

Human Anatomy — Biology 255

Exam # 3

Please place your name and I.D. number on the back of the last page of this exam. Final Exams are not returned—if you want to review your final exam please stop by my office sometime during the first two weeks of winter term. All exams will be shredded on the Monday of week 2 of the spring term.

You must answer *all* questions on this exam. Because statistics demonstrate that, on average, between 2-5 questions on every 100-point exam are ambiguous enough to come out "aberrant" on an item analysis, the total number of points possible on this exam is 104. However, grades will be calculated out of a possible 100 points, assuming that 2–3 questions on this exam are aberrant.

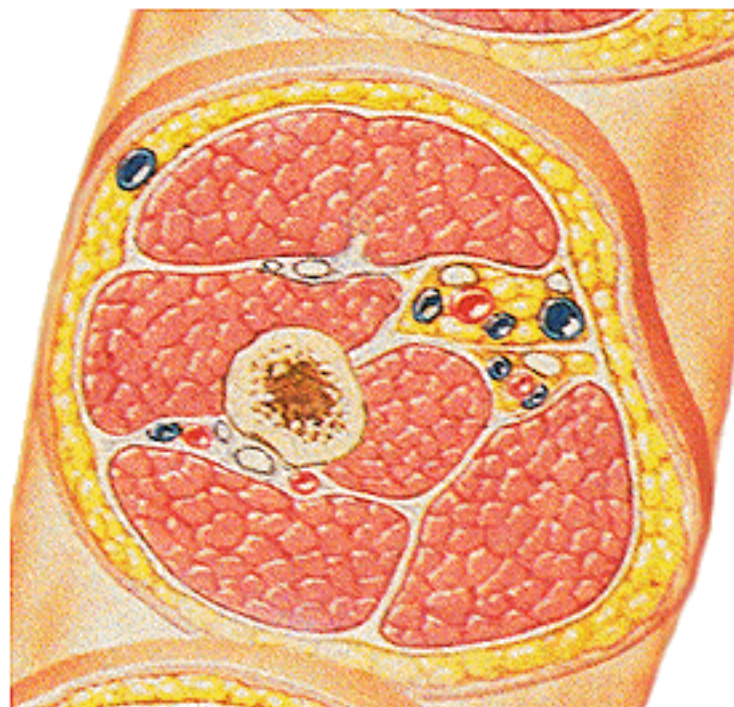
Section 1: Muscle Identification. On the next page is a cross section of a middle portion of the arm. If a muscle on the following page is labeled place the proper letter in the appropriate space. However, *if a muscle is not labeled place XX in the space provided.* (2 points each)

- _____ 1. Deltoid
- _____ 2. Biceps brachii
- _____ 3. Brachialis
- _____ 4. Lateral head of the triceps brachii

Plate Number
410B

Arm

Middle Cross Section



F. Natter
M.D.
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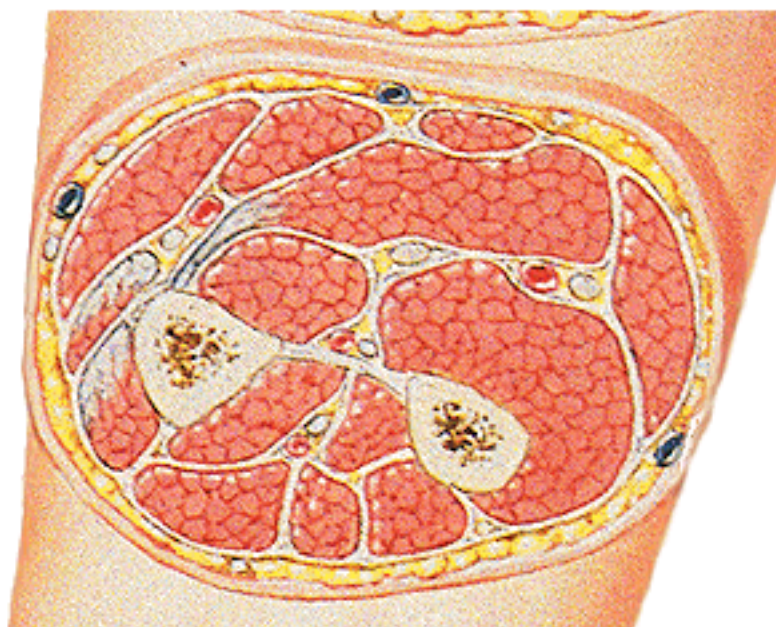
Section 2: Muscle Identification. On the next page is a cross section of a middle portion of the forearm. If a muscle on the following page is labeled place the proper letter in the appropriate space. However, *if a muscle is not labeled place XX in the space provided.* (2 points each)

- _____ 5. Brachioradialis
- _____ 6. Flexor carpi ulnaris
- _____ 7. Flexor digitorum profundus
- _____ 8. Flexor carpi radialis
- _____ 9. Palmaris longus
- _____ 10. Flexor digitorum superficialis

Plate Number
423B

Forearm

Middle Cross Section



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Section 3: Intrinsic and extrinsic muscles of the shoulder. If the following statements are true place a (+) in the space provided; if the statement is false place a (O) in the space provided. 2 points each

- _____ 11. The trapezius originates *only* from the external occipital protuberance, the 7th cervical through 12th thoracic vertebra, and the ligamentum nuchae. The trapezius inserts *only* onto the clavicle, acromion process and spine of the scapula.
- _____ 12. The deltoid is an extrinsic muscle of the shoulder.
- _____ 13. The following are the *only actions of the trapezius*: the upper fibers of the trapezius elevate and rotate the scapula upward; the middle fibers retract (adduct) the scapula; the lower fibers depress and rotate the scapula upward.
- _____ 14. The latissimus dorsi has several origins. One of these origins involves all thoracic and lumbar vertebrae.
- _____ 15. The following are the *only actions of the rhomboideus major and minor*: the rhomboideus major and minor muscles retract, elevate and rotate the scapula downward.
- _____ 16. The pectoralis major originates *only* from the clavicle, sternum, and the costal cartilages of ribs 2 through 6. It inserts *only* onto the lesser tubercle of the humerus. This muscle *only* adducts and medially rotates the arm (entire muscle), flexes an extended arm (clavicular head), and extends a flexed arm (sternocostal portion).
- _____ 17. The pectoralis minor originates *only* from ribs 2 to 5 (sometimes 3 to 5) and inserts *only* onto the acromion process of the clavicle. This muscle protracts (abduct) the scapula, depresses and rotates the scapula downward. It is innervated by the medial pectoral nerve.
- _____ 18. The serratus anterior originates *only* from the upper 8 or 9 pairs of ribs, inserts *only* onto the medial border of the scapula. This muscle is innervated by the long thoracic nerve, and it is a protractor (abductor) and upward rotator of the scapula.
- _____ 19. The deltoid originates *only* from the clavicle, acromion process and spine of the scapula. It inserts onto the deltoid tuberosity of the humerus. The anterior fibers of this muscle flex and medially rotate the arm. The posterior fibers extend and laterally rotate the arm. The entire muscle adducts the arm.
- _____ 20. The supraspinatus, infraspinatus, and subscapularis all insert onto the greater tubercle of the humerus.
- _____ 21. The teres major and teres minor both insert onto the greater tubercle of the humerus.
- _____ 22. The supraspinatus abducts the arm.

- _____ 23. The infraspinatus laterally rotates the arm.
- _____ 24. The subscapularis medially rotates the arm.
- _____ 25. The teres major extends, medially rotates and adducts the arm.
- _____ 26. The teres minor laterally rotates and adducts the arm.
- _____ 27. The rotator cuff is composed *only* of the supraspinatus, infraspinatus, subscapularis and teres major muscles.

Section 4: Muscles of the arm. If the following statements are true place a (+) in the space provided; if the statement is false place a (O) in the space provided. 2 points each

- _____ 28. The biceps brachii originates *only* from the coracoid process and the infraglenoid tubercle of the scapula.
- _____ 29. The biceps brachii inserts *only* onto the radial tuberosity.
- _____ 30. The biceps brachii *only* flexes forearm and laterally rotates the forearm and flexes the arm.
- _____ 31. All of the flexors of the arm are innervated by the musculocutaneous nerve.
- _____ 32. The brachialis originates *only* from the humerus and inserts *only* onto the ulna. It flexes the forearm and also flexes the arm.
- _____ 33. The coracobrachialis *only* flexes and abducts the arm.
- _____ 34. The triceps brachii has three heads and, therefore, three origins. One head originates *only* from the supraglenoid tubercle of the scapula and the other two heads originate *only* from the humerus.
- _____ 35. The triceps brachii inserts onto the olecranon of the ulna.

Section 5: Muscles of the anterior surface of the forearm. Place the most appropriate answer in the space provided. 2 points each

- _____ 36. Which of the following muscles of the superficial compartment of the anterior surface of the forearm originates from more than the medial epicondyle of the humerus?
- pronator teres
 - flexor carpi radialis
 - palmaris longus
 - flexor carpi ulnaris
 - two of the above
 - three of the above
 - all of the above
 - none of the above
- _____ 37. Which of the following statements about the flexor carpi radialis is (are) *incorrect*?
- originates from the medial epicondyle of the humerus
 - inserts onto the flexor retinaculum and the palmar aponeurosis
 - inserts onto the 2nd and 3rd metacarpals
 - flexes the wrist
 - abducts the wrist
 - more than one of the above are *incorrect*
 - none of the above are *incorrect*
- _____ 38. Which of the following muscles of the forearm is innervated by a nerve other than the median nerve or by more than *just* the median nerve?
- pronator teres
 - flexor carpi radialis
 - palmaris longus
 - flexor carpi ulnaris
 - flexor digitorum superficialis
 - flexor digitorum profundus
 - flexor pollicis longus
 - two of the above
 - more than two of the above

- _____ 39. Which of the following statements about the flexor digitorum superficialis is/are *incorrect*?
- a. has an origin on the medial epicondyle of the humerus
 - b. has an origin on the conoid tubercle of the ulna
 - c. has an origin on the radius
 - d. inserts onto the 2nd through 5th digits (1st through 4th fingers)
 - e. flexes the fingers
 - f. flexes the wrist
 - g. more than one of the above is incorrect
 - h. none of the above are incorrect (*they are all correct*)
- _____ 40. Which of the following statements about the flexor digitorum profundus is/are *incorrect*?
- a. has an origin on the ulna (shaft of the ulna)
 - b. has an origin on the interosseous membrane
 - c. has an origin on the coronoid process of the ulna
 - d. inserts onto the fingers
 - e. is innervated by the median and ulnar nerves
 - f. flexes the fingers
 - g. has no action on the wrist
 - h. more than one of the above is incorrect
 - i. none of the above are incorrect (*they are all correct*)
- _____ 41. Which of the following statements about the flexor pollicis longus is/are *incorrect*?
- a. has an origin on the ulna
 - b. has an origin on the radius
 - c. has an origin on the interosseous membrane
 - d. inserts onto the thumb
 - e. flexes the thumb
 - f. more than one of the above is incorrect
 - g. none of the above are incorrect (*they are all correct*)

Section 6: Muscles of the posterior surface of the forearm. Place the most appropriate letter in the space provided. 2 points each

- _____ 42. Which of the following muscles has an insertion on the styloid process of the radius?
- brachioradialis
 - extensor digitorum
 - extensor carpi ulnaris
 - extensor carpi radialis brevis
 - extensor carpi radialis longus
 - extensor digiti minimi
 - more than one of the above
 - none of the above
- _____ 43. Which of the following muscles has an insertion onto the 3rd metacarpal?
- brachioradialis
 - extensor digitorum
 - extensor carpi ulnaris
 - extensor carpi radialis brevis
 - extensor carpi radialis longus
 - extensor digiti minimi
 - more than one of the above
 - none of the above
- _____ 44. Which of the following muscles has an insertion onto the 2nd metacarpal?
- brachioradialis
 - extensor digitorum
 - extensor carpi ulnaris
 - extensor carpi radialis brevis
 - extensor carpi radialis longus
 - extensor digiti minimi
 - more than one of the above
 - none of the above
- _____ 45. Which of the following muscles has an origin on the ulna?
- brachioradialis
 - extensor digitorum
 - extensor carpi ulnaris
 - extensor carpi radialis brevis
 - extensor carpi radialis longus
 - extensor digiti minimi
 - more than one of the above
 - none of the above
- _____ 46. Which of the following muscles has an origin on the lateral epicondyle of the humerus?
- abductor pollicis longus

- b. extensor pollicis brevis
- c. supinator
- d. extensor pollicis longus
- e. extensor indicis
- f. more than one of the above
- g. none of the above

- _____ 47. Which of the following has an origin on the interosseous membrane?
- a. abductor pollicis longus
 - b. extensor pollicis brevis
 - c. supinator
 - d. extensor pollicis longus
 - e. extensor indicis
 - f. two of the above
 - g. three of the above
 - h. all of the above
 - i. none of the above
- _____ 48. Which of the following is innervated by the ulnar nerve?
- a. abductor pollicis longus
 - b. extensor pollicis brevis
 - c. supinator
 - d. extensor pollicis longus
 - e. extensor indicis
 - f. two of the above
 - g. three of the above
 - h. all of the above
 - i. none of the above
- _____ 49. Which of the following is innervated by *only* the radial nerve?
- a. abductor pollicis longus
 - b. extensor pollicis brevis
 - c. supinator
 - d. extensor pollicis longus
 - e. extensor indicis
 - f. two of the above
 - g. three of the above
 - h. all of the above
 - i. none of the above
- _____ 50. Two free points – sign your initials in the space provided.
- _____ 51. **FOUR** free points – write down the time you finished this test in the space provided.