

بنام مهربان ترین

گروه علوم تشریحی
دانشکده پزشکی شیراز
سعید کربلایی دوست



Introduction to muscular system



اهداف یادگیری

در انتهای این مبحث از یادگیرنده انتظار می رود:

- عوامل اتصال دهنده ماهیچه ها را شرح دهد.
- مبدا و انتهای ماهیچه ها را در رابطه با کار آنها بیان کند
- عوامل موثر در نامگذاری ماهیچه ها را نام ببرد

Introduction to muscular system

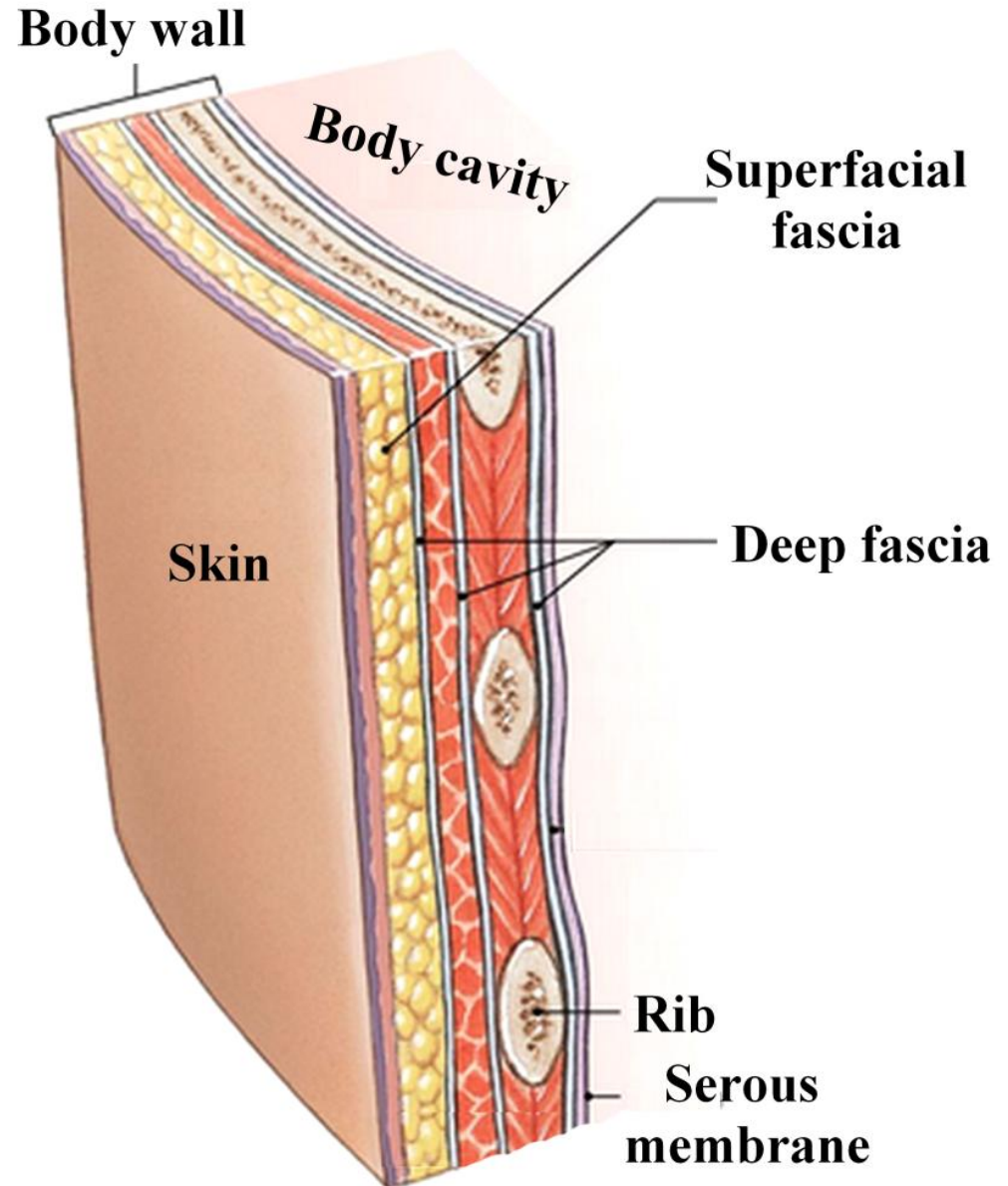


A Few Facts...

- There are more than 400 skeletal muscles in the body
- They constitute 40-50% of our body weight

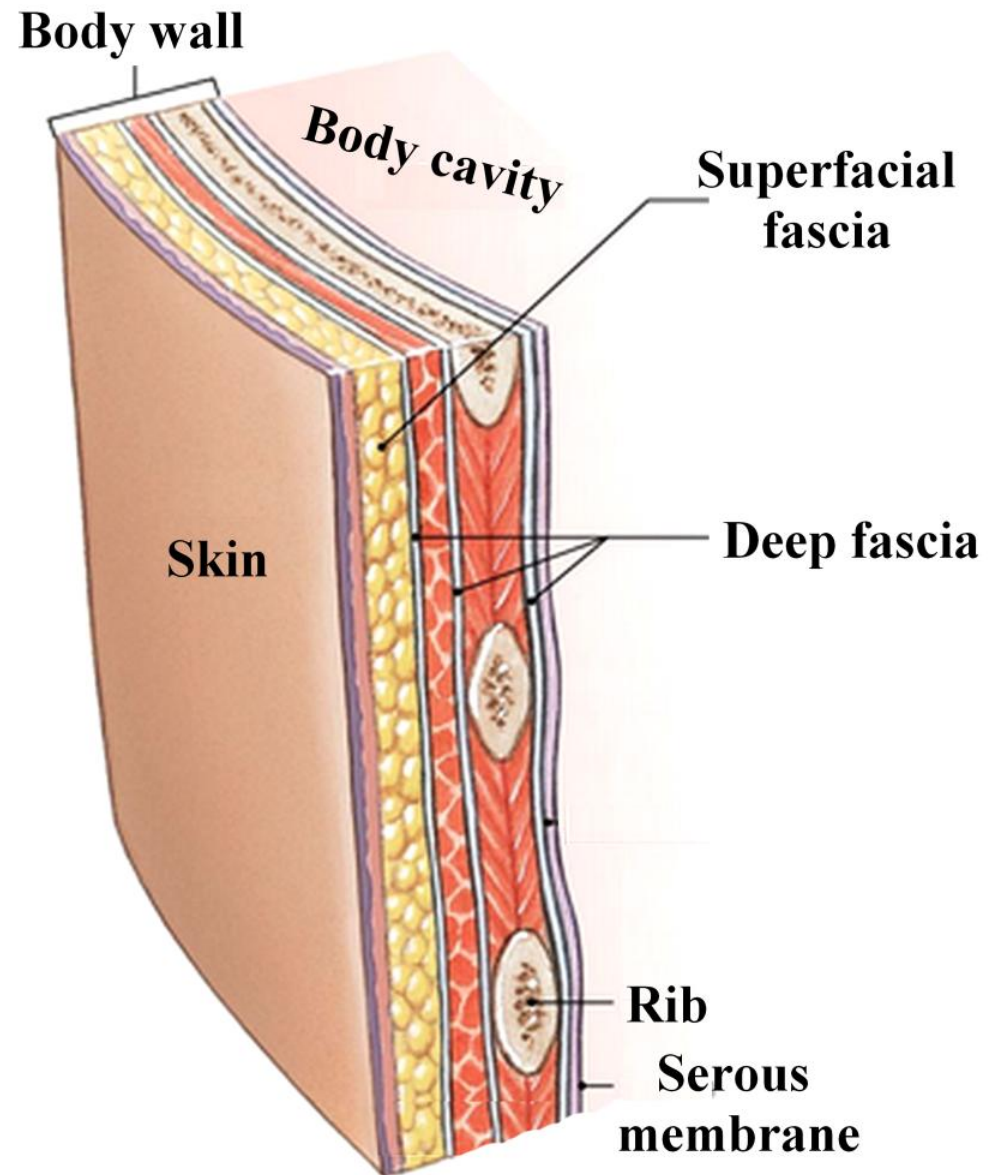
Fascia

- Superficial fascia (subcutaneous)
-(adipose tissue; loose connective tissue)

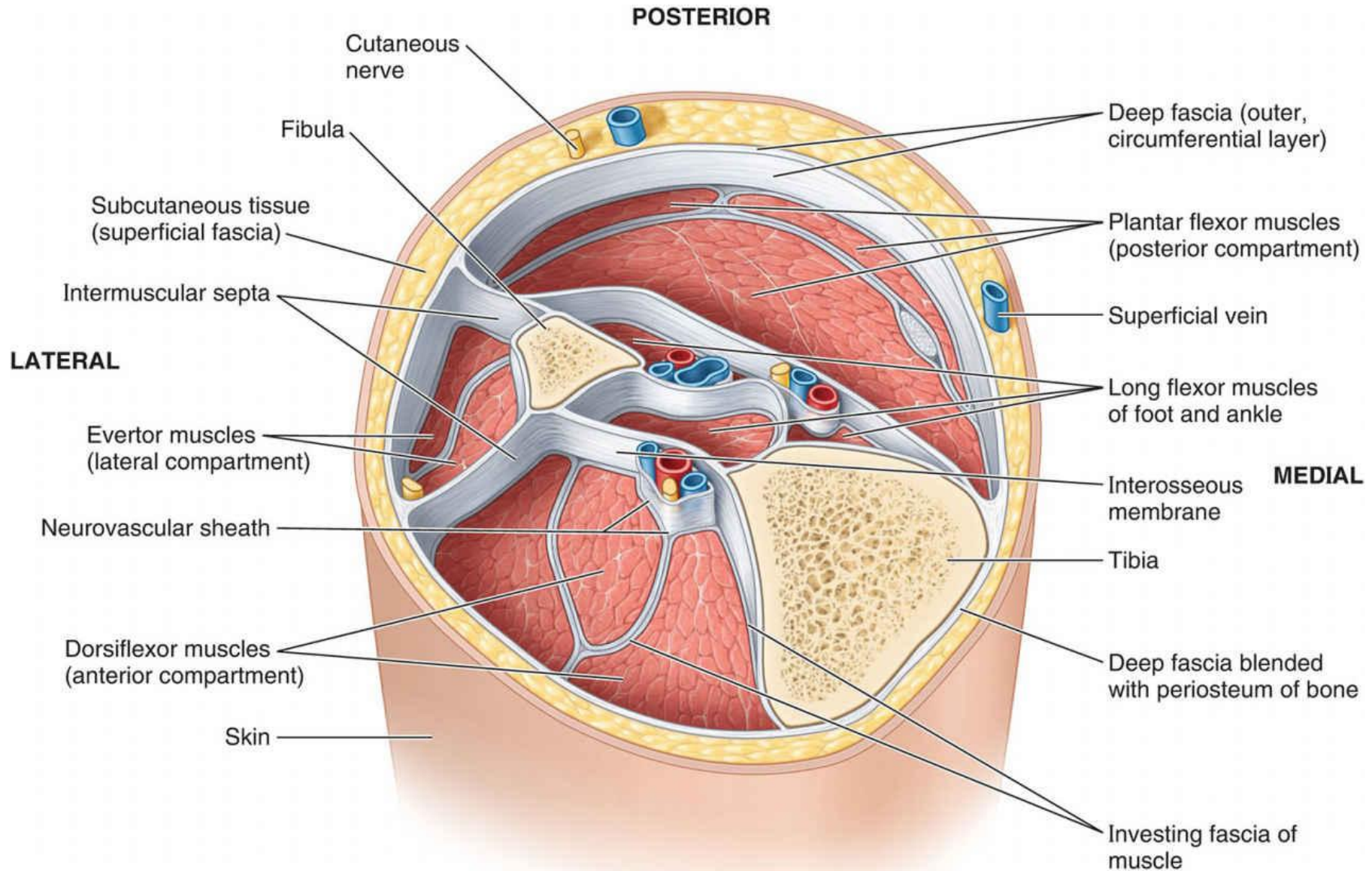


Fascia

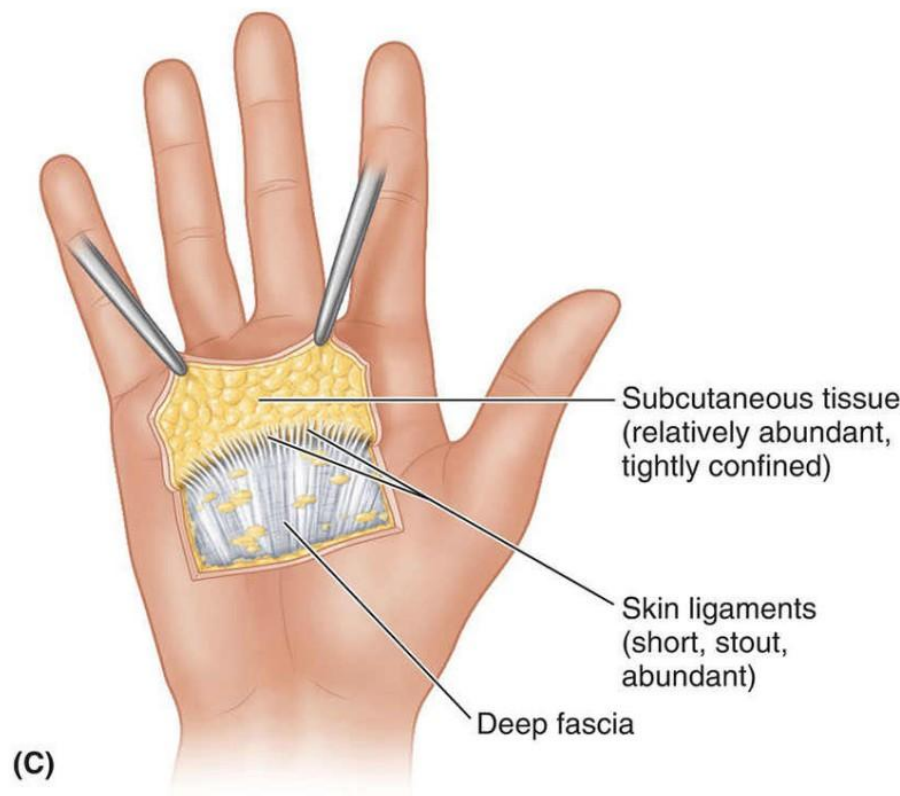
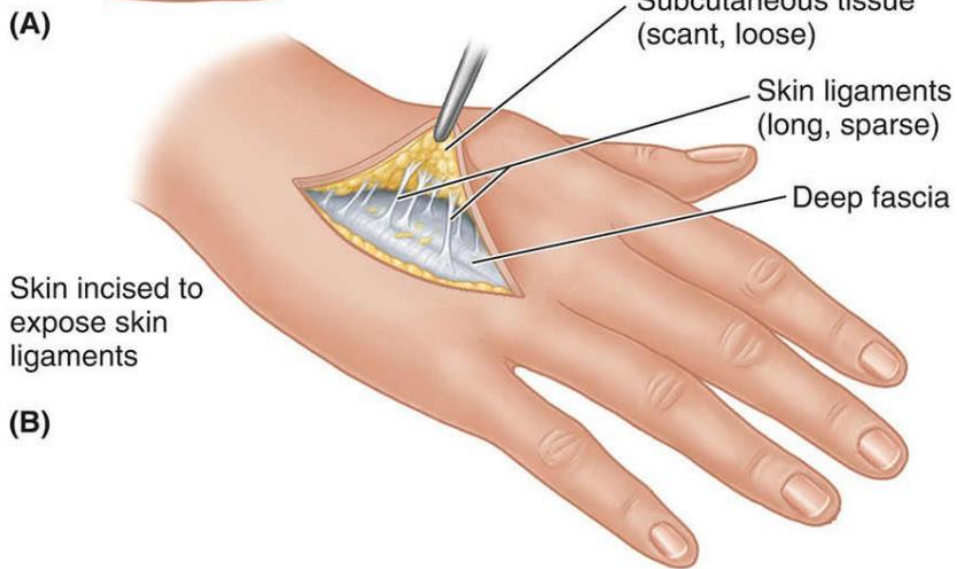
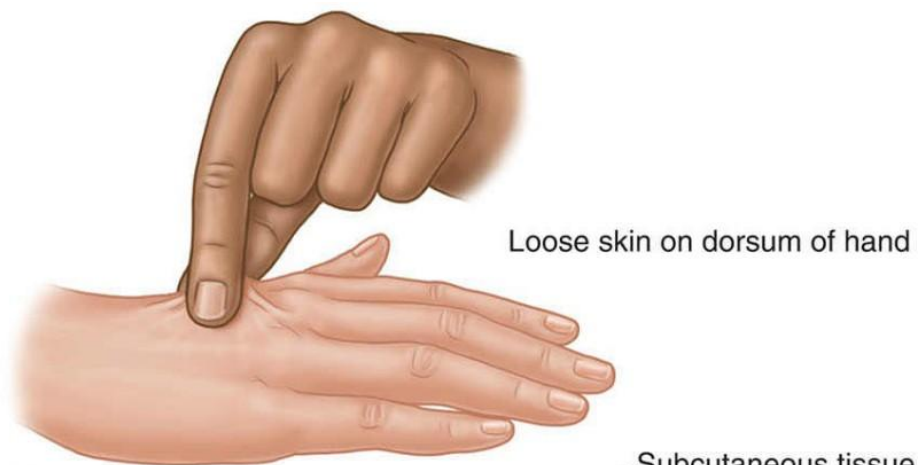
- Deep fascia
- Dense connective tissue
- Invests the muscles and other deep structure



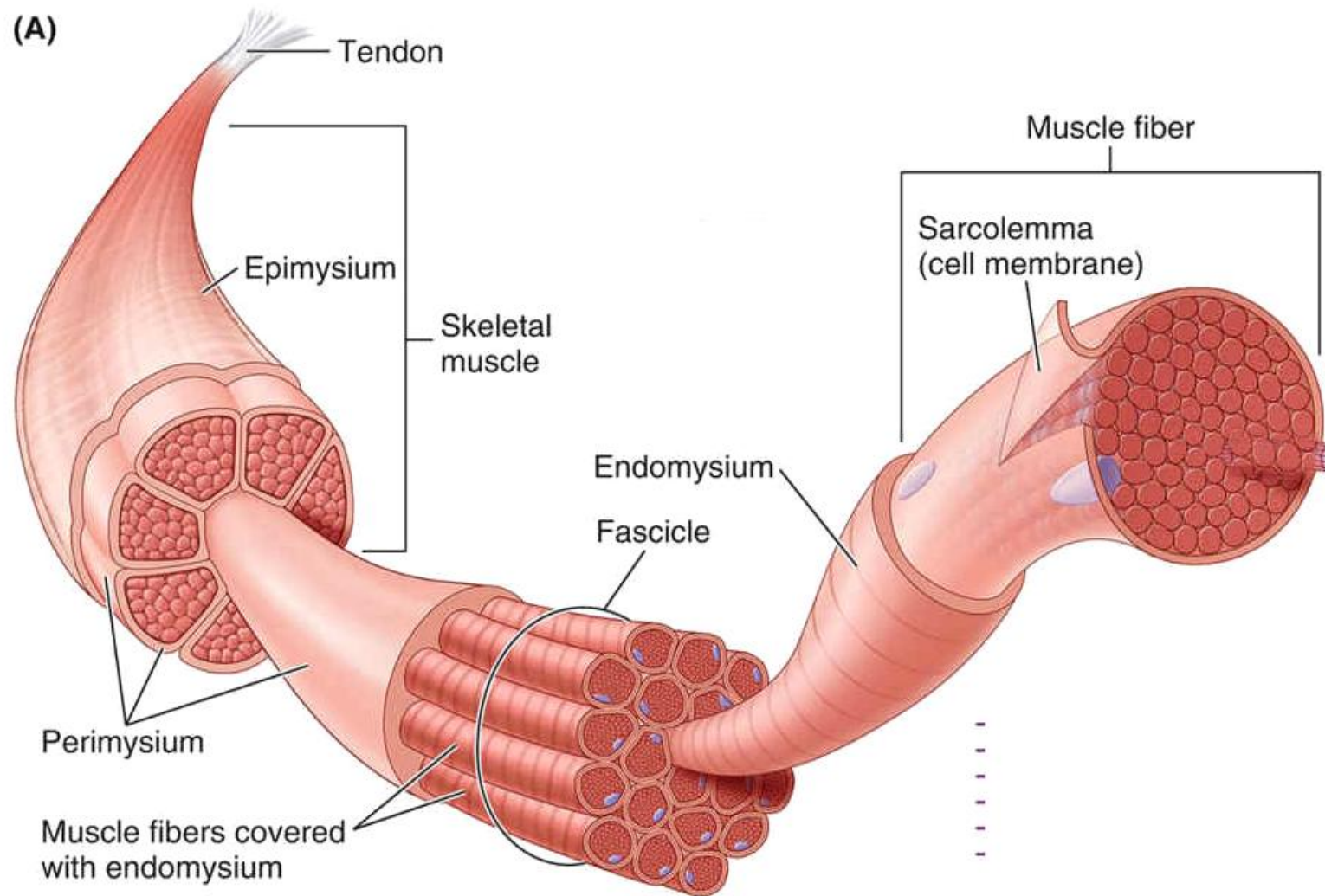
Fascia



Anterosuperior view of right leg



Skeletal muscle attachments



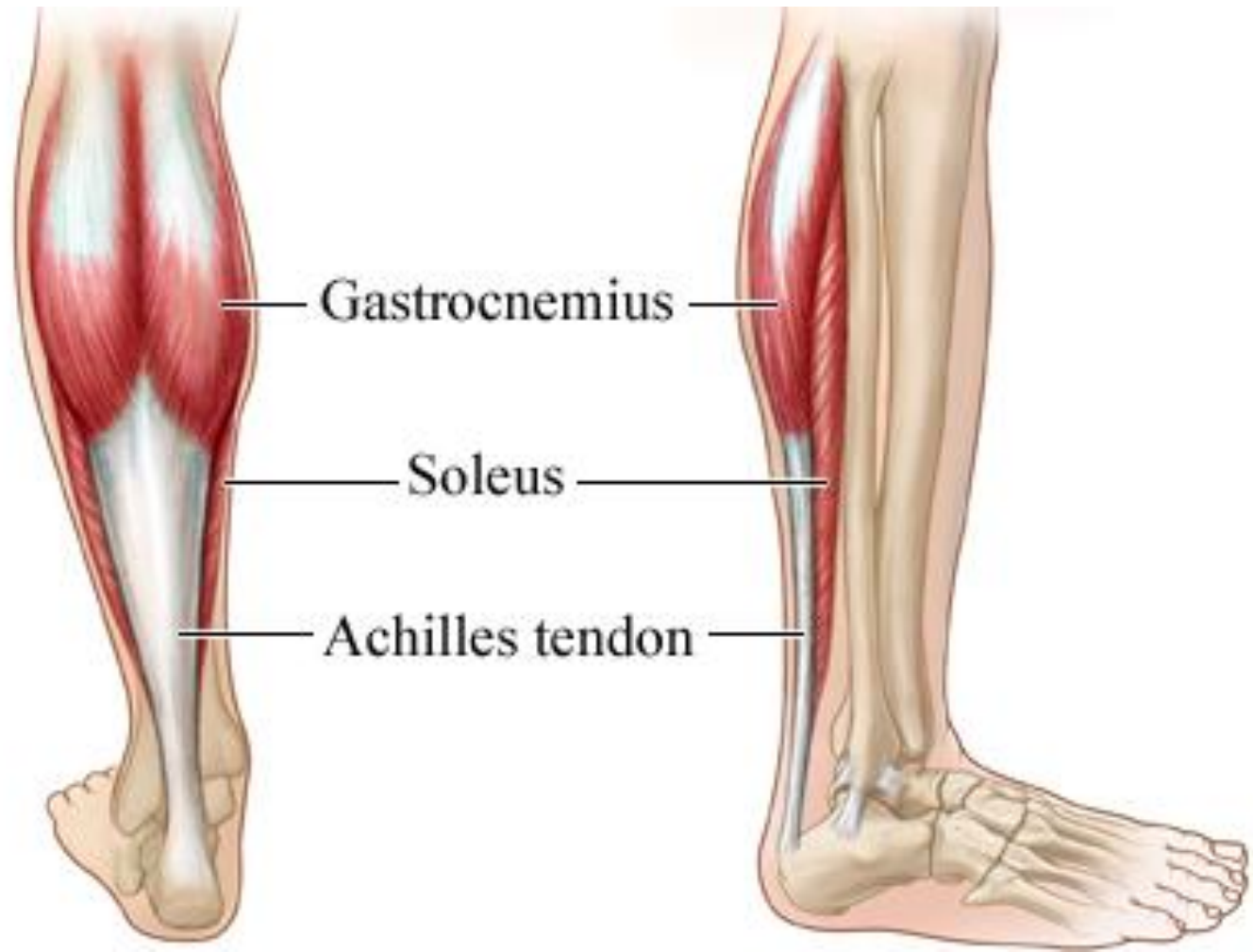
(B)

Connective tissue components

- Muscles cells (fibers) are covered by a delicate connective tissue membrane called the **endomysium**.
- Groups of skeletal muscle fibers are called fascicles, and bound together by a tougher connective tissue envelope called the **perimysium**.
- The muscle as a whole is covered by a course sheath called the **epimysium**.

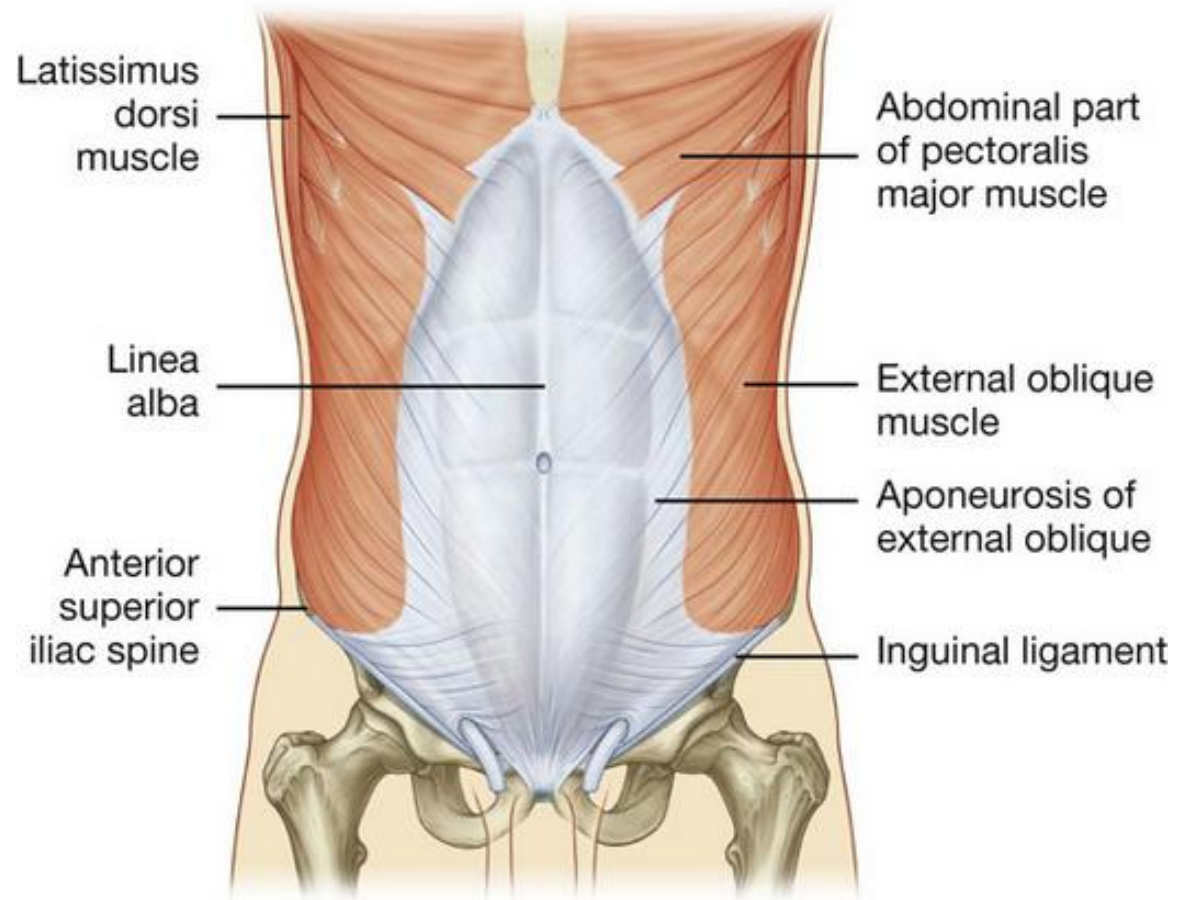
Skeletal muscle attachments

Tendon – The ends of a muscle are attached to bones, cartilage, or ligaments by cords of fibrous tissue called tendons



Skeletal muscle attachments

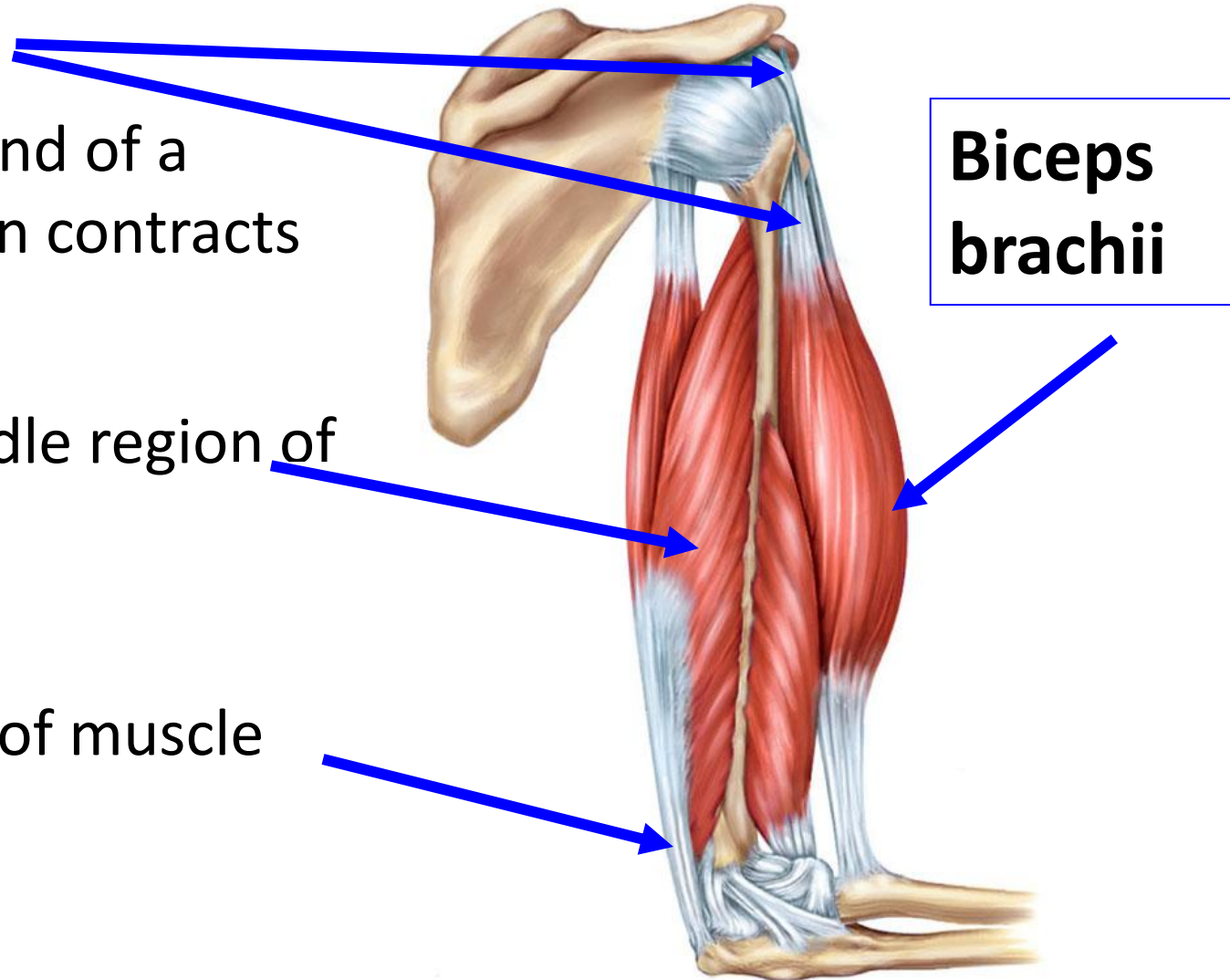
Aponeurosis : Occasionally, flattened muscles are attached by a thin but strong sheet of fibrous tissue called an aponeurosis



Skeletal muscle attachments

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- **Origin**
 - Stationary end of a muscle when contracts
- **Belly**
 - thicker, middle region of muscle
- **Insertion**
 - Mobile end of muscle



Characteristics used to name skeletal muscles

- 1 – Location of the muscle
- 2 – Shape of the muscle
- 3 – Size of the muscle
- 4 – Direction/Orientation of the muscle fibers
- 5 – Number of heads or bellies
- 6 – Action of the muscle
- 7– Depth
- 8- Attachments

Muscles named by shape

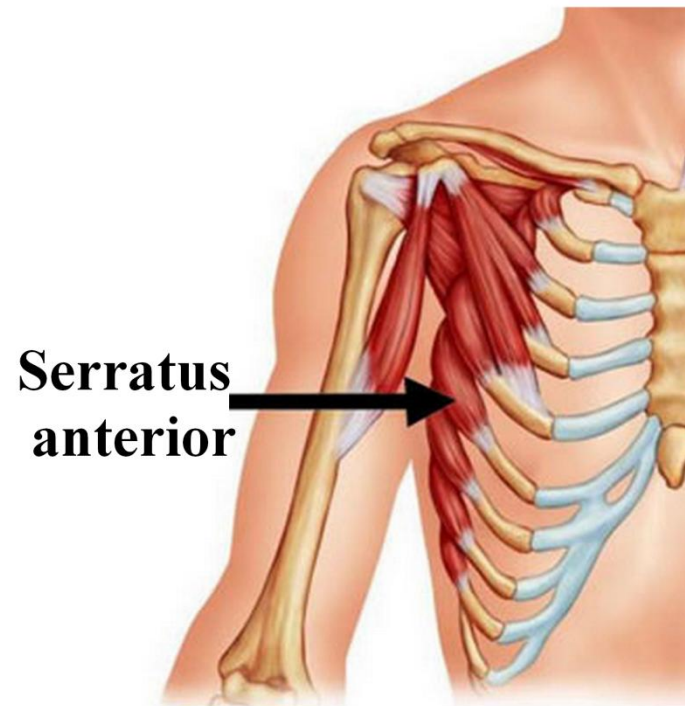
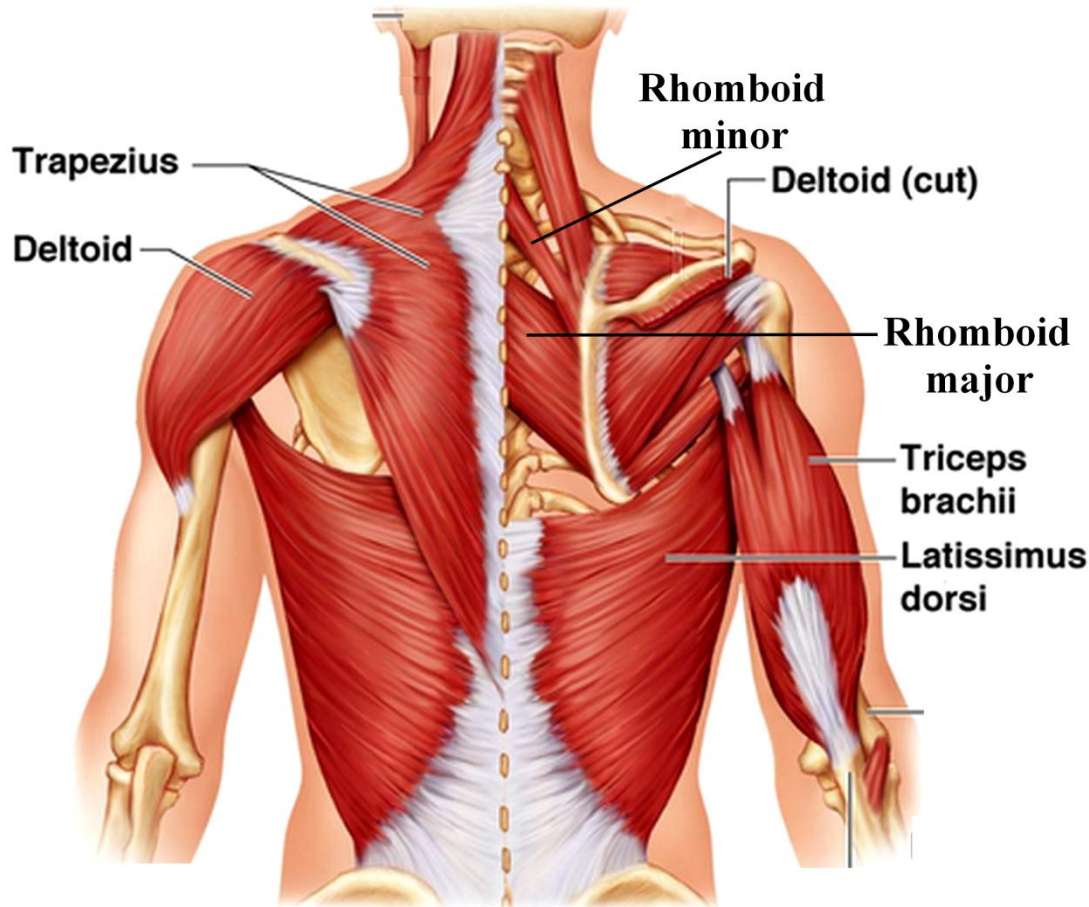
Rhomboideus = rhomboid shape ◇

Trapezius = trapezoid shape ◇

Teres = round ○

Deltoid = triangular shape △

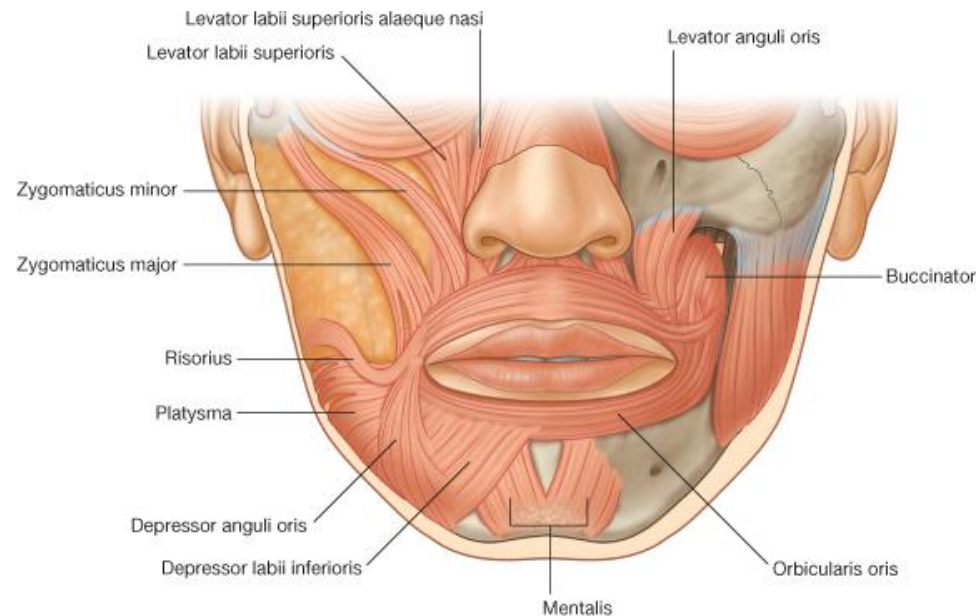
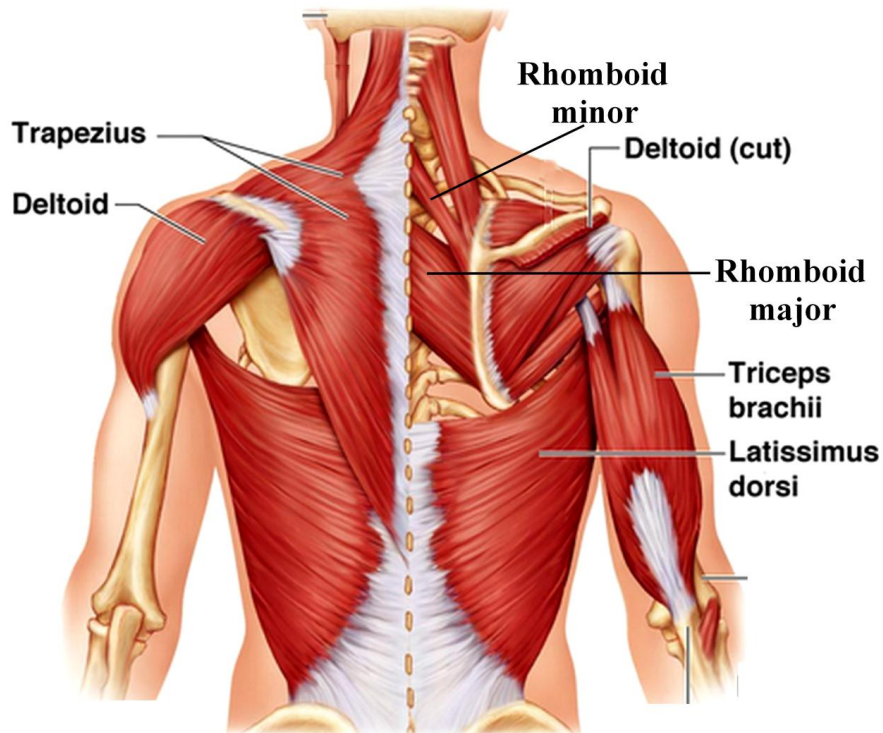
Serratus = saw-toothed 〰



Muscles named by shape

Orbicularis – circular

Latissimus – wide



Muscles named by size

Maximus = largest

*Gluteus **Maximus***

Medius = middle

*Gluteus **Medius***

Minimus = smallest

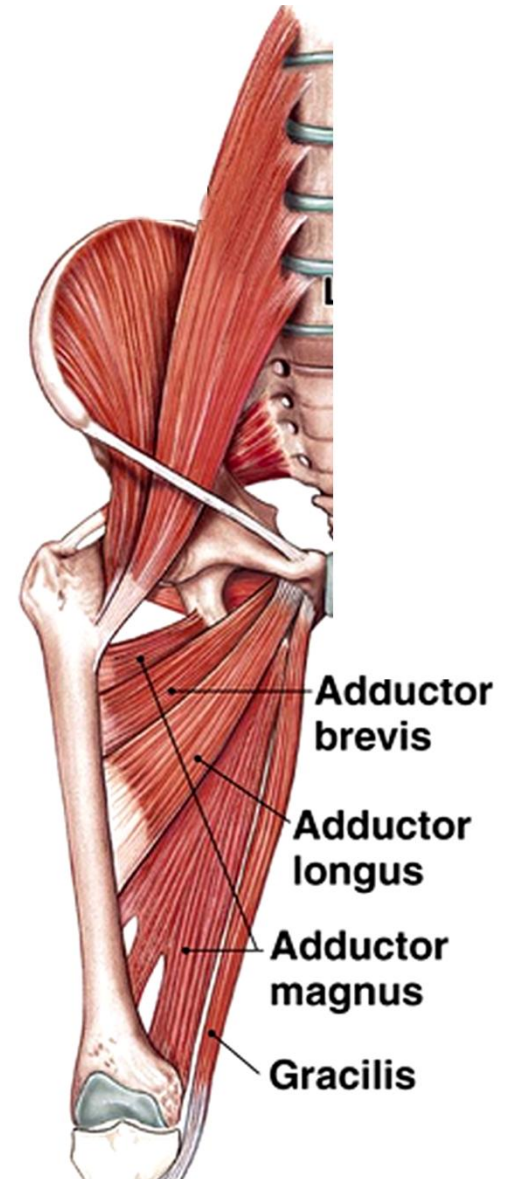
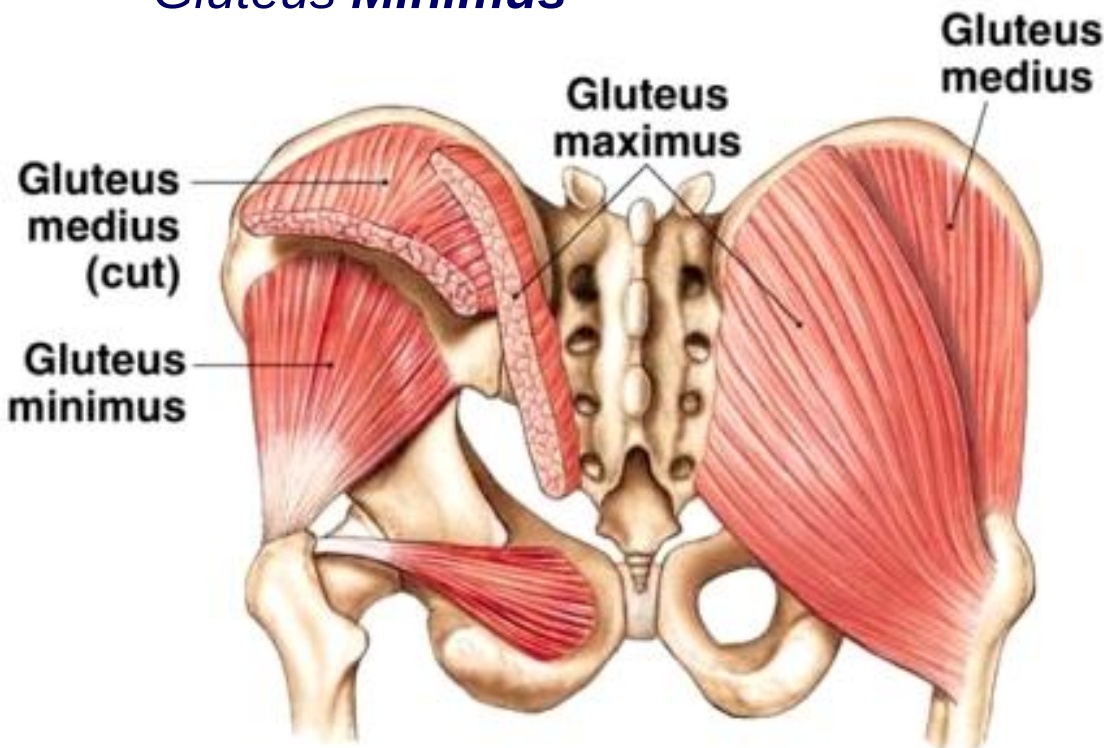
*Gluteus **Minimus***

Longus = longest

*Adductor **Longus***

Brevis = short

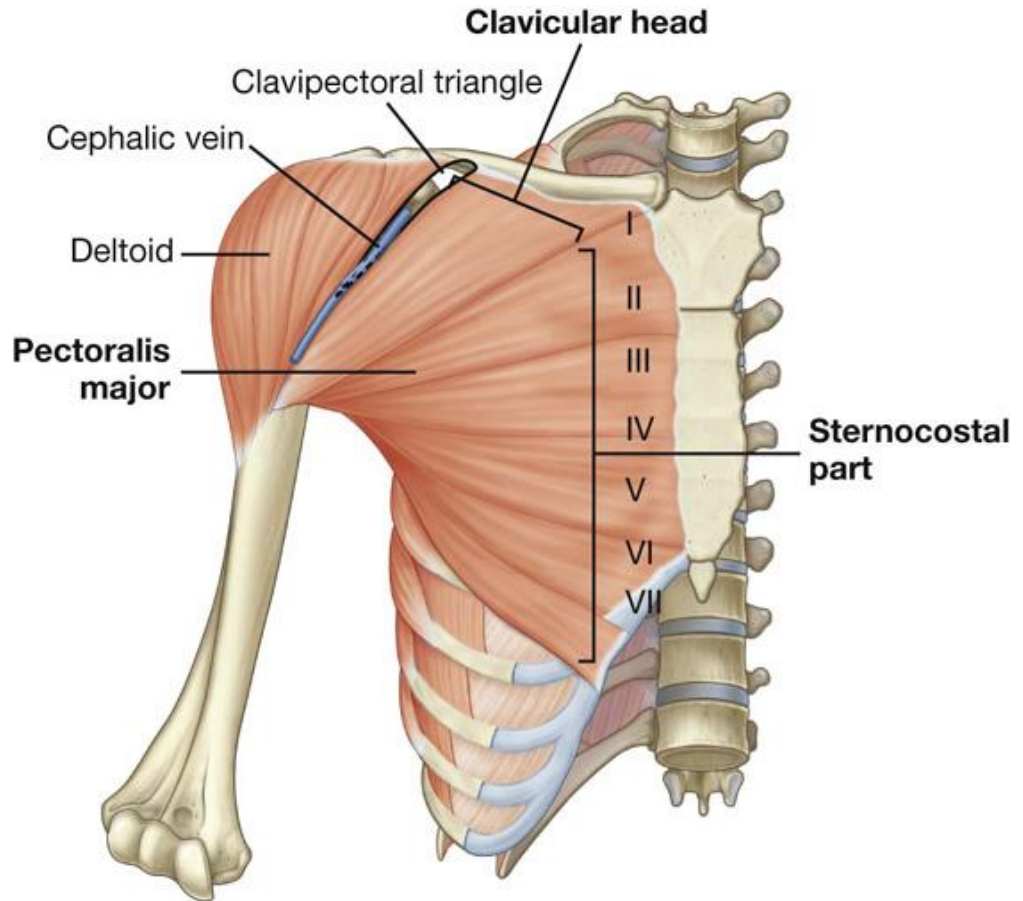
*Adductor **Brevis***



Muscles named by size

Size:

- vastus - huge
- longus – longest
- brevis – short
- major – large
- minor – small
- Magnus-large



Example: Pectoralis Major

Muscles named for number of heads or bellies

Biceps = Two

Biceps Brachii

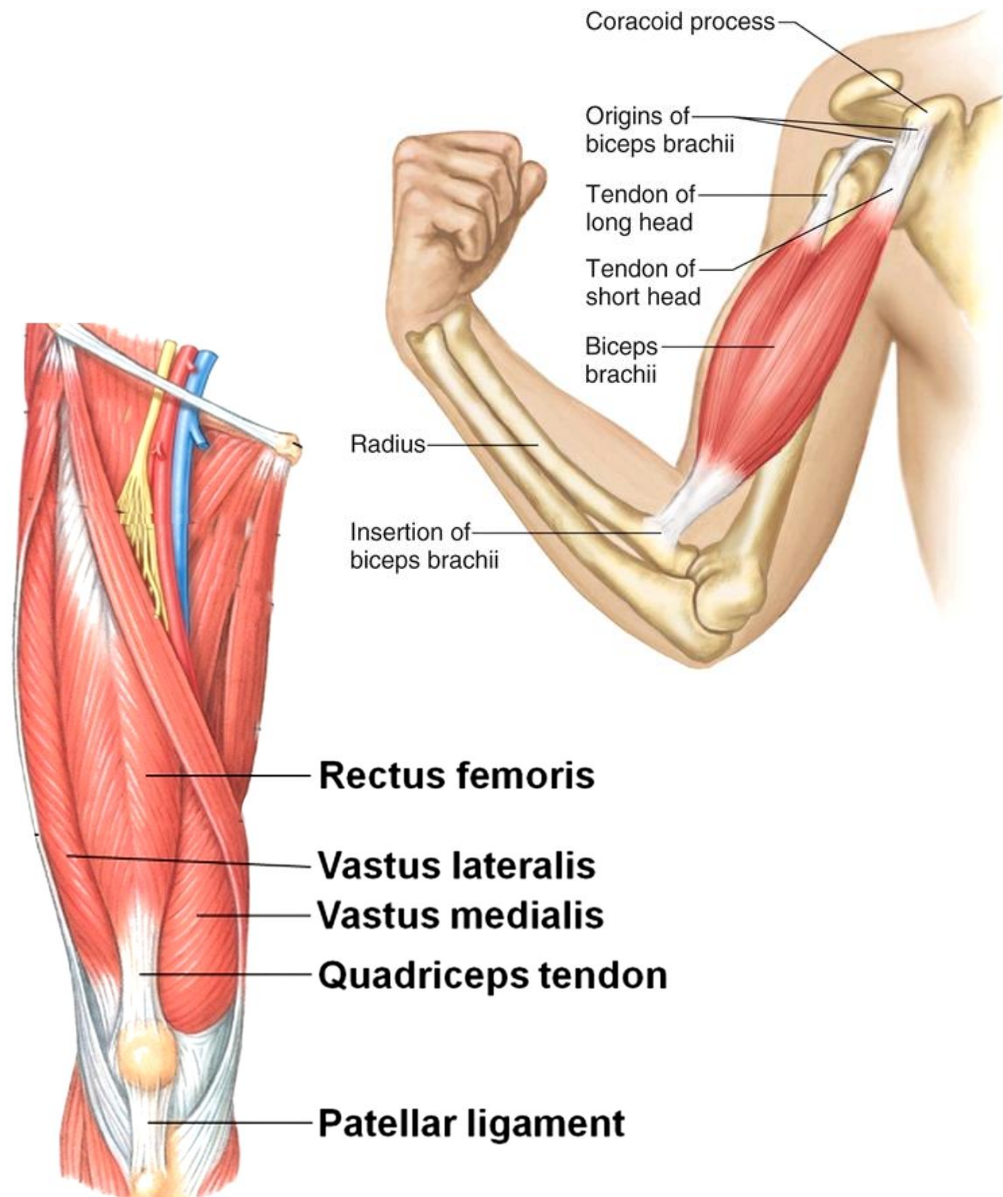
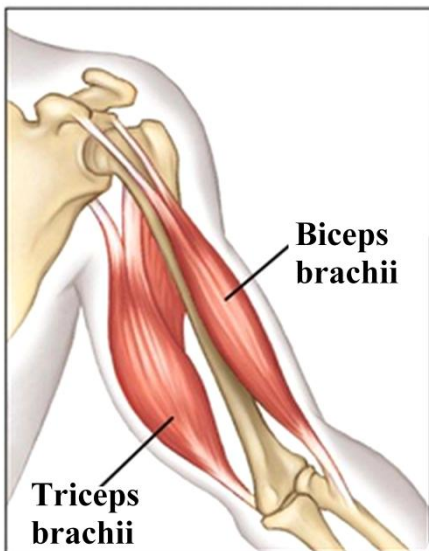
Biceps Femoris

Triceps = Three

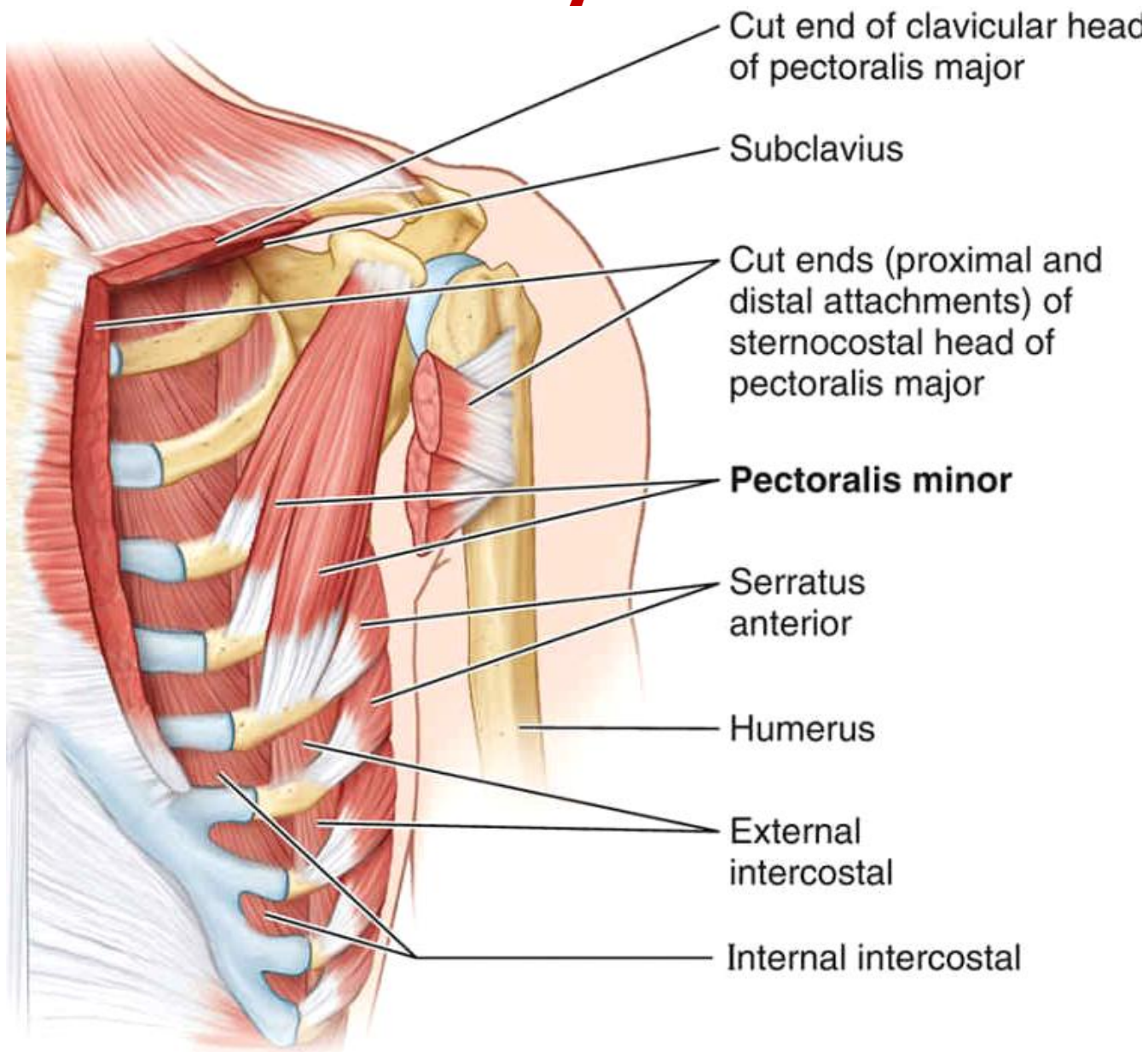
Triceps Brachii

Quadriceps = Four

Quadriceps Femoris



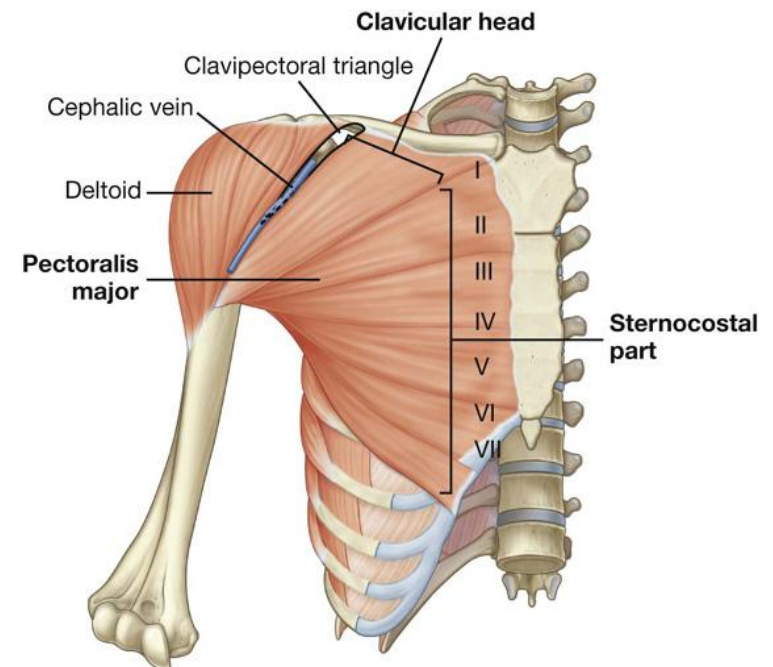
Muscles named by location muscles



Muscles named by location

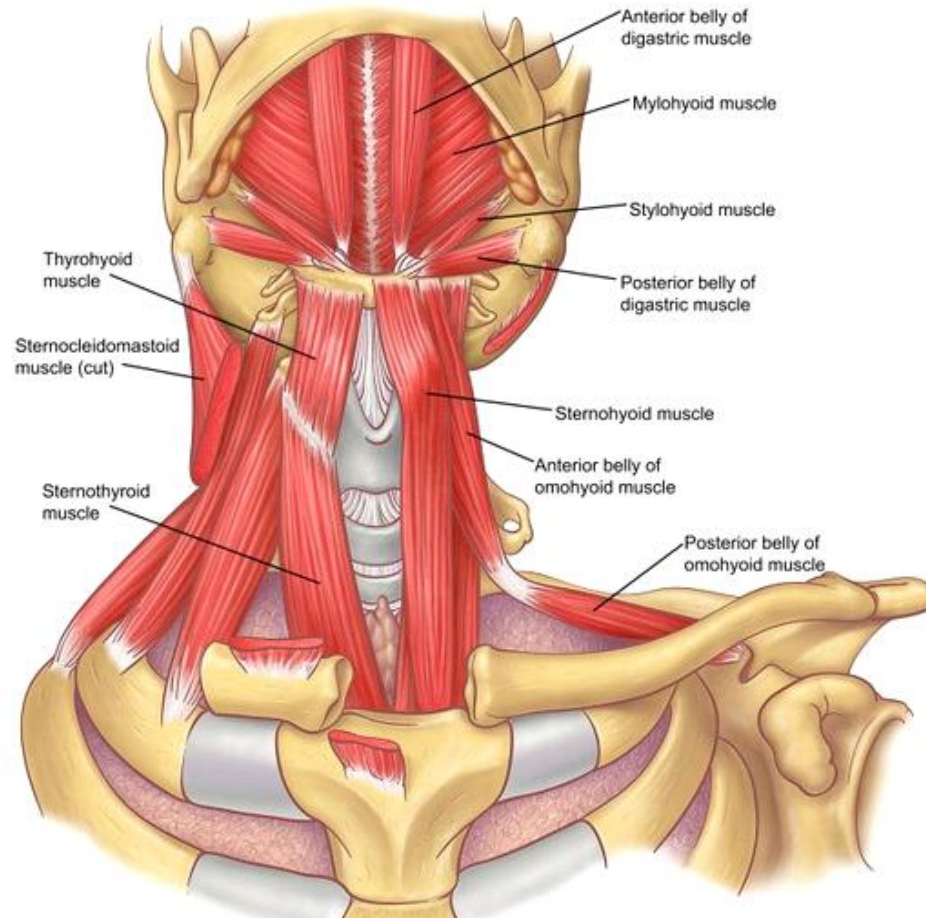
Location:

- **pectoralis** – front of thorax
- **tibialis anterior** – front of tibia
- **fibularis longus** – near fibula
- **supra** – above
- **infra** – below
- **sub** – underneath
- **gluteus** = buttock



Muscles named for origin and insertion points (attachment)

Sternohyoid= attaches to the sternum & hyoid



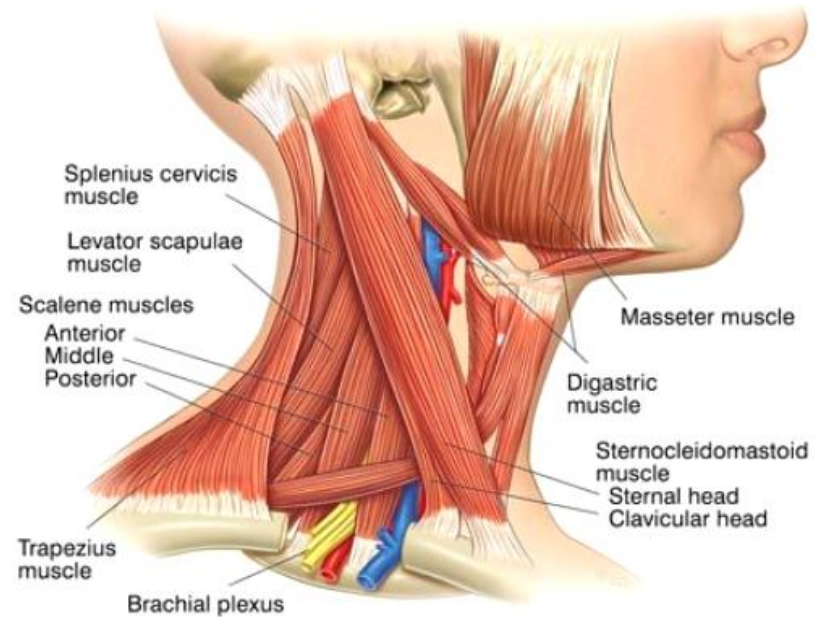
Muscles Named for Origin and Insertion Points

Origin and Insertion:

sterno = sternum

cleiido = clavicle

mastoid = location on the
temporal bone



sternocleidomastoid muscle

Muscles named by direction of fibers

Rectus = parallel to the midline

Rectus Abdominus

Transverse = perpendicular to midline

Transverse Abdominus

Oblique = diagonal to midline

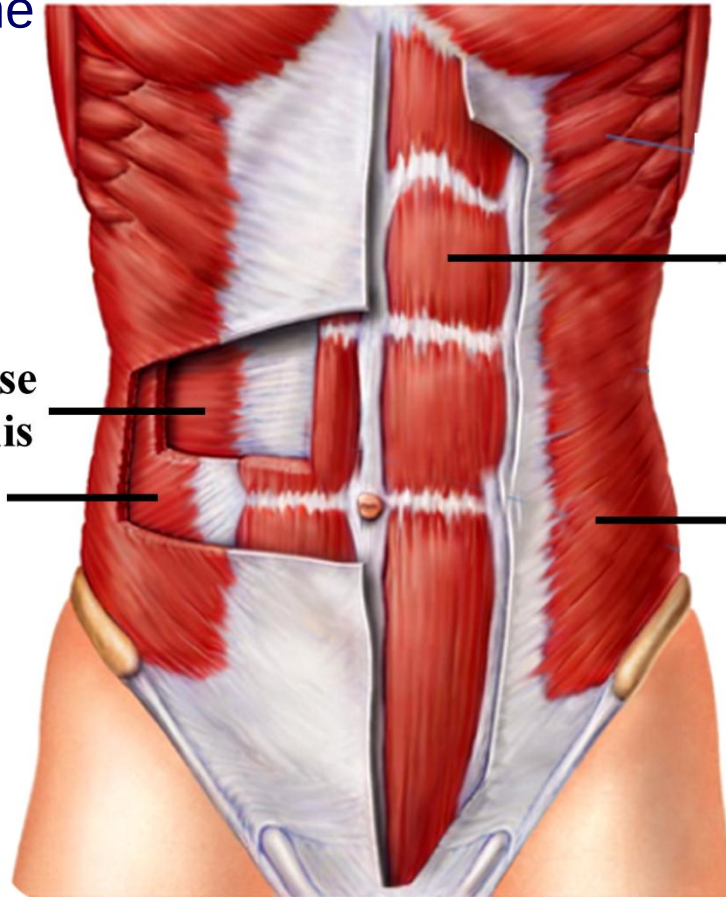
External Oblique

**Transverse
abdominis**

**Internal
oblique**

**Rectus
abdominis**

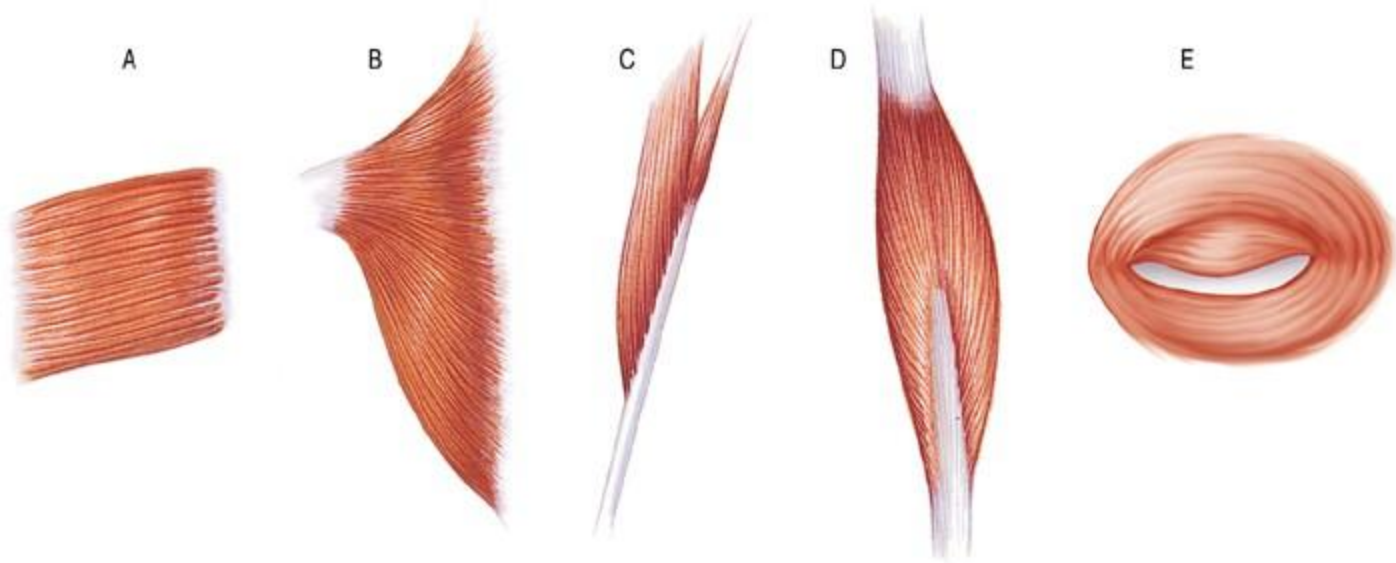
**External
oblique**



Fiber arrangement

- Muscle fiber arrangement differs
 - Parallel to the long axis of the muscle
 - Converge to a narrow attachment
 - Oblique and pennate (like a feather pen)
 - Bipennate (double-feathered)
 - Curved -- sphincter

Fiber arrangement



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A. Parallel

B. Convergent

C. Pennate

D. Bipennate

E. Sphincter

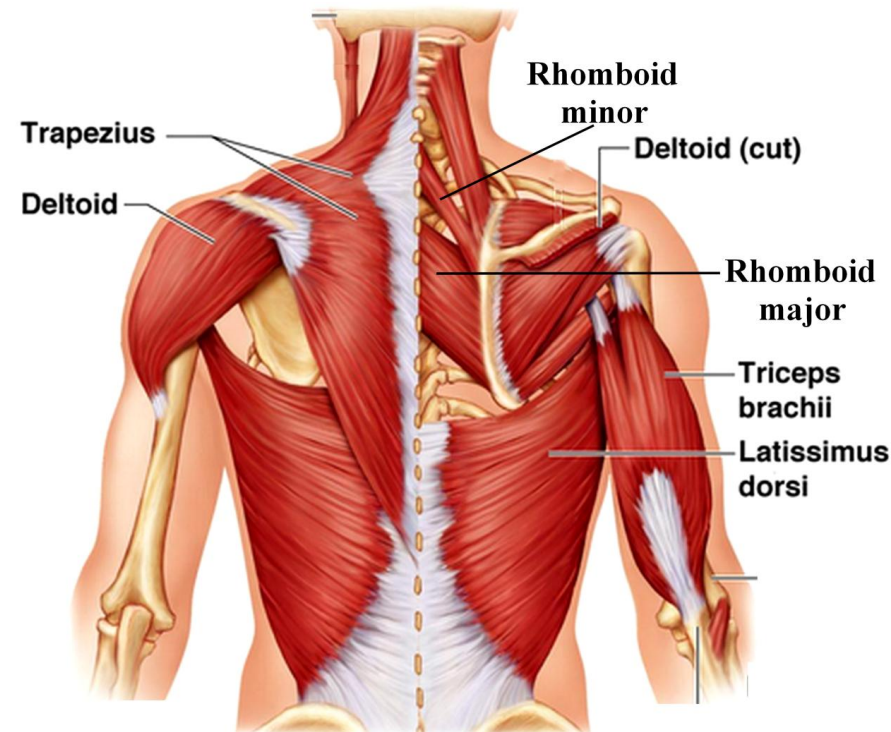
Muscles named for action

NAME	EXAMPLE
Flexor	<i>Flexor Carpi Radialis</i>
Extensor	<i>Extensor Carpi Ulnaris</i>
Abductor	<i>Abductor digiti minimi</i>
Adductor	<i>Adductor Longus</i>
Levator	<i>Levator Scapulae</i>
Depressor	<i>Depressor Labii Inferioris</i>
Supinator	<i>Supinator</i>
Pronator	<i>Pronator Teres</i>

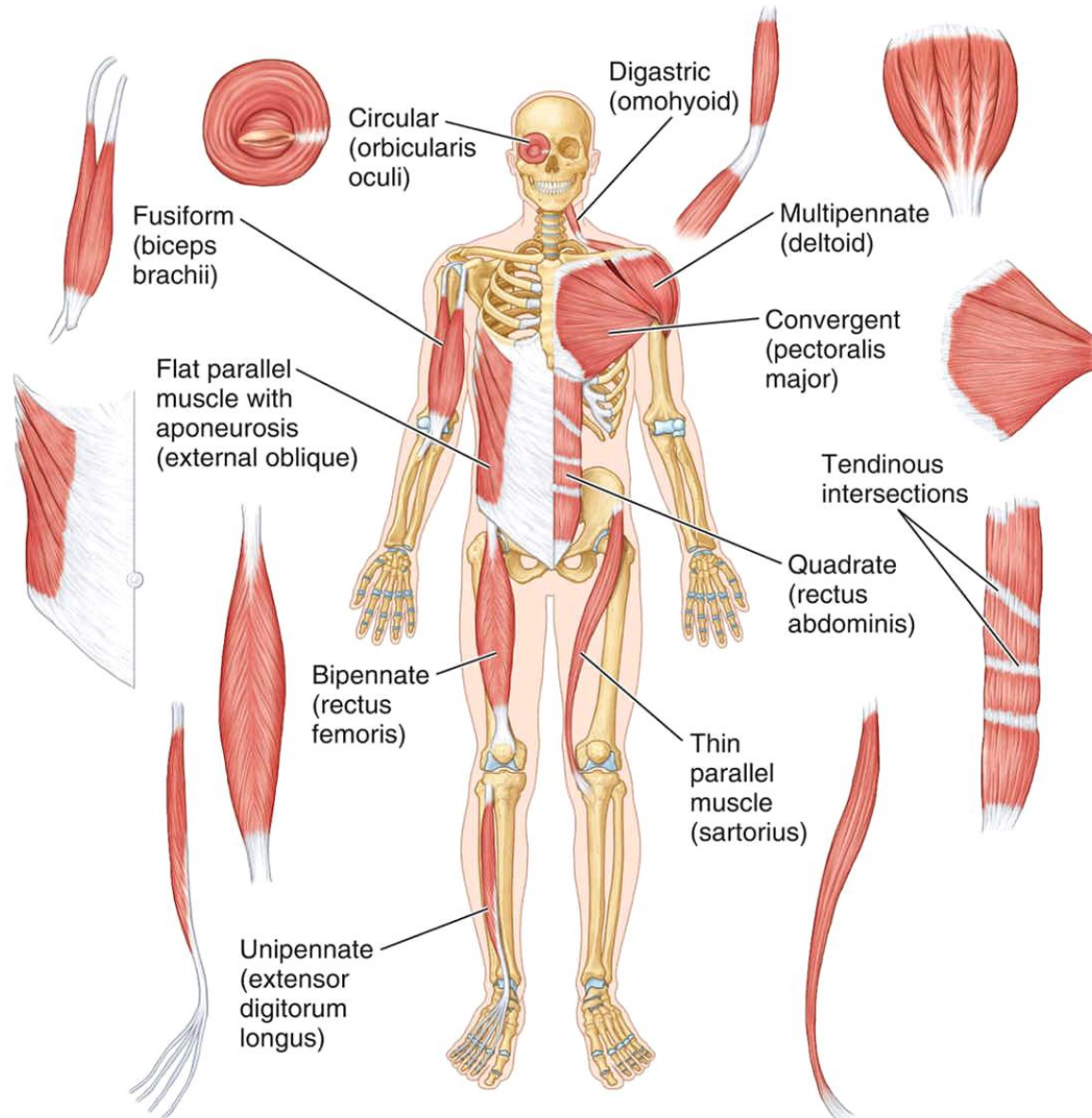
Muscles named for action

Action:

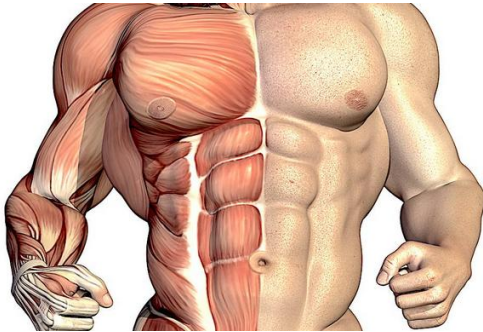
- flexor carpi radialis – flexes wrist
- adductor magnus – adducts the thigh
- extensor digitorum – extends the fingers
- levator – lifts a structure



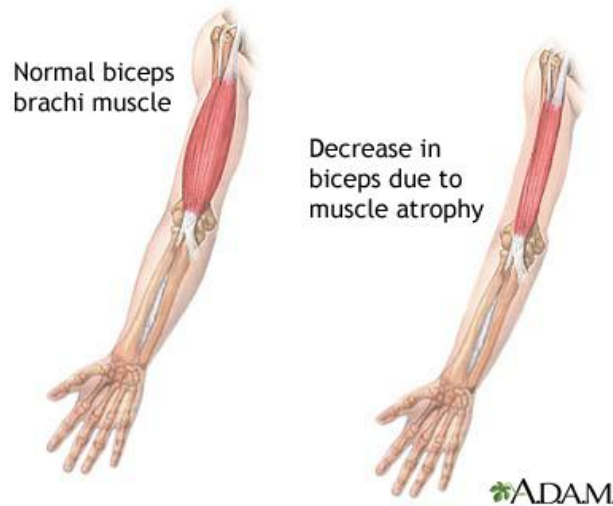
Shape of the muscle



Applied anatomy



Hypertrophy



Atrophy

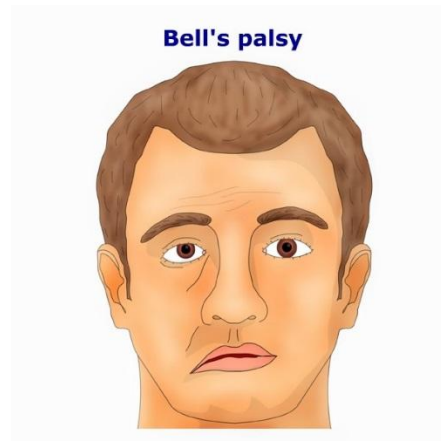


Spasm

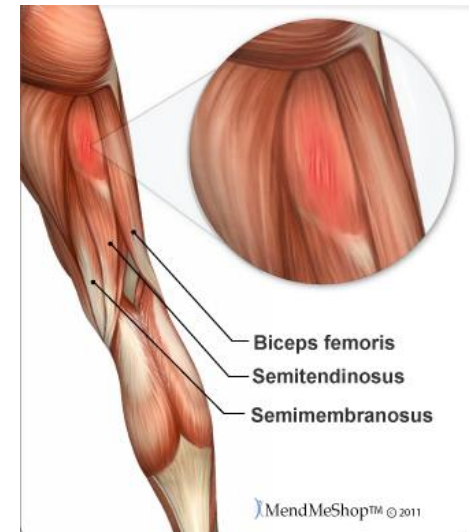


Contracture of fingers
of right hand (clawed hand)

Contracture

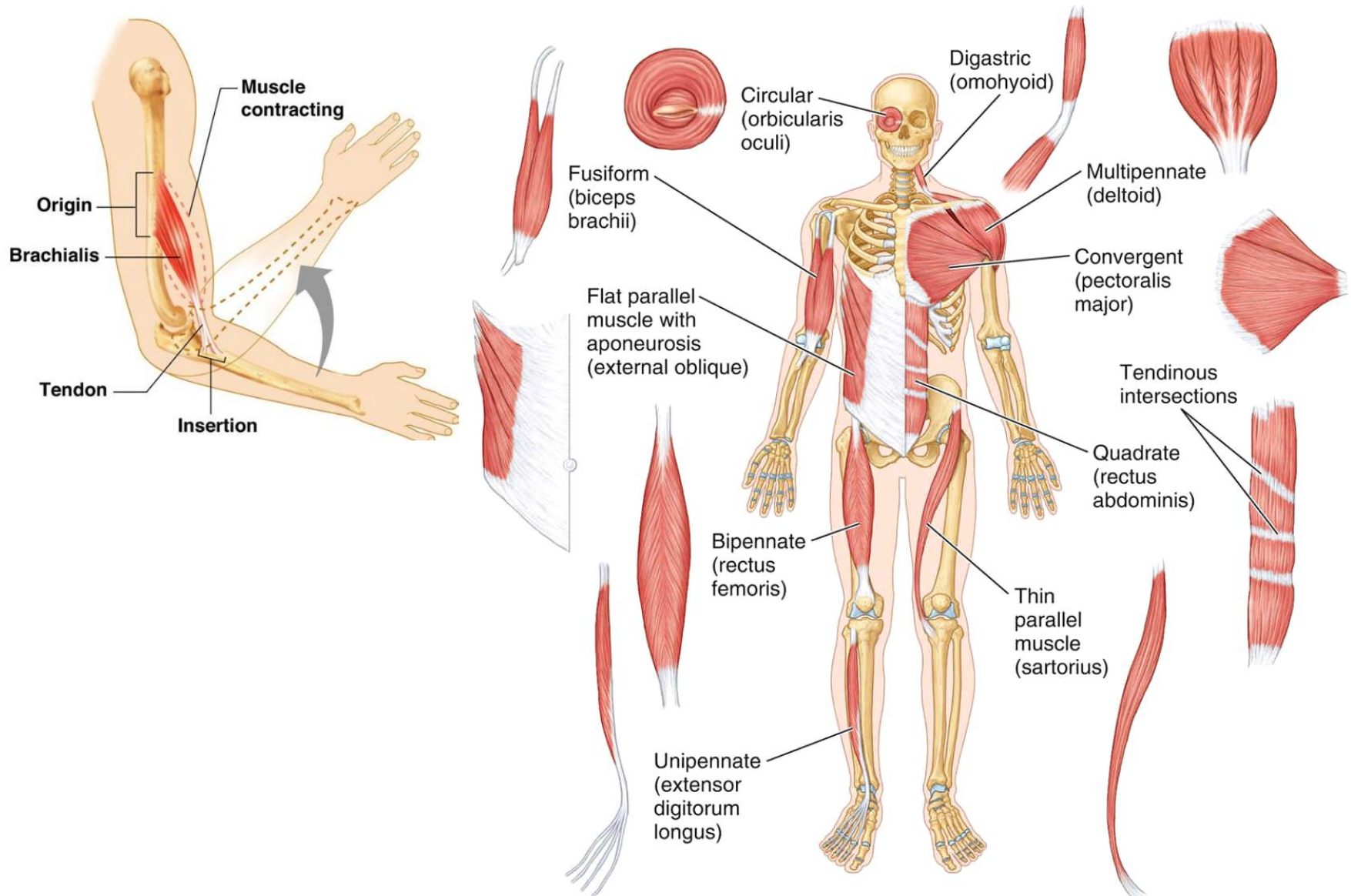


Palsy



Strain

خلاصه



- 1-Clinical Anatomy by Regions by Richard S. Snell , 2017
- 2-Gray's Anatomy for Students, 3rd Edition, 2017
- 3-Clinical Oriented Anatomy, KL Moore, 2017
- 4-Human Anatomy,S.Fakhroodin mesbah A, sixth Edition,2017

اهداف یادگیری

1- عضله Digasric بر اساس چه معیاری نامگذاری شده است؟

2- نیام (Aponeurosis) را تعریف کنید.

شاد و سلامت باشید

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