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Physiology and Mechanism of Labour

Midwifery & Obstetrical Nursing

Definition and stages of labour, factors affecting labour (5 Ps), signs of true and false labour, uterine contractions, fetal movements, mechanism of normal labour and cardinal movements.

For educational purposes only.

CHAPTER 12 / MIDWIFERY AND OBSTETRICAL NURSING 12. Physiology and Mechanism of Labour

1. Definition and onset

Labour is the process of regular uterine contractions leading to progressive cervical effacement/dilatation and birth of fetus and placenta. Involves prostaglandins, oxytocin receptors, cervical ripening, fetal and maternal signalling; no single trigger explains all onset. Term labour occurs from 37+0 to 41+6 weeks.

True labour	False labour/Braxton Hicks
Regular contractions typically increase in strength/frequency	Irregular contractions often do not progressively intensify
Progressive cervical change	No progressive cervical dilatation/effacement
May continue despite rest	May lessen with rest/position change

Clinical assessment is needed; pain/intensity alone cannot confirm labour. Ruptured membranes, bleeding or reduced movements require assessment even without contractions.

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2. Stages of labour

First stage: onset of labour to complete cervical dilatation (about 10 cm); latent and active phases (WHO active from 5 cm; local definitions may differ). Second: full dilatation to birth of baby. Third: birth to placental delivery. Fourth: commonly taught immediate first 1-2 hours postpartum, intensive observation of recovery/bleeding; not universally defined as formal stage. Duration varies by parity, epidural, position, fetal factors and maternal/fetal condition.

3. Factors affecting labour: 5 Ps

Factor	Description
Powers	Uterine contractions and maternal expulsive efforts.
Passenger	Fetal size, lie, presentation, attitude, position and number.
Passage	Bony pelvis and soft tissues of birth canal.
Position	Maternal position and mobility influence comfort and mechanics.
Psyche	Fear, support, coping and experience; respectful care improves experience.

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Assess contraction frequency per 10 min, duration and strength/relaxation. Fetal lie longitudinal/transverse/oblique; attitude flexion/extension; presentation cephalic/breech/shoulder; vertex denominator occiput. Station relates presenting part to ischial spines (0 station at spines). Engagement is biparietal diameter through pelvic inlet in vertex presentation.

4. Cardinal movements in vertex vaginal birth

Engagement -> descent (throughout labour) -> flexion -> internal rotation -> extension -> restitution and external rotation -> expulsion. Movement sequence adapts fetus to pelvic dimensions, not rigid discrete events. Moulding is overlap of fetal skull bones, caput is scalp oedema; degree and labour progress require assessment.

5. Nursing role

Observe contractions, maternal vitals, fetal heart and progress by authorized method, support hydration/nutrition and movement when safe, provide chosen pain relief and respectful communication, document findings. Identify obstruction, abnormal fetal heart, maternal fever or bleeding and escalate. Avoid arbitrary intervention solely because cervical dilation is slower than 1 cm/h when other findings reassuring.

6. Important Examination Questions

Long Answer Questions

1. 1. Explain stages of labour, 5 Ps and cardinal movements of normal labour.

Short Answer Questions

1. 1. Differentiate true/false labour
2. 2. define station and engagement
3. 3. describe uterine contractions.

Very Short Answer Questions (with answers)

1. 1. Full cervical dilatation? - Approximately 10 cm.
2. 2. WHO active phase begins at? - 5 cm.

7. Quick Revision

- Labour progress is individual.
- Descent occurs throughout labour.

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- Monitor the woman and fetus together.

8. Conclusion

Labour progress is individual. Descent occurs throughout labour. Monitor the woman and fetus together.

Practice questions

Choose one best answer. The answer key and explanations follow the questions.

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1. Which feature best distinguishes true labour from false labour?

A. Progressive cervical effacement and dilatation

B. Pain intensity alone

C. Irregular contractions that lessen with rest

D. A single episode of pelvic discomfort

2. What does station zero indicate?

A. The presenting part is above the ischial spines

B. The presenting part is at the ischial spines

C. The presenting part is below the ischial spines

D. The fetal head has crowned at the vaginal opening

3. Which description belongs to the passenger among the five Ps of labour?

A. Uterine contractions and expulsive effort

B. Bony pelvis and soft birth-canal tissues

C. Fetal size, lie, presentation, attitude, position and number

D. Maternal fear, support and coping

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Answer key and explanations

1. A - Progressive cervical effacement and dilatation

True labour is associated with progressive cervical change.

2. B - The presenting part is at the ischial spines

Station relates the presenting part to the ischial spines.

3. C - Fetal size, lie, presentation, attitude, position and number

Passenger refers to fetal characteristics that affect labour.

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