

Chapter 19

Prenatal Development and Birth

Lesson 1 – The Beginning of the Life Cycle

1. Define the following terms.

Fertilization

- The union of the male sperm and female egg.

Implantation

- Zygote attaches to the uterine wall.

Embryo

- Cluster of cells that develop between the 3rd and 8th weeks of pregnancy.

Fetus

- After the 8th week of pregnancy the developing cells are called a fetus.

Lesson 1 - continued

2. Describe the body systems that develop from each of the 3 tissue layers present in the developing embryo.

Layer 1

- Respiratory and digestive systems.

Layer 2

- Muscles, bones, blood vessels, and skin.

Layer 3

- Nervous system, sense organs, and mouth.

3. Describe these structures.

Amniotic sac

- A thin fluid filled membrane that surrounds and protects the developing embryo.

Lesson 1 - continued

Umbilical cord

- Ropelike structure that connects the embryo and the mother's placenta.

Placenta

- Thick, blood-rich tissue that lines the walls of the uterus during pregnancy and nourishes the embryo.
4. Explain how materials in the mother blood can reach a developing embryo even though the 2 blood supplies are kept separate.
- Material diffuse from one blood supply to the other through the umbilical cord.

Lesson 1 - continued

5. Why should a pregnant female not use tobacco and alcohol?

- They can cross the placenta and harm the developing embryo.

6. Answer the following questions about fetal development.

What term is best used to describe the 3-month periods in a pregnancy?

- Trimesters.

What parts of the embryo have developed or begun to develop by the 8th week?

- Mouth, ears, nostrils, eyelids, heart forms and begins to beat.

Lesson 1 - continued

At what point in a pregnancy can a fetus survive if it born?
Will it need special attention if it is born this early?

- After 24 weeks – will need special medical care.

7. What are 2 ways ultrasound technology can be used during a pregnancy? (See next slide for ultrasound pictures)

- Determine gender.
- Identify multiple births.

8. What does labor refer to?

- The final stage of pregnancy – uterus contracts – pushes baby out of mother's body.

3D and 2D– Ultrasound Pictures



Lesson 1 - continued

9. List the 3 stages of birth and the position of the baby during each stage.

Stage 1 – Dilation

- In the uterus - head resting on cervix.

Stage 2 – Passage through birth canal

- In the birth canal then emerging from the mother's body.

Stage 3 – Afterbirth

- Baby has been born – still attached to placenta by umbilical cord.

Lesson 2 – Prenatal Care

1. What is prenatal care?

- Steps that a pregnant female can take to provide for her own health and the health of her baby.

2. Describe 2 types of specialists who can provide prenatal care.

- Obstetrician – doctor who specializes in care of female and developing child.
- Certified mid-wife – advanced practical nurse specializes in prenatal care and delivering babies.

Lesson 2 - continued

3. What is a birthing center?

- A facility in which women with low risk pregnancies can deliver their babies in a home-like setting.

4. List 6 nutrients that are needed more by pregnant females and the role each nutrient has in fetal development.

Calcium

- Helps build strong bones and teeth, healthy nerves and muscles. Important for developing heart rhythm.

Protein

- Forms muscles and most other tissues.

Lesson 2 - continued

Iron

- Makes red blood cells and supplies oxygen to cells.

Vitamin A

- Aids in cell and bone growth and eye development.

Vitamin B Complex

- Aids in forming nervous system.

Folic Acid

- Critical part of spinal fluid helps close the tube that contains the central nervous system.

Lesson 2 - continued

5. Why do healthcare providers suggest that all females of childbearing age consume 400-600 micrograms of folic acid daily?

- To prevent birth defects.

6. List 3 recommendations for pregnant females concerning calorie consumption, weight gain, and physical activity during pregnancy.

- Only 300 additional calories each day.
- Healthy pre-pregnancy weight – gain between 25-35 during pregnancy.
- Physical activity can be beneficial - consult doctor.

Lesson 2 - continued

7. Answer the following questions about pregnancy and alcohol.

What is the effect of a fetus breaking down alcohol at a much slower rate than the mother?

- At risk for fetal alcohol syndrome.

What is FAS?

- Group of alcohol related birth defects that includes both physical and mental problems.

5 lifelong consequences for children with FAS.

- Mental retardation, learning disabilities, serious behavior problems, slowed growth, and physical deformities.

Lesson 2 - continued

8. How can smoking during pregnancy affect a developing fetus?

- Low birth weight.
- Premature birth.
- Affect growth, mental development, and behavior.

9. How can medicines or illegal drugs affect a pregnancy?

- Can harm mother's health less able to support pregnancy.
- Directly harm fetal development.
- Baby could be born with withdrawal symptoms.

Lesson 2 - continued

10. List 4 common substances in the environment that a pregnant female should avoid.

- Lead.
- Smog.
- Radiation.
- Cat litter.

11. Define the terms miscarriage and stillbirth.

- Miscarriage – spontaneous expulsion of a fetus that occurs before the 20th week of pregnancy.

Lesson 2 - continued

- Stillbirth – deceased fetus expelled from the body after the 20th week of pregnancy.

12. List 3 steps a pregnant female can take for a healthy pregnancy and a healthy baby at birth.

- Regular examinations.
- Eat nutritious foods and drink plenty of water./Moderate activity.
- Avoid all harmful substances.

13. Ectopic pregnancy -

- Zygote implants in the fallopian tube.

Lesson 2 - continued

Preeclampsia –

AKA – toxemia – can prevent placenta from getting enough blood.

Lesson 3 – Heredity and Genetics

1. Define the terms listed below.

Heredity

- The passing of traits from parents to their children.

Chromosomes

- Threadlike structures found within the nucleus of a cell that carry the codes for inherited traits.

Genes

- Basic units of heredity.

DNA

- Chemical unit that makes up chromosomes.

Lesson 3 - continued

2. Insert a word, phrase, or number in each blank to complete the following sentences.

- Most cells in the human body contain a **nucleus**, which is the cell's control center.
- Most cells in the human body contain **46** chromosomes arranged as **23** pairs.
- Sections of chromosomes, called **genes**, carry codes for specific traits.
- Genes occur in pairs. One gene from each pair is inherited from **each parent**.

Lesson 3 - continued

- The structure of DNA is made up of chemical compounds, called **bases**.
- The order of the bases is called the **genetic code**.
- Sperm cells and egg cells have only **23** chromosomes, half the amount in most human cells.
- When a sperm and an egg unite, the resulting zygote will have **46** chromosomes, **23** from each parent.
- Each new cell in the developing embryo will contain one set of **46** chromosomes that are identical to those in the first cell of the zygote.

Lesson 3 - continued

3. When do dominant traits appear?

- When dominant genes are present.

When do recessive traits appear?

- Appear when dominant genes are not present.

4. Explain how genes determine the gender of an individual.

- Which sperm X or Y chromosome unites with an egg.
(Females have 2 X chromosomes).

5. Answer the following questions about genetic disorders.

What are genetic disorders?

Lesson 3 - continued

- Disorders caused partly or completely by a defect in genes.

Name 2 procedures commonly used to test for genetic disorders.

- Amniocentesis.
- Chronic villi sampling (CVS).

What is amniocentesis?

- Procedure in which a syringe is inserted through a pregnant female's abdominal wall into the amniotic fluid surrounding the developing fetus.

Lesson 3 - continued

What is chronic villi sampling?

- Procedure in which a small piece of membrane is removed from the chorion, a layer of tissue that develops into the placenta.

6. Name 2 ways genetic counselors can help families.

- Inform a family that they will be have a child with genetic problems.
- Assist with treatment options.

7. List 2 purposes of the Human Genome Project.

Lesson 3 - continued

- Identify all of the genes in human DNA.
- Determine the sequences of the 3 billion base pairs that make up human DNA.
- Improve diagnosis and treatment for genetic disorders.

8. What is gene therapy?

- Process of inserting normal genes into human cells to correct genetic disorders.

9. Explain how genetically engineered drugs are produced.

- Genes placed into organisms other than human beings.
- Organisms produce a substance that can be used to treat human diseases and disorders.

Lesson 4 – Infancy and Childhood

1. What are developmental tasks?

- Events that need to happen in order for a person to continue growing toward becoming a healthy, mature adult.

2. For each stage of infancy and childhood below, list the age at which it generally occurs, a task identified with each stage, and a brief description of the stage.

Stage 1 - Infancy

Age – Birth to 1 year.

Task – To develop trust.

Description – Completely dependent on others to meet needs/must trust others.

Lesson 4 - continued

Stage 2 – Early Childhood

Age – 1 to 3 years.

Task – To develop ability to do tasks for oneself.

Description – Learns to walk, talk, dress, and feed themselves.
Self-control and confidence begin to develop.

Stage 3 – Middle Childhood

Age – 4 to 6 years.

Task – Develop responsibility, create one's own play.

Description – Interacts with others, models adult behavior,
controls impulses.

Lesson 4 - continued

Stage 4 – Late Childhood

Age – 7 to 12 years.

Task – Develop interest in performing activities.

Description – Completes transition from home to school, learns to make things, use tools, and acquire skills.

3. Complete the following sentence: Success in each stage of development is dependent on

- Individuals' experiences during that stage.

Lesson 4 - continued

4. Identify a possible outcome of each scenario described below.

An infant's parents ignore the child's needs.

- Child may learn to be distrustful.

The parents of a child in early childhood are overprotective or critical of their child's behavior?

- Develop doubts about his/her abilities.

The parents of a child in middle childhood are impatient with the child.

- Develop a sense of guilt about self-initiated activities resulting in low self esteem.

Lesson 4 - continued

A child in late childhood is scolded for making a mess, getting in the way, or not following directions.

- **Develop feelings of self-doubt.**

5. Answer the following questions about vision.

One in how many children in the United States has low vision or is legally blind?

- **1,000**

Describe how visual impairment can affect a child.

- **Can limit a child's exposure to information/can affect all forms of development.**

Lesson 4 - continued

When should vision screenings be given?

- Newborns and regularly throughout childhood.

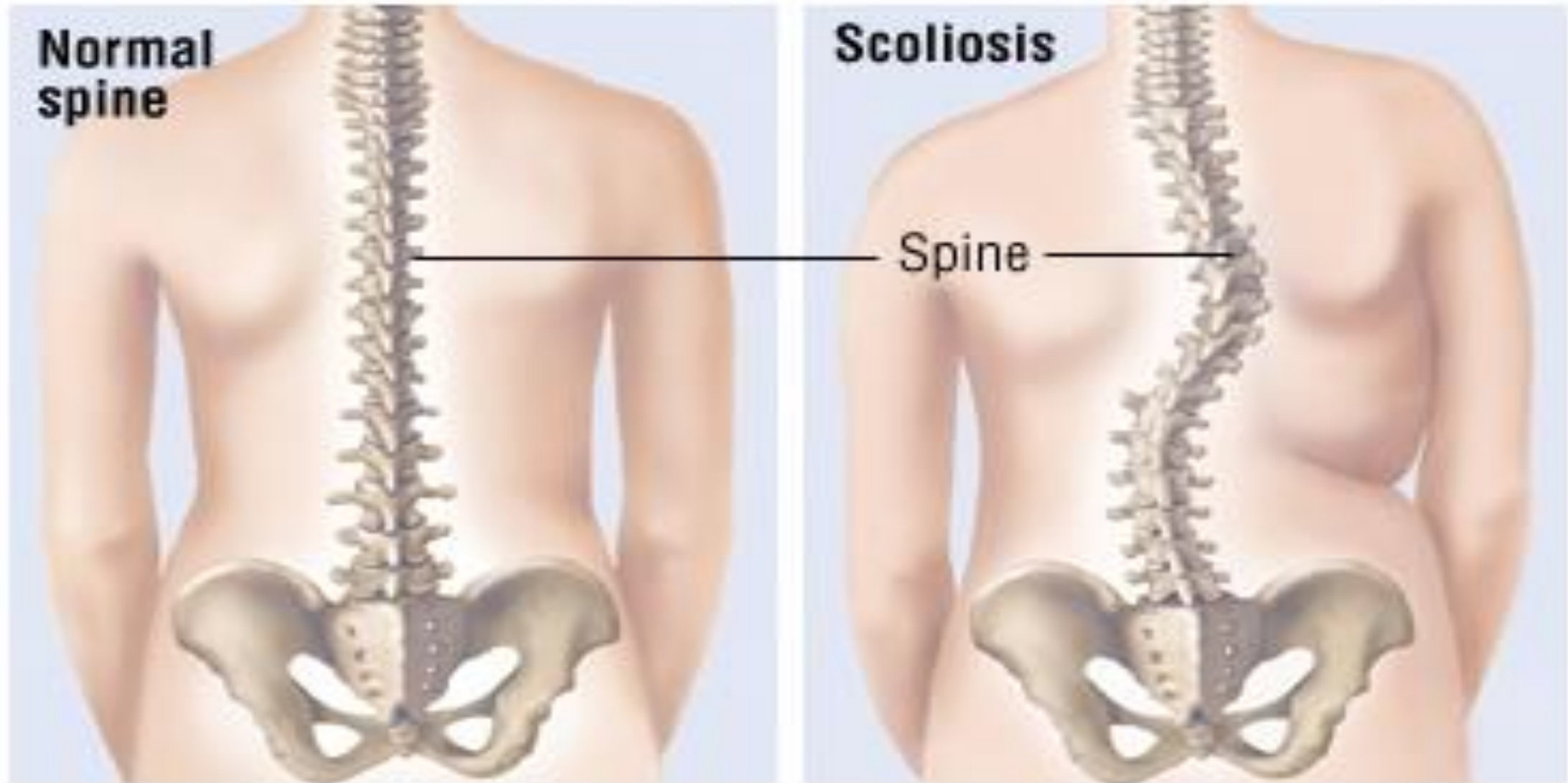
6. What is one way children with hearing impairment are affected?

- Can affect language development.

7. What is scoliosis?

- Abnormal, lateral, or side-to-side, curvature of the spine.

Lesson 4 - continued



Lesson 4 - continued

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