Chapter 02 The Measurement of Motor Performance Answer Key

Multiple Choice Questions

1. Which of the following would be considered a performance outcome measure?

A. The distance a ball was kicked

B. The angle of the knee at ball impact

C. The electrical activity in the quadriceps muscles during the kick

D. The electrical activity in the brain during the kick

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Topic: Discussion

2. Which of the following would be considered a performance production measure?

A. The height of a jump

B. The time to complete a jump

C. The number of successful jumps to reach a target

D. The joint torque at the knee just prior to take off during a jump

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Topic: Discussion

3. Which two events mark the beginning and the end of the interval known as reaction time?

A. Warning signal and stimulus signal

B. Stimulus signal and initiation of the response

C. Stimulus signal and the completion of the response

D. Warning signal and the initiation of the response

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Topic: Discussion; Reaction Time

4. When RT is fractionated, the interval that represents the time it takes to receive and transmit information from the environment is referred to as the:

A. Premotor time

B. Motor time

C. Discrimination time

D. Response time

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Topic: Discussion; Reaction Time

5. An individual must respond to only one of several signals presented in this type of reaction time.

A. Simple RT
B. Choice RT
C. Discrimination RT
D. Serial RT

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Topic: Discussion; Reaction Time

6. This error measure evaluates performance consistency during a series of trials.

A. AE
B. CE
C. VE
D. E

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Topic: Discussion; Error Measures

7. This error measure evaluates overall accuracy during a series of trials.

A. AE
B. CE
C. VE
D. RE

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Topic: Discussion; Error Measures

8. To determine muscle activation patterns, this measurement method could be used.

A. EMG

B. EEG

C. Kinetics

D. Kinematics

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Topic: Discussion; Kinematic Measures

9. The change in spatial position of a limb is called:

A. Displacement.

B. Velocity.

C. Acceleration.

D. Linear motion.

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Topic: Discussion; Kinematic Measures

10. Displacement, velocity, and acceleration are _____ measures of motion.

A. Kinetic

B. Kinematic

C. Force

D. Angular motion

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Topic: Discussion; Kinematic Measures

11. The term kinetics refers to motion caused by _____.

A. Velocity

B. Angular acceleration

C. Force

D. Movement

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Topic: Discussion; Kinematic Measures

12. The measure of muscle activity that detects the lateral displacement of a muscle's belly following maximal percutaneous neuromuscular stimulation is referred to as:

A. Electromyography (EMG)

B. Whole muscle mechanomyography (wMMG)

C. Electroencephalography (EEG)

D. Near infrared spectroscopy (NIRS)

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Topic: Discussion; Kinetics

13. Near infrared spectroscopy (NIRS) can be used to measure activity in the:

A. Brain

B. Muscles

C. Brain and muscles

D. None of these

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Topic: Discussion; Kinetics

14. EEG recordings will show _____ waves when the cerebral cortex is active.

A. Alpha

B. Beta

C. Theta

D. Delta

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Topic: Discussions; Brain Activity Measures

15. This brain activity measurement technique realigns hydrogen atoms in the body and may provide clear 2D and 3D images of the brain.

A. EEG

B. PET

C. EMG

D. fMRI

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Topic: Discussions; Brain Activity Measures

Short Answer Questions

16. The interval of time between the initiation and completion of a movement is called _____.

Movement time

Topic: Discussion; Reaction Time

17. A person had the following error scores for a series of 5 trials: +5, -3, +8, +18, -6. The average AE score is _____.

8

Topic: Discussion; Error Measures

18. Variable error is an indicator of a person's performance _____ when performing a skill that requires hitting a target.

consistency [Also acceptable: variability]

Topic: Discussion; Error Measures

19. The kinematic measure of motor performance that describes the speeding up and slowing down of a movement is called _____.

acceleration

Topic: Discussion; Kinematic Measures

20. The method of recording electrical activity in the muscles during movement is called _____.

EMG [or electromyography]

Topic: Discussion; Kinetics

21. If you want to describe the movement of an object in a straight line, the type of motion you would describe is referred to as _____.

linear

Topic: Discussion; Kinematic Measures

22. Force can be calculated from the kinematics of a movement if you know the mass of the moving object and the _____ of the movement.

acceleration

Topic: Discussion; Kinematic Measures

23. The rotary force of body segments around their joints axes is known as joint _____.

torque

Topic: Discussion; Kinetics

24. The brain activity measurement technique that shows blood flow in the brain is known as _____.

PET [or Positron Emission Topography]

Topic: Discussion; Brain Activity Measures

25. The calculation of _____ provides an objective measure of the coordination between two limbs or limb segments by comparing the specific location of each limb or limb segment in one cycle of a cyclic movement.

relative phase [or continuous relative phase]

Topic: Discussion; Measuring Coordination

True / False Questions

26. Simple RT involves one signal and more than one possible response.

FALSE

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Topic: Discussion; Reaction Time

27. Reaction time and movement time measure the same aspect of performance.

FALSE

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Topic: Discussion; Reaction Time

28. Constant error (CE) refers to a person's performance bias during a series of trials.

TRUE

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Topic: Discussion; Error Measures

29. Radial error (RE) would be the appropriate general accuracy measure to assess the accuracy of a golf putt.

TRUE

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Topic: Discussion; Error Measures

30. Root-mean-square error (RMS) is typically used to measure accuracy in discrete skills.

FALSE

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Topic: Discussion; Error Measures

31. When a performance score is recorded as m/sec^{-1}, the performance measure is velocity.

TRUE

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Topic: Discussion; Kinematic Measures

32. TMS involves directing a short burst of magnetic waves at a specific area of the brain cortex in order to temporarily activate that area.

FALSE

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Topic: Discussion; Brain Activity Measures

33. If you move your two arms forward and backward several times at the same time, the phase relationship between them is 0 degrees.

TRUE

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Topic: Discussion; Measuring Coordination

34. The two legs are 180 degrees out of phase during running.

TRUE

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Topic: Discussion; Measuring Coordination