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SMSB

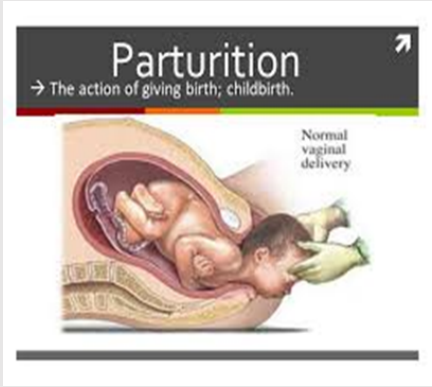
Labour

parturition

What is Labour (human parturition)?

is the physiological process that results in:

- *birth of a baby.*
- *delivery of the placenta.*
- *and the signal for lactation to begin*.



How to diagnose labour?

Symptoms of labour:

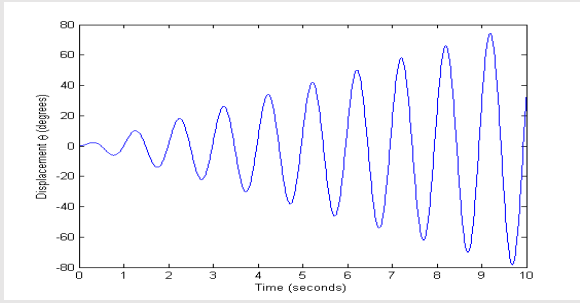
1. Labour like pain.
2. show.
3. Spontaneous rupture of membranes

What is Labour like pain:

Regular uterine contractions which increase in → Frequency .
→ Strength.

What is Sufficient uterine contractions?

a. Frequency 4-5 contractions /10 minutes
b. Each contraction lasting 45 second to 60 second

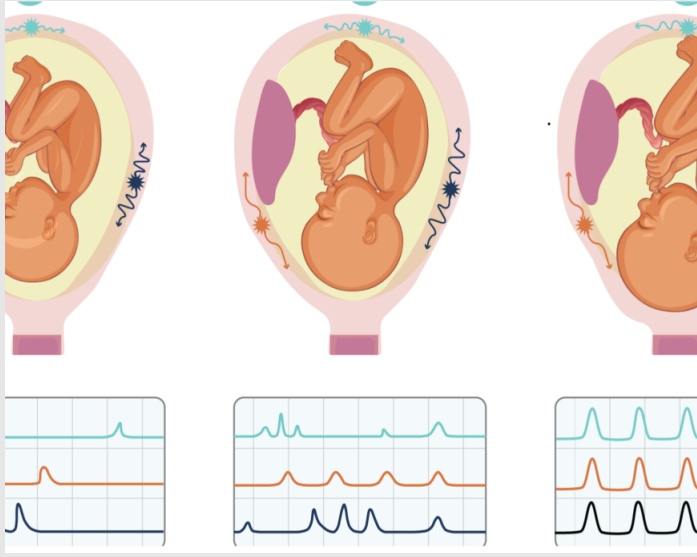


What is false labour pain?

Braxton Hicks contractions.

What is features of Braxton Hicks contraction?

Infrequent, irregular uterine contractions .



True & false labour pain

True labour pain	False labour pain
Regular	Irregular
Increase in frequency , duration & intensity	Do not
Pain felt in the abdomen & radiated to the back	Pain felt mainly in the abdomen
Progressive dilation of cervix	Not affect the cervix
Contractions persist whether mother is active or resting	Contractions stops by resting, walking or changing position
Can not be relived by antispasmodics and sedatives	Can be relived by antispasmodics and sedatives

What is show?

Bloody stained mucus

(a blood-stained plug of mucus passed from the cervix)

What do we mean by Spontaneous rupture of mem

Feel like a gush of warm fluid trickle from the vagina.

*It will usually **clear** and **odourless**.*

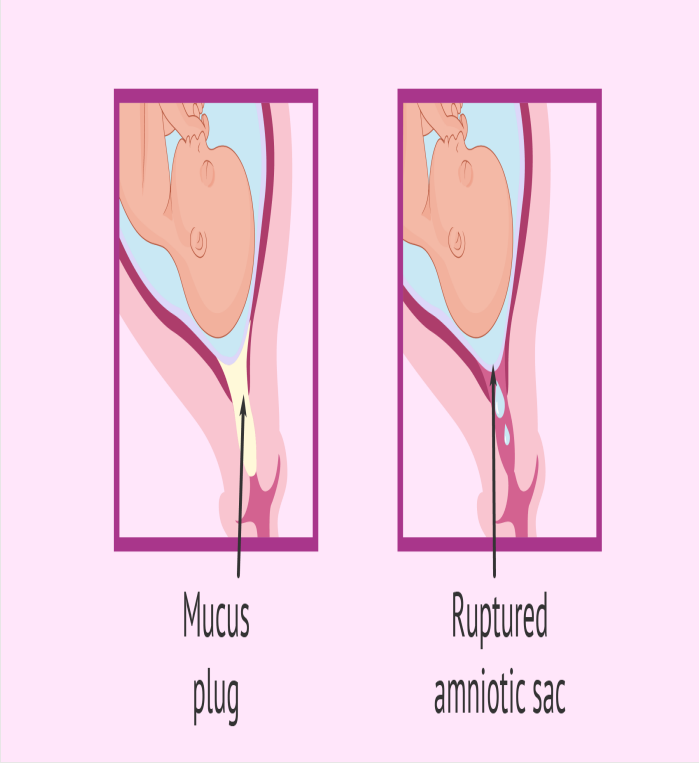
DD

1. *Urine:*

- *incontinence.*
- *UTI.*
- *vesicovaginal fistula.*

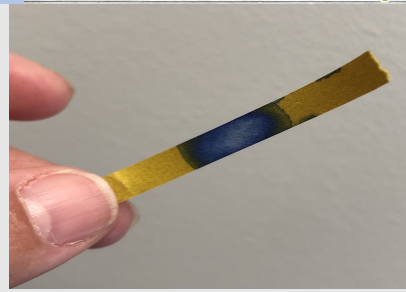
2. *Excessive vaginal discharge:*

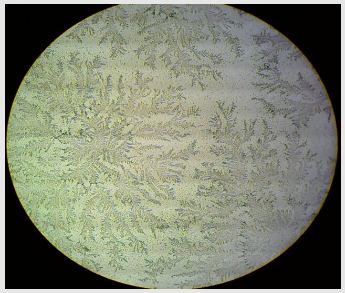
- *Physiological.*
- *Pathological.*

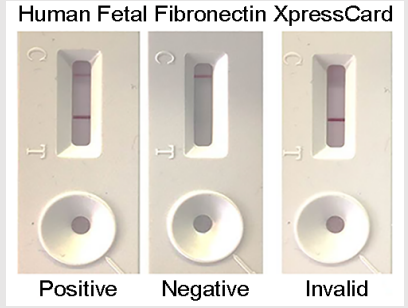


How to confirm its liquor?

- Nitrazine test.
- Fern test
- Fibronectin(Fetal fibronectin works as a glue to hold the amniotic sac to the uterine lining) .
- alpha-fetoprotein blood tests.
- Amnisure test (Placental alpha microglobulin-1 (PAMG-1))

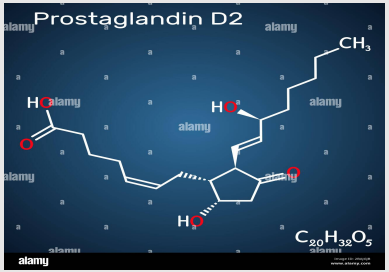


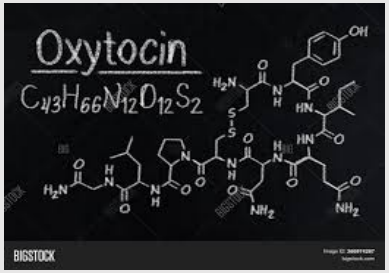




What are the theories of onset of Labour?

- changes in hormonal levels of **estrogen** and **progesterone**.
- increased production of **prostaglandins.**
- elevation of levels of **corticotropin-releasing hormone**.
- increased sensitivity of the myometrium to endogenous **oxytocin.**



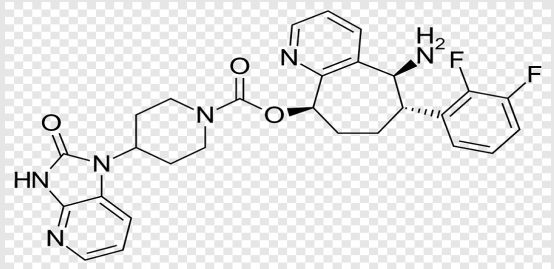


Prostaglandins(cervical ripening and uterine contractions).

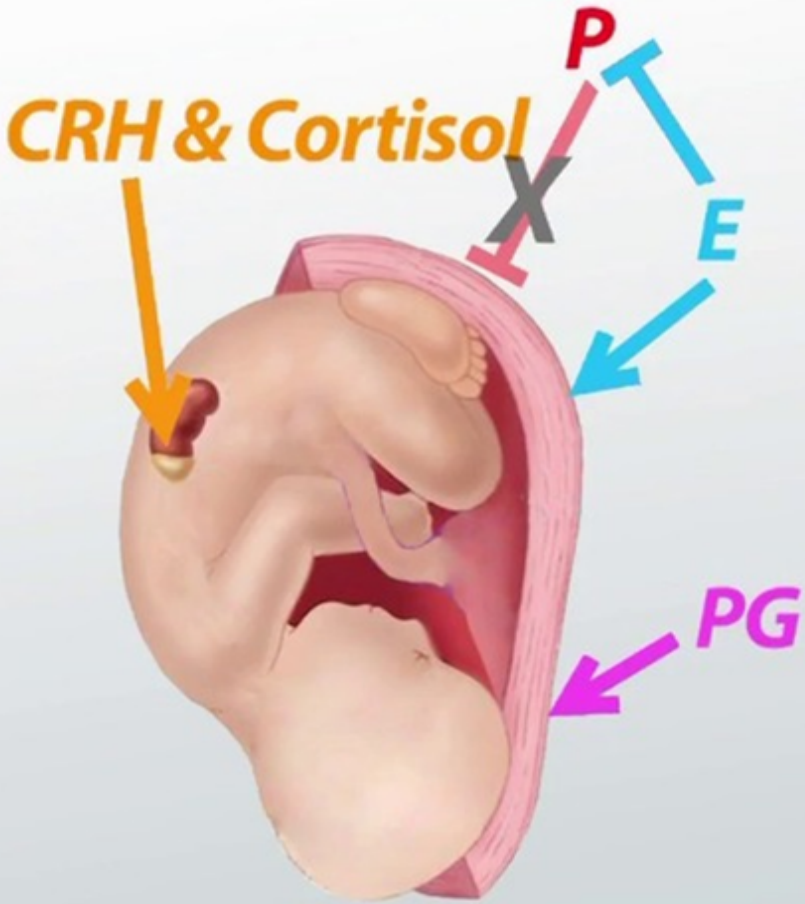
Progesterone (decreases in late gestation).

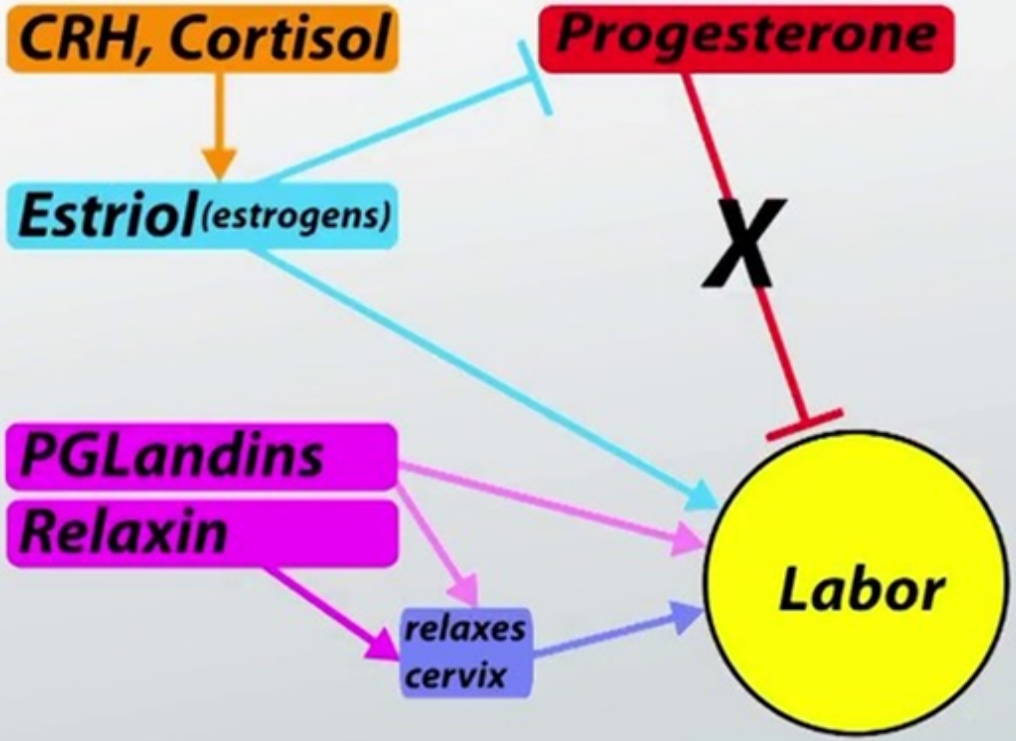
Estrogen (uterine contraction and cervical dilation).

Corticotropin-releasing hormone (increases prostaglandin activity on myometrium).



INTIATION OF LABOR





- *Normal labour requires* ***observation*** *and* ***support*** *.*

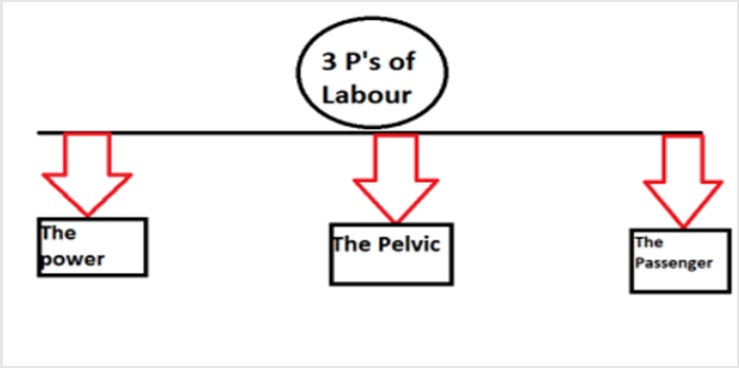
- *Abnormal labour requires a multidisciplinary team including:*
  - *A midwife.*
  - *Obstetrician.*
  - *Anaesthetist .*
  - *Neonatologist.*

.

Understanding labour

An understanding of the physiological and anatomical principles involved in normal labour is best ***summarized using the '3 Ps.***

powers*, the* ***passages*** *and the* ***passenger.***



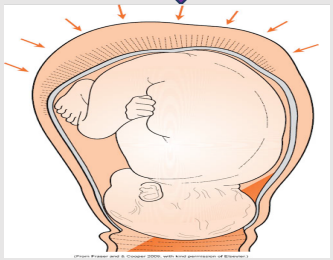
1.The powers :

contractions *of the uterine.*

& the maternal ***effort*** *of pushing in the second stage of labour.*

2.The passages the ***birth canal*** *.*

3.The passenger ***the fetus.***



When the 3Ps are favourable → *Normal labour(normal vaginal delivery).*

When any of the 3Ps are unfavourable → *Abnormal & need for intervention & increased risk of morbidity or mortality*

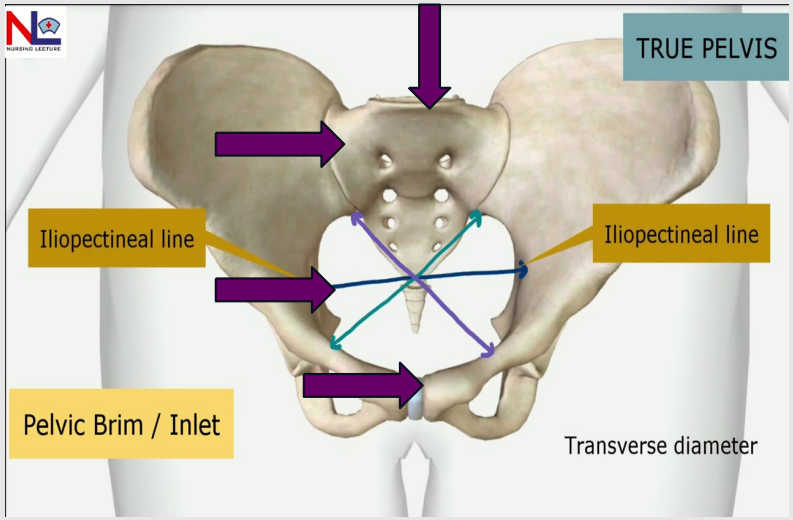
The maternal pelvis(Passage)

Pelvic can be divided to inlet mid cavity & outlet

a. The pelvic inlet(or brim)

Boundaries:

- *Anteriorly : Upper border of the symphysis pubis*
- *Laterally : Upper margin of the pubic bone.*
  Iliopectineal line
  Ala of the sacrum.
- *Posteriorly: Promontory of the sacrum .*



Pelvic inlet

- *Transverse diameter is* ⟹ *13.5 cm*
- *Anterior–posterior (A–P) diameter is* ⟹ *11.0 cm .*

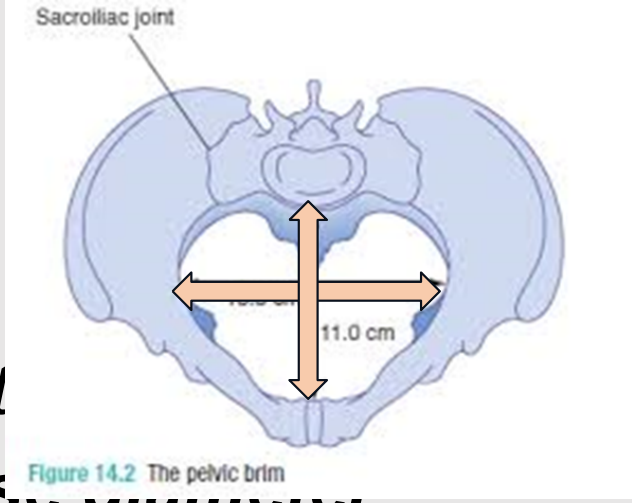
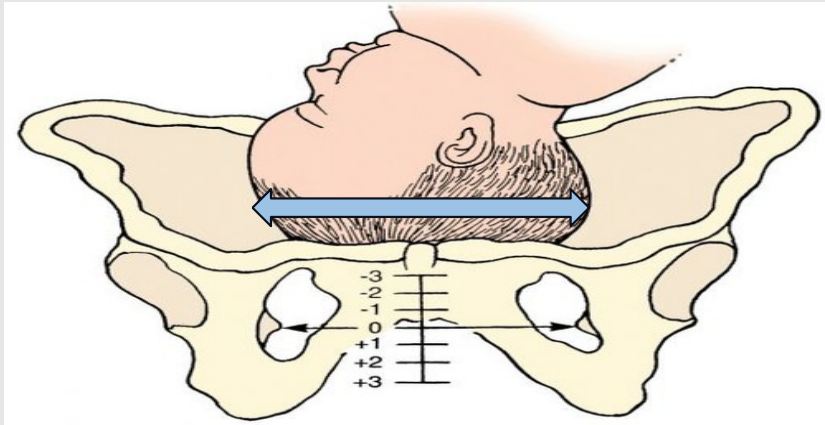


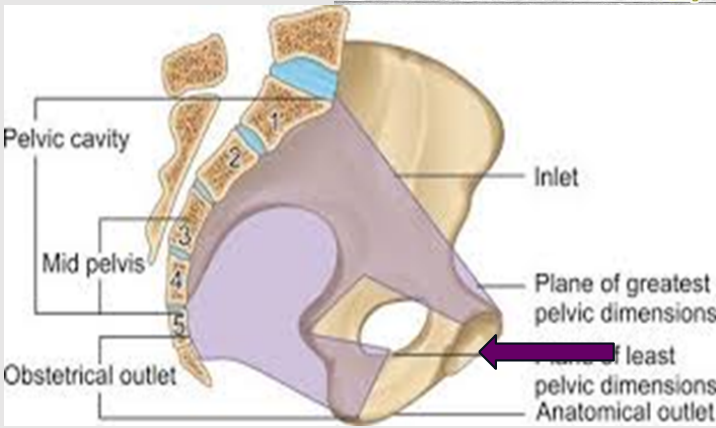
Figure 14.2 The pelvic brim

- *The Fetal head typically enters the pelvis in a* ***transverse position*** *in keeping wit* ***wider transverse diameter.***



Pelvic Midcavity

The midpelvis(mid cavity)



Boundaries:

- Anteriorly: Middle of the symphysis pubis
- Laterally :Pubic bones.

  Obturator fascia.

  Inner aspect of the ischial bone and spines.
- Posteriorly: Junction of the 2ND and 3rd sections of the sacrum.

- The midpelvis is rounded(Transverse and anterior diameters are 12 cm).

Importance of midcavity

The ischial spines are palpable vaginally

and are used as important landmarks for:

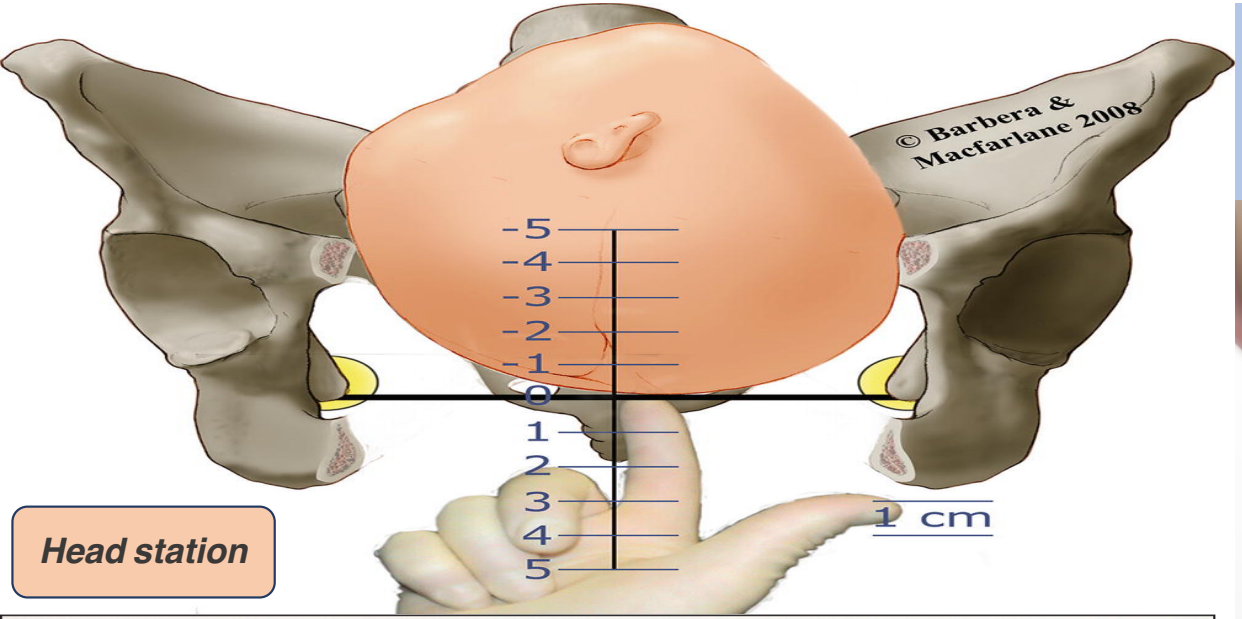
1. *To assess the descent of the presenting part on vaginal examination (e.g. station zero is at the level of the ischial spines).*

Station zero is an important landmark clinically .why?

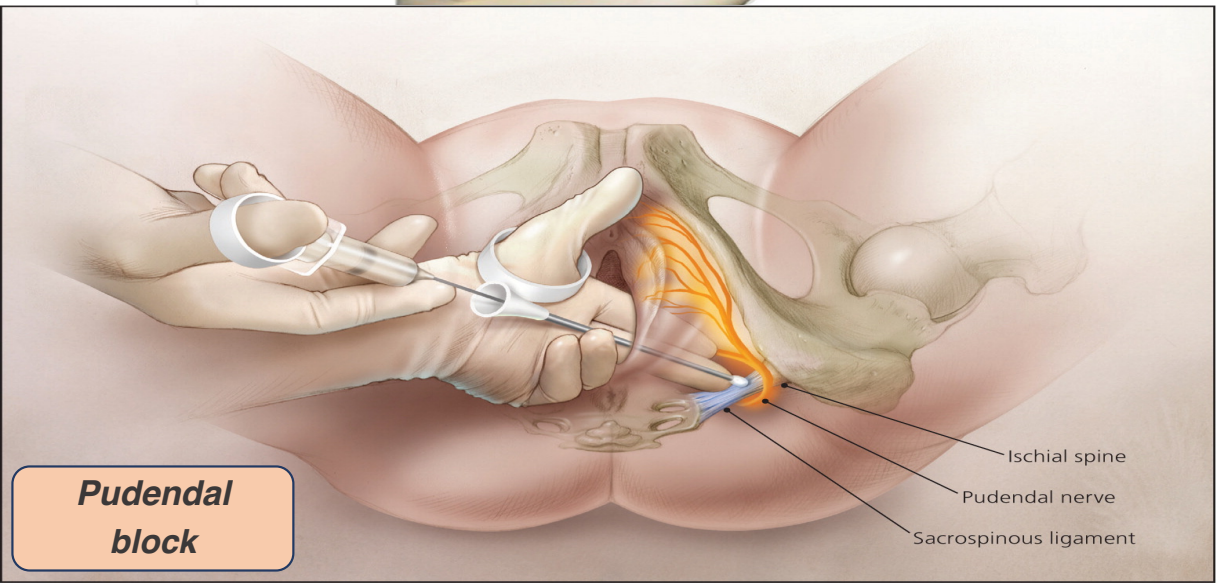
because instrumental delivery can only be performed if the fetal head has reached the level of the ischial spines or below

2.To provide a local pudendal n. block.

The pudendal nerve passes behind and below the ischial spine on each side.



Head station



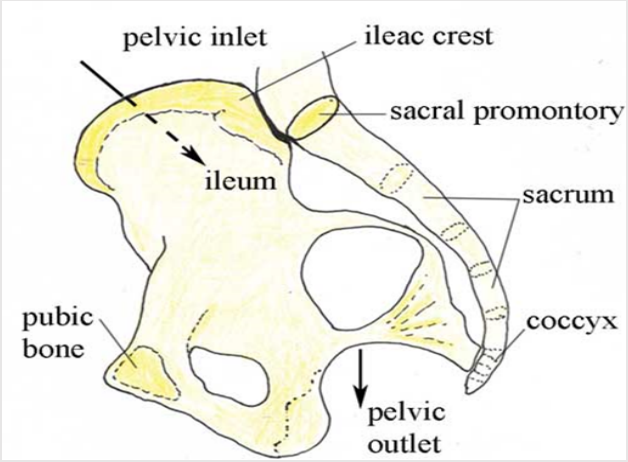
Pudendal block

Forceps application

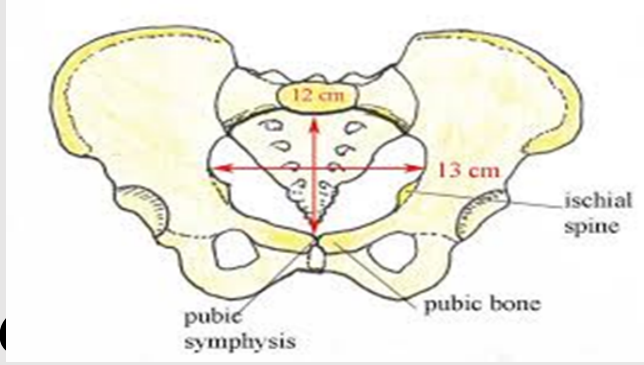
The pelvic outlet

Boundaries:

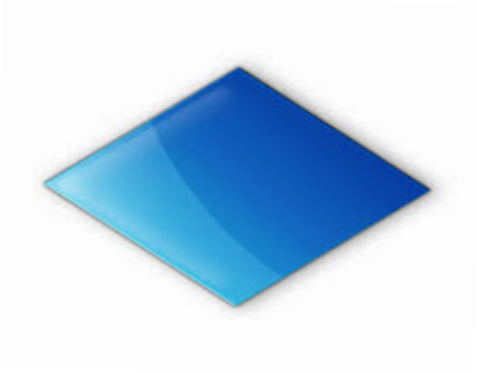
- *Anteriorly: The lower margin of the symphysis pubis.*
- *Laterally : The descending ramus of the pubic bone.*
  ischial tuberosity.
  Sacrotuberous ligament.
- *Posteriorly: by the last piece of the sacrum.*



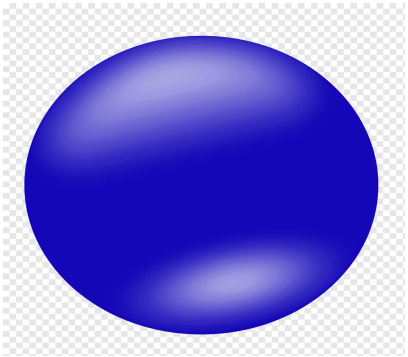
- *The AP diameter ⇒ 13.5 cm.*
- *Transverse diameter ⇒ 11 cm.*



- ***Therefore, the AP is the wider diamet***



	Transvers diameter	Antero-posterior diameter
Pelvic inlet	13cm	11cm
Mid-pelvis	12cm	12cm
Pelvic outlet	11cm	13cm



Pelvic shape

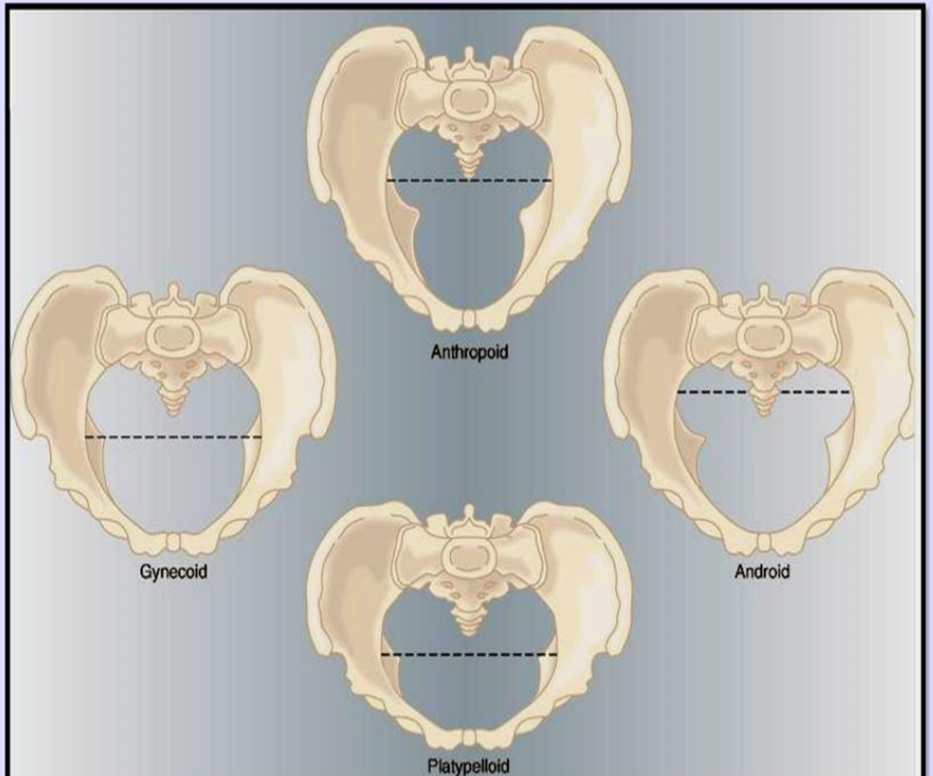
- ***Affected by***
- *Maternal stature.*
- *Ethnicity.*
- *previous pelvic fractures.*
- *Metabolic bone disease, such as rickets.*

It is now uncommon to perform X-rays or (CT) or (MRI) of the pelvis to measure the pelvic dimensions

***Why?**

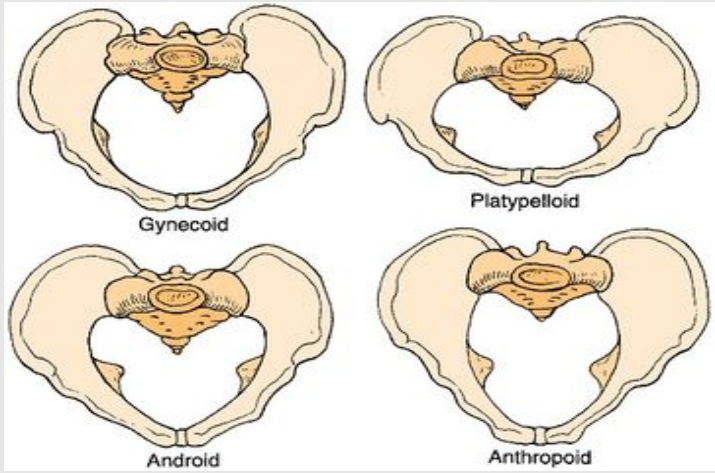
because they have, little clinical use in predicting the outcome of labour

Pelvic Shapes



Pelvic shapes may contribute to difficulties ir

- The **gynaecoid** pelvis is the most favourable for labour & also the most common.
- An **Android**-type pelvis is associated with .....failure of rotation and deep transverse arrest(DTA).
- An **Anthropoid** shape associated ……an occipito-posterior (OP) position.
- A **platypelloid** pelvis is associated with ……an increased risk of obstructed labour due to failure of the head to engage, rotate or descend.

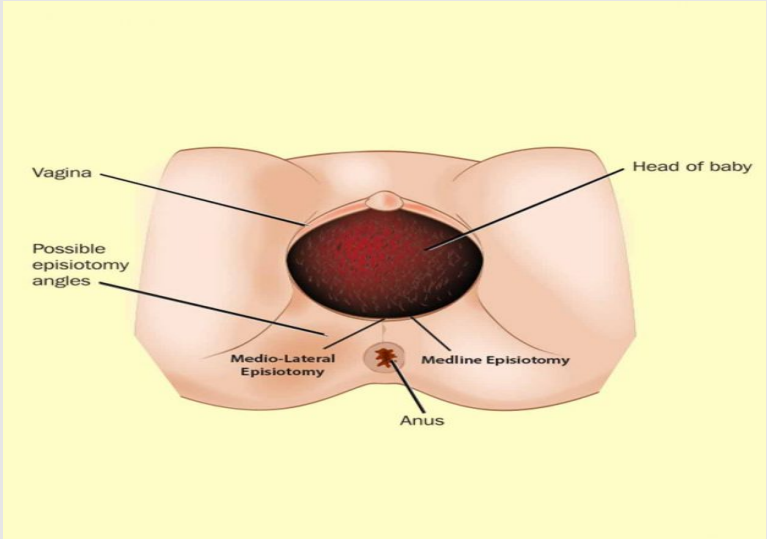


The perineum

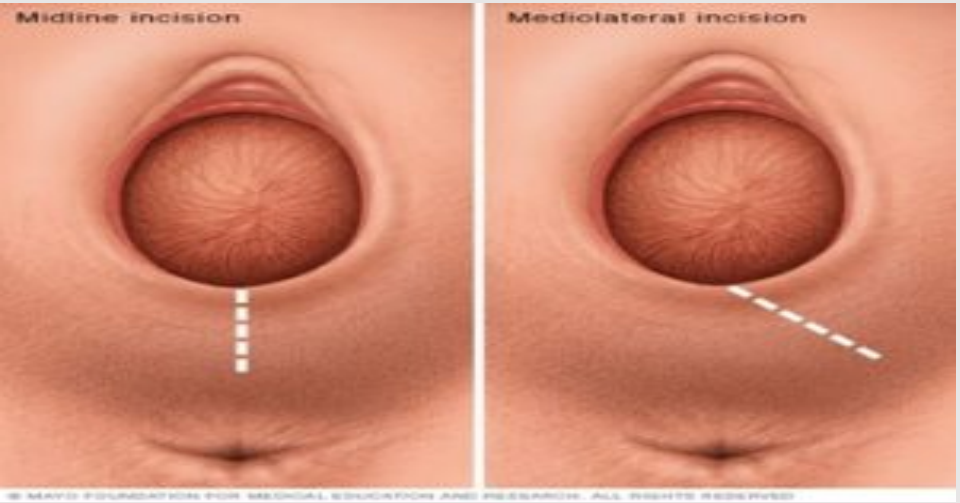
- *The final obstacle to be overcome by the fetus during labour is the perineum.*
- *The perineum is taut & resistant in the **nulliparous** ⇒ prolonged pushing.*

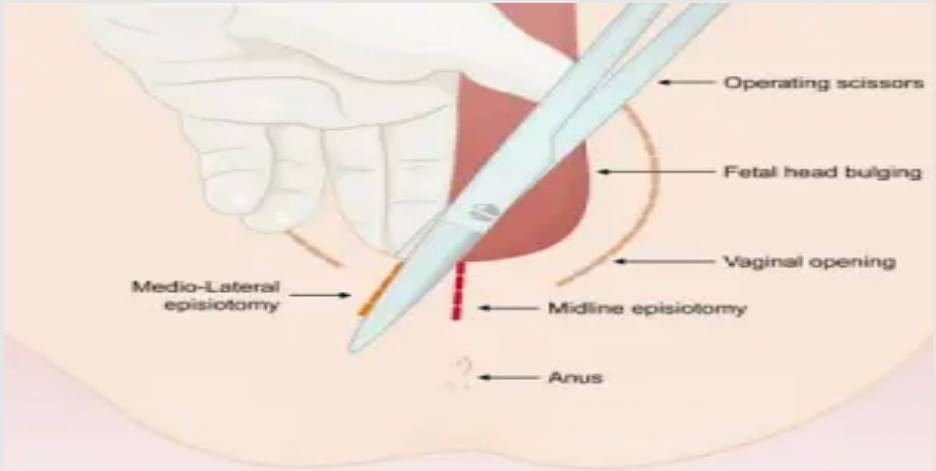
Vaginal birth may result in tearing of the perineum and pelvic floor muscles ⇒ episiotomy (surgical cut) may be required.

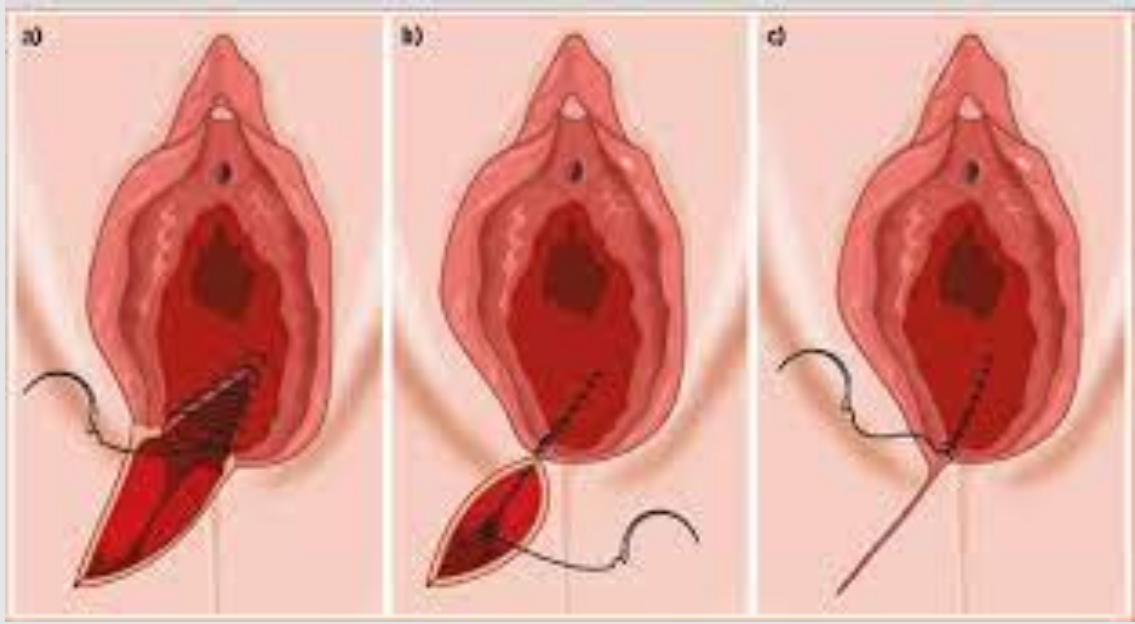
- *The perineum is stretchy and less resistant in **multiparous** women ⇒ faster labour and intact perineum(most likely).*



Episiotomy


Midline incision
Mediolateral incision


Operating scissors
Fetal head bulging
Vaginal opening
Medio-Lateral episiotomy
Midline episiotomy
Anus


a)
b)
c)

Tears

First-degree tear:

*perineal **skin** and/or vaginal **mucosa**.*

Second-degree tear:

*perineal **muscles** but not involving the anal sphincter.*

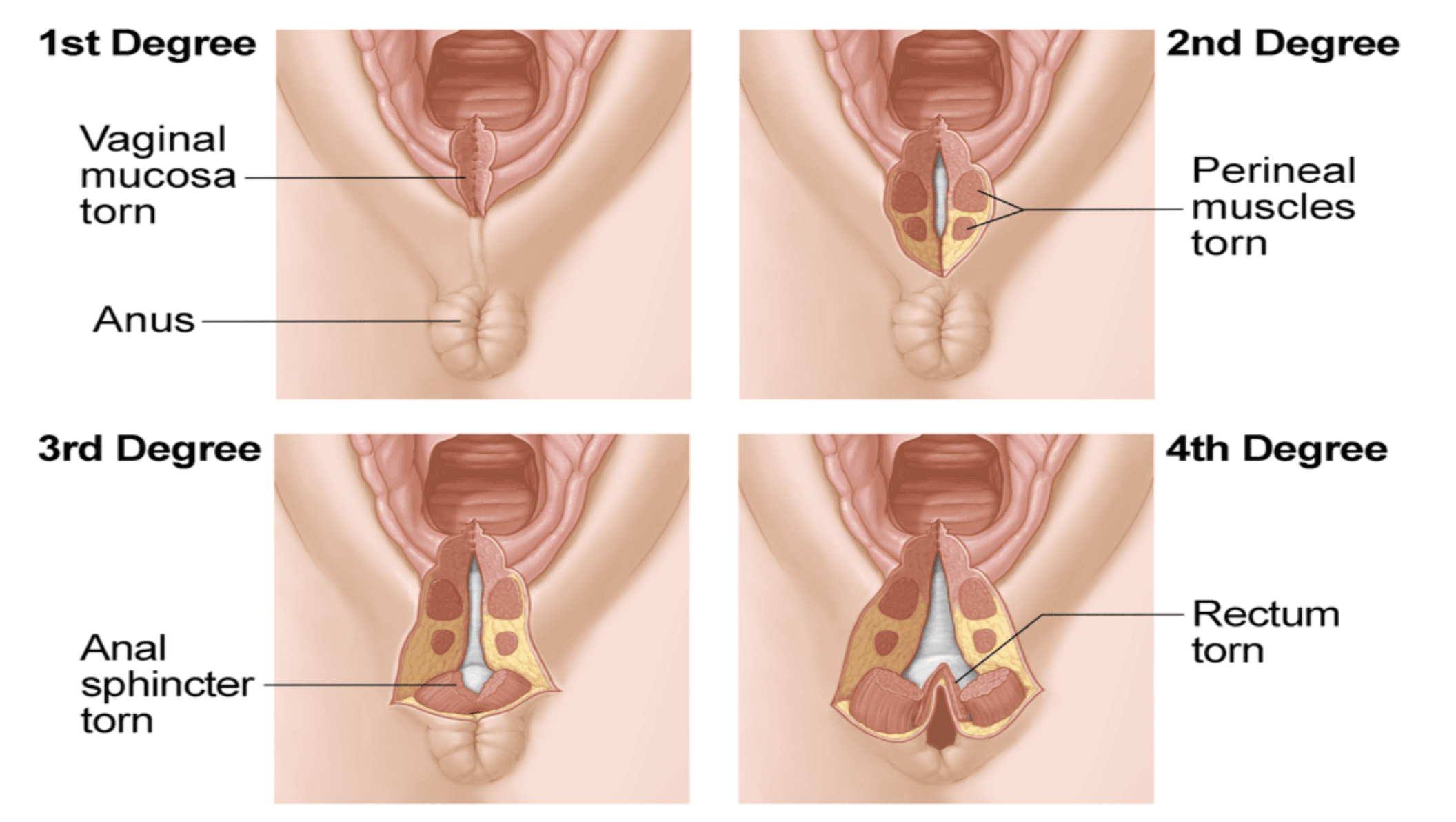
Third-degree tear:

*perineum involving the **anal sphincter** complex.*

Fourth-degree tear:

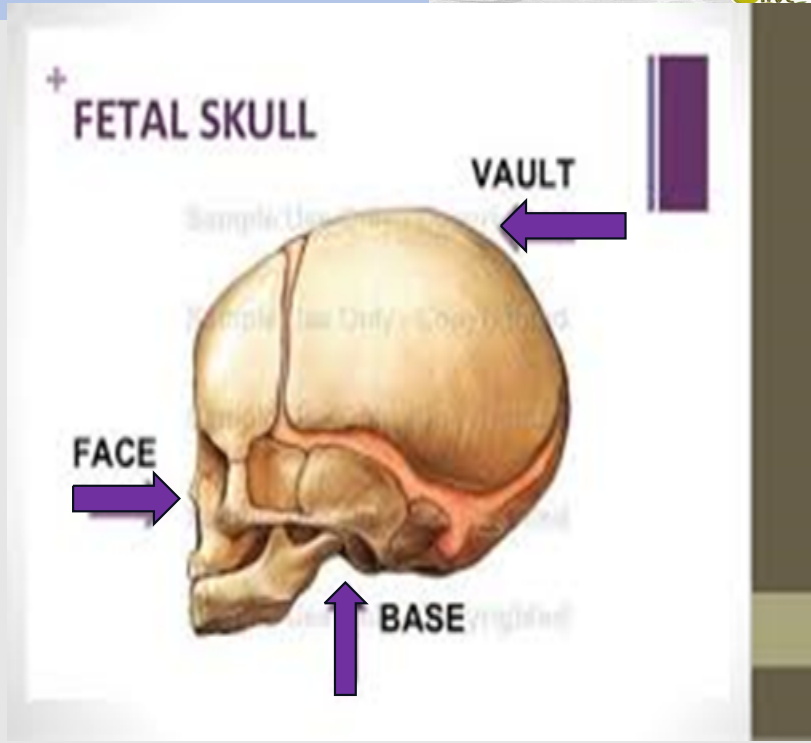
Involving the anal sphincter complex

(EAS& IAS)and anorectal mucosa .


1st Degree
Vaginal mucosa torn
Anus
2nd Degree
Perineal muscles torn
3rd Degree
Anal sphincter torn
4th Degree
Rectum torn

The fetal skull(Passenger)

The skull bones, sutures and fontanelles



- *The fetal skull is made up of :*
- *The vault.*
- *The face.*
- *The base.*

- *What do we mean by sutures?*

The lines formed where the individual bony plates meet each other . .

The fetal skull

The fontanelles :

are the junctions of the various sutures.

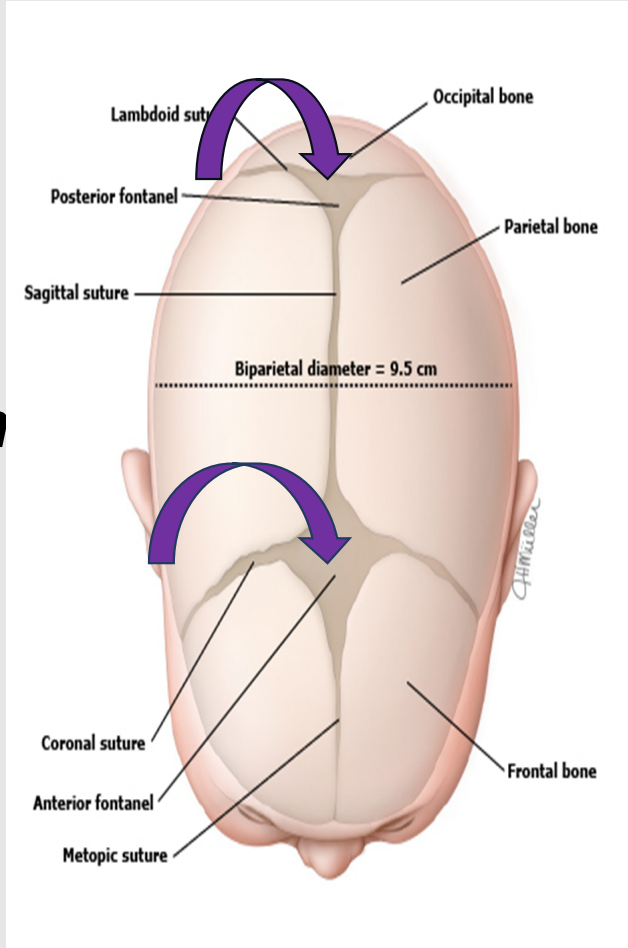
- *The anterior fontanelle (**bregma**) is:*
- *at the junction of the **sagittal**, **frontal** and **coronal** sutures.*
- *Diamond in shaped.*

On vaginal examination four suture lines can

- *The posterior fontanelle:*
- *at the junction of the **sagittal** and **lambdoidal** sutures.*
- *Is smaller & triangular shaped.*

sutures are not fixed is important for labour. Why?

It allows the bones to move together and even to overlap (moulding) .



Suboccipito-bregmatic diameter

(occipito-anterior position)

The diameter is from…suboccipital region.

…To centre of the bregma.

Diameter = 9.5 cm Head well flexed.

Submento-bregmatic:

from the centre of the bregma to the angle of the mandible.

measuring 9.5 cm. This is the presenting diameter neck is hyperextended.

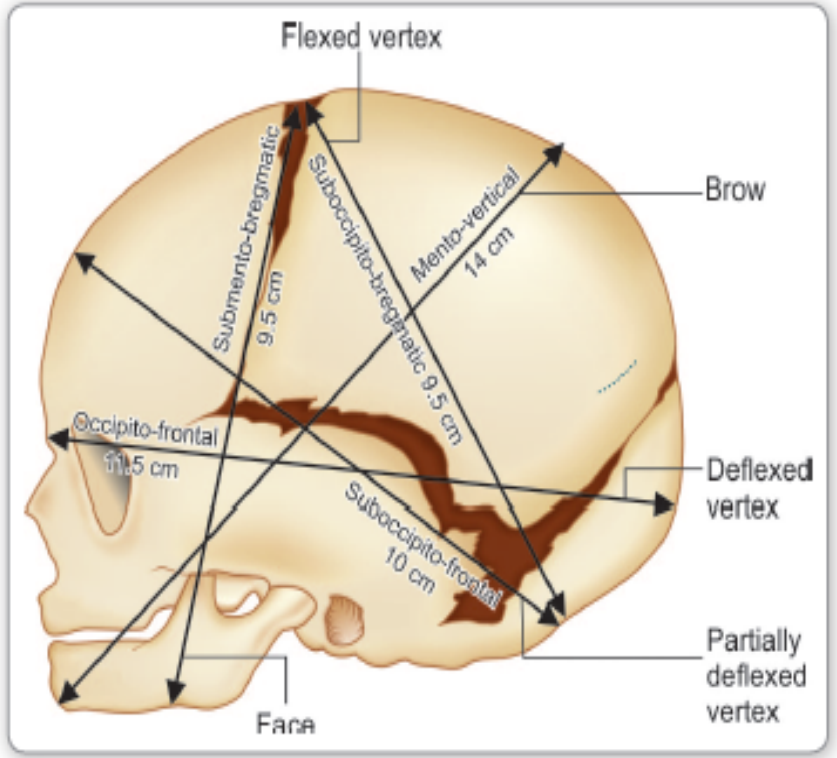
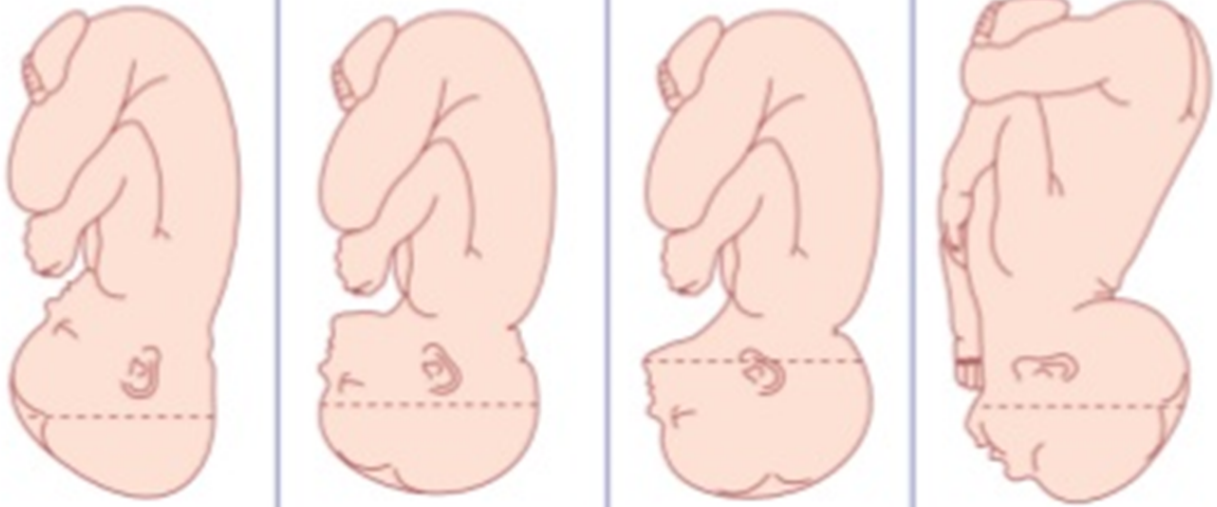


Fig. 9.3: The important landmarks of fetal skull

Flexed → Extended

Attitude	Well flexed	Less well flexed (partially extended) or deflexed	Extended 'brow presentation'	Hyperextended 'face presentation'
Diameter	Suboccipito-bregmatic	Occipito-frontal	Occipito-mental	Submento-bregmatic
Measurement	9.5 cm	11.5 cm	13.0 cm	9.5 cm
				

14.14 The effect of fetal attitude on the presenting diameter

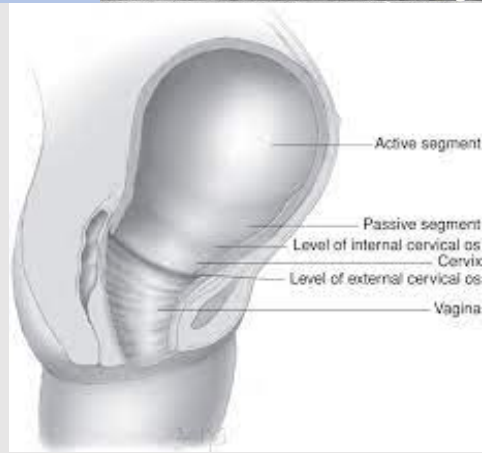
The uterus(Power)

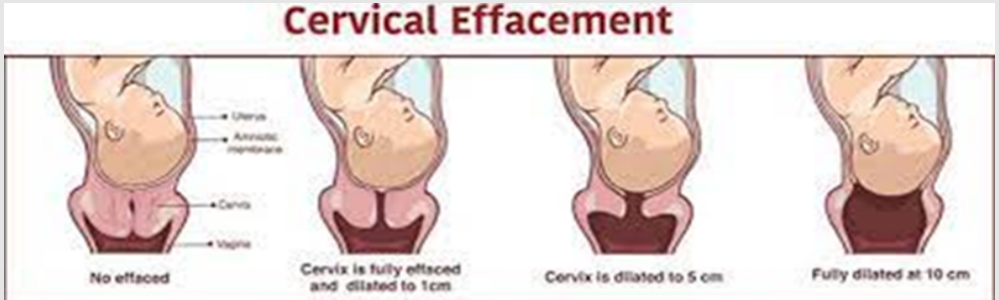
The result of contractions is the development of the

- ***Thicke.***
- *actively* ***contracting*** *'upper segment'.*
- *At the same time, the lower segment of the uterus becomes*
- ***thinner .***
- *and more* ***stretched.***

This results in the cervical (effacement) and then ***dilates***

and the fetus descends in response to this directional force.





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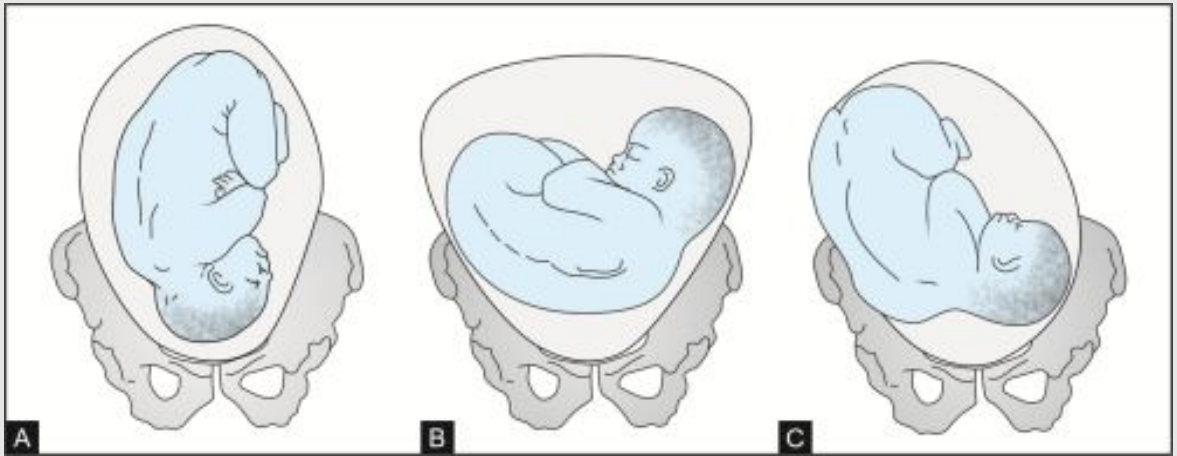
Lie

Is the relation of the long axis of the fetus to the long axis of the mother

Lie types:

- *Longitudinal (the only normal lie).A*
- *Oblique lie. B*
- *Transverse lie. C*

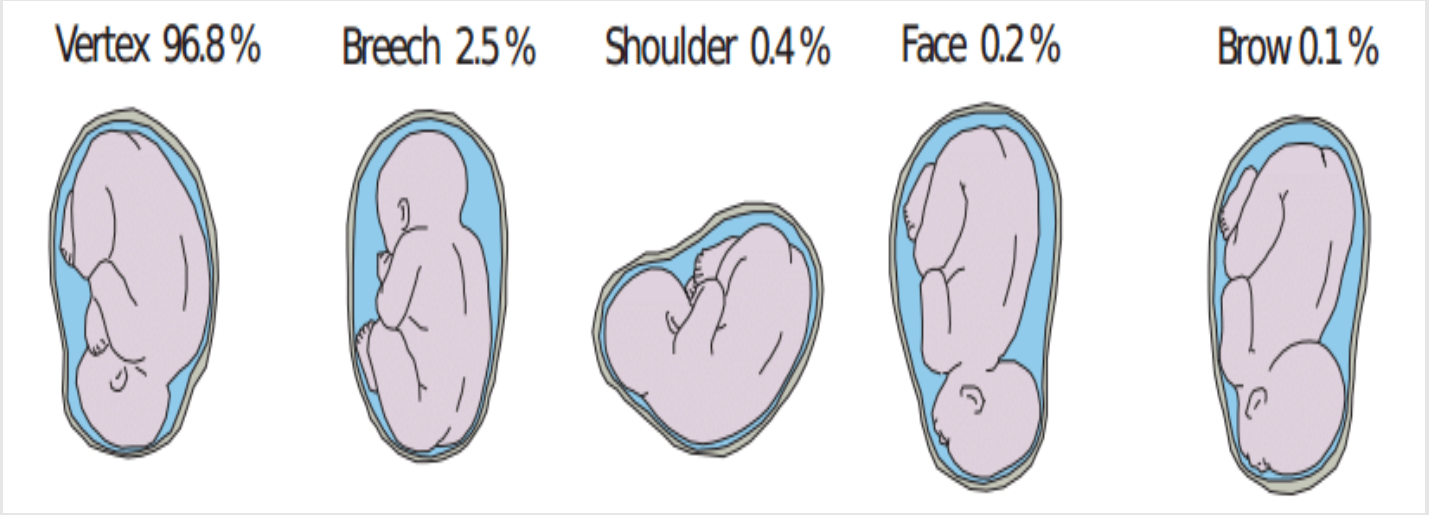


Presentation

That part of the fetus entering the pelvis first.

Types of presentation:

- *Vertex.*
- *Breech.*
- *Face.*
- *Shoulder .*
- *Compound.*

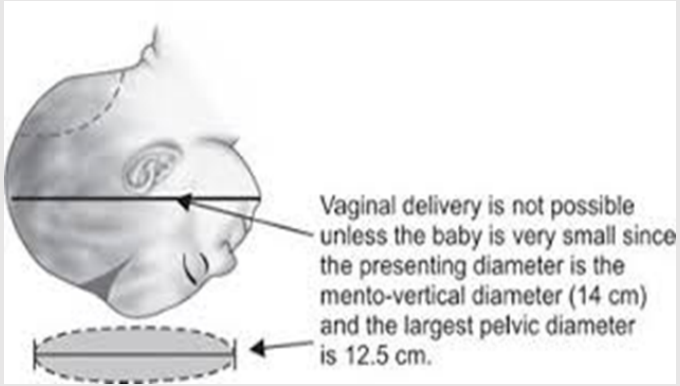


Denominator

is an arbitrary part of the presentation.

Types of denominator:

- ***Occiput*** *in vertex presentation.*
- ***Sacrum*** *in breech presentation.*
- ***Mentum*** *in face presentation.*

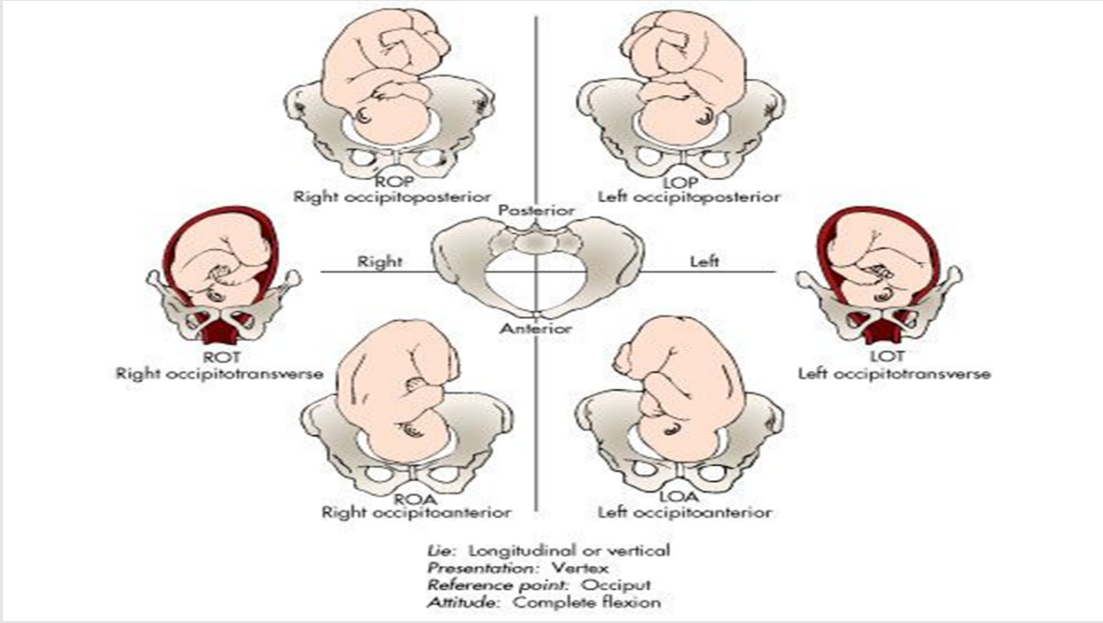


position

Orientation of the presenting part in relation to the maternal public symphysis .

Types of position:

- occipito-anterior.(RT & LT).
- Occipitolateral.(RT & LT).
- occipito-posterior.(RT & LT).

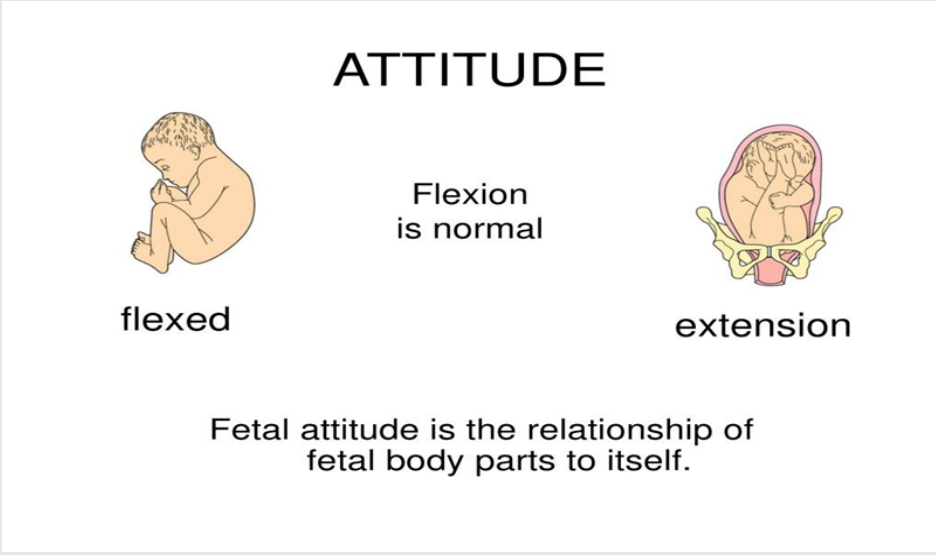


Attitude

is the relationship between fetus and himself (posture of the fetus).

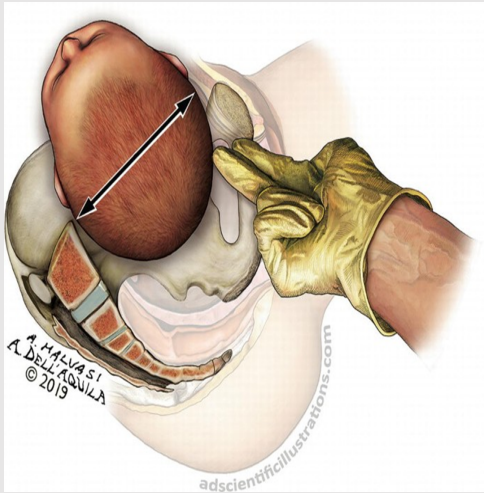
Types of attitude:

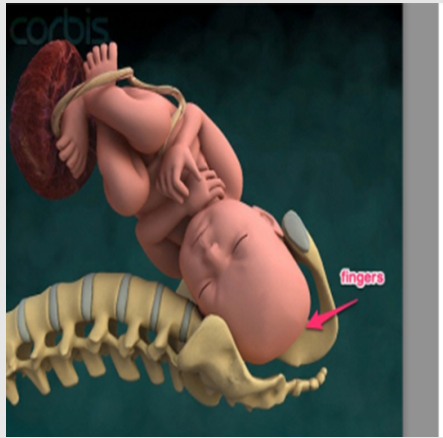
- *Flexion.*
- *Deflexion.*
- *Extension*

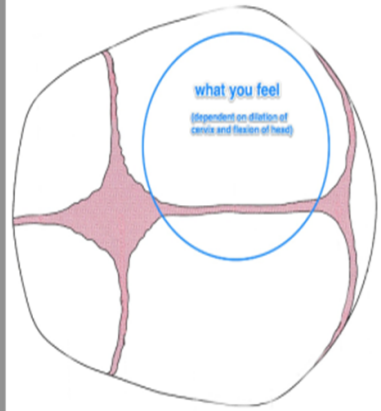


Synclitism

- *The **parallelism** between the **plane of the pelvis** and that of the **fetal head.***
- *The head position is considered to be synclitic when: the biparietal diameter is parallel to the pelvic plane and the sagittal suture is midway between the anterior (symphysis pubis) and posterior (sacral promontory) planes of the pelvis.*





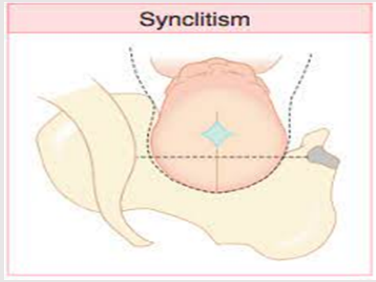


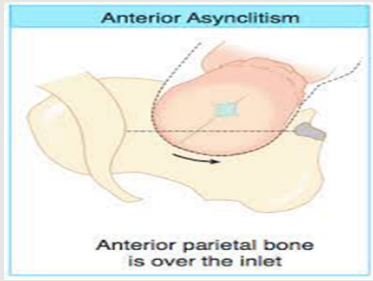
Asynclitism

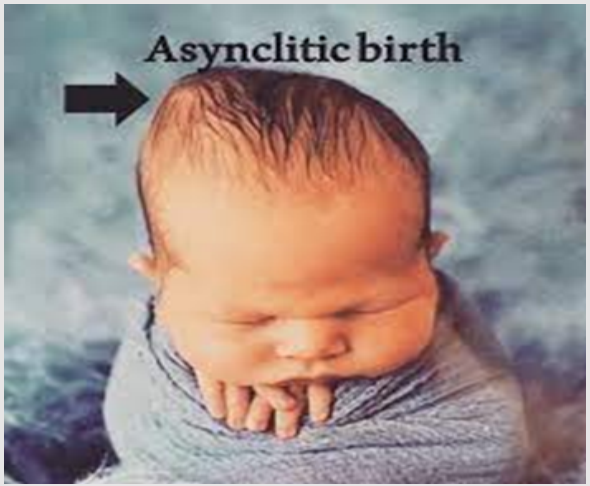
When the head plane is not parallel to the pelvic plane.

Or

Fetal head position is tilted to one side.







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Stages of Labor

1st stage

2nd stage

3rd stage

.

1st stage

Begins with : diagnosis of labour.

Ends with: full dilatation of the cervix (10 cm).

2nd stage:

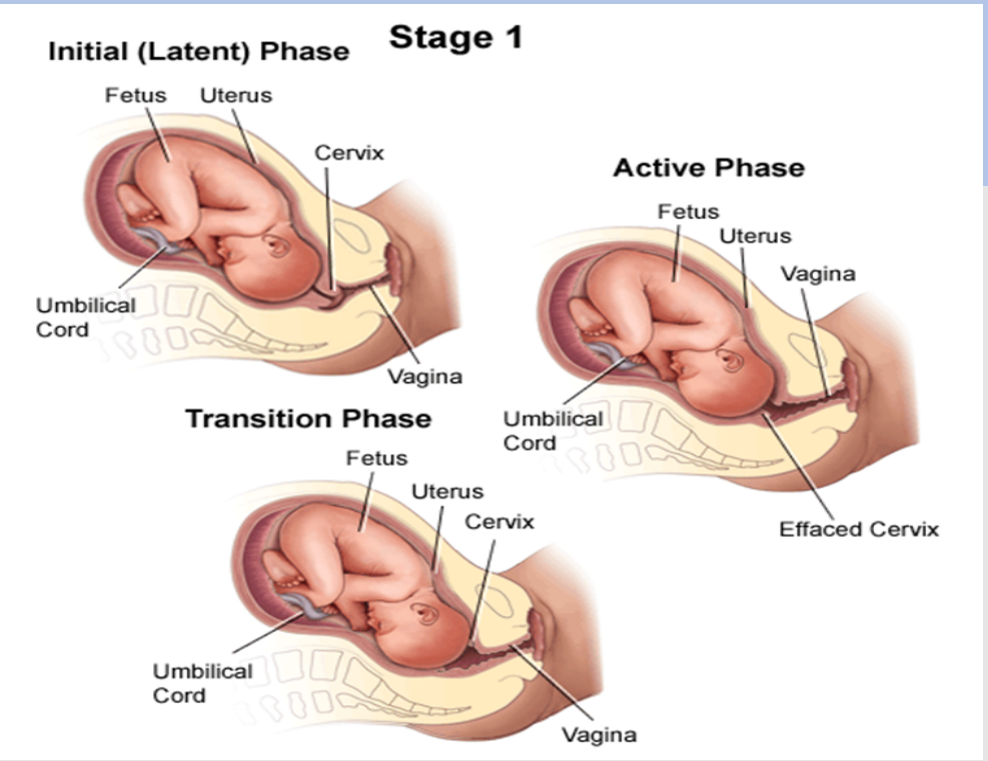
Begins with : full cervical dilatation

Ends with: Birth of the baby

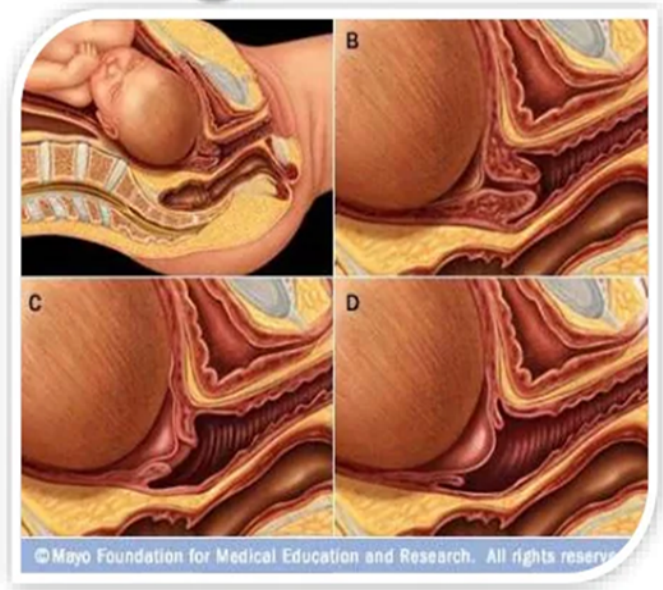
3rd stage:

Begins with :birth of the baby

Ends with: delivery of the placenta



1st stage of labour



1st stage

from the diagnosis of labour to full dilatation of the cervix (10 cm).

- *It can be divided into two phases:*
- *Latent phase.*
- *Active phase.*

- *Latent phase:*

Begins with the onset of labour and ends when cx is 3–4 cm & 'fully effaced'.

- *What is Effacement?*

Shortening in length of cx, to becomes incorporated into the lower segment of the uterus.

- *Active phase*

Begins from cx dilatation from 3-4 cms dilatation & ends with fully dilatation(10cms).

2nd stage:

from full dilatation of the cervix

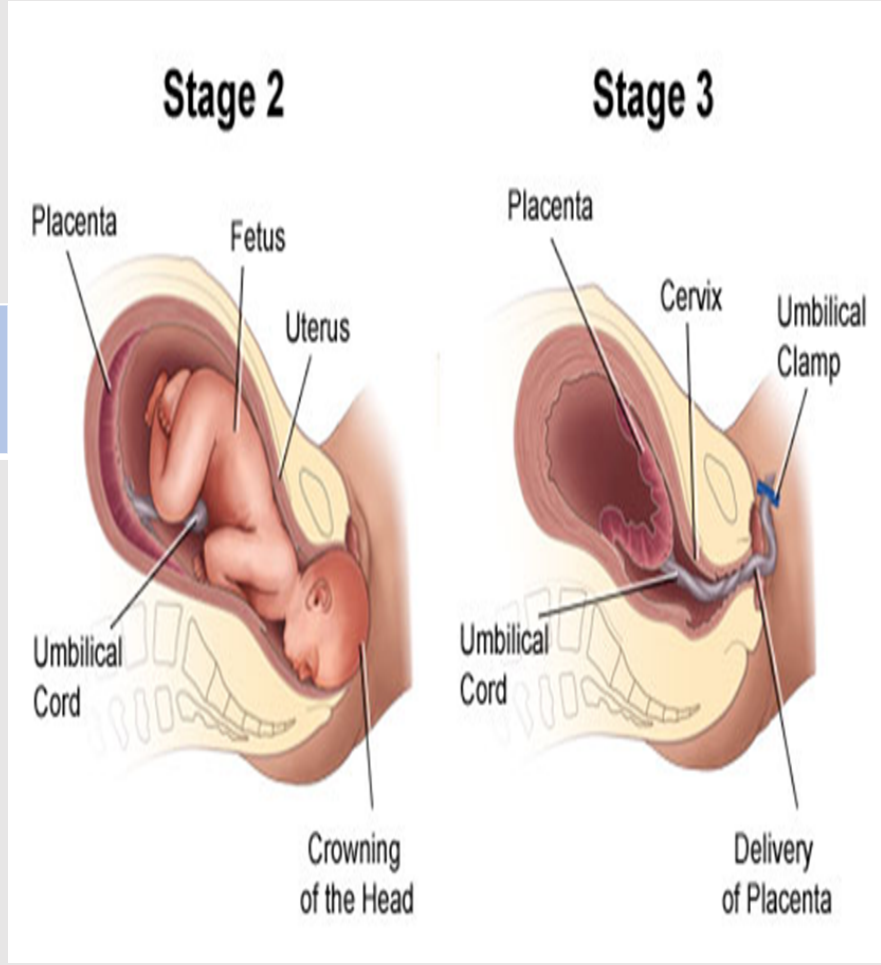
to delivery of the fetus or foetuses.

3rd stage

Interval between delivery of the baby &

delivery of the placenta & membranes.

(usually lasting 30 minutes).



2nd stage:

from full dilatation of the cervix to delivery of the fetus or foetuses.

During the 1st & 2nd stages the following occur (mechanism of labour):

1.Engagement.

2.Descent.

3.Flexion.

4.Rotation.

5.Extension.

6.Restitution .

7.Delivery of the shoulders & rest of the baby.

..

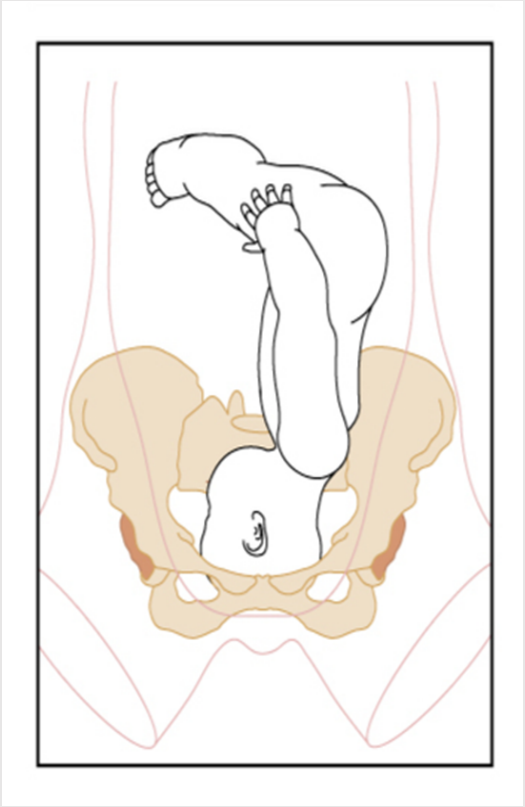
Labour process

events

(Mechanism of labour)

i. Engagement

when the widest part of the presenting part passed through the pelvic inlet.



- *Fetal head enters the pelvis in the transverse position.*
- *In **nulliparous***

  ……usually by 37 weeks' gestation.
- *In **multiparous** women*

  ……may be delay till labour onset..
- *Number of fifths :*

Fetal head palpable abdominally.

If more than two-fifths of the fetal head is palpable ⇨ head is not engaged.

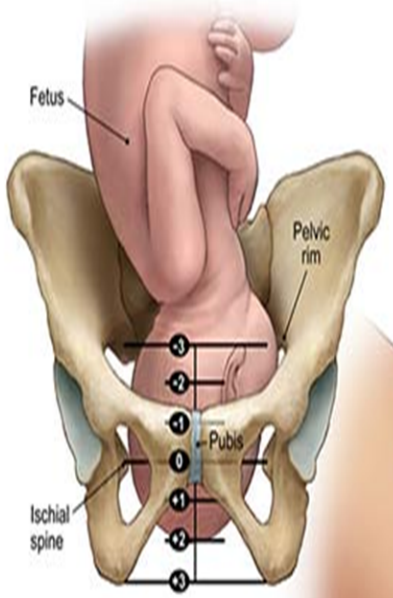
ii. Descent

- *During the first stage and second stage of labour descent of the fetus.*

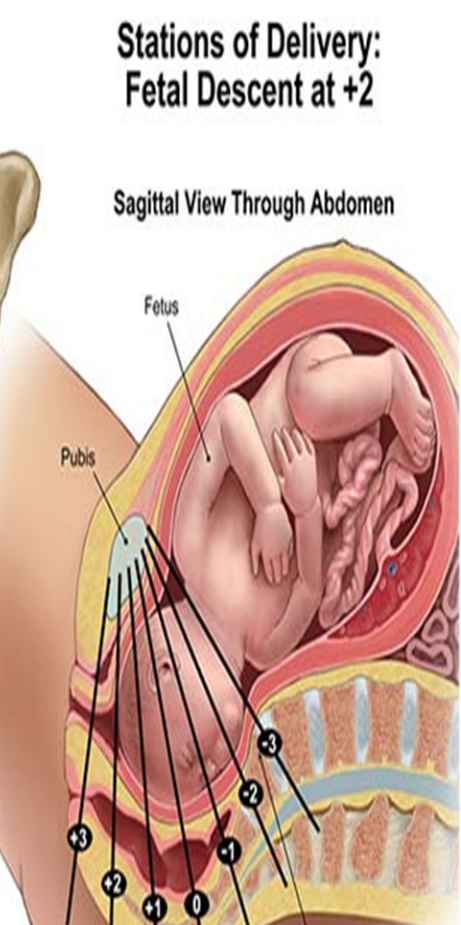
- *Why?*

*As a result of **uterine contractions**.*

- *In the second stage of labour, it is assisted by voluntary efforts of the mother using her abdominal muscles and Valsalva manoeuvre (‘**pushing**’).*



Anterior View of Pelvis



Station	Landmarks
-3	Pelvic inlet
-2	
-1	
0	Ischial Spine
+1	
+2	
+3	

iii. Flexion

The fetal head is not always completely flexed

when it enters the pelvis.

As the head descends into the ***midpelvis*** ⟹

flexion occurs.

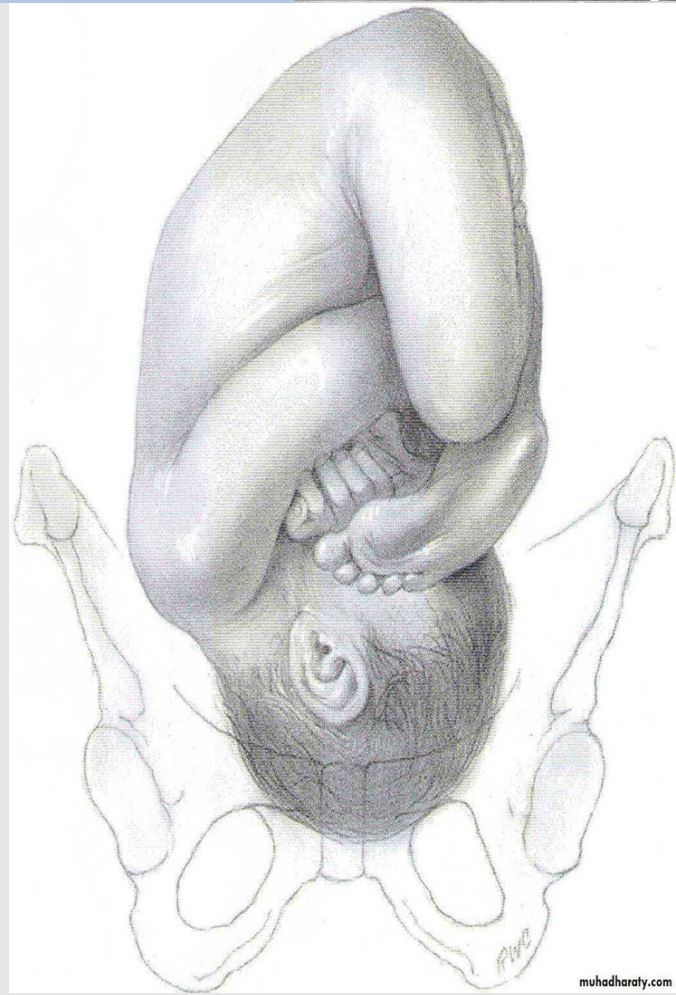
This occurs due to the surrounding structures and

is important

Why?

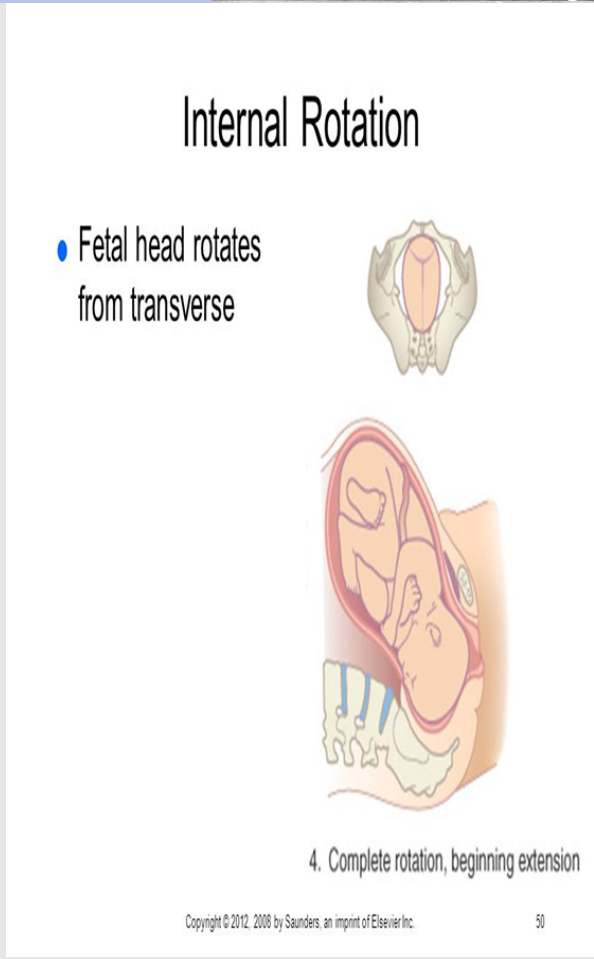
To ***reduce*** *the presenting diameter*

of the Fetal head.



iv. Internal rotation

- *If the head is **well flexed** ⇨ the occiput will be the leading point*
- *When reaching the gutter of the levator ani muscle ⇨ it will rotate anteriorly ⇨ so the **sagittal suture** lies in the **AP** diameter of the pelvic outlet **(i.e. the widest diameter).***



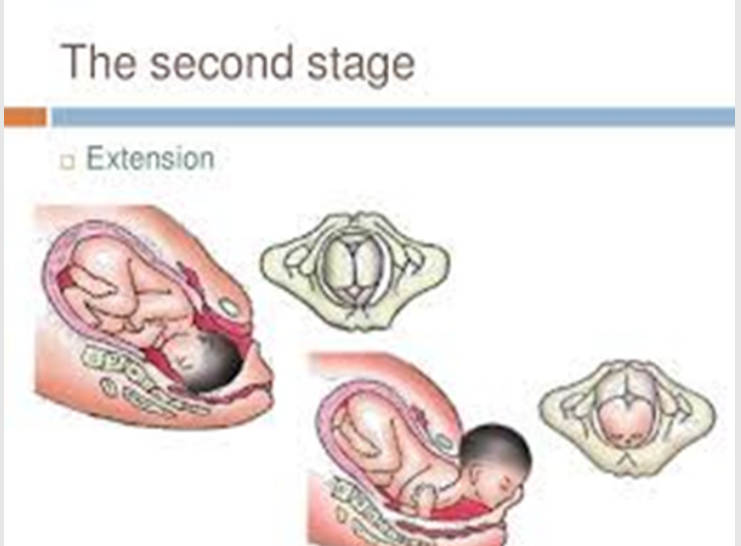
v. Extension

- *Following internal rotation ….occiput is beneath the symphysis pubis.*

- *The well-flexed head now extends*

- *And the occiput escapes from underneath the symphysis pubis and distends the vulva.*

This is known as 'crowning' of the head



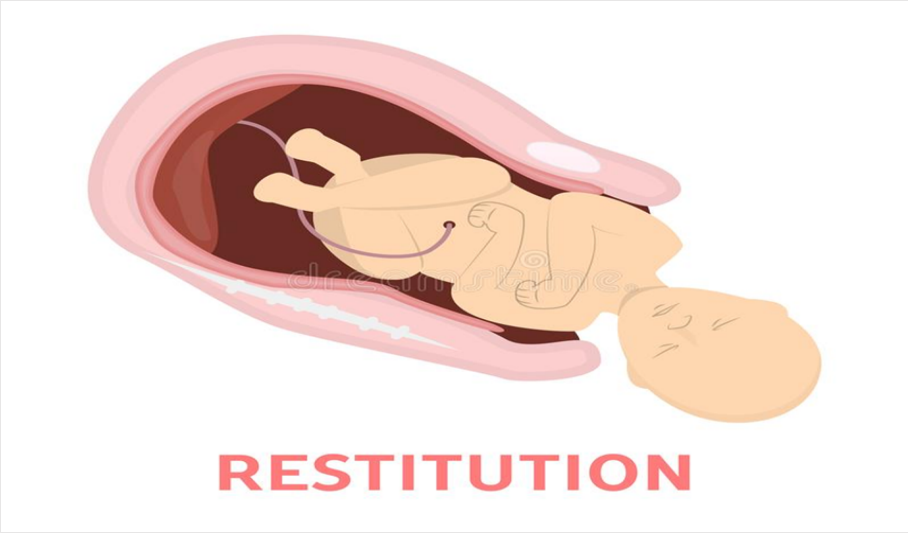
vi. Restitution

- *After crosses the perineum*

- *The head aligns itself with the shoulders…. (which entered the pelvis in oblique position).*

- *This slight rotation of the occiput through one eighth of the circle is called:*

Restitution



vii. External rotation

- *Shoulders have to rotate into the direct AP plane*

….In aim to be delivered.

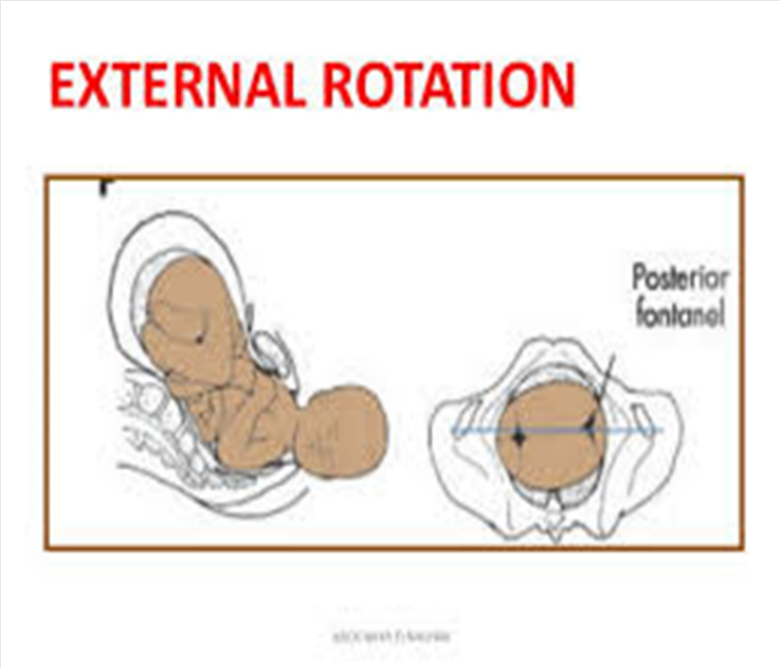
(remember, the widest diameter at the outlet).

- *When this occurs…*

the occiput rotates through a further one-eighth of a circle to the transverse position.

- *This is called:*

External rotation.



viii. Delivery of the shoulders and feta

- *After restitution and external rotation*

  …the shoulders will be in the AP position.

- *The anterior shoulder :*

is under the symphysis pubis….. and delivers first.

- *Then posterior shoulder delivers.*

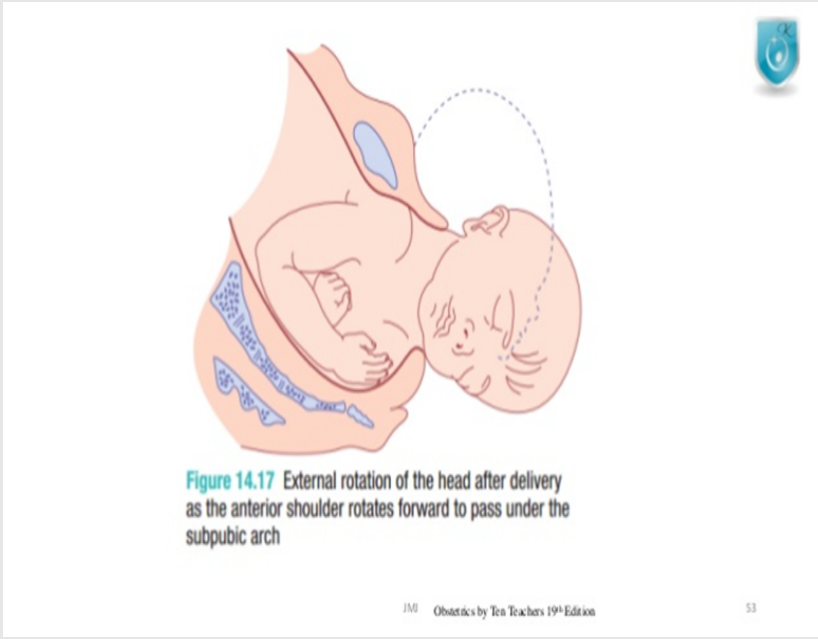


Figure 14.17 External rotation of the head after delivery as the anterior shoulder rotates forward to pass under the subpubic arch

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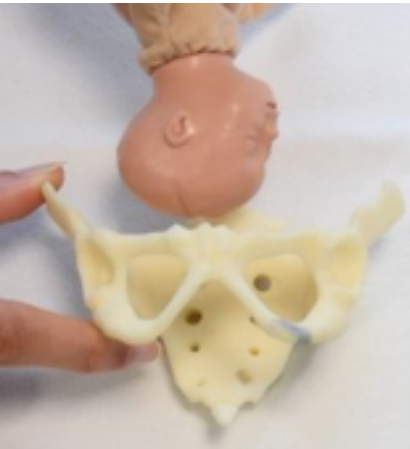
- *This process occurs without assistance,*

(Just gentle traction in a downward direction

to release the ant. shoulder from beneath the pubic symphysis.

- ***Normally the rest of the fetal body is delivered easily***



DESCENT

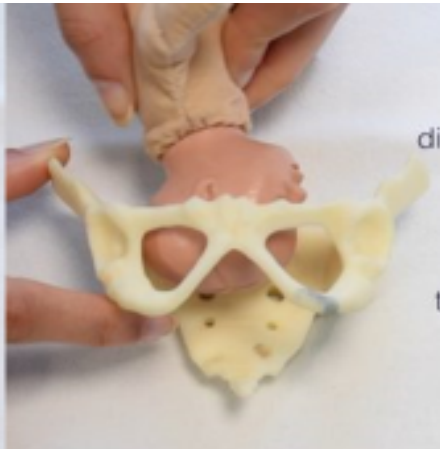
Here the baby **decends** through the **pelvic inlet** towards the **pelvic floor**.

Descent occurs due to:

Uterine contractions

Amniotic fluid pressure

Abdominal muscle contraction

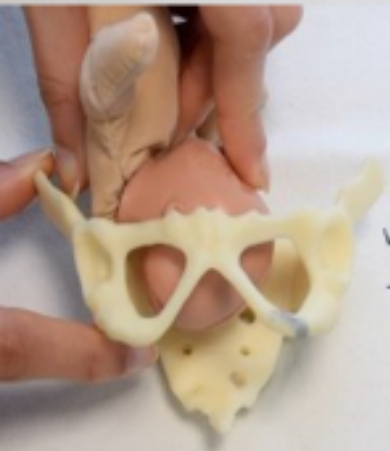


ENGAGEMENT

Engagement occurs when the **largest** diameter of the **fetal head** fits into the **largest diameter** of the **maternal pelvis**.

As the fetal head **engages**, the head moves towards the **pelvic brim** in either the **left** or **right occipto-transverse** position.

This allows the **widest** part of the **fetal head** to fit through the **widest part** of the **pelvic inlet**.

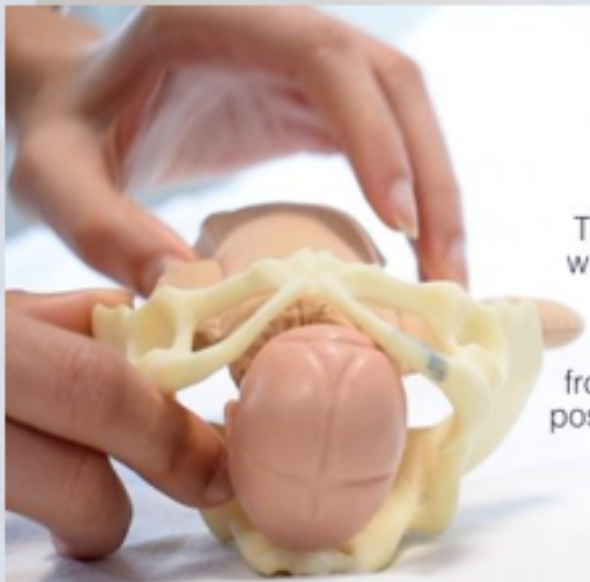


FLEXION

As the **fetal head** comes into contact with the **pelvic floor, cervical flexion** occurs.

This allows the presenting part of the fetus to be **sub-occipito bregmatic**.

In this position, the fetal skull has a **smaller diameter**, which assists passage through the pelvis.



INTERNAL ROTATION

The **pelvic floor** has a **gutter shape**, with a **forward** and **downward slope**.

This allows the **head** to **rotate** from a **left** or **right occipto-transverse** position to an **occipto-anterior** position.

CROWNING

EXTENSION

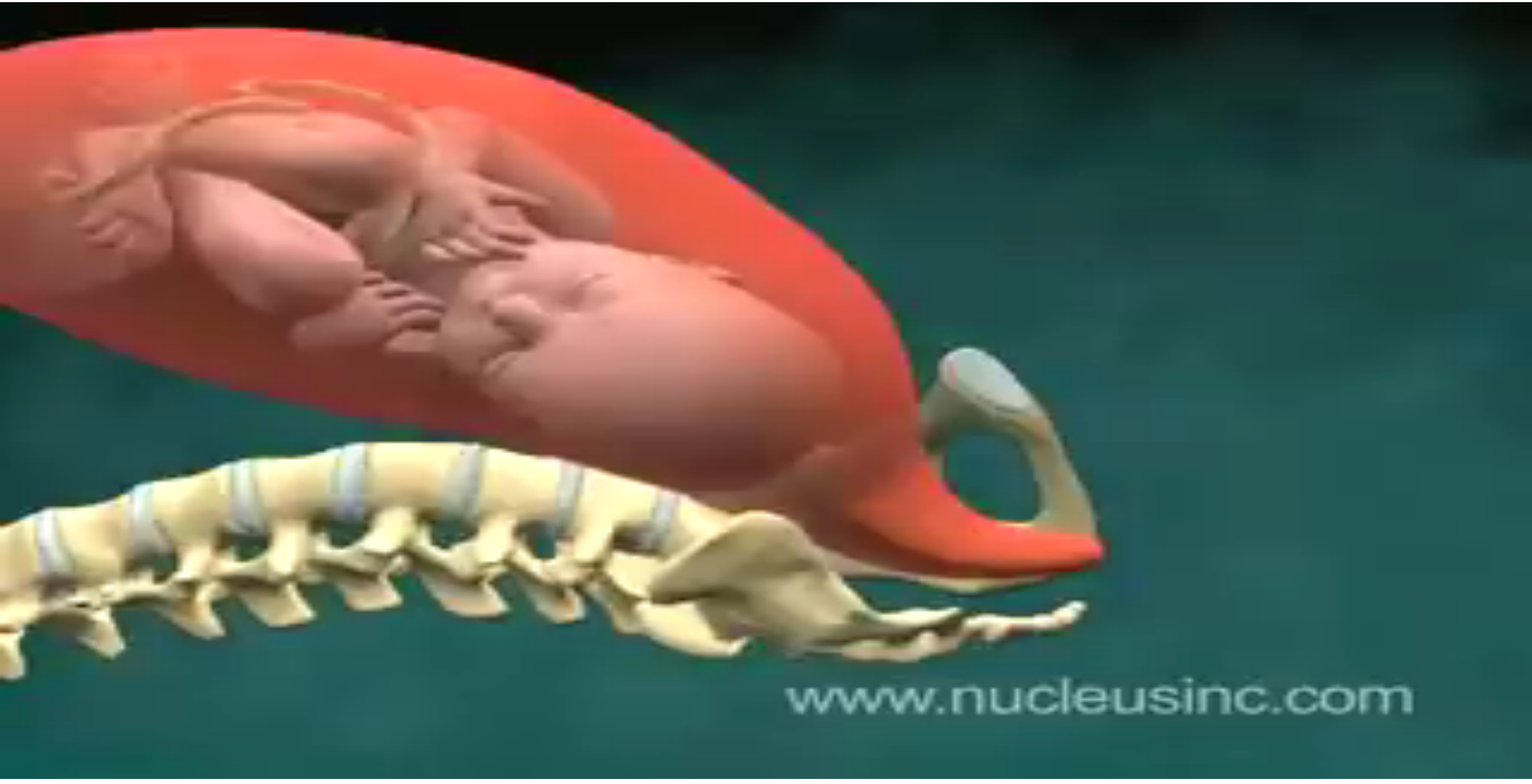
The occiput slips beneath the suprapubic arch as the head extends and the nape of the neck is pivoting against the arch.

EXTERNAL ROTATION & RESTITUTION

The head externally rotates to face the right or left medial-thigh of the mother.

At the same time, the shoulders are rotating from a transverse position, to an anterior-posterior position.

This re-alignment of the shoulders with the head is called restitution.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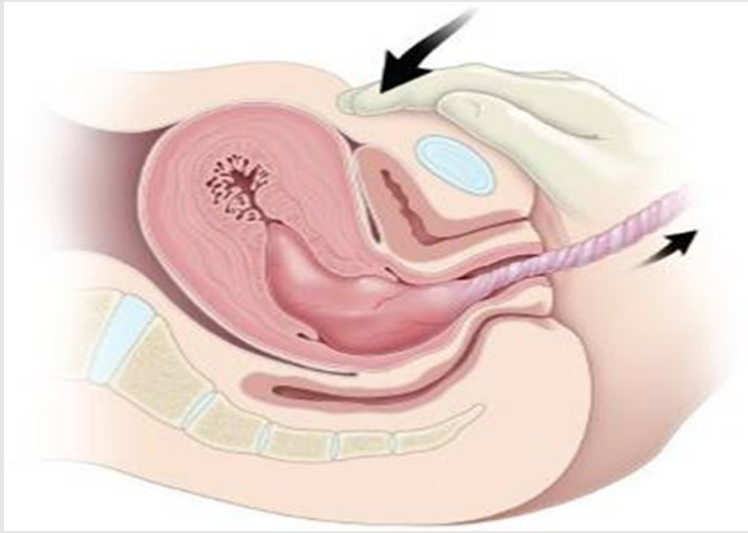
Management of 3rd stage of labour

As Postpartum haemorrhage is fatal condition(the main cause of maternal mortality all over the word).

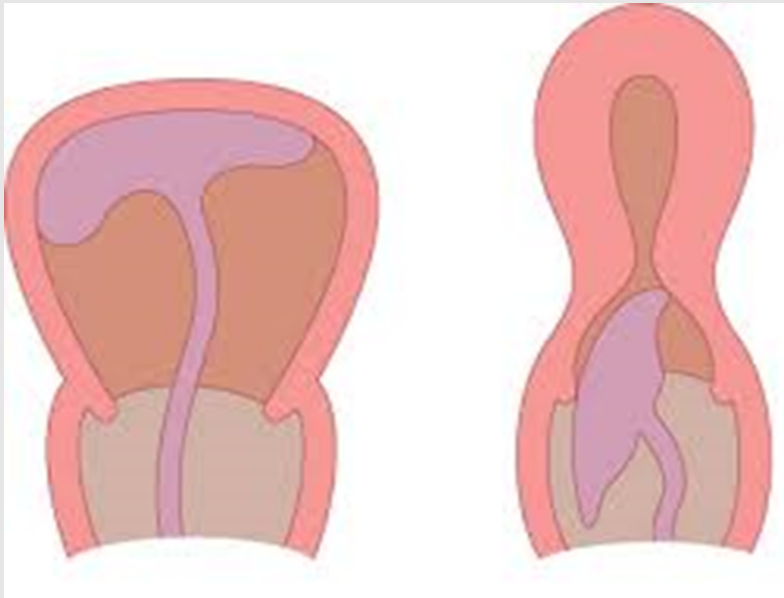
We manage 3rd stage actively to prevent PPH.

- *What is Active Management of 3rd stage of labour (to prevent PPH)?*
- *Control cord traction*
- *Ergometrine (i.m –iv) or syntocenon (iv-i.m).*
- *Syntometrine.*



What are Sings of placental separation?

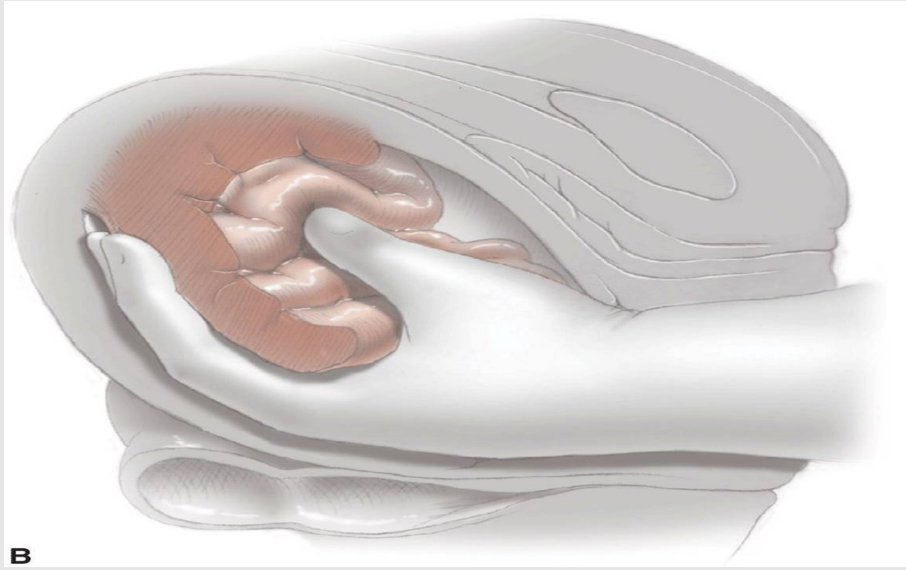
1. *Sudden gush of blood.*
2. *Elongation of the cord.*
3. *Palpable firm rounded mass above the symphysis pubis .*



Placental separation delay

If placenta not separated for more than half an hour:

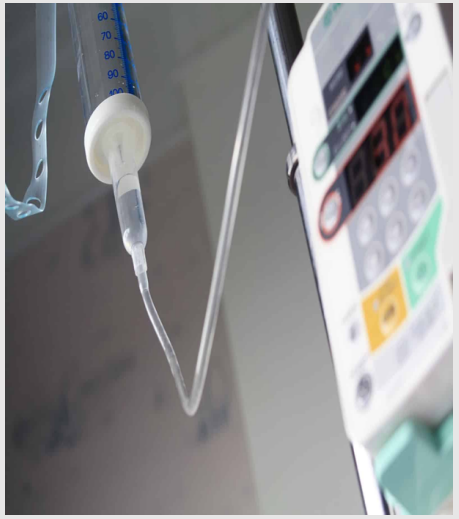
- *Message of the uterus.*
- *Intra umbilical injection of oxytocin.*
- *If failed ⇨ Manual removal of the placenta.*



- *(in the theatre under general anaesthesia with long sleeve gloveless).*

Syntocinon(oxytocin)

When to give oxytocin?



1) after delivery of the baby's anterior shoulder.
2) after delivery of the baby but before delivery of the placenta.
3) after delivery of the placenta.

Special Precautions

- Women with borderline cephalopelvic disproportion,
- Secondary uterine inertia.
- mild or moderate pregnancy-induced hypertension.
- CV disease (e.g. hypertrophic cardiomyopathy, valvular heart disease, ischaemic heart disease, coronary artery vasospasm), long QT syndrome.
- History of caesarean section.

Syntocinon side effects:

Fetal :

- Fetal distress.
- Arrhythmias.

Maternal :

- Nausea, vomiting
- Hypotension Bradycardia & Headache.
- Myocardial ischaemia.
- Uterine hypertonicity & Uterine rupture
- DIC & Anaphylaxis.
- Postpartum haemorrhage.
- Pelvic hematoma.
- Water intoxication.
- Hypertension.
- Subarachnoid haemorrhage.

Ergometrine

Active ingredient:

Ergometrine maleate.

Contraindications

- *Hypersensitivity to the active substance.*
- *Pregnancy and labour (due to the risk of uterine hypertonus and associated foetal complications).*
- *Severe hypertension, pre-eclampsia, eclampsia.*
- *Severe cardiac disorders.*
- *Severe hepatic or renal impairment.*
- *Occlusive vascular disease e.g. Raynaud's disease / phenomenon*
- *Sepsis*

The partogram

Its Graphic record of labour.

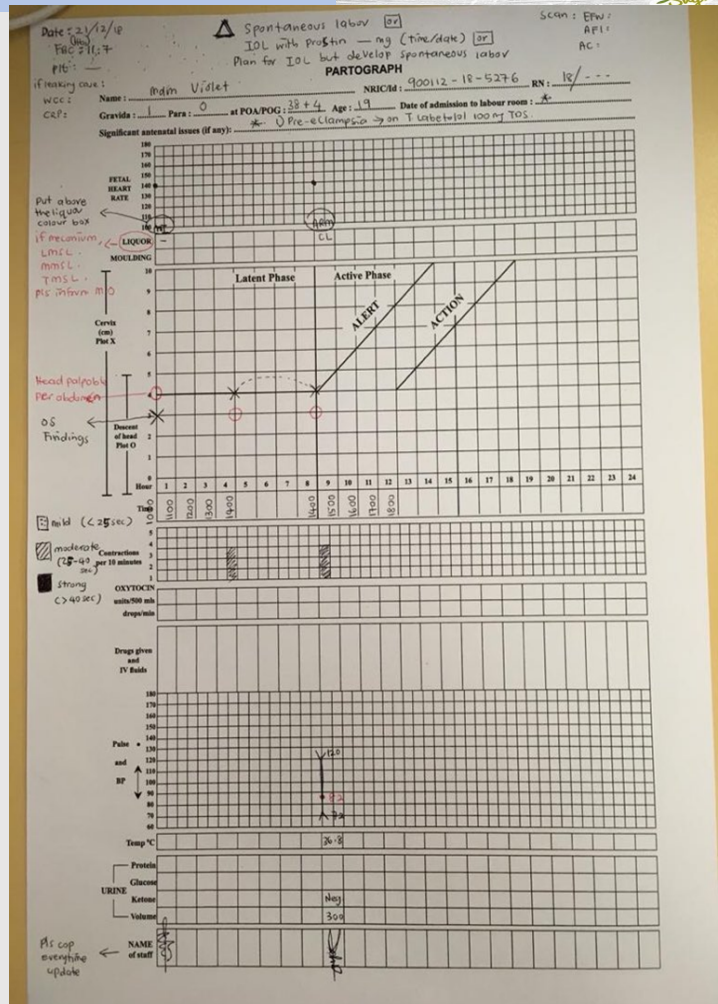
Why its important?

- *Allows visual assessment of the progress of labour.*

based on :

- *Rate of cervical dilatation compared with an expected norm….*
- *So that slow progress can be :*
- *Recognized early .*
- *& appropriate actions are done.*
- *portogram shouldn't be commenced until*

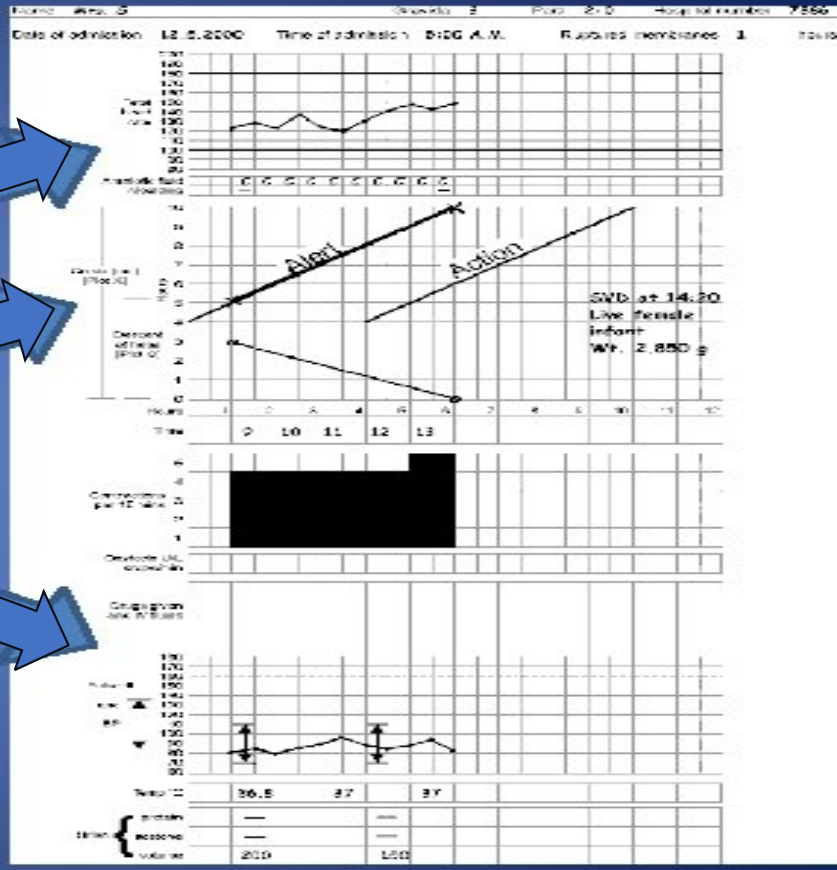
the latent phase of labour is completed.



Components of portogram

Components of the partograph

- Part 1 : fetal condition (at top)
- Part 11 : progress of labour (at middle)
- Part 111 : maternal condition (at bottom)



Definition of normal labour

- *Spontaneous in onset*
- *At term*
- *single fetus*
- *vertex presentation*
- *Without undue prolongation within reasonable time*
- *With no maternal complications*
- *Fetal complications*
- *Any deviation from this definition is abnormal*

What is reasonable time?

- *(not less than 3 hours or more than 18 hours)*

The World Health Organization (WHO)

defined normal birth as “
spontaneous in onset,
low-risk at the start of
labor and remaining so
throughout labor and delivery.
The infant is born spontaneously
in the vertex position
between 37 and 42 completed weeks of pregnancy.
After birth, mother and infant are in good condition"

-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COMING SOON


Thank you!


QUESTIONS