

## CHAPTER 2

### Physical Activity for the Growing Child

#### (1) MULTIPLE CHOICE QUESTIONS:

- 1) In a typical classroom of youngsters, the variation in skeletal maturity is
- A) 1–2 years.
  - B) 3–4 years.
  - C) 5–6 years.
  - D) 7–8 years.
  - E) There is no appreciable difference.

Answer: C

Page Reference: 24 Difficulty Rating: 2 Question Type: R

- 2) During elementary years, compared to girls, boys are generally
- A) taller and lighter.
  - B) taller and heavier.
  - C) shorter in trunk length.
  - D) shorter and lighter.
  - E) shorter and heavier.

Answer: B

Page Reference: 21 Difficulty Rating: 2 Question Type: R

- 3) The mesomorphic child is characterized
- A) as soft and round.
  - B) by predominance of muscle and bone.
  - C) as thin with little muscle.

- D) as long and lean.
- E) as having wide hips and narrow shoulders.

Answer: B

Page Reference: 23 Difficulty Rating: 2 Question Type: R

- 4) Children engaged in vigorous physical activity
- A) do not fatigue easily.
- B) do not recover quickly.
- C) fatigue slowly and recover slowly.
- D) fatigue quickly and recover slowly.
- E) fatigue quickly and recover quickly.

Answer: E

Page Reference: 26 Difficulty Rating: 2 Question Type: A

- 5) The most rapid period of growth in children occurs from
- A) birth to five years of age.
- B) five to ten years of age.
- C) ten to fifteen years of age.
- D) adolescence to adulthood.
- E) thirteen to fifteen years of age.

Answer: A

Page Reference: 20 Difficulty Rating: 3 Question Type: R

- 6) The best criterion to use in determining exercise workloads for children is
- A) laps run.
- B) distance run.

- C) time.
- D) number of repetitions.
- E) age.

Answer: C

Page Reference: 27 Difficulty Rating: 3 Question Type: A

- 7) Usually, when boys and girls of the same size and mass are compared,
- A) boys are stronger.
  - B) girls are stronger.
  - C) there is no difference in strength.
  - D) there is no legitimate basis for comparison.
  - E) relative strength is equal.

Answer: A

Page Reference: 25 Difficulty Rating: 2 Question Type: R

- 8) Obese children will
- A) demonstrate a lower metabolic cost during exercise.
  - B) may have limited motor performance due to reduction in relative strength.
  - C) require lower oxygen uptake than leaner children.
  - D) have more endurance than normal weight children.
  - E) generally lose excessive weight when they reach adolescence.

Answer: B

Page Reference: 26 Difficulty Rating: 3 Question Type: A

- 9) Recommended resistance training for preadolescent children is best described as

- A) high repetition at low resistance.
- B) low repetition at high resistance.
- C) low repetition at low resistance.
- D) high repetition at high resistance.
- E) weight determined by maximal lifts.

Answer: A

Page Reference: 31 Difficulty Rating: 3 Question Type: A

- 10) Which of the following is NOT a reason to take caution when exercising youngsters in hot weather?
- A) Children produce more metabolic heat per unit mass than adults.
  - B) Children have a higher cardiac output at a given oxygen rate
  - C) Children have higher surface area/mass ratios than those of adults.
  - D) Children have a lower cardiac output at a given oxygen rate.
  - E) Sweating capacity is not as great in children as in adults.

Answer: B

Page Reference: 29 Difficulty Rating: 3 Question Type: R

- 11) Weight-bearing exercise
- A) is not advised for pre-adolescents.
  - B) appears to have the greatest effects on bone mineral density.
  - C) should focus on prolonged activity.
  - D) contributes to bone damage in elementary-aged children.
  - E) are associated with increased risk of osteoporosis in adulthood.

Answer: B

Page Reference: 25 Difficulty Rating: 2 Question Type: R

12) Fast twitch muscle fibres are primarily

- A) anaerobic.
- B) aerobic.
- C) long-term.
- D) undifferentiated.
- B) fatigue-resistant.

Answer: A

Page Reference: 31 Difficulty Rating: 1 Question Type: R

13) Depending on the criteria used to evaluate the ratio of fat, what percentage of Canadian youngsters has been identified as overweight?

- A) 18%
- B) 32%
- C) 26%
- D) 50%
- E) 8%

Answer: C

Page Reference: 27 Difficulty Rating: 3 Question Type: R

14) Obese children who exercise

- A) have higher maximal uptake values than those of lean children.
- B) require a higher oxygen uptake capacity to perform a given task.
- C) do not work as hard as normal weight children.
- D) often perform physical activities on a par with leaner children.
- E) perceive lower exertion levels than those of normal weight children.

Answer: B

Page Reference: 26 Difficulty Rating: 3 Question Type: A

15) The ectomorphic body physique is characterized as

- A) soft and round, with protruding stomach.
- B) skinny with minimal muscle development.
- C) well-muscled.
- D) obese in appearance.
- E) pear-shaped, with wide hips.

Answer: B

Page Reference: 23 Difficulty Rating: 1 Question Type: R

16) Activity workloads should be based on

- A) distance.
- B) number of repetitions.
- C) time.
- D) intensity of repetitions.
- E) speed.

Answer: C

Page Reference: 26 Difficulty Rating: 3 Question Type: R

17) In preadolescent children, it appears that strength gains occur from

- A) intense training.
- B) the development of more efficient motor patterns.
- C) the recruitment of more muscle fibres.
- D) muscle hypertrophy.

E) increase in muscle maturity.

Answer: B

Page Reference: 31 Difficulty Rating: 3 Question Type: A

18) Kindergarten students have

- A) a lower centre of gravity than adults.
- B) a lower centre of gravity than adolescents.
- C) long legs in relation to their upper body.
- D) short legs in relation to their upper body.
- E) a shorter trunk in relation to their legs.

Answer: D

Page Reference: 21 Difficulty Rating: 1 Question Type: A

19) When estimating their physical competence

- A) very young children depend primarily on information from adults.
- B) most children are inaccurate.
- C) few children use actual performance outcome.
- D) older children depend primarily on information from adults.
- E) children avoid comparing themselves to peers.

Answer: A

Page Reference: 27 Difficulty Rating: 1 Question Type: R

20) A task that is optimally challenging provides

- A) balance between skill and ability.
- B) balance between motivation and boredom.
- C) competition and success.

- D) an increase in anxiety during practice.
- E) balance between skill and challenge.

Answer: E

Page Reference: 28 Difficulty Rating: 2 Question Type: R

21) Frostbite

- A) can only happen to uncovered skin.
- B) occurs when body core temperature drops below normal.
- C) always shows blistered skin.
- D) causes skin to look red and puffy.
- E) causes skin to look pale and whitish.

Answer: E

Page Reference: 31 Difficulty Rating: 1 Question Type: A

## **(2) SHORT ANSWER QUESTIONS**

- 1) Identify the three types of body physique and discuss how each may affect physical activity participation and performance.

Answer:

Emphasize that these are guidelines and should not be viewed as limitations:

- Mesomorph: -GENERALLY, perform best in activities requiring strength, speed, and agility.
- Ectomorph: aerobic endurance activities such as jogging, X-C running, less emphasis on strength and power.

- Endomorph: require more physical activity to maintain healthy body weight, may be more prone to injury, aquatics/dance.

Page Reference: 22-24      Difficulty Rating: 2      Question Type: A

- 2) Describe the three developmental patterns that typify the growth of primary-grade children.

Answer:

- Cephalocaudal: from head to foot –coordination of upper body parts occurs before lower.
- Proximodistal: from inside to outside – e.g. control their arms before their hands (reach before grasp).
- General to specific: gross motor movements before fine motor coordination.

Page Reference: 21-22      Difficulty Rating: 3      Question Type: A

- 3) Most first graders are “top heavy.” Explain what this means according to predictable growth patterns.

Answer:

- The head makes up approximately 1/6<sup>th</sup> of total length at age six.
- Students have short legs in relation to their upper body (thus top heavy) – this high centre of gravity will gradually lower and give children increase stability and balance.

Page Reference: 21      Difficulty Rating: 3      Question Type: A

- 4) Weight-bearing exercise is encouraged as part of healthy bone growth in children. List three suggestions to guide choice of PE activities that maximize bone health.

Answer:

- Include weight-bearing activities such as rope jumping, running, and walking on a regular basis.
- Activities should work all large muscle groups.
- Short, intense daily activity is better than prolonged activity done infrequently.

Page Reference: 25                      Difficulty Rating: 1                      Question Type: R

5) Define the term “optimal challenge” as it relates to motivation of children to learn physical skills.

Answer:

- Optimal challenge describes the most desirable balance between challenge and skill.
- A task that is optimally challenging allows the child to experience just enough success to keep trying (too easy will be bored; too difficult will give up)

Page Reference: 28                      Difficulty Rating: 2                      Question Type: A

6) Describe the physiological reasons that children do not adapt to extremes of temperature as effectively as adults.

Answer:

- Children have higher surface area/mass ratios than those of adults. This allows for a greater amount of heat to transfer between environment and the body.
- When walking or running, children produce more metabolic heat per unit mass than adults produce. Youngsters are not as efficient in executing movement patterns, so they

generate more metabolic heat than do adults in a similar task.

- Sweating capacity is not as great in children as in adults, resulting in a lowered ability to cool the body.
- The ability of the blood to convey heat from the body core to the skin is reduced in children due to a lowered cardiac output at a given oxygen uptake.

Page Reference: 29                      Difficulty Rating: 3                      Question Type: R

7) Define the term “documented program” as it is related to the motivation of children to participate in sport.

Answer:

- A sport program in which extrinsic rewards is offered (e.g. trophies, ribbons, league standings).
- Extrinsic motivation may ultimately decrease intrinsic motivation in children 7 years and older.
- Younger children (younger than 5) perceived reward as bonus, this effect decreased with age, by age 9 the reward was seen as a bribe.

Page Reference: 29                      Difficulty Rating: 2                      Question Type: A

8) Define “perceived competence.”

Answer:

- An individual’s belief about his/her ability level (high perceptions of competence positively related to participation in sport and achievement behaviour).

Page Reference: 27                      Difficulty Rating: 1                      Question Type: A

- 9) Define the term “velocity curve” as it relates the growth patterns of children and motor learning.

Answer:

- Shows how much a child grows on a year-to-year basis.
- Rapid period of growth birth to age five.
- Age six to onset of puberty, growth increases at a slower rate.
- When rate of growth is rapid, ability to learn new motor skills decreases.
- Slower rate of growth in elementary school years provides excellent window for learning motor skills.

Page Reference: 21-22      Difficulty Rating: 3      Question Type: A

- 10) List three important safety precautions when children are participating in outdoor activities during sunny weather.

Answer:

- Wear a hat, light clothing, and sunglasses.
- Apply sun screen (minimum SPF 15) approximately 30 minutes before exposure.
- Limit sun exposure during peak hours (10:00 am to 4:00 pm).  
Maximum 30 minutes (daily ultraviolet UV ray time ratings).

Page Reference: 30-31      Difficulty Rating: 1      Question Type: R

### (3) MATCHING QUESTIONS:

*The following terms describe three major body physiques:*

- a. endomorph
- b. mesomorph

c. ectomorph

**All information for correct responses found on:**

**Page Reference: 22-24      Difficulty Rating: 2      Question Type: R**

*Match the following characteristics with the corresponding body physique:*

1) performs best in activities requiring strength, speed, and agility

Answer: b

2) appears skinny

Answer: c

3) has excessively protruding abdomen

Answer: a

4) performs well in aerobic endurance activities

Answer: c

5) has predominance of bone and muscle

Answer: b

6) is well-muscled

Answer: b

7) is less able to do activities requiring power and strength

Answer: c

8) may perform poorly in many physical activities

Answer: a

9) has minimal muscle development

Answer: c

10) has soft and round appearance

Answer: a

**(4) ESSAY QUESTIONS:**

- 1) Discuss the rationale for daily physical education in the elementary schools. What research would support your stated position?

Answer:

- List relevant points from obesity research, bone health research, motor learning, strength development research, aerobic capacity.
- Emphasize the part physical activity plays in preceding results.

Page Reference: 20-27      Difficulty Rating: 3      Question Type: A

- 2) Discuss the role organized youth sports should play in the proper growth and development of children.

Answer:

- Major concepts to mention: programs focus on development of skill; use relevant research sources of perceived competence; teaching strategies focus on “optimal challenge;” focus on “no cut” programs to allow for range of maturation levels; withdrawal from programs should be child-driven; understand the impact of document programs (use carefully); use CAC guidelines for competition (p. 29).

Page Reference: 27-29      Difficulty Rating: 3      Question Type: A

**(5) TRUE/FALSE QUESTIONS**

- 1) Research findings clearly indicate that today’s youth are receiving sufficient allocation of physical education to cause a positive change in their levels of physical fitness.

Answer: FALSE

Page Reference: 20 Difficulty Rating: 1 Question Type: R

- 2) Although each child's timing is unique, children do follow a general growth pattern.

Answer: TRUE

Page Reference: 20 Difficulty Rating: 1 Question Type: R

- 3) Growth patterns are generally controlled by genetic makeup.

Answer: TRUE

Page Reference: 21 Difficulty Rating: 1 Question Type: R

- 4) Approximately 30% of Canadian children participate in daily physical education programs

Answer: FALSE

Page Reference: 20 Difficulty Rating: 2 Question Type: R

- 5) Growth patterns are generally controlled by environmental factors.

Answer: FALSE

Page Reference: 21 Difficulty Rating: 2 Question Type: R

- 6) Children exercising at a certain workload perceive the activity to be more intense than do adults working at a similar level.

Answer: FALSE

Page Reference: 26 Difficulty Rating: 2 Question Type: A

- 7) Physical activity habits developed in childhood track into adulthood.

Answer: TRUE

Page Reference: 27 Difficulty Rating: 1 Question Type: R

- 8) Physical maturity is usually measured by comparing chronological age with skeletal age.

Answer: TRUE

Page Reference: 24 Difficulty Rating: 2 Question Type: R

- 9) Obesity restricts children's motor performance because it reduces their absolute strength

Answer: FALSE

Page Reference: 26 Difficulty Rating: 2 Question Type: R

- 10) Children whose chronological age is beyond skeletal age are said to be early (or fast) maturers.

Answer: FALSE

Page Reference: 24-25 Difficulty Rating: 2 Question Type: A

- 11) Children with obese parents are more likely to become obese.

Answer: TRUE

Page Reference: 27 Difficulty Rating: 1 Question Type: R

- 12) Prevalence of overweight and obese children in Canada has more than doubled between 1981 and 1996.

Answer: TRUE

Page Reference: 20 Difficulty Rating: 2 Question Type: R

- 13) The number of active Canadian adults decreased from 37% in 1981 to 21% in 1995.

Answer: FALSE

Page Reference: 20 Difficulty Rating: 3 Question Type: R

- 14) Late-maturing children are generally heavier and taller for their age than average- or early-maturing children.

Answer: FALSE

Page Reference: 25 Difficulty Rating: 2 Question Type: R

15) Children appear to adjust to heat more quickly than do adults.

Answer: FALSE

Page Reference: 29 Difficulty Rating: 3 Question Type: R

16) In the elementary school years, muscular strength increases linearly with chronological age

Answer: TRUE

Page Reference: 25 Difficulty Rating: 3 Question Type: R

17) Boys and girls can participate on somewhat even terms in activities demanding leg strength, particularly if their size and mass are similar.

Answer: TRUE

Page Reference: 20 Difficulty Rating: 2 Question Type: R

18) A general rule in regard to motor learning is that when growth is slower, the ability to learn new skills increases.

Answer: TRUE

Page Reference: 21 Difficulty Rating: 2 Question Type: R

19) Less than 30% of overweight children and teens remain overweight as adults.

Answer: FALSE

Page Reference: 27 Difficulty Rating: 2 Question Type: R

20) The Coaching Association of Canada recommends that children can begin to participate in competitive sport after the age of 9.

Answer: FALSE

Page Reference: 29 Difficulty Rating: 1 Question Type: R

21) If relative humidity and air temperature are both high, physical activity level should be low.

Answer: FALSE

Page Reference: 29-30 Difficulty Rating: 2 Question Type: A

22) A major loss of body heat is through the fingers and toes.

Answer: FALSE

Page Reference: 30 Difficulty Rating: 1 Question Type: R

23) Mild hypothermia causes an increase in pulse rates and breath rate.

Answer: FALSE

Page Reference: 31 Difficulty Rating: 1 Question Type: A

24) Hypothermia develops when the body uses heat faster than it can be produced by metabolism and muscle contraction.

Answer: TRUE

Page Reference: 31 Difficulty Rating: 2 Question Type: R