Sports Science Quiz

1. How do the stitches on a baseball affect the speed at which it travels?
   a. They make it go slower
   b. They make it go faster
   c. They have no effect

2. What feature does a golf ball have to help disrupt its “boundary layer”?
   a. A solid core
   b. A slick finish
   c. Dimples

3. What creates backspin on a basketball during a free throw?
   a. Pushing off with the quads
   b. Straightening the arm
   c. Going up on the toes
   d. Snapping the wrist

4. In racing bikes, which tyres are faster?
   a. Thin road-bike tires
   b. Wide mountain-bike tires

5. Gravity pulls a surfer toward the water while she’s waiting to catch a wave. What force holds her up?
   a. Friction
   b. Buoyancy
   c. Wind resistance
   d. Centripetal force

6. When biking, aerodynamic resistance consists of two forces:
   a. Air pressure and friction
   b. Friction and gravity
   c. Air pressure and strength
   d. None of the above

7. What is typically the slowest swimming stroke?
   a. Breaststroke
   b. Freestyle
   c. Backstroke
   d. Butterfly

8. Lower tension on a tennis racquet produces
   a. More control and less power
   b. Less control and more power
   c. Less control and less power
   d. None of the above
Fun Quiz

9. While on the Moon in 1971, Astronaut Alan Shepard struck which ball?
   a. Football
   b. Tennis ball
   c. Golf ball
   d. Cricket ball

10. The diameter of a regulation basketball hoop is _______ times wider than the diameter of a regulation basketball.
    a. 2 times
    b. 3 times
    c. 4 times
    d. None of the above

11. Sports drinks are the only fluids to quench or satisfy your thirst when exercising.
    a. True
    b. False

12. Weight lost during exercise is mostly water, not fat.
    a. True
    b. False

13. Why do long jumpers “run” several steps in the air after they take off?
    a. Does not help
    b. To prevent from falling face down
    c. It is just a style
    d. None of the above

14. Does a cricket ball travel farther when hit in humid weather conditions?
    a. No
    b. Yes
    c. Does not move at all
    d. Gets stuck to the bat

15. How was the Jabulani ball recently used in the Football World Cup different from the Teamgeist ball used in the last World Cup?
    a. Bigger
    b. Smaller
    c. Was textured with small ridges and ‘aero grooves’
    d. Was similar

ANSWERS:

1. b. Stitching actually reduces drag and allows the ball to travel faster and farther than a smooth one. The stitches help disrupt the “boundary layer” of air next to the ball, which reduces air stream friction at high speeds.

2. c. The dimples on a golf ball function much the same way as the stitching on a baseball. Without them, a drive that would ordinarily go 200 yards would fall somewhere around 50 yards.

3. d. It’s all in the wrist—literally. By pointing your hand where you want the ball to go and snapping your shooting wrist down as the ball leaves your hands, you put backspin on the ball and increase your accuracy.

4. a. Since there’s less of the tyre touching the surface of the road, there’s less friction to slow down the bike. Mountain bikes like friction. They need fat tyres to keep from sliding off the trail.

5. b. Gravity is counteracted by buoyancy. How buoyant something is depends on how much water it displaces. If the part of the board in the water weighs less than the water that would have otherwise been there, it floats.

6. a. Aerodynamic drag—the force that holds you back when moving—consists of air pressure drag and direct friction (friction from your body).

7. a. The breaststroke is a swimming style in which the swimmer is on his or her chest and the torso does not rotate. It is the most popular recreational style due to its stability and the ability to keep the head out of the water a large portion of the time. But in competitive swimming, the breaststroke is regarded as one of the most difficult strokes, requiring comparable endurance and leg strength to other strokes.

8. a. Basically, higher tensions decrease the size of the sweetspot and reduce the power (thus increasing control a bit). The higher the tension, the more board-like the feel.

9. b

10. c

11. a. Water is great to drink during exercise. However, sport drinks with juice can provide water and carbohydrates during extra long or endurance exercise.

12. a. During intense exercise, the body sweats to stay cool and then loses lots of water. It is very important for athletes to drink at least 7-10 ounces (a large glass or water bottle) of water, juice, or sports drink every 10-20 minutes.

13. b. The hitch-kick, as the running motion is called, stops the forward rotation of the jumper’s body that he gets when he springs into the air. As the jumper plants his foot for takeoff, the motion of his lower body stops for the fraction of a second his foot is in contact with the board. But his upper body continues to move forward, which makes him start to rotate forward around his center of gravity. If unchecked, this rotation would send him face down into the sand.

14. b. You might think that a ball would not travel as far on a humid day due to the moisture in the air—but just the opposite is true. The air may feel “heavier” on a humid day, but it is not any denser; in fact, it’s slightly lighter! (The sticky uncomfortable feeling most of us experience on this type of day is due to condensation hindering the evaporation of perspiration.) When it’s humid, water molecules replace the heavier oxygen and nitrogen molecules in the air. Humid air weighs less than dry air at the same temperature and pressure. Under such conditions, moving objects encounter less drag, although the difference is rather minor.

15. The Jabulani was textured with small ridges and ‘aero grooves’ and was a radical departure from the ultra-smooth Teamgeist ball, which was used in the last World Cup.