

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. This course is not meant to teach hands on massage techniques. It is an advanced course in anatomy and physiology of the musculoskeletal system.

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 an 80% 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 and John Sharkey. 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 and risk losing your answered questions!

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 the midline of 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. Which of the following describes white fast-twitch muscle fibers (type IIA)?
 - A. Thin cells that contract slowly
 - B. Large cells that contract rapidly
 - C. Red or pink fibers which are a compromise in size and activity between the red and white fibers
 - D. Medium sized cells that do not contract

10. An _____ contraction occurs when a muscle increases its tension, but the length of the muscle is not altered.
 - A. Isotonic
 - B. Isometric
 - C. Exocentric
 - D. Eccentric

11. All of the following are general functions of skeletal muscles EXCEPT:
 - A. Enable movement
 - B. Maintain posture
 - C. Unstabilize joints
 - D. Generate heat

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

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

14. 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

15. Which of the following movements is an example of concurrent movement?
- A. Kicking a ball
 - B. Sitting in a chair
 - C. The push-off from the ground in running
 - D. Standing still

Chapter 3

16. The epicranium (occipitofrontalis) is effectively two muscles (occipitalis and frontalis), united by an aponeurosis called the:
- A. Olea aponeurotica
 - B. Galea auricularis
 - C. Olea auricularis
 - D. Galea aponeurotica
17. What is the action of the orbicularis oculi?
- A. Strongly closes eyelids
 - B. Pulls scalp backwards
 - C. Wrinkles nose
 - D. Draws eyebrows downward
18. Which of the following is an example of the basic functional movement of the nasalis?
- A. Breathing in strongly through nose
 - B. Exhaling out strongly through nose
 - C. Strong sneezing
 - D. Twitching the nose
19. Which of the following is the origin of the levator anguli oris?
- A. Zygomatic bone and frontal process of maxilla
 - B. Canine fossa of maxilla
 - C. Upper lateral surface of zygomatic bone
 - D. Lower surface of zygomatic bone
20. Which of the following muscles is often completely fused with platysma?
- A. Depressor anguli oris
 - B. Zygomaticus
 - C. Risorius
 - D. Masseter
21. What is the origin of the temporalis muscle?
- A. Zygomatic arch
 - B. Lateral surface of the mandible
 - C. Temporal fossa, including parietal, temporal, and frontal bones
 - D. Coronoid process and ramus of mandible

Chapter 4

22. All of the following muscles have an insertion point of the hyoid bone EXCEPT:
- A. Mylohyoideus
 - B. Geniohyoideus
 - C. Stylohyoideus
 - D. Sternothyroideus
23. Which of the following is a strengthening exercise for the anterior vertebral muscles?
- A. Isometric backward neck exercise
 - B. Isometric forward neck exercise
 - C. Concentric backward neck exercise
 - D. Concentric forward neck exercise
24. Which of the following is a stretch for the lateral vertebral muscles?
- A. Rotating neck stretch
 - B. Extending neck stretch
 - C. Flexing neck stretch
 - D. All of the above
25. Which of the following is an action of the sternocleidomastoideus?
- A. Flexes the neck and draws the head forward
 - B. Raises sternum, and consequently the ribs, superiorly during deep inhalation
 - C. Tilts the head towards the same side
 - D. All of the above

Chapter 5

26. Which of the following is the most lateral of erector spinae?
- A. Iliocostalis
 - B. Longissimus
 - C. Spinalis
 - D. Lateralis
27. What is the action of the longissimus thoracis?
- A. Extends and laterally flexes vertebral column
 - B. Helps maintain correct curvature of spine in standing and sitting positions
 - C. Rotates ribs for forceful inhalation
 - D. All of the above
28. Which of the following is a common problem when splenius capitis is chronically tight/shortened?
- A. Thoracic pain
 - B. Jaw and ear pain
 - C. Headache and neck pain
 - D. Low back pain

29. 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
30. Which of the following nerves supplies the intertransversarii anteriores?
- A. Dorsal rami of spinal nerves
 - B. Ventral rami of spinal nerves
 - C. Accessory XI nerve
 - D. Facial nerve
31. What is the insertion of the rectus capitis posterior minor?
- A. Posterior tubercle of atlas
 - B. Medial portion of inferior nuchal line of occipital bone
 - C. Spinous process of axis
 - D. Transverse process of atlas
32. Which of the following is a common problem when the external and internal intercostals are chronically tight/shortened?
- A. Kyphosis and depressed chest
 - B. Lordosis and depressed chest
 - C. Sciatica and lumbar pain
 - D. Headaches and neck pain
33. What muscle produces about 60% of breathing capacity?
- A. Diaphragm
 - B. Rectus abdominus
 - C. Intercostales
 - D. Serratus posterior inferior
34. What is the origin of the anterior fibers of the external oblique?
- A. Inner surfaces of ribs 1-4, interdigitating with serratus anterior
 - B. Inner surfaces of ribs 5-8, interdigitating with serratus anterior
 - C. Outer surfaces of ribs 1-4, interdigitating with serratus anterior
 - D. Outer surfaces of ribs 5-8, interdigitating with serratus anterior
35. What is the action of the transversus abdominis?
- A. Compresses the abdomen, helping to support the abdominal viscera against the 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

36. Which of the following movements may cause damage to 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
37. 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

38. What is the insertion of the trapezius muscle?
- A. Posterior border of lateral third of clavicle
 - B. Medial border of acromion
 - C. Upper border of crest of spine of scapula, and tubercle on this crest
 - D. All of the above
39. 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
40. What is the action of the rhomboids (minor and major)?
- A. Retracts (adducts) scapula
 - B. Stabilizes scapula
 - C. Slightly assists in outer range of adduction of arm
 - D. All of the above
41. Which of the following is the insertion of the pectoralis minor muscle?
- A. Medial border of the scapula
 - B. Anterior surface of intercostal muscles
 - C. Coracoid process of scapula
 - D. Floor groove on lower surface of clavicle
42. 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
43. All of the following are strengthening exercises of the muscles of the shoulder joint EXCEPT:
- A. Dumbbell bicep curls
 - B. Close-grip bench press
 - C. Dumbbell shoulder press
 - D. Lateral raise

44. Which four muscles comprise the rotator cuff?
- Supraspinatus, deltoideus, pectoralis minor, and infraspinatus
 - Supraspinatus, infraspinatus, teres minor, and subscapularis
 - Infraspinatus, teres major, subscapularis, and biceps brachii
 - Teres major, teres minor, subscapularis, and infraspinatus
45. The musculocutaneous nerve from _____ and _____ helps activate the coracobrachialis muscle.
- C6, C8
 - C6, C7
 - C4, C5
 - C5, C7
46. What is the origin of the brachialis muscle?
- Coronoid process and tuberosity of the ulna
 - Coracoid process of the humerus
 - Lower (distal) two-thirds of anterior aspect of humerus
 - Upper (proximal) two-thirds of anterior aspect of humerus
47. Which of the following movements may injure the triceps brachii?
- Throwing with excessive force
 - Lifting at an angle suddenly
 - Sudden lateral rotation
 - Catching with excessive force

Chapter 7

48. Which of the following muscles pronates the forearm?
- Triceps brachii
 - Pronator teres
 - Wrist flexors
 - Brachialis
49. All of the following muscles are wrist flexors EXCEPT:
- Flexor carpi radialis
 - Palmaris longus
 - Flexor carpi ulnaris
 - Brachialis
50. The flexor digitorum profundus flexes the _____.
- Distal phalanges
 - Distal metatarsals
 - Middle phalanges of each finger
 - Wrist
51. What is the insertion of the brachioradialis?
- Base of the distal phalanges
 - Carpals, metacarpals, and phalanges
 - Lower lateral end of radius, just above styloid process
 - Lower lateral end of ulna, just below styloid process

52. Which of the following is an example of the basic functional movement of the supinator?
- A. Waving
 - B. Typing
 - C. Turning a door handle or screwdriver
 - D. Pulling something toward yourself
53. Which of the following muscles extends the index finger?
- A. Abductor pollicis longus
 - B. Extensor pollicis brevis
 - C. Extensor pollicis longus
 - D. Extensor indicis
54. All of the following are self-stretches you can do for the muscles of the hand EXCEPT:
- A. Wrist extension
 - B. Finger stretch
 - C. Palms-out forearm stretch
 - D. Thumb stretch
55. The lumbricales of the hand are comprised of _____ small cylindrical muscles, named after the earthworm, because of their shape.
- A. 2
 - B. 3
 - C. 4
 - D. 5
56. What is the origin of the abductor digiti minimi?
- A. Pisiform bone, tendon of the flexor carpi ulnaris
 - B. Ulnar side of the base of the proximal phalanx of the little finger
 - C. Hamate bone, tendon of the flexor carpi ulnaris
 - D. Radial side of the base of the distal phalanx of the little finger
57. What is the action of the abductor pollicis brevis?
- A. Adducts the thumb and moves it anteriorly
 - B. Abducts the thumb and moves it anteriorly
 - C. Flexes the little finger
 - D. Abducts the index finger and moves it anteriorly

Chapter 8

58. _____ is the most coarsely fibered and heaviest muscle in the body?
- A. Gluteus maximus
 - B. Gluteus medius
 - C. Gluteus minimus
 - D. Piriformis

59. Where is the origin of the gluteus medius?
- A. Outer surface of ilium inferior to iliac crest, between posterior and anterior gluteal lines
 - B. Medial surface of ilium superior to iliac crest, between posterior and anterior gluteal lines
 - C. Distal surface of ilium inferior to iliac crest, between posterior and anterior gluteal lines
 - D. Inner surface of ilium superior to iliac crest, between posterior and anterior gluteal lines
60. All of the following are actions of the piriformis muscle EXCEPT:
- A. Laterally rotates the hip joint
 - B. Abducts the thigh when the hip is flexed
 - C. Helps hold the head of the femur in its socket
 - D. Adducts the thigh when the hip is flexed
61. All of the following muscles are heavily utilized when swimming EXCEPT:
- A. Obturator internus
 - B. Obturator externus
 - C. Gemellus posterior
 - D. Gemellus superior
62. What three muscles comprise the hamstring group?
- A. Semitendinosus, semimembranosus, and biceps femoris
 - B. Semimembranosus, semitendinosus, and quadriceps femoris
 - C. Rectus femoris, semitendinosus, and biceps femoris
 - D. Sartorius, semitendinosus, and quadriceps femoris
63. The muscle fibers of _____ are often fused with those of quadratus femoris.
- A. Gracilis
 - B. Adductor magnus
 - C. Adductor brevis
 - D. Adductor longus
64. What is the insertion of the pectineus muscle?
- A. Upper part of medial surface of shaft of tibia
 - B. Pectineal line, from lesser trochanter to linea aspera of femur
 - C. Upper part of medial surface of tibia, near anterior border
 - D. Patella, then via patellar ligament to tuberosity of tibia
65. Which of the following quadriceps muscles has two heads of origin?
- A. Vastus lateralis
 - B. Vastus intermedius
 - C. Vastus medialis
 - D. Rectus femoris

Chapter 9

66. Which of the following is a strengthening exercise of the muscles of the leg?
- A. Seated calf raise
 - B. Squat jumps
 - C. Standing calf raise
 - D. All of the above

67. 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 the distal phalanx of great toe
 - D. Lateral side of the medial cuneiform
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. All of the following are strengthening exercises for the muscles of the foot EXCEPT:
- A. Foot stretch
 - B. Calf raises
 - C. Goosesteps
 - D. Single-leg calf raise
71. _____ forms the lateral margin of the sole of the foot.
- A. Abductor hallucis
 - B. Abductor digiti minimi
 - C. Quadratus plantae
 - D. Adductor hallucis
72. What is the origin of the dorsal interossei?
- A. Adjacent sides of metatarsal bones
 - B. Bases and medial sides of third, fourth, and fifth metatarsals
 - C. Anterior part of superior and lateral surfaces of calcaneus
 - D. Tendons of flexor digitorum longus

This completes the Musculoskeletal Anatomy and Physiology exam.