

Musculoskeletal Anatomy and Physiology Home Study Course

14 CE Hours
Online Study Guide

Presented by the:
Center for Massage Therapy Continuing Education

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It is the responsibility of the practitioner to determine the appropriateness of the principles presented in terms within the scope of practice. This information is in no way meant to diagnose or treat medical conditions. This course is not meant to teach advanced hands-on massage techniques. Written medical opinions are always the best way to resolve any questions regarding contra-indications to massage therapy.

PLEASE CAREFULLY READ THE DIRECTIONS ON PAGE 3

Instructions for the Musculoskeletal Anatomy and Physiology Home Study Course

Thank you for investing in the Musculoskeletal Anatomy and Physiology home study course, a 14 CE hour course designed to further your knowledge of the anatomy and physiology of the skeletal, muscular and nervous systems. This guide will contain all of the instructions you will need to complete this course. This is a 14 CE hour course, so that means it should take you approximately 14 hours to read the text, complete the exam and course evaluation.

The following are steps to follow in completing this course:

- 1. Read the instructions and review the text and exam.**
- 2. Access the online examination by logging in to your account at www.massagetherapyceu.com, and clicking on the “test” button.**
- 3. Complete your examination and print your certificate. The exam is open book and there is no time limit for completion.**

You must pass the exam with a 70% or better to pass this home study course. Feel free to review the textbook while taking the exam. You are allowed to access and take the exam up to 3 times if needed. There is no time limit when taking the exam. This course uses the textbook “The Concise Book of Muscles”, by Chris Jarney. There are no trick questions on the exam. All of the answers can be found in the textbook.

It is advised to answer the exam questions in the study guide before testing online. That way, when you are testing you do not have go back and forth through the online exam.

Good luck as you complete this course. If you have any question please feel free to contact us at 866-784-5940, 712-490-8245 or by email at info@massagetherapyceu.com. Most state boards require that you keep your “proof of completion” certificates for at least four years in case of audit. Thank you for taking our Musculoskeletal Anatomy and Physiology home study course.

Musculoskeletal Anatomy and Physiology Examination

Chapter 1

1. The term _____ refers to below, or away from the head or toward the lower part of a structure of the body.
 - A. Anterior
 - B. Medial
 - C. Superior
 - D. Inferior
2. When referring to the arm, which of the following parts is the most distal?
 - A. Fingers
 - B. Shoulder
 - C. Bicep
 - D. Elbow
3. What does the term “plantar” refer to?
 - A. The top of the foot
 - B. The sole of the foot
 - C. The back of the hand
 - D. The palm of the hand
4. Which of the following planes divides the body into upper and lower sections?
 - A. Sagittal
 - B. Frontal
 - C. Transverse
 - D. Dorsal
5. Movement of a bone away from the midline of the body or a limb is called:
 - A. Flexion
 - B. Abduction
 - C. Adduction
 - D. Rotation
6. What is pronation?
 - A. To turn the palm of the hand up to face the ceiling
 - B. To turn the sole of the foot inward
 - C. To turn towards the midline
 - D. To turn the palm of the hand down to face the floor
7. Opposition is a movement specific to which of the following joints?
 - A. The saddle joint of the thumb
 - B. The ball and socket joint of the shoulder
 - C. The hinge joint of the elbow
 - D. The pivot joint of the tibia and fibula

Chapter 2

8. Which of the following describes the insertion of a muscle?
 - A. The place where a muscle attaches to a relatively stationary point on a bone
 - B. The end of the muscle that attaches to the bone that moves
 - C. A non-movable end point of a tendon or aponeurosis
 - D. The middle point of the muscle which contains the muscle bundles

9. An _____ contraction occurs when there is increased tension in a muscle, but its length remains unchanged.
 - A. Isotonic
 - B. Isometric
 - C. Exocentric
 - D. Eccentric

10. How many thoracic vertebrae exist?
 - A. 7
 - B. 12
 - C. 5
 - D. 3

11. All of the following are types of synovial joints EXCEPT:
 - A. Fixed
 - B. Hinge
 - C. Condylloid
 - D. Saddle

12. When referring to musculoskeletal mechanics, which of the following best describes the antagonist?
 - A. A muscle that contracts to produce a specific movement
 - B. The muscle on the opposite side of a joint to the prime mover, which must relax to allow the prime mover to contract
 - C. The muscle which prevents any unwanted movements that might occur as the prime mover contracts
 - D. A muscle that immobilizes the bone of the prime mover's origin, thus providing a stable base for the action of the prime mover

Chapter 3

13. What is the action of the orbicularis oculi?
 - A. Blinking or forced closure of the eye
 - B. Pulls scalp backwards
 - C. Wrinkles nose
 - D. Draws eyebrows downward

14. Which of the following is the basic functional movement of the occipitofrontalis?
 - A. Facilitates chewing
 - B. Exhaling out strongly through nose
 - C. Facilitates facial expressions
 - D. Twitching the nose

15. Which of the following is the origin of the levator palpebrae superioris?
- A. Frontal bone
 - B. Canine fossa of maxilla
 - C. Root of orbit
 - D. Lower surface of zygomatic bone
16. All of the following muscles have an insertion of skin at corner of mouth EXCEPT:
- A. Depressor anguli oris
 - B. Risorius
 - C. Zygomaticus major
 - D. Zygomaticus minor
17. What is the origin of the temporalis muscle?
- A. Zygomatic arch
 - B. Lateral surface of the mandible
 - C. Bone of temporal fossa. Temporal fascia
 - D. Coronoid process and ramus of mandible

Chapter 4

18. How many suprahyoid muscles are there?
- A. 2
 - B. 4
 - C. 6
 - D. 8
19. Which of the following nerves activate the platysma?
- A. Facial nerve (VII) (cervical branch)
 - B. Mylohyoid nerve
 - C. Trigeminal V nerve
 - D. Ventral rami of C1 to C3
20. Which of the following is the action of the sternothyroid muscle?
- A. Depresses hyoid bone after swallowing
 - B. Draws larynx downward
 - C. Raises thyroid and depresses hyoid bone
 - D. Depresses and fixes hyoid bone
21. Which of the following is a strengthening exercise of the scalenes?
- A. Isometric neck extension exercise
 - B. Seated roll up
 - C. Isometric neck flexion exercise
 - D. Isotonic neck flexion exercise
22. Why is cranial nerve XI unique?
- A. It is formed by both cranial and spinal components that combine and then diverge
 - B. It is formed by both facial and spinal components that diverge and then combine
 - C. It is a network of nerves, formed by the ventral rami of the four upper cervical nerves
 - D. It is the largest of the cranial nerves

Chapter 5

23. Which of the following is the most lateral of erector spinae?
- A. Iliocostalis
 - B. Longissimus
 - C. Spinalis
 - D. Lateralis
24. Which of the following movements or injuries may damage the iliocostalis portion of the erector spinae group?
- A. Lifting with bending the knees, or holding the object too close in front of the body
 - B. Lifting without bending the knees, or holding the object too close in front of the body
 - C. Lifting with bending the knees, or holding the object too far in front of the body
 - D. Lifting without bending the knees, or holding the object too far in front of the body
25. Which of the following is a stretch that can be used for the spinalis portion of the erector spinae group?
- A. Back arch stretch
 - B. Lumbar extension stretch
 - C. Side flexion stretch
 - D. Seated roll up
26. What three muscle groups comprise the transversospinalis?
- A. Erector spinae, semispinalis, and splenius capitis
 - B. Splenius capitis, splenius cervicis, and rotatores
 - C. Semispinalis, multifidus, and rotatores
 - D. Semispinalis, splenius capitis, and splenius cervicis
27. Which of the following nerves supplies the interspinales?
- A. Dorsal rami of spinal nerves
 - B. Ventral rami of spinal nerves
 - C. Accessory XI nerve
 - D. Facial nerve
28. What is the insertion of the rectus capitis posterior minor?
- A. Posterior tubercle of atlas
 - B. Medial portion of occipital bone below inferior nuchal line
 - C. Spinous process of axis
 - D. Transverse process of atlas
29. Which of the following is a strengthening exercise for all of the intercostals as well as for the serratus posterior superior and inferior?
- A. Back extension and seated back extension
 - B. Swiss ball back extension and twisting crunch
 - C. Weighted seated twist and back extension
 - D. Twisting crunch and weighted seated twist

30. What muscle produces about 60% of breathing capacity?
- A. Diaphragm
 - B. Rectus abdominus
 - C. Intercostales
 - D. Serratus posterior inferior
31. What is the action of the transversus abdominis?
- A. Compresses abdomen, helping to support the abdominal viscera against pull of gravity
 - B. Forms the floor of the thoracic cavity
 - C. Flexes the lumbar spine; depresses the ribcage; stabilizes the pelvis during walking
 - D. Laterally flexes the vertebral column; helps extend the lumbar part of the vertebral column; gives lateral stability
32. Which of the following movements or injuries may damage the quadratus lumborum muscle?
- A. Bending forward or jumping with tucked knees too quickly
 - B. Going up a step or walking up a hill too quickly
 - C. Lifting without bending the knees or keeping the back erect
 - D. Bending sideways or lifting from a sideways position too quickly
33. Which two muscles form the iliopsoas muscle?
- A. Psoas major and iliacus
 - B. Psoas major and psoas minor
 - C. Quadratus lumborum and psoas major
 - D. Iliacus and quadratus lumborum

Chapter 6

34. Also known as the pelvic diaphragm, the pelvic floor is a:
- A. Bowl-like structure that supports the abdominal viscera (stomach and intestines in men, and additionally the uterus in women)
 - B. Bowl-like structure that supports the pelvic viscera (urinary bladder and intestines in men, and additionally the uterus in women)
 - C. Umbrella-like structure that supports the pelvic viscera (urinary bladder and intestines in men, and additionally the uterus in women)
 - D. Umbrella-like structure that supports the abdominal viscera (stomach and intestines in men, and additionally the uterus in women)
35. Which of the following muscles is present in women only?
- A. Levator ani
 - B. Bulbospongiosus
 - C. Compressor urethrae
 - D. Deep transverse perineal

Chapter 7

36. What is the insertion of the trapezius muscle?
- A. Superior edge of crest of spine of scapula
 - B. Medial border of acromion
 - C. Posterior border of lateral one-third of clavicle
 - D. All of the above

37. Which of the following may result from a chronically tight/shortened levator scapulae muscle?
- A. Low back pain and stiffness
 - B. Neck pain or stiffness, headaches
 - C. Loss of function of shoulder joint
 - D. Thoracic pain or stiffness
38. What is the action of the rhomboids?
- A. Elevates and retracts scapula
 - B. Rotates and stabilizes scapula
 - C. Depresses and rotates scapula
 - D. Rotates and elevates scapula
39. Which of the following exercises may strengthen the pectoralis minor?
- A. Seated pull backs
 - B. Prone lift
 - C. Dumbbell flyes
 - D. Side plank
40. Which of the following is an example of the basic functional movement of the latissimus dorsi muscle?
- A. Pulling something toward you
 - B. Pushing on the arms of a chair to stand up
 - C. Reaching for something out to the side
 - D. Reaching into the back pocket
41. Which four muscles comprise the rotator cuff?
- A. Supraspinatus, deltoid, pectoralis minor, and infraspinatus
 - B. Supraspinatus, infraspinatus, teres minor, and subscapularis
 - C. Infraspinatus, teres major, subscapularis, and biceps brachii
 - D. Teres major, teres minor, subscapularis, and infraspinatus
42. All of the following are strengthening exercises for the subscapularis EXCEPT:
- A. Shoulder medial rotation with resistance band
 - B. Shoulder medial rotation with weights
 - C. Isometric shoulder medial rotation
 - D. Lateral rotation arm stretch
43. What is the insertion of the brachialis muscle?
- A. Medial aspect of humerus at mid-shaft
 - B. Coracoid process of the humerus
 - C. Tuberosity of ulna
 - D. Tip of coracoid process
44. Which of the following movements may injure the triceps brachii?
- A. Throwing with excessive force
 - B. Lifting at an angle suddenly
 - C. Sudden lateral rotation
 - D. Catching with excessive force

Chapter 8

45. Which of the following muscles pronates the forearm?
- A. Biceps brachii
 - B. Pronator teres
 - C. Supinator
 - D. Brachialis
46. The carpal tunnel is a narrow passageway formed anteriorly at the wrist by the _____, and serves as the entrance to the palm for several tendons and the median nerve.
- A. Carpal bones and the thumb
 - B. Carpal Bones and the extensor retinaculum
 - C. Carpal Bones and the palmaris longus tendon
 - D. Carpal Bones and the flexor retinaculum
47. Which of the following movements or injuries may damage the flexor carpi radialis?
- A. Over-flexing the wrist as a result of breaking a fall with the hand
 - B. Over-abducting the wrist as a result of breaking a fall with the hand
 - C. Over-adducting the wrist as a result of breaking a fall with the hand
 - D. Over-extending the wrist as a result of breaking a fall with the hand
48. The flexor digitorum profundus flexes the _____.
- A. Distal interphalangeal joints of the index, middle, ring, and little fingers
 - B. Distal metatarsal joints of the index, middle, ring, and little fingers
 - C. Proximal interphalangeal joints of the index, middle, ring, and little fingers
 - D. Proximal metatarsal joints of the index, middle, ring, and little fingers
49. What is the insertion of the brachioradialis?
- A. Proximal part of lateral supraepicondylar ridge of humerus and adjacent intermuscular septum
 - B. Lower surface of distal end of radius, just above styloid process
 - C. Distal part of medial supraepicondylar ridge of humerus and adjacent intermuscular septum
 - D. Lower surface of distal end of ulna, just below styloid process
50. Which of the following muscle's basic functional movement is "pushing objects at arm's length"?
- A. Extensor Digitorum
 - B. Extensor carpi ulnaris
 - C. Anconeus
 - D. Supinator
51. Which of the following nerves activates the abductor pollicis longus?
- A. Posterior interosseous nerve C1, 2
 - B. Posterior interosseous nerve C3, 4
 - C. Posterior interosseous nerve C5, 6
 - D. Posterior interosseous nerve C7, 8

52. Which of the following stretches will stretch the adductor pollicis?
- A. Weighted pronation stretch
 - B. Finger curl stretch
 - C. Palms-out forearm stretch
 - D. Thumb stretch
53. All of the following are muscles of the hand – hypothenar eminence EXCEPT:
- A. Opponens pollicis
 - B. Abductor digiti minimi
 - C. Opponens digiti minimi
 - D. Flexor digiti minimi brevis
54. The nerve fibers of the ulnar nerve derive from _____.
- A. C6 and C7
 - B. C8 and T1
 - C. T1 and T2
 - D. C5 to T1

Chapter 9

55. _____ is the largest, heaviest, and strongest bone in the human body.
- A. The femur
 - B. The humerus
 - C. The tibia
 - D. The pelvis
56. _____ is the most coarsely fibered and heaviest muscle in the body.
- A. Gluteus maximus
 - B. Gluteus medius
 - C. Gluteus minimus
 - D. Piriformis
57. What is the origin of the gluteus medius?
- A. Internal surface of ilium between anterior and posterior gluteal lines
 - B. External surface of ilium between anterior and inferior gluteal lines
 - C. Internal surface of ilium between anterior and inferior gluteal lines
 - D. External surface of ilium between anterior and posterior gluteal lines
58. Which of the following is a common problem when the piriformis is chronically tight/shortened?
- A. A tight piriformis may cause pelvic imbalances, leading to pain in the hips, low back, and knees
 - B. A tight piriformis may lead to standing with the feet turned out
 - C. A tight piriformis may squeeze the sciatic nerve, causing piriformis syndrome
 - D. A tight piriformis may cause pain or damage to the inside of the knee

59. All of the following sports heavily utilize the sartorius muscle EXCEPT:
- A. Ballet
 - B. Swimming
 - C. Skating
 - D. Soccer
60. What four muscles comprise the quadriceps group?
- A. Rectus femoris, vastus intermedius, vastus medialis, biceps femoris
 - B. Biceps femoris, Sartorius, semitendinosus, and vastus lateralis
 - C. Rectus femoris, vastus intermedius, vastus medialis, vastus lateralis
 - D. Vastus intermedius, vastus lateralis, semitendinosus, quadriceps femoris
61. What is the insertion of the pectineus muscle?
- A. Oblique line, from base of lesser trochanter to lines aspera of femur
 - B. Pecten pubis and adjacent bone of pelvis
 - C. Medial surface of proximal shaft of tibia
 - D. A line on the external surfaces of the pubis, the inferior pubic ramus, and ramus of the ischium
62. The upper muscle fibers of _____ are often fused with those of quadratus femoris.
- A. Gracilis
 - B. Adductor magnus
 - C. Adductor brevis
 - D. Adductor longus
63. Which of the following nerves activates the hamstring muscle group?
- A. Sciatic nerve L3, L4, L5
 - B. Sciatic nerve L4, L5, S1
 - C. Sciatic nerve T12, L1, 2
 - D. Sciatic nerve L5, S1, 2
64. What is the sacral plexus?
- A. A branching network of nerves that provides motor and sensory nerves to part of the pelvis, posterior thigh, most of the lower leg, and the entire foot
 - B. A branching network of nerves that provides motor and sensory nerves to the entire pelvis, anterior thigh, most of the lower leg, and the dorsal side of the foot
 - C. A branching network of nerves that provides motor and sensory nerves to part of the pelvis, anterior thigh, the entire lower leg, and the medial foot
 - D. A branching network of nerves that provides motor and sensory nerves to the entire pelvis, posterior thigh, posterior lower leg, and the entire foot

Chapter 10

65. The anterior group of muscles, at the front of the leg, is also called the _____ and is comprised of the tibialis anterior, extensor hallucis longus, extensor digitorum longus, and the fibularis (peroneus) tertius.
- A. Flexor compartment
 - B. Lateral compartment
 - C. Extensor compartment
 - D. Intermediate compartment
66. Which of the following is the insertion of the extensor hallucis longus?
- A. Along the dorsal surface of the four lateral toes
 - B. Dorsal surface of the base of the fifth metatarsal
 - C. Base of distal phalanx of great toe
 - D. Lateral side of the medial cuneiform
67. Which of the following is a stretch for the gastrocnemius muscle?
- A. Soleus stretch
 - B. Foot stretch
 - C. Kneeling stretch
 - D. Heel-back calf stretch
68. Continued wearing of high-heeled shoes may cause shortening of what muscle?
- A. Popliteus
 - B. Soleus
 - C. Tibialis anterior
 - D. Plantaris
69. Which of the following is an example of a basic functional movement of the tibialis posterior muscle?
- A. Standing on tiptoes
 - B. Standing on heels
 - C. Walking up stairs
 - D. Walking down stairs
70. _____ forms the lateral margin of the sole of the foot.
- A. Abductor hallucis
 - B. Abductor digiti minimi
 - C. Quadratus plantae
 - D. Adductor hallucis
71. Which of the following nerves activates the adductor hallucis?
- A. Medial plantar nerve from tibial nerve S1, 2
 - B. Lateral plantar nerve from tibial nerve S2, 3
 - C. Intermediate plantar nerve from tibial nerve S2, 3
 - D. Lateral plantar nerve from tibial nerve S1, 2

72. What is the origin of the extensor digitorum brevis and extensor hallucis brevis?
- A. Medial process of calcaneal tuberosity
 - B. Sides of adjacent metatarsals
 - C. Base of fifth metatarsal and sheath of fibularis longus tendon
 - D. Superolateral surface of calcaneus

This completes the Musculoskeletal Anatomy and Physiology exam.