

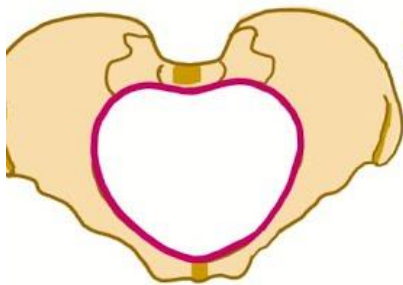
“The progress of labor is critically dependent on the complementary relationship of these five factors”

- **Birth Passage**
- **Birth Passenger** (Fetus)
- The **relationship** between the **Passage** and the **Passenger** (Fetus)
- **Physiologic** forces of labor
- **Psychological** consideration

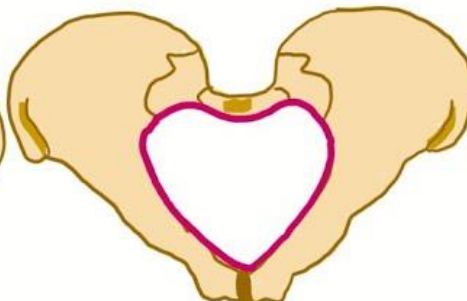
➤ Birth Passage.

- ❖ Size of the maternal pelvis (diameter of the pelvic inlet, midpelvis, and outlet)
- ❖ Type of maternal pelvis (Gynecoid)
- ❖ Ability of the cervix to dilate and efface and ability of the vaginal canal and external opening of the vagina (the introitus) to distend.

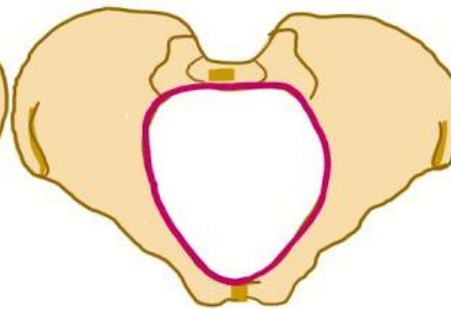
Gynecoid



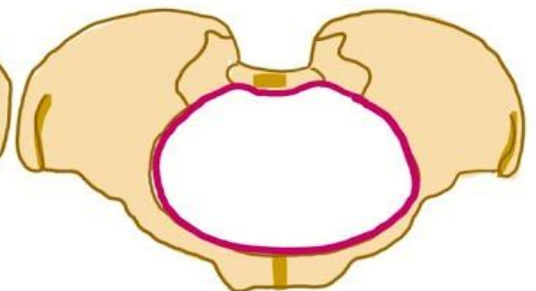
Android



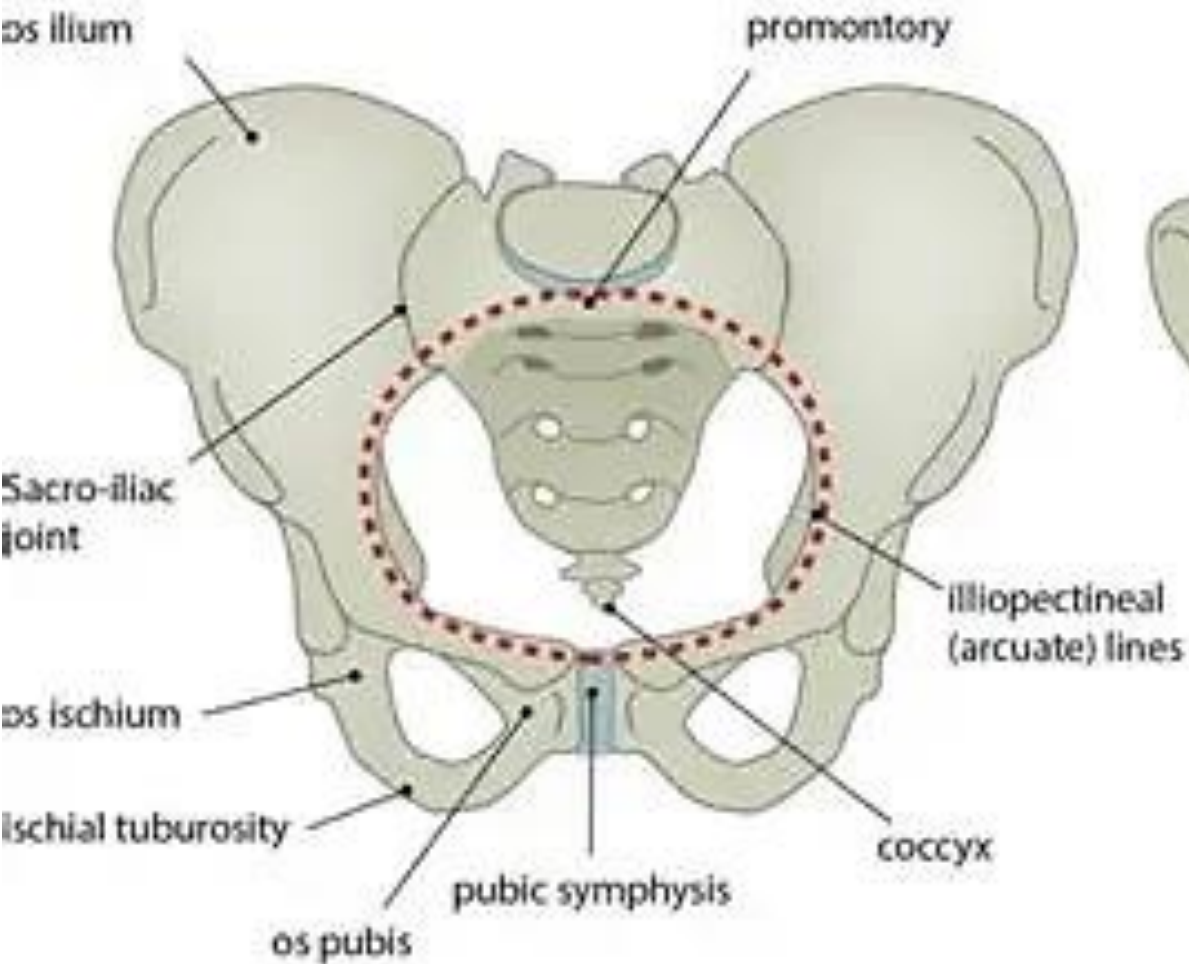
Anthropoid



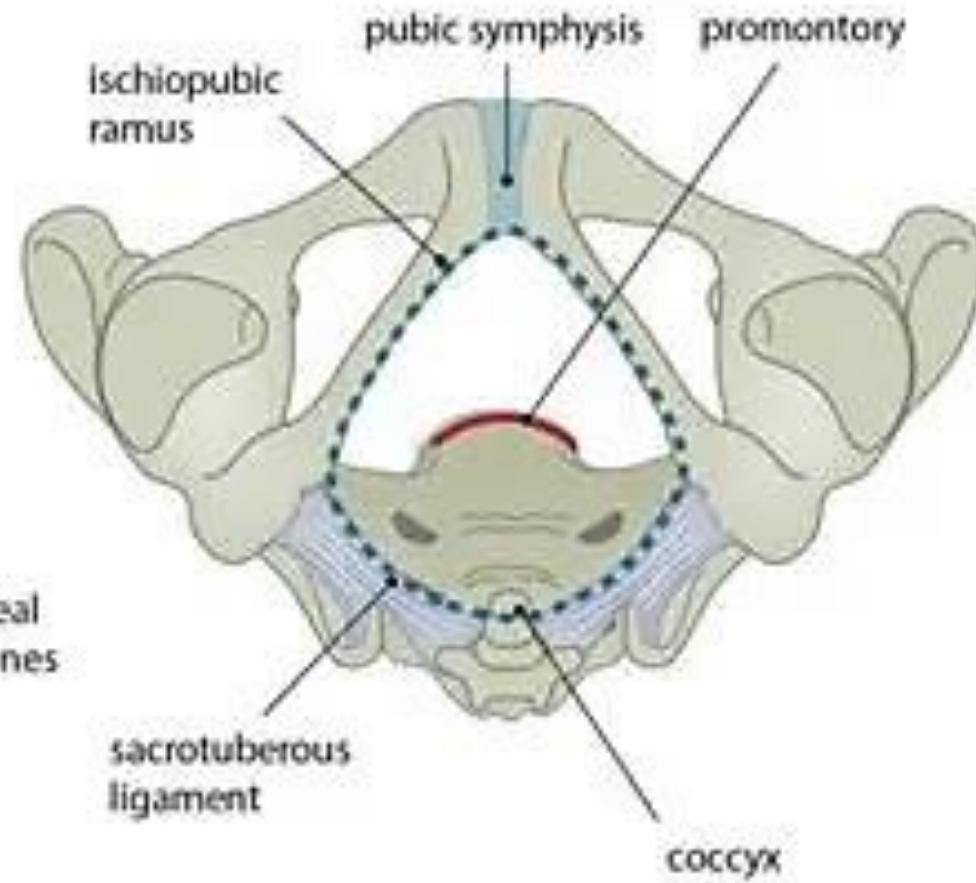
Platypeloid



pelvic inlet



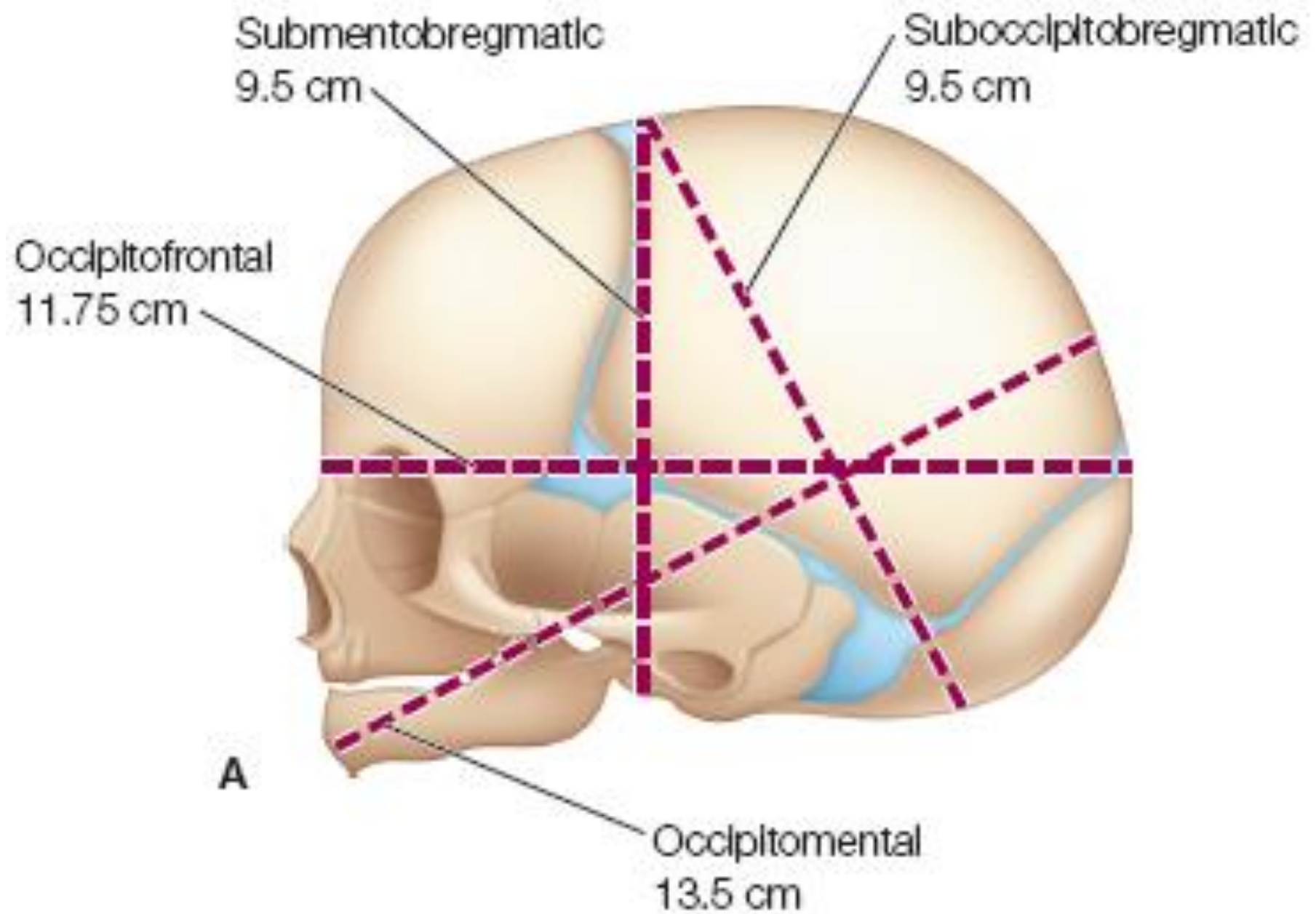
pelvic outlet



➤ **Birth Passenger (Fetus)**

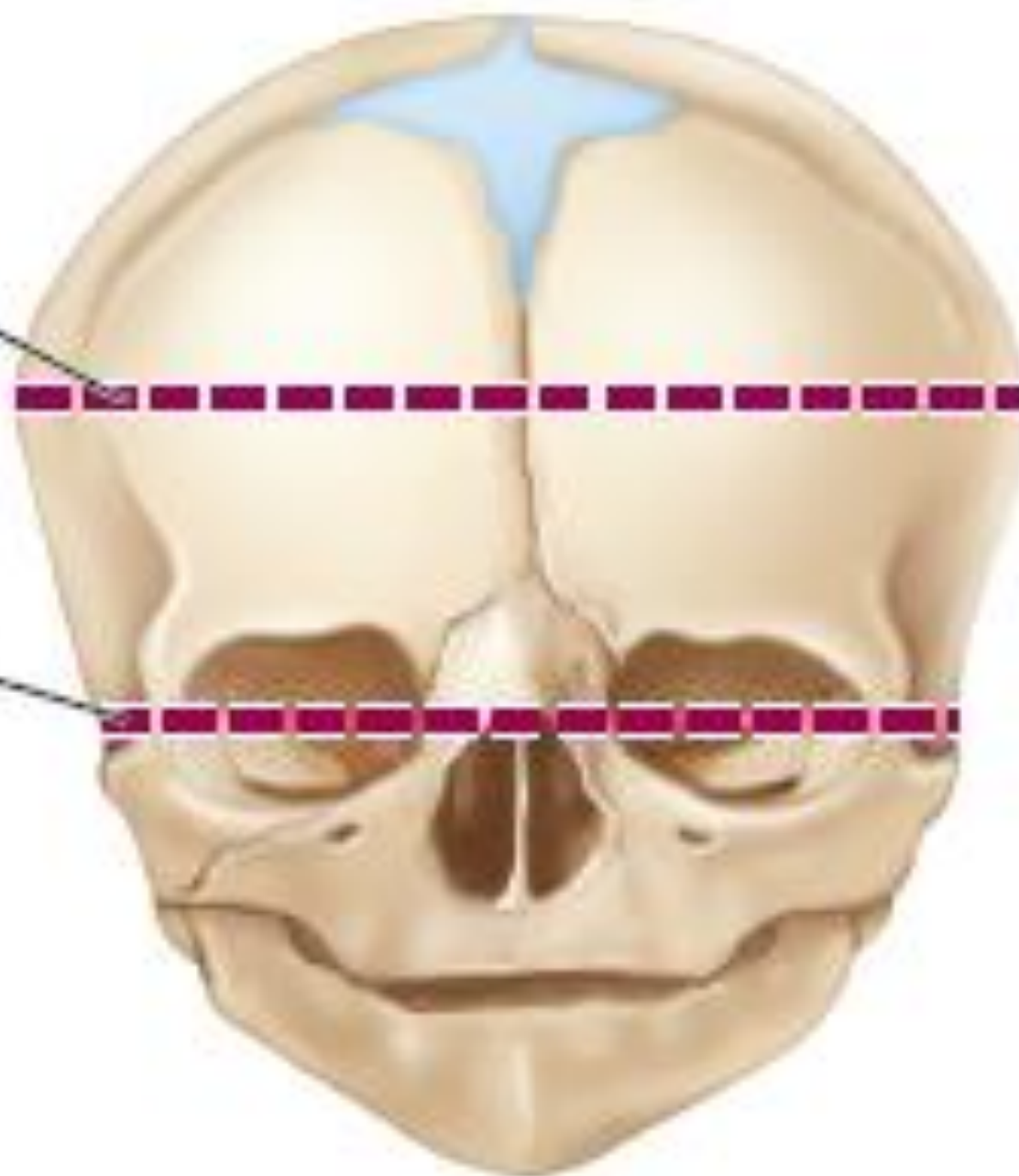
- 1. Fetal head (size and presence of molding).**
- 2. Fetal attitude.**
- 3. Fetal Lie**
- 4. Fetal Presentation.**





Bi-parietal
9.25 cm

Bi-temporal
8 cm

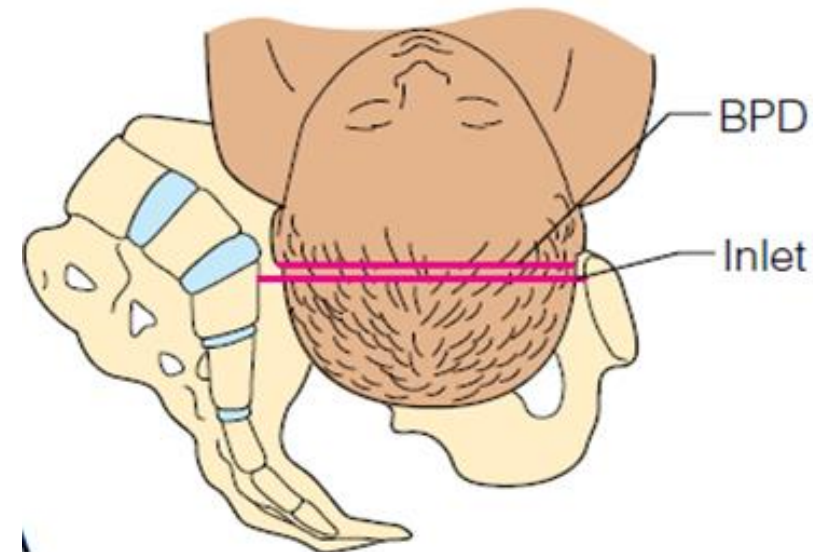
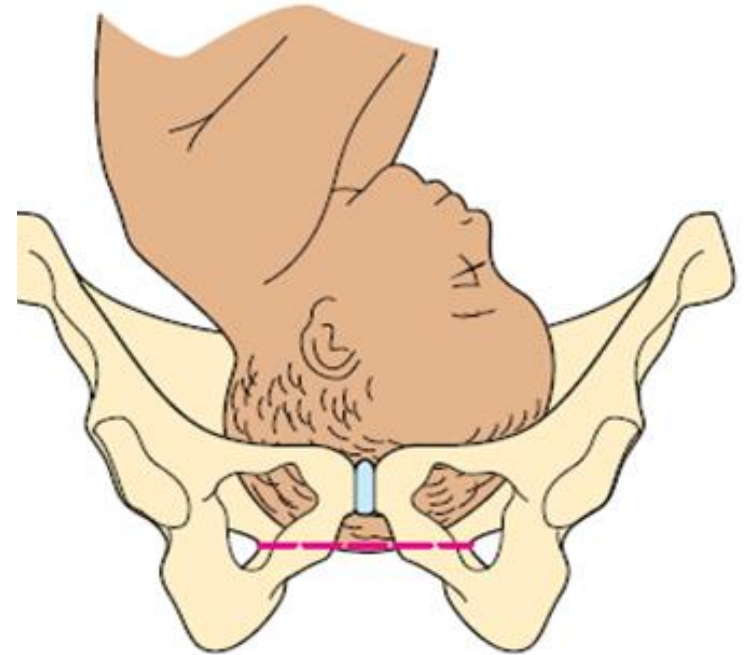


B

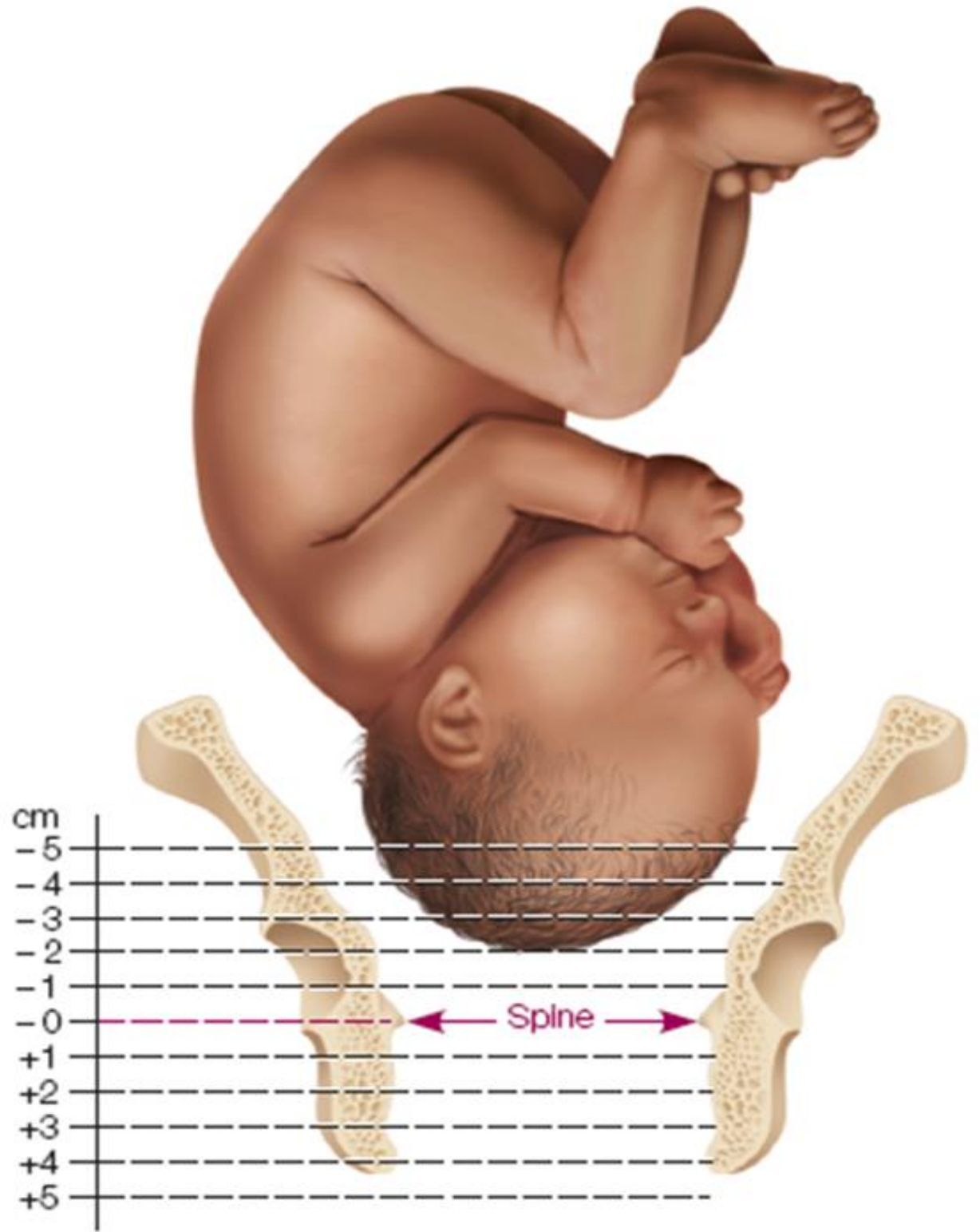
➤ The relationship between the **Passage** and the **Passenger** (Fetus)

1. Engaged. The biparietal diameter (BPD) of the fetal head is in the inlet of the pelvis.

In most instances, the presenting part (occiput) will be at the level of the ischial spines (0 station).



2. Station



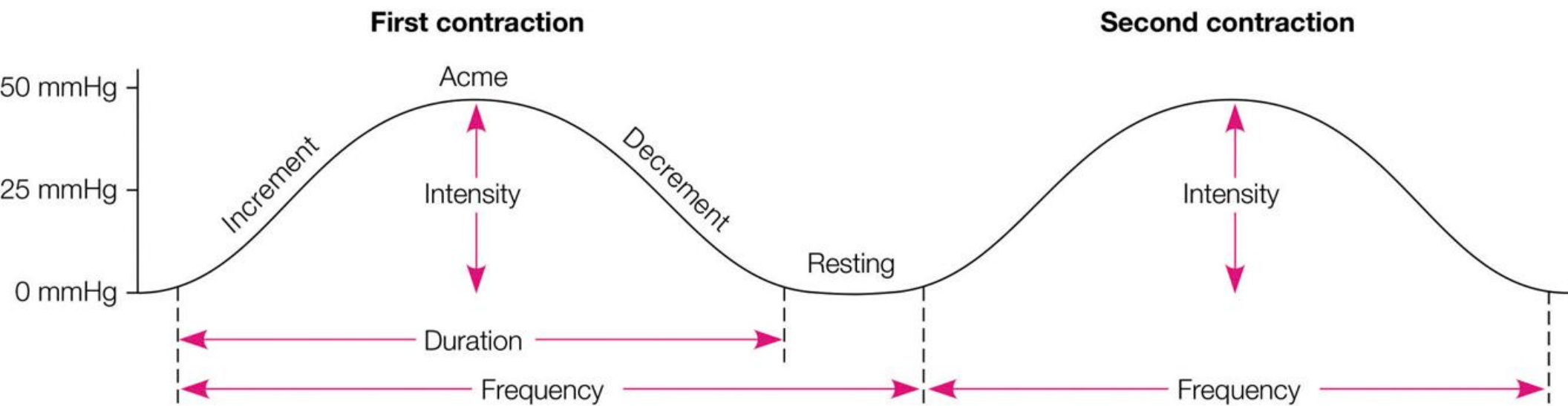
3. Fetal position



➤ Physiologic forces of labor

- The *primary force*: is uterine muscular contractions, which cause the changes of the first stage of labor—complete effacement and dilatation of the cervix.
- The *secondary force*: is the use of abdominal muscles to push during the second stage of labor. The pushing adds to the primary power after full dilatation.

“Characteristics of uterine contractions”



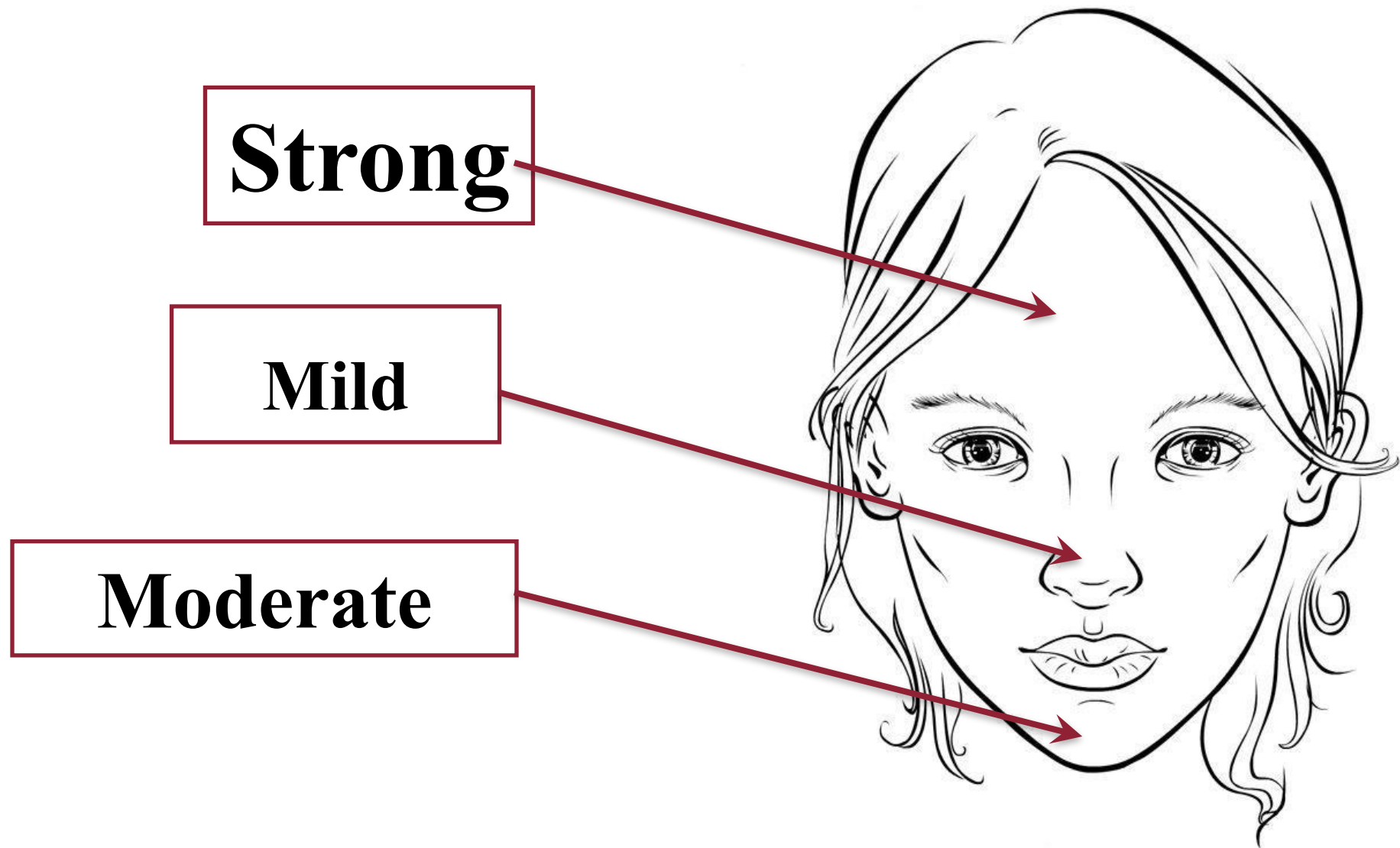
❖ *Each contraction has three phases:*

- *Increment:* the “building up” of the contraction (the longest phase)
- *Acme:* or the peak of the contraction
- *Decrement or the “letting up” of the contraction:*
Diminishing of the contraction
- *Rest:* Period of time between contractions

❖ Characteristics of Contractions

- **Frequency** → refers to the time between beginning of one contraction and the beginning of the next contraction.
- **Duration** → of each contraction is measured from the beginning of the contraction to the completion of the contraction.
- **Intensity** → refers to the strength of the uterine contraction during the peak of the contraction.





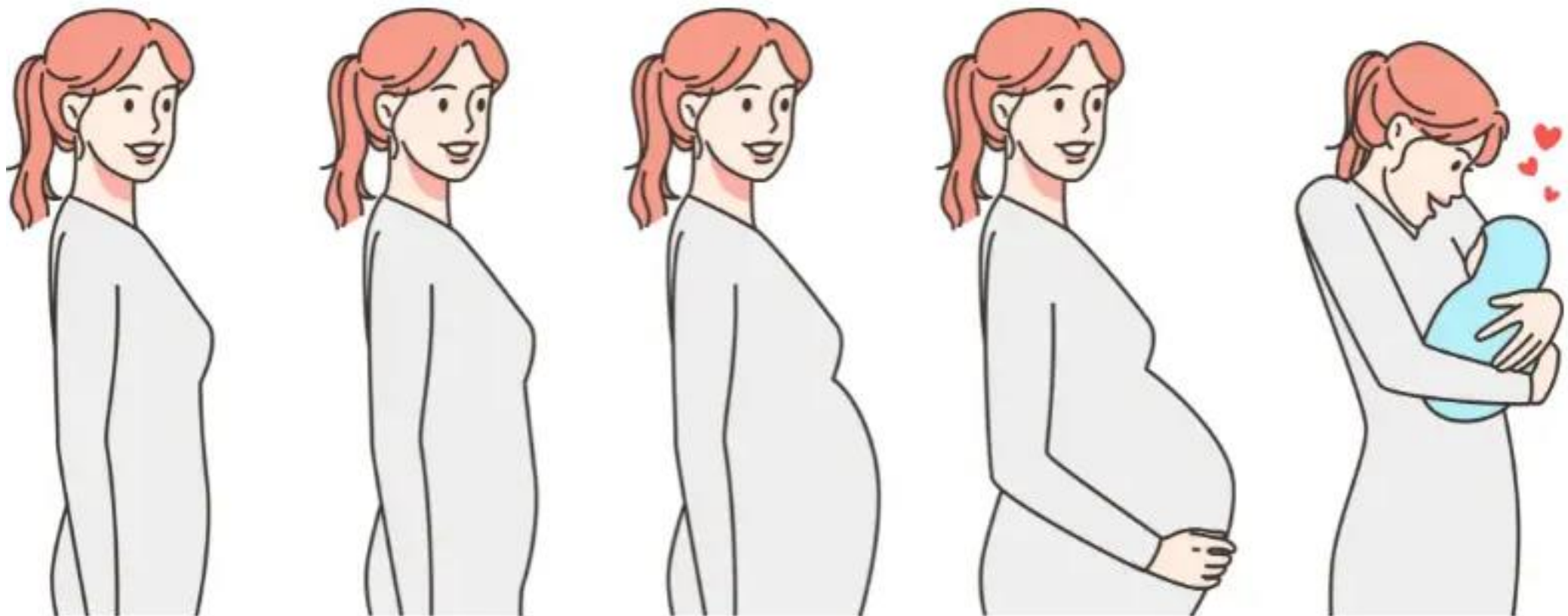
Estimating intensity by palpation: the nurse judges the amount of indentability of the uterine wall during the acme of a contraction.

Bearing down

- After the cervix is completely dilated, the maternal abdominal musculature contracts as the woman pushes. The pushing aids in the expulsion of the fetus and placenta.

→ *If the cervix is not completely dilated, bearing down can cause cervical edema (which retard dilatation), possible tearing and bruising of the cervix.*

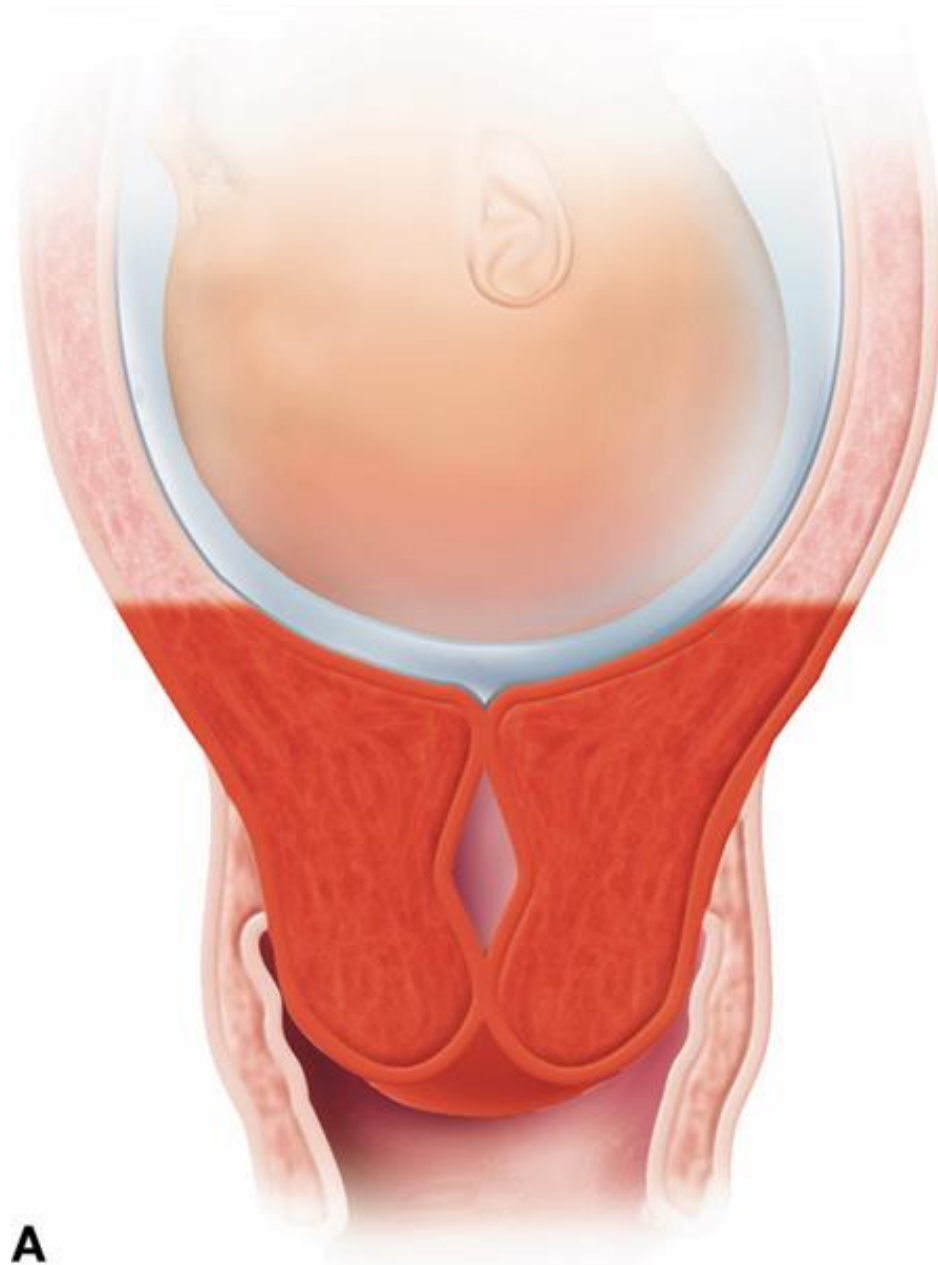
STAGES OF LABOUR



- *Effacement* → is the taking up (or drawing up) of the internal os and the cervical canal into the uterine side walls.
- *Cervical dilatation* → The cervical os and cervical canal widen from less than 1 cm to approximately 10 cm, allowing birth of the fetus

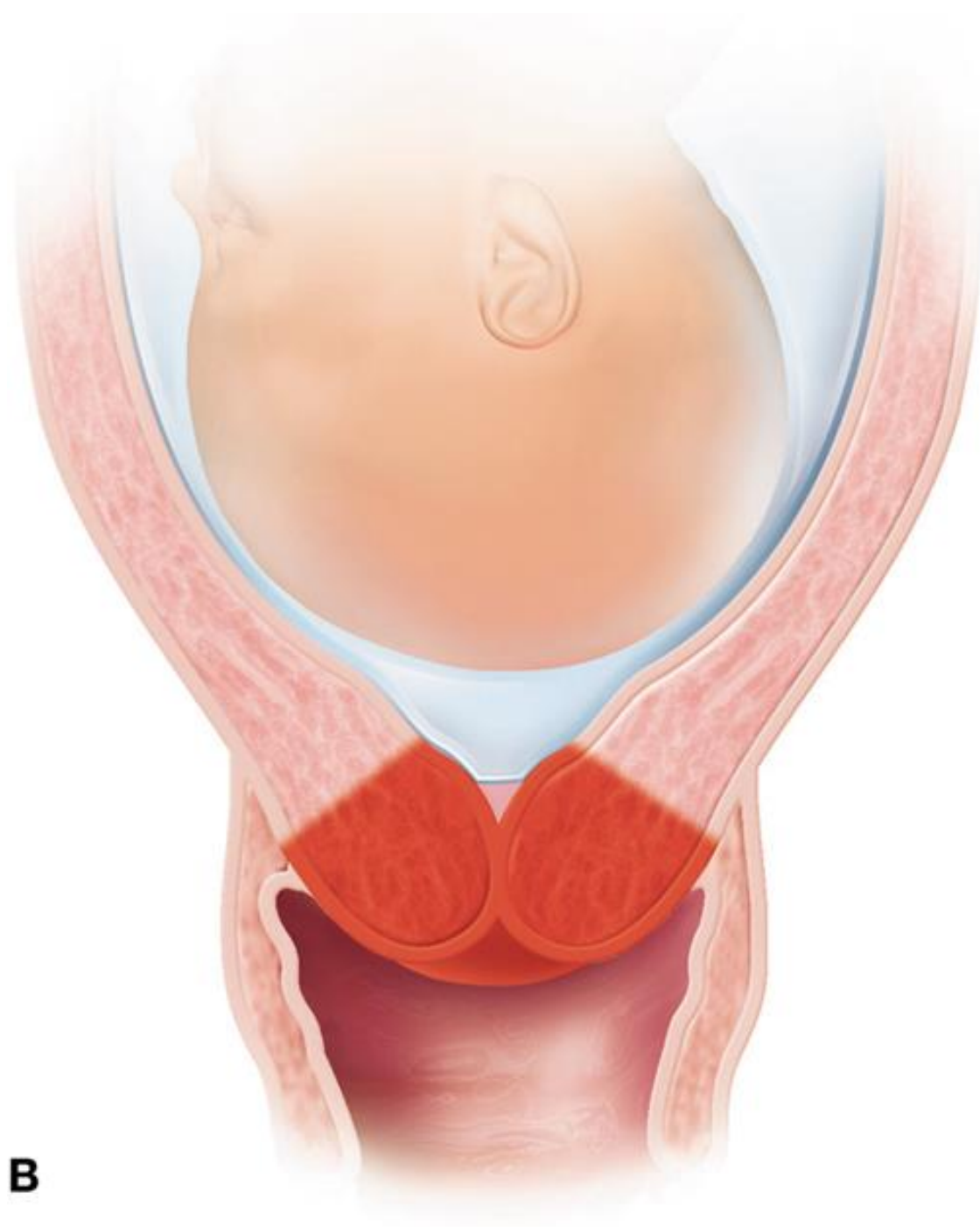
Effacement of the cervix in the primigravida

A. At the beginning of labor, there is no cervical effacement or dilatation. The fetal head is cushioned by amniotic fluid

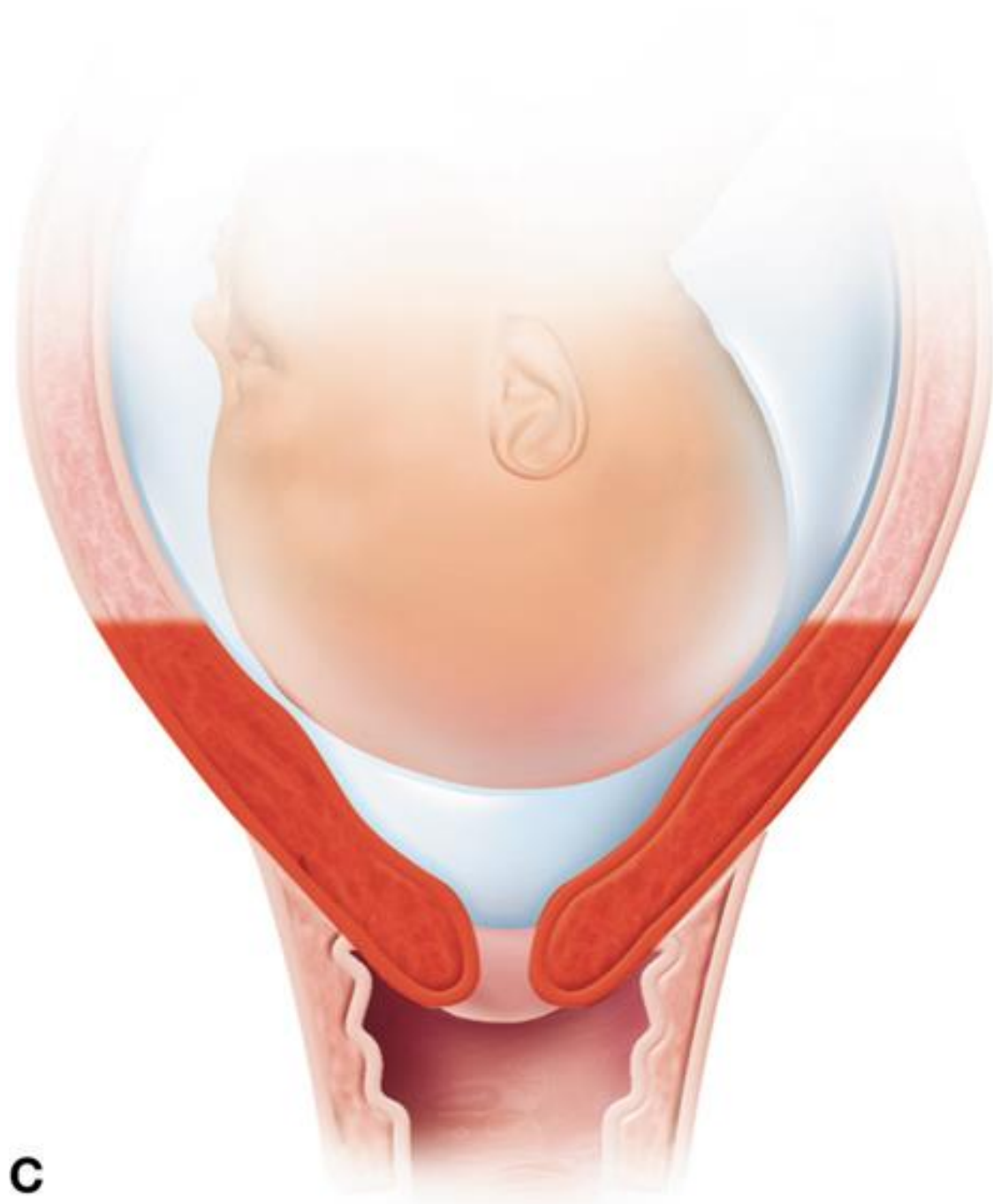


B. Beginning cervical effacement. As the cervix begins to efface, more amniotic fluid collects below the fetal head.

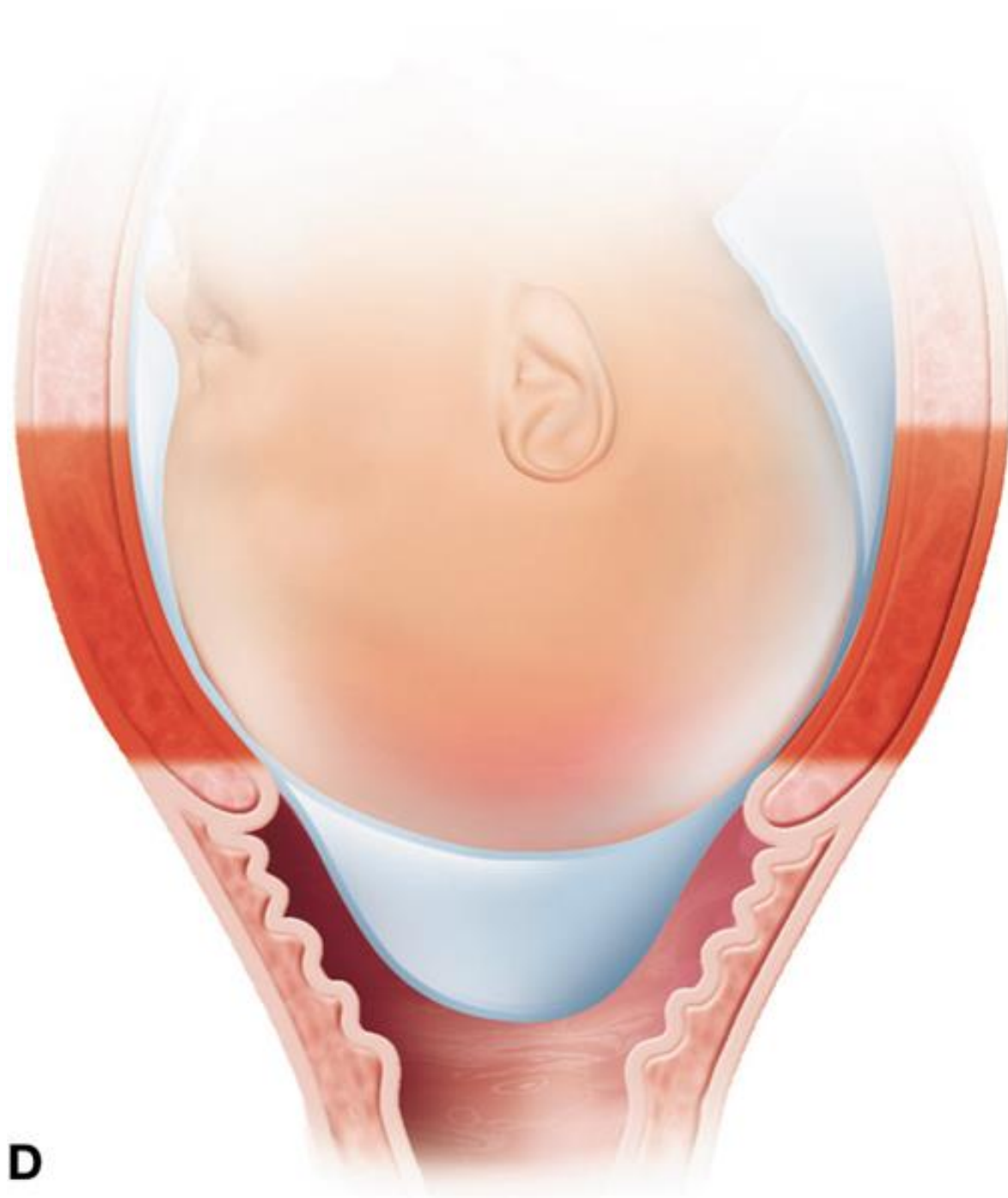
B



C. Cervix is about one half (50%) effaced and slightly dilated. The increasing amount of amniotic fluid below the fetal head exerts hydrostatic pressure on the cervix



D. Complete effacement and dilatation



D

Causes of Labor Onset:

- **Begins at 38–42 weeks** when the fetus is mature.
- **Estrogen** → increases uterine contractions and softens the cervix.
- **Progesterone withdrawal** → removes relaxation of uterine muscle, allowing contractions.
- **Prostaglandins** → stimulate contractions; production increases near term.
- **Oxytocin** → a hormone produced by the pituitary, stimulates the uterus to contract.

Signs Of LABOR



➤ **Lightening**

➤ **Braxton Hicks contractions**

➤ **Cervical changes Bloody show:**

labor 24-48 hrs

➤ **Rupture of membranes (ROM)**

➤ **GI disturbance: N/V, diarrhea,**

weight loss

➤ **Sudden burst of energy (nesting)**

❖ **Lightening**

- **Lightening:** occurs when the fetus **descends into the pelvic inlet** (engagement).
- The **uterus moves downward**, relieving pressure on the **diaphragm** and easing breathing.
- Increased **downward pressure** may cause:
 - *Leg cramps or pain (nerve pressure).*
 - *Pelvic pressure and urinary frequency.*
 - *Edema in lower limbs (venous stasis).*
 - *Increased vaginal secretions (mucosal congestion).*

❖ Braxton Hicks Contractions

- Irregular, intermittent contractions occurring throughout pregnancy.
- May become **uncomfortable** before true labor begins.
- Pain felt in the **abdomen and groin**, similar to **menstrual cramps**.
- When mistaken for true labor, it is called **false labor**.

❖ Cervical Changes and Bloody Show

- During pregnancy, the **cervix is firm and rigid**; it must **soften (ripen)** before labor to allow dilation.
- **Ripening** is hormonally controlled and prepares the cervix for stretching.
- **Mucus plug** forms in the cervical canal during pregnancy as a protective barrier.
- With **softening and effacement**, the mucus plug is **expelled**, causing **pink-tinged discharge** called **bloody show**.
- **Bloody show** signals **labor is likely within 24–48 hours**.
- **Brownish discharge** after a cervical exam is **not true bloody show**.

❖ Rupture of Membranes (ROM)

- **Definition:** Breaking of the **amniotic membranes** before or during labor.
- **Spontaneous rupture of membranes (SRM):** usually occurs at the **peak of a contraction**; **80%** of patients enter labor within **24 hours**.
- If labor does not start within **12–24 hours**, **infection risk increases**, and induction may be needed.
- **Amniotic fluid** may gush or leak; patient should report it immediately to prevent complications (e.g., **cord prolapse**).

- **Artificial rupture of membranes (AROM):** performed by a clinician using an **amnihook** to induce or augment labor.
- **Premature rupture of membranes (PROM):** membranes rupture **before labor** at any gestational age.
- **Preterm PROM (PPROM):** occurs **before 37 weeks**; seen in up to **25% of preterm births** and increases infection risk.



❖ Other Signs of Impending Labor:

- **Sudden Burst of Energy:** Some women report a sudden burst of energy approximately 24 to 48 hours before labor
- **Slight weight loss** (1–3 lb / 2.2–6.6 kg) due to **fluid and electrolyte shifts**.
- **Increased backache** and **pelvic pressure** from the **relaxin hormone** effect on joints.
- **Digestive changes** such as **diarrhea, indigestion, nausea, or vomiting** may occur before labor.

❖ Comparison of True Labor and False Labor

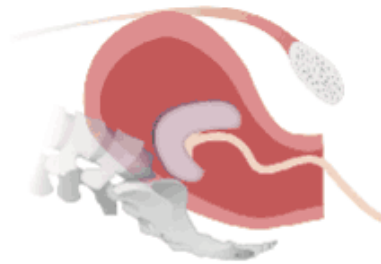
Character	True labour pain	False labour pain
Contractions	regular	Irregular
Interval between contractions and intensity	Progressive (increase in frequency and intensity)	Short duration, not progressive
Changes in the cervix	Associated with effacement and dilation of the cervix	Not associated with effacement and dilation of the cervix
Membranes	Associated with bulging of membranes	Not associated with bulging of membranes
Response to analgesia	Not relieved by sedation	Relieved by sedation
Labor	Followed by labor	Not followed by labor

Cardiotocography (CTG)

NON-STRESS TEST



MECHANISMS & STAGES OF LABOR



4
Stages
of Labor

Stage 1

Stage 2

Stage 3

Stage 4

Start of regular
contractions

10 cm dilation

Delivery of the fetus

Delivery of the placenta

2 hours after delivery

1st Stage of Labor: dilatation and effacement

- **The first stage of labor is referred to as the "dilating" stage.**
- **It is the period from the first true labor contractions to complete dilatation of the cervix (10cm)**
- **The forces involved are uterine contractions.**
- **The first stage of labor is divided into three phases:**
 - **(1) Latent**
 - **(2) Active**
 - **(3) Transition**

❖ Latent Phase

- Ends when cervix is dilated 4 cm.
- Contractions more frequent.
- The duration becomes longer.
- Intensity - moderate.
- Mother is usually alert and talkative, can walk
- Contractions last from 30 to 45 seconds
The frequency of contractions is from 5 to 20 minutes.
- True labor is considered to be at 4 cm.
- Duration varies, sometimes as long as 24 hours.



❖ Active Phase

- Begins when cervix is dilated 4 cm, ends when the cervix is dilated 7 cm.
- Contractions occur every 3 to 5 minutes with a duration of 40 to 60 seconds.
- Intensity progresses to strong.
- The client focuses more on breathing techniques in contractions, less talkative.
- Unable to walk
- This phase is considered the onset of true labor.



❖ Transition Phase

- Begins when cervix is dilated 8 cm, ends when cervix is dilated 10 cm.
- Contractions occur every 2 to 3 minutes
- Duration of 60 to 90 seconds.
- The intensity of contractions is strong.
- Completion of this phase marks the end of the first stage of labor.
- Urge to push



CHARACTERISTICS OF THE TRANSITION PHASE

- 
- Restlessness
 - Hyperventilation
 - Bewilderment and anger
 - Difficulty following directions
 - Focus on self
 - Irritability
 - Nausea, vomiting
 - Very warm feeling
 - Perspiration
 - Increasing rectal pressure

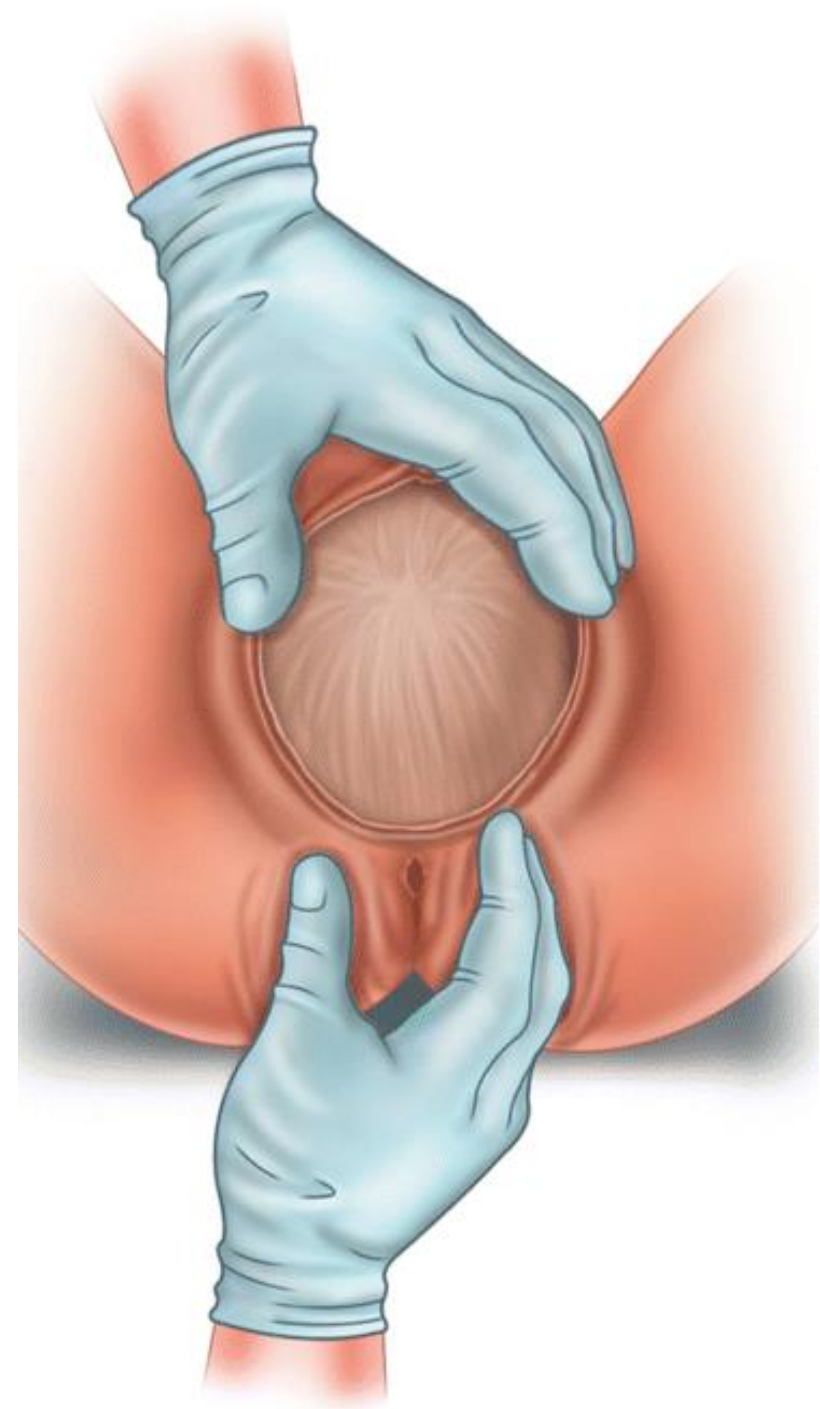
❖ Hyperventilation

- **Signs:** Rapid breathing, dizziness, tingling around the mouth and fingers, and a feeling of breathlessness.
- **Treatment:** Calm the patient, encourage slow deep breathing, and have them breathe into cupped hands or a paper bag to restore CO₂ balance.

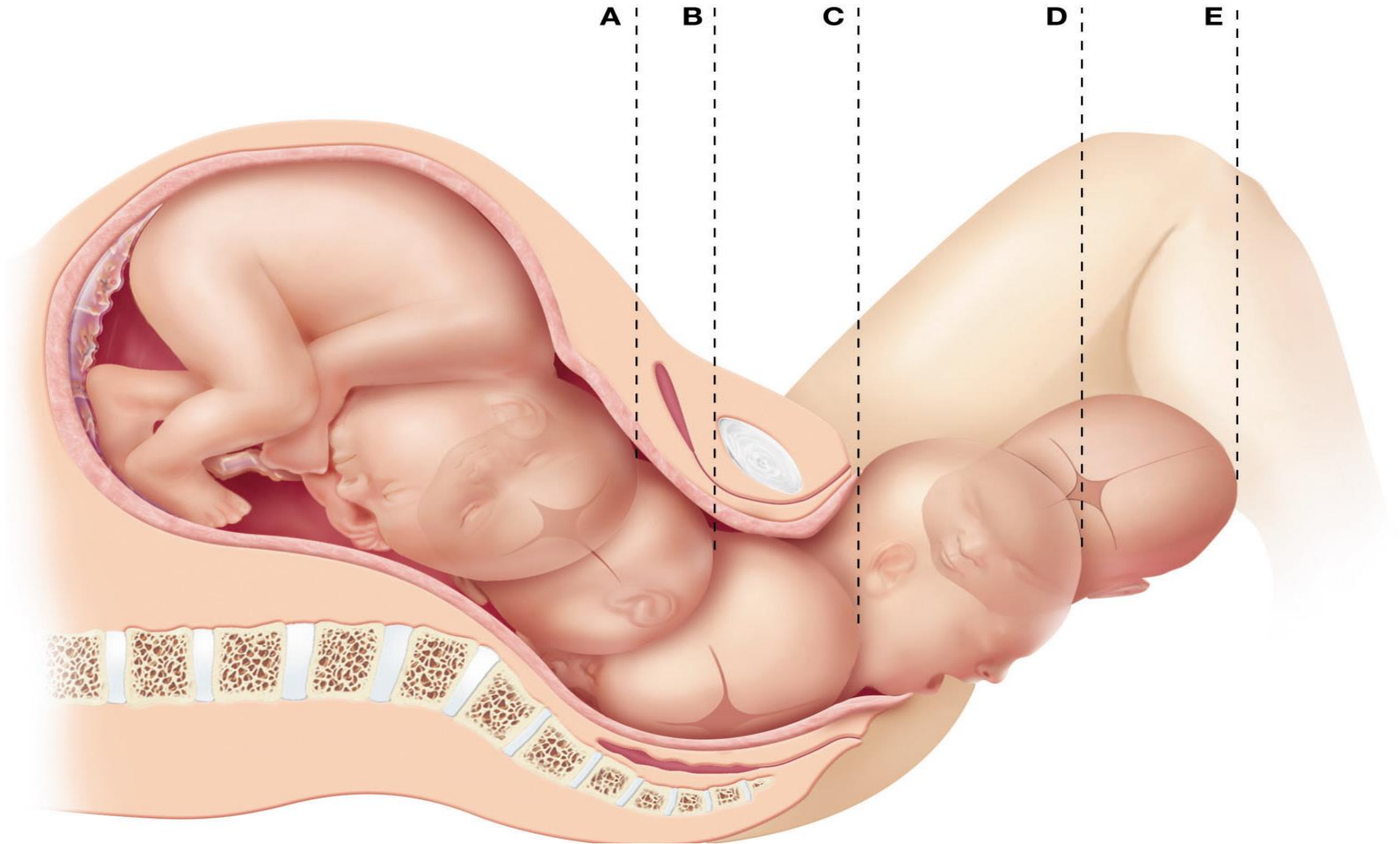


❖ 2nd Stage: Birth of the Baby

- Begins when cervical dilatation and effacement complete and ends with birth of the baby.
- The woman may feel a strong urge to push due to rectal pressure
- patient is instructed to push with each contraction to bring the presenting part down into the pelvis
Crowning → occurs when the fetal head is visible at the vaginal opening—signaling birth is imminent.
- **Monitor the patient's BP and the FHR every 5 minutes and after each contraction.**



“Cardinal Movements (Mechanisms of Labor)”



A. and B. Descent. C. Internal Rotation. D. Extension. E. External Rotation

Third Stage

- From birth of infant to delivery of placenta
- Placental separation
 - *Increase in bleeding*
 - *Signs*
 - Globular-shaped uterus
 - Rise of fundus in abdomen
 - Sudden gush, trickle of blood
 - Further protrusion of umbilical cord

Third Stage

- Placental separation and delivery

- Retained if not expelled 30 minutes after end of second stage

- Shiny Schultze

- Fetal side presents

- Duncan mechanism (Dirty Duncan)

- Maternal side presents

A Placental Separation and Expulsion

A. Schultze mechanism.

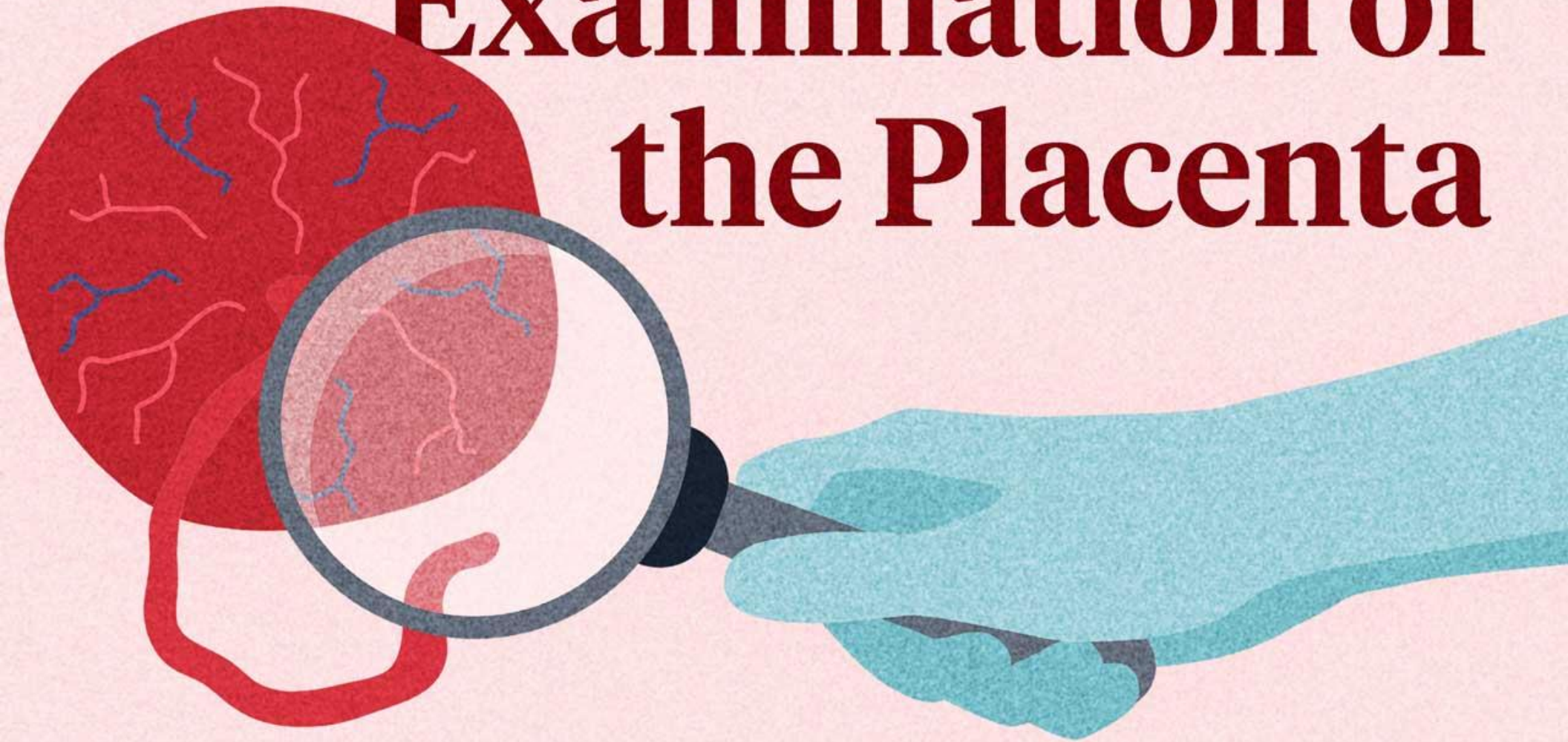


B. Placental Separation and Expulsion

B. Duncan mechanism.



Examination of the Placenta



Fourth stage of labor

- Lasts 1–4 hours after birth and marks the mother's physiologic readjustment.
- Blood loss ranges from 250–500 mL.
- Moderate drop in blood pressure with increased pulse pressure and mild tachycardia.

Fourth stage of labor

- Uterus remains contracted and midline; fundus midway between symphysis pubis and umbilicus. Contractions constrict vessels at the placental site to prevent bleeding.
- Nausea and vomiting subside; patient may feel thirsty, hungry, and experience shaking chills.
- Bladder may be hypotonic due to trauma or anesthesia, leading to urinary retention