



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF TRIMESTER EXAMINATIONS JANUARY TO APRIL 2024

UNIT CODE: PHT 232

UNIT NAME: THERAPEUTIC EXERCISES (UPGRADING)

DATE: 15th APRIL 2024

TIME: 6PM-8PM

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.**

TOTAL: _____/50

PERCENT: _____/100%

POINTS EARNED TOWARDS FINAL GRADE _____/70

1. What determines the load a muscle must overcome during activity?
 - A. The weight lifted.
 - B. The distance the weight is from the spine.
 - C. The moment arm.
 - D. The weight lifted times the moment arm

2. What is the Force Moment?
 - A. The amount of weight being lifted.
 - B. The magnitude of the force it takes to overcome an external load.
 - C. The distance from the applied force to the muscle insertion.
 - D. The time it takes to overcome an external load.

3. How many degrees of freedom does the spine have?
 - A. 3
 - B. 6
 - C. 9
 - D. 12

4. The basic structure of the spine makes it a very stable.
 - A) True
 - B) False
 - C)

5. The thoracic extensors can produce a greater moment than the multifidus muscle.
 - A) True
 - B) False

6. Basically, the stability of the spine depends on
 - A. Spinal architecture
 - B. Rotators and intertransversarii
 - C. Muscles tensioning fascia
 - D. Muscle strength

7. The abdominal muscles insert into the linea alba creating super stiffness
 - A) True
 - B) False

8. Which abdominal muscle functions like two separate muscles?
- A. Internal Oblique
 - B. External Oblique
 - C. Transversus Abdominus
 - D. Rectus Abdominus
9. Which muscle can create excessive compressive forces to the spine during training?
- A. Multifidus
 - B. Latissimus
 - C. Quadratus lumborum
 - D. Psoas
10. Which spinal muscle appears active in virtually all spinal movements?
- A. Multifidus
 - B. latissimus
 - C. Quadratus lumborum
 - D. Psoas
11. Which muscle group is an example of triangulation of forces to create stability?
- A. Psoas, quadratus, deep erector spinae
 - B. Internal oblique, external oblique and transversus abdominus
 - C. Latissimus, multifidus, psoas
 - D. Psoas, iliacus, gluteus maximus
12. Sit ups are an excellent way to train the abdominals.
- A) True
 - B) False
13. The primary problem following a spinal injury is
- A. Diagnosis is difficult.
 - B. Neuromotor control deficits.
 - C. Strength deficits.
 - D. Sciatica

14. One difference in training the extremities versus training the spine is
- A. In training the spine the therapist does not train specific muscles
 - B. The early stages of spine training does not emphasize strength
 - C. Capacity is emphasized more in the extremities than the spine
 - D. There is really no substantial differences in training extremities versus the spine
15. What phrase describes spinal rehabilitation the best.
- A. Train movement not muscle
 - B. No pain, no gain
 - C. Both phrases are right
16. What is the most important factor in spinal rehabilitation?
- A. Strength
 - B. Power
 - C. Endurance
 - D. Tolerance
17. The principle of consecutiveness means:
- A. Systematic increase in challenge
 - B. Perfect practice technique with repetition, rest and recovery
 - C. Specificity of training
 - D. The first step is to design a single workout then the second step deal with progression from one session to the next
18. Muscle strength cannot predict who will have future back troubles.
- A) True
 - B) False
19. Which statement about core ratios is correct?
- A. Flexor strength should be equal to or greater than extensor strength
 - B. Side bridge to extensor strength should be within 5%
 - C. Right side bridge to left side bridge should be within 5%
 - D. Right side bridge to left side bridge should be within 25%

20. What makes extremity and spinal rehabilitation alike?
- A. The goal is restoration of strength
 - B. Both emphasize phasic exercises
 - C. Both rely on rapid response to external loads
 - D. Functional movement patterns must be restored during rehabilitation
21. Super sets
- A. Make exercise easier
 - B. Are a superior way of strengthening
 - C. Save time during exercise
 - D. Are best used in the untrained individual
22. How much torque must a muscle develop to overcome a five-pound weight which is applied one foot away from the muscle insertion?
- A. One foot- pound
 - B. Five foot- pounds
 - C. Ten foot- pounds
 - D. Fifteen foot-pounds
23. Which of the follow is the best description of physiologic shortening of a muscle?
- A. The muscle demonstrates increased resting tension
 - B. The muscle has lost sarcomeres
 - C. The muscle is neurologically inhibited
 - D. The muscle needs stretching
24. Phase three spinal rehabilitation concentrates on
- A. Core muscle activation
 - B. Functional rehabilitation and balance
 - C. Strengthening major muscle groups
 - D. Coordination of spinal stabilizers while moving other body parts
25. Which parameter best relates to endurance:
- A. Speed
 - B. Moment arm
 - C. Time
 - D. Load

26. The SAID principle tells us that:

- A. Comprehensive exercise including core and cardio will improve specific functional activities
- B. All training should eventually lead to task specific training
- C. Speed must be added to the demand on tissues
- D. Specific Activities Include Demand

27. To be effective cardiovascular training must be done at least

- A. Daily
- B. Once weekly
- C. Three times weekly
- D. Five times weekly

28. The primary cause of recurring low back pain is

- A. Loss of neuromotor control
- B. Persistent pain
- C. Loss of strength
- D. Loss of function

Mr. Otieno injured his back 6 weeks ago while lifting his daughter. He complains of right sided low back pain which radiates down his leg to his knee. Evaluation findings include normal sensation, flexibility deficits in his hip flexors, rectus femoris, calves bilaterally. Segmental testing of the spine reveals stiffness of L2/ L3 and L3/L4 with hypermobility of L4/L5 and L5/S1. His core muscle testing reveals extension of 50 seconds with pain, Flexion impossible to test due to pain, Right side bridge 5 seconds and left side bridge 12 seconds. He is tender on palpation to right piriformis, right multifidus and right quadratus. The hip flexors on the right are tender and hypertonic. He demonstrates a slumped sitting posture and thoracic kyphosis during gait.

29. After evaluation you have time to teach ONE intervention. You should

- A. Teach lower extremity stretches
- B. Teach basic core exercises
- C. Instruct him to stop lifting his child
- D. Teach basics of sitting and standing posture

30. On the second visit you should include

- A. Facet mobilization
- B. Instruction in sitting and standing posture
- C. Gait training
- D. Core muscle activation

31. Mr. Otieno comes in for his fifth visit. You have taught him all the basics of Phase One retraining. He reports that he is doing his exercises daily, even some days multiple times. He has some decrease in leg pain. It is less intense and less frequent. To begin Phase two you will
- A. Add weight to his lifting drills
 - B. Begin the Big Three
 - C. Begin functional activities
 - D. Drill core exercises
 - E.
32. Mr. Otieno comes in for his tenth visit. He is well into Phase Three exercises. These exercises are principally for
- A. Pain reduction
 - B. Strength
 - C. Endurance
 - D. Functional rehabilitation
33. Mr. Otieno comes in for his eleventh visit and reports a significant increase in his symptoms. You should
- A. Drop back to the Big Three
 - B. Advise two days' rest, then resume
 - C. Tell him "No pain, no gain" and resume the program
 - D. Just do core program and resume when pain decreases
34. What signs, symptoms or parameters will you use to decide when to discharge Mr. Otieno?
- A. His pain resolves
 - B. He can lift his daughter comfortably
 - C. His core ratios are normal
 - D. He demonstrates good posture, good stability of L4/5 and L5/S1, AND his pain has resolved.
35. The Big Three affect the following the most
- A. Core ratios
 - B. Posture
 - C. Functional activities
 - D. Endurance

36. One final instruction you should give Mr. Otieno is to have his daughter lose weight to avoid reinjury.

- A) True
- B) False

37. Ideal training occurs when:

- A. Tolerance is increased then capacity is increased
- B. Capacity is increased thereby increasing tolerance
- C. Tolerance and capacity are increased together
- D. Increasing tolerance increases capacity naturally

38. Eccentric training is best used to treat:

- A. Tendon injuries
- B. Muscle injuries
- C. Endurance deficits
- D. Coordination deficits

39. In the progression of Therapeutic Exercise which comes first:

- A. Mobility
- B. Stability
- C. Activation
- D. Coordination

40. The spinal patient should avoid this posture for the first hour in the morning.

- A. Extension
- B. Side bending
- C. Sitting
- D. Flexion

41. Muscle strength is a predictor of who will develop back pain.

- A) True
- B) False

42. In cardio training, if the diastolic number drops 10 mm then you should:

- A. Rest patient 10 minutes and begin again
- B. Use caution and continue
- C. Stop exercise for the day
- D. Send patient to emergency room
- E.

43. In cardio training, if diastolic raises 10 mm then you should:
- A. Rest patient 10 minutes and begin again
 - B. Use caution and continue
 - C. Stop exercise for the day
 - D. Send patient to emergency room
44. When looking at the strength of a muscle, which strength curve should be greater?
- A. Concentric
 - B. Eccentric
 - C. Isometric
 - D. Isotonic
45. The goal of the Phase Four spinal rehabilitation program presented is to increase
- A. Function
 - B. Power
 - C. Strength
 - D. Endurance
46. What term is best used to in describing the Overload Principle?
- A. Weight
 - B. 1 RM
 - C. Fatigue
 - D. Pain
47. Your patient has been doing a variety of shoulder exercises and have been progressing steadily. They come for their regularly scheduled visit and report that pain is increasing. You should:
- A. Stop exercise until the pain goes away
 - B. Continue the principle of "no pain, no gain"
 - C. Change the type of exercise
 - D. Consider regression
48. When developing a strengthening program for your patient you determine their 10 RM load for their biceps brachii. The load you should begin exercising them with is:
- A. 20-40 percent 10 RM
 - B. 40-60 percent 10 RM
 - C. 60-80 percent 10 RM
 - D. 10 RM exactly

49. In attempting to gain strength in muscles, the minimum number of days those muscles should be worked each week is

- A. 1-2
- B. 2-3
- C. 3-4
- D. 4-5

50. The most important parameter to increase in our patients, either in upper or lower extremity rehabilitation is:

- A. Capacity
- B. Strength
- C. Power
- D. Tolerance

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