

## Chapter 5 Motor, Sensory and Perceptual Development

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### Objective for Today's Class:

- What are reflexes and why are they important?
- How do our motor skills develop and change?

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## Motor Development

In order to develop motor skills, infants must perceive something in the

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## Reflexes

- \* Are \_\_\_\_\_
- These movements are automatic and beyond the newborn's control
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_




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Reflex	Stimulation	Infant's Response
<b>Blinking</b>	Flash of light; Puff of air	Closes both eyes
<b>Babinski</b>	Sole of foot stroked	Fans out toes, twists foot in
<b>Grasping</b>	Palms touched	Grasps tightly
<b>Moro (startle)</b>	Sudden stimulation (such as hearing a loud noise or being dropped)	Arches back, throws head back, flings out arms and legs and then rapidly closes them to center of body
<b>Rooting</b>	Cheek stroked or side of mouth touched	Turns head, opens mouth, begins sucking
<b>Stepping</b>	Infant held above surface and feet lowered to touch surface	Moves feet as if to walk
<b>Sucking</b>	Object touching mouth	Sucks automatically
<b>Tonic Neck</b>	Infant placed on back	Forms fists with both hands and usually turns head to the right

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## Why Do We Care About Reflexes?

- \* Some reflexes persist throughout the life
  - Coughing, blinking, and yawning
- \* Some reflexes disappear several months
  - \_\_\_\_\_
  - \_\_\_\_\_
- Often the movements of some reflexes become incorporated into more complex, voluntary movements

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## The Development of Motor Skills

Think on your own....  
What is a motor development milestone?

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Riley rolled over today!  
Jonathan just started crawling!  
Olivia took her first steps last week!

Parents of young children often are eager to announce these developmental milestones, that reflect the infant's ability to interact socially with the family!

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### Gross motor skills

- ✿ Emerge directly from reflexes.
- ✿ These are physical abilities

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Gross motor activities are those such that involve the movement of the entire body-



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### Fine Motor Skills

✦ After infancy *fine motor skills* progress rapidly and older children become more dexterous

These consist of \_\_\_\_\_

\_\_\_\_\_ especially of the hands and fingers.

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Fine motor activities are those such as drawing, writing your name, picking up a coin, buttoning or zipping a coat.



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## Head Control

- ✦ At birth infants can turn their heads from \_\_\_\_\_
- ✦ By 2-3 months they can lift their heads while lying on their stomachs
- ✦ By \_\_\_\_\_ infants can keep heads erect while being held or supported in a sitting position

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## Before you walk, you must learn to....

- ✦ At around 6-8 months, infants become capable of \_\_\_\_\_
- ✦ To master walking (around 13-14 months), infants must acquire distinct skills
  - Standing upright
  - Maintaining balance
  - Stepping alternately
  - Using perceptual information to evaluate surfaces

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## Crawling

- ✦ Begins as *belly-crawling*
  - The "inchworm belly-flop" style
- ✦ Most belly crawlers then shift to hands-and-knees, or in some cases, hands-and-feet
- ✦ Some infants will adopt a different style of locomotion in place of crawling such as bottom-shuffling while some infants skip crawling altogether

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Belly-crawling

Hands-and-knees crawling

Hands-and-feet crawling

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### Walking – Stepping

- Children do not step spontaneously until approximately 10 months because they must
  - Maintaining balance when transferring weight from foot to foot seems to be key
- Thelen and Ulrich (1991) found that 6- and 7-month-olds, if held upright by an adult, could demonstrate the mature pattern of walking of alternating steps on a treadmill

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### Gross Motor Skills

- Childhood
  - As children age they gain greater control over their bodies
    - Boys usually outperform girls
- Organized sports are one way of

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## Gross Motor Skills

### *Adolescence and Adulthood*

- Gross motor skills improve during adolescence with

\_\_\_\_\_

\_\_\_\_\_

No matter how well individuals take care of themselves, aging eventually produces declines in biological functions.

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Infants hardly have any control over their fine motor skills at birth, but they have many components of what will become finely coordinated arm, hand and finger movements




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## Fine Motor Development

- Newborns make poorly coordinated swipes or swings toward an object in front of them
- Usually drops out around 7 weeks of age

### *At 3 months*

and gradually starts to improve

- Infants have developed the necessary head and shoulder control

### *By 7 months*

- The arms become more independent
- Infants can reach for objects with one arm rather than extending both

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### Test your knowledge!

- \* Which of the following is an example of a fine-motor skill?
  - Sitting alone, without support
  - Crawling
  - Eating with a spoon
  - Climbing up stairs

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### Fine Motor – Grasping

- \* Palmar grasp
  - \_\_\_\_\_
  - \_\_\_\_\_
  - 3 months: can adjust the grasp to the size and shape of the object
  - 5 months: can hold object in one hand while exploring it with the other hand
- Using the thumb and forefinger in a well-coordinated movement
  - 12 months: can pick up raisins and blades of grass, turn knobs, and open/close small boxes

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### Fine Motor Skills – Childhood

- \* Fine motor coordination is becoming much more precise
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- \* During middle and late childhood children use their hands more skillfully as tools
  - \_\_\_\_\_

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In adulthood, fine motor skills may undergo some decline in middle and late adulthood as dexterity

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For example, older adults are slower in handwriting than younger adults.

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### Handedness

- Young babies reach for objects without a preference for one hand over the other
- The preference for one hand over the other becomes stronger and more consistent during
  - By the time children are ready to enter kindergarten, handedness is well established and very difficult to reverse
- Handedness is determined by heredity and environmental factors
  - Approximately 10% of children write left-handed

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Approximately 85-95% of right-handed people primarily process speech in the brain's left hemisphere

However, approximately 10% of left-handers process speech in their right hemisphere and about 15% of left-handers process speech equally in both hemispheres

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Next...

How does our thinking change with age?

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