



AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF REHABILITATIVE MEDICINE

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF TRIMESTER EXAMINATIONS SEPTEMBER TO DECEMBER 2022

PHT 118: FITNESS AND WELLNESS

DATE: 7TH DECEMBER 2022

TIME : Two (2) Hours

Start: 2.00 PM Stop: 4.00 PM

INSTRUCTIONS

- 1. All students will have two (2) hours to complete the examination**
- 2. This is an online exam, Attempt all questions as per the instruction**
- 3. It is the student's responsibility to report any page and number missing in this paper.**
- 4. Check that the paper is complete**
- 5. Total number of pages is 10 including the cover.**
- 6. Read through the paper quickly before you start.**
- 7. Upon finishing the exam paper, on submission, the message 'Your examination has been submitted' will appear.**

All the Best!!

SECTION A; Multiple choice questions

1. To avoid injury when stretching, avoid:
 - A. Fully extending your knee, neck and back.
 - B. Fully flexing your knee or neck.
 - C. Holding your breath.
 - D. All of the above.
2. Ballistic stretching should be avoided because the bouncing movements:
 - A. Promote over-rotating the muscle spindles.
 - B. Promote the stretch reflex and increase the risk of injury to muscles and tendons.
 - C. Promote hyperextension in the joint capsule.
 - D. Require a partner.
3. The five structural and physiological limits to flexibility are:
 - A. Bone, muscle, skin, the joint capsule, and tendons.
 - B. Bone, fat, tendons, ligaments, and muscle.
 - C. Bone muscle, ligaments, tendons, and cartilage.
 - D. Bone, ligaments, tendons, muscle, and nerves.
4. Excess release of this hormone in pregnant women may increase the risk for tears and strains:
 - A. Flexin
 - B. Relaxatin
 - C. Relaxin
 - D. Stretchitin
5. Straight leg lifts are a contraindicated stretch because:
 - A. They produce excess compression on the vertebral disks.
 - B. They recruit the hip flexor muscles and do not accomplish the intended purpose.
 - C. The hip flexor muscles are already strong enough and do not need strengthening.
 - D. All of the above.
6. A safer substitute exercise for leg lifts is the:
 - A. Reverse curl.
 - B. Plow.
 - C. Trunk twister.

- D. Donkey kick.
7. Dropping the head back on a neck circle to stretch the neck muscles may result in injury due to:
- A. Pinching arteries and nerves and damage to disks.
 - B. Pinching arteries and nerves and loss of balance.
 - C. Damage to the lumbar disks and carotid arteries.
 - D. Damage to thoracic vertebral disks and brachial arteries.
8. Which individuals are at a higher risk for musculoskeletal injuries from exercise?
- A. Children
 - B. Overweight individuals
 - C. Women
 - D. Underweight individuals
9. There are three types of PNF stretching including:
- A. Hold-relax
 - B. Contract-relax
 - C. Hold-relax agonist contract
 - D. Relax-antagonist contract
 - E. Antagonist contract relax
10. This type of stretching involves both passive and active muscle actions and facilitates muscular inhibition
- A. Dynamic
 - B. Active
 - C. Passive
 - D. PNF
 - E. Ballistic
11. This type of stretching has been shown to increase injury in athletes
- Static
- A. Ballistic
 - B. Dynamic
 - C. PNF

12. This type of warm-up incorporates movements similar to the athlete's sport.
- A. Specific
 - B. General
 - C. Static stretching
 - D. Jumping jacks
13. What is the immediate source of chemical energy that can be used by skeletal muscle tissue to allow muscle contraction?
- A. Glucose
 - B. ADP
 - C. ATP
 - D. AMP
14. What the largest endogenous substrate source in the body?
- A. Liver glycogen
 - B. Muscle glycogen
 - C. Intramuscular lipid
 - D. Adipose tissue
15. What endogenous substrate source provides the most energy during moderate to high intensity exercise?
- A. Liver glycogen
 - B. Muscle glycogen
 - C. Intramuscular lipid
 - D. Adipose tissue lipid
16. Endurance type exercise training modulates fuel storage and substrate use. Adaptive responses include:
- A. Lowering intramuscular lipid storage
 - B. Increasing liver glycogen content
 - C. Increasing muscle glycogen use during exercise
 - D. Increasing intramuscular lipid use during exercise

17. To reduce the risk of injuries occurring we should
- A. Warm up our body
 - B. Check the playing surface for sharp objects
 - C. Wear protective equipment
 - D. All of the above
18. A dislocation occurs when:
- A. Muscle is detached from its origin
 - B. Bone protrudes through the skin
 - C. The bones at a joint are forced out of position
 - D. Ligaments are stretched beyond normal range of position
19. The most common symptoms of a stomach cramp are:
- A. Aching and throbbing of the stomach
 - B. Breathing capacity is reduced and a headache
 - C. A sudden, sharp and severe pain to the abdomen
 - D. All of the above
20. When arriving on the scene of an injury where blood is present you should:
- A. Wait for a doctor to arrive
 - B. Avoid direct contact
 - C. Use Gloves
 - D. Clean it up with a mop
 - E. Both B and C
21. A warm up helps to prevent injuries by:
- A. Keeping the body cold, which enables the body to work efficiently
 - B. Removing lactic acid from ligaments and tendons
 - C. Increasing blood circulation, stretching muscles
 - D. All of the above

22. In athletes, which factor is most less likely to result in anemia?
- A. An elevated hemoglobin level
 - B. Insufficient dietary iron intake
 - C. Loss of iron due to chronic heel strike
 - D. Red blood cell loss secondary to irritation of the lining of the urinary bladder
 - E. A vegetarian diet
23. One of the most comprehensive approaches to sports injury research involves applying the principles of epidemiology. Which of the following best describes the science of epidemiology?
- A. Study of the distribution of diseases, injuries, or other health states in human populations for the purpose of identifying and implementing measures to prevent their development and spread
 - B. Study of the efficacy of specific injury evaluation and treatment measures
 - C. Study of the distribution and injury exposure rates of humans participating in sports in diverse environmental settings
 - D. Study of individual sport risk factors and the impact of those factors on participation rates
 - E. Study of the prevention of the spread of disease in the physically active population
- (Free mark)
24. Identify the intrinsic factor that most likely influences the onset of athletic injuries.
- A. Being a female high-school athlete
 - B. Practicing when the temperature is 85°F and the humidity is 85%
 - C. Running on a cross-country wooded trail
 - D. Using an inflatable bladder football helmet
25. Overtraining is a major cause of exercise-related injuries and results from:
- A. Failing to follow the "no pain, no gain" rule of training.
 - B. Progressing too slowly in the exercise program.
 - C. Too much exercise for one's level of fitness.
 - D. Not putting enough emphasis on the benefits of exercise.

26. Overtraining is:
- A. Phenomenon resulting from improper training techniques.
 - B. The result of not stretching adequately before the warm-up.
 - C. An unpreventable aspect of exercise training.
 - D. A generic term relating to the pain associated with injury.
27. Stress-related injuries from running are quite high since the impact of running is approximately:
- A. 7.5 times body weight.
 - B. 2.5 times body weight.
 - C. 4 times body weight.
 - D. 1.25 times body weight.
28. A rule to prevent overtraining is to make sure you do not increase exercise intensity of duration more than:
- A. 5 minutes per week.
 - B. 5 percent per month.
 - C. 10 percent over a 2-week period.
 - D. 1 minute per week.
29. Which of the following does not increase risk of injury when running is used as the primary training method?
- A. Speed or pace
 - B. Frequency of training
 - C. Improper stretching techniques
 - D. Distance covered per training session
 - E. None of the above
30. Which of the following is NOT a symptom of overtraining?
- A. Reduced appetite and weight loss
 - B. Reduced resting heart rate
 - C. Chronic fatigue and irritability
 - D. Increased incidence of infections

31. Which of the following is NOT considered one of the most common causes of injury in runners?
- A. Fatigue
 - B. Improper training techniques
 - C. Improper joint alignment in knees and feet
 - D. Inadequate shoes
32. Which of the following is NOT a guideline for the prevention of back pain?
- A. Exercise to stretch the lower back and hamstring muscles.
 - B. Perform exercises that stretch the abdominal area.
 - C. Avoid quick, jerky movements of the spine.
 - D. Maintain a healthy weight and body composition.
33. Which statement describes the relationship between exercise and low back pain?
- A. Exercise can play a key role in its prevention.
 - B. Avoid exercises that strengthen the abdominal area.
 - C. Any program of exercise would be beneficial.
 - D. Practice overextending the back and neck.
34. A strain is damage to:
- A. The cartilage padding between articulating skeletal tissue.
 - B. The ligaments around a joint.
 - C. The bony tissue to which muscles are attached.
 - D. Muscle tissue where fibers are stretched or torn.
35. Tendonitis is:
- A. Damage to the tendon-muscle junction.
 - B. Inflammation and swelling of the tendon.
 - C. The rupture of the tendon itself.
 - D. The tearing of connective tissue at a joint.
36. The best prevention of tendonitis is to:
- A. Avoid exercise.
 - B. Avoid overuse.
 - C. Warm-up and cool-down.
 - D. Ice the affected area.

37. Which of the following provides structural strength and determines direction of movement, but is susceptible to sprains?
- A. Tendons
 - B. Cartilage
 - C. Muscles
 - D. Ligaments
38. Torn cartilage is generally the result of:
- A. Overstretching the ligaments around a joint.
 - B. Numerous bouts of delayed-onset muscle soreness.
 - C. Unusually high forces or unusual movements.
 - D. Injury to muscle tissue about a joint.
39. Which of the following exercises have generally proven to be effective in reducing the risks of the patella-femoral pain syndrome?
- A. Hamstring stretches
 - B. Abdominal exercises
 - C. Exercises that strengthen the quadriceps
 - D. Stair climbing
40. Which method of rehabilitation for minor injuries will generally produce the fastest recovery?
- A. Cryogenic techniques
 - B. The halt of all physical activity
 - C. A natural rehabilitation process
 - D. A procedure to strengthen and improve the flexibility of the injured area

SECTION B Short answer question (10 marks)

41. Calculate your maximum heart rate (HRMax). Your maximum heart rate is the fastest your heart can go in beats per minute (bpm). To estimate this, calculate the HRMax of a 35-year-old male (3 marks)
42. Check the resting heart rate (RHR). For greater accuracy, find the average from three different mornings. For example, if you measure 62, 65, and 63 bpm, calculate the RHR / (2 marks)
43. Calculate your Heart Rate Reserve (HRR). This is the difference between your heart rate at rest and your heart rate at maximum effort. To get your HRR, use the equation $HRMax - RHR = HRR$. Use the answers above to calculate the HRR (2 marks)
44. Using the answers above, calculate the target heart rate (THR) at 70%. (3 marks)

SECTION C: Long answer question (10 marks)

45. Exercising is most essential for proper health and fitness. Moreover, it is essential for every sphere of life. Especially today's youth need to exercise more than ever. It is because the junk food they consume every day can hamper their quality of life. Describe five benefits of exercise (10 marks)
46. A sprain is a stretch or tear in the bands of tissue (ligaments). that hold bones and joints together A sprain occurs when ligaments are overextended or stretched beyond their limits. The ligaments can become inflamed, resulting in pain and sudden muscle tightening (spasms). A sprain can be caused by an injury (trauma), or it can develop gradually over time, due to overuse. Describe the treatment regime of the sprain of the ankle joint (10 marks)