

Name: _____ Date: _____

Answer Key: Blast Beyond Basics: 7th Grade Solo Sports Success Quiz

How do elite athletes utilize biomechanics and periodization to peak? Analyze the physiology and psychology behind archery, cycling, and martial arts mastery.

1. In the sport of archery, which concept of physics is most critical for a consistent 'anchor point' to ensure accuracy?

Answer: C) Elastic potential energy

An anchor point ensures the archer draws the bowstring to the same tension every time, consistently storing the same amount of elastic potential energy.

2. The 'F.I.T.T.' principle stands for Frequency, Intensity, Time, and Type, and is used to design effective fitness programs.

Answer: A) True

F.I.T.T. is a foundational framework used to adjust training variables to ensure the body is safely challenged over time.

3. A cyclist who wants to improve power at the end of a long race would focus on training their _____ system through short, high-intensity intervals.

Answer: B) Anaerobic

The anaerobic system provides quick energy for high-intensity bursts (like sprinting) when oxygen supply cannot meet the high demand.

4. When a martial artist performs a roundhouse kick, which sequence best describes the transfer of kinetic energy to maximize power?

Answer: C) Pivot foot to hips to leg

Power in striking sports is generated through the 'kinetic chain,' starting with a solid base, hip rotation, and following through to the striking limb.

5. Proprioception, essential for sports like rock climbing, refers to the body's ability to sense its _____ in space.

Answer: C) Position

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Proprioception is the 'sixth sense' that allows athletes to move precisely without looking at every part of their body.

6. In 'Periodization' training, an athlete keeps their intensity and volume exactly the same for every workout throughout the entire year.

Answer: B) False

Periodization involves cycling through different phases (base, build, peak) to prevent overtraining and ensure top performance during competitions.

7. A marathon skater experiences 'burning' in their legs due to the buildup of lactic acid. This is a byproduct of which metabolic state?

Answer: B) Glycolysis under low-oxygen conditions

Lactic acid forms when the body breaks down glucose for energy without enough oxygen present to complete the full aerobic cycle.

8. To avoid 'plateauing' during fitness training, an athlete must apply the principle of _____, gradually increasing the difficulty of their workouts.

Answer: D) Overload

The principle of progressive overload requires increasing weight, frequency, or intensity to continue making physiological gains.

9. The use of 'Visualization' or mental rehearsal is a sports psychology technique that can improve muscle memory and reduce performance anxiety.

Answer: A) True

Mental imagery activates the same neural pathways used during physical performance, helping athletes refine coordination and stay calm.

10. Why is 'Dynamic Stretching' preferred over 'Static Stretching' immediately before an individual sport like tennis?

Answer: B) It mimics game-like movements and warms up the muscles

Dynamic stretching increases core temperature and activates muscles through motion, which prepares the body for the explosive movements of the sport.