



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

END OF TRIMESTER EXAMINATIONS JANUARY TO APRIL 2025

UNIT CODE: PHT 236

UNIT NAME: Musculoskeletal disorders in PT 1 (Upgrading)

DATE: 9th APRIL 2025

TIME: 6pm-8.30pm

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 14 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: _____/70

PERCENT: _____/100%

POINTS EARNED TOWARDS FINAL GRADE _____/70

All the questions in this exam are multiple choice questions. Answer all the questions.

1. You are assessing a patient with a gait deviation. The patient ambulates with both knees flexed 25 degrees throughout the gait cycle. You would like to assess the influence of muscle length on the patient's flexed knee posture. Which of the following positions would you place the patient's lower extremity?
 - A. The patient is positioned supine with the legs free to hang over the edge of the table. The patient holds the non-tested leg in hip and knee flexion and allows tested leg to fall toward table.
 - B. The patient is positioned prone. The therapist performs passive flexion of the tested limb's knee.
 - C. The patient is positioned supine. The therapist performed passive flexion of the hip with the knee in full extension.
 - D. The patient is standing. With the tested limb in slight hip extension, 30-40 degrees of knee flexion, and heel flat on the floor, the patient shifts weight forward onto the opposite limb.
2. When measuring elbow flexion range of motion with a goniometer, where should the therapist align the fulcrum of the goniometer?
 - A. At the lateral epicondyle of the humerus
 - B. At the lateral midline of the humerus
 - C. At the olecranon
 - D. At the radial head
3. Which muscle is being tested in the following description? The patient is seated with the elbow flexed 70-90 degrees and the forearm fully supinated. Pressure is applied at the distal forearm into elbow extension.
 - A. Brachialis
 - B. Brachioradialis
 - C. Biceps brachii
 - D. Triceps
4. A therapist describes the end feel of passive knee flexion as firm. What does a firm end feel signify?
 - A. A brief involuntary muscle spasm
 - B. Bone on bone approximation
 - C. Capsular restraint
 - D. A limitation in motion due to pain

5. When manual muscle testing a single joint muscle, where in the range should strength be tested?
 - A. At the end of the joint motion
 - B. At mid-range of the joint motion
 - C. At the beginning of the joint motion
 - D. The joint's position is not accounted for when testing strength

6. If a patient is unable to hold the standard manual muscle test position against gravity, what is the best alternate position available?
 - A. The horizontal plane
 - B. The vertical plane
 - C. The sagittal plane
 - D. The frontal plane

7. A patient experienced a distal tibia fracture and just had a short leg cast removed after 6 weeks of immobilization. She demonstrates a global decrease in ankle active and passive range of motion, but denies pain. Which of the following end feels are you most likely to find?
 - A. Spasm
 - B. Empty
 - C. Capsular/ firm
 - D. Soft tissue approximation

8. You are assessing a patient following ankle sprain. If the patient's ankle dorsiflexion passive range of motion was greater than his active range of motion which of the following could be the cause?
 - A. Muscular tightness
 - B. Capsular tightness
 - C. Muscular weakness
 - D. Capsular laxity

9. You are evaluating a patient with neck pain. On the intake paperwork, the patient notes severe pain of 10 on a 1-10 scale when the pain is at its worst. You want to determine the

irritability of the pain before proceeding with the examination. Which of the following questions would assist you the most with this determination

- A. Ask the patient about aggravating factors for the symptoms and the timeframe for symptom reproduction
 - B. Ask the patient for his/her current pain level
 - C. Ask the patient about weight loss and appetite
 - D. Ask the patient on the quality of pain
10. A patient presenting with low back pain is described as having an anterior pelvic tilt. An anterior pelvic tilt is best described by which of the following options?
- A. Flattened lumbar lordosis, hips in neutral or relative extension, lengthened iliopsoas, and shortened hamstrings and abdominals
 - B. Increased lumbar lordosis, hips in relative flexion, lengthened hamstrings and abdominals, and shortened iliopsoas, rectus femoris, and lower back extensors
 - C. Flattened lumbar lordosis, hips in flexion, shortened iliopsoas, lengthened low back extensors and flexed knees
 - D. No curvature noted throughout the spine.
11. Constitutional symptoms suggest there is a possible systemic cause to the patients symptoms. Which of the following would be considered a constitutional symptom?
- A. Localized low back pain
 - B. A leg length discrepancy
 - C. Nausea and weight loss
 - D. Poor posture
12. A patient demonstrates limited active range of motion (AROM) into ankle dorsiflexion when the knee is extended. Passive range of motion (PROM), in this same position, is within normal limits (WNL). Which of the following tests would provide the therapist with the most information about the cause of the limitation of active range of motion?
- A. Strength testing of the anterior tibialis muscle
 - B. Muscle length testing of the gastrocnemius muscle
 - C. Strength testing of the gastrocnemius muscle
 - D. Muscle length testing of the anterior tibialis muscle
13. During surgery to remove an apical lung tumor, the long thoracic nerve was injured, Muscle testing of the serratus anterior demonstrates its strength to be 3+/5. What is the BEST initial exercise for this patient?

- A. Standing wall push-ups
 - B. Standing arm overhead lifts using hand weights
 - C. Supine arm overhead lifts using weights
 - D. Sitting arm overhead lifts using a pulley
14. A patient presents with weakness with myotome testing of the right upper extremity. The patient is unable to maintain a flexed elbow against the therapists pressure towards elbow extension. Which of the following dermatomal patterns coincides with this pattern of weakness?
- A. Medial end of clavicle
 - B. Lateral elbow
 - C. Fifth digit/ little finger
 - D. Medial elbow
15. A patient presents with decreased sensation of bilateral feet. The loss of sensation is in the entire area that a sock would cover. What is the most likely cause of this distribution of sensory loss?
- A. L5 dermatome sensation loss
 - B. Sciatic nerve sensation loss
 - C. Peripheral neuropathy
 - D. Lesion of the spinal cord
16. You are evaluating a patient with a significant thoracic kyphosis and forward head posture. He reports a frequent loss of balance with falls in the anterior/forward direction. What is the ideal skeletal alignment to maintain balance in standing with minimal effort?
- A. The body's center of mass should be slightly posterior to the base of support
 - B. The body's center of mass should be slightly anterior to the base of support
 - C. The body's center of mass should be over the base of support
 - D. The position of the center of mass does not contribute to balance
17. A patient demonstrates painful and limited active range of motion into hip flexion. With passive range of motion, hip flexion is within normal limits and painfree. Which of the

following tissues would appear to be the limiting factor for active range of motion into hip flexion?

- A. Contractile tissue (muscle)
- B. Ligament
- C. Cartilage
- D. Joint capsule

18. Which of the following is typical of the range of motion assessment in normal, pain free joints?

- A. Passive range of motion is slightly greater than active range of motion
- B. More range is available in sitting compared to supine positioning
- C. Passive and active range of motion must always be performed in supine or prone
- D. End feels are always elastic or capsular

19. You are assessing a patient with chronic low back pain. He demonstrates significantly limited range of motion into flexion and extension. When using a tape measurer to determine thoracolumbar range of motion, what landmarks should be utilized?

- A. Inferior: S2, Superior: C7
- B. Inferior: T12, Superior: C7
- C. Inferior: L4, Superior: C7
- D. Inferior: S2, Superior: T2

20. You are assessing a 65-year old patient with right hip pain. When performing a range of motion measurement of hip internal rotation, the patient complains of pain. You document an active range of motion measurement (AROM) of 25 degrees. What is the most appropriate interpretation of the finding?

- A. The patient demonstrates limited hip internal rotation
- B. The patient demonstrates the normal expected AROM
- C. The patient demonstrates excessive hip internal rotation
- D. Range of motion is unable to be assessed due to pain

21. Which blood vessel represents the greatest arterial supply to the hip joint?

- A. Lateral femoral circumflex
- B. Artery to the head of femur

- C. Medial femoral circumflex
 - D. Superior gluteal
22. Which of the following tools is not used to measure muscle length?
- A. Goniometer
 - B. Dynamometry
 - C. Tape measure
 - D. Inclinometer
23. Which of the following muscles are NOT tested in modified Thomas test?
- A. Piriformis muscle
 - B. Iliopsoas muscle
 - C. Rectus femoris
 - D. Abductor muscles of the thigh
24. During a passive range of motion (ROM) test of the shoulder, a physical therapist feels a slight resistance followed by a gradual restriction at the end of external rotation. This end feel is most likely caused by tightness in which structure?
- A. Muscle
 - B. Tendon
 - C. Ligament
 - D. Joint Capsule
25. John, a 42-year-old construction worker, presents to the physiotherapy department complaining of pain and stiffness in his right knee joint for the past two weeks. He states the pain started after a misstep while carrying heavy materials at work. He reports difficulty bending and straightening his knee fully, especially in the mornings. John denies any recent injuries or accidents. As a physiotherapist carrying out the examination, which myotome are you likely to assess according to John's history
- A. L4
 - B. L3
 - C. L2
 - D. L1
26. A 45-year-old single mother presents with a two-week history of right neck pain radiating down the medial aspect of his forearm. He describes the pain as a sharp, burning sensation that worsens with prolonged overhead activities and carrying heavy objects. He also reports occasional numbness and tingling in the thumb, index, and

middle fingers of his right hand. Which upper limb test would be most appropriate to assess potential nerve root involvement?

- A. Median bias upper limb tension test
- B. Spurling's Test
- C. Ulna bias upper limb tension test
- D. Radial bias upper limb tension test

27. Mulligan Mobilization with Movement (MWM) techniques primarily aim to address:

- A. Joint stiffness
- B. Joint tracking problems
- C. Muscle imbalances
- D. Scar tissue adhesions

28. A 25-year-old healthy male cyclist is involved in a high-speed collision with a car. Upon emergency medical services arrival, he is found with a visibly deformed left thigh and is unable to bear weight on the leg. During the initial assessment indicate he has sustained fracture midshaft femur, which neurological structure are at the biggest risk of affected by this kind of fracture?

- A. Sciatica nerve
- B. Femoral nerve
- C. Perineal nerve
- D. Obturator nerve

29. 10-year-old Nick took a tumble while skateboarding and landed hard on his outstretched arm. After an x-ray at the emergency room, the doctor diagnosed him with a displaced supracondylar fracture. Due to the displacement, (ORIF - Open Reduction Internal Fixation). The Surgeon asked Physio to come for review after 2 weeks. At what stage of healing is the fracture on the 2nd week?

- A. Reparative stage
- B. Inflammatory stage
- C. Remodeling stage
- D. Acute Stage

30. A 19-year-old college basketball player, dislocates his left shoulder while playing the game in a intervarsity tournament a few weeks ago. After his initial management, the surgeon refers him for physiotherapy. Which shoulder movements will the physiotherapy be cautions in the early stages of the rehabilitation program?

- A. Internal rotation
- B. External rotation
- C. Shoulder abduction
- D. Shoulder adduction

31. Which of the following is NOT a principle of treatment in the Mulligan concept?

- A. A passive accessory joint mobilization is applied following the principles of Kaltenborn
- B. During assessment the therapist will identify one or more comparable signs.

- C. During the treatment the therapist can request the patient to perform the comparable sign without applying the glide
 - D. The therapist must continuously monitor the patient's reaction to ensure no pain is recreated.
32. A secretary complains of low back pain radiating down the right leg and foot. The physiotherapist suspects piriformis syndrome. Which of the following special tests is MOST helpful in diagnosing piriformis syndrome?
- A. Ober test
 - B. Straight leg raising
 - C. Slump test
 - D. Achilles Tendon Reflex Test
33. You are a physiotherapist and two patients, John and Mary, have come to see you today complaining of shoulder pain. After conducting a thorough examination, you determine that John has peri-arthritis shoulder and Mary has rotator cuff syndrome. Both conditions can cause shoulder pain, but they have different underlying causes and require specific treatment approaches.

Which of the following statements is MOST accurate regarding the treatment plan you would develop for John and Mary?

- A. Both John and Mary will benefit from the same physiotherapy exercises to improve range of motion and strengthen the shoulder muscles.
 - B. John's treatment will focus on reducing inflammation and maintaining joint mobility, while Mary's treatment will target strengthening the rotator cuff muscles
 - C. John will require surgery to address the peri-arthritis shoulder, whereas physiotherapy exercises will be sufficient for Mary's rotator cuff syndrome.
 - D. Mary will need to wear a sling for several weeks to immobilize her shoulder, while John will participate in a strengthening program.
34. John, a 32-year-old a truck driver, presents to your physiotherapy clinic for the first time. He complains of persistent lower back pain radiating down his left leg for the past 3 months. The pain started gradually and has worsened to the point where it interferes with his sleep and ability to work. John denies any recent injuries or accidents.
- During the assessment the physiotherapist discovers that John reports feeling generally unwell (malaise) and having lost his appetite recently, has noticed unintentional weight loss over the past few months. He has begun experiencing

occasional night sweats, particularly in the past few weeks. Furthermore, he has significant tenderness and decreased range of motion in his lower back. There are also neurological signs suggestive of nerve compression in his leg.

Which of the following symptoms is LEAST likely to be a constitutional symptom of TB spine?

- A. Localized back pain
- B. Malaise
- C. Night sweats
- D. Weight loss

35. Alex, a 58-year-old construction worker, comes to your clinic complaining of knee pain. He describes a dull ache in his right knee, especially after a long day on the job. He says the pain gets worse with activity and feels somewhat stiff in the mornings. Based on Alex's history and a physical examination, you suspect he has grade 2 osteoarthritis in his right knee.

Which of the following symptoms is NOT typically associated with grade 2 osteoarthritis?

- A. Dull ache in the joint
- B. Morning stiffness that improves with movement
- C. Has pain after walking the whole day
- D. Crepitus sounds felt during knee movement

36. A 20-year-old athlete presents with myositis ossificans in their right quadriceps muscle following a sports injury. The physiotherapy program should prioritize which of the following in the initial stages (first 4-6 weeks) of treatment?

- A. Aggressive strengthening exercises to regain lost muscle power
- B. Mobilization techniques focused on improving flexibility and reducing pain
- C. Balance training and proprioception exercises to enhance stability
- D. Aerobic conditioning activities to improve overall fitness

37. Which of the following areas is NOT a potential area of entrapment of the median nerve?

- A. Extensor carpi radialis brevis
- B. Ligament of Struthers
- C. Pronator Teres
- D. Carpal Tunnel

38. A client presents themselves to the physiotherapist with difficulties of buttoning their shirt. Upon assessment, the physiotherapist discovers that the patient has weak thumb opposition. Which nerve root of the spinal cord would most likely be injured?
- A. C7
 - B. C7 and T1
 - C. T1
 - D. T1 and T2
39. Mary has been referred for physiotherapy treatment by her doctor, with complaints of lower neck pain and numbness on the posterior aspect of the humerus. Which dermatome corresponds most likely to the area of numbness?
- A. C4
 - B. C5
 - C. C6
 - D. T1
40. During a pain assessment, which of the following are NOT considered components of pain behavior?
- A. Aggravating and easing factors
 - B. Frequency
 - C. Irritability
 - D. Intensity
41. The most common mechanism of injury leading to an anterior shoulder dislocation is:
- A. Direct blow to the anterior shoulder
 - B. Fall on an outstretched arm with the arm externally rotated
 - C. Fall on an outstretched arm with the arm internally rotated
 - D. Hyperextension of the shoulder joint
42. A 65-year-old female patient presents with a stable pelvic fracture sustained from a low-energy fall. She is bedridden due to severe pain and limited mobility. What is the primary goal of physiotherapy in the early stages of pelvic fracture management is:
- A. Increasing bone density
 - B. Restoring full range of motion immediately
 - C. Preventing complications such as pressure ulcers and pneumonia
 - D. Enhancing athletic performance
43. A patient presents with pain described as "throbbing," "pounding," and "beating" in their lower leg. They also report mild swelling and warmth in the affected area.

Based on the pain descriptors and accompanying symptoms, which of the following is the MOST likely primary source of the patient's pain?

- A. Neurogenic disorder, potentially involving the sciatic nerve.
- B. Musculoskeletal disorder, possibly a muscle strain.
- C. Vascular disorder, such as peripheral arterial disease.
- D. Emotional disorder, manifesting as physical pain

44. Which of the following statements BEST reflects the typical prognosis for frozen shoulder?

- A) It usually requires surgical intervention to achieve full recovery.
- B) It is a self-limiting condition that typically resolves within 6-12 months, although it can take up to several years in some cases.
- C) It often leads to permanent shoulder stiffness and disability.
- D) It responds best to long-term corticosteroid injections and should be the primary treatment.

45. A patient presents to the emergency department following a motor vehicle collision. Radiographic imaging reveals a pelvic ring fracture with disruption of the pubic symphysis and widening of the sacroiliac joint on the left side. The force vector is determined to be from left to right. Based on the classification system, which type of pelvic ring injury is MOST likely present?

- A. Antero-posterior compression (APC) Type 2
- B. Lateral compression (LC) Type 2
- C. Vertical shear (VS) Type 1
- D. Complex pelvic ring injury

46. A physiotherapist is performing a radial nerve bias neurodynamic test on a patient.

The patient reports a "stretching" sensation, but no pain or paresthesia, during the test.

Which of the following is the MOST appropriate course of action?

- A. Discontinue the test immediately as any sensation indicates neural tissue involvement.
- B. Progress the test by adding further components, such as shoulder abduction and elbow extension, until symptoms are reproduced.
- C. Document the finding as a normal response to neural tissue stretch and continue with other aspects of the examination.
- D. Perform repeated oscillations into wrist flexion to desensitize the nerve.

47. A patient presents with left-sided low back pain and sciatica. After several sessions of McKenzie exercises, the patient reports that their leg pain has completely resolved, but they now experience a small area of localized pain in the mid-lumbar spine. Which of the following BEST reflects the appropriate course of action?
- A. Discontinue McKenzie therapy as the pain has moved.
 - B. Continue with the current exercises as this represents centralization.
 - C. Modify the exercises to address the residual lumbar pain.
 - D. Refer the patient for further imaging to rule out a new pathology.
48. A physiotherapist is treating a patient with a chronic ankle sprain who exhibits persistent restriction in dorsiflexion. Applying Mulligan's concept, which of the following BEST explains how a sustained glide mobilization could improve dorsiflexion?
- A. It stretches the anterior talofibular ligament, increasing its extensibility and allowing for greater ankle joint range.
 - B. It reduces muscle guarding and pain by stimulating mechanoreceptors, thus facilitating a more relaxed and pain-free movement.
 - C. It repositions the talus within the ankle mortise, correcting a potential positional fault that is restricting normal joint mechanics.
 - D. It strengthens the surrounding musculature, specifically the tibialis anterior, to dynamically assist with the dorsiflexion movement.
49. In Mulligan's MWM, what is the critical principle regarding the application of the mobilizing glide?
- A. The glide should be applied rhythmically and with increasing force.
 - B. The glide should only be applied at the end range of the physiological movement.
 - C. The glide should be sustained throughout the physiological movement and until the joint returns to its starting position.
 - D. The glide should be applied in the direction opposite to the restriction
50. Which of the following is NOT a common precaution after total hip arthroplasty?
- A. Avoiding crossing legs
 - B. Refraining from bending at the waist more than 90 degrees
 - C. External rotation of the leg
 - D. Internal rotation of the leg

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