Name: _____ **Date:** _____

Answer Key: Fitness Factors: Functional Physiology for 7th Grade

Moving beyond heart rates, students analyze mechanical levers and metabolic demands to evaluate how physiological adaptations impact real-world performance.

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1. A rock climber is traversing a difficult 'overhang' section where they must hold their entire body weight with their fingertips for 90 seconds. Based on the duration and intensity, which fitness component is being primarily isolated and tested?

Answer: B) Muscular Endurance

While strength is required to start, holding a contraction for 90 seconds tests muscular endurance—the ability of a muscle group to remain contracted over time against resistance.

2. When an athlete focuses on increasing their 'lean body mass' while simultaneously decreasing adipose tissue, they are specifically attempting to modify their _____.

Answer: C) Body Composition

Body composition refers specifically to the ratio of fat-free mass (muscle, bone, water) to body fat (adipose tissue).

3. True or False: Increasing joint range of motion through static stretching can directly compensate for a lack of muscular strength during an explosive movement like a vertical jump.

Answer: B) False

Flexibility (range of motion) and muscular strength are distinct components; while flexibility assists in form, it cannot generate the force required for explosive power.

4. Analyze the physiological demand of 'VO2 Max'. Which component of fitness is most closely associated with the body's maximum ability to utilize oxygen during intense exercise?

Answer: C) Cardiovascular Endurance

VO2 Max is the gold-standard measurement for cardiovascular endurance, reflecting the efficiency of the heart, lungs, and blood vessels.

5. In a hypothetical 'Strongman' competition, an athlete must flip a 500lb tractor tire exactly one time. This specific task evaluates which component?

Answer: A) Muscular Strength

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Strength is defined by the maximum force exerted in a single effort (1-rep max), whereas endurance involves repeated contractions.

6. A marathon runner often has a higher percentage of 'slow-twitch' muscle fibers compared to a sprinter. This adaptation serves to primarily enhance their _____.

Answer: C) Cardiovascular Endurance

Slow-twitch fibers are dense in mitochondria and oxygen-binding proteins, making them essential for long-duration cardiovascular performance.

7. True or False: A person can have a high Body Mass Index (BMI) but a healthy body composition if they possess a high percentage of muscle mass.

Answer: A) True

BMI only measures weight relative to height; it does not distinguish between fat and muscle. Muscle is denser than fat, which can lead to a high BMI in lean athletes.

8. Consider the 'Sit-and-Reach' test. What is the primary limiting factor for a student who cannot reach their toes during this assessment?

Answer: C) Joint and connective tissue flexibility

The Sit-and-Reach measures the flexibility of the lower back and hamstrings, specifically the range of motion allowed by the muscles and tendons.

9. The 'F.I.T.T.' principle is used to create training plans. If a coach increases the amount of weight a player is lifting, they are altering the _____ variable to improve strength.

Answer: B) Intensity

In strength training, 'Intensity' refers to the load or weight used relative to an individual's maximum capacity.

10. Which of the following scenarios best demonstrates a balanced integration of multiple fitness components for injury prevention?

Answer: C) Combining core strength training with dynamic flexibility and steady-state cardio.

Holistic fitness requires a balance; core strength protects the spine, flexibility allows for proper biomechanics, and cardio supports recovery and heart health.