

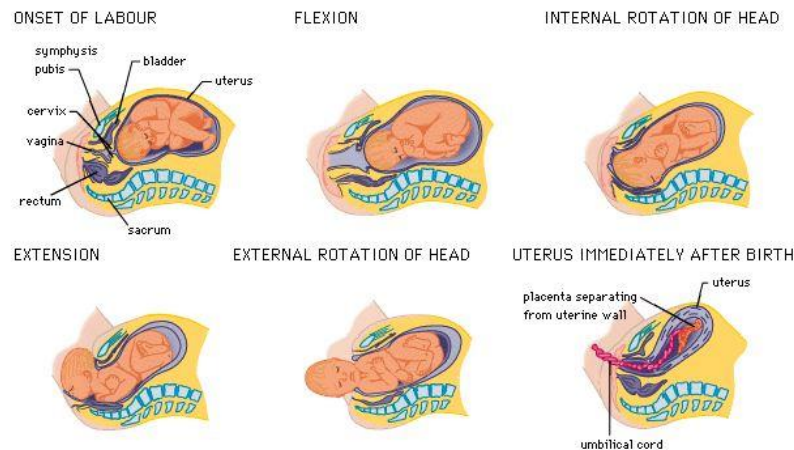
# NORMAL LABOR



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# NORMAL LABOR DEFINITION

Series of changes that take place in the genital organs in an **effort** to expel the viable products of conception (fetus, placenta and membranes) out of the womb through the vagina into the outer world.



D C Dutta

# Delivery

- Delivery is the spontaneous expulsion or aided extraction of a viable fetus from the uterus vaginally (normal delivery) or through abdominal route (caesarean labor)

# Criteria of normal labor (Eutocia)

1. Spontaneous in onset and at term
2. With vertex presentation
3. Without undue prolongation
4. Natural termination with minimal aids
5. Without having any complications affecting the health of the mother and baby

# Abnormal labor (Dystocia)

- Any deviation from the definition of normal labor is called abnormal labor.

# Date of onset of labor

- On the EDD 4%
- 1 week on either side 50%
- 2 week earlier and 1 week later 80%
- At 42 weeks 10%
- 43 weeks plus 4%

# CAUSES OF ONSET OF LABOUR

ENDOCRINE

BIOCHEMICAL

MECHANICAL

# MECHANICAL

- **UTERINE DISTENSION**

Stretching effect on the myometrium by growing fetus and liquor amnii. This increases

- ✓ Gap junction proteins
- ✓ Receptors for oxytocin
- ✓ Specific contraction associated proteins (CAPs)



# BIOCHEMICAL & ENDOCRINE

## • FETOPLACENTAL CONTRIBUTION

Activation of fetal hypothalamus



Increased CRH



stimulation of fetal pituitary



Increased ACTH



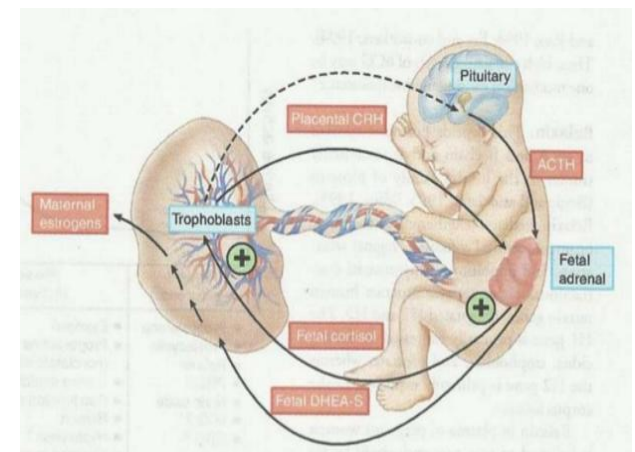
Fetal adrenals



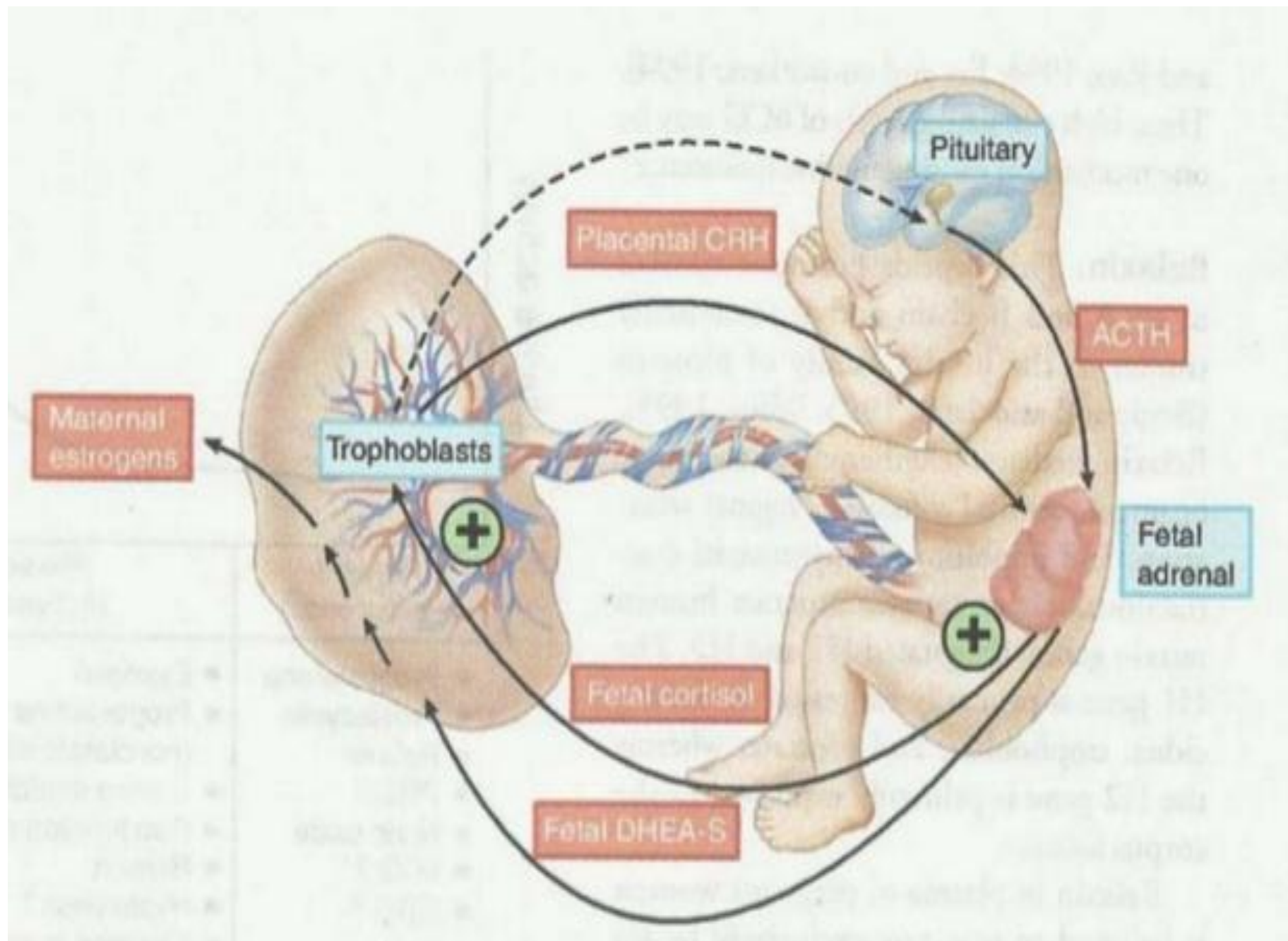
Increased cortisol secretion



Action on placenta



1. Accelerated production of estrogen ---- + maternal pituitary---oxytocin
2. Decreased progesterone production
3. Altered estrogen progesterone ration ---- + PG synthesis



# Contd...

- **ESTROGEN**

1. Increases the release of **oxytocin** from maternal pituitary
2. Promote the synthesis of **myometrial receptors for oxytocin**, prostaglandins and increase in gap junctions
3. Accelerates production of **PG** from amnion and decidua
4. Stimulate the synthesis of myometrial contractile protein
5. Increase the excitability of myometrial cell membranes.

# Contd...

- **PROGESTERONE**

Fetal production cortisol



Inhibit conversion of fetal pregnenolone to progesterone



Decrease in progesterone



Alteration in estrogen: progesterone



Prostaglandin synthesis

# Contd...

- **PROSTAGLANDINS**

**Major sites:** Amnion, chorion, decidual cells and myometrium.

**Synthesis is triggered by:**

- Rise in estrogen level
- Mechanical stretching
- Infection
- Vaginal examination
- Separation or rupture of membranes

## Intrauterine infection and preterm labor

[Varkha Agrawal](#)<sup>a</sup> and [Emmet Hirsch](#)<sup>a,b,\*</sup>

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### Summary

Go to:

Preterm labor is defined as labor that begins before 37 completed weeks of pregnancy. More than 12% of infants born in the USA are preterm. At least 40% of preterm births are associated with intrauterine infection. Toll-like receptors (TLRs) are members of a family of cell-surface proteins responsible for recognition of a diverse spectrum of bacterial, viral and fungal pathogens. TLRs initiate the host innate (i.e. non-adaptive) immune response, inducing a proinflammatory cascade involving cytokines, chemokines, prostaglandins, and other effector molecules that result in the characteristic phenomena of labor, such as uterine contractions and rupture of fetal membranes. These cascades may also be activated by mechanisms that are not primarily infectious but are accompanied by inflammatory responses. Now that the molecular mechanisms linking infection and labor have been, to a large extent, elucidated, the challenge is to identify points of overlap with non-infectious causes of labor and to find intervention strategies that can minimize the negative impact of preterm delivery.

**Keywords:** Chorioamnionitis, Cytokines, Preterm delivery, Preterm rupture of membranes, Toll-like receptor

# Essential factors of labor

Passage

Passenger

Power

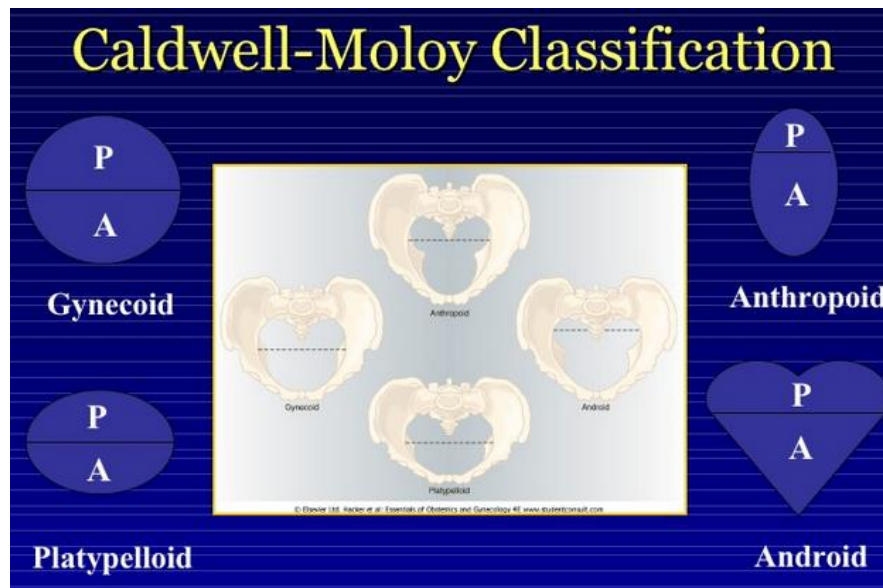
Position

Psyche

# Passage

The passage refers to the route a fetus must travel from the uterus through the cervix and vagina to the external perineum.

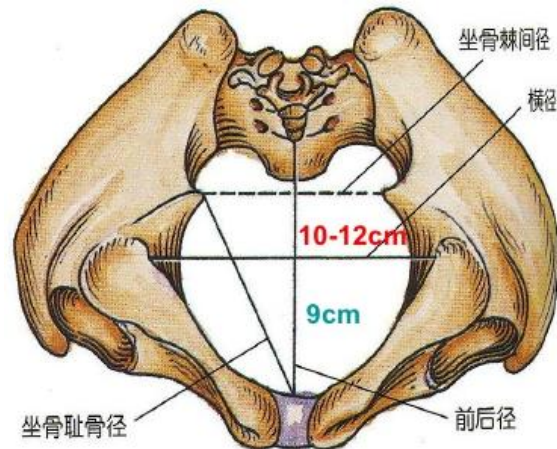
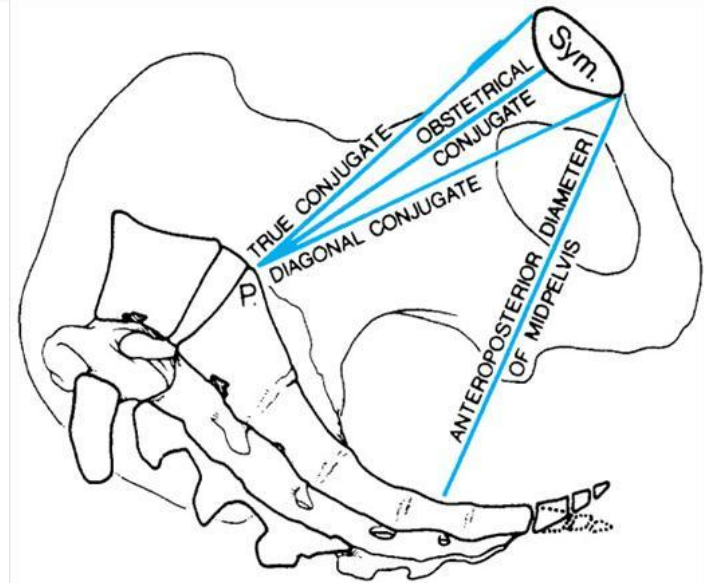
The pelvis should have adequate size





# Passage

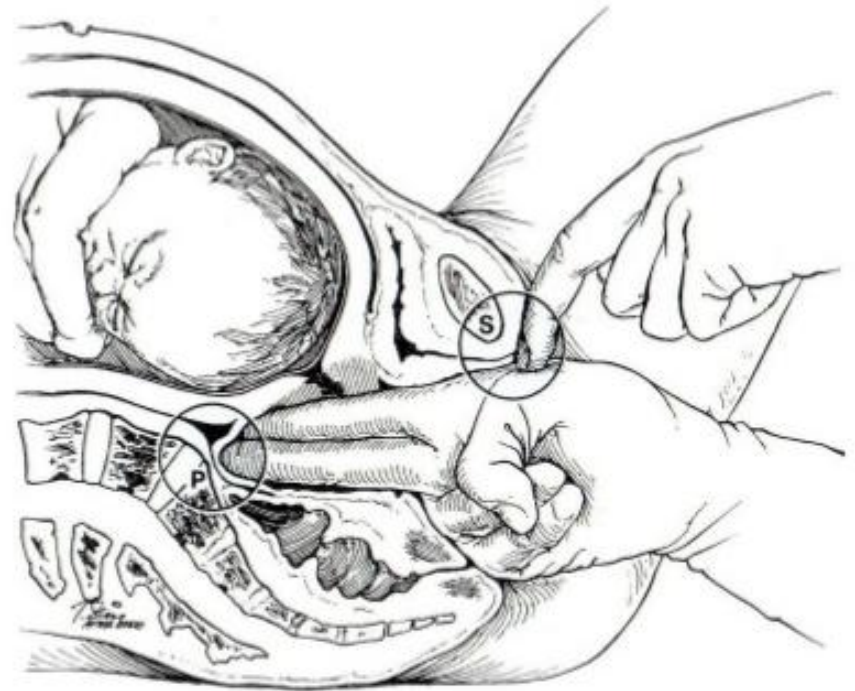
- Two pelvic measurements are important to identify the adequacy of the pelvic size.
  1. The diagonal conjugate (AP diameter of the inlet)
  2. Transverse diameter of the outlet



# Passage

## Measuring the diagonal conjugate.

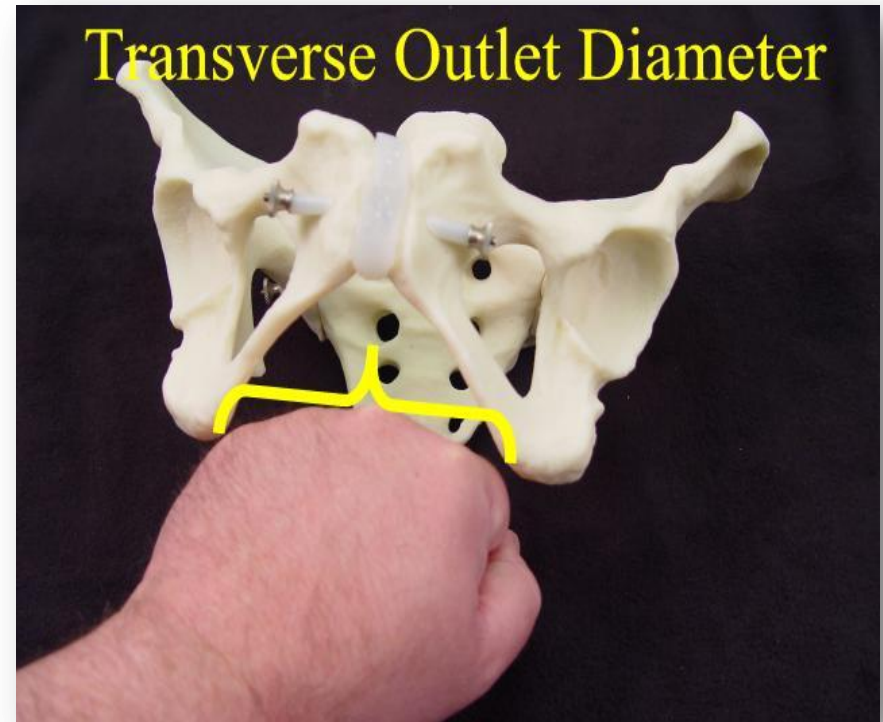
Insert two fingers into the vagina until they reach the sacral promontory. The distance from the sacral promontory to the exterior portion of the symphysis is the diagonal conjugate and should be greater than 11.5 cm.



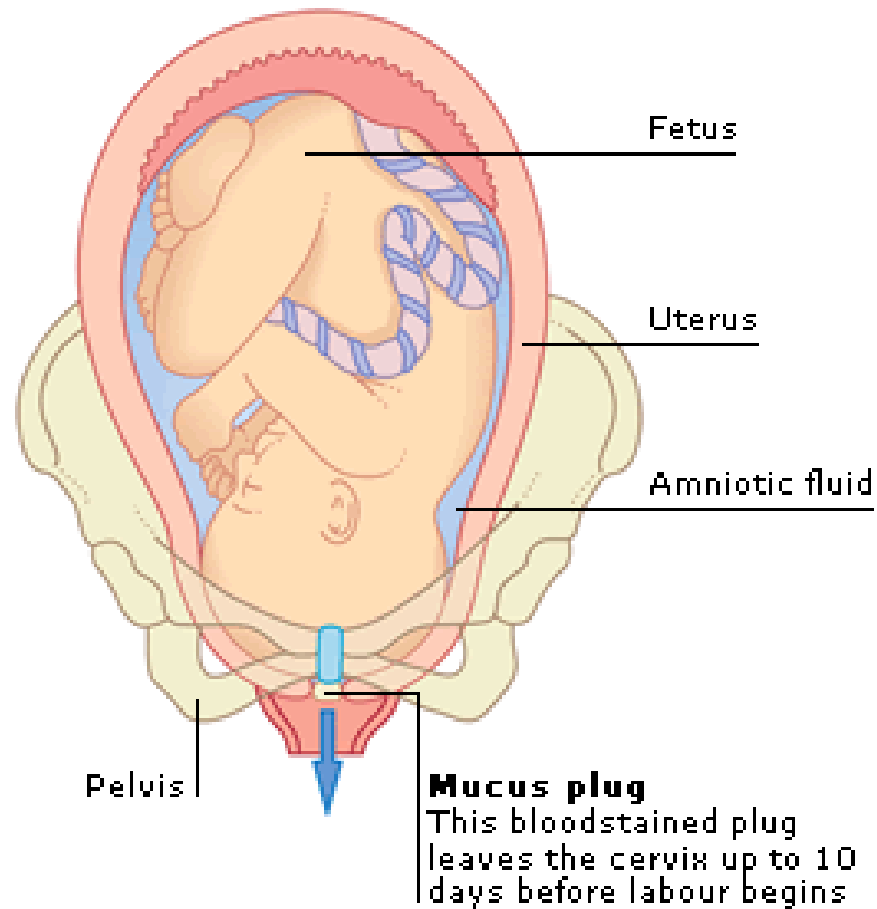
# Passage

## Measure the bony outlet

Press closed fist against the perineum. Compare the previously-measured diameter of the fist to the palpable distance between the ischial tuberosities. Greater than 8 cm bituberous (or bi-ischial, or transverse outlet) is considered normal.



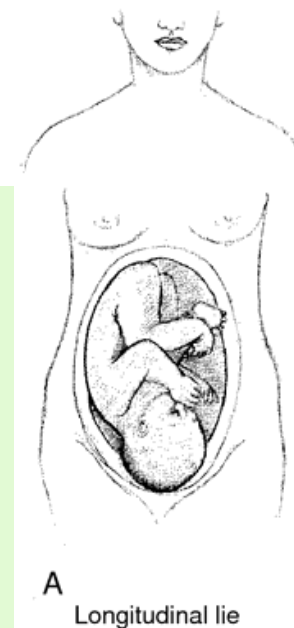
# Passenger



# Passenger

## FETAL LIE

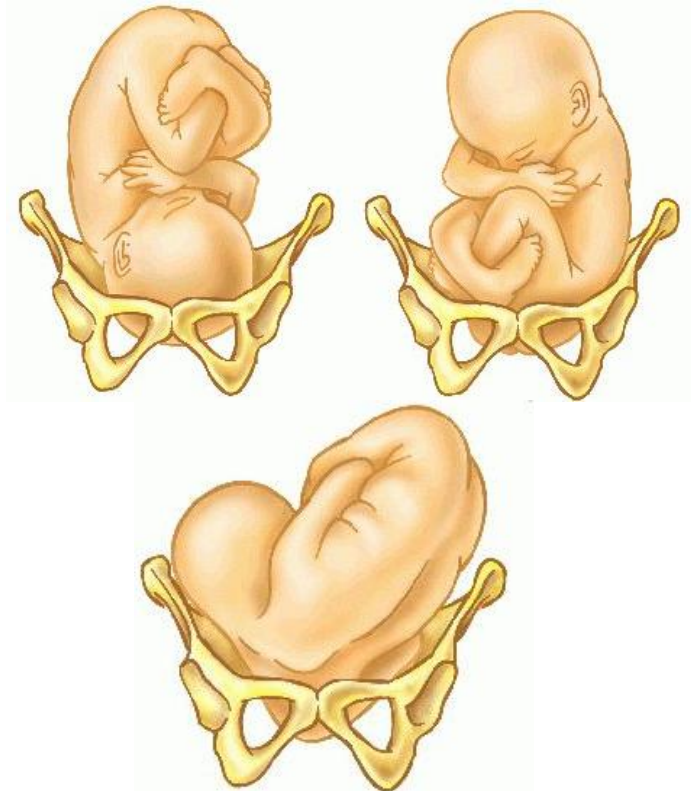
- The lie is the relation of the long axis of the fetus to that of the mother
  - longitudinal - 99.5%
  - Transverse
  - oblique



# Passenger

## PRESENTATION

- The part of the fetus which occupies the lower pole of the uterus.
- Cephalic
- Podalic/breech
- shoulder

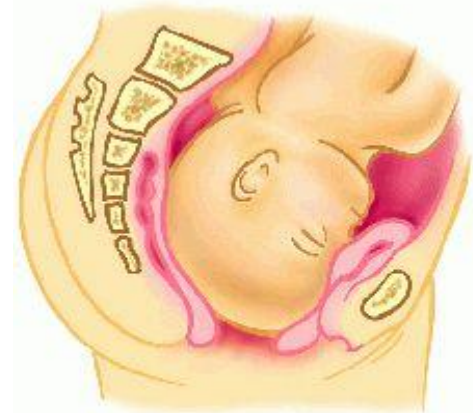


# Passenger

- **PRESENTING PART**
- Part of the presentation which overlies internal OS.



Face presentation



Brow presentation



# Passenger

## DENOMINATOR

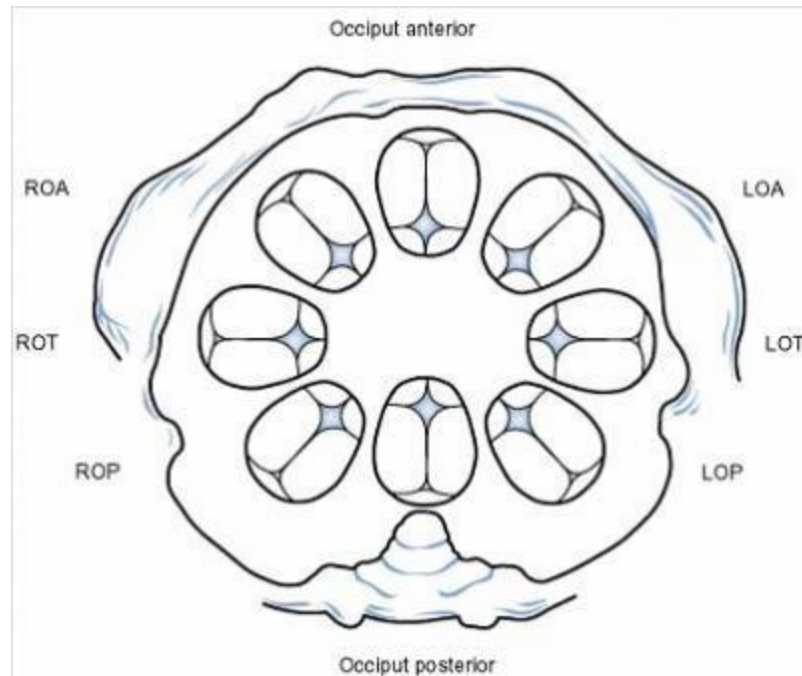
- It is an arbitrary bony fixed point on the presenting part.
- Occiput - Vertex
- Mentum - Face
- Frontal eminence - Brow
- Sacrum - Breech
- Acromion - Shoulder



# Passenger

## POSITION

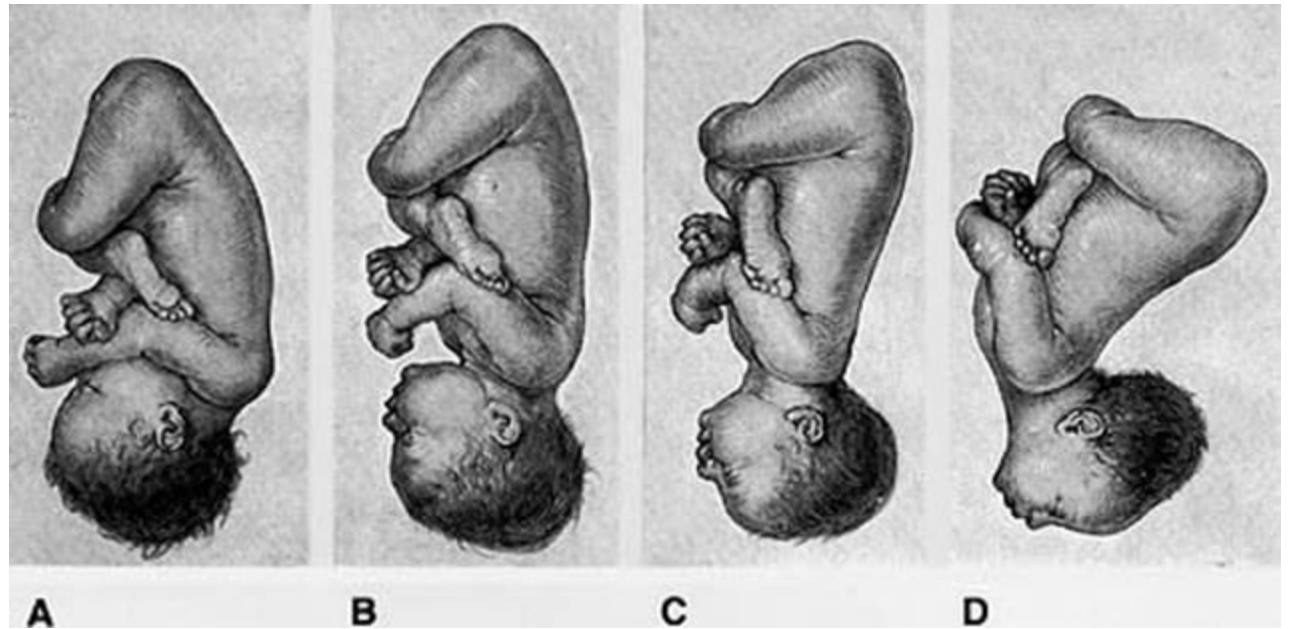
- It is the relationship of the denominator to the different quadrants of the pelvis.



# Passenger

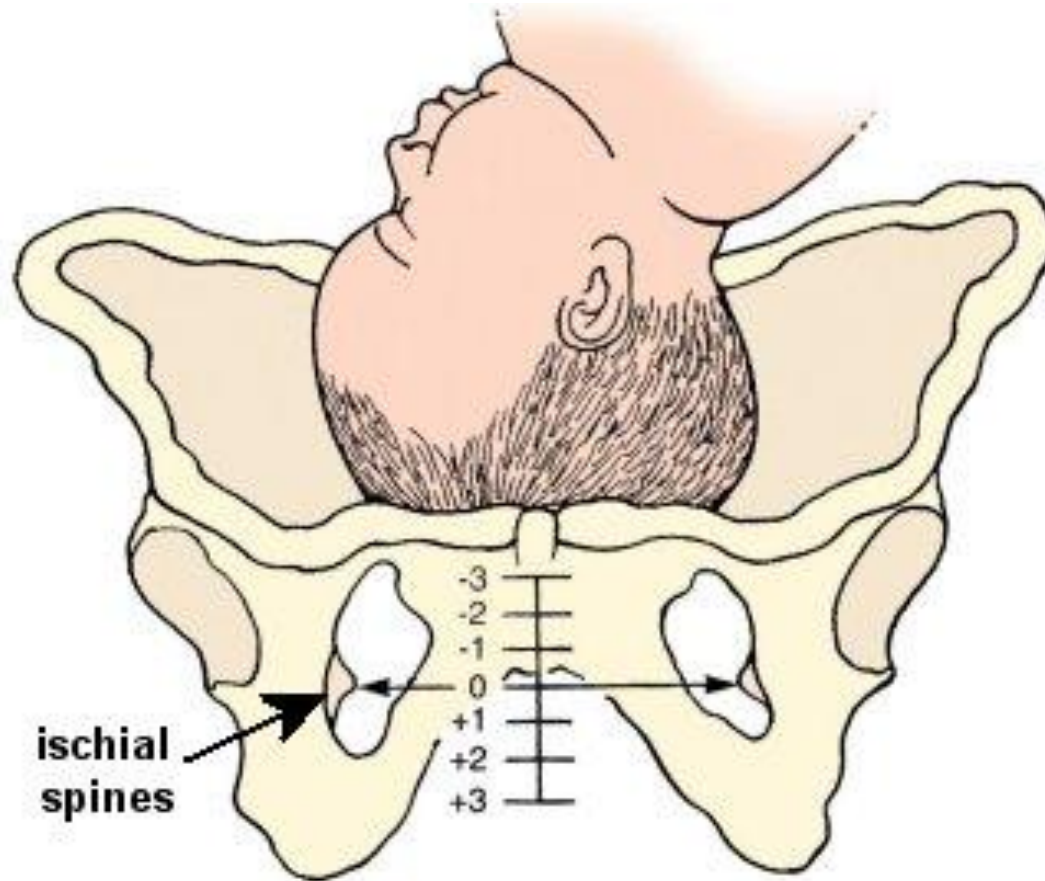
## ATTITUDE

- The relation of different parts of fetus to one another



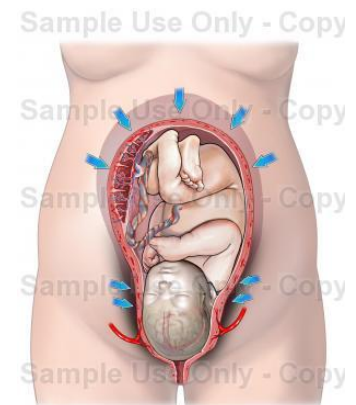
# Passenger

- Station



# Power

- Primary & secondary powers combine to expel fetus and placenta from uterus
- **Primary (involuntary) forces:**  
Contractions of uterine muscle fibers
- **Secondary (voluntary) forces:**  
Use of abdominal muscles during second stage of labor to facilitate descent & delivery of fetus



# Position

- Affects circulation, fatigue & comfort
- Upright position (walking, sitting, kneeling, squatting) beneficial
  1. Promotes descent of fetus
  2. Improves blood flow
  3. Relieves backache
  4. Straightens axis of birth canal
  5. Increases pelvic outlet
- Hands & knees may relieve back pain, help fetus to rotate
- Lateral position may help fetus rotate favorably and slow birth

# Psyche

- Preparation for childbirth
- Socio-cultural heritage
- Previous childbirth experience
- Support from significant others
- Emotional status
- Environmental influence