- Chapter 10
- Nutrition during Pregnancy and Lactation
- Chapter 10

Lesson 10.1

- Key Concepts
- The mother's food habits and nutritional status before conception, as well as during pregnancy, influence the outcome of the pregnancy.
- Key Concepts, cont'd
- Through the food a pregnant woman eats, she gives her unborn child the nourishment required to begin and sustain fetal growth and development.
- Energy Needs
- Mother needs more energy to:
  - Supply the increased fuel demanded by the enlarged metabolic workload for mother and fetus
  - Spare protein for added tissue-building requirements
- Increase energy by 340 to 450 kcal/day
  - Increased complex carbohydrates and protein in the diet are the preferred sources of energy
- Protein Needs
- Protein serves as the building blocks for growth of body tissues during pregnancy.
  - Rapid growth of the fetus
  - Development of the placenta

- Growth of maternal tissues
- Increased maternal blood volume
- Amniotic fluid
- Storage reserves

- Protein Needs, cont'd
- Protein intake should increase 25 g/day
  - Complete protein foods
    - Milk, eggs, cheese, soy products, meat
  - Incomplete proteins
    - Legumes, grains
- Protein-rich foods contribute calcium, iron, B vitamins

- Key Mineral and Vitamin Needs
- Calcium
  - Essential for fetal development of bones and teeth
  - Supplements might be needed in cases of poor maternal stores or pregnancies involving more than one fetus
- Key Mineral and Vitamin Needs, cont'd
- Iron, zinc, and copper
  - Iron essential for increased hemoglobin synthesis
  - Zinc and copper absorption is inhibited with high iron intake
  - Supplements

- Key Mineral and Vitamin Needs, cont'd

- Iodine
  - Iodine essential to produce more thyroxine
  - Intake during pregnancy
  - Sources
    - Iodized salt

- Key Mineral and Vitamin Needs, cont'd
- Folate
  - Builds mature red blood cells during pregnancy
  - Needed during early periconceptional period
  - DRIs recommend daily folate intake of 600 mcg during pregnancy and 400 mcg/day for nonpregnant women during childbearing years
  - May require folate supplements
- Key Mineral and Vitamin Needs, cont'd
- Neural Tube Defects
- Key Mineral and Vitamin Needs, cont'd
- Vitamin D
  - Ensures absorption and utilization of calcium and phosphorus for fetal bone growth
  - Daily intake of at least 3 cups fortified milk
  - Exposure to sunlight increases endogenous synthesis of vitamin D
- Weight Gain During Pregnancy

- Set weight goals according to mother's pregnancy nutritional status and body mass index
  - Underweight women: 28 to 40 lb
  - Normal-weight women: 25 to 35 lb
  - Overweight women: 15 to 25 lb
  - Obese women: approximately 15 lb
  - Teenage girls: 35 to 40 lb
  - Women carrying twins: 35 to 45 lb
  - Women carrying triplets: overall gain of 50 lb
- Weight Gain During Pregnancy, cont'd
- Quality of foods consumed to increase weight is important
- Weight reduction should never be undertaken during pregnancy
- Average amount of weight gain during first trimester: 2 to 4 lb
- 1 lb per week weight gain during remainder of pregnancy
- 2 to 3g/day sodium needed
- Approximate Weight Gain during a Normal Pregnancy
- Daily Food Plan
- Core food plan is designed to meet increased nutrition needs.
- Ethnic background, belief system, and lifestyle may require alternative food plans.
- Pregnant women should avoid alcohol, caffeine, tobacco, and drugs.
- Includes sufficient quantity and regular meals.
- Chapter 10

Lesson 10.2

- Key Concepts

- Pregnancy is a prime example of physiologic synergism in which the mother, fetus, and placenta collaborate to sustain and nurture new life.

- Key Concepts, cont'd

- Through her diet, a breastfeeding mother continues to provide all of her nursing baby's nutrition needs.

- Functional Gastrointestinal Problems

- Nausea and vomiting
  - Morning sickness occurs briefly during first trimester.
  - Is caused by hormonal adaptations.
  - Small, frequent, dry, easily digested energy foods may relieve symptoms.
  - Severe and prolonged sickness requires medical treatment.

- Functional Gastrointestinal Problems, cont'd

- Constipation
  - May occur in latter part of pregnancy
  - The result of increased pressure of enlarging uterus and reduced normal peristalsis
  - Remedies include exercise, increased fluid intake, high-fiber foods

- Hemorrhoids
  - Caused by increased weight of baby
  - Usually controlled by dietary suggestions used for constipation

- Functional Gastrointestinal Problems, cont'd

- Heartburn
  - Caused by pressure of enlarging uterus crowding the stomach
  - Dividing day's food intake into a series of small meals usually relieves condition
- Effects of iron supplements:
  - Gray or black stool, nausea, constipation, diarrhea
  - Take iron supplements 1 hour before or 2 hours after a meal with water or orange juice
- High-Risk Mothers and Infants
- Identifying risk factors and addressing them early are critical.
- Identifying poor food patterns can prevent nutrition problems.
  - Insufficient food intake
  - Poor food selection
  - Poor food distribution throughout day
- High-Risk Mothers and Infants, cont'd
- Teenage pregnancy
  - Special care must be given to support adequate growth of mother and fetus.
- Planning personal care
  - Work with mother in sensitive and supportive manner.
  - Dangerous practices should be avoided.
  - Craving for and consumption of nonfood items is sometimes seen
- High-Risk Mothers and Infants, cont'd
- Special counseling needs

- Age (adolescents, women 35+ years)
- Parity (several pregnancies within a certain number of years)
- Alcohol abuse leading to fetal alcohol syndrome
- Smoking causing placental abnormalities and fetal damage
- Drug use: medicinal or recreational

- High-Risk Mothers and Infants, cont'd
- Fetal alcohol effects

- High-Risk Mothers and Infants, cont'd
- Special counseling needs
  - Vitamin abuse by megadosing also may cause fetal damage.
  - Caffeine used in extreme excess may result in fetal injury.
  - Poverty puts pregnant women in danger because of the need for resources for financial assistance and food supplements
- Complications of Pregnancy
- Anemia
  - Deficiency of iron or folate in mother's diet
  - Dietary intake must be determined, supplements used as indicated
- Neural tube defect
  - Caused by low folate intake
- Intrauterine growth failure
  - Caused by low pregnancy weight, inadequate weight gain, smoking

- Complications of Pregnancy, cont'd
- Hypertensive disorders
  - Related to diets low in protein, kilocalories, calcium, salt
  - Optimal nutrition important, medical treatment required
- Gestational diabetes
  - Results from increased metabolic workload
  - Important to identify based on risk factors and treat with special diet or insulin
- Complications of Pregnancy, cont'd
- Preexisting disease
  - Hypertension, diabetes, phenylketonuria, and other diseases complicate pregnancy
  - Pregnancy is managed by a team of specialists
- Lactation Trends
- Breastfeeding on rise since 1960
- >70% of North American mothers currently initiate breastfeeding.
  - More mothers are informed on benefits.
  - Practitioners recognize human milk can meet unique infant needs.
  - Maternity wards and birth centers support lactation.
- Lactation Trends, cont'd
- Breastfeeding is recommended for at least the first 12 postpartum months.
- Proper instruction can overcome common difficulties.
- Well-nourished mothers who exclusively breastfeed provide adequate nutrition.

- Solid foods are added to baby's diet at 6 months of age.
- Physiologic Process of Lactation
- Throughout pregnancy mammary glands prepare for lactation.
- Mammary glands extract nutrients from maternal blood and synthesize other compounds.
- Physiologic Process of Lactation, cont'd
- Stimulation of nipple from infant suckling stimulates milk production.
  - Stimulates prolactin: produces milk
  - Oxytocin: responsible for let-down reflex
- The more the mother breastfeeds, the more milk is produced.
- Anatomy of the Breast
- Physiology of Milk Production
- Nutrition Needs for Lactation
- Milk production requires an extra 330 to 400 kcal/day.
- Need for protein during lactation is 25 g/day more than woman's average need.
- About 3 L/day of water, juices, milk, and soup contribute to necessary fluids.
- Rest, moderate exercise, and relaxation are necessary.
- Advantages of Breastfeeding
- Fewer infections
- Fewer allergies and intolerances

- Ease of digestion
- Convenience and economy
- Improved cognitive development
- Summary
- Pregnancy involves the fetus, placenta, and mother.
- Maternal needs also reflect the increasing nutrition needs of the fetus and placenta.
- Optimal weight gain varies with the normal nutritional status and weight of the woman.
- A goal weight gain for a woman of average weight is between 25 to 35 lb.
- Summary, cont'd
- Sufficient weight gain is important during pregnancy to support the rapid growth taking place
- Nausea and vomiting associated with hormonal adaptations are common during the first trimester.
- Other discomforts that occur later in pregnancy include constipation, hemorrhoids, or heartburn from the pressure of the uterus.
- Summary, cont'd
- Ultimate goal of prenatal care is a healthy infant and a healthy mother who can breastfeed the child if she chooses.
- Human milk provides essential nutrients in quantities that are well suited for optimal infant growth and development.