

Lesson Five – Fetal Development

LEARN: Infant Development by Trimester

Purpose:

These activities make participants be more realistic about physical and mental development after birth. After birth, an infant grows and starts to learn how to use its arms, legs, and other parts of the body. An infant reaches many physical milestones during the first three years. Not all infants reach all milestones at the same time. Every infant is different. Many young people have unrealistic expectations about what very young infants are able to do. For example, many think that a newborn infant is able to smile, coo, and laugh right away. It takes one or two months for these behaviors to emerge. Unrealistic expectations about infant behavior have led to frustrated parents and child abuse in some cases. The infant development milestone activities listed in this section can help participants gain a more realistic outlook on the development of infants and young children.

Activity 1 – Trimester Development Mix-up

20 minutes

Materials:

- *Trimester Characteristics* handout
- *Trimester Development* handout
- Scissors
- Fetal Development Kit models for months 3, 6 and 9
- Pregnancy Torso

Facilitation Steps:

1. Display the Fetal Development Kit models for the third, sixth, and ninth months. Then display the Pregnancy Torso so students can use each of these as a good visual aid as you discuss each trimester.
2. Print/photocopy and cut out each developmental characteristic on the dotted lines on the *Trimester Characteristics* sheet.
3. Write the words First Trimester, Second Trimester, and Third Trimester on a marker board or chalk board.
4. Mix up the developmental characteristics in a hat or other container and have each participant take turns drawing one and deciding which trimester it belongs in.
5. Write the characteristic on the board under the trimester the participant chose, or tape the papers on the board and move as needed.
6. After all the characteristics have been assigned, hand out the Trimester Development sheet and discuss each trimester. Change the lists so they are correct as you discuss each characteristic.
7. Discussion: Does one trimester have more characteristics than another? Which one? Which trimester is the most important? All three are equally important, but major organs and systems form mostly in the first trimester.

Trimester Characteristics

The sperm joins the egg in the fallopian tube.	Able to feel pain.
Cells rapidly divide. The embryo floats toward the uterus.	Vocal cords are used to cry silently.
Embryo implants itself in the wall of the uterus.	Muscles get longer and are easier to move.
Backbone, spine, spinal cord, brain and nervous system form.	Mother feels kicking and movement inside her. Fetus is cushioned in liquid called amniotic fluid.
Lungs, intestines, and beginnings of urinary system start to develop.	Adult taste buds are formed.
Heart starts beating.	Eyebrows, eyelashes, and hair start to grow.
Placenta starts working.	Fetus is able to grasp things with hands. Kicking continues.
Spine and spinal cord grow quickly.	Fetus can hear voices and recognizes mother's voice.
Facial features become visible.	Fingernails and fingerprints appear.
Muscle system is formed.	Sex organs are formed.
Movement begins.	Fetus starts growing quickly in size.
Embryo is about a ½ inch long.	Fetus is covered with downy hair called lanugo.
Arms, legs, fingers and toes form.	Fetus inhales amniotic fluid to practice breathing.
Brain waves can be measured.	Skin is covered by a waxy substance called vernix.
Heart is almost completely developed.	Nourishment from the mother through the umbilical cord continues.
Baby teeth form in the gums.	Fetus sleeps most of the day.
Brain is physically fully formed.	Fetus gains the most weight and grows longer.

Trimester Development

First Trimester (conception to 12 weeks)	Second Trimester (13 to 24 weeks)	Third Trimester (25 weeks to birth)
The sperm joins the egg in the fallopian tube. Cells rapidly divide. The embryo floats toward the uterus. 2 WEEKS Embryo implants itself in the wall of the uterus. 3 WEEKS Backbone, spine, spinal cord, brain and nervous system form. Lungs, intestines, and beginnings of urinary system start to develop. Heart starts beating. 5 WEEKS Intestines are developing and the appendix is in place. Placenta starts working. Spine and spinal cord grow quickly. Facial features become visible. 7 WEEKS Muscle system is formed. Movement begins. 8 WEEKS Embryo is about 1 half-inch long. Arms, legs, fingers and toes form. Brain waves can be measured. 10 WEEKS Heart is almost completely developed. Baby teeth form in the gums. Brain is physically fully formed. Able to feel pain. 12 WEEKS Vocal cords are used to cry silently.	Muscles get longer and are easier to move. 14 WEEKS Mother feels kicking and movement inside her. Fetus is cushioned in liquid called amniotic fluid. 15 WEEKS Adult taste buds are formed. Eyebrows, eyelashes, and hair start to grow. Fetus is able to grasp things with hands. 16 WEEKS Kicking continues. Fetus can hear voices and recognizes mother's voice. 20 WEEKS Fingernails and fingerprints appear. Sex organs are formed. Fetus starts growing quickly in size.	Fetus is covered with downy hair called lanugo. 24 WEEKS Fetus inhales amniotic fluid to practice breathing. Skin is covered by a waxy substance called vernix. 30 WEEKS Nourishment from the mother through the umbilical cord continues. 32 WEEKS Fetus sleeps most of the day. 40 WEEKS Fetus gains the most weight ($\frac{1}{2}$ pound per week) and grows longer. BIRTH

Activity 2 – Oral Pop Quiz and Discussion

10 minutes

Materials:

- Blank piece of paper for participant answers

Facilitation Steps:

1. Have a short pop quiz with these four questions to jumpstart a discussion about infants' mental development. Have participants write their answers on a sheet of paper while you ask questions orally.
2. Oral quiz questions:
 - Which is more active: an adult's brain or an infant's brain? (An infant's)
 - Which is more developed at birth, the brain or the heart? (The heart)
 - True or false: brain development depends totally on heredity. (False)

Activity 3 – Infant Milestone Roleplay

30 minutes

Materials:

- *Infant Development Milestones* (one for each pair)
- *Infant Development Milestones Answer Key* (one for each pair)
- *Infant Development Milestones Fact Sheet* (one per participant)

Facilitation Steps:

1. Divide participants into pairs. Give each pair a copy of the *Infant Development Milestones* sheet with a different milestone (or milestones) highlighted for each pair.
2. Participants must choose which person will portray the parent and which will portray the infant. Combine two pairs of participants together to form a group of four.
- During which trimester is brain development the most critical? (First trimester) Two-thirds of birth defects occur during the first trimester. Teratogens (things that cause harm to the fetus) such as alcohol, illegal drugs, pesticides, etc. can cause irreversible brain damage. Many women don't realize they are pregnant for several weeks. They may use alcohol or drugs during this time. (Stress importance of not using alcohol or drugs if sexually active.)
3. For their highlighted milestone(s), the pair must do a short roleplay in front of their group displaying their milestone(s) and have the group guess what it is.
4. Then distribute the *Infant Development Milestones Answer Key* sheet and discuss as a class which age level each milestone fits with.
5. Give each participant an *Infant Development Milestones Fact Sheet* and have them take turns reading a few sentences out loud to the class.

Infant Development Milestones

Your instructor will divide your class into groups of two. One development milestone should be highlighted on this worksheet. You and your partner must roleplay as an infant who is achieving the highlighted milestone and the infant's parent as he or she watches the infant do this. Choose which person in your pair will roleplay the parent, and which will roleplay the infant. Practice your roleplay. Your teacher will then combine two pairs of participants together to form a group of four. You and your partner must perform your roleplay in front of the group, displaying your highlighted milestone, and have the group guess what it is.

Move both arms well and coordinate movements.

Make gurgling, cooing, babbling, or other sounds.

Respond to parents' voices.

Hold head up for short periods of time.

Follow objects with eyes.

Recognize parents' faces.

Turn head to locate a sound.

Roll over from stomach to back or from back to stomach.

Push up with arms while lying on stomach.

Put some weight on legs when held in standing position.

Play with own hands and feet.

Imitate sounds.

Turn head to locate even soft sounds.

Sit up without support.

Begin to crawl or creep.

Hold own bottle.

Reach for objects.

Stand while holding onto something.

Say "dada" or "mama" or other word.

Pull up on something to stand.

Anticipate parent coming back into view.

Walk while holding onto furniture.

Make hand movements to indicate wanting something.

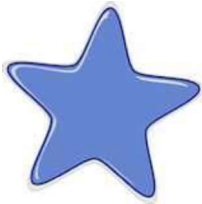
Stand alone for a second or two.

Infant Development Milestones

ANSWER KEY

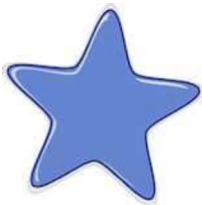
No two children are alike. Each child will be able to do the things listed below at different times. These are simply guidelines that parents could use to judge how their child is developing. If a child does not do some of these things according to the timeframe listed, it probably does not mean there is something wrong.

By 3 months of age, many infants can:



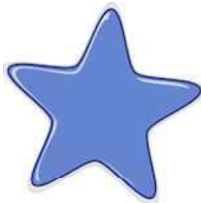
- Move both arms well and coordinate movements.
- Make gurgling, cooing, babbling, or other sounds.
- Respond to parents' voices.
- Hold their head up for short periods of time.
- Follow objects with their eyes.
- Recognize parents' faces.

By 6 months of age, many infants can:



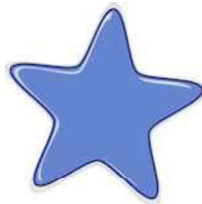
- Turn their head to locate a sound.
- Roll over from stomach to back or from back to stomach.
- Push up with their arms while lying on their stomach.
- Put some weight on their legs when held in standing position.
- Play with their own hands and feet.
- Imitate sounds.

By 9 months of age, many infants can:



- Turn their head to locate even soft sounds.
- Sit up without support.
- Begin to crawl or creep.
- Hold their own bottle.
- Reach for objects.
- Stand while holding onto something.

By 12 months (1 year) of age, many children can:



- Say "dada" or "mama" or other words.
- Pull up on something to stand.
- Anticipate parent coming back into view.
- Walk while holding onto furniture.
- Make hand movements to indicate wanting something.
- Stand alone for a second or two.



Infant Development Milestones

FACT SHEET

Nine months, three trimesters: A baby is in its mother’s womb, or uterus, for about nine months from the time it is conceived. That nine-month period of time is divided into three sections called trimesters. Different development takes place during each trimester.

Be realistic about a baby’s development: After birth, a baby grows and starts to learn how to use its arms, legs and other parts of the body. A baby reaches many physical milestones during the first three years. Not all babies reach all milestones at the same time. Every baby is different.

Many people think that a newborn baby is able to smile, coo, and laugh right away. Actually, it takes one or two months before a baby may smile and coo. Many young and especially teenage parents believe that a baby will love them back right away. A baby does bond with his or her parent, but a newborn is going to take much more than it gives back. A caregiver may get frustrated with a baby unless he or she knows what a baby can realistically do and at what age.

Helping babies’ brains develop: Most brain development happens after a baby is born. An infant has 100 billion brain cells at birth, and a small child’s brain is twice as active as an adult’s. Some brain cells already have pathways to each other to help with breathing, heartbeat, and other life-sustaining functions. Other pathways that determine behavior, mental capacity, and emotional development must be made after birth.

The pathways the young brain cells make with each other are formed mostly during the first three years of life. The brain keeps track of which pathways are used most. If certain experiences are repeated many times, those pathways are more likely to remain strong throughout life. If a pathway is not used regularly, the brain gets rid of it.

Communication and language: To learn to talk, a baby must hear language. Many people think that talking to a baby is not important since the infant cannot understand the words. This is not true! Words and sounds heard during the first three years of life help the child learn to speak. Parents and caregivers who read and talk to their babies are helping to develop very important language pathways in the brain. After a while, the child will start to participate and “talk” back. Even babbling is repeating the sounds and syllables of words they hear.

Routines and security: A baby needs a safe, secure environment filled with loving care. Loving responses to each instance of crying makes a baby feel safe. The baby learns that his or her world is predictable. A positive relationship with a parent makes the baby feel safe and secure. Consistency is key. Predictable routines for eating and sleeping are good ways to establish security.

Enriching experiences: Parents do not need expensive, trendy educational toys and activities to help their babies’ brain development. Any activity that stimulates one or more of the five senses will help build pathways.

5 senses	Activity
Sight	Watching and focusing on mom or dad’s face, picture books
Sound	Listening to music
Touch	Feeling new textures (soft, hard, rough, smooth, fuzzy, etc.) or feeling fabrics
Smell	Cooking smells, flowers, fresh air, etc.
Taste	After a few months, tasting new foods every few days

Taking a baby for a walk while the baby is active and alert is a great way to provide a new experience for building pathways. Variety is important, and so is the repeating of activities. Many babies can tolerate only brief periods of active stimulation, whether it be for the eyes, ears, etc. Infants will communicate when they have lost interest by fussing or turning their face away.

Activity 4 – Research Day

45 minutes

Materials:

- Internet access or library books on brain development

Facilitation Steps:

1. Take participants to the library or computer lab and have them research the physical and scientific aspects of brain development. Have participants share their findings in class the next day.

Activity 5 – Create a Game

45 – 90 minutes

Materials:

- Game materials – markers, index cards, construction paper, scissors, glue, etc.

Facilitation Steps:

1. Have participants get into groups and create a game they will present to the class. The game needs to be able to help others understand the stages of fetal development. Possible types of games might include memory (matching) games or flash cards, or participants can get creative and create their own type of game.

2. The following is what each group will need to know or have access to for this activity: Each fetal development stage (zygote, embryo, and fetus) and each month (3rd, 4th, 5th, 6th, 7th, 8th, and 9th). Participants should state two development characteristics for each stage and each month.
3. Participants should get creative and use markers, index cards, construction paper, scissors, glue, etc.

4. Here is the grading rubric for this activity for the instructor:

Stages Explained: 10 8 6 4 2 0

Months Explained: 10 8 6 4 2 0

Organization: 10 8 6 4 2 0

Depth of Understanding: 10 8 6 4 2 0

Grammar: 10 8 6 4 2 0

Neatness: 10 8 6 4 2 0

5. Spend the next class period playing the games that the participants have created.

Activity 6 – I Have...Who Has? Game

10 minutes

Materials:

- *I Have...Who Has?* sheet (one) cut into pieces
- *Fetal Development Stages* (for instructor, see presentation slides 3 and 4)
- *Fetus Monthly Development* (for instructor) (see presentation slides 5-11)
- Fetal Development Kit

Facilitation Steps:

1. Cut up the *I Have...Who Has?* sheet into pieces along the dotted lines. Mix up the pieces and have each participant draw one slip of paper. Have the participant who has the slip with the smiley face on it come up to the front of the class.
2. Ask that participant to read the slip of paper out loud.
“I HAVE: Third month
WHO HAS: The month when eyes open and close, muscles in the arms and legs strengthen, and fat deposits begin to appear beneath wrinkled skin.”
3. The goal is for the participant who has the correct month listed on their slip of paper that matches the “WHO HAS” statement the first participant read to come up to the front and continue the game. So, the person who has the piece of paper stating “I HAVE: Sixth month” should come up and stand next to the first participant, because the sixth month of fetal development is when the first participant’s “WHO HAS” statement occurs.
4. The second participant reads his or her slip of paper out loud, and the matching continues. The key for this game is on the *Fetal Development Stages* and the *Fetus Monthly Development* sheets. You can also reference the slides 3-11.
5. If there are more participants in the class than slips of paper, after the first group is finished you can repeat the game with the next group
6. Display the Fetal Development Kit models, if available, for students to reference.

I Have...Who Has...? Game

I HAVE: Third month

WHO HAS: The month when eyes open and close, muscles in the arms and legs strengthen, fat deposits begin to appear beneath wrinkled skin.

I HAVE: Sixth month

WHO HAS: The month the fetus gains disease-fighting antibodies from the mother's blood.

I HAVE: Ninth month

WHO HAS: The month when hair, eyelashes, and eyebrows appear. Hands develop, fetus becomes more active.

I HAVE: Fifth month

WHO HAS: The month the fetus hears sounds and may be startled by sudden noises.

I HAVE: Eighth month

WHO HAS: The stage when all major body systems begin to develop. Examples: Central nervous system, blood vessels, stomach, and heart.

I HAVE: Embryo

WHO HAS: The month when skin is less transparent, fine hair covers the entire body, fetus can suck its thumb.

I HAVE: Fourth month

WHO HAS: The month when a thick white protective coating called vernix covers the fetus.

I HAVE: Seventh month

WHO HAS: After the sperm unites with the ovum.

I HAVE: Zygote Stage

WHO HAS: The month the nostrils, mouth, fingers, and toes develop, biological gender is evident, and all organs are present.

ANSWERS:

3rd month card = 6th month up next
 9th month card = 5th month up next
 8th month card = Embryo up next
 Zygote stage card = 3rd month up next
 6th month card = 9th month up next
 5th month card = 8th month up next
 Embryo card = 4th month up next
 7th month = Zygote stage up last

Activity 7 – Menu for Pregnancy

45 - 90 minutes

Materials:

- *Healthy Eating During Pregnancy* (one per participant)
- *Healthy Menu* (one per participant)
- *Things to Avoid During Pregnancy* (one per participant)

Facilitation Steps:

1. Heartburn and constipation are both physical discomforts of pregnancy. Some women also have a problem with unstable blood sugar during pregnancy. With this in mind, to relieve problems, many doctors recommend that mothers eat frequent, small meals throughout the day. This diet should include an increase in fiber, folic acid and be high in protein, calcium, vitamin C, and iron. Beware of sugary, salty, and high-processed foods as they can cause

problems such as swelling and diabetes, and remember the goal is not to gain an excessive amount of weight while pregnant. Using the *Healthy Eating During Pregnancy* worksheet as a guide, have participants develop a menu using the *Healthy Menu* sheet.

2. Give each participant a *Things to Avoid During Pregnancy* sheet. In addition to eating healthy, there are other considerations that pregnant women need to be aware of to ensure a healthy outcome. Review each of the items to avoid and talk about why each is important.
3. Assign participants different types of diets (lactose-intolerant, vegetarian, limited budget income, etc.) A computer presentation can be created to educate and inform the class of the importance of nutrients to the mother and unborn child.
4. Have each participant present their project to the group.

Healthy Eating During Pregnancy

A variety of foods are important during pregnancy for the mother and baby.

Protein

Amino acids help build the brain, muscles, hair, skin, nails, and immune system.

Foods: meat, poultry, fish, eggs, beans, and milk. **Note:** Stay away from high-protein supplements.

Carbohydrates

Provides energy for the expectant mother. More than half of daily calories should come from this.

Foods: grains, cereals, pasta, whole grain bread, rice, potatoes, and corn. **Note:** Stay away from candy, soda, and desserts.

Fats

Can contribute to good health and energy, and help the body to use vitamins like A, D, E, and K.

Foods: boiled, steamed, roasted, and baked goods are better choices. **Note:** Limit foods in fat.

Fiber

Can help regulate the bowels, aid in the prevention of heart disease, and protect against some cancers.

Foods: whole grain bread products, pastas or cereals, brown rice, dried fruits (apricots, dates, prunes, raisins), blackberries, blueberries, raspberries, strawberries, oranges, broccoli, beans (e.g. kidney, lima, chick peas, lentils and soy beans).

Folic Acid

Helps produce extra blood and prevent birth defects of the nervous system.

Foods: broccoli, green leafy vegetables, and orange juice; fortified foods – breads, pasta, and grains.

Vitamin A

Vital for developing cells, bones, and vision.

Foods: dairy products, fruits and vegetables that are orange, dark green, and deep yellow.

TOO MUCH OF THESE CAN CAUSE BIRTH DEFECTS.

Vitamin B

Nerve cells and formation of red blood cells.

Foods: meats, grains, and dairy products.

Vitamin C

Helps produce collagen, which gives structure to bones, muscles, and blood vessels. Helps the body absorb iron. Boosts the immune system.

Foods: orange juice, melon, tomatoes, and green peppers.

Vitamin D

Develops bones and tissues.

Foods: whole vitamin D milk, egg yolks, and sunlight.

Calcium

Builds strong bones and teeth.

Foods: milk, yogurt, broccoli, and leafy green vegetables like spinach, kale, and collard greens.

Iron

Contributes to renewal of mother's red blood cells, which supply oxygen to the fetus.

Foods: dried fruits, red meats, green vegetables.



Healthy Menu

Meals	Foods	Key Nutrients
Breakfast		
Lunch		
Snack		
Dinner		

Things to Avoid During Pregnancy

Smoking

Smoking can cause premature births and low birth weight. Smoking reduces the amount of oxygen the fetus receives. Secondhand smoke can also be damaging.

Alcohol

No amount of alcohol has been determined safe for an unborn baby. Brain damage and miscarriage can occur with even a small amount of alcohol consumption. The safest route is to drink NO alcohol if you are pregnant or may become pregnant.

Lead

EVERYONE should avoid exposure to lead, especially pregnant women.

Work-Related Hazards

Women who work with or have some contact with chemicals or do strenuous work should talk with their manager or supervisor about cutting back hours or perhaps do different work while they are pregnant.

Paint

A pregnant woman should not paint the nursery, because the fumes could harm the fetus.

Household Cleansers

Expectant mothers CAN use cleaning supplies, but with a few precautions. Strong cleansers with overwhelming fumes should be avoided. Chlorine-based products should never be mixed with ammonia. Rubber gloves should always be worn.

Hair Products

There is no evidence that proves coloring your hair or getting a permanent while pregnant could cause harm to the fetus. However, they are not recommended during pregnancy.

Caffeine

Caffeine has been linked to an increase in miscarriages, so large amounts should be avoided. One cup of caffeinated beverages per day is considered safe. Coffee and certain soft drinks have caffeine in them.

Medications

Pregnant women should consult a doctor before taking any type of medication.

Undercooked meat, cat litter (risk of toxoplasmosis)

Toxoplasmosis is an infection that could harm the fetus. The eyes and brain of a fetus can be damaged by toxoplasmosis, which can be contracted from eating undercooked meat or from contact with cat feces. A woman can be given a blood test to see if she has or has had this disease.

Prevention:

- Expectant mothers should have someone else change cat litter boxes.
- Cook meat and poultry thoroughly.
- Wash utensils that have touched raw meat with hot soapy water.
- Do not cross-contaminate.

Activity 8 – Timeline of Changes

45 minutes

Materials:

- Blank piece of paper

Facilitation Steps:

1. Using the Internet and other reference materials, have participants develop a list of physical changes that occur in the fetus during each of the three trimesters. This can be completed as a group or an individual project.
2. Participants should chart the milestones or benchmarks of fetal development from conception through delivery. You can also use a poster or booklet approach with visuals and facts about each of the trimesters.

Activity 9 – Slide Show and Disease Detective

15 minutes

Materials:

- Presentation Slide 12 – *Heredity and Genetic Diseases*
- Presentation Slide 13 – *Examples of Genetic Diseases*
- *Disease Detective* (one per participant)

Facilitation Steps:

1. Using the *Heredity and Genetic Diseases* and *Examples of Genetic Diseases* slides. Share information about prenatal development and genetics.
2. The *Disease Detective* worksheet can be given as homework or completed in class. These activities can be combined with various handouts and worksheets according to your discretion.

Disease Detective

Directions: Use the Internet or the library to look for information on a genetic disease. You will need to type a one-page report on the information that you have found (one page, no headings, Times New Roman or similar, 12 pt. font size, double spaced). You will share the information with the class.

1. (10 points) What is the genetic disease? Clearly describe the disease.
2. (5 points) Who does this genetic disease most commonly affect? Could be a nationality or age.
3. (7 points) How is this disease detected while in the womb and after the birth?
4. (8 points) Name a support group for this genetic disease. Describe the support group. How does the support group help families?

Total: 30 points

Heredity and Genetic Diseases

Heredity

- The transfer of traits from parent to child.
- Most children have apparent traits from both of their parents and their related families.
- An ovum (egg) and a sperm both contain 23 chromosomes: long, threadlike particles in the cell nucleus.
- When a sperm and ovum unite, they create a single cell with 23 pairs of chromosomes (46 total).

Genes

- Each chromosome contains thousands of genes.
- A gene is a hereditary unit that determines a particular physical or mental trait.
- Genes are from parents, grandparents, and earlier ancestors.
- Everyone is unique and has many random combinations.
- Over 64 trillion different genetic combinations are possible.

Genetic Diseases

Genetic disease occurs when certain genes are abnormal, causing disease or disabilities. Some people are carriers of an abnormal gene because they have family members who have a certain condition.

Everyone has defective genes. In most people it is not noticeable. There are more than 200 genetic disorders.

Examples of Genetic Diseases

There are more than 200 genetic diseases. Listed below is some information about two of the most well-known genetic diseases.

Down Syndrome

- A child with this disorder has an extra, critical portion of the number 21 chromosome present in all or some of their cells.
- Women age 35 and older have a significantly increased risk of having a child with Down syndrome.
- Down syndrome is the most commonly occurring genetic condition.
- Up to 50 percent of individuals with Down syndrome are born with congenital heart defects.
- Most people with Down syndrome have IQs that fall in the mild to moderate range of retardation.
- Most individuals with Down syndrome lead productive, happy lives.
- There is no cure, but research is ongoing.

Neuromuscular Diseases

- Most well-known are muscular dystrophy and Amyotrophic Lateral Sclerosis (ALS) or Lou Gehrig's Disease.
- There are nine different types of muscular dystrophy.
- Can be inherited from one or both parents.
- Skeletal muscles of children with any form of these disorders gradually weaken and cause permanent disability.
- Muscle weakness can also cause respiratory (breathing) problems.
- Some signs appear as early as birth; other forms appear later in childhood, adolescence, and early adulthood.
- Intense physical therapies are given.
- Individuals with muscular dystrophy experience varying degrees of independence.