Al-Mustaqbal University
Nursing College

Prenatal Care and Adaptations to Pregnancy

Prof.Saadya Hadi Humade

KEY TERMS:

abortion
antepartum
aortocaval compression (a-ŏr-tō-KĀ-văl kŏm-PRĔSH-ŭn,
birth plan
Braxton Hicks contractions
Chadwick's sign
chloasma
colostrum (kŏ-LŎS-trŭm,)
estimated date of delivery (EDD)
gestational age
Goodell's sign
gravida (GRĂV-ĭ-dă,)
Hegar's sign
intrapartum
lactation (lăk-TĀ-shŭn,)

last normal menstrual period (LNMP)
lightening
McDonald’s sign
Multipara (mŭl-TĬP-ă-ră,)
Nägele’s rule (NĀ-gĕ-lēz rūl,)
para (PĂR-ă,)
 postpartum)
primigravida (prĭ-mĭ-GRĂV-ĭ-dă,)
 primipara (prĭ-MĬP-ă-ră,)
pseudoanemia (sū-dō-ă-NĒ-mē-ă,)
 quickening
supine hypotension syndrome
 trimesters .)

Goals of prenatal care Prenatal care:

The nurse assists the health care provider in evaluating the expectant family's physical, psychological, and social needs and teaches the woman self-care.

The major goals of prenatal care are as follows:

• Promote the health of the mother, fetus, newborn, and family.

• Ensure a safe birth for mother and child by promoting good health habits and reducing risk factors.

• Teach health habits that may be continued after pregnancy.

• Educate in self-care for pregnancy.

• Develop a partnership with parents and family to provide continuous and coordinated health care.

• Provide physical care.

• Prepare parents for the responsibilities of parenthood.

The major roles of the nurse during prenatal care include:

1. collecting data from the pregnant woman,
2. identifying and reevaluating risk factors, educating in self-care,
3. providing nutrition counseling, and
4. promoting the family's adaptation to pregnancy.

Preconception care :

Optimal obstetric care includes the following:

- **Preconception care**: Includes

preparation for the impact the newborn will have on family dynamics and preparation and follow-up of the preconception interview.

- **Prenatal care**: Involves the monitoring, care, and management of issues arising during pregnancy.
- **Intrapartum care**:

Involves the continuous presence and support of the parents by a labor and delivery nurse or doula during the birth process.

- **Postpartum care**:

- Involves supporting the adjustment after birth including encouragement to breast feed, skin-to-skin contact, and bonding while reducing separations and interruptions.
- Early discharge to a busy household can interfere in mother–infant bonding in early postpartum days.
- Follow-up care of mother and infant is important.

- **Prenatal visits** Ideally health care for childbearing begins before conception.
- **Preconception care identifies risk factors that may be changed before conception to reduce their negative impact on the outcome of pregnancy.**
- **For example, the woman may be counseled about how to improve her nutritional state before pregnancy or may receive immunizations to prevent infections that would be harmful to the developing fetus.**
- **An adequate folic acid intake before conception can reduce the incidence of congenital anomalies .**
- Some risk factors cannot be eliminated, such as preexisting diabetes, but preconception care helps the woman to begin pregnancy in the best possible state of health.
- **Prenatal care should begin, if not before conception, as soon as a woman suspects that she is pregnant.**
- A complete history and physical examination will help identify problems that may affect the woman or her fetus.

The history should include the following:

• **Obstetric history**:

Number and outcomes of past pregnancies; problems in the mother or infant

• **Menstrual history**:

Usual frequency of menstrual cycles and duration of flow; first day of the last normal menstrual period (LNMP); any "spotting" since LNMP

• **Contraceptive history**:

Type used; whether an oral contraceptive was taken before the woman realized she might be pregnant; whether an intrauterine device is still in place

• **Medical and surgical history**:

Infections such as hepatitis or pyelonephritis; surgical procedures; trauma that involved the pelvis or reproductive organs

• **Family history of the woman and her partner:**

To identify genetic or other factors that may pose a risk for the pregnancy

• **Health history of the woman and her partner**:

To identify risk factors (e.g., genetic defects or use of alcohol, drugs, or tobacco) and possible blood incompatibility between the mother and the fetus

• **Psychosocial history of the woman and her partner**:

To identify stability of lifestyle and ability to parent a child; significant cultural practices or health beliefs that may affect the pregnancy

- The woman has a complete physical examination on her first visit to evaluate her general health, determine her baseline weight and vital signs, evaluate her nutritional status, and identify current physical or social problems.
- A pelvic examination is performed to evaluate the size, adequacy, and condition of the pelvis and reproductive organs and to assess for signs of pregnancy .

- **The woman's estimated date of delivery (EDD) is calculated based on LNMP.**
- **An ultrasound examination may be done at this visit or at a later visit to confirm EDD.**
- An assessment for risk factors that may affect the pregnancy is performed during the first visit and is updated at subsequent visits.
- **The recommended schedule for prenatal visits in an uncomplicated pregnancy is as follows:**
- **Conception to 28 weeks—every 4 weeks**
- **29 to 36 weeks—every 2 to 3 weeks**
- **37 weeks to birth—weekly**

The pregnant woman is seen more often if complications arise. Routine assessments made at each prenatal visit include the following:

1- • **Review of known risk factors** and assessment for new ones.

2-• **Vital signs:** The woman's blood pressure should be taken in the same arm and in the same position (horizontal and at heart level) each time for accurate comparison with her baseline value.

3-• Weight to determine if the pattern of gain is normal:

1. **Low prepregnancy weight or inadequate gains are risk factors for preterm birth, a low-birth-weight infant, and other problems.**
2. **A sudden, rapid weight gain is often associated with gestational hypertension.**

4-• Urinalysis for protein, glucose, and ketone levels.

5-• **Blood glucose screening between 24 and 28 weeks gestation**: Additional testing is done if the result of this screening test is abnormal.

6-• **Hematocrit, group B streptococcus, and sexually transmitted infection testing may also be performed at 36 weeks gestation.**

7-• **Fundal height to determine if the fetus** is growing as expected and the volume of amniotic fluid is appropriate .

• **Leopold's maneuvers to assess the presentation** and position of the fetus by abdominal palpation (usually at about 36 weeks gestation).

8- • **Fetal heart rate: During very early** pregnancy, the fetal heart rate is measured with a Doppler transducer; in later pregnancy, it may also be heard with a fetoscope.

Beating of the fetal heart can be seen on ultrasound examination 8 weeks after LNMP.

• **Fetal activity ("kick count")** assessment may be done at 28 weeks and repeated as needed .

9-• **Review of nutrition for adequacy** of calorie intake and specific nutrients.

10• **Discomforts or problems that have arisen since the last visit.**

Definition of terms

The following terms are used to describe a woman's obstetric history:

• **Gravida: Any** pregnancy, regardless of duration; also, the number of pregnancies including the one in progress.

• **Nulligravida: A woman who has never been pregnant.**

• **Primigravida: A woman who is pregnant for the first time.**

• **Multigravida: A** woman who has been pregnant before, regardless of the duration of the pregnancy.

• **Para: A woman who has given birth to one or more children who reached the age of viability (20 weeks gestation), regardless of the number of** fetuses delivered and regardless of whether those children are now living.

• **Primipara:** A woman who has given birth to her first child (past the point of viability), regardless of whether the child was alive at birth or is now living.

The term is also used informally to describe a woman before the birth of her first child.

• **Multipara:** A woman who has given birth to two or more children (past the point of viability), regardless of whether the children were alive at birth or are presently alive. The term is also used informally to describe a woman before the birth of her second child.
• **Nullipara**: A woman who has not given birth to a child who reached the point of viability.
• **Abortion:** Termination of pregnancy before viability (20 weeks gestation), either spontaneous or induced.
• **Gestational age:** Prenatal age of the developing fetus calculated from the first day of the woman's LNMP.
• **Fertilization age**: Prenatal age of the developing fetus as calculated from the date of conception; approximately 2 weeks less than the gestational age.
• **Age of viability:** A fetus that has reached the stage (usually at 20 weeks) where it is capable of living outside of the uterus.

- **The word gravida indicates** the number of pregnancies.
- **The word para indicates** the outcome of the pregnancies.
- **The gravida number increases by 1 each time a woman is pregnant, whereas the para number increases only when a woman delivers a fetus of at least 20 weeks gestation.**
- **For example, a woman who has had two spontaneous abortions (miscarriages) at 12 weeks gestation, has a 3-year-old son, and is now 32 weeks pregnant would be described as gravida 4, para 1, abortions 2.**

T Number of *term* infants born (infants born after at least 37 weeks gestation)
P Number of *preterm* infants born (infants born after 20 weeks or before 37 weeks gestation
A Number of pregnancies *aborted* before 20 weeks gestation (spontaneously or induced)
L Number of children now *living*
M *Multiple* birth number of multiple gestations (optional)

Example

Name	Gravida	Term	Preterm	Abortions	Living	Multiple
Katie Field	3	1	0	1	1	0
Anna Luz	4	1	1	1	2	0

Katie Field: Gravida 3, TPALM (para) 10110.
Anna Luz: Gravida 4, TPALM (para) 11120.

Determining the estimated date of delivery :

- The average duration of a term pregnancy is 40 weeks (280 days) after the first day of the LNMP.
- **Nägele's rule is used to determine EDD.**
- **To calculate EDD, one identifies the first day of LNMP, counts backward 3 months, and then adds 7 days .**
- The year is updated if applicable.
- EDD is an estimated date, and many normal births occur before or after this date.
- EDD may also be determined with a gestation wheel, an electronic calculator designed for this purpose,
- a physical examination,
- an ultrasound, or a combination of these methods.

Methods to estimate the due date include:

- The LMNP plus 280 days
- Using Nägele's rule
- If the LMNP is unknown, or the abdominal ultrasound in the first trimester differs from Nägele's calculation by more than 5 days, a crown-rump length on ultrasound can be used to determine EDD.

An abdominal ultrasound after 14 weeks gestation can use the biparietal diameter, head circumference, abdominal circumference, and femur length to confirm EDD .

Pregnancy is divided into three 13-week parts called trimesters. Predictable changes occur in the woman and the fetus in each trimester.

Diagnosis of pregnancy

The signs of pregnancy are divided into three general groups:

presumptive, probable, and positive,

Signs of Pregnancy Presumptive

1. Amenorrhea
2. Nausea
3. Breast tenderness
4. Deepening pigmentation
5. Urinary frequency
6. Quickening

Probable

1. Goodell's sign
2. Chadwick's sign
3. Hegar's sign
4. McDonald's sign
5. Abdominal enlargement
6. Braxton Hicks contractions
7. Ballottement
8. Striae

Positive

1. pregnancy test
2. Positive Audible fetal heartbeat
3. Fetal movement felt by examiner
4. Ultrasound visualization of fetus

Presumptive Signs of Pregnancy

- The presumptive indications of pregnancy are those from which a definite diagnosis of pregnancy cannot be made.
- These signs and symptoms are common during pregnancy but can often be caused by other conditions.
- **Amenorrhea**, the cessation of menses, in a healthy and sexually active woman is often the first sign of pregnancy.
- However, strenuous exercise, changes in metabolism and endocrine dysfunction, chronic disease, certain medications, anorexia nervosa, early menopause, or serious psychological disturbances may also be the cause.
- **Nausea and sometimes vomiting** occur in at least half of all pregnancies; it may be the result of an increase of human chorionic gonadotropin (hCG) levels in early pregnancy and is not associated with unfavorable outcomes for mother or infant **.“Morning sickness**” describes the symptoms, but they may occur at any time of day.
- Distaste for certain foods or even their odors may be the main complaint.
- **The nausea begins about 4 weeks after the LNMP and usually improves by the end of the 20th week.**

- **prenatal visits**, the nurse can offer interventions and supportive care that can increase the quality of the pregnancy experience.
- Emotional problems or gastrointestinal upsets may also cause nausea and vomiting.
- When diet and lifestyle changes do not relieve morning sickness, Diclegis (doxylamine and pyridoxine) may be prescribed by the health care provider.
- Breast changes include tenderness and tingling as hormones from the placenta stimulate growth of the ductal system in preparation for breastfeeding.
- Similar breast changes also occur premenstrual in many women.
- Striae are pink-to-brown lines that may develop as the breasts enlarge

FIG. 4.1 Striae and pigmentation of breasts. Note the darkened pigmentation of areolae and the pink-white lines at the base of the breasts that are caused by stretching of the elastic tissue as the breasts enlarge. Pigmentation will disappear after pregnancy, and striae will fade into silvery strands. (From

Pigmentation changes occur primarily in dark-skinned women. Common skin changes of pregnancy include **increased pigmentation of the face (chloasma, or "mask of pregnancy"),**
breasts (darkening of the areolae), and abdomen (linea nigra, a line extending in the midline of the abdomen from just above the umbilicus to the symphysis pubis) .

Frequency and urgency of urination are common in the early months of pregnancy.

- The enlarging uterus, along with the increased blood supply to the pelvic area, exerts pressure on the bladder.
- Urinary frequency occurs in the first trimester until the uterus expands and becomes an abdominal organ in the second trimester.
- The pregnant woman experiences frequency of urination again in the third trimester when the presenting part descends in the pelvis in preparation for birth.
- Causes of urinary disturbances other than pregnancy are urinary tract infections and pelvic masses.
- Fatigue and drowsiness are early symptoms of pregnancy.
- It is believed that fatigue is caused by increased metabolic needs of the woman and fetus.
- However, illness, stress, or sudden changes in lifestyle may also cause fatigue.
-

Quickening, fetal movement felt by the mother, is first perceived at 16 to 20 weeks of gestation as a faint fluttering in the lower abdomen.

Women who have previously given birth often report quickening at an earlier stage because they know how to identify it.

Abdominal gas,

normal bowel activity,

Probable signs of pregnancy

- The probable indications of pregnancy provide stronger evidence of pregnancy.
- **Goodell's sign is the softening of the cervix and the vagina** caused by increased vascular congestion.
- **Chadwick's sign is the purplish or bluish discoloration of the cervix, vagina, and vulva** caused by increased vascular congestion.
- Hormonal imbalance or infection may also **cause both Goodell's and Chadwick's signs.**
- **Hegar's sign is a softening of the lower uterine segment**.
- Because of the softening,
- **it is easy to flex the body of the uterus against the cervix, which is known as McDonald's sign.**
- Abdominal and uterine enlargement occurs irregularly at the onset of pregnancy.
- **By the end of the 12th week, the uterine fundus may be felt just above the symphysis pubis, and it extends to the umbilicus between 20 and 22 weeks .**
- **Uterine or abdominal tumors may also cause enlargement**.

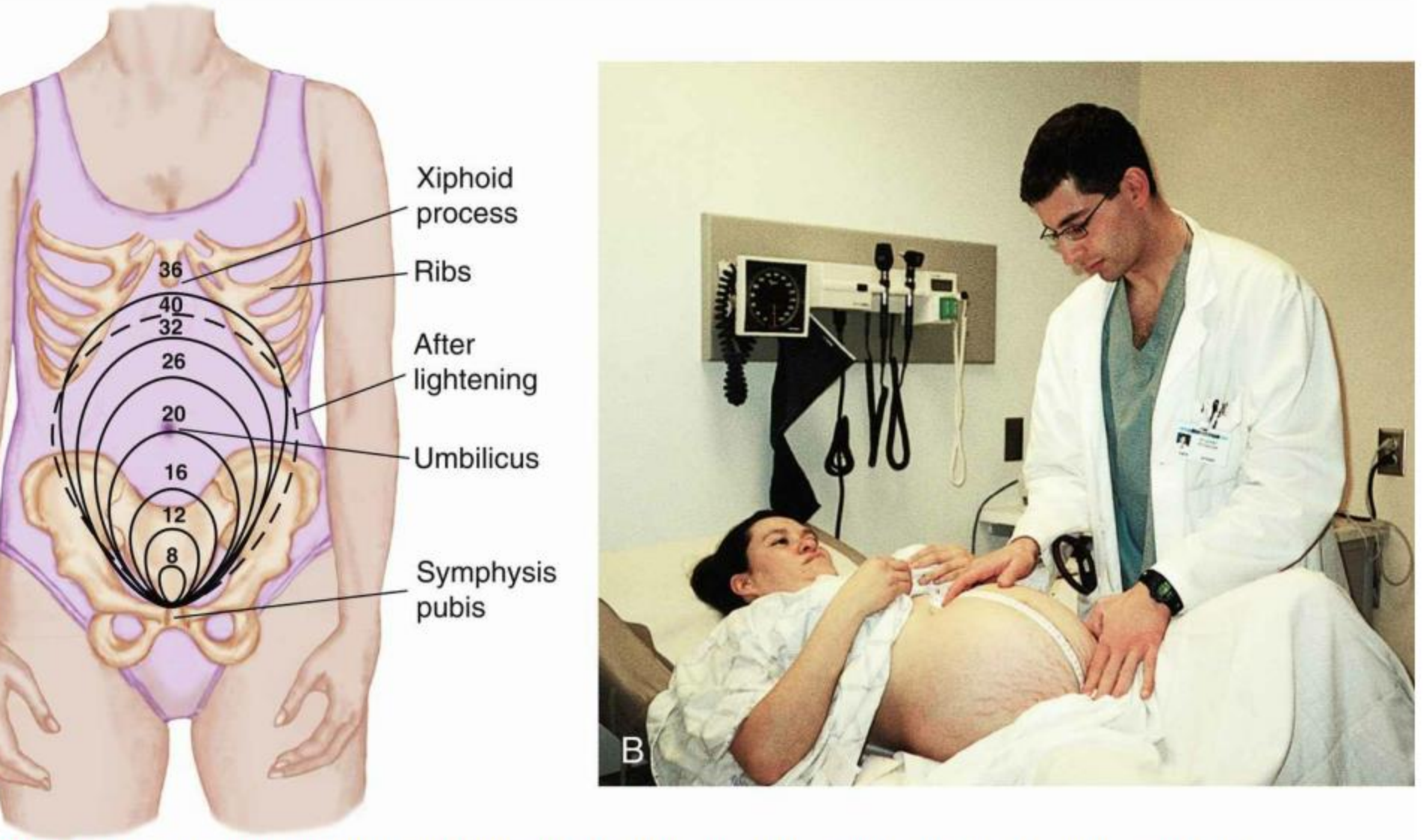


FIG. 4.3 Height of fundus during gestation. (A) The numbers represent the weeks of gestation, and the circles represent the height of the fundus expected at that stage of gestation. Note: The 40th week is represented by a dotted line to indicate lightening has occurred. (B) A health care provider measures the height of the fundus during a clinic visit. (A from Murray SS, McKinney ES, Gorrie TM: *Foundations of maternal-newborn nursing,* ed 2, Philadelphia, 1998, Saunders. B courtesy Pat Spier, RN-C.)

- **Braxton Hicks contractions:**
- **are irregular, painless uterine contractions that begin in the second trimester.**
- These contractions give the sensation of the abdomen being hard and tense.
- They become progressively more noticeable as term approaches and are more pronounced in multiparas.
- They may become strong enough to be mistaken for true labor.
- **Uterine fibroids (benign tumors) may also cause these contractions.**
- **Ballottement is a maneuver by which the fetal part** is displaced by a light tap of the examining finger on the cervix, and then the part rebounds quickly.
- **Uterine or cervical polyps (small tumors) may cause the sensation of ballottement on the examiner's finger**.
- **Fetal outline** may be identified by palpation after the 24th week.
- It is possible to mistake a tumor for a fetus.

Abdominal striae:

(stretch marks) are fine, pinkish white or purplish gray lines that some women develop when the elastic tissue of the skin has been stretched to its capacity .

Increased amounts of estrogen cause an increase in adrenal gland activity.

This change to the stretching, is believed to cause breakdown and atrophy of the underlying connective tissue in the skin.

Striae are seen on the breasts, thighs, abdomen, and buttocks.

After pregnancy, the striae lose their bright color, and they become thin, silvery lines.

Striae may occur with skin stretching from any cause, such as weight gain.

Pregnancy tests :

use maternal urine or blood to determine the presence of hCG, a hormone produced by the chorionic villi of the placenta.

Home pregnancy tests based on the presence of hCG in the urine are capable of greater than 97% accuracy

Professional pregnancy tests are based on urine or blood serum levels of hCG, and they are more accurate.

Pregnancy tests of all types are probable indicators because several factors may interfere with their accuracy, including medications such as antianxiety or anticonvulsant drugs, blood in the urine, malignant tumors, or premature menopause.

Positive signs of pregnancy:

1. Only a developing fetus causes positive signs of pregnancy.
2. **These include demonstration of fetal heart activity,**
3. **fetal movements felt by an examiner,**
4. **and visualization of the fetus with ultrasound.**

Fetal heartbeat may be detected by 10 weeks gestation by using a Doppler device.

The examiner can detect the fetal heartbeat using a fetoscope between 18 and 20 weeks of pregnancy.

When the fetal heartbeat is heard with a fetoscope, this is important because it provides another marker of the approximate midpoint of gestation.

When assessing the fetal heartbeat with a Doppler device or fetoscope, the woman's pulse rate must be assessed at the same time to be certain that the fetal heart is what is actually heard.

The fetal heart rate at term ranges between a low of 110 to 120 beats/min and a high of 150 to 160 beats/min.

The rate is higher in early gestation and slows as term approaches

- Additional sounds that may be heard while assessing the fetal heartbeat are the uterine souffles.
- Uterine soufflé le is a soft blowing sound heard over the uterus during auscultation.
- The sound is synchronous with the mother’s pulse and is caused by blood entering the dilated arteries of the uterus.
- The phonic soufflé is a soft swishing sound heard as the blood passes through the umbilical cord vessels.
- Fetal movements can be seen with ultrasound.
- Identification of the embryo or fetus by means of ultrasound photography of the gestational sac is possible at 4 to 5 weeks gestation with 100% reliability.
- This noninvasive method is the earliest positive sign of a pregnancy.
- An ultrasound is often routinely performed around 20 weeks gestation

Physiological changes in pregnancy :

- **Endocrine system** Hormones are essential to maintain pregnancy, and the dramatic increase in hormones during pregnancy affects all body systems.
- **Most hormones are produced by the corpus luteum initially and later by the placenta.**
- The most striking change in the endocrine system during pregnancy is the **addition of the placenta as a temporary endocrine organ that produces large amounts of estrogen and progesterone to maintain the pregnancy (as well as hCG and human placental lactogen [hPL]).**
- **hPL increases maternal insulin resistance during pregnancy**, providing the fetus with glucose needed for growth.

Table 4.2

Hormones Essential in Pregnancy

Hormone	Source and significance
Estrogen	Produced by ovaries and placenta
	Responsible for enlargement of uterus, breasts, and genitals
	Promotes fat deposit changes
	Stimulates MSH in hyperpigmentation of skin
	Promotes vascular changes
	Promotes development of striae gravidarum
	Alters sodium and water retention
Progesterone	Produced by corpus luteum and ovary and later by placenta
	Maintains endometrium for implantation
	Inhibits uterine contractility, preventing abortion
	Promotes development of secretory ducts of breasts for lactation
	Stimulates sodium secretion
	Reduces smooth muscle tone (causing constipation, heartburn, varicosities)
T_4	Influences thyroid gland size and activity and increases heart rate
	Increases basal metabolic rate 23% during pregnancy
hCG	Produced early in pregnancy by trophoblastic tissue
	Stimulates progesterone and estrogen by corpus luteum to maintain pregnancy until placenta takes over
	Used in pregnancy tests to determine pregnancy state
hPL (also called chorionic somatomammotropin)	Produced by placenta
	Affects glucose and protein metabolism
	Has a diabetogenic effect—allows increased glucose to stimulate pancreas and increase insulin level
MSH	Produced by anterior pituitary gland
	Causes pigmentation of skin to darken, resulting in brown patches on face (chloasma [melasma gravidarum]), dark line on abdomen (linea nigra), darkening of moles and freckles, and darkening of nipples and areolae
Relaxin	Produced by corpus luteum and placenta
	Remodels collagen, causing connective tissue of symphysis pubis to be more movable and cervix to soften
	Inhibits uterine activity
Prolactin	Prepares breasts for lactation
Oxytocin	Produced by posterior pituitary gland
	Stimulates uterine contraction
	Is inhibited by progesterone during pregnancy
	After birth, helps keep uterus contracted
	Stimulates milk ejection reflex during breastfeeding

hCG, Human chorionic gonadotropin; *hPL*, human placental lactogen; *MSH*, melanocyte-stimulating hormone; T_4, thyroxine.

Reproductive system :

Before pregnancy, **the uterus** is a small, muscular, pear-shaped pelvic organ that weighs about 60 g (2 oz) .The uterus expands gradually during pregnancy by increasing both the number of myometrial (muscle) cells during the first trimester and the size of individual cells during the second and third trimesters.

At term, the uterus reaches the woman's xiphoid process and weighs about 1000 g (2.2 lb).

Its capacity is about 5000 mL (5 quarts), enough to house the term fetus, placenta, and amniotic fluid.

Cervix Soon after conception:

changes in color and consistency. Chadwick's and Goodell's signs appear.

The glands of the cervical mucosa increase in number and activity.

Secretion of thick mucus leads to the formation of a mucous **plug that seals the cervical canal**.

The mucous plug prevents the ascent of vaginal organisms into the uterus.

With the beginning of cervical thinning (effacement) and opening (dilation) near the onset of labor, the plug is loosened and expelled.

Ovaries :

The ovaries do not produce ova (eggs) during pregnancy.

The corpus luteum (empty graafian follicle) remains on the ovary and produces progesterone to maintain the decidua (uterine lining) during the first 6 to 7 weeks of the pregnancy until the placenta can perform this function

Vagina

The vaginal blood supply increases, causing the bluish color of Chadwick's sign.

The vaginal mucosa thickens, and rugae (ridges) become prominent.

The connective tissue softens to prepare for distention as the child is born.

Vaginal secretions increase.

In addition, the vaginal pH becomes more acidic to protect the vagina and uterus from pathogenic microorganisms.

Breasts Hormone-induced

breast changes occur early in pregnancy.

High levels of estrogen and progesterone prepare the breasts for lactation.

The areolae of the breasts usually become deeply pigmented, and sebaceous glands in the nipples (tubercles of Montgomery) become prominent.

The tubercles secrete a substance that lubricates the nipples.

In the last few months of pregnancy, a thin yellow fluid called colostrum may be expressed from the breasts.

This "premilk" is high in protein, fat-soluble vitamins, and minerals, but it is low in calories, fat, and sugar.

Colostrum contains the mother's antibodies to diseases and is secreted for the first 2 to 3 days after birth in the breastfeeding woman.

Respiratory system

- The pregnant woman breathes more deeply, but her respiratory rate increases only slightly.
- These changes increase oxygen and carbon dioxide exchange because she moves more air in and out with each breath.
- **Oxygen consumption increases by 15% during pregnancy.**
- The expanding uterus exerts **upward pressure on her diaphragm**, causing it to rise about 4 cm (1.6 inch).
- To compensate, her rib cage flares, increasing the circumference of the chest about 6 cm (2.4 inches).
- **Dyspnea may occur until the fetus descends into the pelvis (lightening**), relieving upward pressure on the diaphragm.
- **Increased estrogen levels during pregnancy cause edema or swelling of the mucous membranes of the nose, pharynx, mouth, and trachea.**
- **The woman may have nasal stuffiness, epistaxis (nosebleeds), and changes in her voice.**
- A similar process occurs in the **ears, causing a sense of fullness or earaches.**

Cardiovascular system :

The growing uterus displaces the heart upward and to the left.

The blood volume gradually increases (hypervolemia) to about 45% greater than that of the prepregnant state by 32 to 34 weeks gestation, at which time it levels off or declines slightly.

This increase provides added blood for the following purposes:

- Exchange of nutrients, oxygen, and waste products within the placenta
- Needs of expanded maternal tissue
- Reserve for blood loss at birth

- **Cardiac output increases because more blood is pumped from the heart with each contraction**, the pulse rate increases by 10 to 15 beats/min, and the basal metabolic rate may increase 20% during pregnancy.
- **Blood pressure does not** increase with the higher blood volume because **resistance to blood flow through the vessels decreases**.
- A blood pressure of 140/90 mm Hg or a significant elevation above the woman's baseline measurement calls for attention.
- **Supine hypotension syndrome**, also called aortocaval compression or vena cava syndrome, may occur if the woman lies on her back .
- The supine position allows the heavy uterus to compress her inferior vena cava, reducing the amount of blood returned to her heart.
- **Circulation to the placenta** may also be reduced by increased pressure on the woman's aorta, **resulting in fetal hypoxia**.
- Symptoms of supine hypotension syndrome include faintness, lightheadedness, dizziness, and agitation.
- Displacing the uterus to one side by turning the patient (preferably to the left) is all that is needed to relieve the pressure.
- If the woman must remain flat for any reason, a small towel roll placed under one hip will also help **to prevent supine hypotension syndrome**.

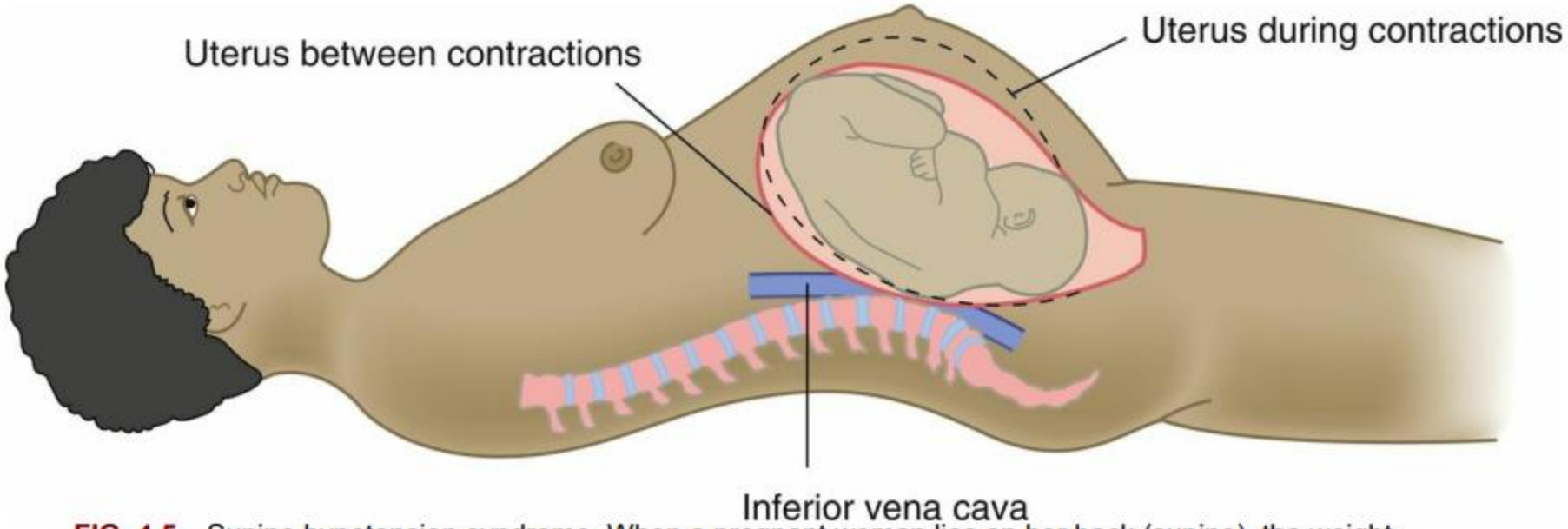


FIG. 4.5 Supine hypotension syndrome. When a pregnant woman lies on her back (supine), the weight of the uterus with its fetal contents presses on the vena cava and the abdominal aorta. Placing a wedge pillow under the woman's right hip helps to relieve compression of these vessels. (From Matteson PS: *Women's health during the childbearing years: a community-based approach*, St. Louis, 2001, Mosby.)

- **Orthostatic hypotension** may occur whenever a woman rises from a recumbent position, resulting in faintness or lightheadedness.
- Cardiac output decreases because venous return from the lower body suddenly drops.
- **Palpitations (sudden increase in heart rate)** may occur from increases in thoracic pressure, particularly if the woman moves suddenly.
- **The fluid part** of **the blood increases more than the erythrocyte component.**
- **This leads to a dilutional anemia or pseudoanemia (false anemia).**
- **As a result, the normal prepregnant hematocrit level of 36% to 48% may fall to 33% to 46%.**
- **Although this is not true anemia, the hematocrit count is reevaluated to determine patient status and needs.**
- **The white blood cell (leukocyte) count also increases about 8% (mostly neutrophils) and returns to prepregnant levels by the sixth day postpartum**

Table 4.3

Normal Blood Values in Nonpregnant and Pregnant Women

Value	Nonpregnant	Pregnant
Hemoglobin (g/dL)	12–16	11–12 (10.5 in second trimester)
Hematocrit (%)	36–48	33–46 (33 in second trimester)
Red blood cells (million/mm^3)	3.8–5.1	4.5–6.5
White blood cells (increase during labor and postpartum up to 25,000/mm^3)	5000–10,000/mm^3	5000–15,000/mm^3
Fibrinogen (mg/dL)	200–400	300–600

Data from Blackburn S: *Maternal, fetal and neonatal physiology: a clinical perspective,* ed 4, Philadelphia,

- **There are increased levels of clotting factors VII, VIII, and X and plasma fibrinogen during the second and third trimesters of pregnancy**.
- This hypercoagulability state helps prevent excessive bleeding after delivery when the placenta separates from the uterine wall.
- **these changes increase the possibility of thrombophlebitis during pregnancy and are the reason that the pregnant patient requires careful assessment for this risk and specific teaching to prevent venous stasis that can lead to thrombophlebitis.**

- **The increased interest in physical fitness has resulted in many pregnant women continuing to exercise during pregnancy.**
- **The effects of exercise on the cardiovascular** system that already has an increased blood volume, increased cardiac output, and increased coagulability during pregnancy must be reviewed before an exercise plan is implemented.
- **Venous pressure may increase in the femoral veins as the size and weight of the uterus increase, resulting in varicose veins in the legs of some women.**

- **The demands of the growing fetus increase the woman's appetite and thirst.**
- The acidity of gastric secretions is decreased; emptying of the stomach and motility (movement) of the intestines are slower.
- **Women often feel bloated and may experience constipation and hemorrhoids.**
- **Pyrosis (heartburn) is caused by the relaxation of the cardiac sphincter of the stomach, which permits reflux (backward flow) of the acid secretions into the lower esophagus**.
- **Glucose metabolism is altered because of increased insulin resistance during pregnancy.**
- This allows more glucose use by the fetus but also places the woman at risk for the development of gestational diabetes mellitus.
- Progesterone and estrogen relax the muscle tone of the gallbladder, resulting in the retention of bile salts, and this can lead to pruritus (itching of the skin) during pregnancy.
- **Urinary system The urinary system excretes waste products for both the mother and the fetus during pregnancy**

Gastrointestinal system The growing uterus displaces the stomach and intestines toward the back and sides of the abdomen .

Increased salivary secretion (ptyalism) sometimes affects taste and smell.

The mouth tissues may become tender and bleed more easily because of increased blood vessel development **caused by high estrogen levels.**

Contrary to popular belief, teeth are not affected by pregnancy.

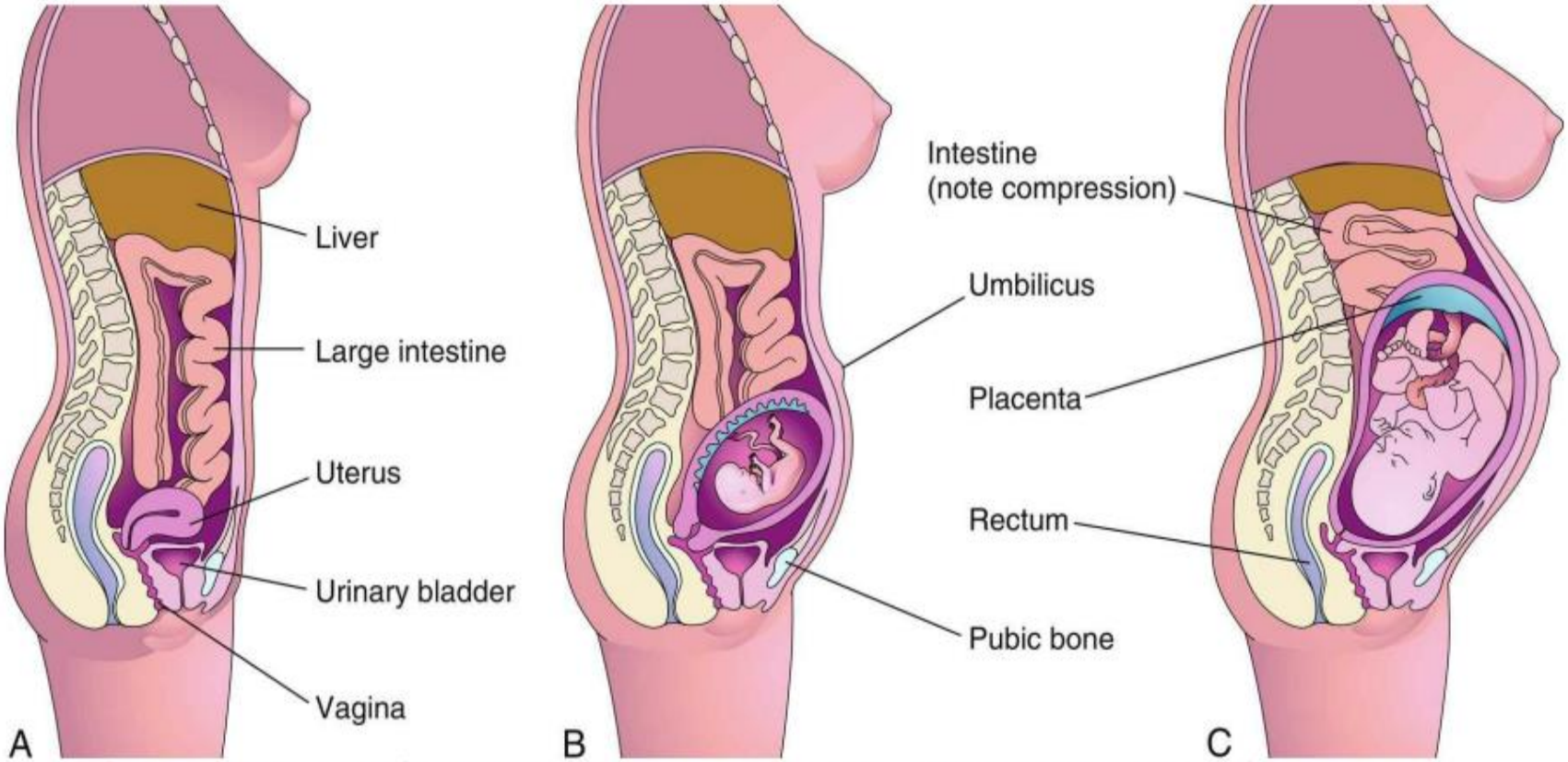


FIG. 4.6 Compression of abdominal contents as uterus enlarges. The nonpregnant state (A) shows the relationship of the uterus to the abdominal contents. As the uterus enlarges at 20 weeks gestation (B) and 30 weeks gestation (C), the abdominal contents are displaced and compressed. (From Moore KL, Persaud TVN, Torchia MG: *The developing human: clinically oriented embryology,* ed 10, Philadelphia,

Urinary system

- The urinary system excretes waste products for both the mother and the fetus during pregnancy.
- The glomerular filtration rate of the kidneys increases.
- The renal tubules increase the reabsorption of substances that the body needs to conserve, but the tubules may not be able to keep up with the high load of some substances filtered by the glomeruli (e.g., glucose).
- Therefore glycosuria and proteinuria are more common during pregnancy.
- Water is retained because it is needed for increased blood volume and for dissolving nutrients that are provided for the fetus.
- The relaxing effects of progesterone cause the renal pelvis and ureters to lose tone, resulting in decreased peristalsis to the bladder.
- The diameter of the ureters and the bladder capacity increase because of the relaxing effects of progesterone, causing urine stasis.
- The combination of urine stasis and nutrient-rich urine makes the pregnant woman more susceptible to urinary tract infection.
- Consuming at least eight glasses of water each day reduces the risk for urinary tract infection.
- Although the bladder can hold up to 1500 mL of urine, the pressure of the enlarging uterus causes increasing frequency of urination, especially in the first and third trimesters.

- Changes in the renal system may take 6 to 12 weeks after delivery to return to the prepregnant state.
- Fluid and Electrolyte Balance The increased glomerular filtration rate in the kidneys increases sodium filtration by 50%, but the increase in the tubular resorption rate results in 99% reabsorption of the sodium.
- **Sodium retention is influenced by many factors including elevated levels of the hormones of pregnancy.**
- **Although the fetus uses much of the sodium, the remainder is in the maternal circulation and can cause a maternal accumulation of water (edema).**
- **This fluid retention may cause a problem if the woman in labor is given intravenous fluids containing oxytocin (Pitocin), which has an antidiuretic effect and can result in water intoxication.**
- Agitation and delirium—possible signs of water intoxication should be recorded and reported, and an accurate intake and output record should be kept during labor and the immediate postpartum phase.
- In pregnancy, blood is slightly more alkaline than in the nonpregnant state, and this mild alkalemia is enhanced by the hyperventilation that often occurs during pregnancy.
- This status does not affect a normal pregnancy.

- **Integumentary and skeletal systems** The high levels of hormones produced during pregnancy cause a variety of temporary changes in the integument (skin) of the pregnant woman.
- the pigmentary changes, the sweat and sebaceous glands of the skin become more active to dissipate heat from the woman and fetus.
- Small red elevations of skin with lines radiating from the center, called spider nevi, may occur.
- The palms of the hands may become deeper red.
- Most skin changes are reversed shortly after giving birth.
- The woman's posture changes as her child grows within the uterus.
- The anterior part of her body becomes heavier with the expanding uterus, and the lordotic curve in her lumbar spine becomes more pronounced.

- The woman often experiences low backaches, and, in the last few months of pregnancy, rounding of the shoulders may occur along with aching in the cervical spine and upper extremities.
- The pelvic joints relax with hormonal changes during late pregnancy and entry of the fetal presenting part into the pelvic brim in the last trimester.
- A woman often has a “waddling” gait in the last few weeks of pregnancy because of a slight separation of the symphysis pubis.

- **Nutrition for pregnancy** and lactation Good nutrition is vital to good health and essential for normal growth and development.
- **Good nutritional habits begun before conception and continued during pregnancy promote adaptation to the maternal and fetal needs.**
- **During pregnancy and lactation, an adequate dietary intake of docosahexaenoic acid–omega 3 fatty acid (DHA) is essential for optimal brain development of the fetus and infant.**
- Dietary sources are preferred .
- Fish oil supplements in pregnancy may be associated with a decrease in asthma and wheezing in the offspring.

Critical thinking questions

1. Mrs. Switzer says she is anxious to complete the clinic appointment because she wants to “light up a cigarette.” What is your major concern about her smoking?

What interventions would be appropriate?

1. Mrs. Switzer states that her dietary pattern is heavily influenced by her perceived “food cravings,” which have occurred increasingly in the past month.

What would be your approach to this problem?

Weight gain

Evidence shows that low maternal weight gain is associated with complications such as preterm labor, and recommendations for weight gain during pregnancy have gradually increased.

Guidelines for weight gain during pregnancy are based on the woman's prepregnant weight and body mass index (BMI).

The BMI considers the height and weight of the average American adult.

Women with a BMI of 18.5 to 24.9 are considered normal weight,
women with a BMI of less than 18.5 are considered underweight,
women with a BMI of 25 to 25.9 are considered overweight,
and women with a BMI greater than 30 are considered obese.

Distribution of Weight Gain in Pregnancy

Source of weight gain	Weight gain in lb (kg)
Uterus	2.5 (1.1)
Fetus	7.0–7.5 (3.2–3.4)
Placenta	1.0–1.5 (0.5–0.7)
Amniotic fluid	2.0 (0.9)
Breasts	1.5–3.0 (0.7–1.4)
Blood volume	3.5–4.0 (1.6–1.8)
Extravascular fluids	3.5–5.0 (1.6–2.3)
Maternal reserves	4.0–9.5 (1.8–4.3)
Total	**25.0–35.0 (11.4–15.9)**

Nutritional requirements during pregnancy:

- A calorie increase of about 340 cal/day in the second trimester and 450 cal/day in the third trimester is recommended to provide for the growth of the fetus, placenta, amniotic fluid, and maternal tissues; 340 cal is not a large increase.
- A banana, a carrot, a piece of whole wheat bread, and a glass of low-fat milk total about 340 cal.
- A half of a roast beef sandwich on whole wheat bread and a fresh green salad added to a healthy diet would also meet the added caloric requirement.
- Caloric intake must be nutritious to have beneficial effects on pregnancy.
- **Four nutrients are especially important in pregnancy: protein, calcium, iron, and folic acid. The amounts required**

Protein Added

- protein is needed for metabolism and to support the growth and repair of maternal and fetal tissues.
- The best sources of protein are meat, fish, poultry, and dairy products. Beans, lentils, and other legumes; breads and cereals; and seeds and nuts in combination with another plant or animal protein can provide all the amino acids (components of protein) needed.
- The complementary foods must be eaten together because all the amino acids necessary for building tissues (essential amino acids) must be present at the same time.
- Raw meat and raw eggs can be contaminated and should be avoided during pregnancy and lactation.
- Pregnant women should not eat swordfish, shark, or king mackerel, as they contain high levels of mercury, which can be harmful to the brain of the developing fetus.

Calcium

- **Pregnancy** and lactation increase calcium requirements by nearly 50%. The DRI of calcium for pregnant women is 1000 mg.
- Dairy products are the most plentiful source of this nutrient.
- Calcium supplements are necessary for women who do not drink milk (or do not eat sufficient amounts of equivalent products).
- Supplements are also necessary for women younger than 25 years of age because their bone density is not complete.
- Calcium supplements should be taken separately from iron supplements for best absorption.
- An adequate intake of vitamin D is required to enhance calcium absorption.

- **Iron**
- **Pregnancy** causes a heavy demand for iron because the fetus must store an adequate supply to meet the needs in the first 3 to 6 months after birth.
- In addition, the pregnant woman increases her production of erythrocytes. The DRI is 15 mg/day for nonpregnant women and 30 mg/day for pregnant women.
- Women who have a known iron deficiency may need more.
- It is difficult to obtain this much iron from the diet alone, and most health care providers prescribe iron supplements of 27 mg/day beginning in the second trimester, after morning sickness decreases.
- Taking the iron on an empty stomach improves absorption, but many women find it difficult to tolerate without food.
- It should not be taken with coffee or tea or with high-calcium foods such as milk. Vitamin C (ascorbic acid) may enhance iron absorption.
- Iron comes in two forms, heme (found in red and organ meats) and non-heme (found in plant products).
- The body absorbs heme iron best.
- Non-heme plant foods that are high in iron include molasses, whole grains, iron-fortified cereals and breads, dried fruits, and dark-green, leafy vegetables.

Vitamins and Minerals :

- Although adequate intake of vitamins is essential during pregnancy, and supplements in the form of prenatal vitamins are routinely prescribed, excess intake of some vitamins can result in problems.
- For example, excess vitamin A can cause fetal anomalies and cardiac defects, and intake should not exceed 3000 mcg/day.
- Vitamin B6 (pyridoxine) is often prescribed to reduce the nausea of pregnancy, but excess intake can cause numbness and muscle weakness.
- An adequate intake of zinc is required during pregnancy especially in vegetarians and vegan diets, because whole grains decrease zinc absorption.
- Copper and zinc are part of the prenatal vitamin formula.
- Most vitamins essential during pregnancy are part of the prenatal vitamin supplement prescribed for pregnant women.

Iron should be taken between meals if possible and with orange juice or a source of vitamin C to enhance absorption.

- Iron and calcium should not be taken together at the same time.
- to obtain adequate vitamin D intake from prenatal vitamins. Egg yolk, salmon, cod liver oil, and fortified milk are good sources of vitamin D. Vitamin D needs sunlight to be metabolized properly in the body. A 5- to 10-minute exposure of the arms, legs, and face to the sun two to three times a week is adequate .
- A prenatal deficiency in vitamin D has been related to the occurrence of multiple sclerosis in the newborn as an adult .

Folic Acid

Folic acid (folacin or folate) is a water-soluble B vitamin essential for the formation and maturation of both red and white blood cells in bone marrow.

This vitamin can also reduce the incidence of neural tube defects such as spina bifida and anencephaly when taken before conception, as neural tube defects can form as early as 28 weeks gestation.

Studies have shown that supplementation for 3 months before pregnancy may also prevent autism and reduce congenital heart disease .

- Food sources of folic acid are liver; lean beef; kidney and lima beans; dried beans; potatoes; whole-wheat bread; peanuts; and fresh, dark-green, leafy vegetables.

- Folic acid supplements in nonpregnant women have been shown to be of value in decreasing cervical dysplasia and bacterial vaginosis but should be used with care in patients taking anticonvulsant drugs or oral contraceptives.

- **Fluids The pregnant:**
- woman should drink 8 to 10 8-oz glasses of fluid each day, most of which should be water.
- The woman should limit her daily caffeine consumption to two cups of coffee or their equivalent.
- Women at risk for insufficient amniotic fluid (oligohydramnios) have had successful outcomes by increasing their daily fluid intake .
- Sodium Sodium intake is essential for maintaining normal sodium levels in plasma, bone, brain, and muscle because both tissue and fluid expand during the prenatal period.
- Sodium should not be restricted during pregnancy, but foods high in sodium such as lunch meats and chips or using additional salt at mealtime should be avoided during pregnancy.
- Diuretics to rid the body of excess fluids are not recommended for healthy pregnant women because they reduce fluids necessary for the fetus.
- The added fluid during pregnancy supports the mother’s increased blood volume.

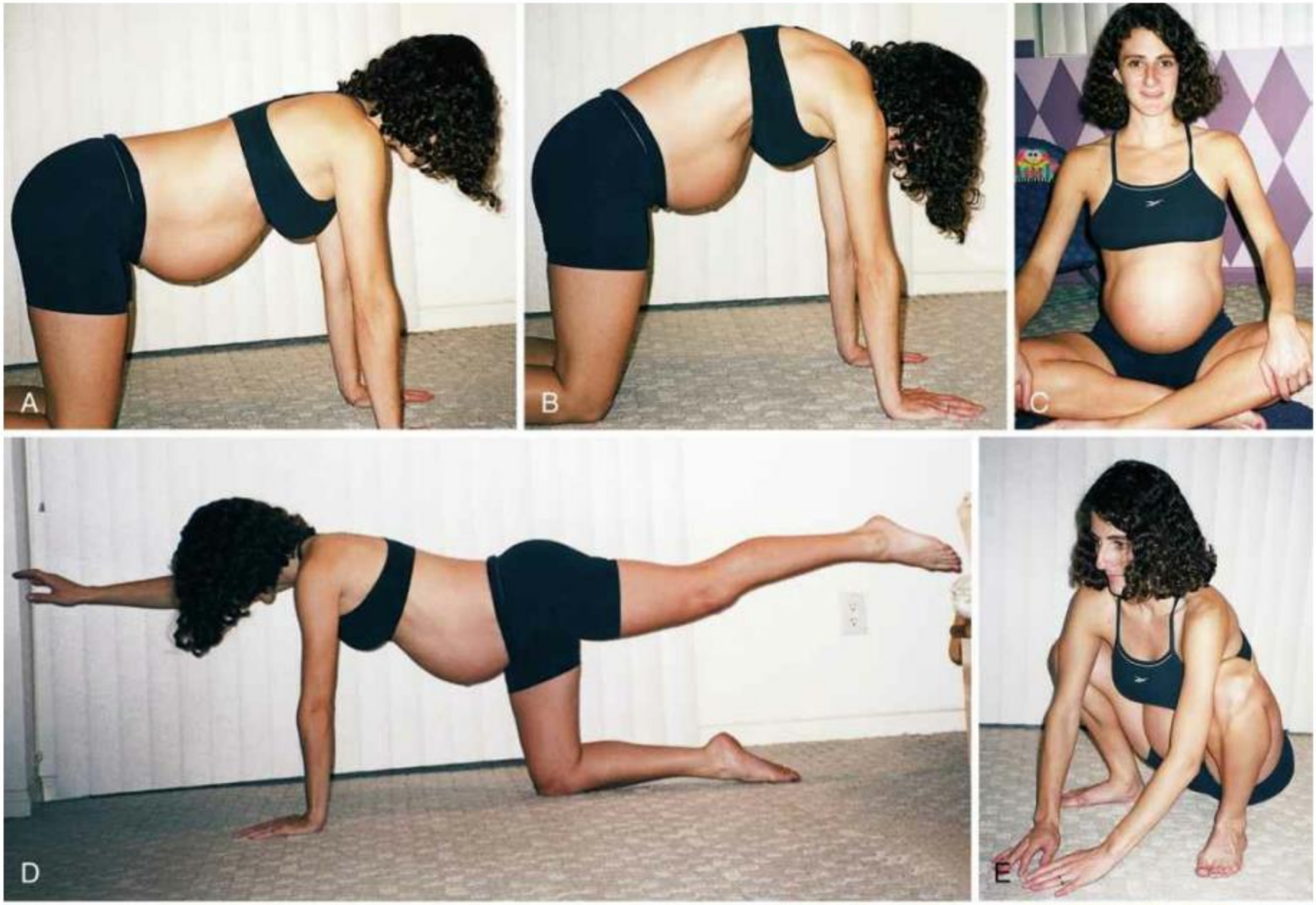
- **Pica**
- **Pica refers to the craving for and ingestion of nonfood substances such as clay, starch, raw flour, and cracked ice.**
- Ingestion of small amounts of these substances may be harmless, but frequent ingestion in large amounts may cause significant health problems.
- Starch can interfere with iron absorption, and large amounts of clay may cause fecal impaction.
- **Pica** is a difficult habit to break, and the nurse often becomes aware of the practice when discussing nutrition, food cravings, and myths with the pregnant woman.
- The nurse should educate the pregnant woman in a nonjudgmental way about the importance of good nutrition so the pica habit can be eliminated or at least decreased.

Gestational Diabetes

- Calories should be evenly distributed during the day among three meals and three snacks to maintain adequate and stable blood glucose levels.
- Pregnant diabetic women are susceptible to hypoglycemia (low blood glucose level) during the night because the fetus continues to use glucose while the mother sleeps.
- It is suggested that the final bedtime snack be one of protein and a complex carbohydrate to provide more blood glucose stability.
- Glycemic control during the first and second trimesters is most important in preventing complications such as macrosomia (abnormally large newborn).
- Women with uncontrolled diabetes and high fasting blood glucose levels in the last trimester have an increased risk of stillbirth.

- **Nutritional requirements during lactation**
- The caloric intake during lactation should be about 500 calories more than the nonpregnant woman’s .
- An indicator of adequate caloric intake is a stable maternal weight and a gradually increasing infant weight.
- The maternal protein intake should be 65 mg/day so that the growing infant has adequate protein.
- Calcium intake and iron intake are the same as during pregnancy to allow for the infant’s demand on the mother’s supply.
- Vitamin supplements are often continued during lactation.
- Fluids sufficient to relieve thirst and replace fluids lost via breastfeeding should be taken.
- Drinking 8 to 10 glasses of liquids other than those containing caffeine is adequate.
- Some foods should be omitted during lactation if they cause gastric upset in the mother or child.
- The mother will often identify foods that seem to upset her child.
- Caffeine should be restricted to the equivalent of two cups of coffee each day. Lactating mothers should be instructed that many types of drugs can be secreted in varying amounts in the breast milk.
- Drugs should be taken only with the health care provider’s advice.

- **Exercise during pregnancy**
- There is evidence that mild to moderate exercise is beneficial during normal pregnancy, but vigorous exercise should be avoided.
- The nurse should guide the patient concerning exercise during pregnancy based on the understanding that the maternal circulatory system is the lifeline to the fetus, and any alteration can affect the growth and survival of the fetus.
- The maternal cardiac status and fetoplacental reserve should be the basis for determining exercise levels during all trimesters of pregnancy.
- Activities to avoid include skydiving, horseback riding, skiing, and scuba diving
- A history of the exercise practices of the patient is important, and gathering such data is the first step in the nursing process.
- Women who have had previous training may have a higher tolerance for exercise than women who have led a sedentary lifestyle.


A
B
C
D
E

- Elevated temperature Exercise can elevate the maternal temperature and result in decreased fetal circulation and cardiac function.
- Maternal body temperature should not exceed 38°C (100.4°F), which rules out the use of hot tubs and saunas during pregnancy.
- Maternal heat exposure during the first trimester of pregnancy has been associated with neural tube defects and miscarriage.
- Exercise-related increases in body temperature are more easily tolerated because of the normal physiology of pregnancy as it pertains to increased peripheral blood flow, thermal inertia from weight gain, and peripheral venous pooling.
- Monitoring the body temperature in addition to the exercise intensity is essential.

- **Hypotension**
- When the flat supine position is assumed and the uterus presses on the vena cava, the increasing size and weight of the uterus can cause poor venous return and result in supine hypotension syndrome.
- Orthostatic hypotension can also reduce blood flow to the fetus.
- Certain exercise positions may need to be modified during pregnancy to avoid these problems, which can cause fetal hypoxia.

- **Cardiac output Pregnancy increases** the workload of the heart.
- The increase in peripheral pooling during pregnancy results in a decrease in cardiac output reserves for exercise.
- When exercise is allowed to exceed the ability of the cardiovascular system to respond, blood may be diverted from the uterus, causing fetal hypoxia.
- Exercise increases catecholamine levels, which the placenta may not be able to filter, resulting in fetal bradycardia and hypoxia.
- Strenuous and prolonged exercise causes blood flow to be distributed to the skeletal muscles and skin and away from the viscera, uterus, and placenta.
- Exercise increases maternal hematocrit levels and uterine oxygen uptake, so moderate exercise will not cause decreased oxygen supplies to the fetus.

- **Hormones**
- **Exercise can cause changes in oxygen consumption and epinephrine, glucagon, cortisol, prolactin, and endorphin levels.**
- **In early pregnancy these hormonal changes can negatively affect implantation of the zygote and vascularization of the uterus.**
- **In late pregnancy the increases in catecholamines during exercise can trigger labor.**

Nursing guidance for exercise program during pregnancy. should include the following:

- **The woman should start with a warm-up and end with a cool-down period.**
- **Women who are beginning an exercise program should not exceed recommendations for moderate exercise .**
- **Women who have exercised regularly at higher levels before pregnancy may follow more liberal guidelines of weight-bearing exercise for no more than 1 hour three to five times a week.**
- **Exercise combined with a balanced diet that is rich in unprocessed, non-root vegetables, nuts, fruits, and whole-grain breads is beneficial during pregnancy. Eating 2 to 3 hours before exercise and immediately after exercise is recommended.**
- **The woman should avoid scuba diving below a depth of 30 feet or exercising in altitudes above 8000 feet during pregnancy.**
- **The woman should avoid becoming overheated and should drink plenty of water during exercise.**
- **Intensity of exercise should be modified according to the “talk test” (should be able to complete a conversational sentence without taking an extra breath).**

- **Smoking during pregnancy**
- Maternal smoking during pregnancy has been shown to have a deleterious effect on the neural development of the fetus.
- Studies have shown a relationship between maternal smoking and psychiatric disorders in the offspring, such as schizophrenia and attention-deficit hyperactivity disorder .
- The nurse should discuss the habit of smoking and drug use during early prenatal care.

- **Travel during pregnancy**
- Many women choose to maintain a normal lifestyle and travel during a normal pregnancy.
- Air travel is generally safe for the pregnant woman up to 36 weeks gestation, but the availability of medical care at the destination should be checked .
- Because of the increased levels of clotting factors and plasma fibrinogen that normally occur during pregnancy, the woman should be counseled to avoid long periods of sitting because there is an increased risk of developing thromboembolism.

Discomfort	Influencing factors	Self-care measures
First Trimester		
Nausea with or without vomiting	Elevation in hormones, decrease in gastric motility, fatigue, emotional factors; usually does not last beyond 16 weeks; if vomiting persists, may lead to hyperemesis gravidarum	Avoid an empty stomach
		Eat dry crackers or toast ½ to 1 hour before rising in morning
		Eat small, frequent meals
		Drink fluids between meals
		Avoid greasy, odorous, spicy, or gas-forming foods
		Increase vitamin B_6
		Ginger
		Use acupressure wrist bands
		Diclegis may be prescribed by health care provider if other measures fail
Breast tenderness	Increased vascular supply and hypertrophy of breast tissue caused by estrogen and progesterone	Wear supportive bra (to alleviate tingling and tenderness)
	Results in tingling, fullness, and tenderness	Avoid soap to nipples (to prevent cracking)
Urinary frequency	Pressure of growing uterus on bladder in both first and third trimesters	Void when urge is felt (to prevent urinary stasis); increase fluid intake during day
	Progesterone relaxes smooth muscles of bladder	Decrease fluid in late evening to lessen nocturia; limit caffeine
		Practice Kegel exercises
Vaginal discharge (leukorrhea)	Increased production of mucus by endocervical glands in response to elevated estrogen levels and increased blood supply to pelvic area, causing white, viscid vaginal discharge	Bathe or shower daily
		Wear cotton underwear
		Avoid tight undergarments and pantyhose
		Keep perineal area clean and dry
		Avoid douching and using tampons
		Wipe perineal area from front to back after toileting
		Contact health care provider if there is change in color, odor, or character of discharge

Second and Third Trimesters		
Heartburn (pyrosis)	Increased production of progesterone, causing relaxation of esophageal sphincter Regurgitation or backflow of gastric contents into esophagus, causing burning sensation behind sternum, burping, and sour tastes in mouth	Sit up for 30 minutes after eating a meal
		Avoid gas-forming and greasy foods
		Avoid overeating
		Use low-sodium liquid antacids such as Gelusil or Maalox (liquid will coat lining better than tablets); avoid sodium bicarbonate and Alka-Seltzer
Constipation and flatulence (gas)	Increased levels of progesterone, causing bowel sluggishness with increased water absorption (results in hardened stool)	Increase fluid intake (minimum of 8 glasses per day, not including carbonated or caffeinated beverages because of their diuretic effect), roughage in diet, and exercise
	Pressure of enlarging uterus on intestine	Exercise to stimulate peristalsis
	Diet, lack of exercise, and decreased fluids	Establish regular schedule for bowel movement
	Iron supplements contributing to hardening of stools	Do not take mineral oil or enemas. Consult health care provider about taking a stool softener (docusate)
Hemorrhoids	Varicosities (distended veins) of rectum caused by vascular enlargement of pelvis, straining from constipation, and descent of fetal head into pelvis	Use anesthetic ointment, cool witch hazel pads, or rectal suppositories. May disappear after birth, when pressure is relieved
	May disappear after birth, when pressure is relieved	Take sitz baths, increase fiber in diet, and have regular bowel habits to avoid constipation
Backaches	Result of spine's adaptation to posture changes as uterus enlarges	Maintain correct posture with head up and shoulders back; use good body mechanics
	Enlarging uterus altering center of gravity, resulting in lordosis (exaggeration of lumbosacral curve) and muscle strain	Avoid exaggerating lumbar curve
		Squat rather than bending over when picking up objects (bend at knees, not waist)
		Wear low-heeled shoes to help maintain better posture
		Do exercises such as tailor sitting (cross-legged), shoulder circling, and pelvic rocking
		Rest; applying localized heat may help
Round ligament pain	Abdominal ligaments stretched by enlarging uterus, causing pain in lower abdomen after sudden movements	Avoid jerky or quick movements
		Use pillow support for abdomen
		Use good body mechanics
Leg cramps	Pressure of uterus on blood vessels that impairs circulation to legs,	Dorsiflex foot and straighten leg with downward pressure on

Discomfort	Influencing factors	Self-care measures
	Imbalance in calcium/phosphorus ratio	Evaluate diet and calcium intake
Headache	Emotional tension and fatigue	Obtain emotional support
	Increased circulatory blood volume and heart rate causing dilation and distention of cerebral vessels	Practice relaxation exercises
		Eat regular meals
		If headaches continue, report to caregiver (potential gestational hypertension)
Varicose veins	Relaxation of smooth muscle in walls of veins caused by elevated progesterone	Avoid lengthy standing or sitting, constrictive clothing, and bearing down during bowel movements
	Pressure of enlarging uterus causing pressure on veins, resulting in development of varicosities in vulva, rectum, and legs	Walk frequently
		Rest with legs elevated
		Wear support stockings; avoid tight knee-high stockings
		Exercise (to stimulate venous return)
		Relieve hemorrhoid swelling with warm sitz baths, local application of astringent compresses, or analgesic ointment
Edema of feet and ankles	Circulatory congestion of lower extremities	Elevate legs when sitting
		Increase rest periods
		Avoid constrictive clothing and prolonged standing or sitting
Faintness and dizziness	Vasomotor instability or postural hypotension	Avoid sudden changes in position, prolonged standing, and warm, crowded areas
	Standing for long periods with venous stasis in lower extremities	Move slowly from rest position
		Avoid hypoglycemia by eating 4–5 small meals daily
		Lie on left side when resting to avoid supine hypotensive syndrome (pressure of uterus on vena cava)
		If symptoms do not lessen, report to caregiver
Fatigue	Hormonal changes in early pregnancy and periodic hypoglycemia as glucose is used by embryo for rapid growth	Try to get 8–10 hours of sleep
	More prominent in early months of pregnancy	Take naps during the day if possible
		Use relaxation techniques, meditation, or change of scenery
Dyspnea	Later in pregnancy, caused by uterus rising into abdomen and pressing on diaphragm	Sleep with several pillows under head
		Use deep chest breathing before going to sleep
		Use proper posture while sitting or standing. Avoid exertion

Water aerobics in healthy women can relieve edema because the hydrostatic pressure forces fluid into the circulation, stimulating glomerular filtration and excretion of water. Care should be taken to avoid excessive water temperatures during water aerobics (see earlier section Exercise During Pregnancy). Using saline nasal drops or room humidifiers can relieve nasal stuffiness caused by edema of nasal tissues as a result of the high level of estrogen.

Psychosocial adaptation to pregnancy

- Pregnancy creates a variety of confusing feelings for all members of the family, whether or not the pregnancy was planned.
- Both parents may feel ambivalence about the pregnancy and being a parent.
- First-time parents may be anxious about how the infant will affect their relationship as a couple.
- Parents who already have a child may wonder how they can stretch their energies, love, and finances to another infant and how the infant will affect their older child or children.
- The nurse who provides prenatal care helps families to work through this phase in their lives.
- Identifying barriers to accessing care is a primary nursing responsibility.
- Inadequate health insurance coverage, financial problems, knowledge deficit concerning community resources, lack of transportation, and the need for day care for other children or older adult parents are examples of problems that can be referred to a social service worker.

- Frequent housing relocation may indicate domestic violence, legal problems, or financial difficulties that may need attention to ensure compliance with regular prenatal care.
- Nutritional needs and patterns relating to age, ethnicity, or financial constraints should be discussed.
- Tobacco or substance abuse should be assessed.
- Stress in the life of the mother should be reviewed, and appropriate referrals to mental health professionals or educational programs should be made to reduce the levels of stress that can affect pregnancy outcome.

- **First Trimester During early pregnancy the woman may have difficulty believing that she is pregnant because she may not feel different.**
- If a home pregnancy test was positive, and a professional confirms it.
- An early ultrasound examination helps the woman to see the reality of the developing fetus inside her.
- Most women have conflicting feelings about being pregnant (ambivalence) during the early weeks.
- Many, if not most, pregnancies are unplanned.

- The nurse can help the woman to express these feelings of ambivalence and reassure her that they are normal.
- The woman focuses on herself during this time.
- She feels many new physical sensations, but none of them seem related to a child.
- These physical changes and the higher hormone levels cause her emotions to be more unstable (labile).
- The nurse can reassure the woman and her partner (who is often confused by her moods) about the cause of these fluctuations, that they are normal, and that they will stabilize after pregnancy.

Second Trimester:

- **The fetus becomes real to** the woman during the second trimester.
- Her weight increases, and the uterus becomes obvious as it ascends into the abdomen.
- If she has not already heard the fetal heartbeat or seen it beating on a sonogram, the woman usually will have an opportunity to hear it early in the second trimester.
- She feels fetal movement, and this is a powerful aid in helping her to distinguish the fetus as a separate person from herself.
- The second trimester is a more stable time of pregnancy during which most women have resolved many of their earlier feelings of ambivalence and begin to take on the role of an expectant mother.
- The woman becomes totally involved with her developing child and her changing body image (narcissism).
- She often devotes a great deal of time to selecting just the right foods and the best environment to promote her health and that of her infant.
- She welcomes the solicitous concern of others when they caution her not to pick up a heavy package or work too hard.

- She may lose interest in work or other activities as she devotes herself to the project of nurturing her fetus.
- The nurse can take advantage of her heightened interest in healthful living to teach good nutrition and other habits that can benefit the woman and her family long after the child is born.
- The woman “tries on” the role of mother by learning what infants are like.
- She may or may not want to know the sex of the infant if it is apparent on a sonogram, sometimes preferring to be surprised at the birth.
- The woman who previously has had a child undergoes a similar transition as she imagines what this specific child will be like and how he or she will compare to siblings.
- The body changes resulting from pregnancy become evident during the second trimester.
- The woman may welcome them as a sign to all that her fetus is well protected and thriving .

- The body changes may alter her sexual relationship with her partner as well.
- Both partners may fear harming the developing fetus, particularly if there has been a previous miscarriage.
- The nurse can assure them that these changes are temporary and can help them explore other expressions of love and caring.

- **Third Trimester As her body changes even more dramatically**,
- These mood swings reflect her sense of increased vulnerability and dependence on her partner.
- The woman begins to separate herself from the pregnancy and to commit herself to the care of an infant.
- She and her partner begin making concrete preparations for the infant's arrival.
- They buy clothes and equipment the infant will need. Many take childbirth preparation classes.
- With the understanding and support of her family and health care professionals, she can develop inner strength to accomplish the tasks of birth.

Physiological and Psychological Changes in Pregnancy, Nursing Interventions, and Teaching

Maternal changes	Signs and symptoms	Nursing interventions and teaching
First Trimester		
Fertilization occurs.	Pregnancy test is positive.	Guide patient regarding nutritional needs and folic acid requirements.
Increased progesterone levels result in amenorrhea.		Encourage patient to seek early prenatal care.
Sodium retention increases.		Assess attitude toward this pregnancy and how it affects family.
Nitrogen stores decrease.		
Blood volume increases.	Fainting is possible.	Teach patient how to rise slowly from prone position.
Levels of relaxin hormone increase.	Morning nausea can occur.	Teach patient how to cope with nausea without medication:
Levels of hCG hormone increase.	Relaxation of gastrointestinal muscles can cause "heartburn."	• Eat dry crackers before arising. • Use acupressure.
	Sensitivity to odors increases.	
Pituitary gland releases melanin-stimulating hormone.	Pigmentation deepens on face (chloasma) and on abdomen (linea nigra).	Discuss body changes and assure patient that pigmentation will fade after puerperium.
Fetus grows.	Abdomen enlarges at end of first trimester when uterus rises out of pelvis.	Teach methods to minimize fetal problems:
Uterus begins to enlarge.	Small weight gain occurs.	• Avoid high temperatures around abdomen (baths and spas). • Discuss effects of medications and herbs on fetal development.
	Enlarged uterus presses on bladder.	Discuss impact of frequency of urination on lifestyle and activities.
		Facilitate communication with partner concerning sexual relationships during pregnancy.
		Discuss nutritional and folic acid needs, control of caffeine intake in second and third trimesters, and omega 3 fatty acid intake.
For fathers, announcement phase begins when pregnancy is confirmed, followed by adjustment phase and, finally, focus phase in third trimester and during labor, when "feeling like a father" develops.	Parents adjust to reality of pregnancy.	Review father's role and mother's responses.
		Refer to community agencies as needed.
		Assess for misinformation and knowledge deficit.
		Help parents identify concerns.
		Answer questions.
		Discuss relevant topics such as care of siblings and role of grandparents.

Second Trimester		
Corpus luteum is absorbed, and placenta takes over fetal support (between third and fourth months).	Blood volume increases in placental bed.	Teach patient how to minimize risk of habitual abortion between third and fourth month when placenta begins to take over.
Broad ligament stretches as uterus enlarges.	Occasional pain in groin area occurs.	Teach patient Kegel exercises to strengthen pelvic muscles.
Vascularity of pelvis increases.	Sexual pleasure and desire increases.	Discuss modifications of positions for sexual comfort and pleasure.
	White discharge may occur.	Teach patient to avoid routine douches.
		Teach patient perineal skin hygiene.
Blood volume and vasomotor lability increase.	Orthostatic hypotension can occur.	Teach patient to change positions slowly and to avoid warm, crowded areas.
Cardiac output increases.	Physiological anemia may occur.	Iron supplements may be prescribed for anemia. Teach patient how to prevent constipation, and teach about change in stool color during iron therapy.
Renal threshold decreases.	Perineal itching may occur.	Test for glucose in urine and require glucose tolerance test in second trimester to rule out gestational diabetes. Teach patient hygienic measures when high glucose level is present (front to back wiping; wearing cotton panties).
Uterus rises out of pelvis.	Body's center of gravity changes.	Teach patient proper shoe and heel height to prevent falling.
Estrogen relaxes sacroiliac joint.		Teach placement of automobile restraints across hips rather than across abdomen.
		Teach patient to avoid lying supine in bed after fourth month of pregnancy to prevent supine hypotension syndrome.
		Teach posture and pelvic rocking exercises.
		Instruct that clothes should hang from shoulders.
	Pressure on bladder and rectum increases.	Instruct patient to anticipate urinary frequency during long trips.
		Teach patient Kegel exercises to strengthen pelvic floor.

Maternal changes	Signs and symptoms	Nursing interventions and teaching
Enlarging uterus compresses nerves supplying lower extremities.	Leg muscle spasms occur, especially when reclining.	Check for Homans sign (see Table 9.1).
		Teach patient how to dorsiflex the foot to help relieve spasms. Massage foot.
Decreased calcium levels and increased phosphorus levels are possible.		Teach patient to use oral aluminum hydroxide gel to reduce phosphorus levels if elevated (when recommended by health care provider).
Late in second trimester cardiac reserve begins to decrease and respiratory effort to increase.	Physiological stress is possible if exercise levels are not decreased.	Teach patient to monitor pulse rate (maximum 90 beats/min), and teach patient that inability to converse without taking frequent breaths is a sign of physiological stress.
		Teach patient to stop exercising if numbness, pain, or dizziness occurs.
Hormonal influence causes "id" to come to surface.	Mood swings occur.	Prepare spouse or significant other and family for mood swings, outspoken behavior, and labile emotions ("speaks before she thinks").
Levels of relaxin hormone increase.	Sphincter of stomach relaxes, and gastrointestinal motility is slowed.	Teach patient how to prevent constipation.
		Instruct patient to increase fluid intake and avoid gas-forming foods.
Increase in estrogen levels causes increased excretory function of skin.	Skin itches.	Teach patient to wear loose clothing, shower frequently, and use bland soaps and oils for comfort.
Anterior pituitary secretes melanin-stimulating hormone.	Skin pigmentation deepens.	Prepare patient to anticipate development of spider nevi and skin pigmentation.
		Reassure patient that most fade after pregnancy.

Maternal changes	Signs and symptoms	Nursing interventions and teaching
Enlarging uterus compresses nerves supplying lower extremities.	Leg muscle spasms occur, especially when reclining.	Check for Homans sign (see Table 9.1).
		Teach patient how to dorsiflex the foot to help relieve spasms. Massage foot.
Decreased calcium levels and increased phosphorus levels are possible.		Teach patient to use oral aluminum hydroxide gel to reduce phosphorus levels if elevated (when recommended by health care provider).
Late in second trimester cardiac reserve begins to decrease and respiratory effort to increase.	Physiological stress is possible if exercise levels are not decreased.	Teach patient to monitor pulse rate (maximum 90 beats/min), and teach patient that inability to converse without taking frequent breaths is a sign of physiological stress.
		Teach patient to stop exercising if numbness, pain, or dizziness occurs.
Hormonal influence causes "id" to come to surface.	Mood swings occur.	Prepare spouse or significant other and family for mood swings, outspoken behavior, and labile emotions ("speaks before she thinks").
Levels of relaxin hormone increase.	Sphincter of stomach relaxes, and gastrointestinal motility is slowed.	Teach patient how to prevent constipation.
		Instruct patient to increase fluid intake and avoid gas-forming foods.
Increase in estrogen levels causes increased excretory function of skin.	Skin itches.	Teach patient to wear loose clothing, shower frequently, and use bland soaps and oils for comfort.
Anterior pituitary secretes melanin-stimulating hormone.	Skin pigmentation deepens.	Prepare patient to anticipate development of spider nevi and skin pigmentation.
		Reassure patient that most fade after puerperium.

		Reassure patient that most fade after puerperium.
Estrogen levels increase.	Increased estrogen levels cause increased vascularity of oral tissues, resulting in gingivitis and stuffy nose.	Teach proper oral hygiene techniques.
	Estrogen levels develop network of increased arterioles.	Edema can occur. Assess blood pressure, and report proteinuria.
Pituitary gland secretes prolactin.	Colostrum leaks from nipples and sometimes cakes.	Teach patient to cleanse nipples to keep ducts from being blocked by colostrum. Avoid soaps, ointments, and alcohol that dry skin.
	Breasts enlarge.	Teach patient not to stimulate nipples by massage or exercise because doing so may increase risk for preterm labor.
As breast size increases, drooping of shoulders causes traction on brachial plexus.	Fingers tingle.	Teach patient proper posture.
		Encourage use of a supportive maternity bra.
Placental barrier allows certain elements and organisms to pass through to fetus.	Some medications can pass through placental barrier and cause fetal defects.	Advise patient not to smoke and not to self-treat with medications.
		Teach patients that certain jobs should be avoided during pregnancy (e.g., working as parking attendant, in a dry cleaning plant, and in a chemistry laboratory).
Travel becomes more difficult.	Because of placental permeability, traveling to countries that have endemic diseases can have negative effect on fetus; active, live viral immunization should be avoided.	Advise patient regarding travel.
	Lowered oxygen levels can cause fetal hypoxia.	Most commercial airlines have cabin pressure controlled at or below 5000-ft level and do not pose risk to fetus.
Increased levels of platelets occur.	Patient is prone to thrombophlebitis if inactive for long periods.	Encourage patient to keep hydrated because of low cabin humidity in airplanes and to move around to help prevent thrombophlebitis.
Fetal growth continues.	Mother feels signs of life; fetus moves and kicks.	Teach proper nutrition to foster fetal growth without adding extra "empty" calories.
		Encourage patient to attend child care and parenting classes.
Third Trimester		
Weight gain typically approaches 20–25 lb.	Patient tires easily.	Teach patient need for rest periods and organization of work.
Colostrum forms.	Colostrum may leak from breasts.	Teach patient care of nipples.
		Introduce nipple pads.
		Avoid nipple stimulation to prevent preterm labor.
Increased estrogen levels cause edema of larynx.	Voice changes.	Singers may note loss of vocal quality.
Maximum increase in cardiac output (increase in stroke volume) occurs.	Patient tires easily.	Teach patient of need for rest periods.
Edema of hands and wrists is possible.	Risk for carpal tunnel syndrome increases.	Teach patient warning signs of gestational hypertension and assess water retention.
Uterus increases in size.	Pressure on stomach occurs.	Discuss how to cope with decrease in appetite and shortness of breath.

Maternal changes	Signs and symptoms	Nursing interventions and teaching
	Pressure on diaphragm occurs.	Teach patient how to avoid constipation and leg varicosities.
	Venous congestion increases.	Teach "talk test" for self-evaluation of exercise tolerance to prevent fetal hypoxia (must be able to finish a sentence before taking a breath).
Awareness of Braxton Hicks contractions increases.	Fetal head may engage (uterus drops) (lightening).	Teach patient signs of labor and when to come to hospital. Offer tour of labor and delivery unit.
Hormone levels increase.	"Id" is at the surface.	Review labor management learned in prenatal classes.
	Woman becomes self-centered and worries how she will manage labor.	Discuss sibling care and support system.

hCG, Human chorionic gonadotropin.

- Immunizations during pregnancy Live-virus vaccines are contraindicated during pregnancy because of possible adverse effects on the fetus.
- Most vaccines in single dose forms are now thimerosal-free, and many can be safely used for pregnant women.
- Vaccines contraindicated during pregnancy include bacille CalmetteGuérin; human papillomavirus; live attenuated influenza vaccine in nasal spray form because it is a live virus; and measles, mumps, and rubella (MMR).
- A woman is advised to avoid pregnancy for at least 1 month following an MMR immunization.

- When exposure to or high risk of infection is present, vaccinations allowable during pregnancy include hepatitis A and B, inactivated influenza, and inactivated polio vaccine when immediate protection is required.
- Tdap vaccine is recommended after 29 weeks gestation and has a protective effect on the fetus and newborn infant .
- The injectable form of the flu vaccination is also recommended to protect pregnant women.

- Nursing care during pregnancy
- Table 4.7 describes the physiological and psychological changes that occur during pregnancy, the related signs and symptoms noted in the patient, and some suggested nursing interventions or teaching points appropriate to that phase.
- The rationales for a nursing care plan can be based on the information presented in this table.
- Teaching for the prenatal patient should include the risks of smoking, alcohol use, and illicit drug use and the advantages of breastfeeding and good nutrition during pregnancy.

Unfolding Case Study: Tess is a 22-year-old woman who comes to the clinic with her husband Luis for a prenatal checkup on May 10, 2019. This is her first pregnancy, and they are both very excited about starting a family. Her physical examination is within normal limits, but she reports nausea in the mornings. Her LNMP was March 1, 2019.

Questions

1. What is Tess' TPALM?
2. When is her due date?
3. How many weeks pregnant is she today?
4. What advice would the nurse give Tess concerning her nausea?
5. Describe the probable signs of pregnancy that the health care provider will assess for during this first visit.

6. Tess says that she and her husband Luis want to take a last vacation together before starting their family responsibilities. They plan to leave on a 2-week trip to Europe starting November 30. What advice would the nurse give to them?

Get Ready for the NCLEX® Examination! Key Points

• Early and regular prenatal care promotes the healthiest possible outcome for mother and infant.

• The woman's estimated date of delivery is calculated from her last normal menstrual period.

• The length of a pregnancy is 40 weeks after the last normal menstrual period. The expected date of delivery is determined by using Nägele's rule.

• Newer, noninvasive prenatal tests such as abdominal ultrasound have been incorporated into routine care.

• Tests for chromosomal anomalies such as trisomy 13, trisomy 18, and trisomy 21 are now available.

• Presumptive signs of pregnancy often have other causes.

Probable signs more strongly suggest pregnancy but can still be caused by other conditions.

Positive signs have no other cause except pregnancy.

The three positive signs of pregnancy include detection of a fetal heartbeat, recognition of fetal movements by a trained examiner, and visualization of the embryo or fetus on ultrasound.

- The optimal weight gain during pregnancy is 25 to 35 lb (11.4 to 15.9 kg).
- Pregnancy affects all body systems.
- The uterus undergoes the most obvious changes: it increases in weight from approximately 60 g (2 oz) to 1000 g (2.2 lb); it increases in capacity from about 10 mL (⅓ oz) to 5000 mL (5 quarts).
- The mother's blood volume is about 45% greater than the prepregnant volume to enable perfusion of the placenta and extramaternal tissues.
- Her blood pressure does not increase because resistance to blood flow in her arteries decreases.
- The fluid portion of her blood increases more than the cellular portion, resulting in a pseudoanemia.
- The common discomforts of pregnancy occur as a result of hormonal, physiological, and anatomical changes normally occurring during pregnancy. The nurse should teach relief measures and explain abnormal signs to report to the health care provider.

• **Supine hypotension syndrome, also known as aortocaval compression or vena cava syndrome, may occur if the pregnant woman lies flat on her back. Turning to one side or placing a small pillow under one hip can help relieve this hypotension**.

• To provide for the growth of the fetus and maternal tissues, the mother needs 300 extra, high quality calories daily.

Important nutrients that must be increased are protein, calcium, iron, and folic acid. For lactation, 500 extra calories a day are needed.

• **Adequate folic acid intake before conception of 400 mcg(0.4 mg) per day can reduce the incidence of neural tube defects such as anencephaly or spina bifida in the newborn. Supplementation for 3 months before conception may prevent autism.**

However, intake should not be exceeded.

The intrauterine environment of the fetus can influence the adult health of the newborn.

• **Normal microbes living in the individual mother's body play a role in maintaining pregnancy, preparing for labor, and establishing a microbiome in the gut of the newborn.**

• Adequate vitamin intake is essential for optimal fetal development. However, excess vitamin intake can be toxic.

• Optimal obstetric care includes preconception care, prenatal care, intrapartum support, and postpartum care and follow-up.
• The father should be included in prenatal care to the extent he and the mother desire.
• The health history of the father is important because genetics, illness, or lifestyle practices may affect the health of all members of the family.
• Adaptation to pregnancy occurs in the mother, the father, and other family members. Prenatal care involves physical and psychological aspects and should be family centered.
• Childbirth education includes formal classes and informal counseling. Education should include nutrition, prenatal visits, exercise, breathing and relaxation techniques, the birth process, safety issues, and beginning parenting skills.
• Live virus vaccines are contraindicated during pregnancy.
• Specific laboratory screening tests are performed during pregnancy to ensure a positive outcome for both the mother and the infant.
• The physiological changes during pregnancy influence the metabolism of ingested medications.
• Medications ingested during pregnancy can affect fetal development.

Review Questions for the NCLEX® Examination

1. A woman arrives in the clinic for her prenatal visit. She states that she is currently 28 weeks pregnant with twins, she has a 5-year-old son who was delivered at 39 weeks gestation and a 3-year-old daughter delivered at 34 weeks gestation, and her last pregnancy terminated at 16 weeks gestation.

The nurse will interpret her obstetric history as:

1. G4 T2 P2 A1 L4.
2. G3 T2 P0 A1 L2.
3. G3 T1 P1 A1 L2.
4. G4 T1 P1 A1 L2.

2. Exercise during pregnancy should be practiced to achieve which of the following goals?

1. Maintaining physical fitness
2. Minimizing weight gain
3. Achieving weight loss
4. Improving physical fitness

3. During a prenatal examination at 30 weeks gestation, a woman is lying on her back on the examining table. She suddenly complains of dizziness and feeling faint. The most appropriate response of the nurse would be to:

1. reassure the woman and take measures to reduce her anxiety level.
2. offer the woman some orange juice or other rapidly absorbed form of glucose.
3. place a pillow under the woman's head.

turn the woman onto her side.

4. A woman being seen for her first prenatal care appointment has a positive home pregnancy test, and her chart shows a TPALM recording of 40120.
The nurse would anticipate that:

1. minimal prenatal teaching will be required because this is her fourth pregnancy.
2. the woman will need help in planning the care of her other children at home during her labor and delivery.
3. the woman should experience minimal anxiety because she is familiar with the progress of pregnancy.
4. this pregnancy will be considered high risk, and measures to reduce anxiety will be needed.

5. A woman's LNMP was on April 1, 2019. She has been keeping her prenatal clinic appointments regularly but states she needs to alter the dates of a future appointment because she and her husband are going on an ocean cruise vacation for the New Year's celebration from December 30 through January 7, 2020.
The best response of the nurse would be:

1. "Prenatal visits can never be altered. Every visit is important."
2. "Be sure to take antinausea medication when going on an ocean cruise."
3. "Perhaps you might consider rescheduling your vacation around the Thanksgiving holiday rather than the New Year's dates."
4. "I will reschedule your clinic appointment to accommodate your vacation plans."

6. A nurse is explaining probable signs of pregnancy to a group of women. Probable signs of pregnancy include:

a. fetal heart beat
b. abdominal striae
c. amenorrhea
d. Braxton Hicks contractions

1. a and c
2. c and d
3. b and d
4. a and d

Critical Thinking Questions

1. A 35-year-old primipara in her 20th week of pregnancy states that she does not want to drink the liquid glucose for the routine blood glucose screen because it does not taste good. She states that she is not a diabetic and does not think the test is necessary for her. What is the best response by the nurse?

2- A woman entering her second trimester of pregnancy states that she is noticing increasing stretch marks on her abdomen. She is afraid these marks will remain prominent after pregnancy, and she wants to go on a low-calorie diet to prevent her abdomen from becoming too large. What information should the nurse include in her teaching plan for this patient?

Thanks for listening