NAME _____

LAB TIME/DATE _____

REVIEW SHEET EXERCISE 11

Microscopic Anatomy and Organization of Skeletal Muscle

Skeletal Muscle Cells and Their Packaging into Muscles

1. From the inside out, name the three types of connective tissue wrappings of a skeletal muscle.

a. *endomysium* b. *perimysium* c. *epimysium*

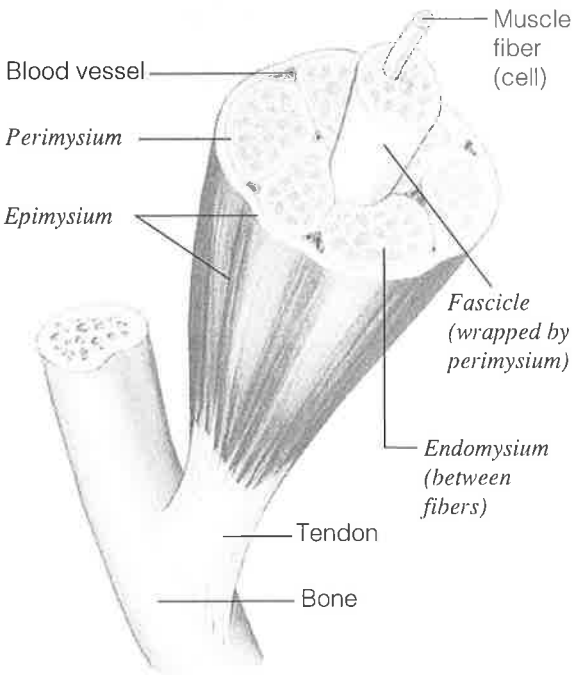
Why are the connective tissue wrappings of skeletal muscle important? (Give at least three reasons.)

They support and bind muscle fibers, strengthen the muscle as a whole, and provide a route for the entry and exit of nerves and blood vessels that serve the muscle fibers.

2. Why are there more indirect—that is, tendinous—muscle attachments than direct muscle attachments? (Your text may help you answer this.)

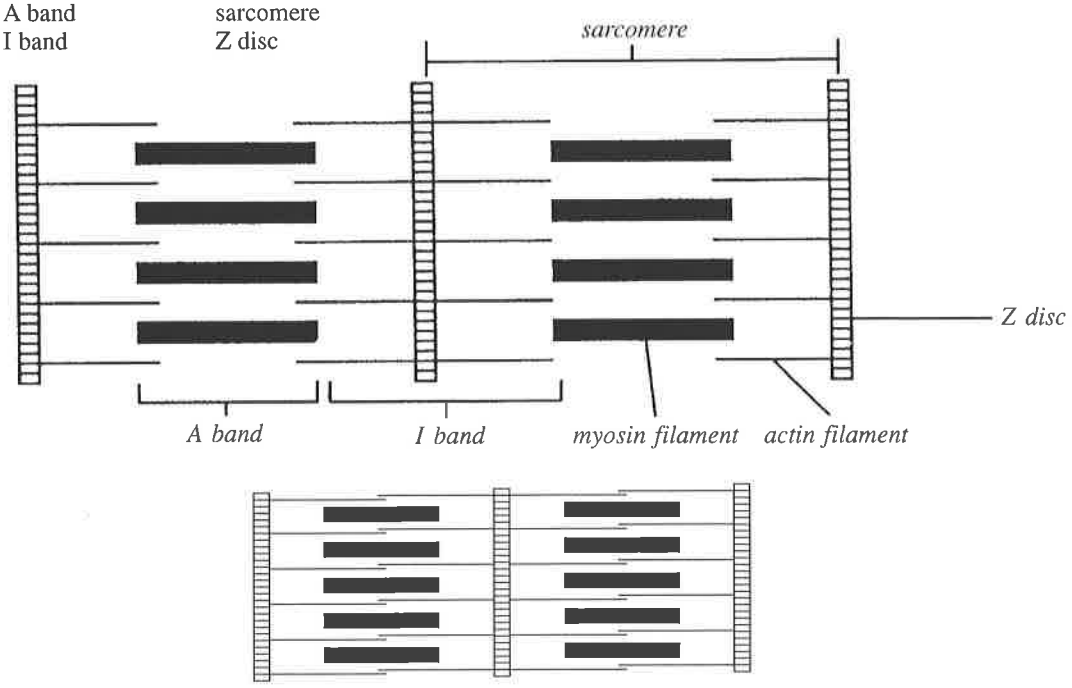
Tendons provide durability and conserve space. They are tough collagen fibers so they can cross rough, bony projections that would tear delicate muscle tissues. Because of their small size, more tendons can pass over a joint.

3. On the following figure, label endomysium, perimysium, epimysium, and fascicle.



4. The diagram illustrates a small portion of a muscle myofibril in a highly simplified way. Using terms from the key, correctly identify each structure indicated by a leader line or a bracket. Below the diagram make a sketch of how this segment of the myofibril would look if contracted.

Key: actin filament, myosin filament, A band, sarcomere, I band, Z disc



The Neuromuscular Junction

5. For skeletal muscle cells to contract, they must be excited by motor neurons. However, the electrical impulse cannot pass directly from a nerve cell to the skeletal muscle cells to excite them. Just what *does* pass from the neuron to the muscle cells, and what effect does it produce?

A neurotransmitter chemical called acetylcholine diffuses from the axon into the synaptic cleft and combines with the receptors on the muscle cells. The permeability of the muscle cells change, allowing more sodium ions to diffuse into the muscle fiber, resulting in the generation of an action potential.

6. Why is it that the electrical impulse cannot pass from neuron to muscle cell? *The neuron and muscle fiber membranes, close as they are, do not actually touch. They are separated by a small fluid-filled gap called the synaptic cleft.*

NAME _____

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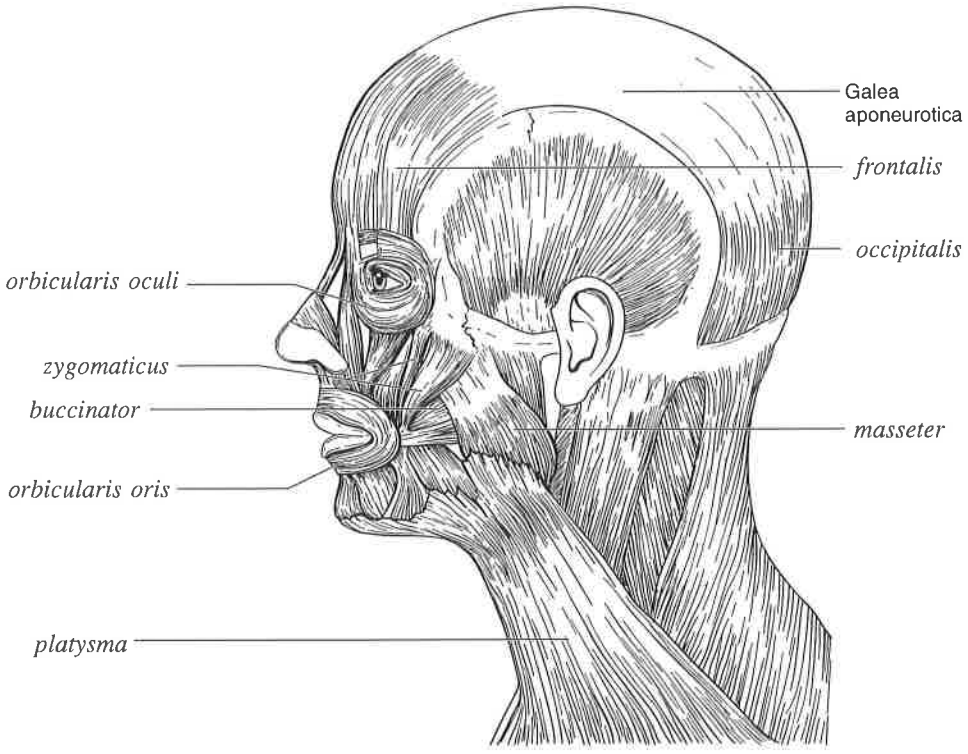
REVIEW SHEET EXERCISE 12

Gross Anatomy of the Muscular System

Muscles of the Head and Neck

1. Using choices from the list at the right, correctly identify the muscles provided with leader lines on the diagram.



buccinator

frontalis

masseter

platysma

occipitalis

orbicularis oculi

orbicularis oris

zygomaticus

2. Using the terms provided above, identify the muscles described next.

zygomaticus 1. used to grin

buccinator 2. important muscle to a saxophone player

orbicularis oculi 3. used in blinking and squinting

platysma 4. used to pout (pulls the corners of the mouth downward)

frontalis 5. raises your eyebrows for a questioning expression

orbicularis oris 6. your "kisser"

masseter 7. allows you to "bite" that carrot stick

platysma 8. tenses skin of the neck during shaving

Muscles of the Lower Limb

4. Use the key terms to respond to the descriptions below.

fibularis longus 1. lateral compartment muscle that plantar flexes and everts the ankle

gluteus maximus 2. forms the buttock

gastrocnemius 3. a prime mover of ankle plantar flexion

tibialis anterior 4. a prime mover of ankle dorsiflexion

adductor group 5. allow you to grip a horse's back with your thighs

vastus muscles, *rectus femoris* 6. muscles that insert into the tibial tuberosity (two choices)

rectus femoris 7. muscle that extends knee and flexes thigh

Key:

adductor group

biceps femoris

gastrocnemius

gluteus maximus

fibularis longus

rectus femoris

semimembranosus

semitendinosus

tibialis anterior

tibialis posterior

vastus muscles

General Review: Muscle Descriptions

5. Identify the muscles described below by completing the statements:

1. *deltoid*, *vasti*, and *gluteus maximus and medius* are commonly used for intramuscular injections (three muscles).
2. The insertion tendon of the *quadriceps* group contains a large sesamoid bone, the patella.
3. The triceps surae insert in common into the *calcaneal* tendon.
4. The bulk of the tissue of a muscle tends to lie *proximal* to the part of the body it causes to move.
5. The extrinsic muscles of the hand originate on the *humerus, radius, and ulna*.
6. Most flexor muscles on the *anterior* aspect of the body; most extensors are located *posteriorly*. An exception to this generalization is the extensor-flexor musculature of the *knee*.

General Review: Muscle Recognition

6. Identify the lettered muscles in the diagram of the human anterior superficial musculature by matching the letter with one of the following muscle names:

t 1. orbicularis oris

v 2. pectoralis major

x 3. external oblique

u 4. sternocleidomastoid

g 5. biceps brachii

e 6. deltoid

l 7. vastus lateralis

q 8. frontalis

k 9. rectus femoris

w 10. rectus abdominis

aa 11. sartorius

c 12. platysma

i 13. flexor carpi radialis

r 14. orbicularis oculi

cc 15. gastrocnemius

b 16. masseter

d 17. trapezius

p 18. tibialis anterior

bb 19. adductors

m 20. vastus medialis

z 21. transversus abdominis

n 22. fibularis longus

j 23. iliopsoas

a 24. temporalis

s 25. zygomaticus

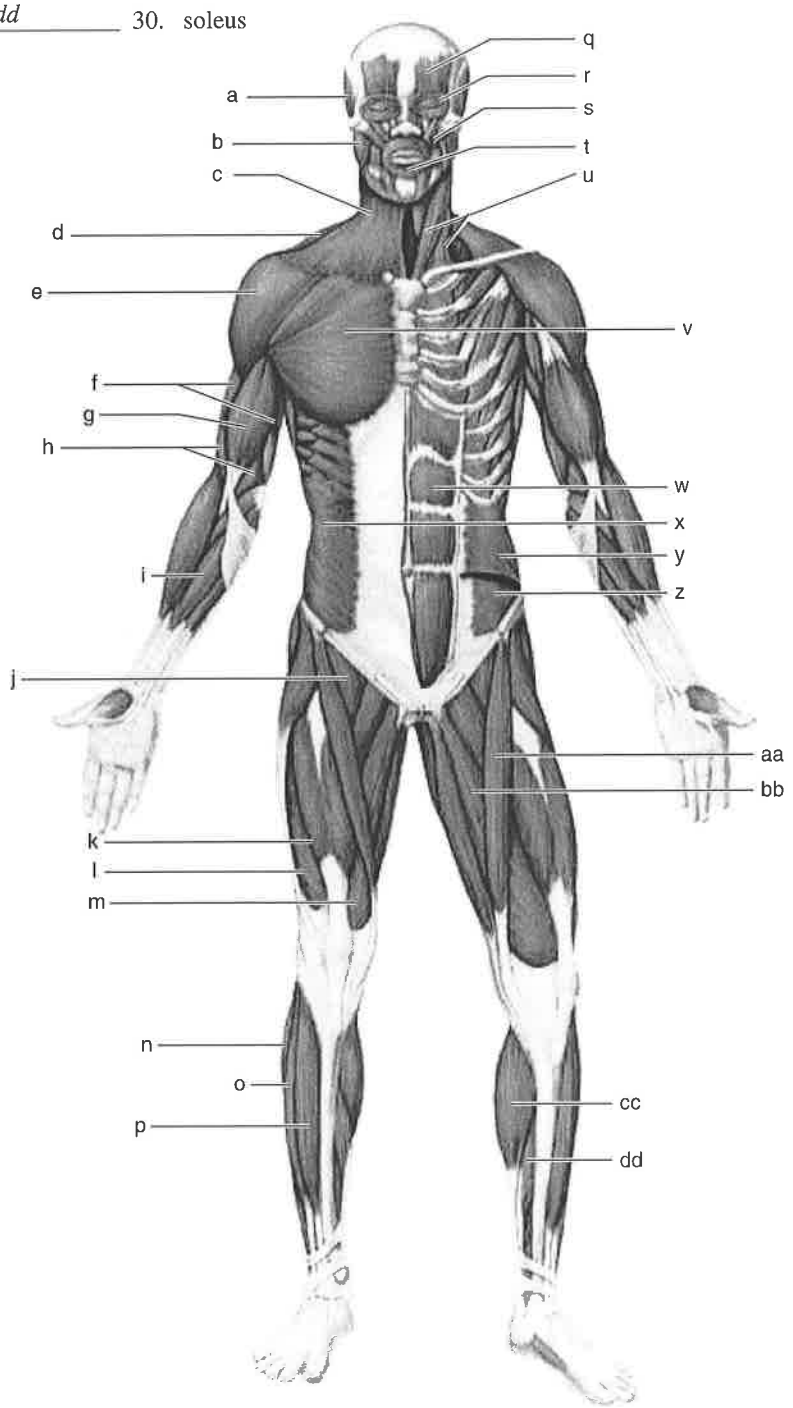
f 26. triceps brachii

h 27. brachialis

o 28. extensor digitorum longus

y 29. internal oblique

dd 30. soleus



7. Identify each of the lettered muscles in this diagram of the human posterior superficial musculature by matching the letter to one of the following muscle names:

n (N) 1. gluteus maximus
R 2. semimembranosus
f 3. gastrocnemius
k 4. latissimus dorsi
j 5. deltoid
Q 6. semitendinosus
I 7. trapezius
p 8. biceps femoris
a 9. triceps brachii
L 10. external oblique
m 11. gluteus medius
c 12. flexor carpi ulnaris
d 13. extensor carpi ulnaris
e 14. extensor digitorium
b 15. extensor carpi radialis
h 16. sternocleidomastoid
o 17. adductor magnus
g 18. soleus