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.