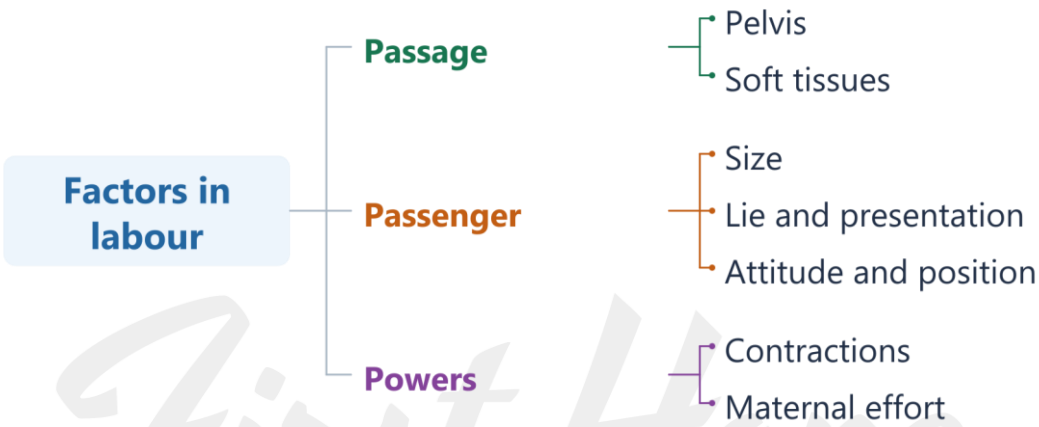
Obstetrics & Gynaecology - Topic 13 - Labour

The Passage, Passenger and Powers

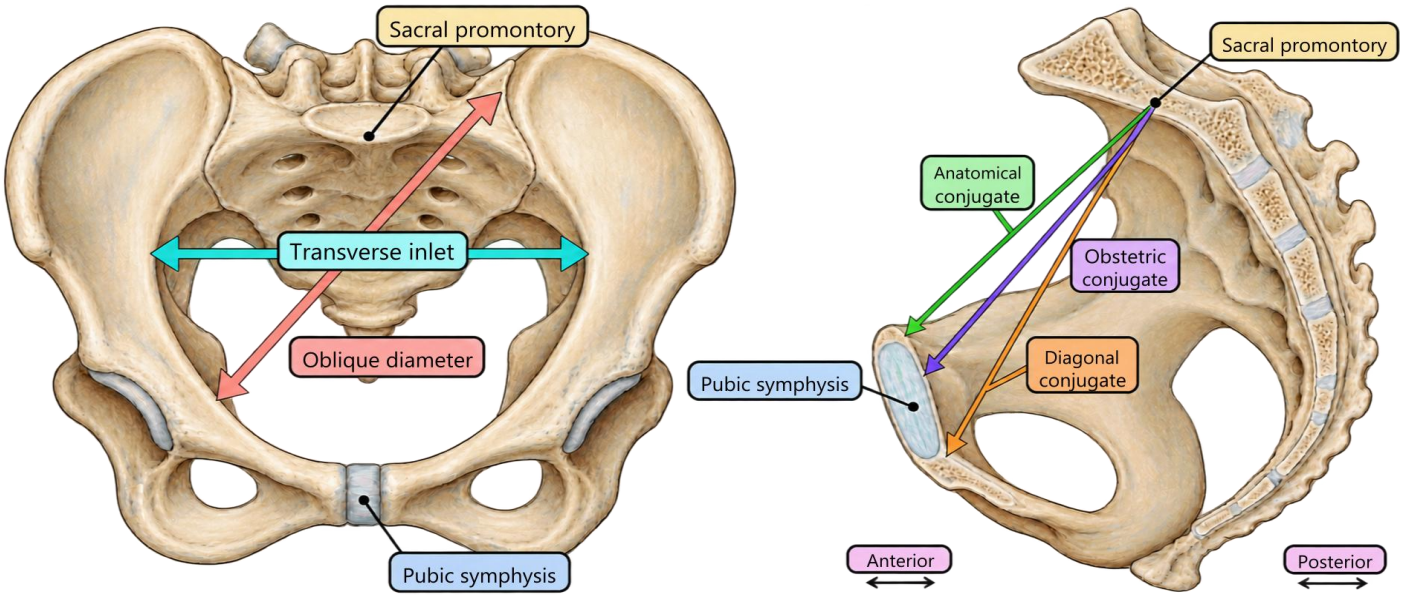
How Normal Labour Works

- Labour is the process in which effective uterine contractions produce progressive cervical change and lead to birth of the baby and placenta.
- Regular pain alone does not prove established labour; assess cervical change, contractions and the whole clinical picture.
- Progress depends on the maternal passage, the fetal passenger and the strength and coordination of the powers.



The Maternal Pelvis

Pelvic Spaces and Teaching Dimensions



The pelvic inlet diameters and three conjugates are defined by different bony landmarks

- The pelvic inlet leads into the cavity, the midpelvis contains the ischial spines, and the outlet lies between the pubic arch, ischial tuberosities and coccyx.
- The pelvic axis curves forward near the outlet, which helps explain why the fetal head extends beneath the pubic arch.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- The dimensions below are approximate teaching values, because individuals and measurement methods vary.

Level or measurement	Approximate teaching value and importance
Anatomical conjugate	11 cm, from the promontory to the upper border of the pubic symphysis.
Obstetric conjugate	10.5 cm, from the promontory to the nearest posterior symphyseal surface.
Diagonal conjugate	12.5–13 cm, from the promontory to the lower symphyseal border.
Transverse inlet	13 cm at the widest part of the inlet.
Oblique inlet	12 cm, from a sacroiliac joint to the opposite iliopubic eminence.
Interspinous midpelvis	About 10–10.5 cm between the ischial spines.
Transverse outlet	About 11 cm between the ischial tuberosities.
Anteroposterior outlet	About 9.5 cm to the coccygeal tip, increasing as the coccyx moves backwards.

Conjugate Assessment and Predictive Limitations

- The **obstetric conjugate** is the shortest useful anteroposterior inlet distance between the sacral promontory and posterior surface of the pubic symphysis.
- It cannot be measured directly during a routine vaginal examination.
- The diagonal conjugate can sometimes be assessed clinically, and subtracting about 1.5–2 cm gives a rough estimate of the obstetric conjugate.
- An isolated pelvic measurement does not reliably predict whether vaginal birth will succeed.

Sacrocotyloid Diameter

- The **sacrocotyloid diameter** runs from the midpoint of the sacral promontory to the iliopectineal, or iliopubic, eminence on the same side of the pelvic inlet.
- There is a right and a left sacrocotyloid diameter, each approximately **9–9.5 cm**, conventionally quoted as 9.5 cm.
- An unequal or shortened diameter can contribute to an asymmetrically contracted inlet and difficulty with engagement of the fetal head.
- It differs from an oblique inlet diameter, which runs from a sacroiliac joint to the opposite iliopubic eminence.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- Its significance is assessed with the rest of the pelvis, fetal size and labour progress rather than used alone to diagnose disproportion.

Traditional Pelvic Types

- A gynaecoid inlet is broadly rounded, an android inlet is relatively heart-shaped, an anthropoid inlet is long anteroposteriorly, and a platypelloid inlet is wide transversely and short anteroposteriorly.
- Mixed shapes are common, and these traditional categories should not be used alone to deny a trial of labour.
- Clinical assessment also considers the sacral curve, side walls, ischial spines, subpubic angle and the relationship between the head and pelvis.

The Fetal Head

Sutures and Fontanelles

- The sagittal suture lies between the parietal bones and helps identify the direction of the head during vaginal examination.
- The small posterior fontanelle marks the occipital end, while the larger anterior fontanelle is diamond-shaped.

Flexion, Moulding and Station

- Good flexion presents the suboccipitobregmatic diameter, approximately 9.5 cm, which fits more easily than the larger diameter of a deflexed head.
- Moulding is overlap of skull bones, whereas caput is scalp swelling; marked caput can make the head seem lower than the skull actually is.
- Assess **station** using the leading bony part relative to the ischial spines, with zero station at the spines.

Physiology and Stages

Onset and Maintenance of Labour

Hormonal Signalling and Cervical Ripening

- Labour begins through interacting maternal, placental and fetal signals rather than a single hormonal switch.
- Increasing prostaglandin activity, functional changes in progesterone signalling and greater myometrial sensitivity help the uterus become contractile.
- Gap junctions improve communication between muscle cells, while cervical collagen changes allow the cervix to soften and shorten.

Uterine Contraction, Retraction and the Ferguson Reflex

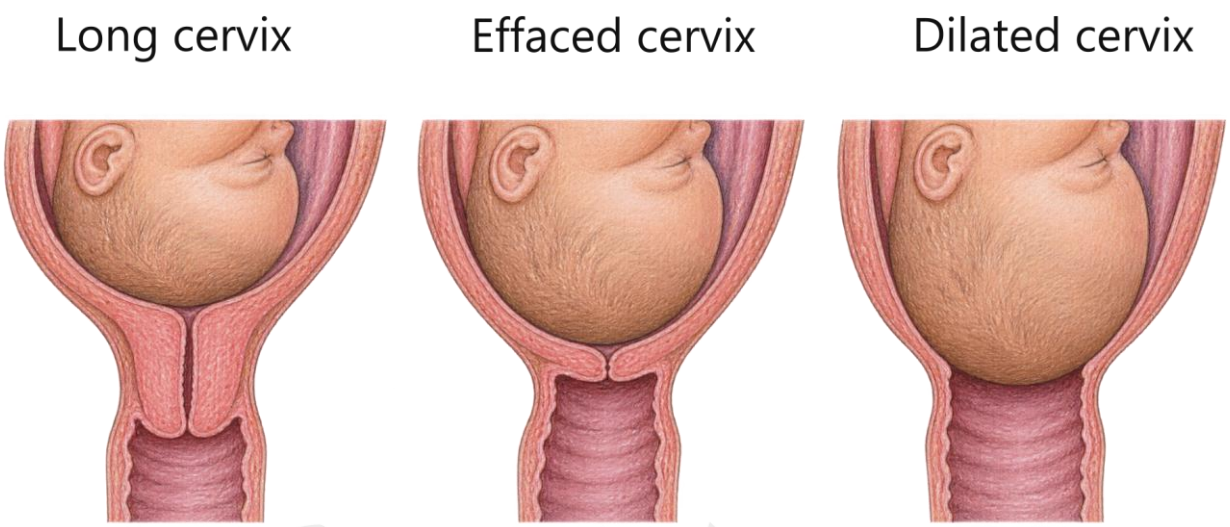
- The upper uterine segment contracts and retracts, while the lower segment and cervix stretch to allow descent.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

- Retraction means that muscle fibres remain partly shortened after each contraction, helping maintain progress.
- Stretch of the cervix and vagina can stimulate oxytocin release, producing a positive-feedback response during established labour.

Stages of Labour

1. First Stage



During the first stage of labour, the cervix becomes thinner and its opening widens

- The first stage begins with labour that causes cervical change and ends at full cervical dilatation, usually described as 10 cm.
- During the latent phase, painful contractions and cervical change may occur slowly and irregularly.
- The WHO Labour Care Guide starts active-phase recording at **5 cm**, while some other guidelines use a different active-phase threshold.
- A slow latent phase with reassuring maternal and fetal findings is not, by itself, a reason for caesarean birth or oxytocin.

2. Second Stage

- The second stage extends from full cervical dilatation to birth of the baby.
- It includes descent and rotation, followed by active pushing when appropriate; epidural analgesia may alter the urge to push.
- Assessment considers parity, analgesia, descent, rotation, contractions and fetal wellbeing rather than elapsed time alone.

3. Third Stage and Early Recovery

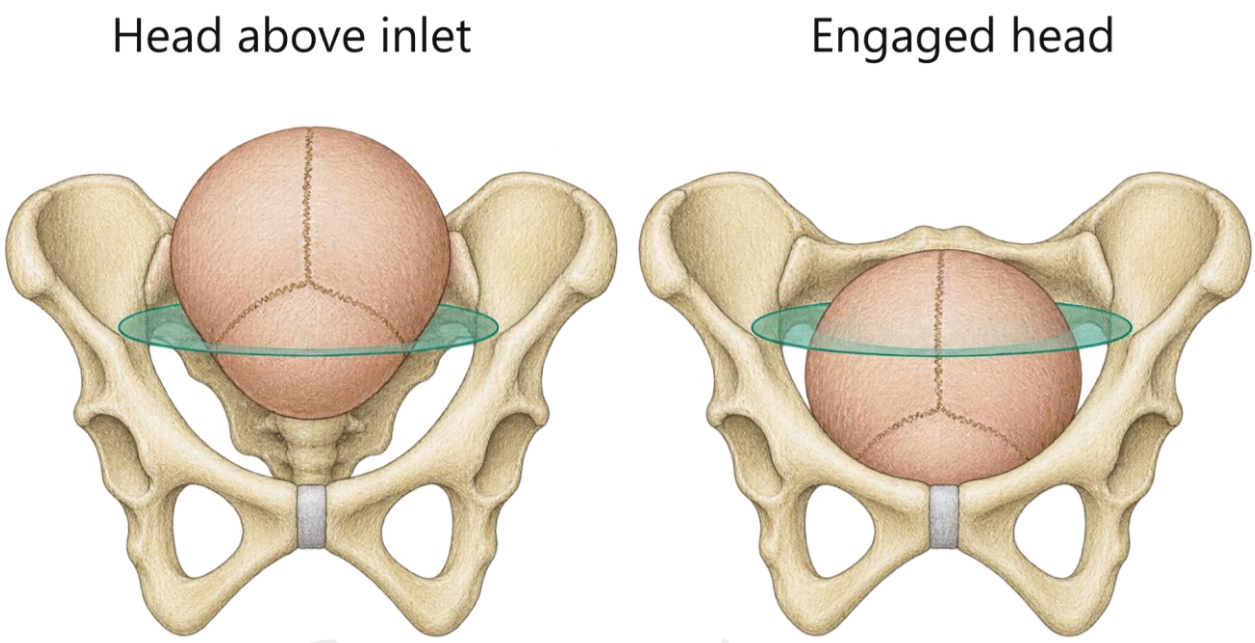
- The third stage extends from birth of the baby to delivery of the placenta and membranes.
- The immediate recovery period needs close observation of uterine tone, bleeding, circulation, bladder function and the newborn.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

Mechanism of an Occipito-anterior Birth

- The movements overlap in practice and are described separately to make the changing relationships easier to understand.

1. Engagement and Descent



The fetal head is engaged when its biparietal diameter has passed through the pelvic inlet

- Engagement occurs when the biparietal diameter has passed through the pelvic inlet.
- The head often enters the inlet in a transverse or oblique position and descends with uterine contractions and later maternal effort.

2. Flexion

- Resistance from the cervix, pelvic walls and pelvic floor brings the chin closer to the chest.
- Flexion presents a smaller anteroposterior head diameter and makes passage easier.

3. Internal Rotation

- The occiput usually rotates towards the anterior pelvis as the head descends.
- The sagittal suture becomes aligned with the anteroposterior outlet, placing the occiput beneath the pubic arch.

4. Extension

- The head extends around the lower border of the pubic symphysis as the perineum stretches.
- The occiput, forehead, face and chin emerge in sequence during controlled birth of the head.

5. Restitution and External Rotation

- Restitution releases the twist in the neck and brings the head back into alignment with the shoulders.

Copyright by Engacy Learning Private Limited. All rights reserved. Reproduction or distribution without written consent is strictly prohibited.

FREE PREVIEW

Click here to visit our website

MBBS PREMIUM NOTES

Complete MBBS notes for every subject and year are available only in the FirstHope app.

Scan or click here

Click here to get the app >

Available on Google Play

Browse MBBS notes by year

firsthope.co.in/mbbs

Click here to explore MBBS >

Scan or click here

FirstHope Medical on Instagram

@firsthope.medical

Click here to follow

App and notes help

Find answers about access and downloads

Click here for help

YEAR 1 / YEAR 2 / YEAR 3 / YEAR 4