Scientific Milestones in Sports History

Sports Science History · Answer Key · 8 Questions

1. Which biomechanical phenomenon did Dick Fosbury utilize in the 1968 Olympics to clear the high jump bar more efficiently than the traditional 'straddle' technique?

A) The conservation of angular momentum
B) Lowering the center of mass below the bar
C) The Magnus effect on atmospheric pressure
D) Increased elastic recoil of the fibula

2. The 'Venturi effect' is most significantly utilized in which sport to reduce drag and increase velocity?

A) Synchronized swimming
B) Speed skating
C) Greco-Roman wrestling
D) Cycling

3. In 1954, Roger Bannister became the first to run a sub-four-minute mile; physiologically, what was the primary limitation previously theorized by experts to prevent this feat?

A) The risk of pulmonary edema at high velocity
B) The inability of human muscle to process oxygen fast enough
C) The structural failure of the metatarsals
D) The neurological inability to maintain anaerobic threshold

4. What scientific principle explains why a 'curveball' in baseball deviates from a straight trajectory during flight?

A) The Magnus effect
B) The Coriolis effect
C) The Doppler effect
D) The Bernoulli principle

5. The introduction of the 'klapskate' in speed skating in the 1990s improved performance by changing which mechanical aspect of the skating stride?

A) Reducing the coefficient of friction on the ice
B) Extending the duration of force application on the ice
C) Improving the lateral stability of the ankle
D) Increasing the rotational frequency of the blade

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6. During the 1968 Mexico City Olympics, what scientific factor was primarily responsible for the record-breaking performances in sprint events and long jumps?

A) The use of synthetic track materials
B) Decreased air density due to high altitude
C) Enhanced nutritional supplementation protocols
D) Advancements in starting block friction coefficients

7. The 'Fosbury Flop' requires the athlete to arch their back to ensure the center of gravity passes where in relation to the bar?

A) Above the bar
B) Below the bar
C) Exactly through the center of the bar
D) Alongside the bar

8. In swimming, what scientific principle dictates that a swimmer's body shape and surface texture must minimize turbulence to maintain speed?

A) Surface tension
B) Fluid dynamics and drag coefficient
C) Archimedes' principle of buoyancy
D) Newton's third law of motion

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