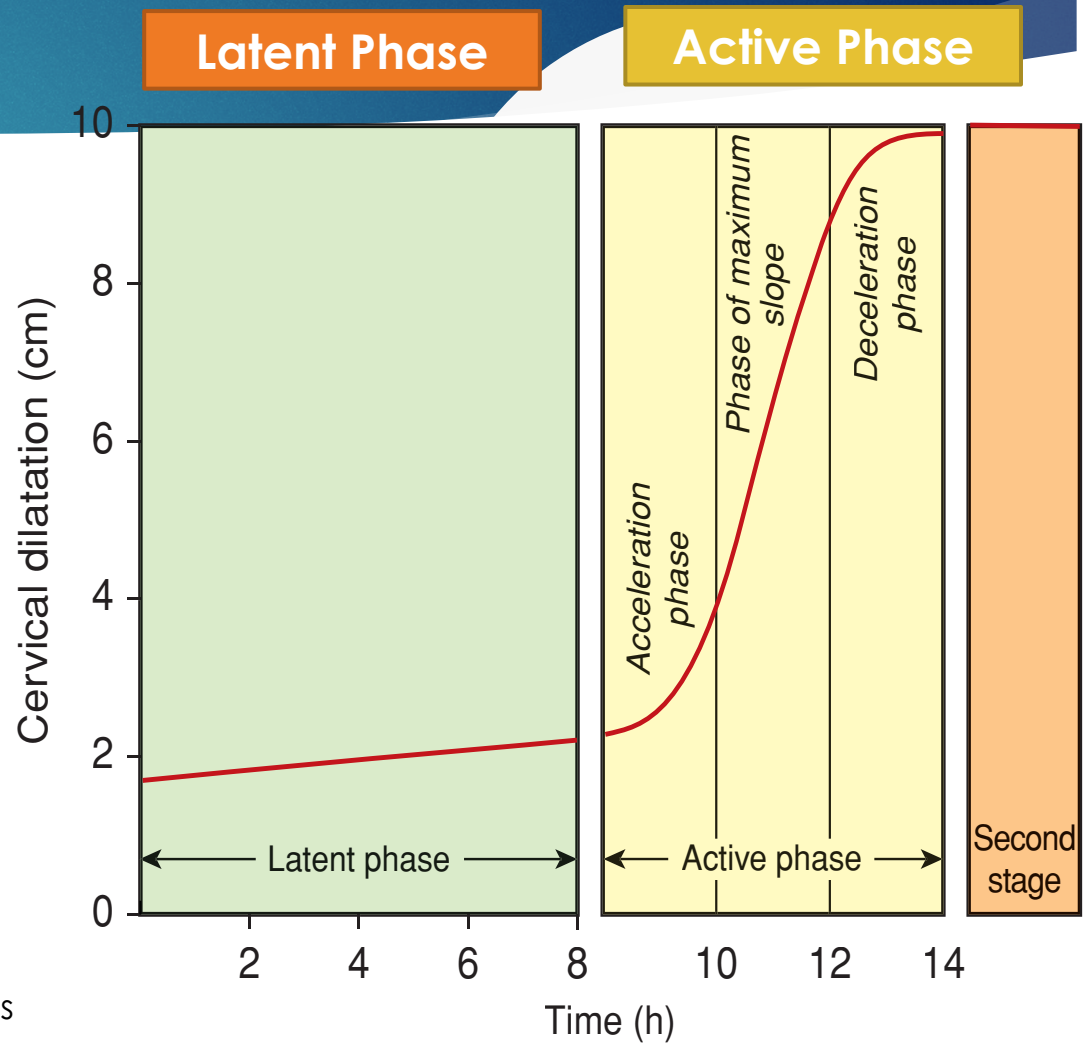
- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Phases of Labor:

First stage of labor:

1. Active phase

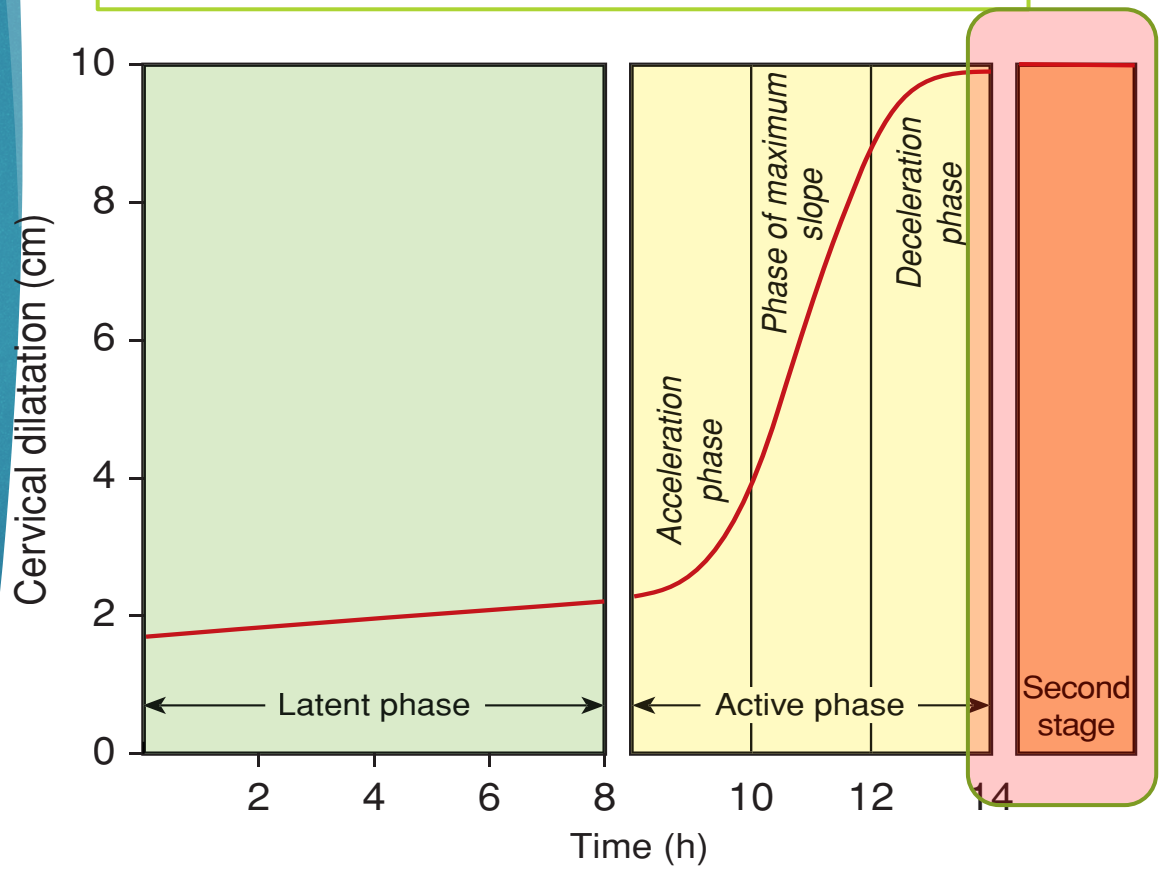
- Consensus committee (2016) redefined active labor to begin at 6cm
- Descent commences at 7-8 cm in nulliparas, becoming most rapid after 8 cm



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

SECOND STAGE OF LABOR

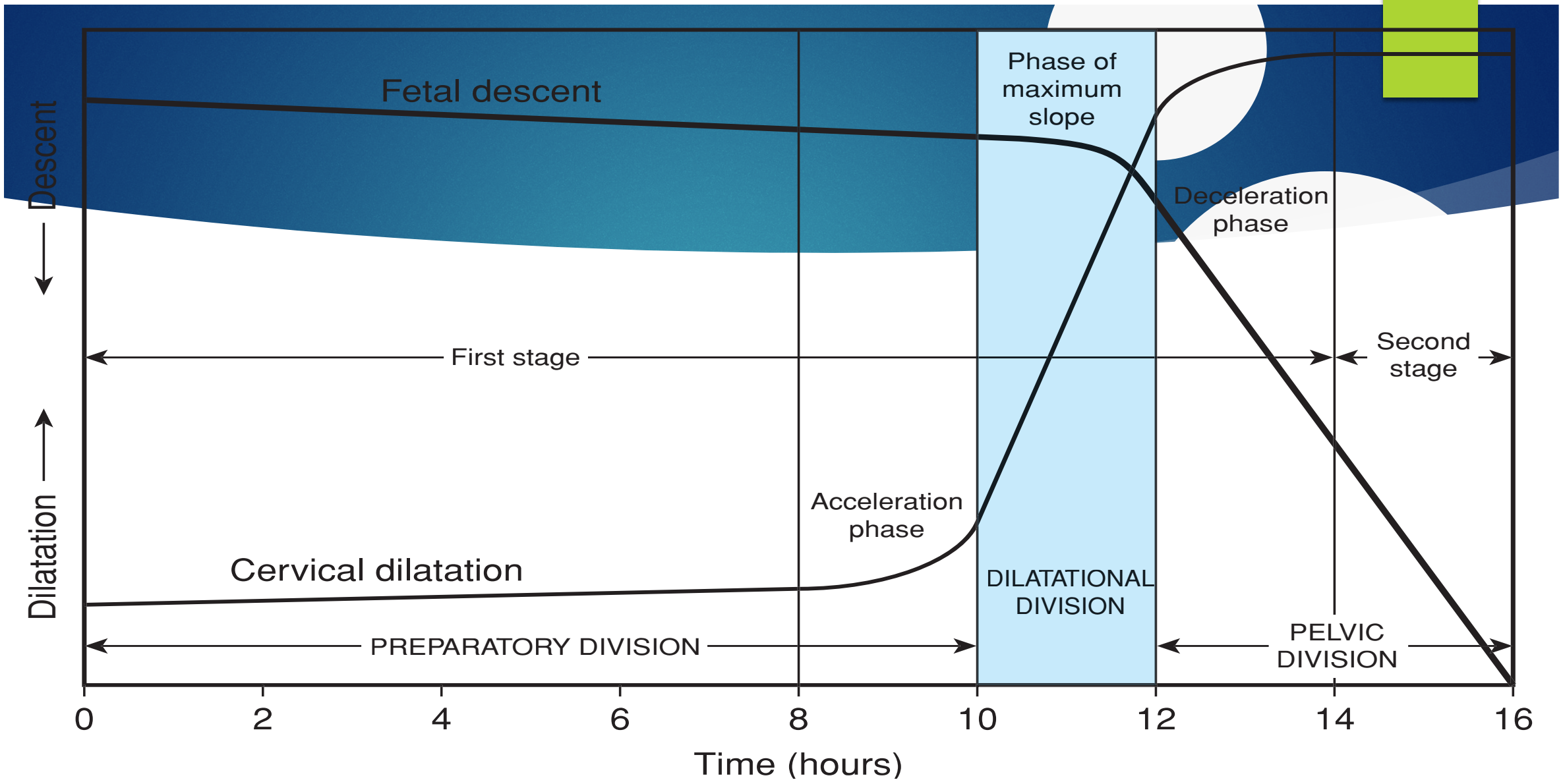
Commences from full cervical dilatation up to delivery of the baby



Second Stage of Labor

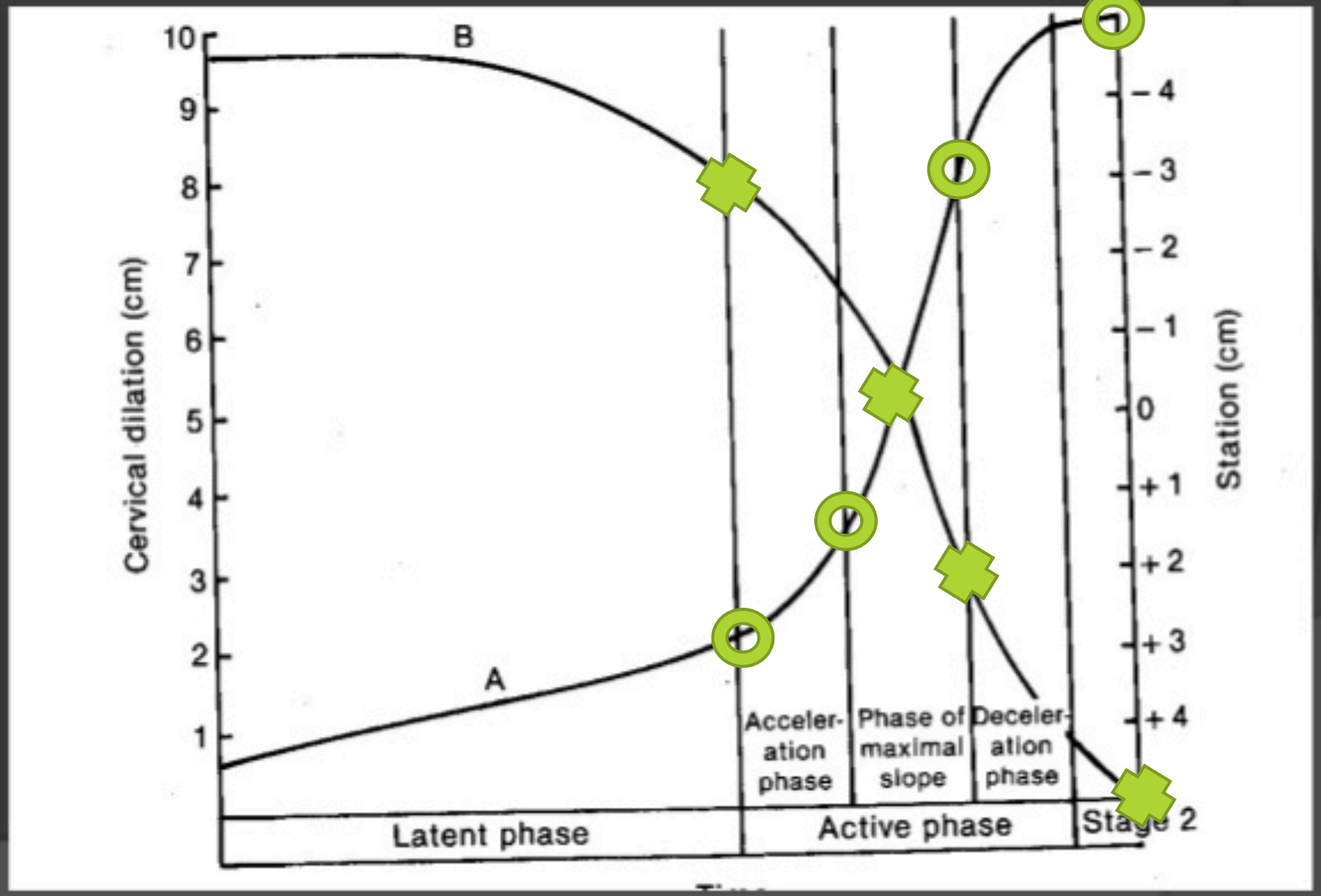
- begins with complete cervical dilatation and ends with fetal delivery.
- median duration is approximately 50 minutes for nulliparas and about 20 minutes for multiparas
- in a woman with a contracted pelvis, with a large fetus, or with impaired expulsive efforts from conduction analgesia or sedation, the second stage may become abnormally long.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

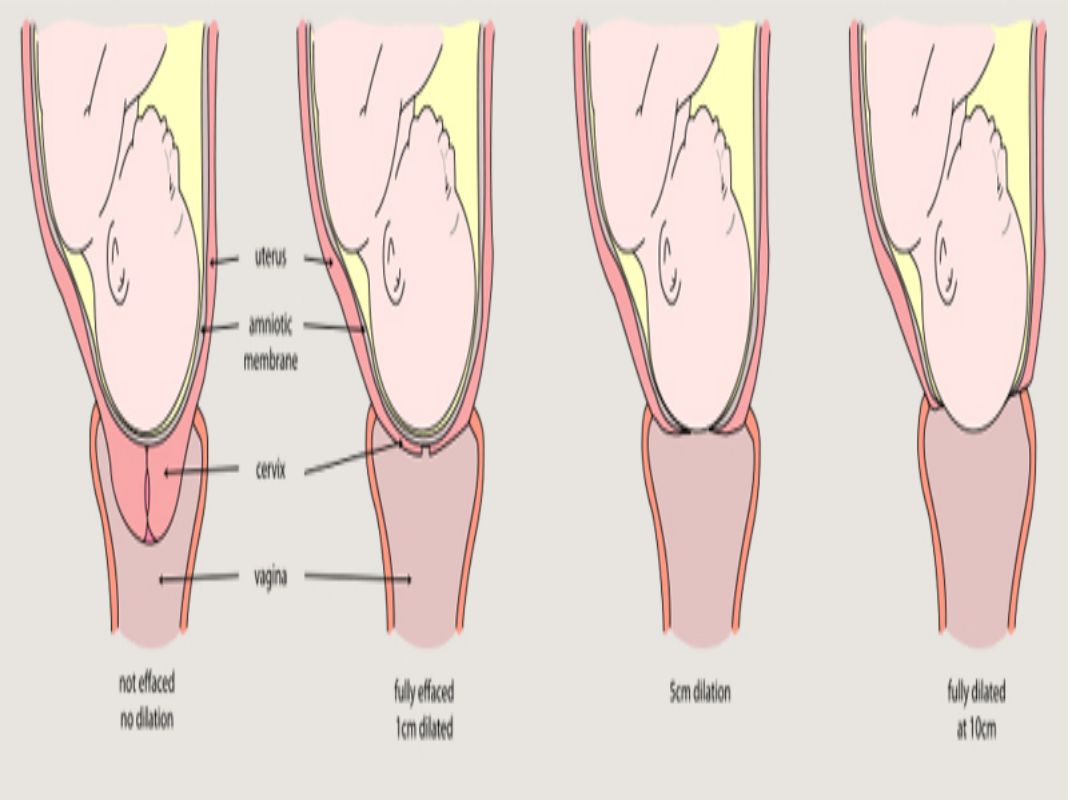


- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Friedman's Curve



Management of Normal Labor



Identification of Labor

- In the absence of ruptured membranes or bleeding, uterine contractions 5 minutes apart for 1 hour—that is, ≥ 12 contractions in 1 hour—may signify labor onset.
- active labor defined as cervical dilatation ≥ 6 cm
- Women admitted during latent-phase labor had more active-phase arrest, more frequent need for oxytocin labor stimulation, and higher rates of chorioamnionitis.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 2@ Normal Labor

Initial Evaluation

- Maternal vital signs (BP, HR, RR , temperature)
- Fetal heart rate
- Pregnancy record is reviewed to identify complications
- Cervical examination

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Initial Evaluation: ruptured membranes

- Awareness of rupture of membranes is important because:
  - If presenting part is not fixed in the pelvis, umbilical cord can prolapse and be compressed
  - Labor is likely to begin soon
  - Intrauterine and neonatal infection is more likely as time interval increases

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Initial Evaluation: ruptured membranes

- How to diagnose?
  - History: fluid leakage from vagina
  - Speculum exam: pooling of amniotic fluid at the posterior fornix, or clear fluid flows from the cervical os
  - pH determination (nitrazine test strips): pH of > 6.5 is consistent with AF
  - Arborization or ferning of vaginal fluid on microscopy suggests AF
  - Injection of indigo carmine into amnionic sac via abdominal amniocentesis
  - Detection of amniotic fluid proteins (AmniSure, ROM Plus, etc)

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Initial Evaluation: cervical assessment

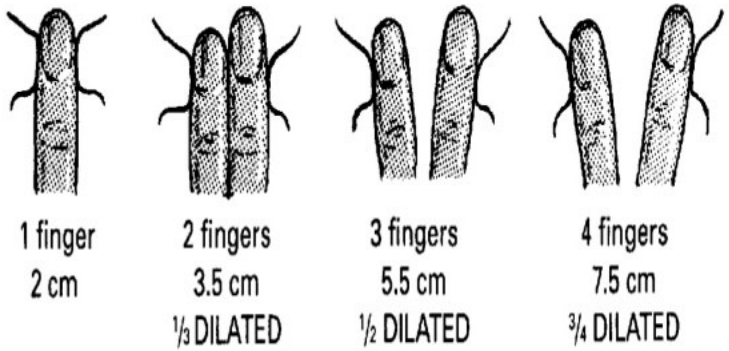
- **cervical effacement** is the gradual thinning and shortening of the cervix measured in percentage
  - When the length of the cervix is reduced by one half, it is 50-percent effaced. When the cervix becomes as thin as the adjacent lower uterine segment, it is completely, or 100-percent, effaced.



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Initial Evaluation: cervical assessment

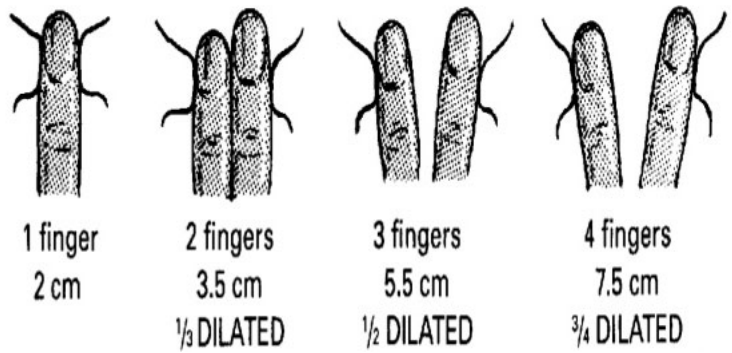
- **Cervical dilatation** estimates the average diameter of the cervical opening measured in centimeters
- Approximated by sweeping the examining finger from the margin of the cervical opening on one side to that on the opposite side.
  - the cervix is said to be **dilated fully** when the diameter measures 10 cm, because the presenting part of a term-size newborn usually can pass through a cervix this widely dilated.



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Initial Evaluation: cervical assessment

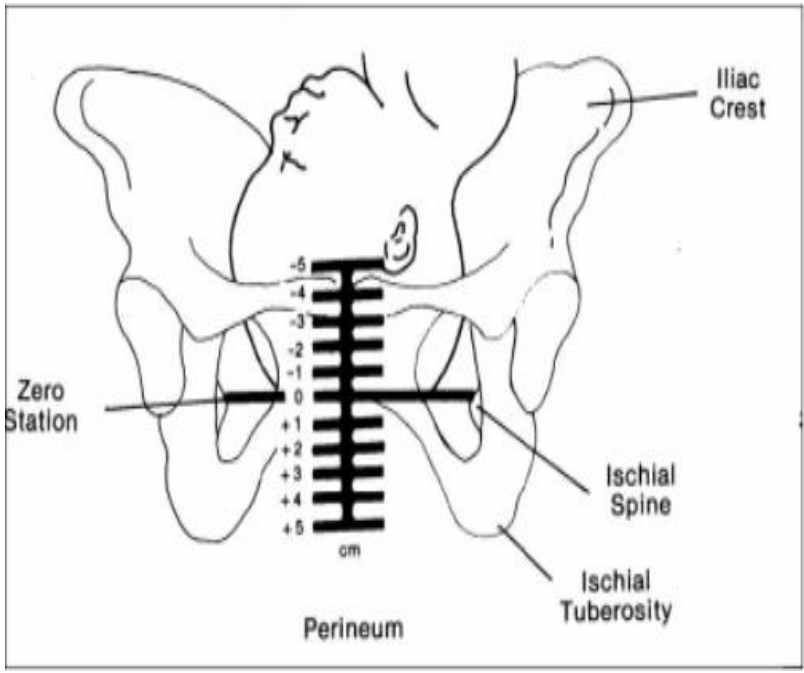
- **cervical position** is determined by the relationship of the cervical os to the fetal head and is categorized as posterior, mid-position, or anterior.
- **Cervical consistency** is determined to be soft, firm, or intermediate if between these two.
- **Fetal station**— level of the presenting fetal part in the birth canal is described in relationship to the ischial spines, which are halfway between the pelvic inlet and the pelvic outlet



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Initial Evaluation: cervical assessment

- **Fetal station**— level of the presenting fetal part in the birth canal relative to the ischial spines
  - When the lowermost portion of the presenting fetal part is at the level of the spines, it is designated as being at **zero (0) station (engagement)**
  - Above the spines, the designation is -5, -4, –3, –2, –1, then 0 station.
  - Below the spines, as the presenting fetal part descends, it passes +1, +2, +3, +4, +5 stations to delivery.
  - *Station +5 cm corresponds to the fetal head being visible at the introitus.*



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Cervical Assessment

- Part of **BISHOPS SCORE**
  - Cervical dilatation
  - Cervical effacement
  - Cervical Consistency
  - Cervical position
  - Fetal station

TABLE 26-2. Bishop Scoring System Used for Assessment of Inducibility

	Cervical Factor				
Score	Dilatation (cm)	Effacement (%)	Station (−3 to +2)	Consistency	Position
0	Closed	0–30	−3	Firm	Posterior
1	1–2	40–50	−2	Medium	Midposition
2	3–4	60–70	−1	Soft	Anterior
3	≥ 5	≥ 80	+1, +2	—	—

From Bishop, 1964.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

What is **BISHOP** score?

- A quantifiable method used to predict labor induction outcomes
- A *Bishop score* of 9 conveys a high likelihood for a successful induction.
- A Bishop score of 4 or less identifies an unfavorable cervix and may be an indication for **cervical ripening.**

TABLE 26-2. Bishop Scoring System Used for Assessment of Inducibility

	Cervical Factor				
Score	Dilatation (cm)	Effacement (%)	Station (−3 to +2)	Consistency	Position
0	Closed	0–30	−3	Firm	Posterior
1	1–2	40–50	−2	Medium	Midposition
2	3–4	60–70	−1	Soft	Anterior
3	≥ 5	≥ 80	+1, +2	—	—

From Bishop, 1964.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

INTRAPARTUM FETAL MONITORING

- in the absence of any abnormalities, the fetal heart rate should be checked immediately after a contraction at least every 30 minutes
- If continuous electronic monitoring is used, the tracing is evaluated at least every 30 minutes
- For women with pregnancies at risk, fetal heart auscultation is performed at least every 15 minutes
  - Continuous electronic monitoring may be used with evaluation of the tracing every 15 minutes



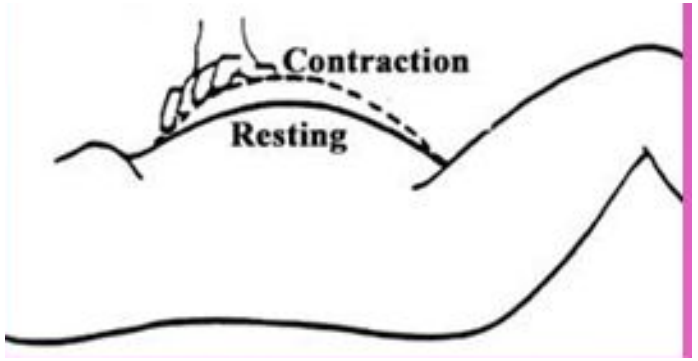


- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

UTERINE CONTRACTIONS

- contractions can be both quantitatively and qualitatively evaluated manually.
- With the palm of the hand resting lightly on the uterus, the time of contraction onset is determined. Its intensity is gauged from the degree of firmness the uterus achieves (palpation)
  - At the peak of contractions, the finger or thumb cannot readily indent the uterus during a " firm" contraction.
  - the time at which the contraction disappears is noted next.
  - this sequence is repeated to evaluate the frequency, duration, and intensity of uterine contractions.





- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Maternal Vital Signs

- Temperature, pulse, and blood pressure are evaluated at least every 4 hours.
- If *membranes have been ruptured for many hours before labor* onset or if there is a borderline temperature elevation, the temperature is checked hourly.
- Moreover, with prolonged membrane rupture (> than 18 hours) antimicrobial administration for prevention of *group B streptococcal infections* is recommended.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Subsequent Cervical Examinations

- periodic pelvic examinations are typically performed at 2 – 3 hour intervals to evaluate labor progress.
- When the membranes rupture, an examination to exclude cord prolapse should be performed expeditiously if the fetal head was not definitely engaged at the previous examination.
- the fetal heart rate should also be checked immediately and during the next uterine contraction to help detect occult umbilical cord compression.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Oral Intake

- sips of clear liquids, occasional ice chips, and lip moisturizers are permitted for uncomplicated/low risk women
- Food should be withheld during active labor and delivery.
- Gastric emptying time is remarkably prolonged once labor is established and analgesics are administered.
- As a consequence, ingested food and most medications remain in the stomach and are not absorbed. Instead, they may be vomited and aspirated

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Intravenous Fluids

- there is seldom any real need for this in the normal pregnant woman, at least until analgesia is administered.
- An intravenous infusion system is advantageous during the immediate puerperium to administer oxytocin prophylactically and at times therapeutically when uterine atony persists.
- Moreover, with longer labors, the administration of glucose, sodium, and water to the otherwise fasting woman at the rate of 60 to 120 mL/hr prevents dehydration and acidosis.



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Maternal Position

- the normal laboring woman need not be confined to bed early in labor.
- In bed, the laboring woman should be allowed to assume the position she finds most comfortable—this will be lateral recumbency most of the time.
- she must not be restricted to lying supine because of resultant aortocaval compression and its potential to lower uterine perfusion
- walking neither enhanced nor impaired active labor and is not harmful.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the First Stage of Labor

Amniotomy

- Should not be done routinely
- Membrane rupture with the intention of accelerating labor is often performed when labor is abnormally slow
- presumed benefits are more rapid labor or earlier detection of meconium- stained amnionic fluid, or opportunity to apply an electrode to the fetus or insert pressure catheter into uterine cavity for monitoring
- American College of Obstetricians and Gynecologists (2013a) recommends the use of amniotomy to enhance progress in active labor, but cautions that this may increase the risks of infection (chorioamnionitis) and maternal fever.
- Fetal head mt be well applied to the cervix and not be dislodged from the pelvis to avoid umbilical cord prolapse

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 232 Normal Labor

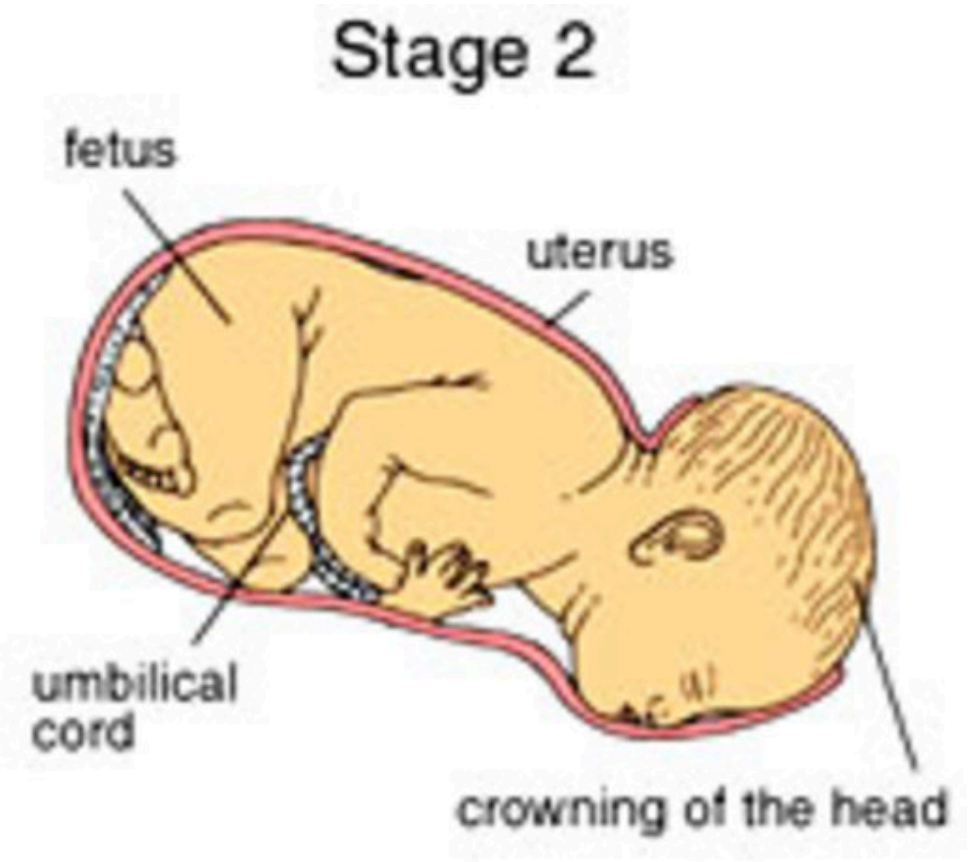
Management of the First Stage of Labor

Urinary bladder emptying

- Distention of bladder can hinder descent of fetal presenting part and lead to bladder hypotonia and infection.
- Periodically during labor, the suprapubic region should be inspected and palpated to detect distention → woman should be encouraged to void.
- If spontaneous voiding is not possible, catheterization may be done.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the Second Stage of Labor



Management of the Second Stage of Labor

- the woman's legs should be half flexed, so that she can push with them against the mattress
- With the beginning of uterine contraction, patient is coached to exert downward pressure as though she were straining at stool ("PUSH")
- A woman should NOT be encourage to push beyond a completed contraction → she and her fetus should be allowed to rest and recover.
- During this period of actively bearing down during a contraction, fetal heart rate may slow down, BUT should recover to normal after a contraction

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the Second Stage of Labor

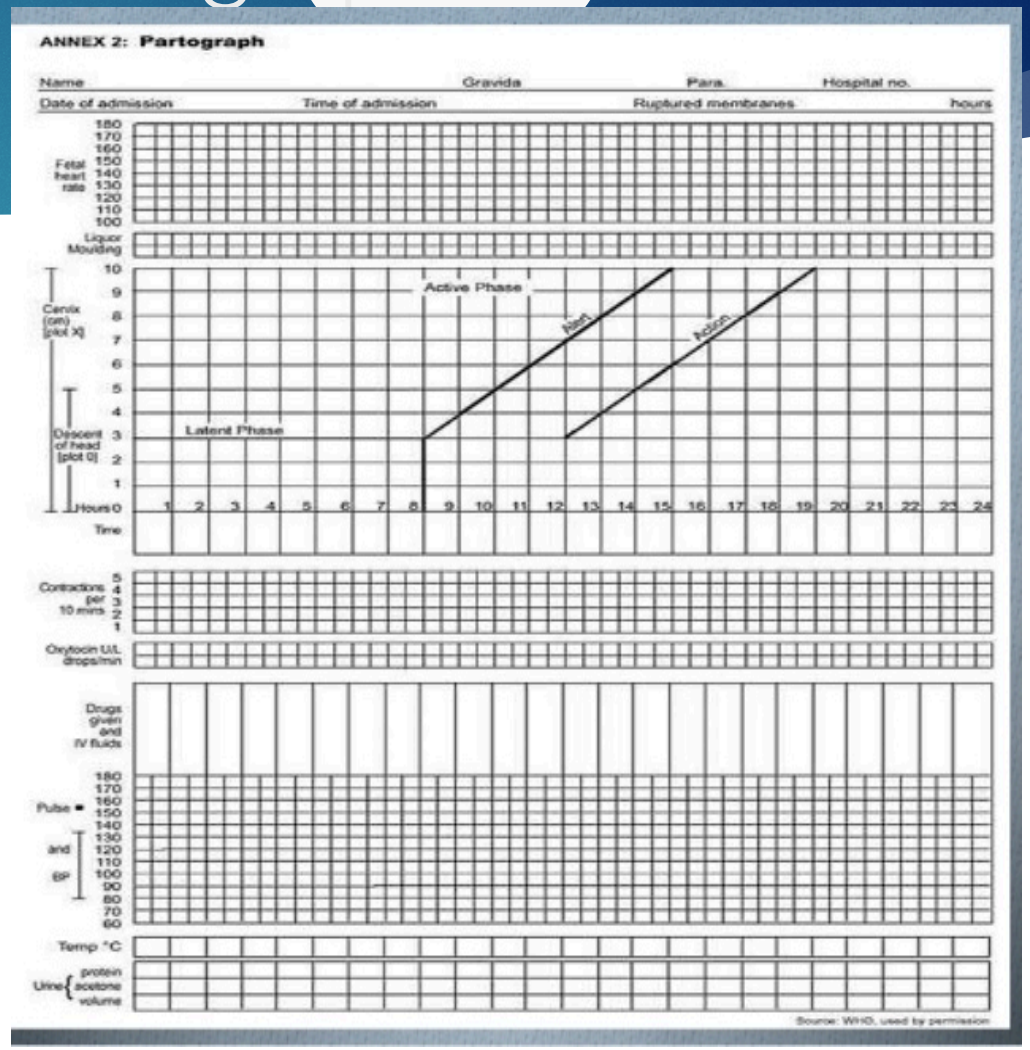
"ACTIVE MANAGEMENT OF LABOR" protocol

- Labor is diagnosed when painful contractions are accompanied by complete cervical effacement, bloody show or ruptured membranes (women with such findings are committed to delivery within 12 hours)
- Internal examination is done each hour for the next 3 hours, and every 2 hours thereafter.
- When dilatation has not increased to at least 1 cm/hour, amniotomy is performed
- Progress is again assessed at 2 hours and high dose oxytocin infusion is started unless dilatation of at least 1 cm/hour is attained

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

World Health Organization Partograph

- A partograph was designed by the World Health Organization (WHO) for use in developing countries
- Labor is divided into a latent phase, which should last no longer than 8 hours, and an active phase. Active phase starts at 3 cm dilatation, and progress should be no slower than 1 cm/hr.
- A 4-hour wait is recommended before intervention when the active phase is slow.
- Labor is graphed, and analysis includes use of alert and action lines.



- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the Second Stage of Labor

INTRAPARTUM FETAL MONITORING

- For low risk women: the fetal heart rate should be checked immediately after a contraction at least every 15 minutes
  - If continuous electronic monitoring is used, the tracing is evaluated at least every 15 minutes
- For high risk women, fetal heart auscultation is performed at least every 5 minutes during the second stage.
  - Continuous electronic monitoring may be used with evaluation of the tracing every 5 minutes

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the head

- The fetus most commonly presents in occiput anterior position
- With each contraction, the vulvovaginal opening is dilated by the fetal head to form a circular opening (**CROWNING**)
- The perineum thins and may lacerate

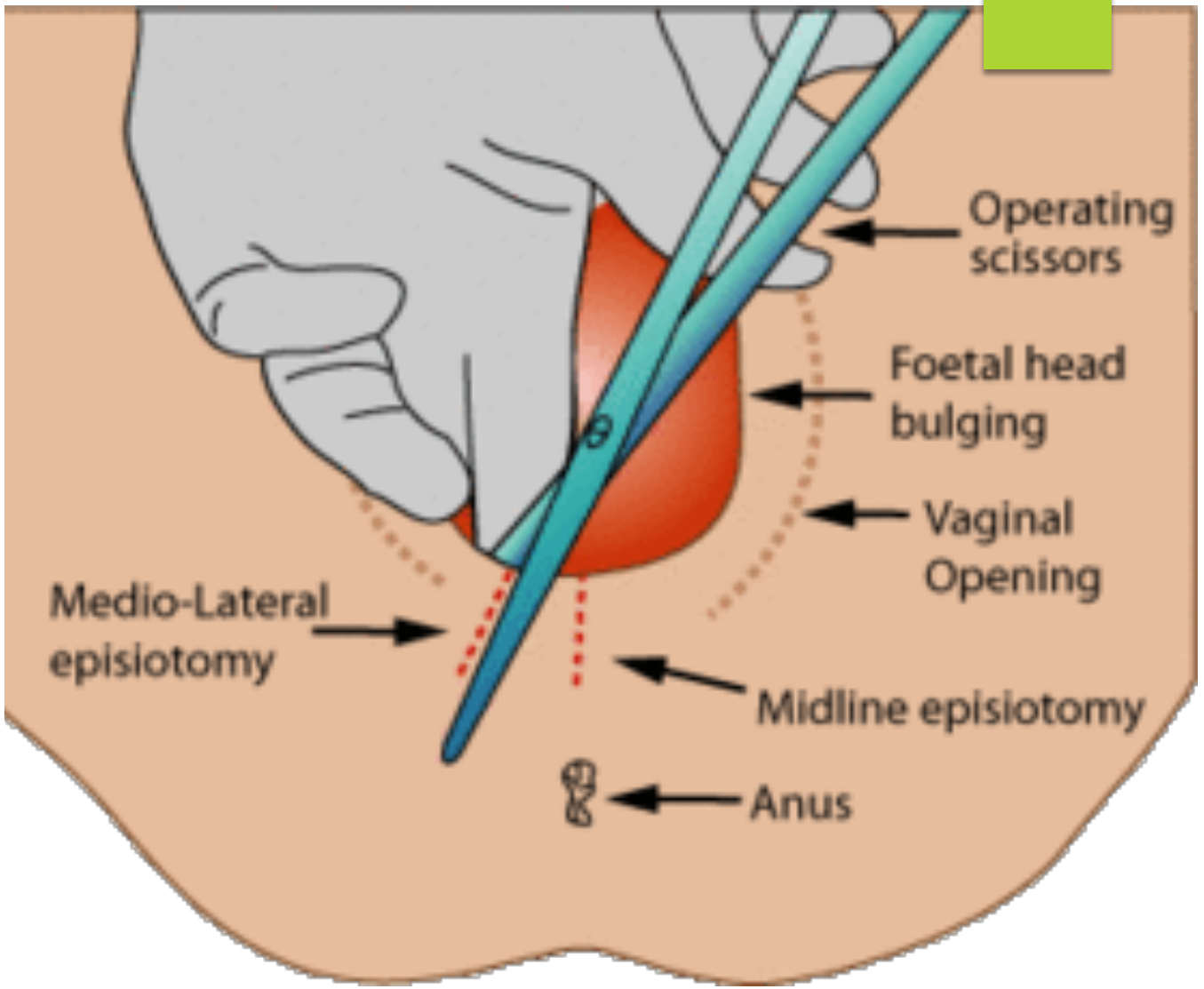


FIGURE 27-1 Perineum is supported as the head crowns.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the head

- Routine episiotomy is NO LONGER recommended;
- selective use of episiotomy aims to enlarge vaginal opening for SPECIFIC indications



Picture grabbed from: https://en.wikipedia.org/wiki/Episiotomy

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the head

- When the head distends the vulva and perineum enough to open the vaginal introitus to a diameter of 5cm or more, a gloved hand may be used to support the perineum



FIGURE 27-1 Perineum is supported as the head crowns.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the head



- The other hand is used to to guide and control the fetal headto deliver the smallest head diameter through the introitus, and avoid expulsive delivery
- Slow delivery decreases lacerations

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the head: Modified Ritgen Maneuver

- Alternatively, If expulsive efforts are inadequate or expeditious delivery is needed, the modified Ritgen maneuver or episiotomy may be done.

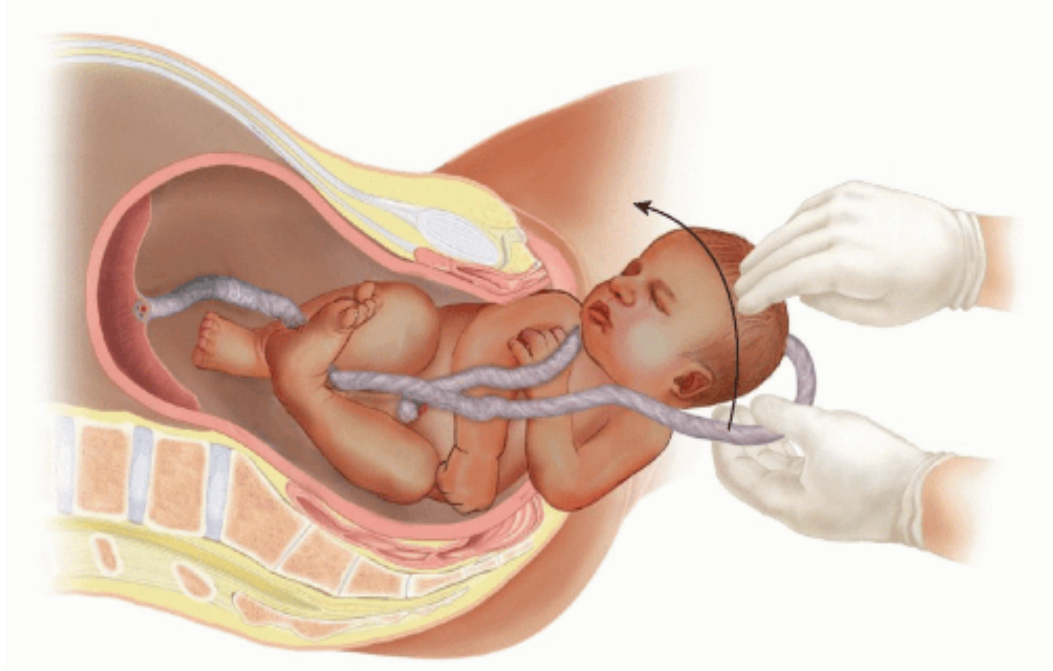


FIGURE 27-3 Modified Ritgen maneuver. Moderate upward pressure is applied to the fetal chin by the posterior hand covered by a sterile towel. The other hand applies occipital pressure.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the head:

- Following delivery of the head, a finger is passed across the fetal neck to determine whether it is encircled by one or more umbilical loops (**NUCHAL CORD**)

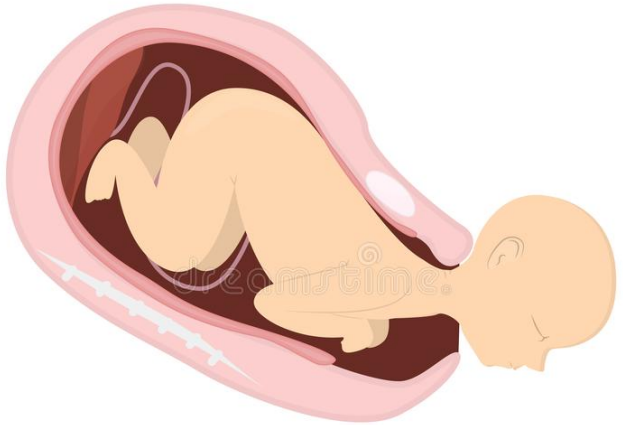


https://aneskey.com/umbilical-cord-abnormalities/

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Restitution

- Following delivery, fetal head falls posteriorly, bring its face almost in contact with maternal anus
- Occiput turns toward one of the maternal thighs to assume a transverse position (**EXTERNAL ROTATION**) → bisacrromial diameter has rotated into the AP diameter of the maternal pelvis





6. Restitution (external rotation)

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the shoulders and expulsion

- The sides of the head are grasped with 2 hands, and gentle downward traction is applied until anterior shoulders appear under pubic arch
- Upward movement delivers the posterior shoulder
- During delivery, abrupt or powerful force is avoided to prevent fetal brachial plexus injury
- Hooking the fingers in the axillae should be avoided to prevent injury to the upper extremity nerves

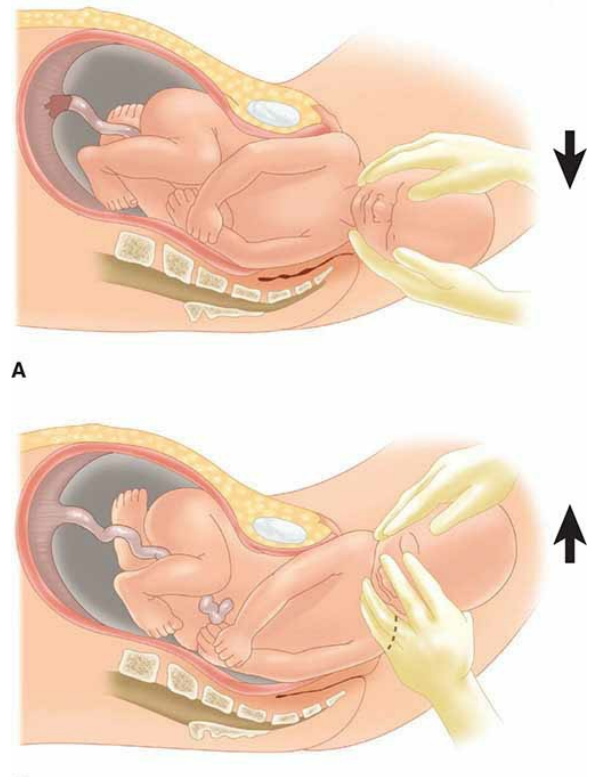


FIGURE 27-4 Delivery of the shoulders. **A.** Gentle downward traction to effect descent of the anterior shoulder. **B.** Delivery of the anterior shoulder completed. Gentle upward traction to deliver the posterior shoulder.

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delivery of the shoulders and expulsion

- Previously, immediate nasopharyngeal bulb suctioning of the newborn was routine → not anymore recommended as this may cause fetal bradycardia
- Suctioning is reserved for neonates with obvious obstruction to spontaneous breathing or who require positive pressure ventilation



https://www.babycenter.com/health/illness-and-infection/how-to-use-a-bulb-syringe-to-clear-your-babys-mucus_10357065

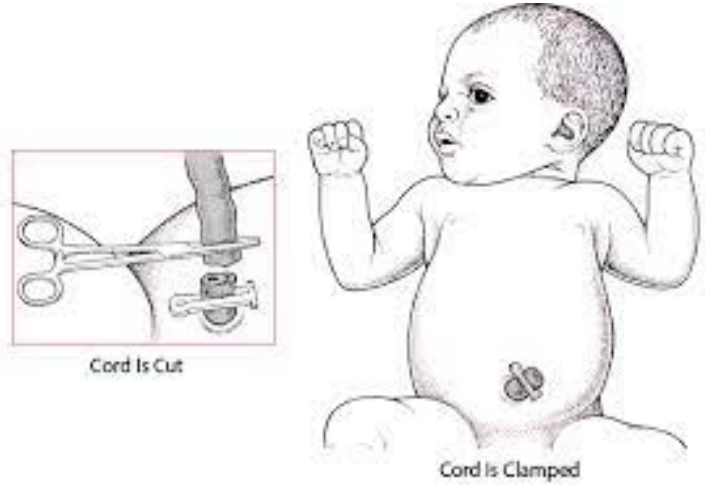
- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Cord clamping

- umbilical cord is cut between 2 clamps placed 6-8cm from the fetal abdomen
- Umbilical cord clamp is applied 2-3 cm from its insertion into the fetal abdomen



https://www.smartparenting.com.ph



https://www.msdmanuals.com/

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delayed versus early cord clamping

- Delayed cord clamping transfers a greater volume of blood to the newborn
- a delay of up to 60 seconds may increase total blood iron stores, expand blood volume and decrease anemia incidence in the neonate
- For preterm neonates, delayed cord clamping has several benefits: higher red cell volume, decreased need for blood transfusion, and lower rates of IVH and NEC



https://www.smartparenting.com.ph

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Delayed versus early cord clamping

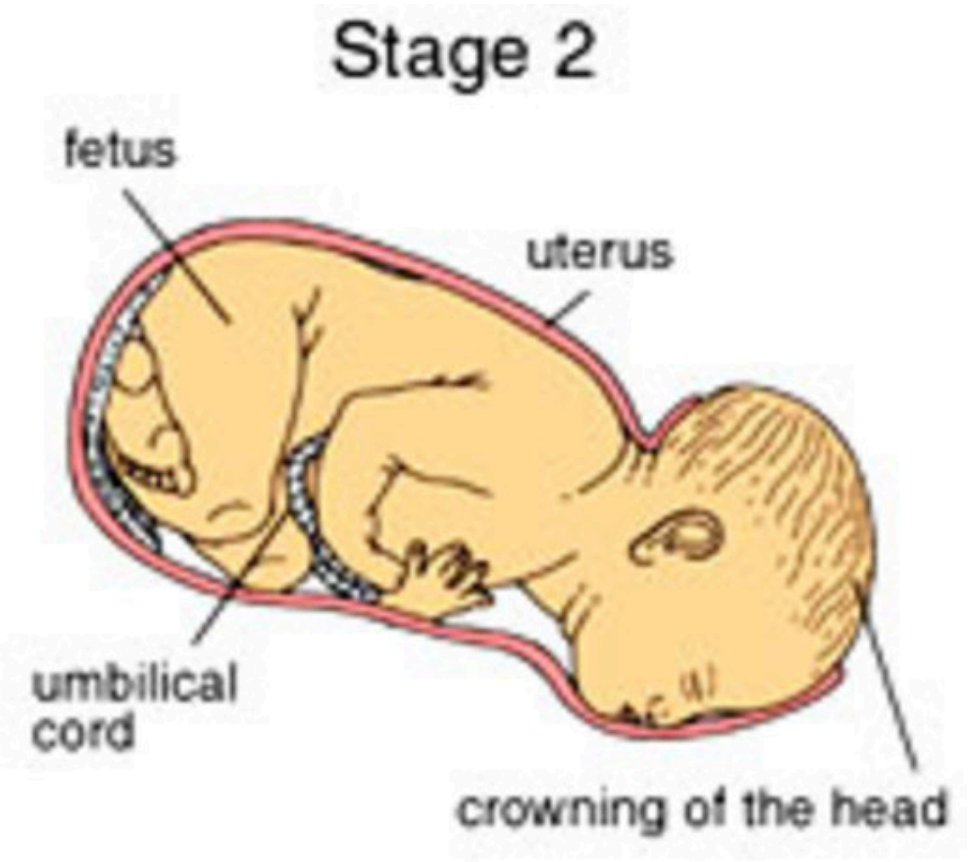
- The American Heart Association(AHA) guidelines (2015) advise that delayed cord clamping may have benefits for term or preterm neonates NOT NEEDING IMMEDIATE RESUSCITATION at birth.
- The AHA advises against routine use of cord milking for neonates < 29 weeks AOG) due to rapid volume changes.
- In general, delayed cord clamping versus early cord clamping does not worsen Apgar scores, umbilical cord pH nor increase rates of PPH



https://www.smartparenting.com.ph

- Cunningham FG, Leveno KJ, Bloom SL, Spong CY, et al (eds).William's Obstetrics 25th edition; 2018; chapter 22 Normal Labor

Management of the Third Stage of Labor



Active management of third stage of labor (AMTSL)

Active Management of the Third Stage of Labor (AMTSL)

Offer to every woman...

1 Give oxytocin within 1 minute of childbirth.



2 Deliver the placenta by controlled traction on the umbilical cord and counter-pressure to the uterus.



3 Massage the uterus through the abdomen after delivery of the placenta.



! During recovery, palpate the uterus through the abdomen every 15 minutes for two hours to make sure it is firm and monitor the amount of vaginal bleeding.

...at every birth, by every skilled provider.

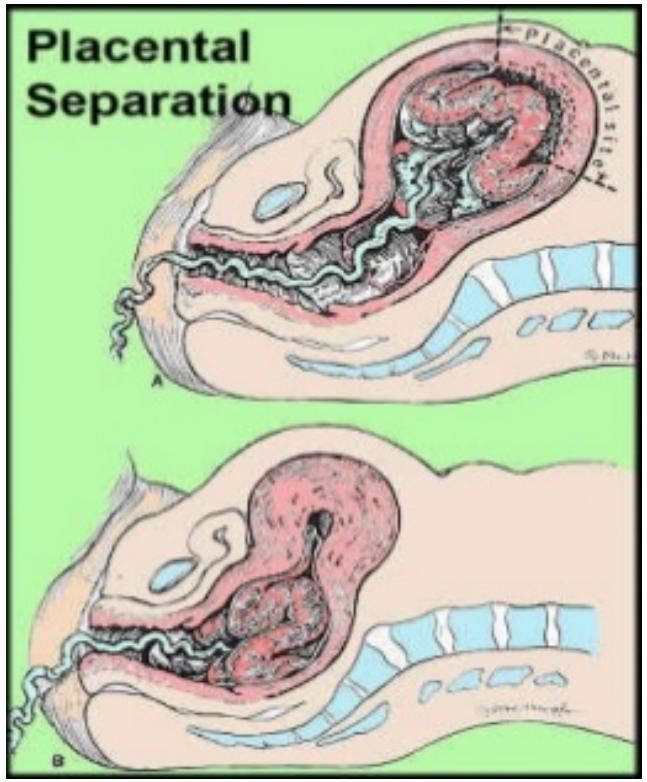
USAID FROM THE AMERICAN PEOPLE

RTI International PATH EngenderHealth
International Confederation of Midwives JHPIEGO
International Federation of Gynecology and Obstetrics (FIGO)

POPPHI Prevention of Postpartum Hemorrhage Initiative

4 Signs of placental separation:

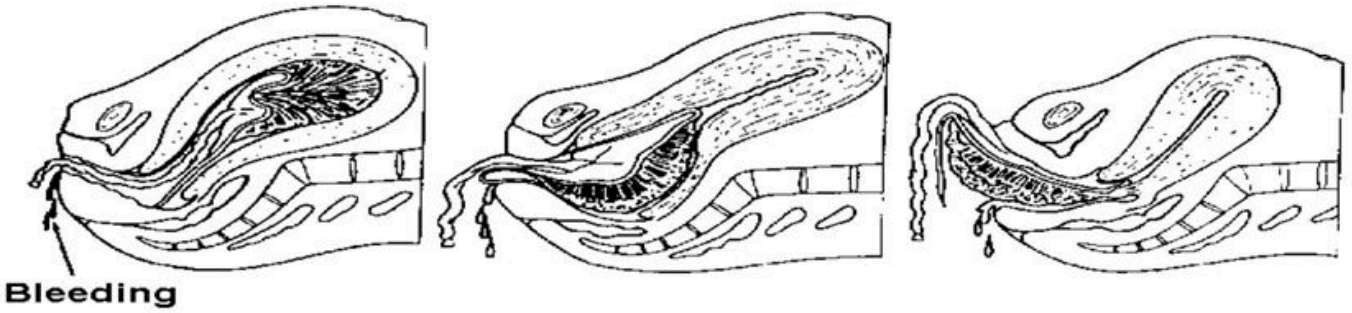
1. Gush of blood
2. Lengthening of the umbilical cord
3. Uterus rises over the abdomen
4. Globular and firm uterus



Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, Casey BM, Sheffield JS (eds).William's Obstetrics 24th edition; 2014; chapter 22 Normal Labor

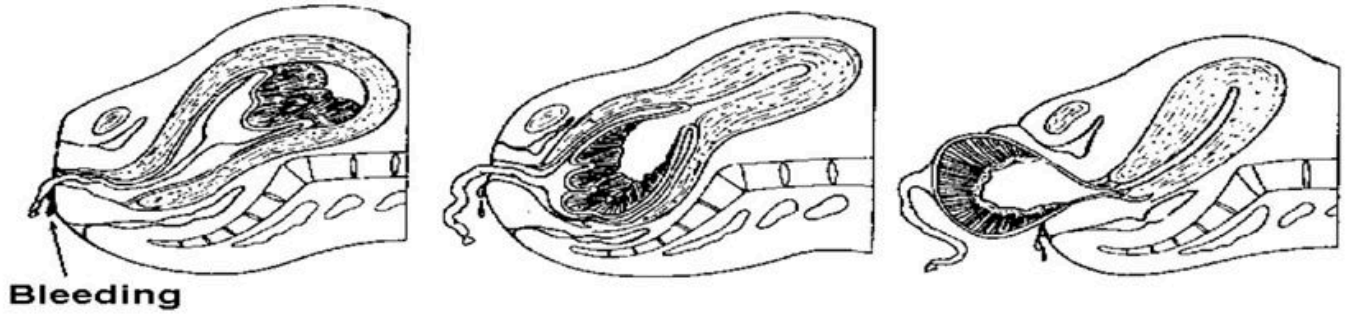
Placental separation methods

Duncan mechanism



Maternal/raw surface presenting

Schultze mechanism



Fetal surface presenting

Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, Casey BM, Sheffield JS (eds).William's Obstetrics 24th edition; 2014; chapter 22 Normal Labor

Summary

- Mechanism of labor
- Definition of labor
- 4 Stages of labor
- 2 phases of labor
- 3 functional divisions of labor
- Management of first stage of labor
- Management of second stage of labor
- Management of the third stage of labor



Thank you!

youtube channel: Ina Irabon

www.wordpress.com: Doc Ina OB Gyne