

Labor & Delivery: (Normal)

Learning Objectives

Upon completion of the lecture, the student will be able to:

1. Identify common theories explaining the onset of labor
2. Identify the premonitory signs of labor.
3. Compare and contrast true versus false labor.
4. Categorize the factors affecting labor and birth.
5. Analyze the cardinal movements of labor.
6. Differentiate among the four stages of labor.
7. Evaluate the maternal and fetal responses to labor and birth.
8. Characterize danger signs of labor
9. Analyze the nurse's role throughout the labor and birth process.

Labor Overview

Labor is the series of events by which uterine contractions and abdominal pressure expel a fetus and placenta from a woman's body. Regular contractions cause progressive dilation of the cervix and sufficient muscular force to allow the fetus to be pushed to the outside. It is a time of change, both an ending and a beginning, for a woman, a fetus, and her family.

Labor usually begins spontaneously, in about (280) days after conception, but it may be started by artificial means if the pregnancy continues past (42) weeks gestation. The average length of labor is about 14 hours for a first pregnancy and about (8) hours in subsequent pregnancies. However, many women experience a much longer or shorter labor.

Theories of labor onset.

Initiation of labor:

It is difficult to determine exactly why labor begins and what initiates it. Although several theories have been proposed to explain the onset of labor, none of these has been proved scientifically. It is widely believed that labor is **influenced by a combination of factors**, including:

- Uterine muscle stretching result in release of prostaglandins.
- Pressure on the cervix, which stimulates release of oxytocin.
- Oxytocin work together with prostaglandins to initiate contractions.

Theories:

1. Change in the estrogen-to-progesterone ratio, which facilitate coordination of uterine contraction and myometrium stretching
2. Prostaglandin level increase in late pregnancy secondary to elevated level of estrogen. It stimulates smooth muscle contraction of the uterus.
3. Reduce cervical resistance: cervix becomes soft, thin out and dilated during labor.
4. Increased number of oxytocin receptors late in pregnancy, this increased the sensitivity to oxytocin as its also increased in response to estrogen rising.
5. Oxytocin also aid in stimulation of prostaglandin synthesis in the decidua

Signs of labor

Preliminary signs of labor

Before the onset of labor, a woman often experiences subtle signs that signal the onset of labor, which include:

1. Lightening

Lightening occurs when the fetal presenting part begins to descend into the maternal pelvis. This change will cause:

1. Breathing is much easier
2. Increased pelvic pressure
3. Shooting leg pains
4. Increase in vaginal discharge
5. More frequent urination
 - In primigravida it occurs 10-14 days before labor begins.
 - In Multiparas it occurs on the day labor

2. Increased in level of activity

Some women report a sudden increase in energy before labor. This is referred to as nesting, because many women will focus this energy toward housecleaning activities such as cleaning, cooking, preparing the nursery, and spending extra time with other children in the household. The increased energy level usually occurs 24 to 48 hours before the onset of labor. A woman may awaken on the morning of labor full of energy, in contrast to the feeling of chronic fatigue she felt during the previous month. This increase in activity is related to an increase in epinephrine release initiated by a decrease in progesterone produced by the placenta.

3. Braxton Hicks Contractions

Braxton Hicks contractions may become stronger and more frequent. Typically felt as a tightening or pulling sensation of the top of the uterus. They occur primarily in the abdomen and groin and gradually spread downward before relaxing. These contractions aid in moving the cervix from a posterior position to an anterior position. They also help in ripening and softening the cervix. However, the contractions are irregular and can be decreased by walking, voiding, eating, increasing fluid intake, or changing position. Braxton Hicks contractions usually last about 30 seconds but can persist for as long as 2 minutes.

4. Cervical changes

Before labor begins, cervical softening and possible cervical dilation with descent of the presenting part into the pelvis occur. These changes can occur 1 month to 1 hour before actual labor begins.

5. Bloody show

At the onset of labor or before, the mucous plug that fills the cervical canal during pregnancy is expelled because of cervical softening and increased pressure of the presenting part. These ruptured cervical capillaries release a small amount of blood that mixes with mucus, resulting in the

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pink-tinged secretions known as bloody show.

6. Spontaneous rupture of the membranes

One in four women will experience spontaneous rupture of the membranes before the onset of labor. The rupture of membranes can result in either a sudden gush or a steady leakage of amniotic fluid.

Two risks associated with ruptured membranes are:

- Intrauterine infection
- Prolapsed of umbilical cord if engagement of the presenting part does not occur.

If labor does not begin in 24 h, and the pregnancy at term, labor is induced to help reduce these risks.

Differentiating between True Labor and False Labor

Factors	True labor	False labor
Contraction's timing	Regular intervals, becoming close together, usually 4-6 minutes apart, lasting 30-60 seconds.	Irregular intervals, not occurring close together
Contraction strength	Becomes stronger with time, vaginal pressure is usually felt	Frequently weak, not getting strong with time
Contraction discomfort	Start in the back and radiates around toward the front of the abdomen	Usually felt in the front of the abdomen
Position changes	Contractions continue no matter what positional changes is made	Contraction may stop or slow down with walking or changing position
Effect of analgesia	Not terminated by sedation	Frequently abolished by sedation
Cervical change	Progressive effacement and dilation	No change
Bloody show	Present	Absent

Components of labor

Traditionally, the critical factors that affect the process of labor and birth are outlined as the “five P’s”:

1. Passageway (birth canal)
2. Passenger (fetus and placenta)
3. Powers (contractions)
4. Position (maternal)
5. Psychological response

1. Passageway (birth canal):

The birth passageway is the route through which the fetus must travel to be born vaginally. **The**

passageway consists of:

1. Maternal pelvis
2. Soft tissues.

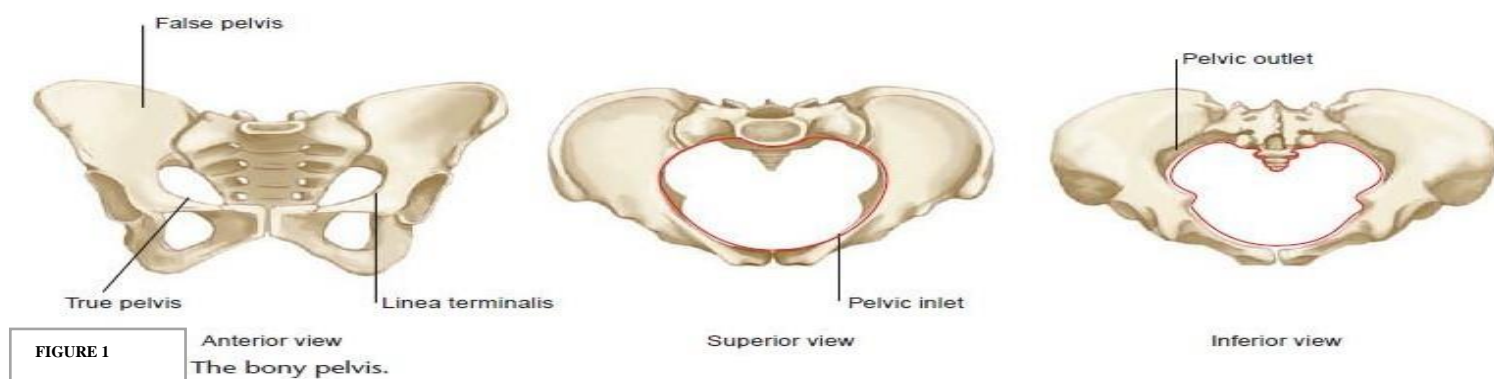
Maternal pelvis can be divided into the

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- **The false pelvis:** is composed of the upper flared parts of the two iliac with their concavities and the wings of the base of the sacrum
- **The true pelvis:** is the bony passageway through which the fetus must travel. **It is made up of three planes:**

1. Inlet, 2. Mid-pelvis (cavity), 3. Outlet

- 1- **Pelvic inlet:** allow entrance to the true pelvis. A measurement >12 cm suggests adequacy.
- 2- **Mid pelvis:** the mid pelvis (cavity) occupies the space between the inlet and outlet.
- 3- **Outlet:** The outlet is limited anteriorly by the arch of the symphysis pubis, posteriorly by the tip of the coccyx, and laterally by the ischial tuberosities.



Pelvic Shape: The pelvis is divided into four main shapes:

1. Gynecoid

- is considered the true female pelvis
- occurring in about 50% of all women, it is less common in men
- Vaginal birth is most favorable with this type of pelvis because the inlet is round, and the outlet is roomy.

2. Anthropoid

- is common in men
- occurs in 25% of women
- The pelvic inlet is oval, and the sacrum is long
- Vaginal birth is more favorable with this pelvic shape compared to the android or platypelloid shape

3. Android pelvis

- is considered the male-shaped pelvis
- characterized by a funnel shape.
- It occurs in approximately 20% of women
- The pelvic inlet is heart shaped and the posterior segments are reduced in all pelvic planes.
- The prognosis for labor is poor, subsequently leading to cesarean birth.

4. platypelloid or flat pelvis

- is the least common type of pelvic structure among men and women,
- incidence of 5% The pelvic cavity is shallow but widens at the pelvic outlet, making it difficult for the fetus to descend through the mid-pelvis.
- It is not favorable for a vaginal birth unless the fetal head can pass through the inlet.

Soft tissue

The soft tissues of the passageway consist of:

- **The cervix:** Through effacement, the cervix effaces (thins) to allow the presenting fetal part to descend into the vagina.
- **The pelvic floor muscles:** help the fetus to rotate anteriorly as it passes through the birth canal.
- **The vagina:** The soft tissues of the vagina expand to accommodate the fetus during birth.

2. Passenger (fetus and placenta):

a. Fetal skull: is the largest presenting part and least compressible fetal structure, making it an important factor in relation to labor and birth.

Sutures – inter membranous spaces that allow molding.

- 1.) **Sagittal suture** connects 2 parietal bones
- 2.) **Coronal suture** – connect parietal & frontal bone
- 3.) **Lambdoidal suture** – connects occipital & parietal bone

B. Moldings: the overlapping of the sutures of the skull to permit passage of the head to the pelvis

c. Fontanel:

1.) **Anterior fontanel** – diamond shape, 3 x 4 cm, (> 5 cm –hydrocephalus), 12 – 18 months after birth-close

2.) **Posterior fontanel or lambda** – triangular shape, 1 x 1 cm. closes – 2 –3 months after birth

d.Fetal attitude

Is another important consideration related to passenger. It refers to the posturing (flexion or extension) of the joints and the relationship of fetal parts to one another.

e.Fetal Lie

The relationship of the long axis of the fetus to the long axis of the mother. The lie is longitudinal with a vertex or breech presentation or otherwise transverse or oblique, as with a shoulder presentation

f.Fetal Presentation

Presentation describes that part of the fetus that is lowest in the pelvis inlet first three main fetal presentation:

i. **The cephalic(Vertex or head):** 95% of the term new born.

In cephalic presentation: the presenting part is usually the occiput portion of the fetal head. **Brow or face presentation is** a variation on vertex, but with deflexion of the fetal head, allowing the brow or face to enter the pelvis first.

ii. **The breech(pelvis):** 3% of term births

In a breech presentation, the fetal buttocks (the breech) are the presenting part. The breech presentation has several variations:

Frank breech: the fetal legs are extended above the fetal pelvis with the breech as the presenting part

_ **Complete breech:** the feet and buttocks present together

_ **Single-footling breech:** one leg/foot is extended and presenting

_ **Double-footling breech:** both legs/feet are extended and presenting



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Although all abnormal presentations have an increased incidence of cord prolapse, footling breeches are especially at risk.

iii. **The shoulder(scapula):** 2% of term births. A shoulder presentation implies a transverse lie.

*The position of the presenting part is best determined by vaginal examination



Figure 12-8 Shoulder presentation.

E. Fetal position:

Position of the presenting part is described as the relationship between a certain landmark on the fetal presenting part and the maternal pelvis, as follows:

- Anterior, closest to the symphysis
- Posterior, closest to the coccyx
- Transverse, closest to the left or right vaginal sidewall.

• **The index landmarks are:** —

— In a vertex presentation is the occiput, which is identified by palpating the lambdoid sutures forming a Y with the sagittal suture

— The sacrum in a breech presentation the mentum (or chin) in a face presentation

The designations of anterior, posterior, left, and right refer to the maternal pelvis. Therefore, right occiput transverse implies the occiput is directed toward the right side of the maternal pelvis. —

— Breech and face presentations are described in a similar fashion (e.g., right sacrum transverse, right mentum transverse)

f. Fetal engagement:

Engagement is determined by pelvic examination. It occurs two weeks before term in primigravida and several weeks before the onset of labor or not until before labor begin.

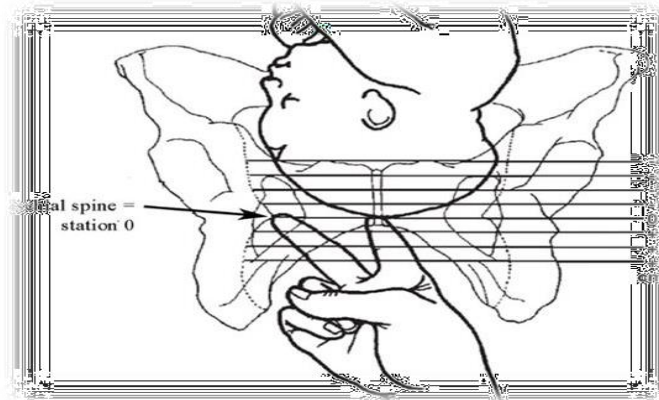
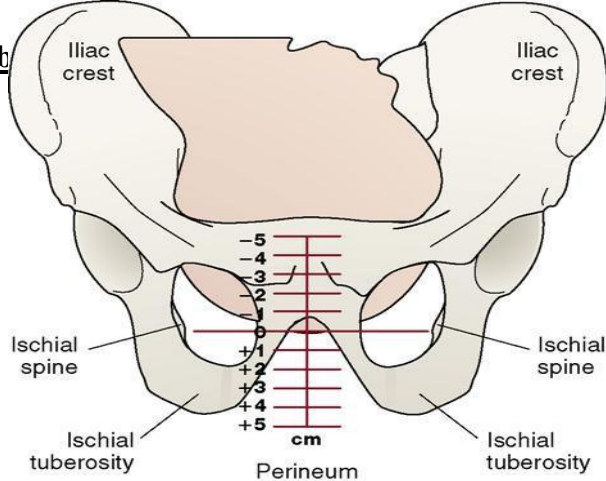
g. Station:

refers to the relationship between the fetal presenting part and pelvic landmarks. When the presenting part is at zero station, it is at the level of the ischial spines, which are the landmarks for the midpelvis. This is important in the vertex presentation because it implies that the largest dimension of the fetal head, the biparietal diameter, has passed through the smallest dimension of the pelvis, the pelvic inlet.

In 1988, the American College of Obstetricians and Gynecologists introduced a classification dividing the pelvis into 5-cm segments above and below the spines:

- If the presenting part is 1 cm above the spines, it is described as -1 station.
- If it is 2 cm below the spines, the station is +2.
- At -5 station, the presenting part is described as floating.
- At +5 station, the presenting part is on the perineum, and it may distend the vulva with a contraction and be visible to an observer.

Lab



3. Power: (Uterine contraction):

is involuntary and therefore cannot be controlled by the experiencing women. Ut. Cont. is intermittent and rhythmic with a period of relaxation. Uterine contraction has

Three phases:

Increment: building up of the contraction

Acme: peak or highest intensity

Decrement: descent or relaxation of the uterine muscle fibers

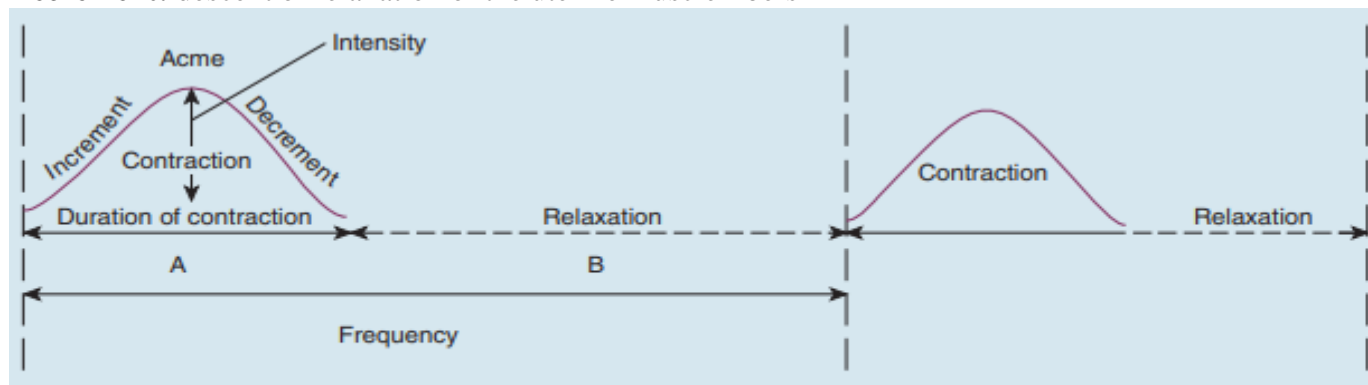


FIGURE 15.10 The interval and duration of uterine contractions. The frequency of contractions is the time from the beginning of one contraction to the beginning of the next contraction. It consists of two parts: **(A)** the duration of the contraction and **(B)** the period of relaxation. The broken line indicates an indeterminate period because the relaxation time **(B)** is usually of longer duration than the actual contraction **(A)**.

Assessment of contractions:

Palpation: Use the fingertips to palpate the fundus of the uterus

Mild: Uterus can be indented with gentle pressure at peak of contraction

Moderate: Uterus can be indented with firm pressure at peak of contraction (feels like chin)

Strong: Uterus feels firm and cannot be indented during peak of contraction

Parameters of uterine contraction

- Interval**
 - 10 to 20 minutes between contractions: early labor
 - 3 to 5 minutes between contractions: late labor
- Duration**
 - 20-second-long contraction: early labor
 - 40- to 80-second-long contraction: late labor
- Quality**
 - Uterus can be dented (poor quality): early labor
 - Uterus is hard (good quality): late labor

4. Position

Changing positions and moving around during birth offer several benefits, it facilitates fetal descend and rotation

- **Squatting position** enlarges the pelvic outlet by approximately 25%.
- **The use of upright or lateral position compared with supine or lithotomy positions may:**
 - Reduce the duration of the second stage of labor
 - Reduce the number of assisted deliveries (vacuum and forceps)
 - Reduce episiotomies and perineal tear
 - Contribute to fewer abnormal fetal heart
 - Increase comfort/ reduce request for pain medication
 - Enhance a sense of control reported by mothers
 - Reduce the length of labor

5. Psychological responses

- The birth experience influences the woman's self-confidence, self-esteem, and her view of life, her relationships, and her children. Factors influencing a positive birth experience include:
 - Clear information on procedure
 - Positive support, not being alone
 - Self-confidence
 - Trust in staff caring for her
 - Positive reaction to the pregnancy
 - Personal control over breathing
 - Preparation for childbirth experience

Danger signs of labor**Fetal danger signs:**

- High or low fetal heart rate
- Meconium staining
- Hyperactivity
- Fetal acidosis

Maternal danger signs:

- Rising or falling blood pressure
- Abnormal pulse
- Inadequate or prolonged contractions
- Pathological retraction ring
- Abnormal lower abdominal contour
- Increasing apprehension

Maternal and fetal responses to labor (Physiological responses)**Maternal physiologic responses include:**

- Heart rate increases by 10 to 20 bpm.
- Cardiac output increases by 12% to 31% during the first stage of labor and by 50% during the second stage of labor.
- Blood pressure increases by up to 35 mm Hg during uterine contractions in all labor stages.
- The white blood cell count increases to 25,000 to 30,000 cells/mm³, perhaps because of tissue trauma.
- Respiratory rate increases, and more oxygen is consumed related to the increase in

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metabolism.

- Gastric motility and food absorption decrease, which may increase the risk of nausea and vomiting during the transition stage of labor.
- Gastric emptying and gastric pH decrease, increasing the risk of vomiting with aspiration.
- Temperature rises slightly, possibly due to an increase in muscle activity.
- Muscular aches/cramps occur because of the stressed musculoskeletal system.
- Basal metabolic rate increases, and blood glucose levels decrease because of the stress of labor

Fetal responses to labor include:

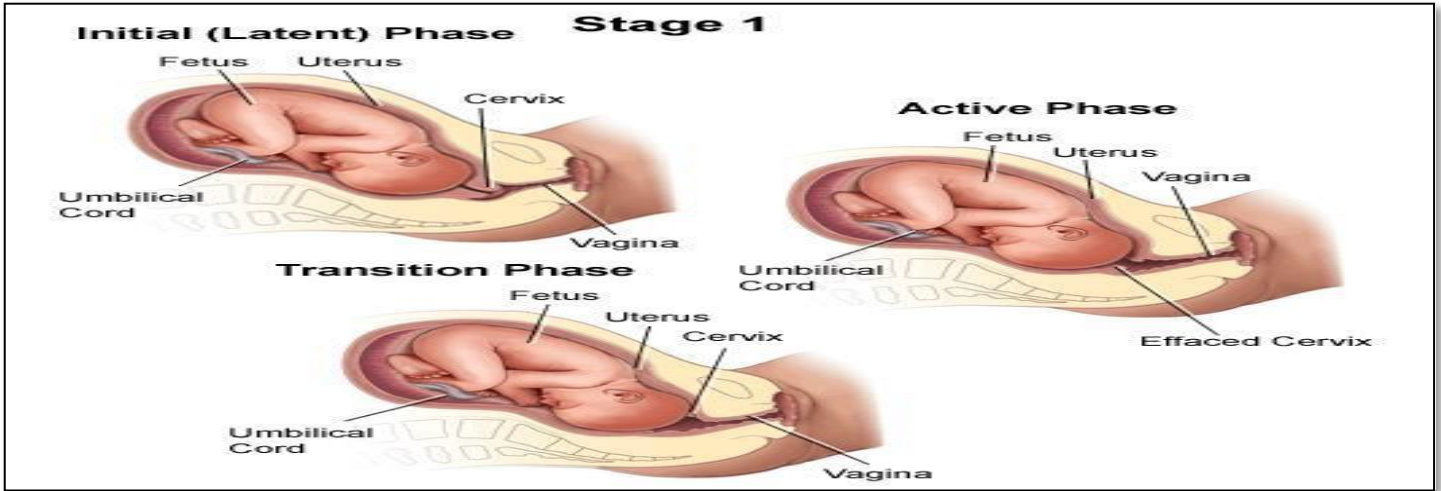
- Periodic fetal heart rate accelerations and slight decelerations related to fetal movement, fundal pressure, and uterine contractions
- Decrease in circulation and perfusion to the fetus secondary to uterine contractions (a healthy fetus can compensate for this drop)
- Increase in arterial carbon dioxide pressure (PCO₂)
- Decrease in fetal breathing movements throughout labor
- Decrease in fetal oxygen pressure with a decrease in the partial pressure of oxygen (PO₂)

The labor is divided in to (4) stages. These stages include the following:

1. First stage of labor

Begins with initiation of rhythmic true uterine contractions and ends with complete dilatation of cervix (10 cm). It is divided into three phases as illustrated in table below:

Phases Characteristics	latent phase	Active phase	Transition phase
Cervical dilation	0-3cm	4-7 cm	8-10 cm
Cervical effacement	from 0% to 40%	from 40% to 80%	from 80% to 100%
Contraction frequency	every 5–10 minute	every 2–5 minute	every 1–2 minute
Contraction duration	30–45 seconds	45–60 seconds	60-90 seconds
Contraction intensity	mild and short	moderate to palpation	strong by palpation
Lasting	9 hours in nullipara 5–6 hours in multipara	6 hours in nullipara 4 hours in multipara	1 hours in nullipara 30 minutes in multipara



2. **Second stage of labor (delivery of the baby)** (From complete dilation (10 cm) to birth of the newborn) **may last up to (2) hours in nullipara and (1) hours or less in multipara.** This stage is consisting of two phases as show in table below.

Phases of Second Stage of Labor

Phases	Pelvic phase (a period of fetal descent)	Perineal phase (a period of active pushing)
Lasting	Nullipara lasts up to 1 hour	multipara, lasts up to 30 minute
Contraction frequency	every 2–3 minute or less	
Contraction duration	60–90 second	
Contraction intensity	strong by palpation	

3. Third stage of labor (delivery of the placenta)

Is separation and delivery of the placenta; usually takes (5–10) minutes and may take up to (30) minute.

It consists of two phases:

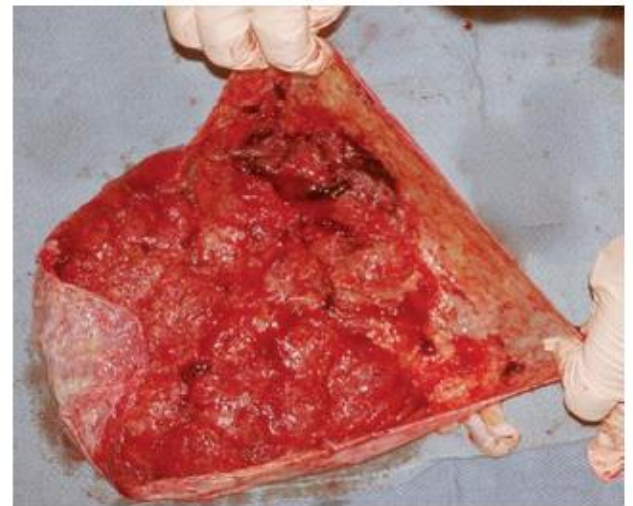
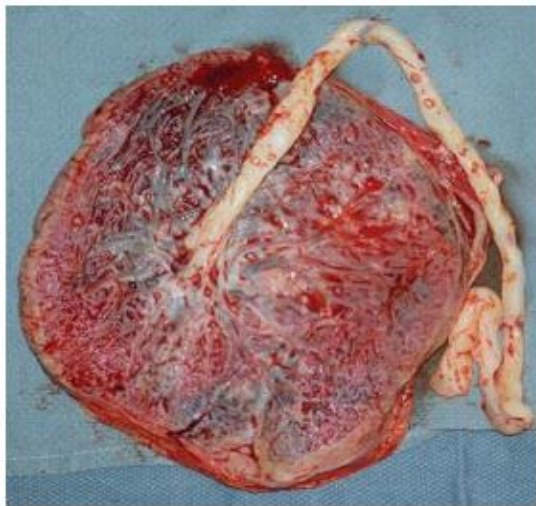
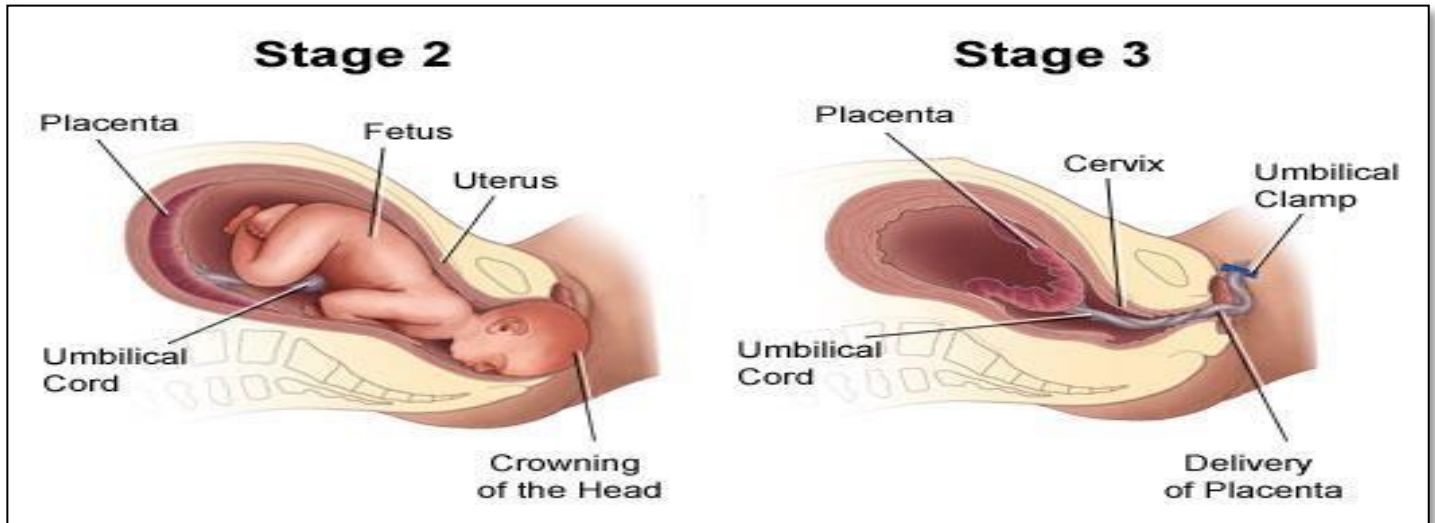
A. **Placental separation** (it means detaching from uterine wall) **The signs of separation include:**

- i. The uterus rises upward and become globular
- ii. The umbilical cord lengthens.
- iii. A sudden trickle of blood from the vaginal opening.

Spontaneous delivery of the placenta occurs in one of two ways:

- ∞ Schultz’s mechanism when fetal side (shiny gray side) presenting first or called shiny Schultz’s.
- ∞ Duncan’s mechanism when the maternal side (red raw side) presenting first or called dirty Duncan.

B. **Placental Expulsion** means coming outside the vaginal opening within 2 to 30 minutes. Normal blood loss is approximately 500 ml for a vaginal birth



Signs indicate that the placenta has loosened and is ready to deliver:

- Lengthening of the umbilical cord
- Sudden gush تدفق of vaginal blood
- Change in the shape of the uterus
- Firm contraction of the uterus
- Appearance of the placenta at the vaginal opening

4. **Forth stage of labor** (From 1–4 hours after the birth of the newborn; time of maternal physiologic adjustment). **At this stage the mother usually experiences the following:**
- a. The woman begins attachment process with inspecting her newborn and desiring to cuddle and breast-feed him or her.
 - b. Usually, the mother is thirsty and hungry during this time and may request for food and drink.
 - c. The woman will be feeling cramp-like discomfort during this time due to uterine contraction

Mechanism of labor

In vaginal birth the fetus must adapt to the birth canal during the descent. The turns and other adjustments necessary in the human birth process are termed the mechanism of labor which include **seven cardinal movements that occur in a vertex presentation**, and they are describe below

1. Engagement

Occurs when the biparietal diameter of the fetus's head passes through the pelvic inlet (usually 0 stations).

عندما يمر الجزء الأوسع من رأس الجنين اسفل مدخل حوض الأم

2. Descent

Is the downward movement of the fetal head through the pelvic inlet.

3. Flexion

Occurs when the head is flexes so the chin is brought into contact with the fetal thorax and the presenting diameter is changed from.

4. Internal Rotation

The head rotates about 45 degrees anteriorly to the midline under the symphysis.

5. Extension.

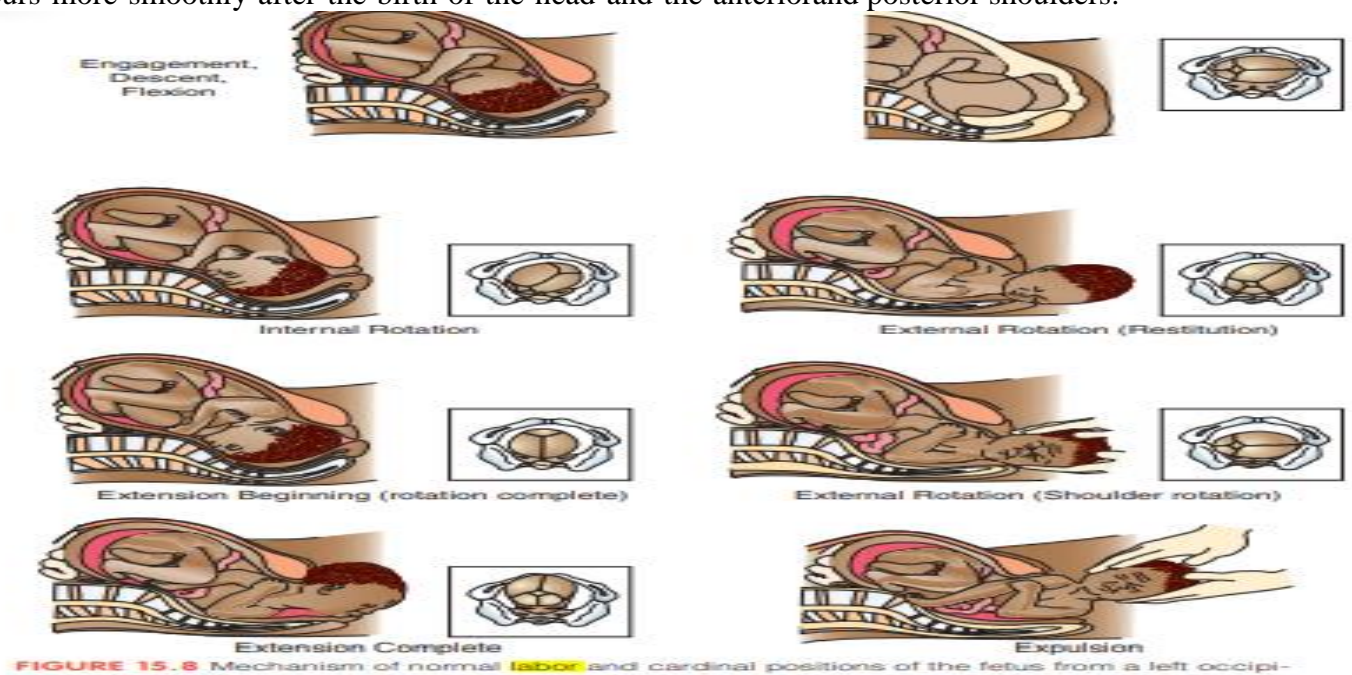
The head emerges through extension under the symphysis pubis along with the shoulders.

6. External rotation.

External rotation of the fetal head allows the shoulders to rotate internally to fit the maternal pelvis.

7. Expulsion

Occurs more smoothly after the birth of the head and the anterior and posterior shoulders.



Nursing Management during labor

Nursing care for pregnant women in [labor](#) is one active way of reducing maternal mortality and ensuring universal access to reproductive health services. This role includes the following:

. In First stage of labor

Latent phase	Active phase	Transition phase
<ul style="list-style-type: none"> ■ Admit to the labor unit ■ Review prenatal record for estimated date of delivery (EDD) and prior obstetrical history (pregnancy, births, abortions and living children) review allergies; medications; trends in vital signs and weight gain, chronic conditions or pregnancy-related complications; and biochemical and infectious disease laboratory test results. ■ Teach and reinforce relaxation and breathing techniques. ■ Obtain laboratory tests ■ Start IV or insert saline lock. ■ Review the woman's report of onset of labor. ■ Assess and record the following:- <ul style="list-style-type: none"> ■ Maternal vital signs ■ FHR ■ Uterine contractions ■ Cervical dilation and effacement; 	<ul style="list-style-type: none"> ■ Monitor FHR and contractions every 15 to 30 minutes. ■ Monitor maternal vital signs every 2 hours; every 1 hour if ROM. ■ Perform intrapartal vaginal exam as needed to assess cervical changes and fetal descent. ■ Assess pain (location and degree). ■ Administer analgesia as per orders and desire of woman. ■ Evaluate effectiveness of epidural or other pain medication. ■ Monitor intake and output (I&O), hydration status, and for nausea and vomiting. ■ Encourage intake of fluids and ice chips. ■ Promote comfort measures 	<ul style="list-style-type: none"> ■ Assess FHR and UCs every 15 minutes. ■ Encourage woman to breathe during contractions and rest between contractions by staying with patient and breathing with her . ■ Assess I&O and for bladder distention. ■ Assist the woman with voiding. ■ Promote comfort measures ■ Providing perineal care. ■ Assist with breathing and relaxation methods by demonstrating breathing through demonstration and reinforcement. ■ Use brief explanations, as the woman's focus is narrowed. ■ Remain in the room with the woman and family.
<p>and fetal presentation, position, and station by performing a sterile vaginal examination</p> <ul style="list-style-type: none"> ■ Status of membranes ■ Amniotic fluid for color, amount, consistency, and odor ■ Vaginal bleeding or bloody show for amount and characteristics of vaginal discharge ■ Fetal position with Leopold maneuver ■ Encourage fluid intake; food may or may not be restricted. ■ Encourage the woman to walk as much as possible ■ Provide clear explanations and updates on progress. 	<ul style="list-style-type: none"> ■ Assist with elimination needs as bladder distension can hinder fetal descent. ■ Encourage breathing and relaxation methods. ■ Incorporate the support person in care 	<ul style="list-style-type: none"> ■ Provide encouragement and reassurance to the woman and her support person(s).

• In Second stage of labor

1. Determining the progress of labor the associated signs include
 - Bulging of the perineum
 - Labial separation
 - Crowning (fetal head is visible at vaginal opening).
2. Focus on motivating the woman, by encouraging her to put all her efforts to pushing the newborn to the outside world, and giving her feedback on her progress.
3. Providing continuous comfort measures such as mouth care, encouraging change position, changing bed linen and under pads, and providing a quiet, focused environment.
4. Instructing the woman to pushing only when she feels an urge to do so
5. Relaxing and conserving energy between contractions
6. Continuing to monitor maternal vital signs every 5 to 15 minutes, uterine contraction, and FHR patterns to identify problems
7. Continuing to provide psychosocial support
8. Providing some pain management methods
9. Explaining all procedures and equipment to the client

10. Setting up delivery instruments needed while maintaining sterility
12. Receiving newborn and transporting him or her to a warming environment, or covering the newborn with a warmed blanket on the woman's abdomen
13. assigning an Apgar score at 1 and 5 minutes.
14. Secure two identification bands on the newborn's wrist and ankle that match the band on the mother's wrist to ensure the newborn's identity.

1. In Third stage of labor by

1. Monitoring placental separation by looking for the following signs:
 - Firmly contracting uterus (globular)
 - Sudden gush of dark blood from vaginal opening
 - Lengthening of umbilical cord protruding from vagina
2. Instructing the woman to push when signs of separation are apparent
3. Administering an oxytocic agent if ordered and indicated after placental expulsion
4. Examining placenta and fetal membranes for intactness
5. Assessing for any perineal trauma
6. Inspecting the perineum for condition of episiotomy, if performed
7. Providing support and information about episiotomy and/or laceration
8. Cleaning and assisting client into a comfortable position after birth.
9. Providing warmth by replacing warmed blankets over the woman
10. Monitoring maternal physical status by assessing
 - Vaginal bleeding: amount, and consistency
 - Vital signs every 15 minutes
 - Uterine fundus, which should be firm, in the midline, and at the level of the umbilicus

In Fourth stage of labor

1. Assessments:
 - woman's vital signs by taken every 15 minutes, then every 30 minutes for the next hour and documenting them
 - fundal height, position, and firmness.
 - perineum, including the episiotomy if present, for possible hematoma formation.
 - vaginal discharge (lochia) every 15 minutes for the first hour and every 30 minutes for the next hour.
2. Explaining hygiene measures and perineal care
3. Offering fluids and nourishment if desired
4. Encouraging parent–infant attachment by providing privacy for the family
5. Assisting with ambulation when getting out of bed for the first time

Maternal and Fetal assessment during Labor and Delivery

- ♣ Maternal assessment to labor: During labor and birth, various techniques are used to assess maternal status. These techniques provide an ongoing source of data to determine the woman's response and her progress in labor.
1. Assess maternal vital signs, including temperature, blood pressure, pulse, respiration, and pain, which are primary components of the physical examination and ongoing assessment.
 2. Also review the prenatal record to identify risk factors that may contribute to a decrease in uteroplacental circulation during labor.
 3. Vaginal examination is performed (If there is no vaginal bleeding on admission), to assess:
 - ♣ cervical dilation and effacement to identify progress.
 - ♣ Rupture of membranes (if intact, the membranes will be felt as a soft bulge that is more prominent during a contraction. If the membranes have ruptured, the woman may have reported a sudden gush of fluid.)
 4. Assessing uterine contractions are monitored by palpation and by electronic monitoring includes frequency, duration, intensity.
 5. Evaluate maternal pain and the effectiveness of pain management strategies at regular intervals during labor and birth.

- ♣ Fetal assessment to labor: A fetal assessment identifies well-being or signs that indicate compromise.
- 1. Analysis of the Fetal Heart Rate (FHR): is one of the primary evaluation tools can be done intermittently using a fetoscope (a modified stethoscope attached to a headpiece) or a Doppler (ultrasound) device, or continuously with an **electronic fetal monitor applied externally or internally**.
- 2. Performing Leopold's maneuvers