

Human Growth and Development & Motor Learning



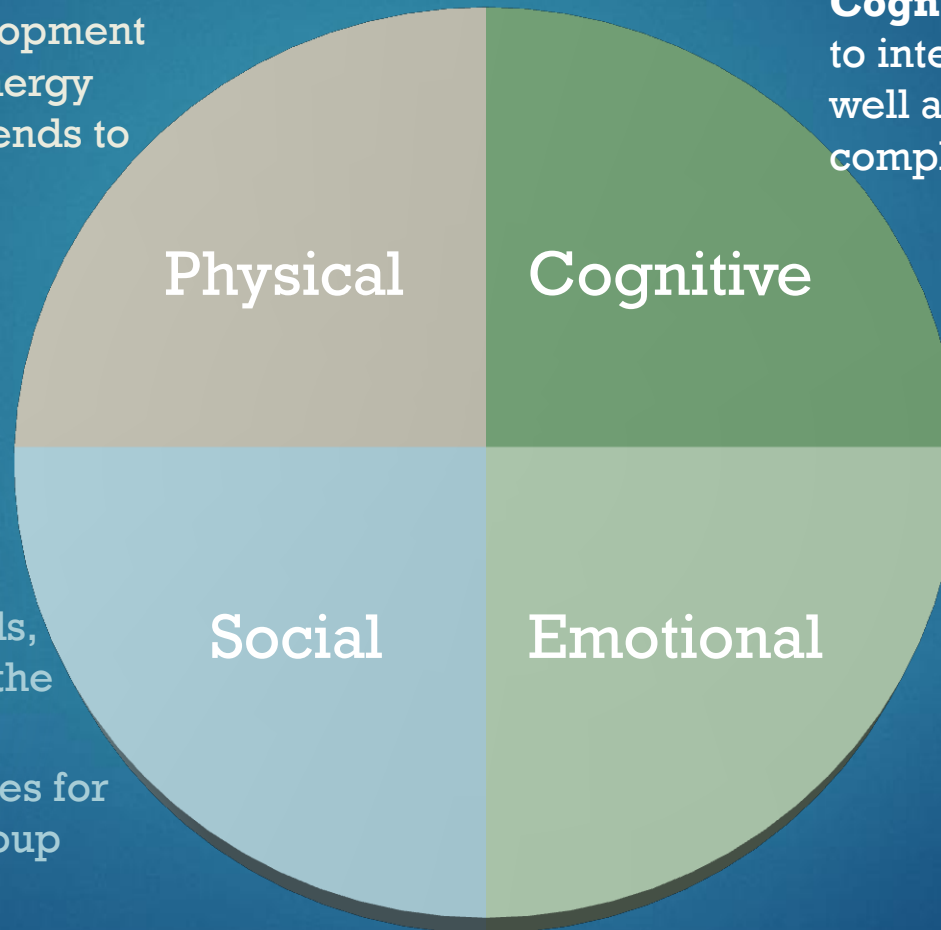
Change, Growth, and Development

- ◉ Why study Human growth and development?
 - It allows us to understand how people respond to the demands of exercise at different stages in the developmental process.
 - The rates at which children and adults can learn a new skill differ greatly!
 - This unit will focus on teaching fundamental movement skills to young people!
 - The rate at which skills are learned is not only a function of our physical development – our cognitive, social and emotional development all play a role as well!

Components of Human Growth and Development

Physical: the growth and development of the body's muscles, bones, energy systems, and nervous System. Tends to occur in "spurts".

Cognitive: the brain's capacity to interpret and process information as well as to perform increasingly complex intellectual tasks as we develop.



Social: the development of relationships with peers, friends, adults, relatives, and others in the "outside world".

Fostered by having opportunities for cooperation, teamwork and group problem solving.

Emotional: an individual's ability to manage and regulate emotions such as pleasure, motivation, fear, empathy, anxiety and anger.

Physical Growth & Development: Stages of Human Development

- Different models have a different number of stages!
- We will look at four basic stages of human physical growth and development.
- The age ranges given are rough lower and upper age limits.
 1. Infancy/Toddler (birth to 2-3 years)
 2. Childhood (4-10 years)
 3. Puberty/Adolescence (11-18 years)
 4. Adulthood (18+ years)

1. Infancy/Toddler

- Birth to 2-3 years
- This is the time of the most marked growth in humans – by the end of 2nd year, brain is 75% of its adult weight!
- Infancy – grasp objects, crawl, pull up, walk
- Toddlerhood – walk, run, using tools, kicking, stairs



2. Childhood

- ◉ 4 to 10 years
- ◉ Compared to other animals, childhood in humans is a relatively long period of time
- ◉ Early childhood (4-6 yrs) – rapid growth period, though slower than infancy/toddler
- ◉ Mid-childhood (6-10 yrs) – stabilizing period which allows child to begin establishing important base of motor skills
- ◉ Unstructured, imaginative play is very important at this age (though this is often the age at which children begin playing organized sport)

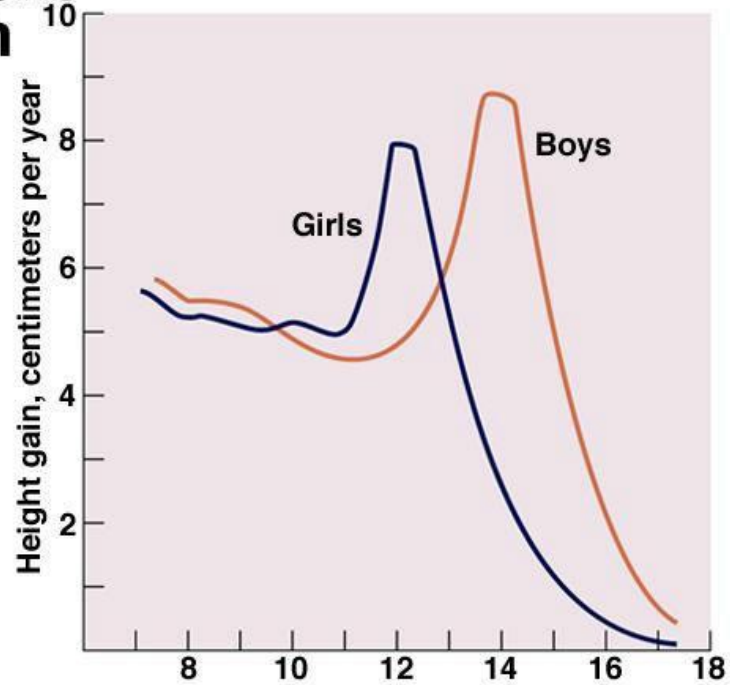


3. Adolescence

- 11-18 yrs
- Another growth spurt – though rate is different for everyone!
- Sexual “maturity” which affects males and Females differently!

Hyde/DeLamater *Understanding Human Sexuality*, 6e. Copyright © 1997. The McGraw-Hill Companies, Inc. All Rights Reserved.

Adolescent Growth Spurt



4. Adulthood

- 18+ years – although again, variation!
- Generally no height gain in adulthood
- Physical changes as we get older:
 - Weight gain
 - Reduced capacity to take in and use oxygen (VO_2)
 - Increase in blood pressure and resting heart rate
 - Weakening of stress-bearing joints (knees, hips)
- Staying physically active is so important!



Cognitive Development

Piaget's Theory of Cognitive Development

- Developed by Swiss psychologist Jean Piaget (1896-1980) – most historically influential model.
 - Sensorimotor (0-2 yrs)
 - Pre-Operational (2-7 yrs)
 - Concrete Operational (7-11 yrs)
 - Formal Operational (11-15 years)
- These stages explain how children interpret and assimilate new experiences
 - how they adapt to their environment

Piaget's Theory of Cognitive Development



Birth to 02 Years of Age

Sensorimotor Stage

First stage of child's mental development which mainly involves sensation and motor skills such as hear, sight, feel, taste, move, manipulate, bite, chew and so on



2 to 7 Years of Age

Preoperational Stage

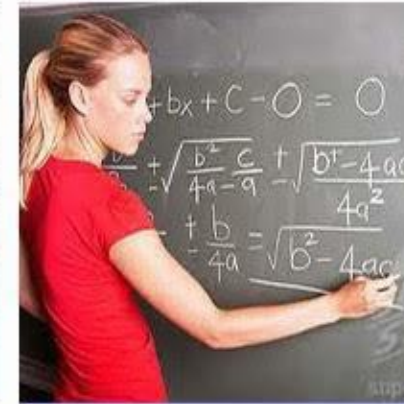
In this stage children use their mental ability to represent events and objects in a various ways like using symbols, gestures and even communication, and so on thus their logical reasoning are not yet organized or developed



7 to 11 Years of Age

Concrete-Operational Stage

At this stage the child becomes more stable, think operationally and use logical reasoning rather than intuitive thought



11 Years of Age Through Adulthood

Formal-Operational Stage

Where children become more systematic and reasonable and they can not only reason of tangible objects and events but also they possess capability of reasoning and thinking in more abstract, hypothetical and idealistic ones

Why does all this matter?

The Long-Term Athlete Development Model (LTAD)

- ◉ A cornerstone Canadian Sport for Life (CS4L) movement is the LTAD model:
 - Outlines a clear pathway that recognizes the distinct phases of physical, mental, cognitive and emotional development based on the maturation or development of an individual.
 - Seven developmental phases that athletes pass through usually for late-specialization sports.
 - Fosters positive experiences in sport, improved health, and higher goal achievement for all Canadians.

Long Term Athlete Development (LTAD)



Fitness and movement skills are fun part of daily life

Learn fundamental movement skills, play many sports, focus on ABCs – agility, balance, coordination

Learn overall sport skills, play a variety of sports – develop skills in three sports

Build an endurance base, speed and strength, select two sports based on pre-disposition

Optimize training and learn to compete internationally

Ages are sport-specific – podium performances

Smooth transition from an athlete's competitive career to lifelong participation in sport

What are fundamental movement skills?

- ◉ When you read, you begin with ABC
- ◉ When you sing you begin with Do-Re-Mi
- ◉ When you play, you begin with...

Fundamental Movement Skills

The NCCP Fundamental Movement Skills are:



Throwing



Catching



Jumping



Striking



Running



Kicking



Agility, Balance, and Coordination

FMS and LTAD Model

- Children develop fundamental movement skills in the first three stages of the model:

Active Start
FUNdamentals
Learning to Train

- Children must learn the fundamental movement skills before they learn fundamental sport skills.



If you can't

- Catch
- Jump
- Run**
- Swim
- Throw

You won't take part in

- Soccer
- Basketball
- Volleyball
- Track and Field
- Squash
- Badminton
- Rugby
- Tennis



If you can't

- Catch
- Jump
- Throw**
- Swim
- Run

You won't take part in

- Baseball
- Softball
- Bowling
- Soccer
- Goalball
- Football
- Rugby



If you can't

- Throw
- Jump
- Swim**
- Catch
- Run

You won't take part in

- Swimming
- Diving
- Water Polo
- Scuba
- Kayaking
- Sailing
- Surfing