

Exercise Science Review #4

1. Define the term ergonomics
2. What are the 5 factors that are considered in a holistic approach
3. What are 3 ways that athletics can be enhanced?
4. What is the goal of ergonomics and sport ?
5. Be able to list 5 sports and the advances that they have had in technology that have improved their sport in either performance and/or safety
6. List 7 ways that computer technology has impacted sport
7. Be able to list and define all the components of the F.I.T.T. Principle
8. Frequency of training depends on what three factors
9. Know how to calculate your Max heart rate and also training rate, for example 60%
10. What three things determine the athlete's type of exercise
11. Be able to complete the chart on the 3 energy systems and the F.I.T.T.
12. Define the overload principle and what 4 aspects of training can it be implemented in
13. Know what the letters for S.A.I.D. stand for and how it applies in training an athlete
14. What 2 things does the principle of reversibility lead to ?
15. What 4 things can lead to detraining
16. List 6 training methods
17. List 4 ways of manipulating interval training
18. What are the 2 things that plyometric develop and list 5 plyometric exercises
19. What are the 3 stages of personal fitness training ?
20. What are the 4 aspects of fitness that we evaluate in a fitness program
21. What is the difference between health related fitness and performance related fitness
22. What 4 aspects of health related fitness
23. Know a test that can be used to assess each of the 4 aspects health related fitness
24. What are 5 aspects of performance related fitness?
25. What are the 4 components of a general program design and what each component should include ?
26. How does Newton's first law explain Equilibrium?
27. How does Newton's Third Law explain conservation of energy?
28. What are Newton's three Laws of motion and be able to explain each?
29. Define Linear and rotational motion and how each are generated.
30. Name the three types of levers.
31. Be able to draw each type of lever locating and showing the direction of force, fulcrum and load and indicate which lever is referred to as the teeter-totter, the wheelbarrow and the shovel.
32. Be able to give a real body example of each lever indicating what the fulcrum is, and what muscle is generating the force.
33. Be able to list and define the 7 principles of biomechanics
34. Define what stability is?
35. List each of the 4 sub-components that determine how stable a person is and how each component can increase or decrease stability of the person
36. Define maximal force.
37. How can one increase maximal force
38. Define maximal velocity
39. How can one increase maximal velocity
40. What does principle 4 say about impulse ($I=f*t$) with respect to linear motion
41. What does principle 5 say about how movement occurs with respect to linear motion
42. In principle 6 how is angular motion produced with torque (describe the 2 variables)
43. Define conservation angular momentum
44. If angular momentum holds true using the formula $L=m*v*r$ why and how can we affect a diver spinning or figure skater spinning.
45. What are three areas in sport and fitness that biomechanical principles are applied
46. What are resistance training guidelines to tone versus build muscle and or improve cardio?