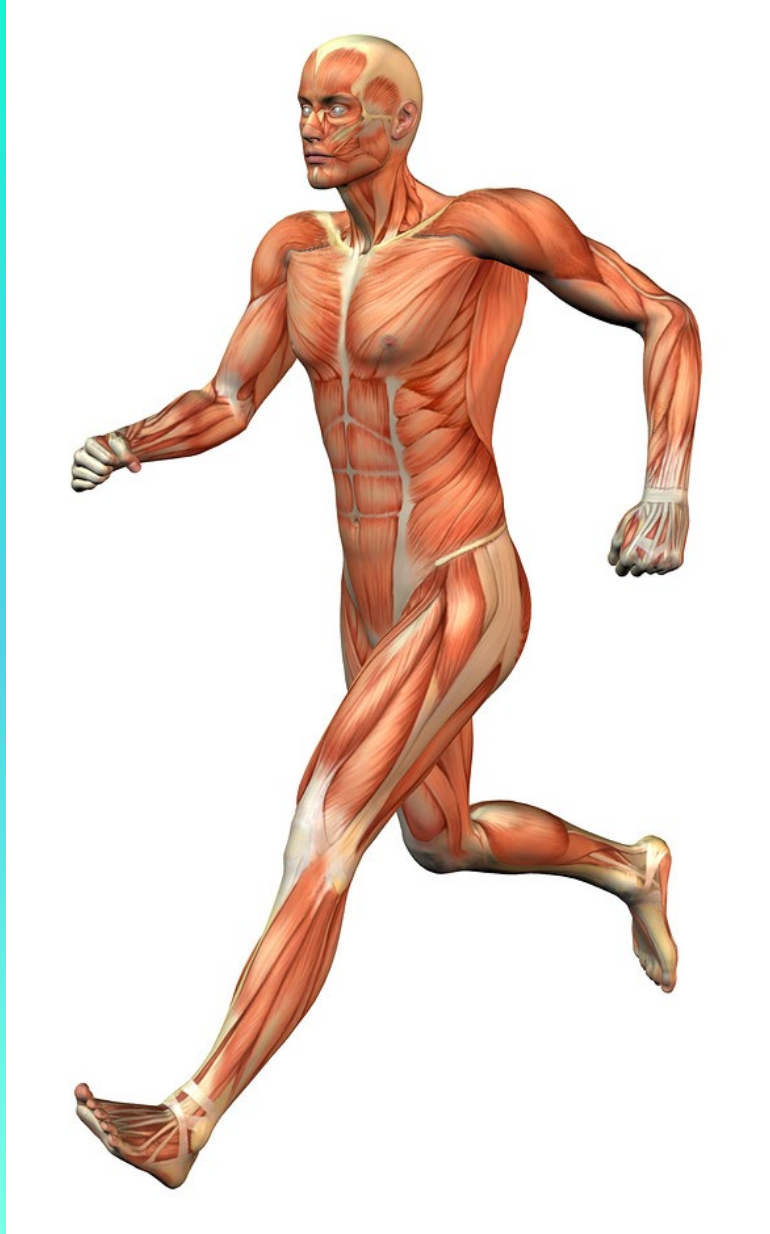




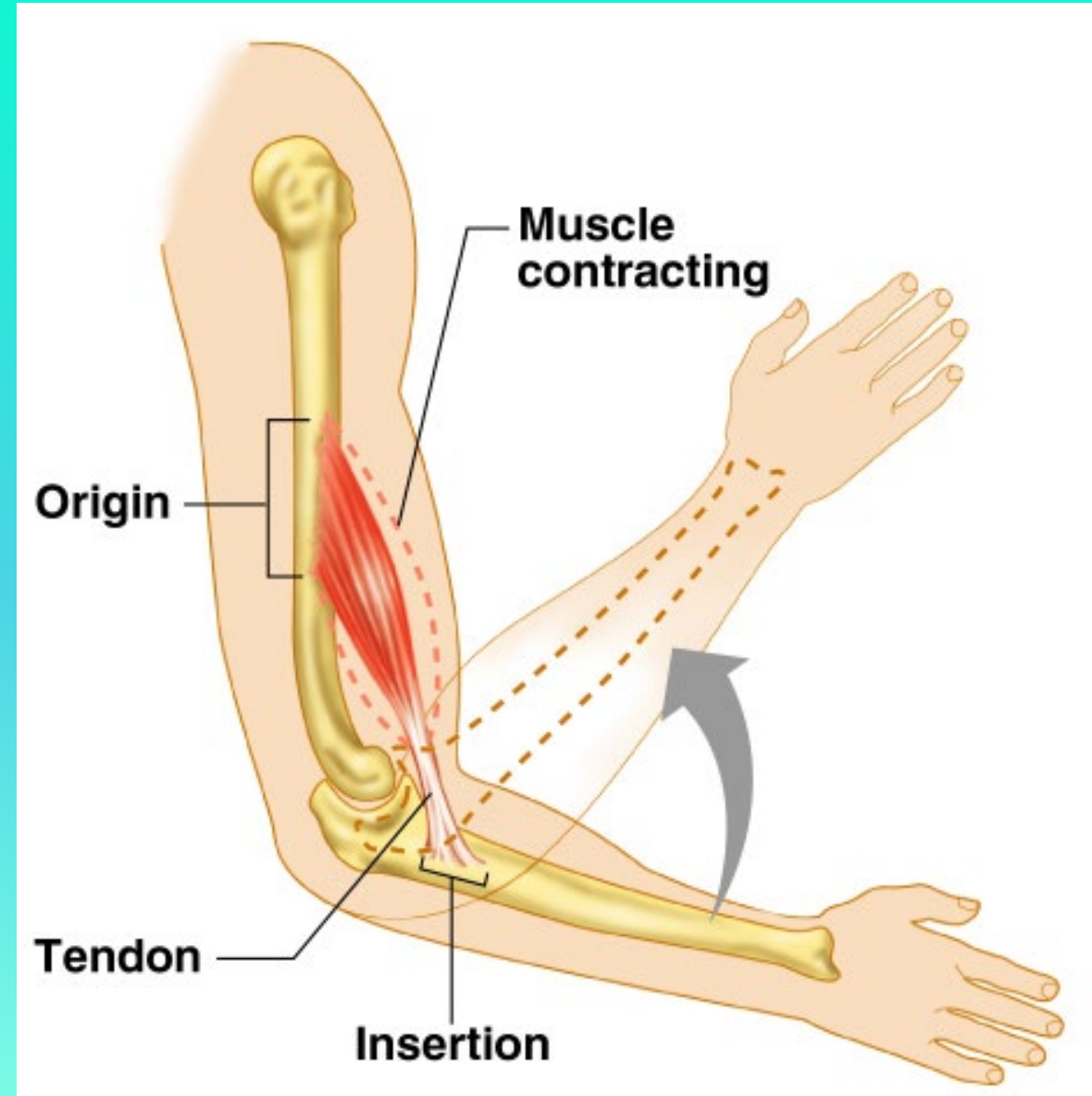
The Muscular System



Muscles and Body Movements

-Muscles are attached to at least two points

- Origin – attachment to an immoveable bone
- Insertion – attachment to a movable bone

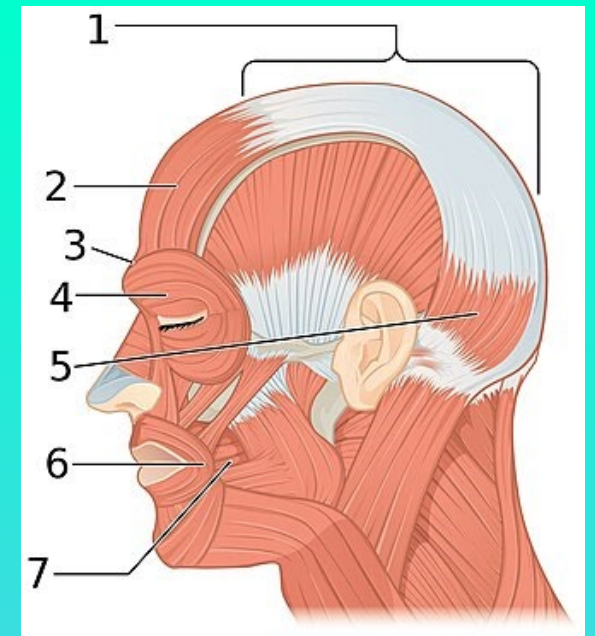
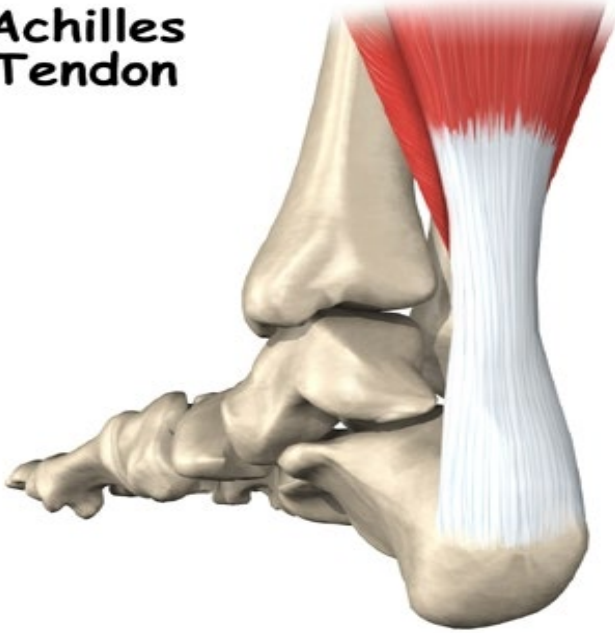


EXTRA-TERMS associated to muscle organs

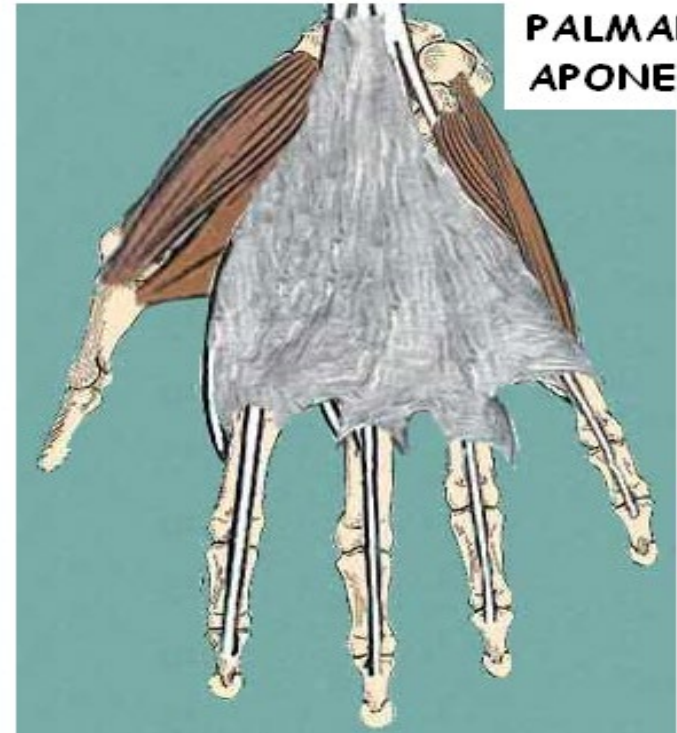
✓ **TENDON**

✓ **APONEUROSIS**

**Achilles
Tendon**

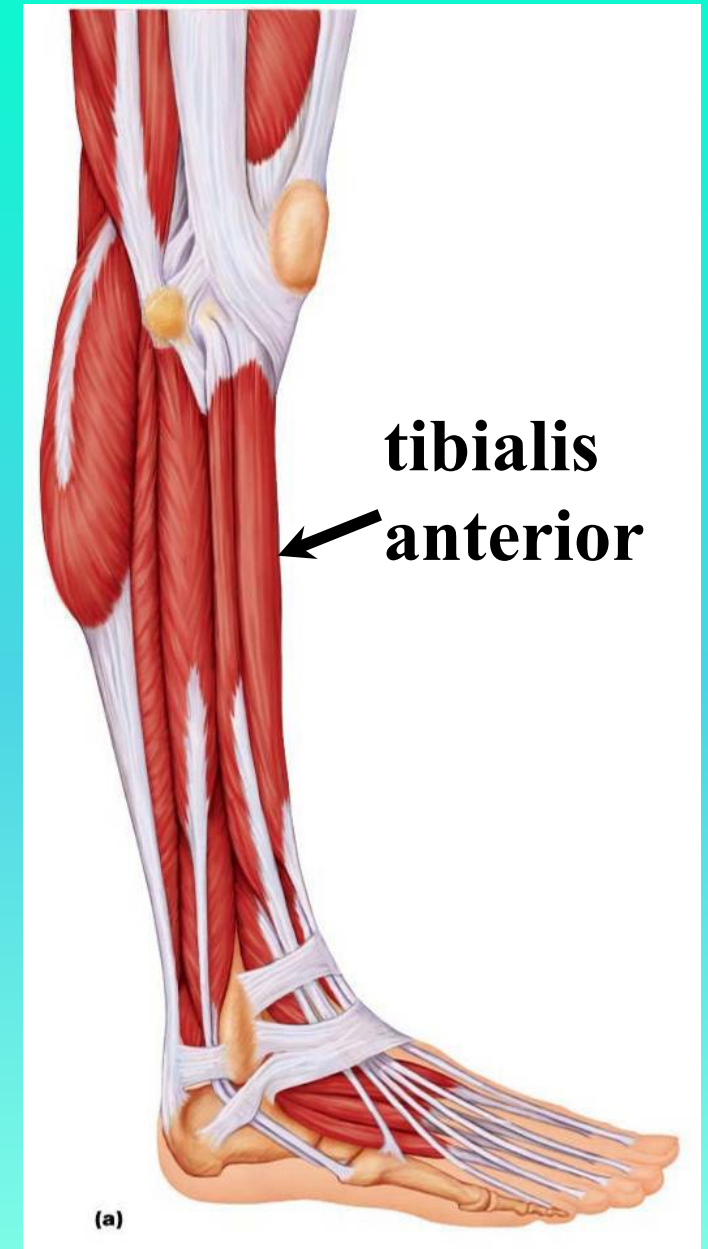
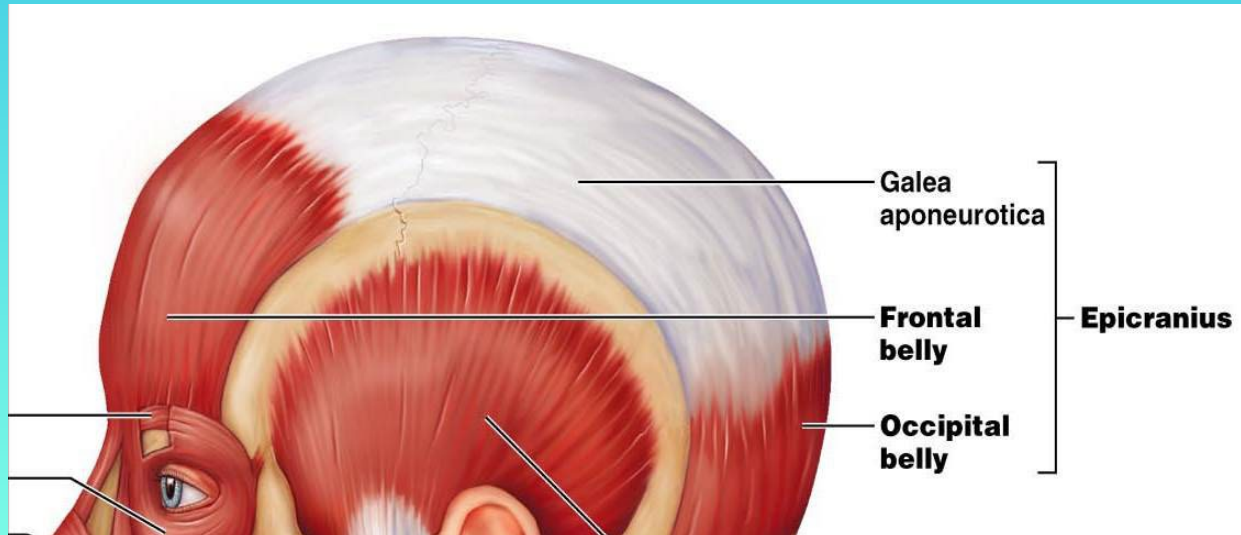


**PALMAR
APONEUROSIS**



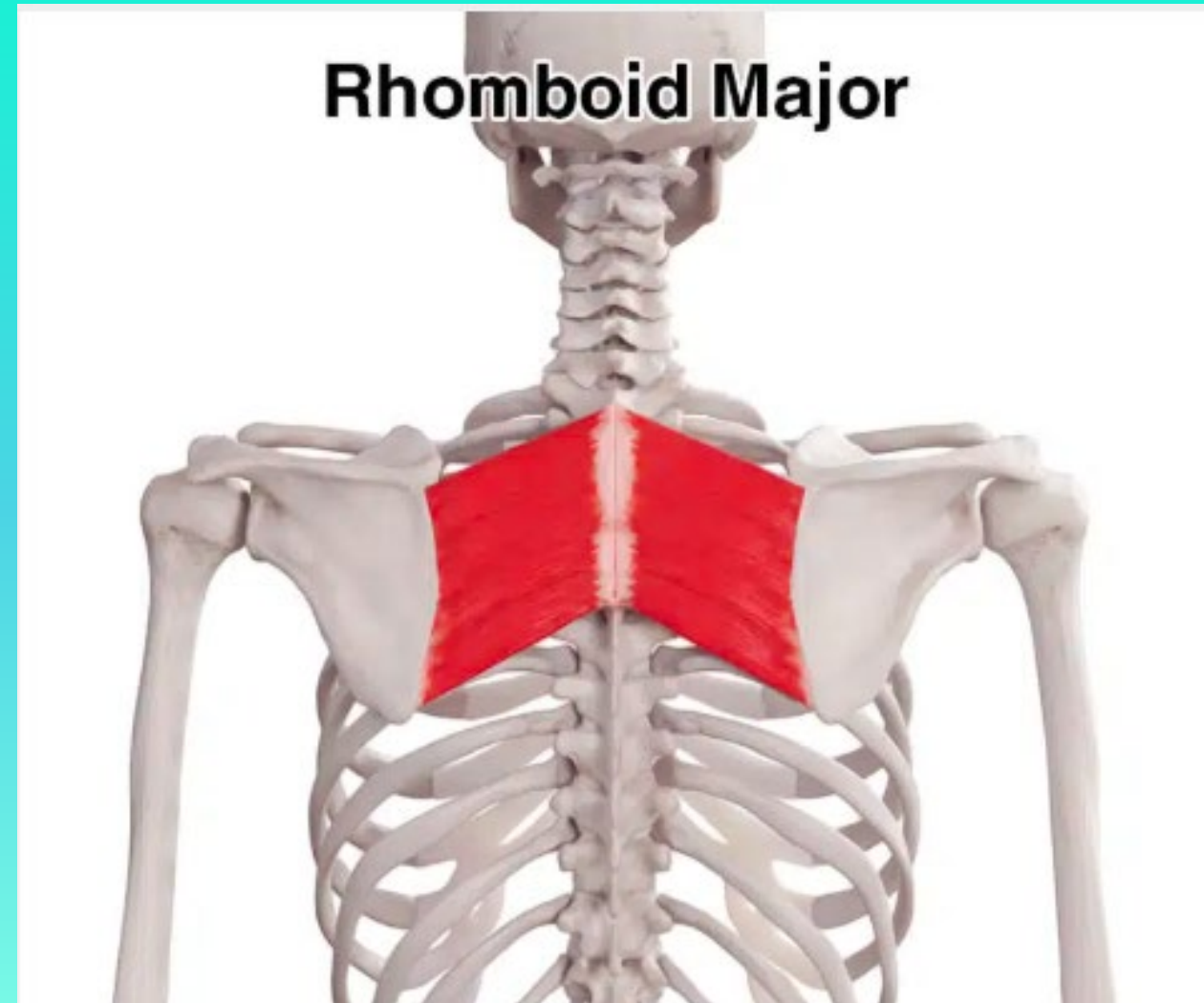
Muscles Named by Location

- **Epicranius**
(around cranium)
- **Tibialis anterior**
(front of tibia)



Muscles Named by Shape

- **Shape:**
 - deltoid (triangle)
 - trapezius (trapezoid)
 - serratus (saw-toothed)
 - rhomboideus (rhomboid)
 - orbicularis and sphincters (circular)

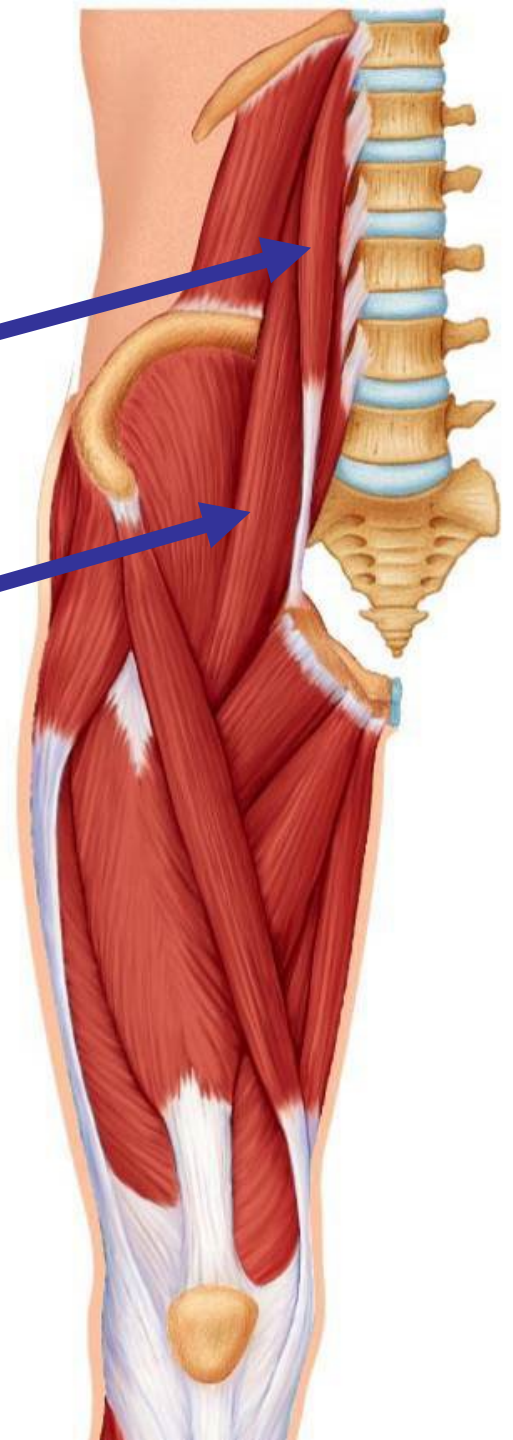


Muscles named by Size

- maximus (largest)
- minimis (smallest)
- longus (longest)
- brevis (short)
- major (large)
- minor (small)

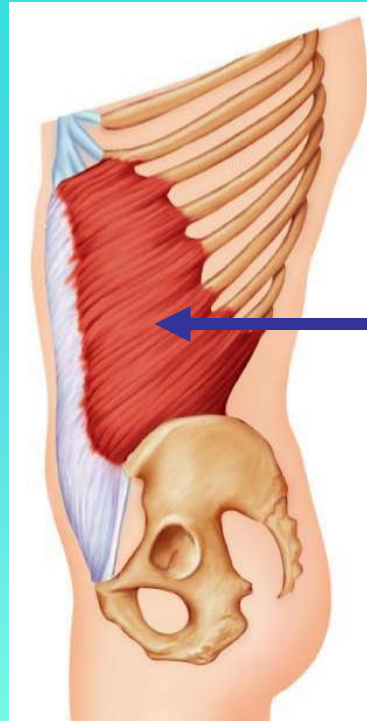
**Psoas
minor**

**Psoas
major**

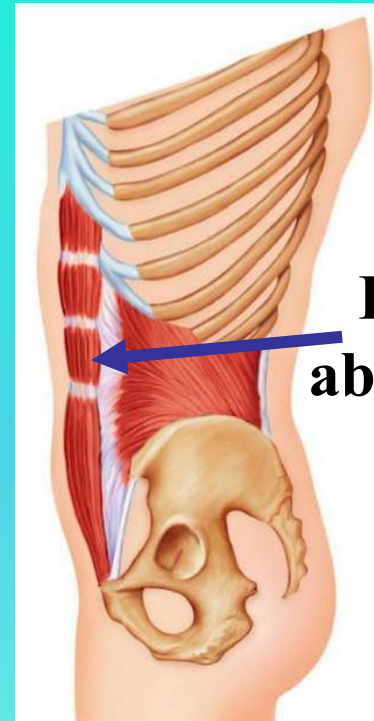


Muscles Named by Direction of Fibers

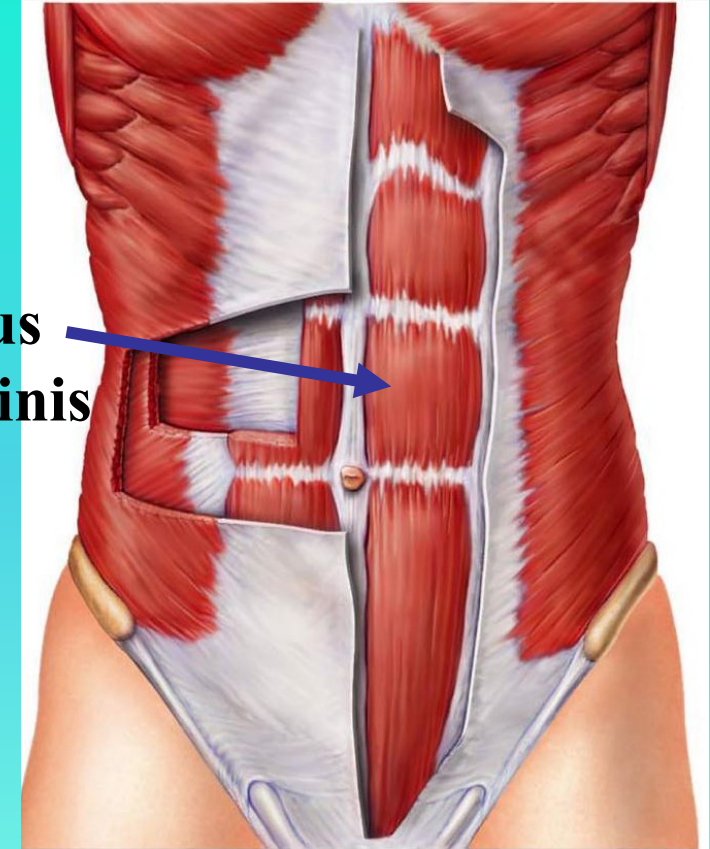
- Rectus (straight)-parallel to long axis
- Transverse
- Oblique



External oblique



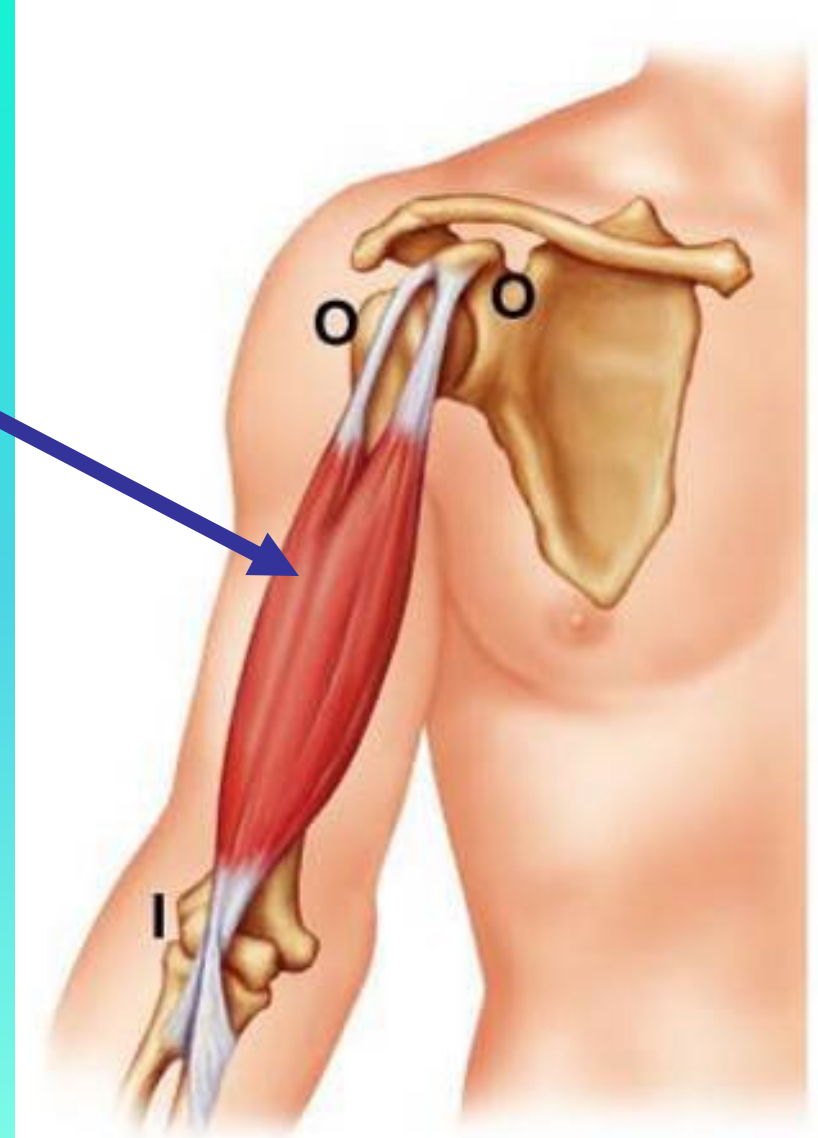
Rectus abdominis



Muscles Named for Number of Origins

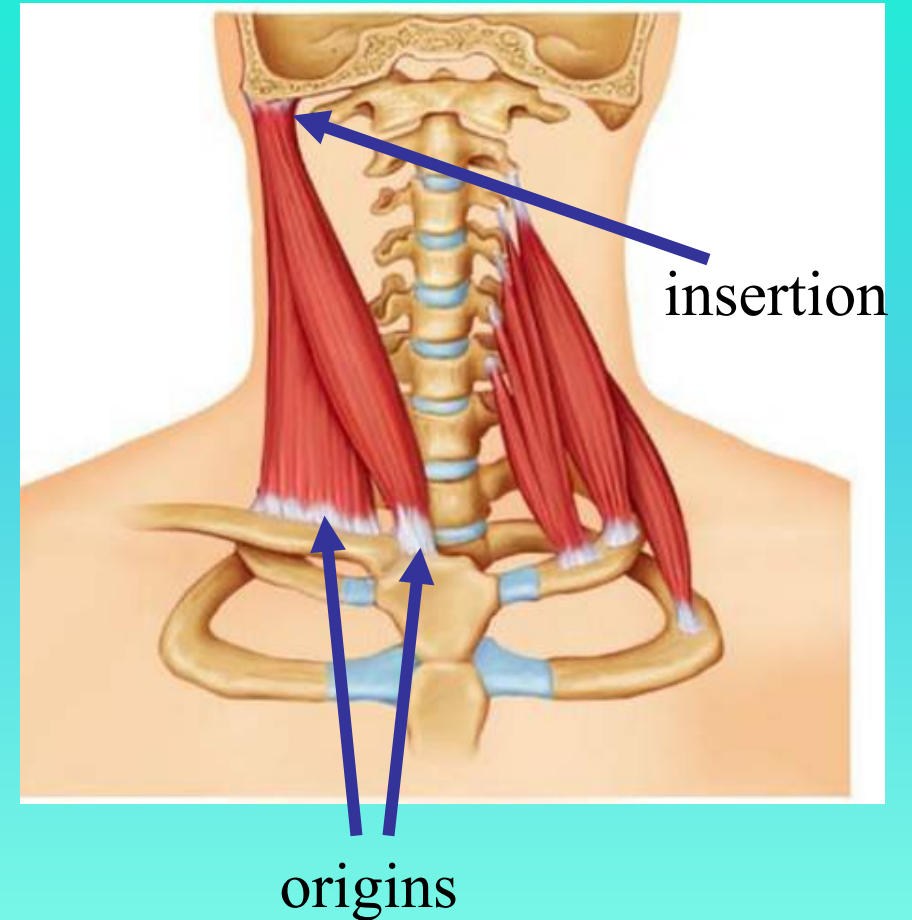
- biceps (2)
- triceps (3)
- quadriceps (4)

**Biceps
brachii**



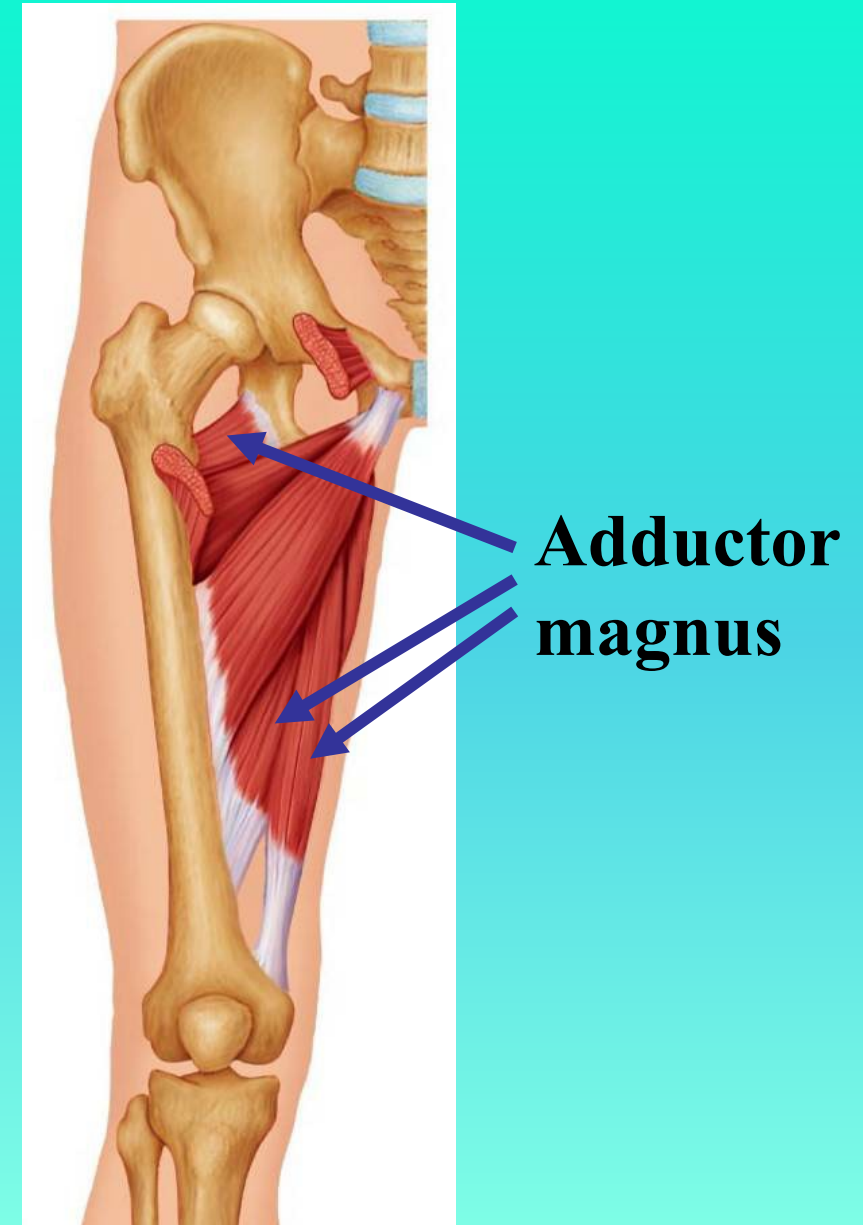
Muscles Named for Origin and Insertion

Sternocleidomastoid originates from sternum and clavicle and inserts on mastoid process of temporal bone



Muscles Named for Action

- Flexor carpi radialis (extensor carpi radialis) – flexes wrist
- Abductor pollicis brevis (adductor pollicis) – flexes thumb
- Abductor magnus – abducts thigh
- Extensor digitorum – extends fingers



MUSCLE GROUPS

(According to body region)

- MUSCLES OF HEAD AND NECK
- MUSCLES OF TRUNK
- MUSCLES OF UPPER EXTREMITY
- MUSCLES OF LOWER EXTREMITY
- MUSCLES OF PELVIC FLOOR

اصطلاحات حرکات

- Flexion خم کردن - فلکشن
- Extension باز کردن - اکستنشن
- Abduction دور کردن - ابدکشن
- Adduction نزدیک کردن - ادکشن
- Circumduction گردش
- Rotation چرخش - روتیشن
 - داخلی (medial)
 - خارجی (lateral)
- Pronation پرونیشن
- Supinaion سوپینیشن
- Eversion اورژن
- Inversion اینورژن

Movments of joints

Flexion # extention

Abduction # adduction

Medial rotation # lateral rotation

Internal rotation # external rotation

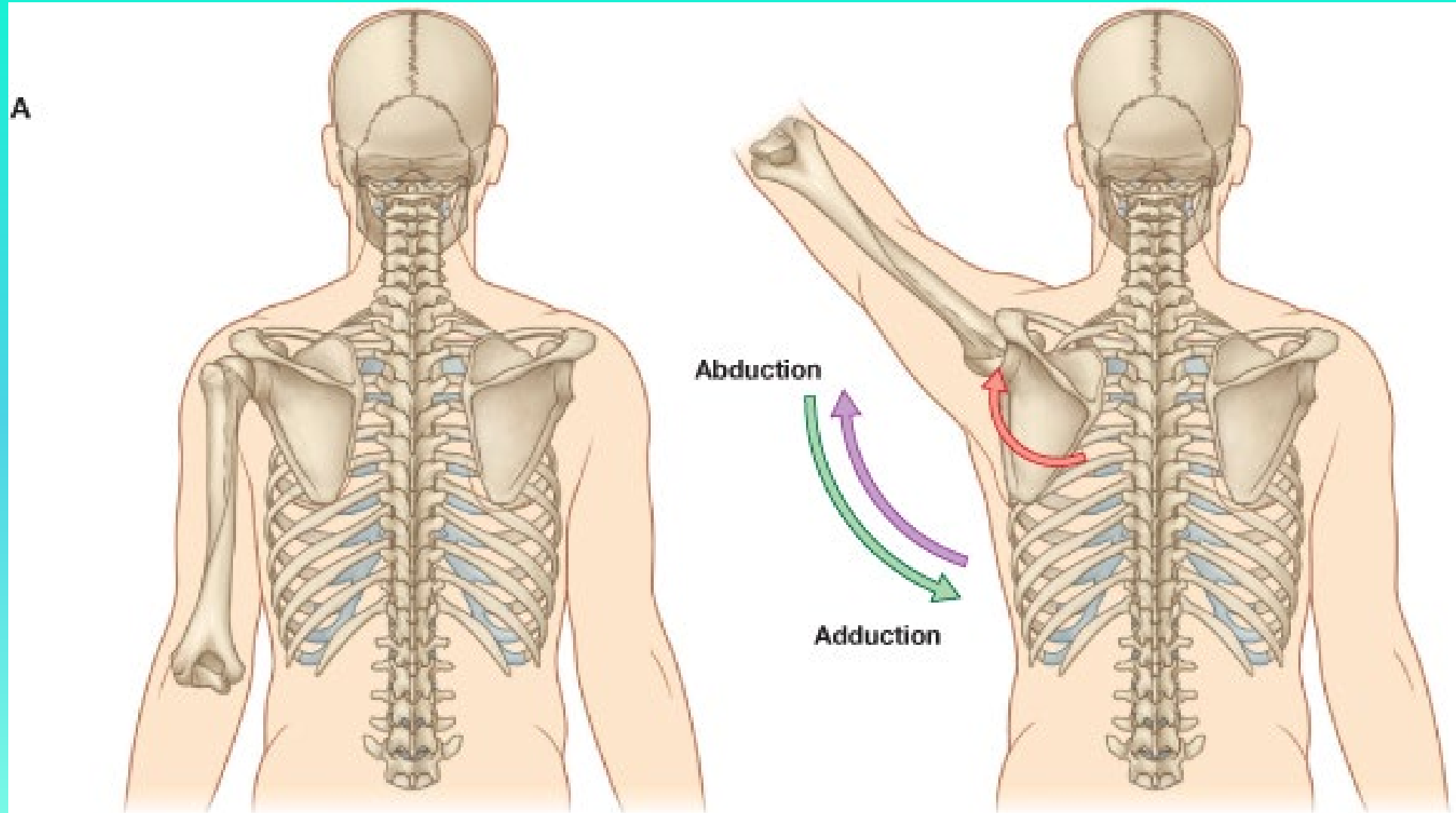
Supination # pronation

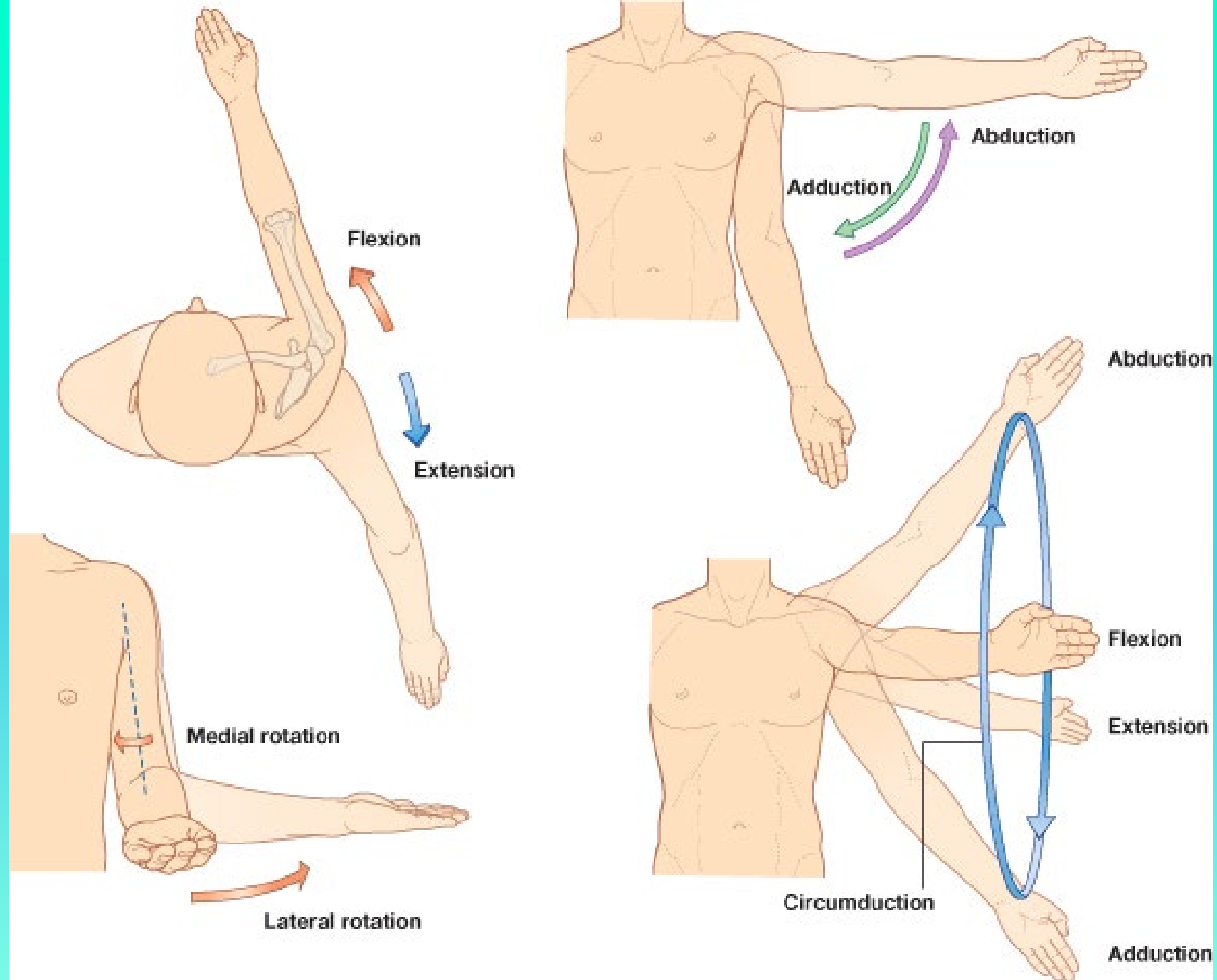
inversion # eversion

Dorsi Flexion # plantar Flexion

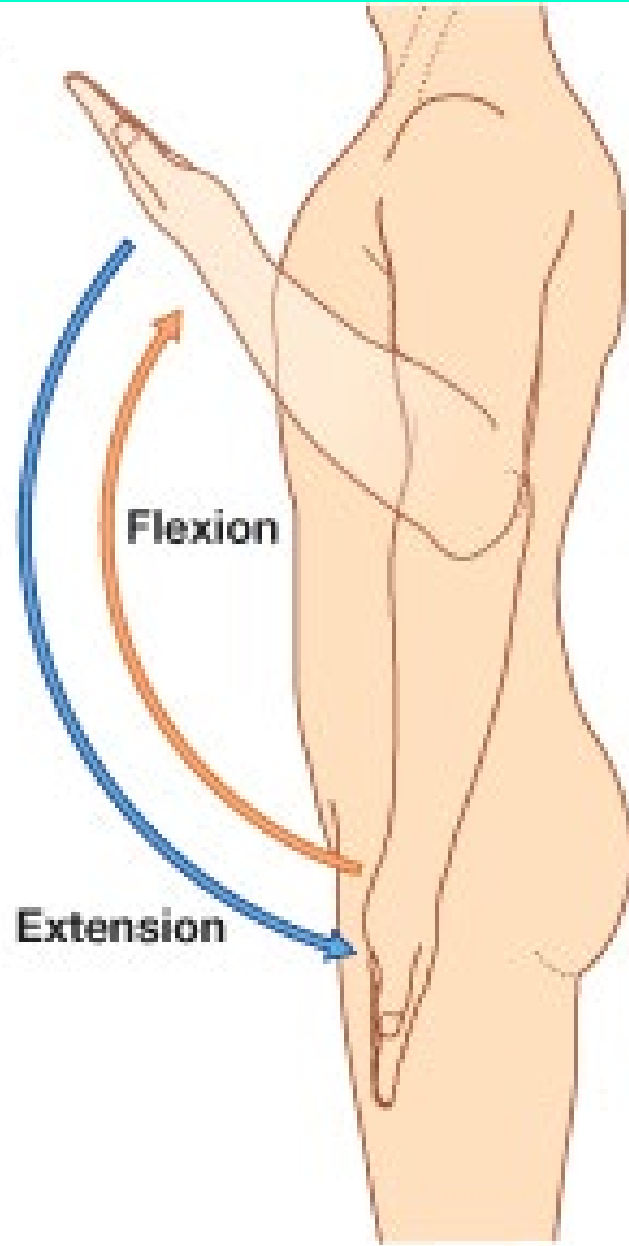
Elevation # depresstion

Adduction = add.
Abduction = abd.

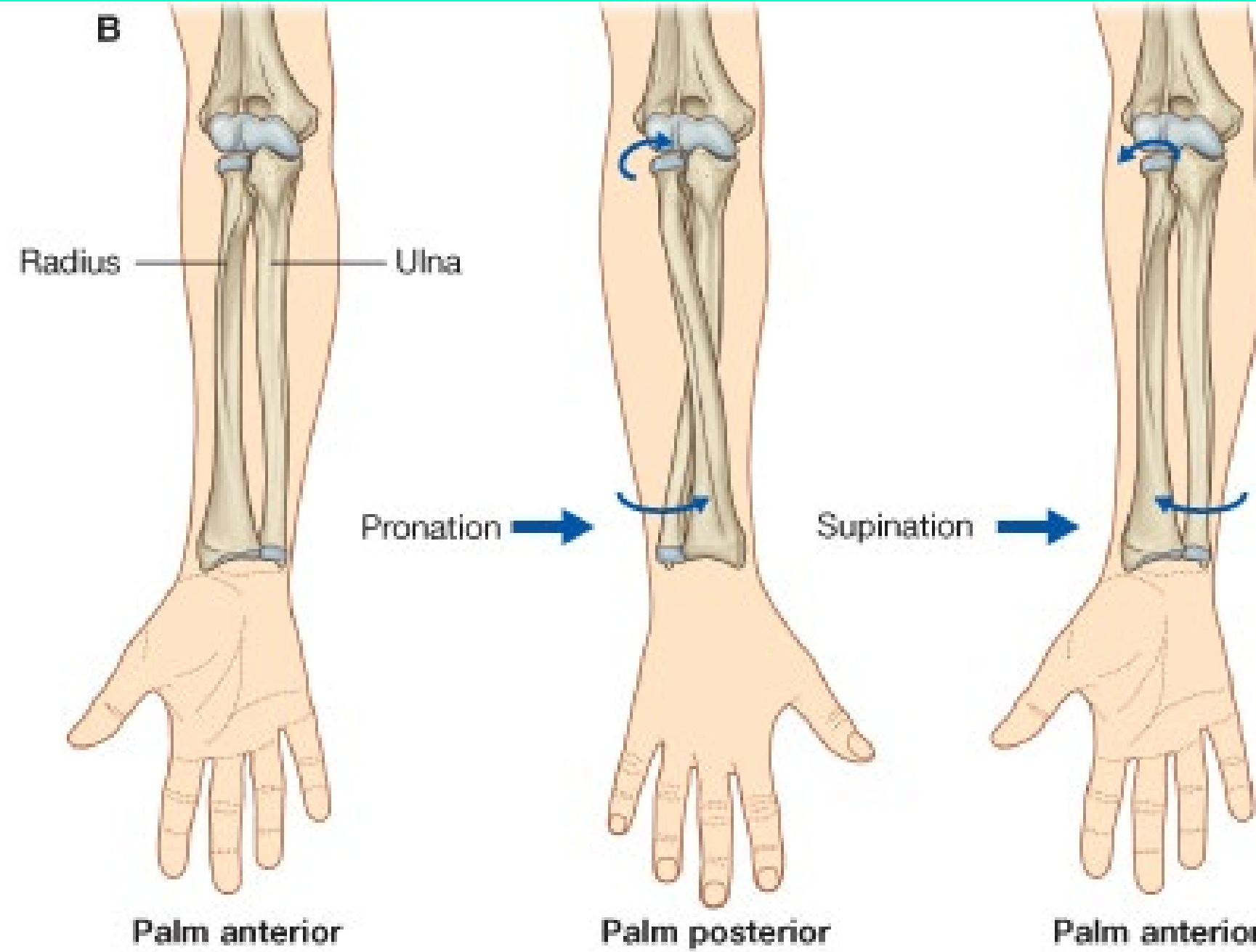


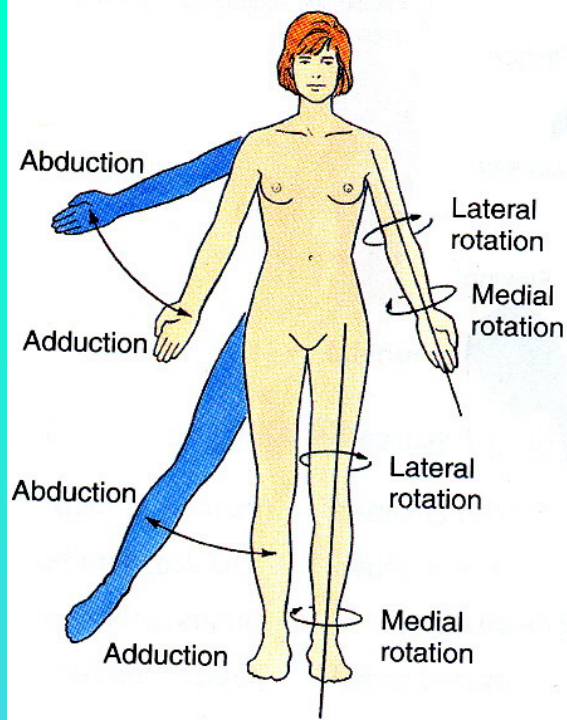


A

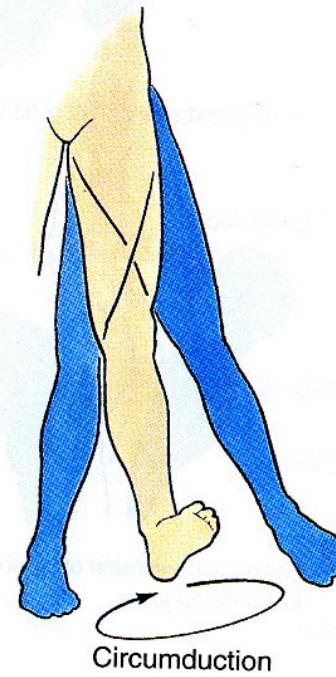


B

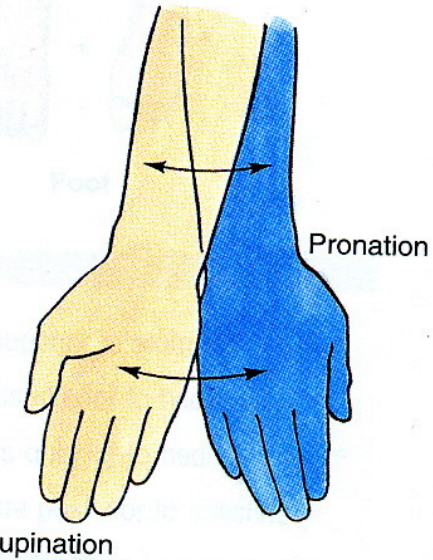




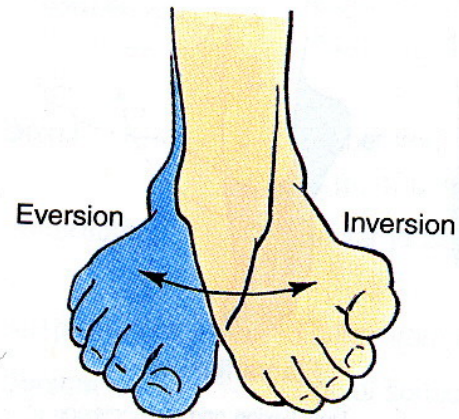
Abduction and adduction of right limbs and rotation of left limbs at glenohumeral and hip joints, respectively



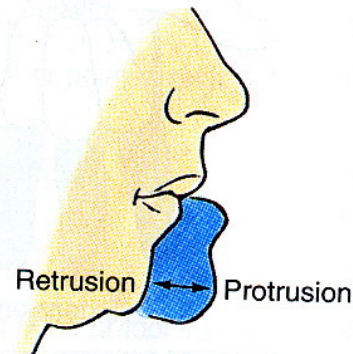
Circumduction (circular movement) of lower limb at hip joint



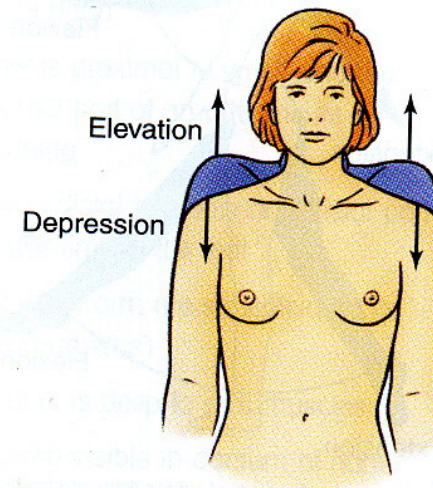
Supination and pronation of forearm at radioulnar joints



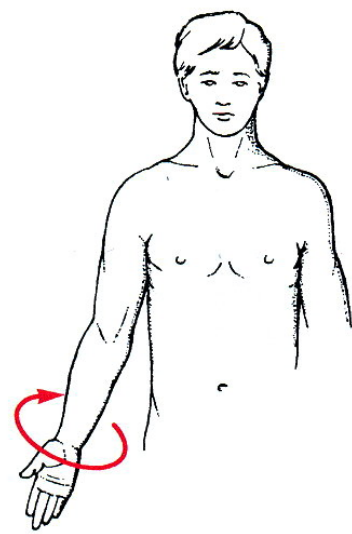
Inversion and eversion of foot at subtalar and transverse tarsal joints



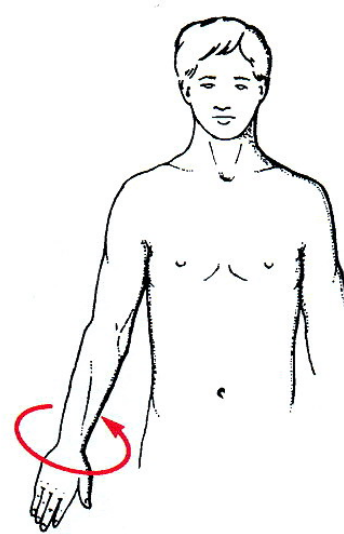
Protrusion and retrusion of jaw at temporomandibular joints



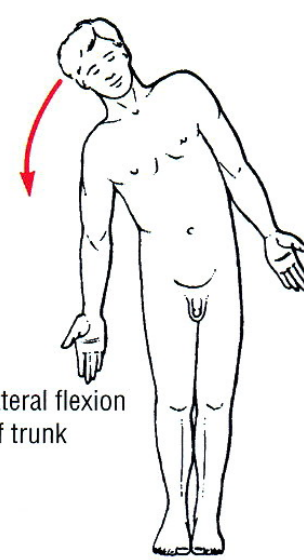
Elevation and depression of shoulders



supination of forearm



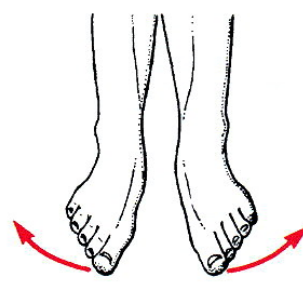
pronation of forearm



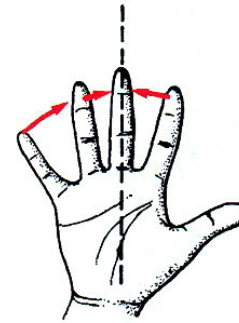
lateral flexion of trunk



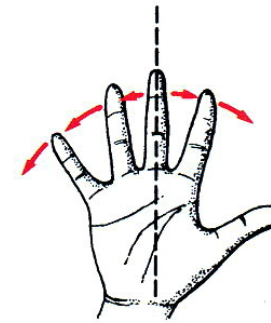
inversion of foot



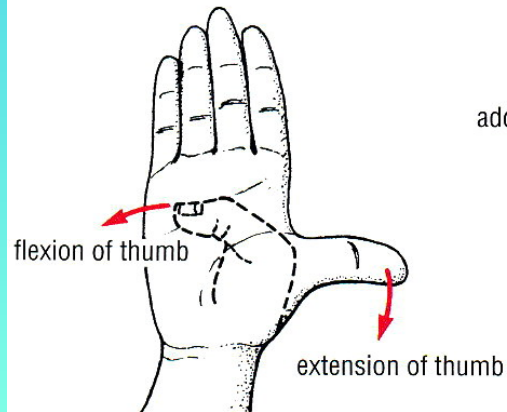
eversion of foot



adduction of fingers

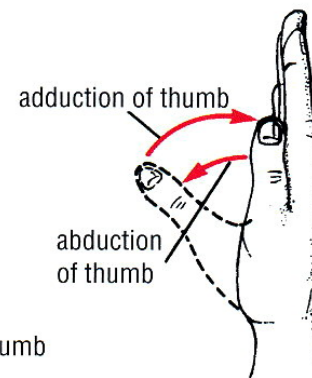


abduction of fingers



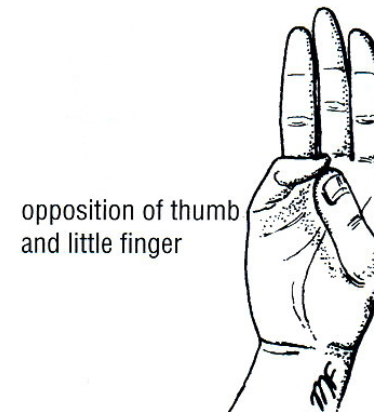
flexion of thumb

extension of thumb



adduction of thumb

abduction of thumb

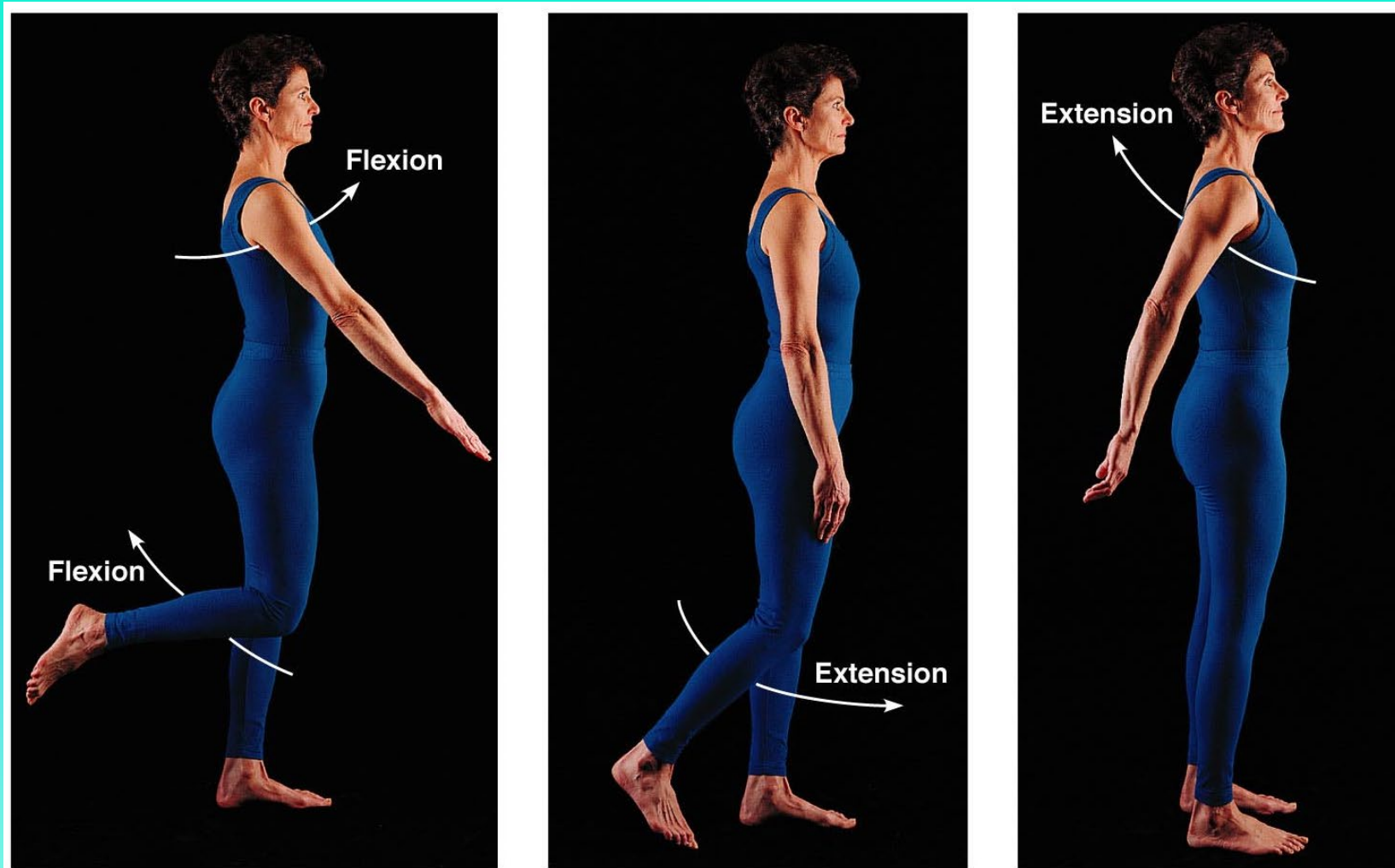


opposition of thumb and little finger

Inversion Eversion



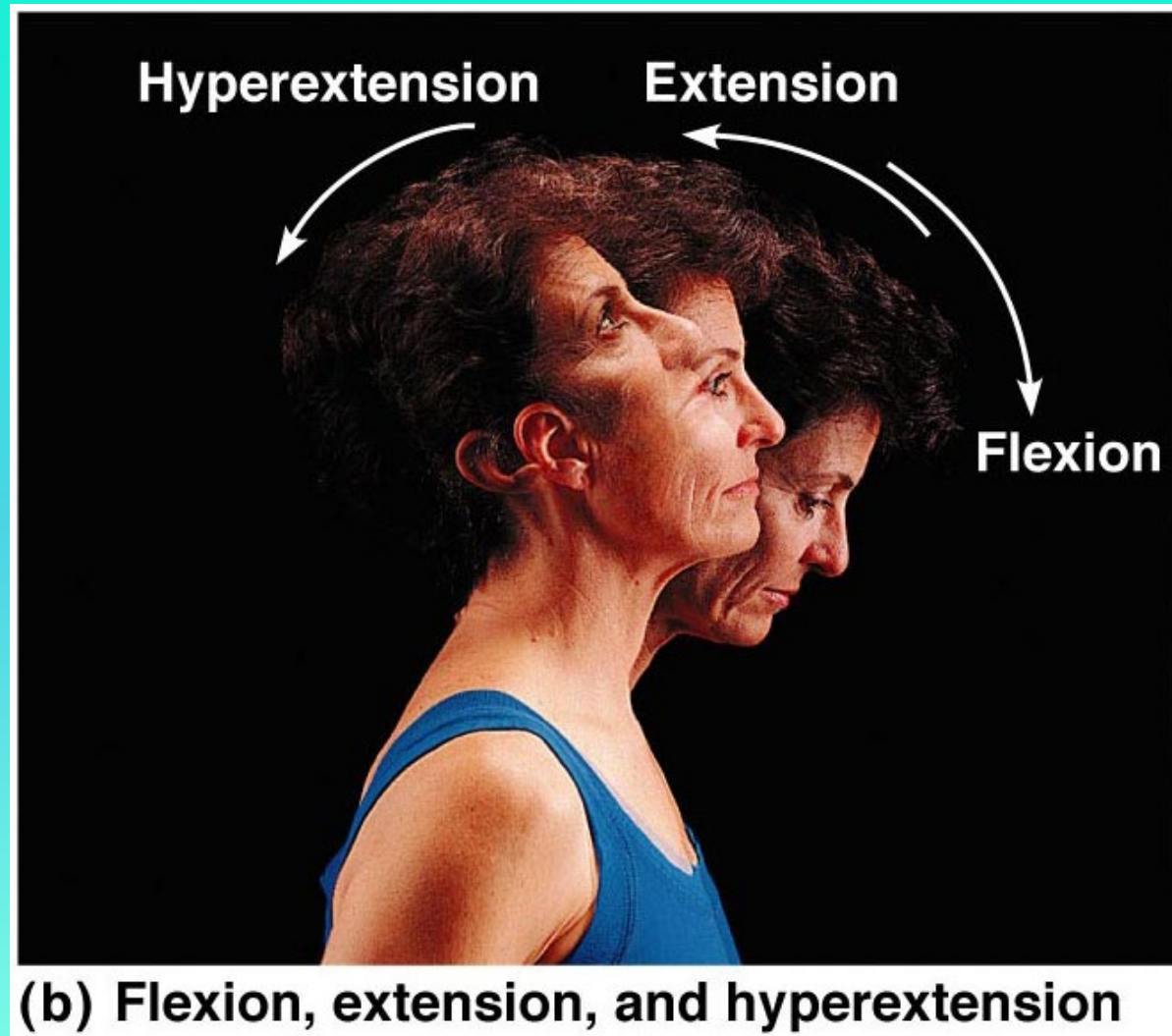
Types of Ordinary Body Movements



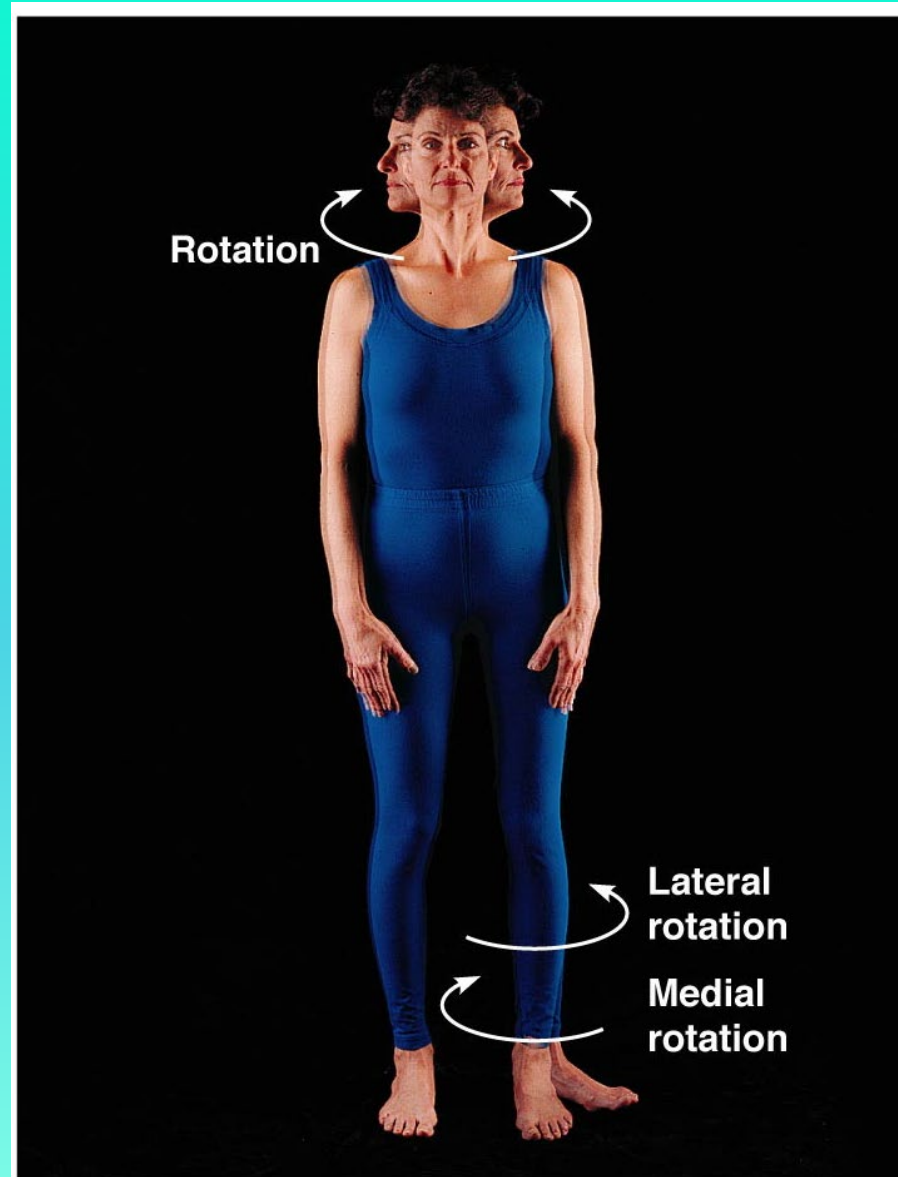
5.13a

(a) Flexion and extension of the shoulder and knee

Types of Ordinary Body Movements



Types of Ordinary Body Movements



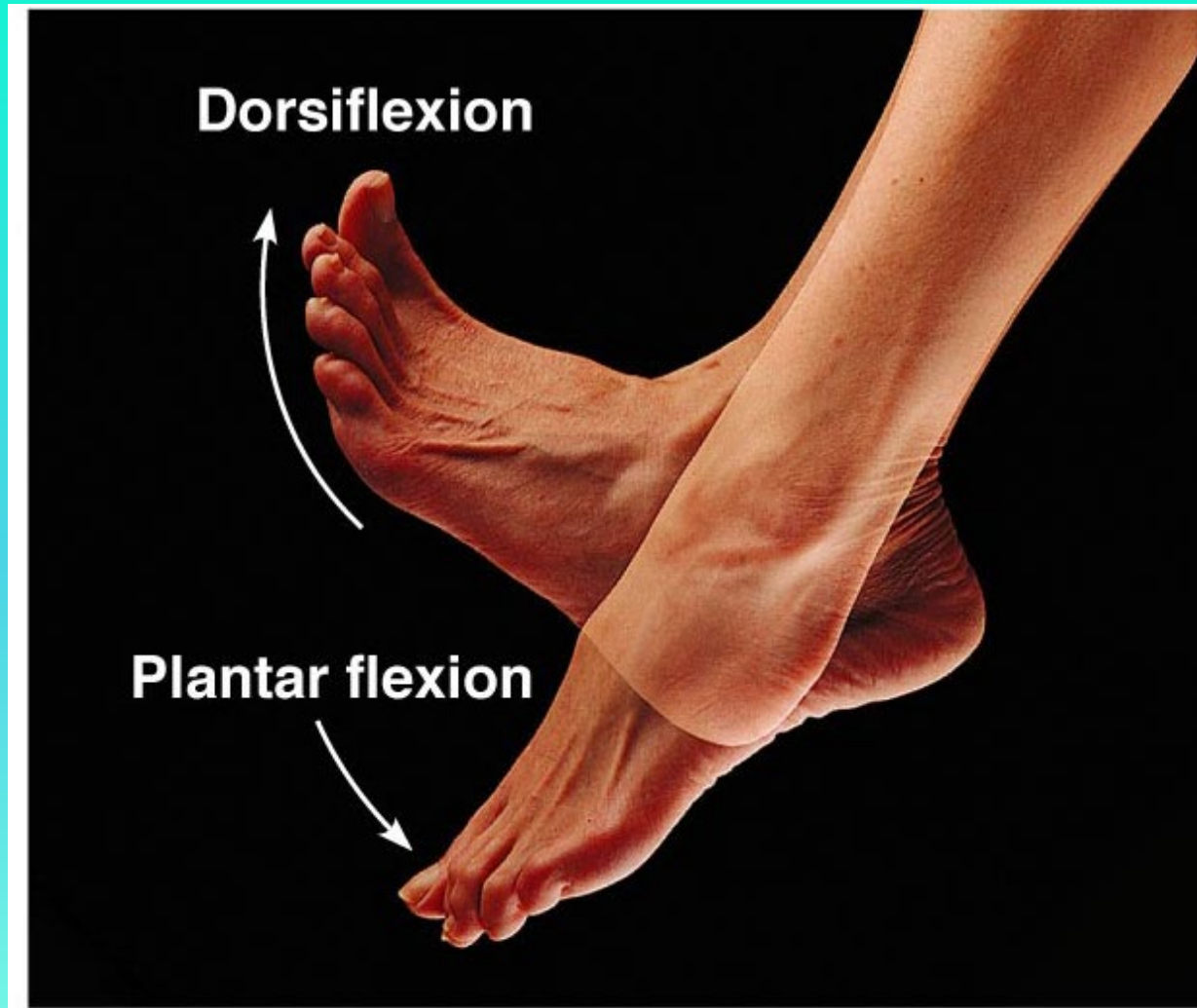
(c) Rotation

Types of Ordinary Body Movements



(d) Abduction, adduction, and circumduction

Special Movements



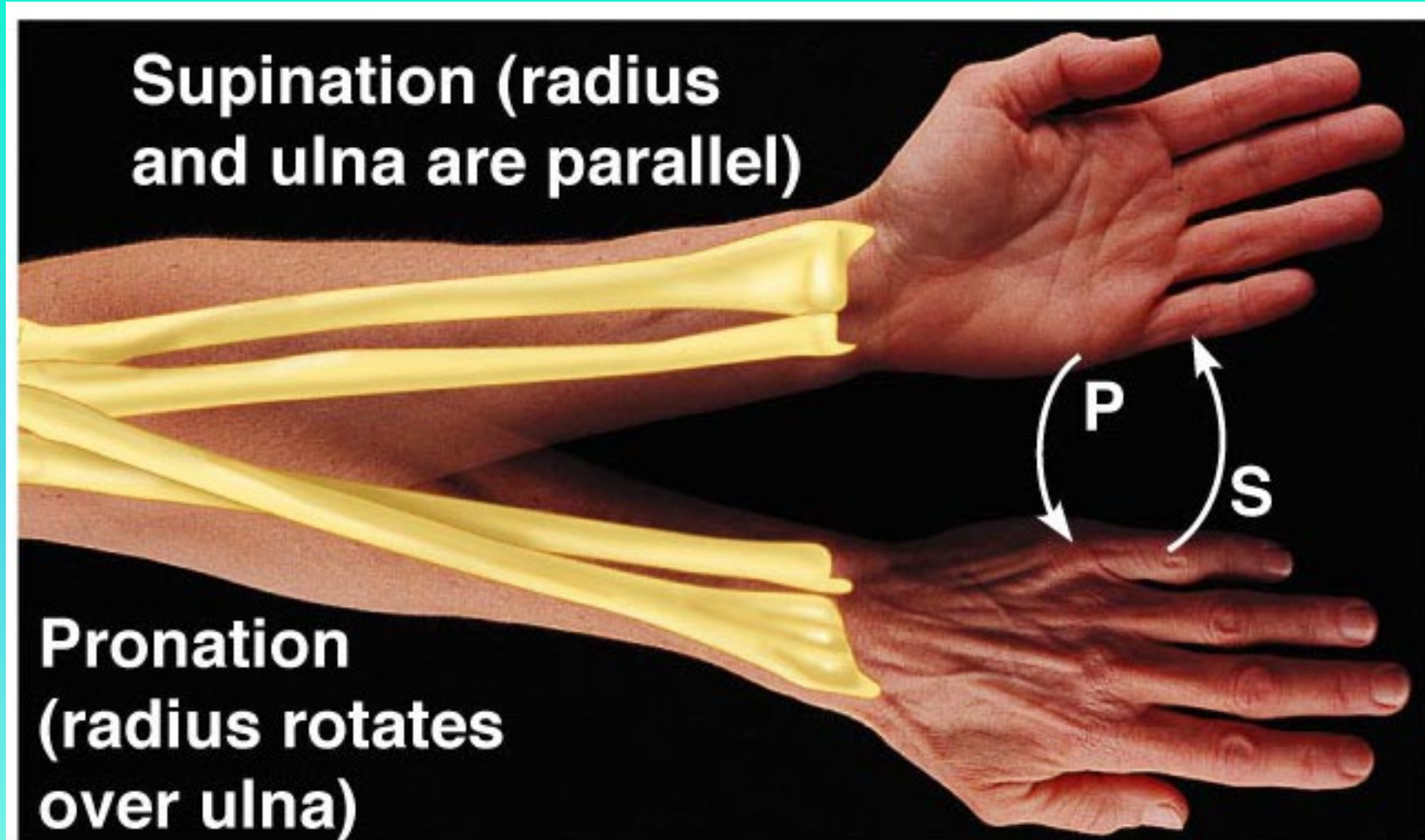
(e) Dorsiflexion and plantar flexion

Special Movements



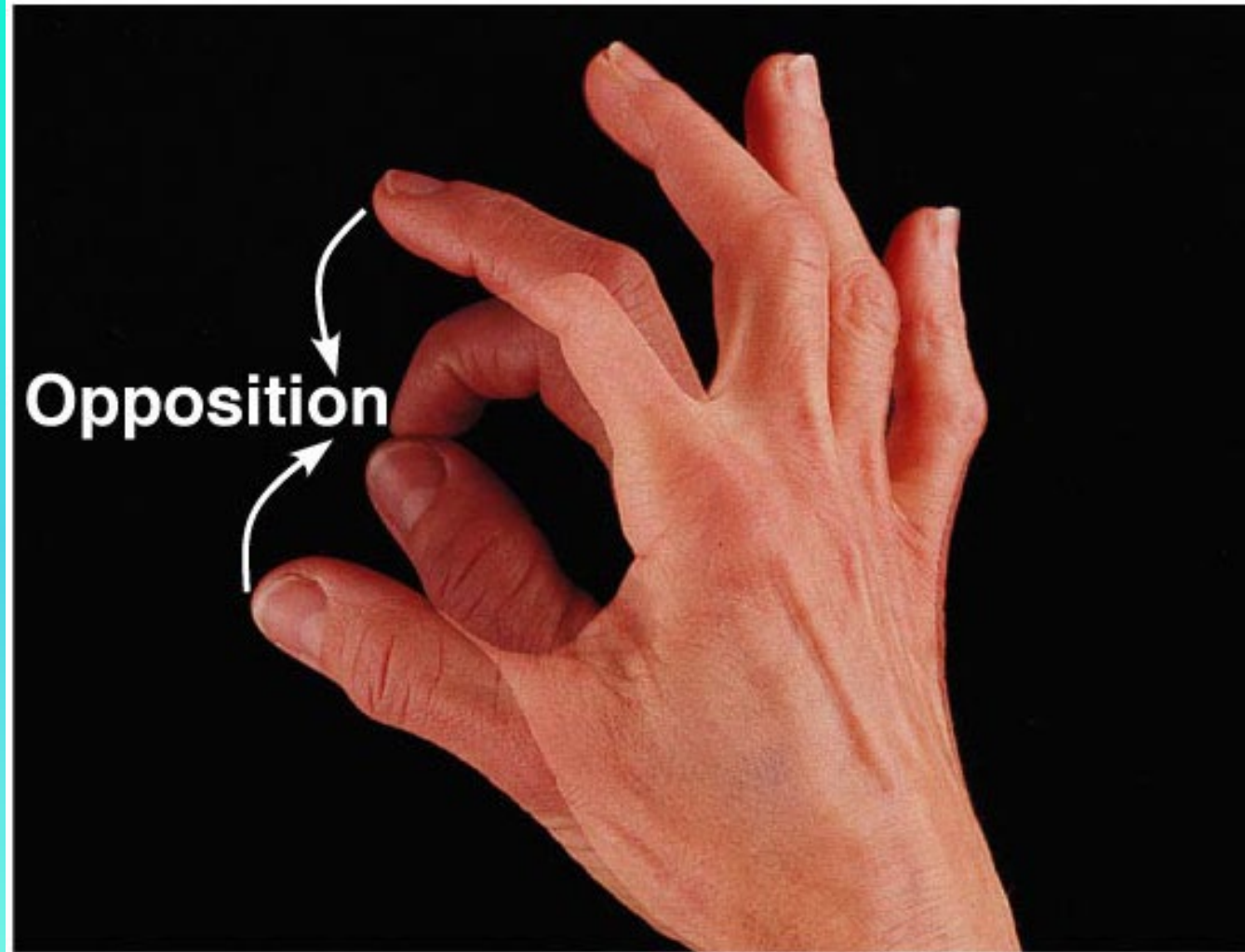
(f) Inversion and eversion

Special Movements



(g) Supination (S) and pronation (P)

Special Movements

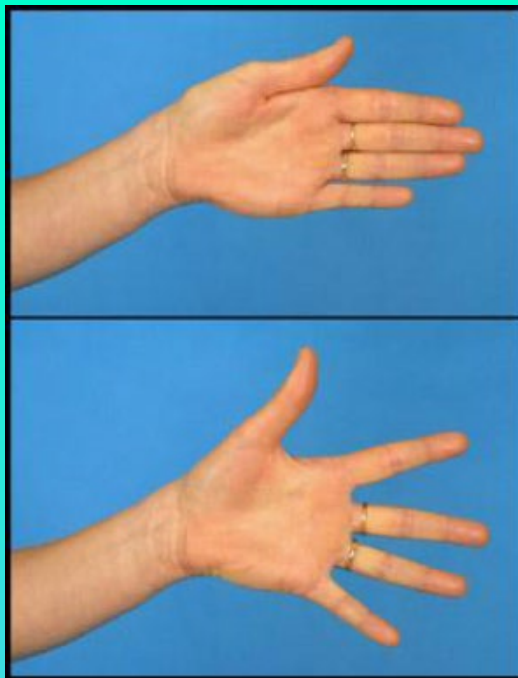


(h) Opposition

Abduction & Adduction

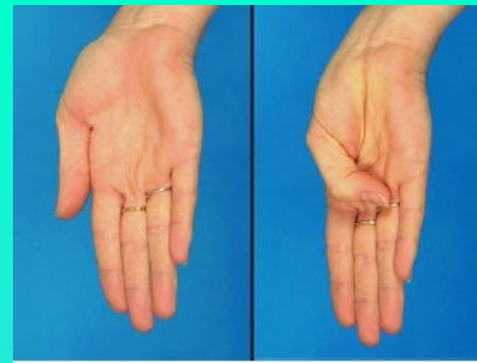


- Abduction is spreading the fingers away from the midline (middle finger)
- Adduction is movement is returning the fingers to the anatomical position



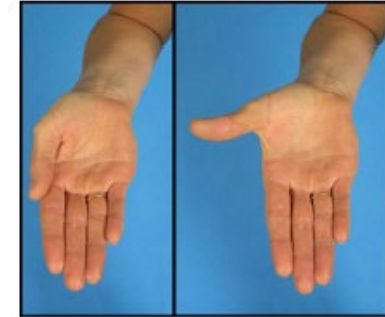
Adduction

Abduction



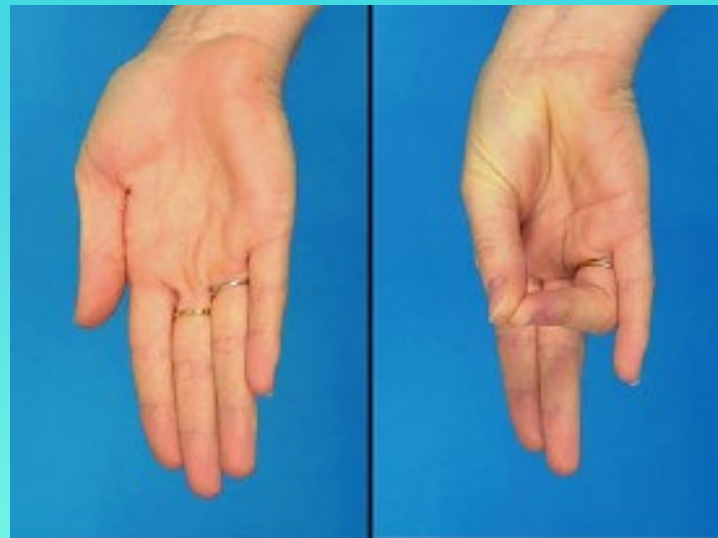
Neutral (adduction)

Flexion



Neutral

Extension

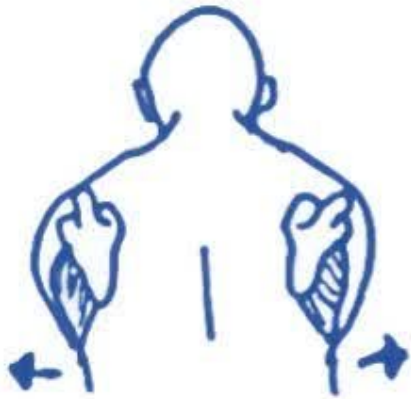


Neutral

Opposition



RETRACTION



PROTRACTION



ELEVATION

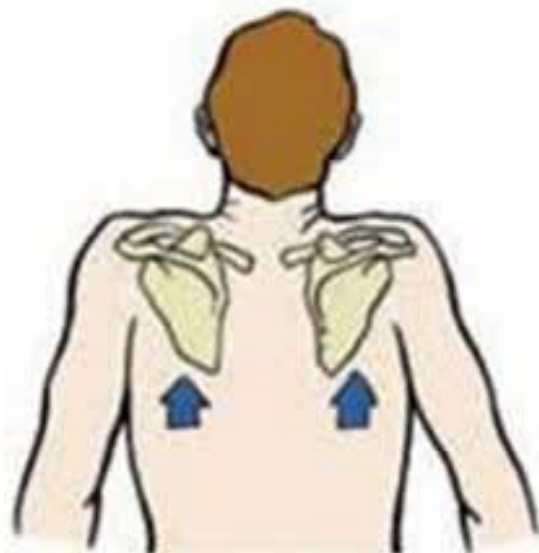


DEPRESSION

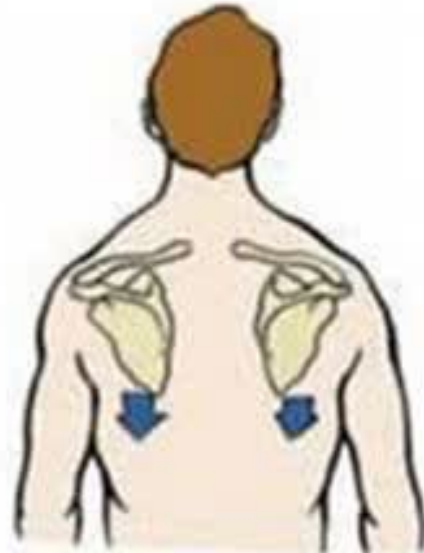


UPWARD ROTATION

Figure 3-34
Scapular
movements



Elevation



Depression



Adduction (retraction)



Abduction (protraction)



Upward rotation



Downward rotation (return to
anatomical position)

MUSCLES of the HEAD and NECK

عضلات ناحیه سر و صورت

۱. عضلات حالت دهنده چهره

۲. عضلات جونده

عضله گیجگاهی ، ماستر و پتریگوئیدهای داخلی و خارجی

Muscles around the Eyes

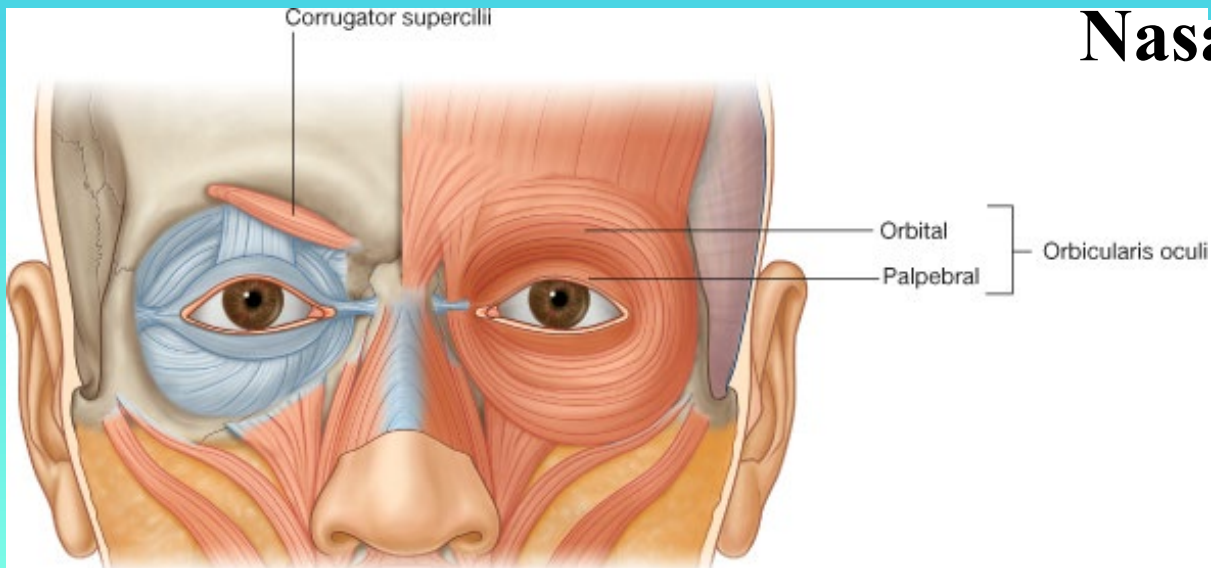
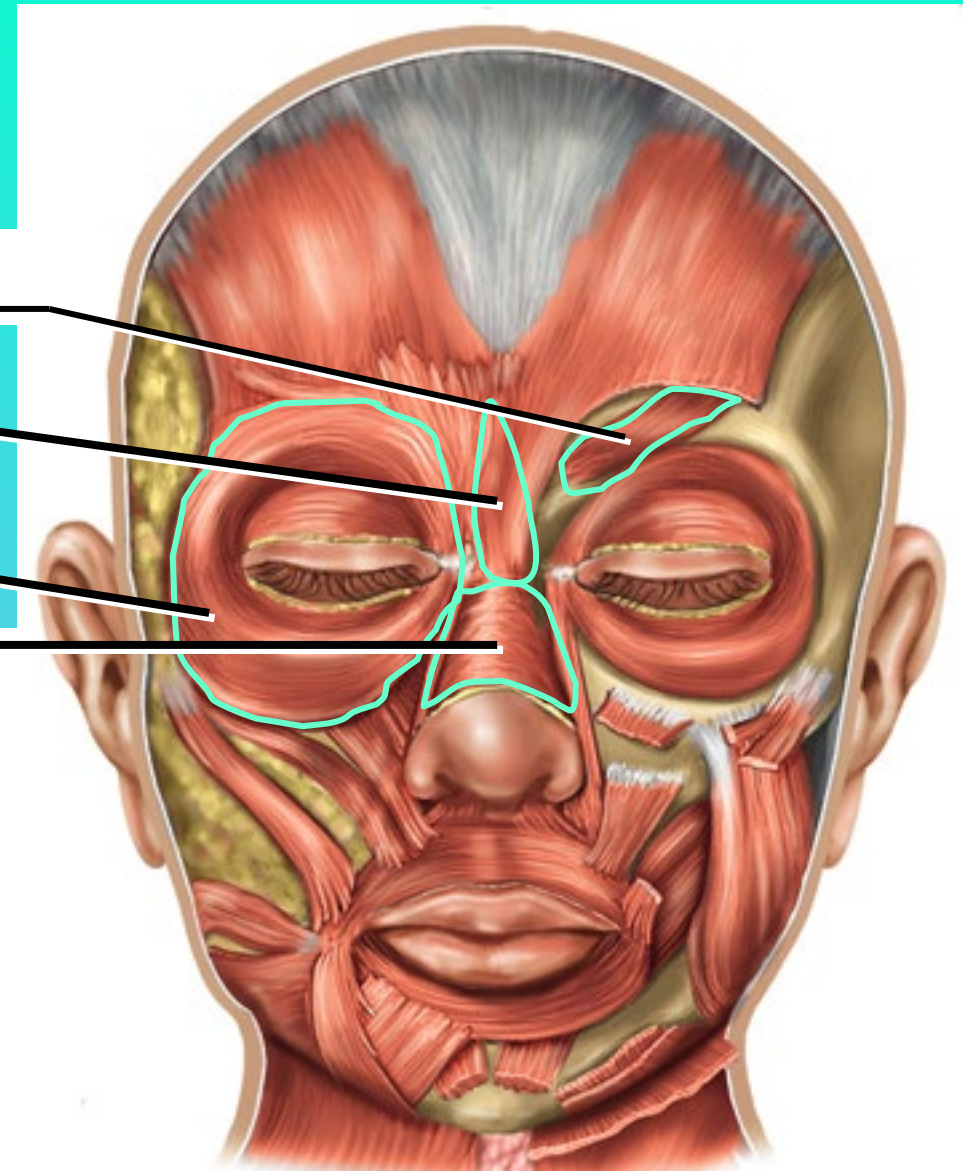
Orbicularis oculi closes the lips. Corrugator draws the eyebrows together. Procerus pulls down the skin of forehead. Nasalis widens nostrils.

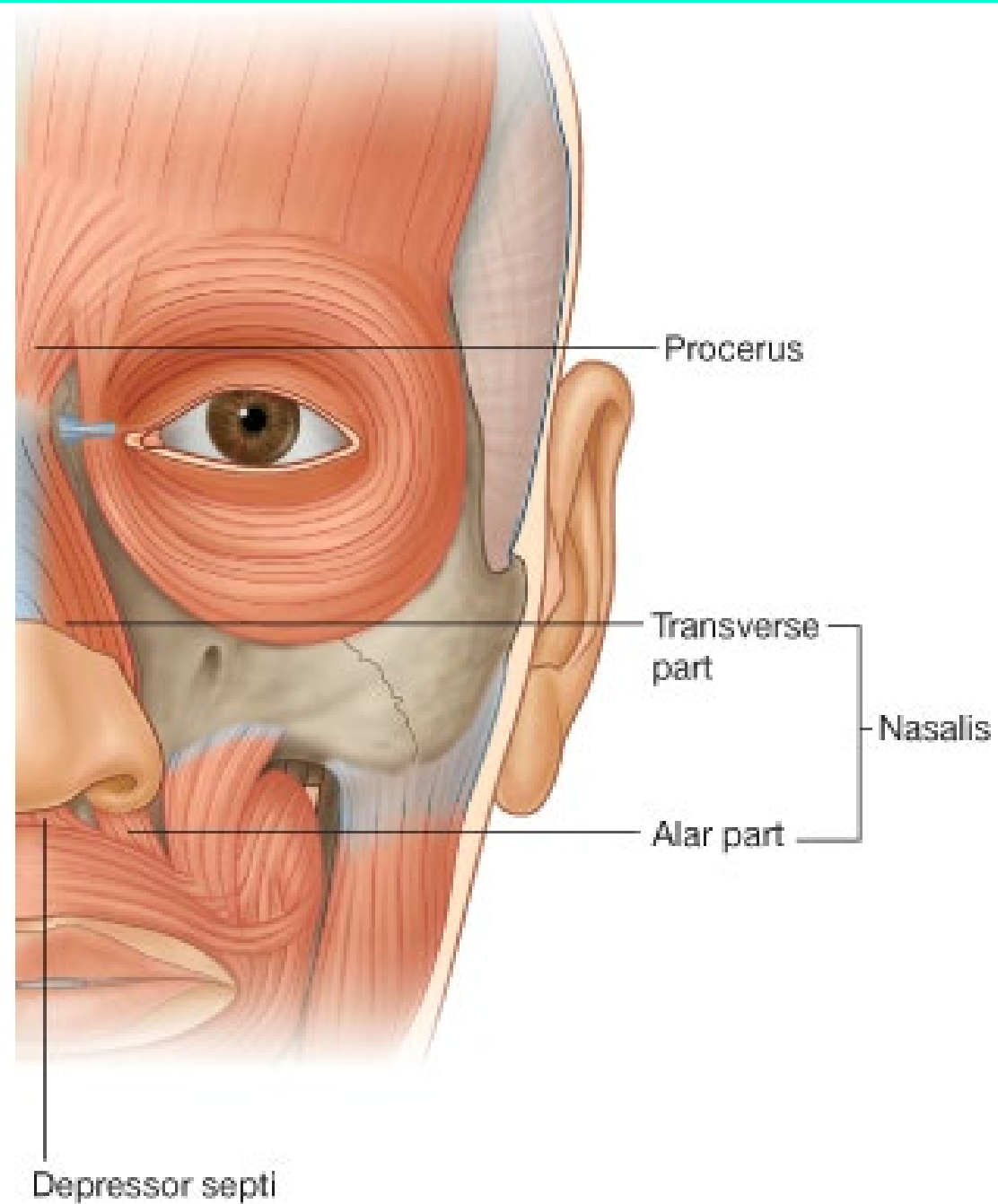
Corrugator supercilii

Procerus

Orbicularis Oculi

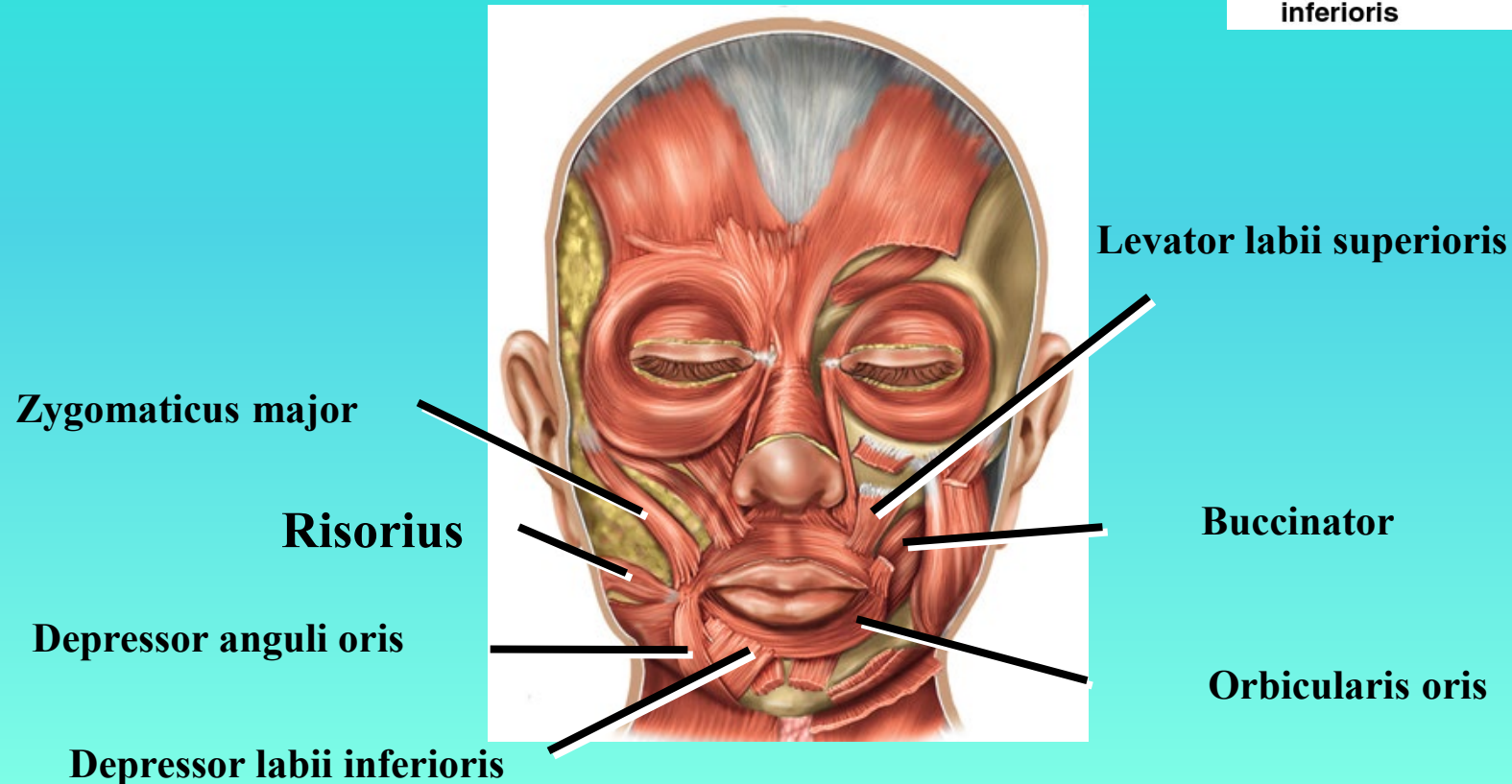
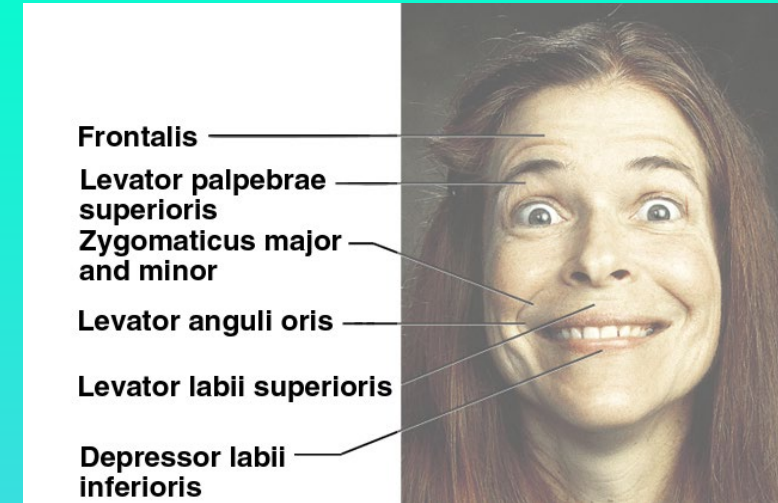
Nasalis





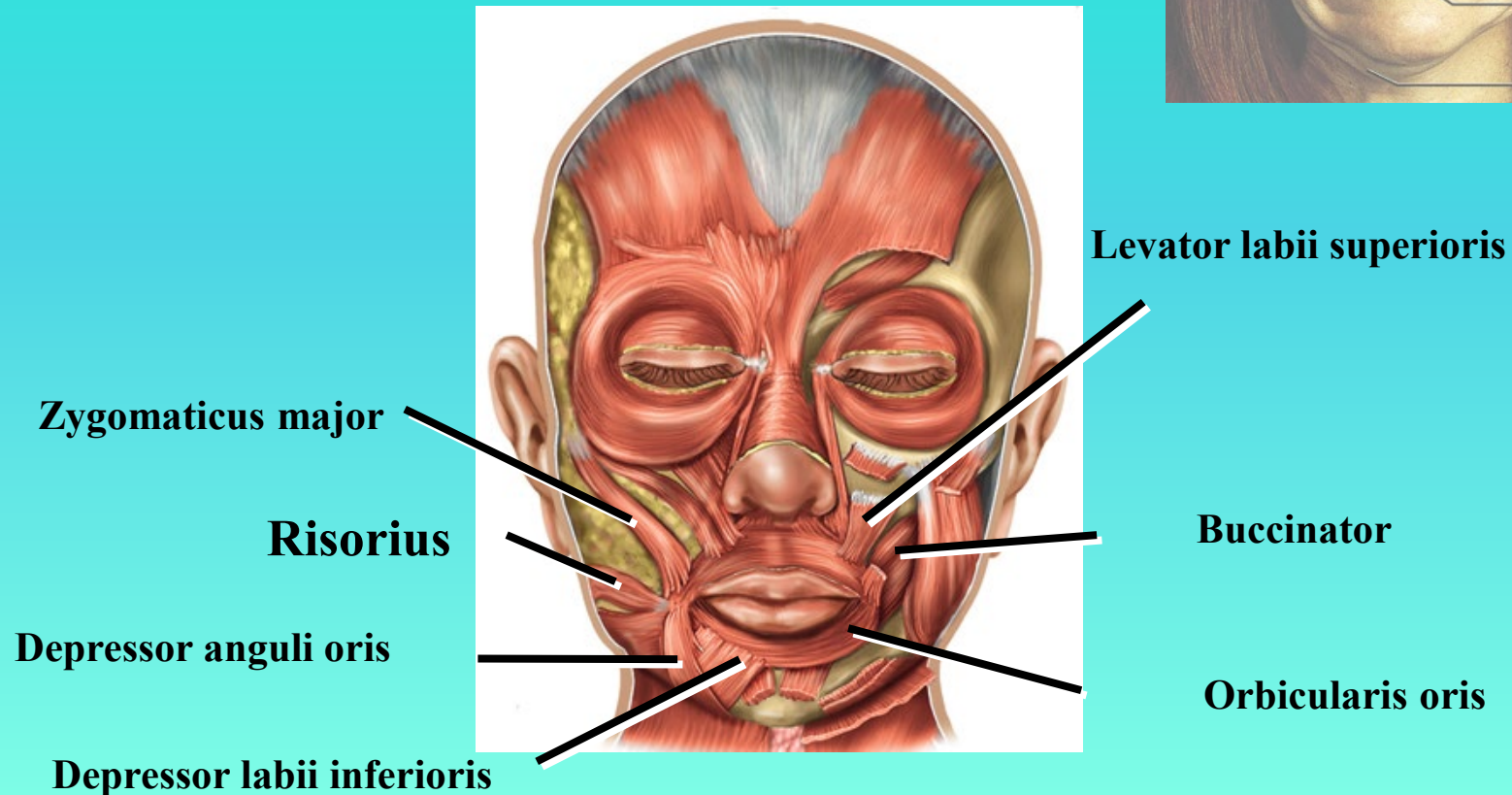
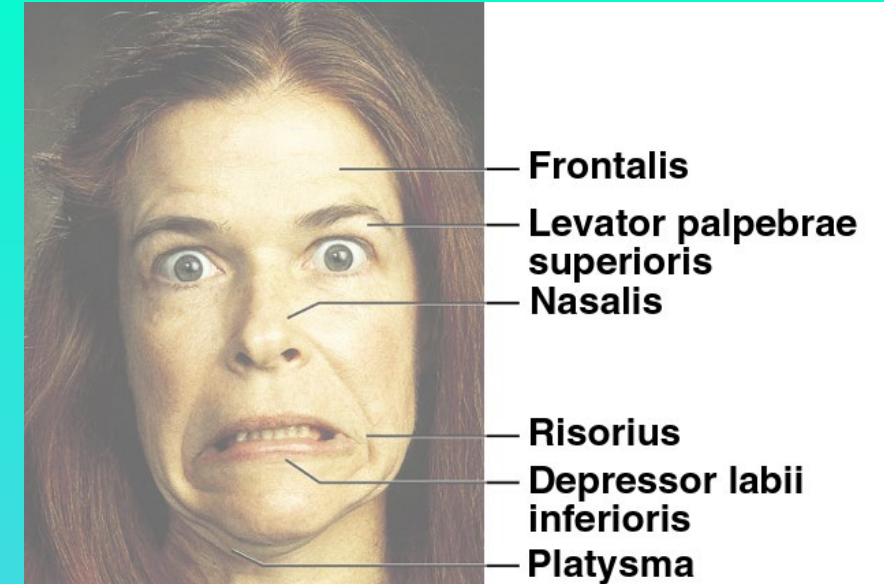
Muscles around the Mouth

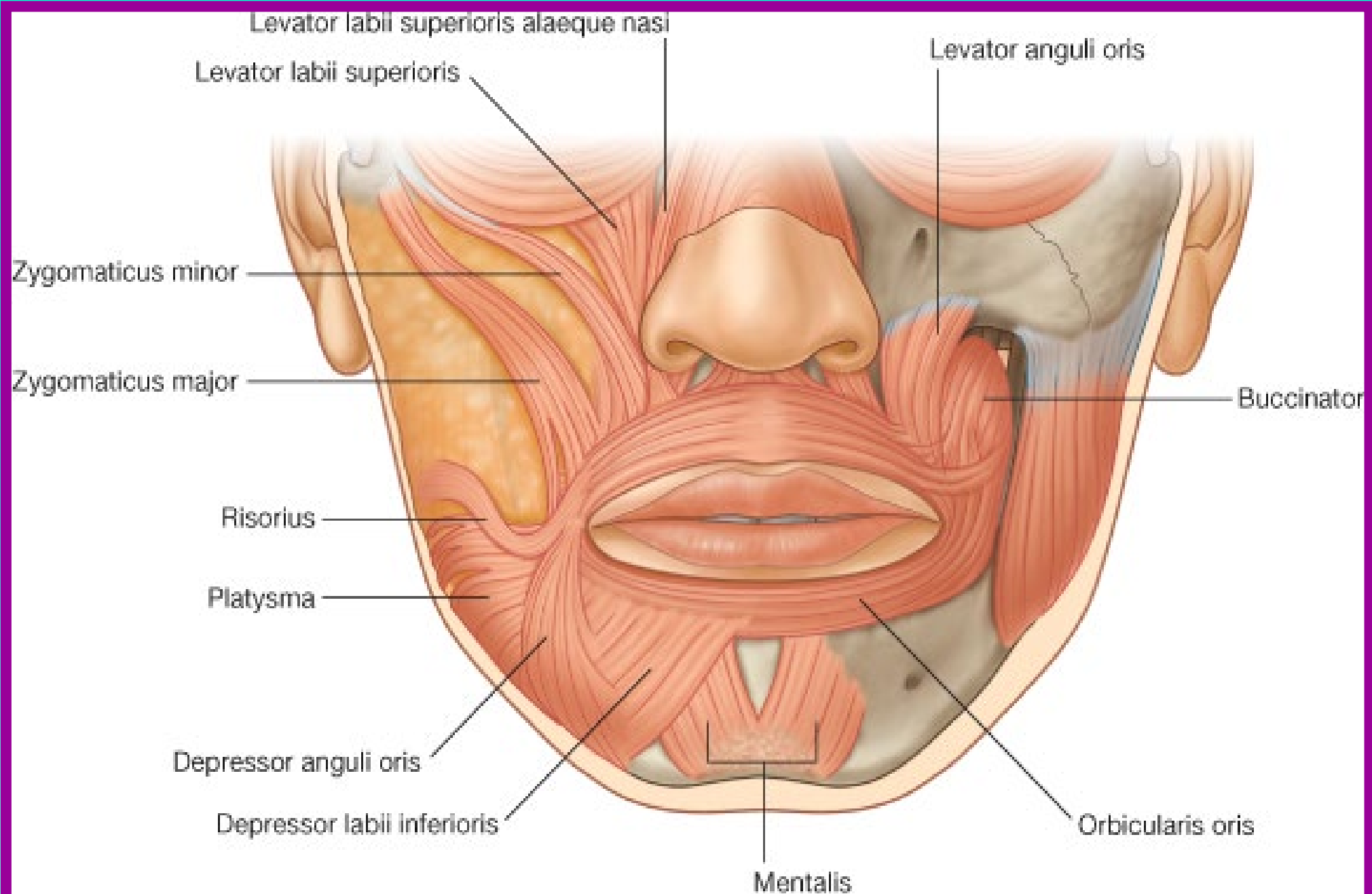
- Zygomaticus – major / minor
- Levator anguli oris
- Levator labii superioris

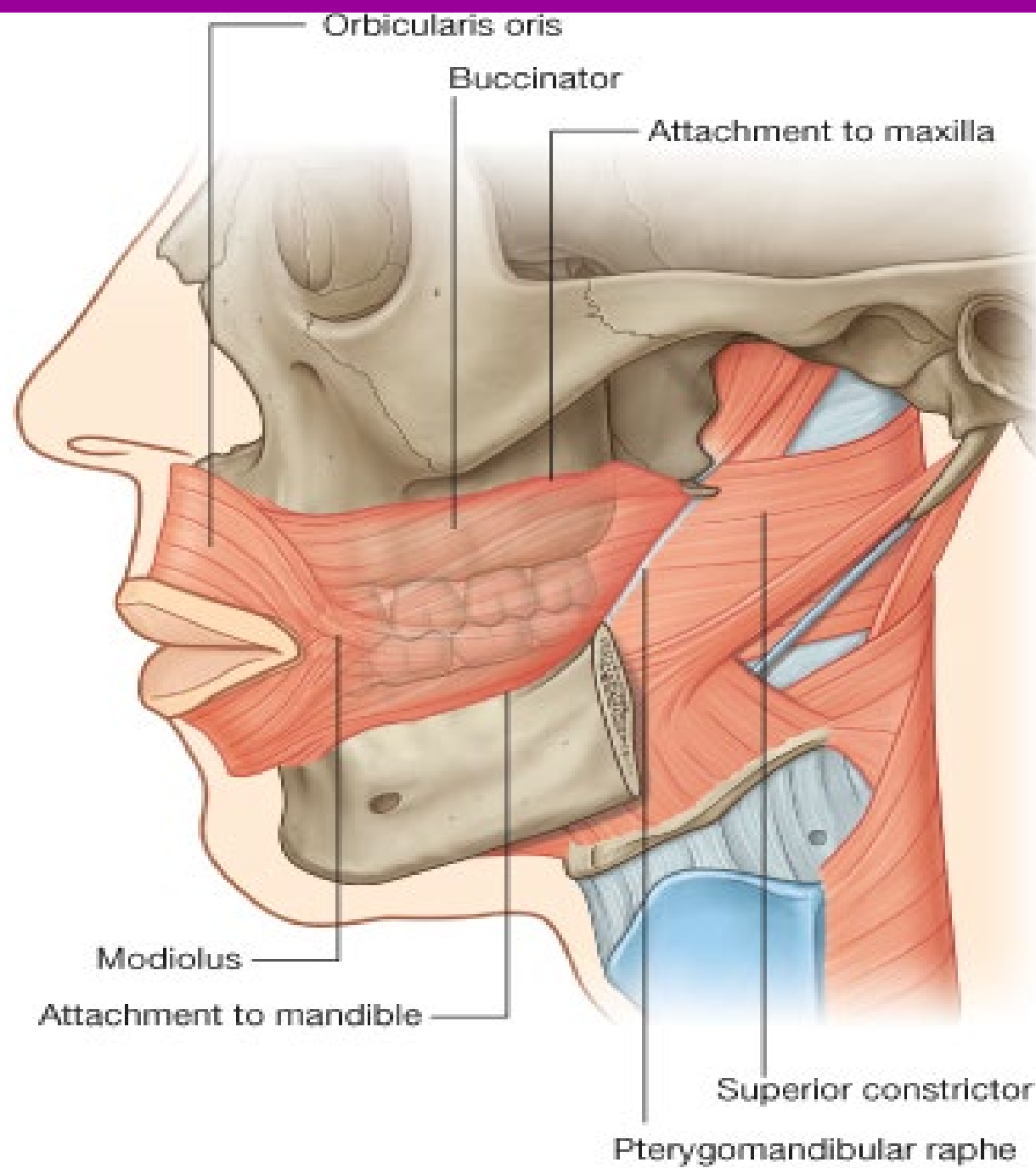


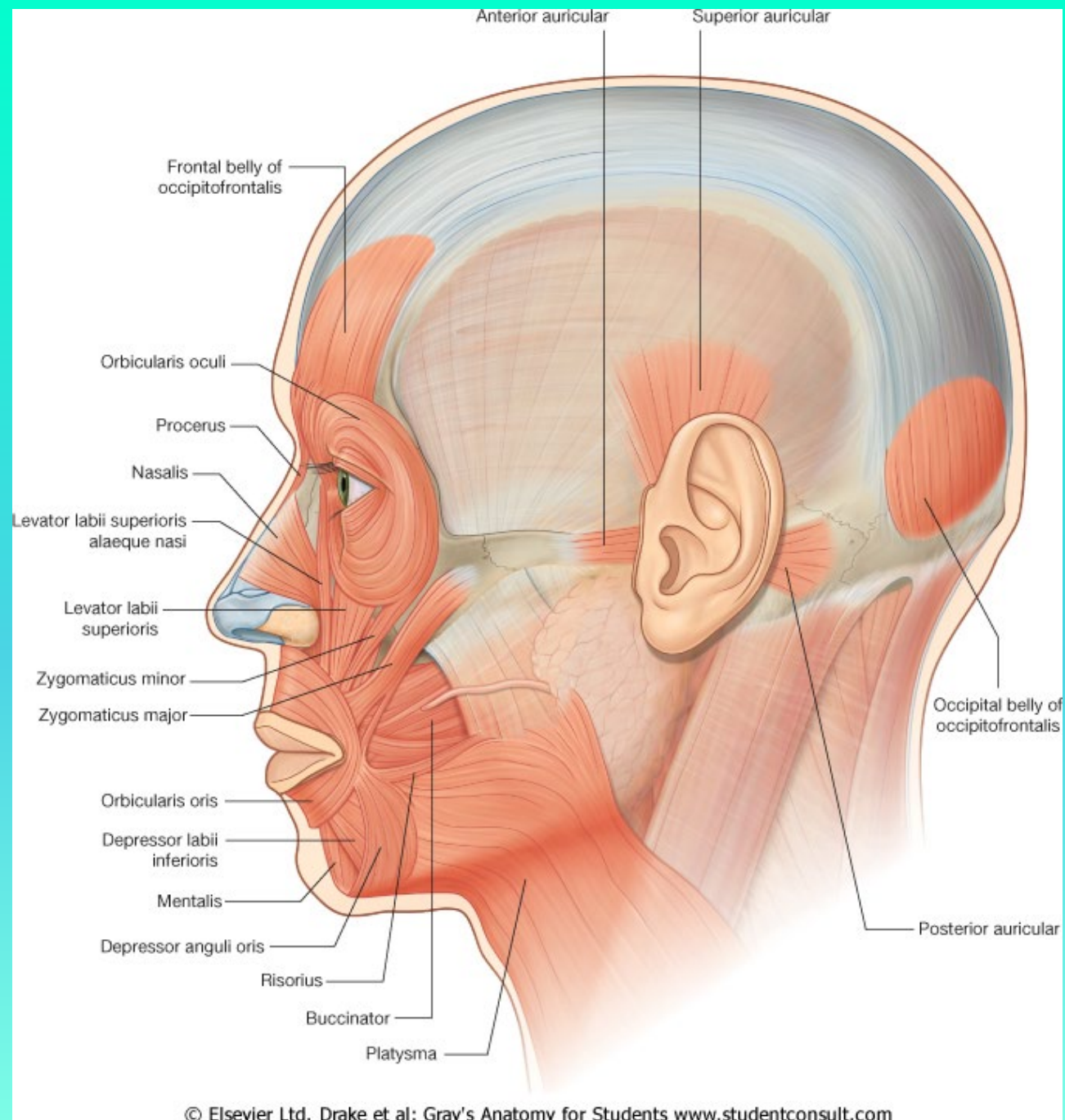
Muscles around the Mouth

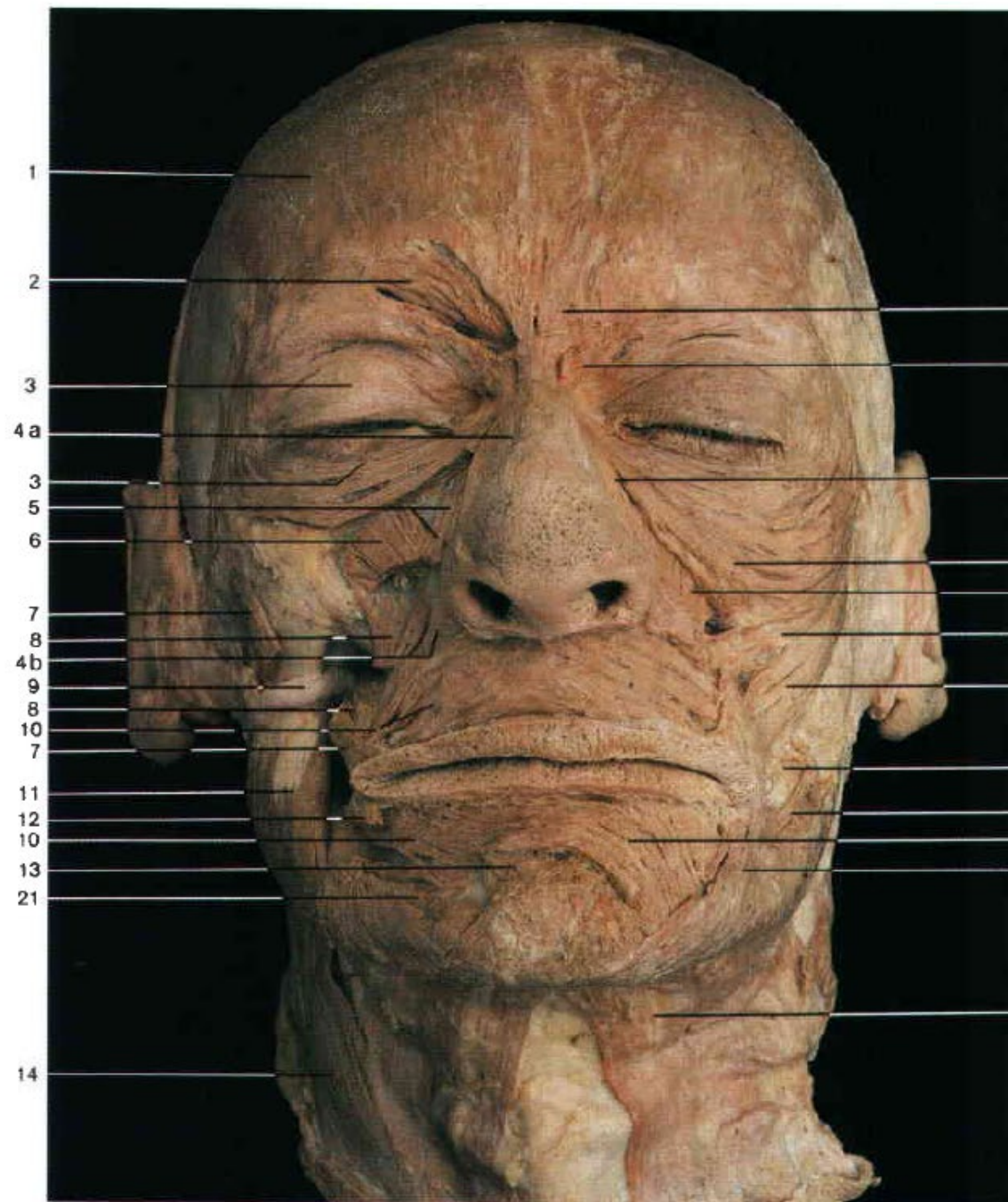
- Depressor anguli oris
- Depressor labii inferioris







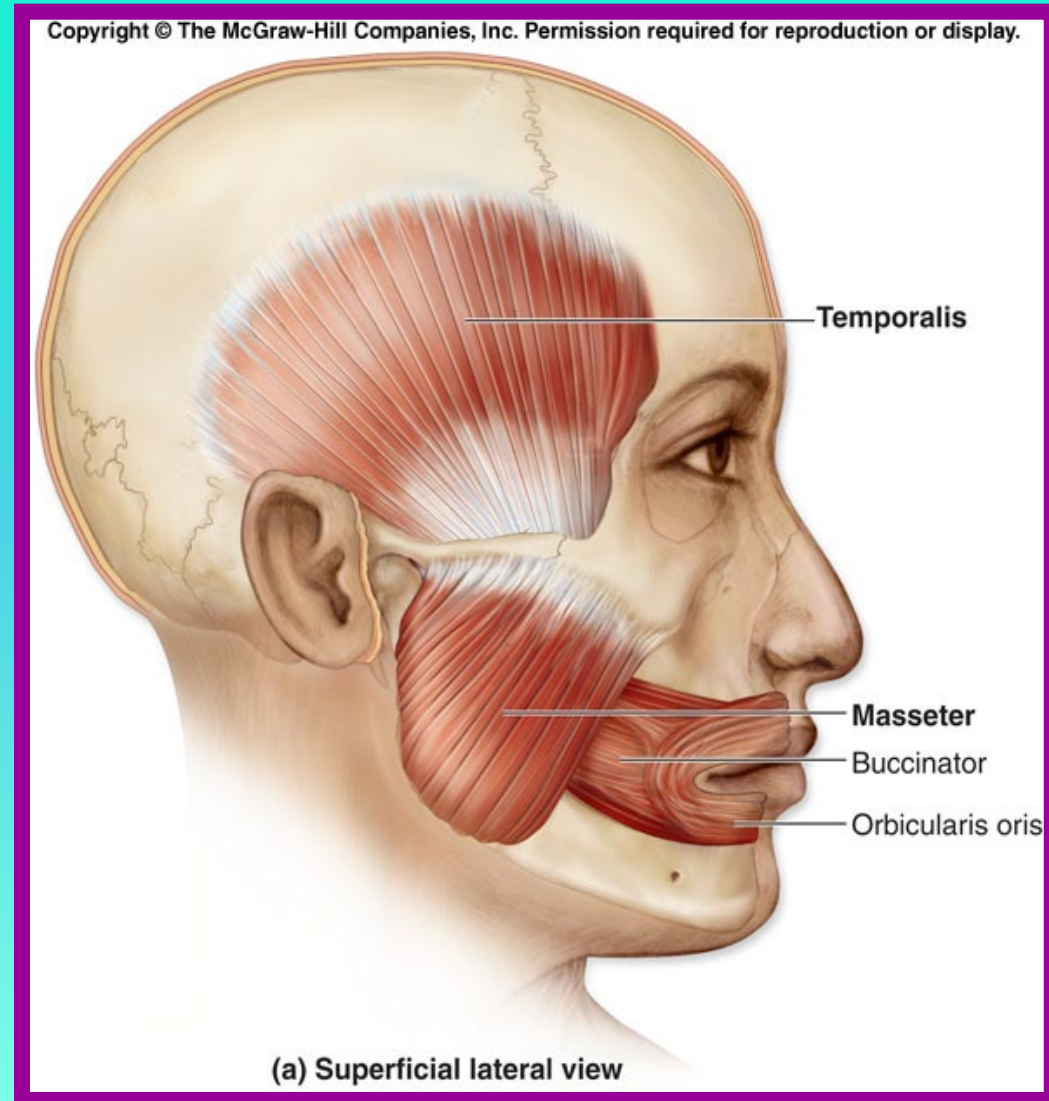




- 1 Frontal belly of occipitofrontalis muscle
- 2 Corrugator supercilii muscle
- 3 Palpebral part of orbicularis oculi muscle
- 4a Transverse part of nasalis muscle
- 4b Alar part of nasalis muscle
- 5 Levator labii superioris alaeque nasi muscle
- 6 Levator labii superioris muscle
- 7 Zygomaticus major muscle
- 8 Levator anguli oris muscle
- 9 Parotid duct
- 10 Orbicularis oris muscle
- 11 Masseter muscle
- 12 Depressor anguli oris muscle
- 13 Mentalis muscle
- 14 Sternocleidomastoid muscle
- 15 Procerus muscle
- 16 Depressor supercilii muscle
- 17 Orbital part of orbicularis oculi muscle
- 18 Zygomaticus minor muscle
- 19 Buccinator muscle
- 20 Risorius muscle
- 21 Depressor labii inferioris muscle
- 22 Platysma muscle
- 23 Galea aponeurotica
- 24 Temporoparietalis muscle
- 25 Occipital belly of occipitofrontalis muscle
- 26 Parotid gland with fascia
- 27 Temporal fascia
- 28 Orbicularis oculi muscle
- 29 Parotid duct, masseter muscle

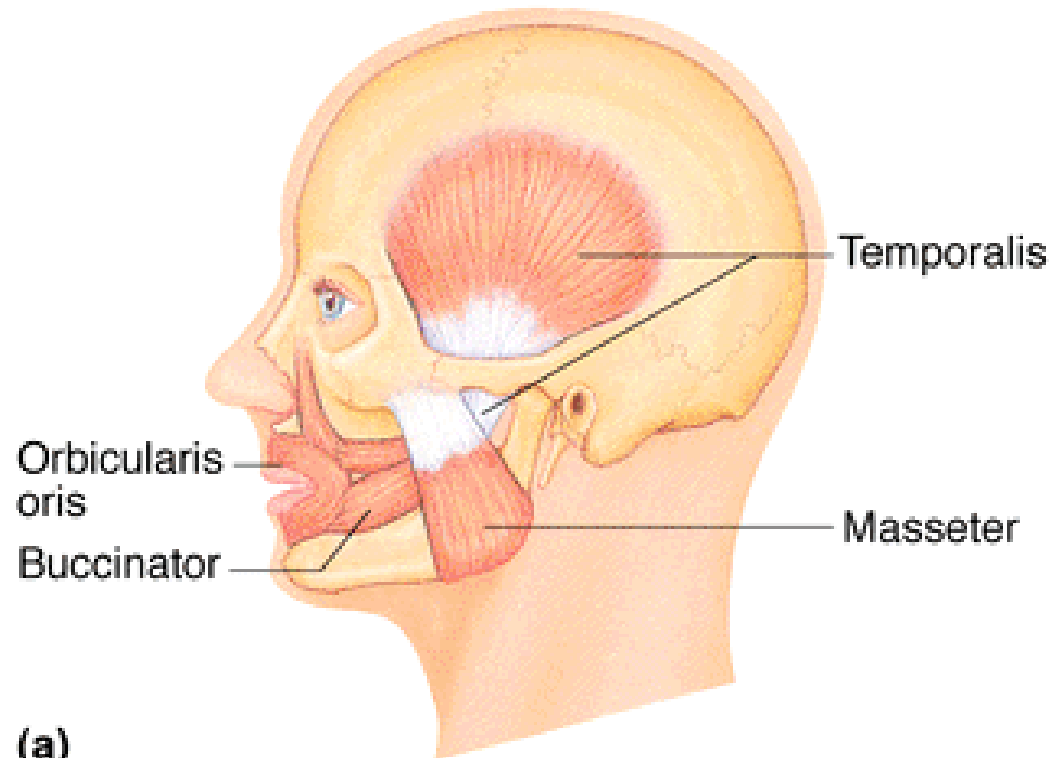
Massetering muscle

- These muscles attach to the mandible and are used in chewing



MASSETER

Elevate Mandible

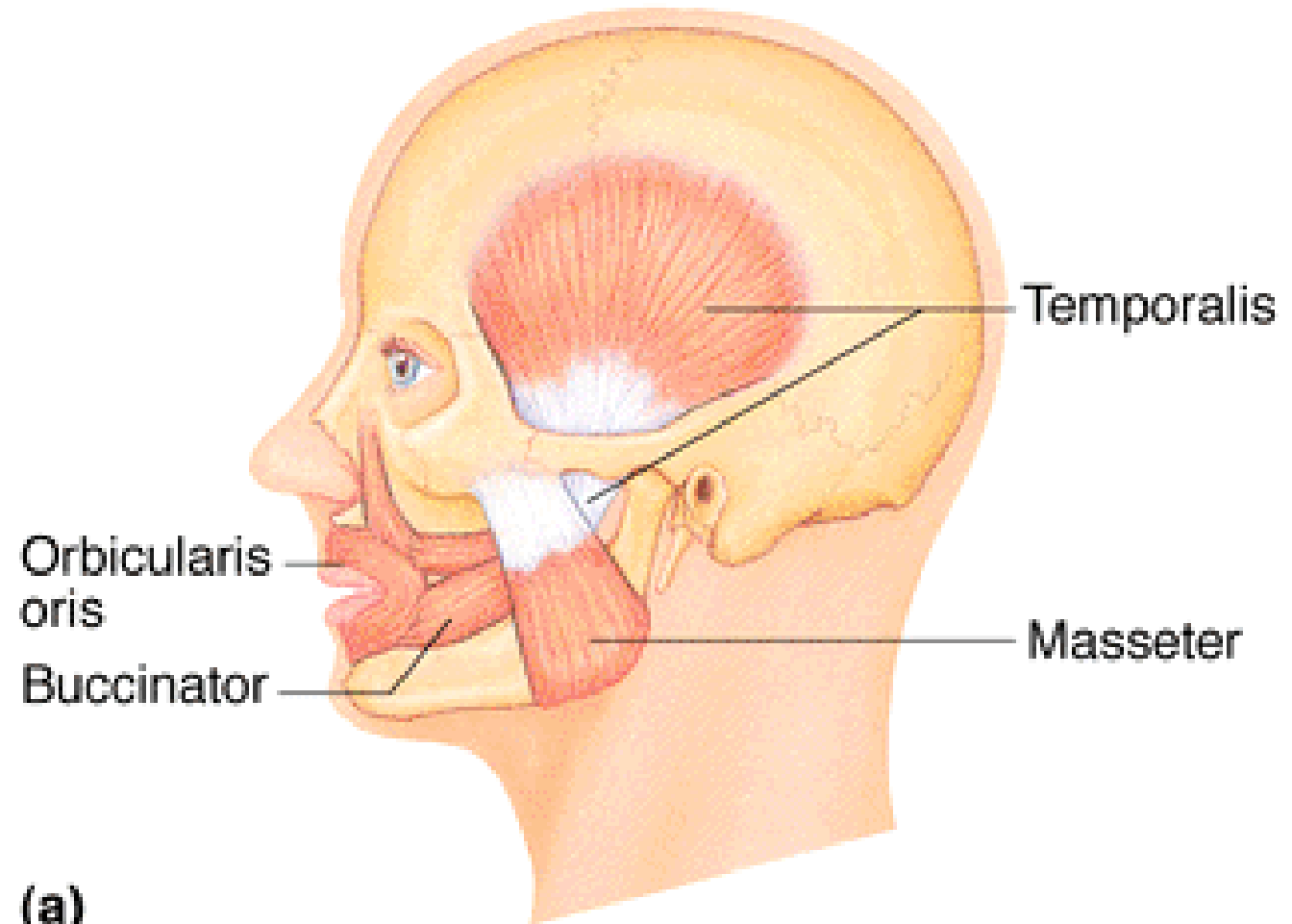


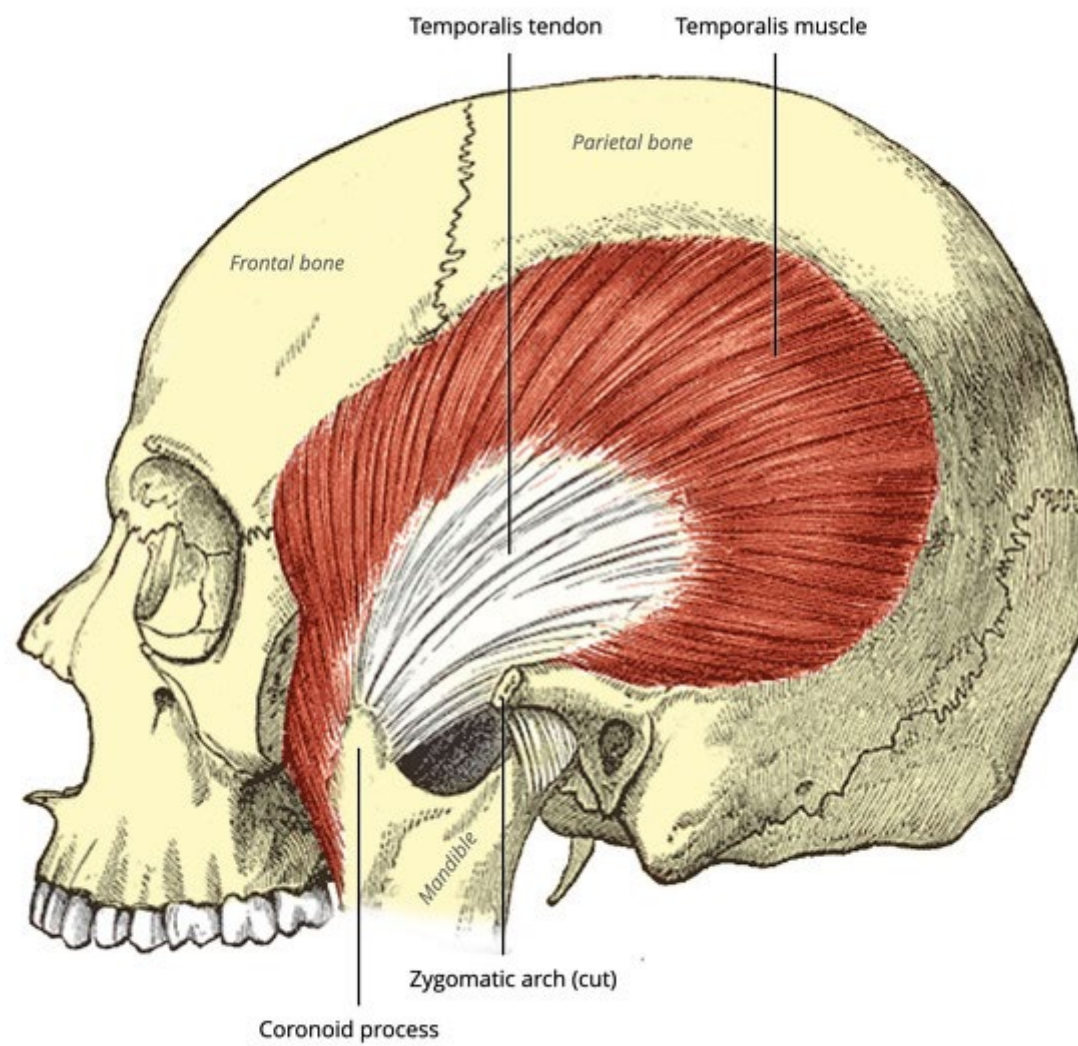
(a)

© BENJAMIN/CUMMINGS

TEMPORALIS

Elevate & Retract Mandible





Epicranius:

Frontalis

Occipitalis

**Epicranial
aponeurosis**

Temporalis

**Orbicularis
oculi**

Masseter

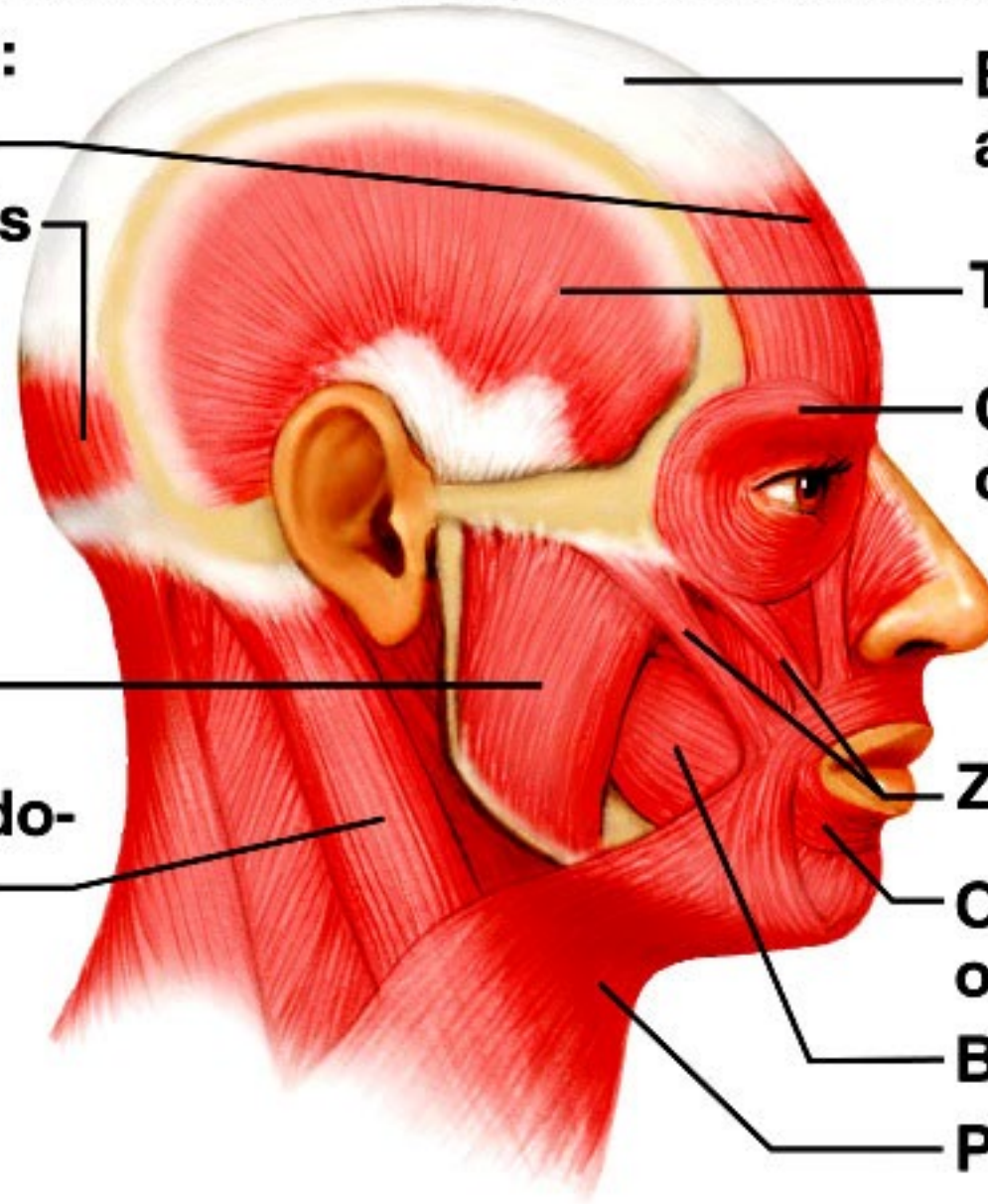
**Sternocleido-
mastoid**

Zygomaticus

**Orbicularis
oris**

Buccinator

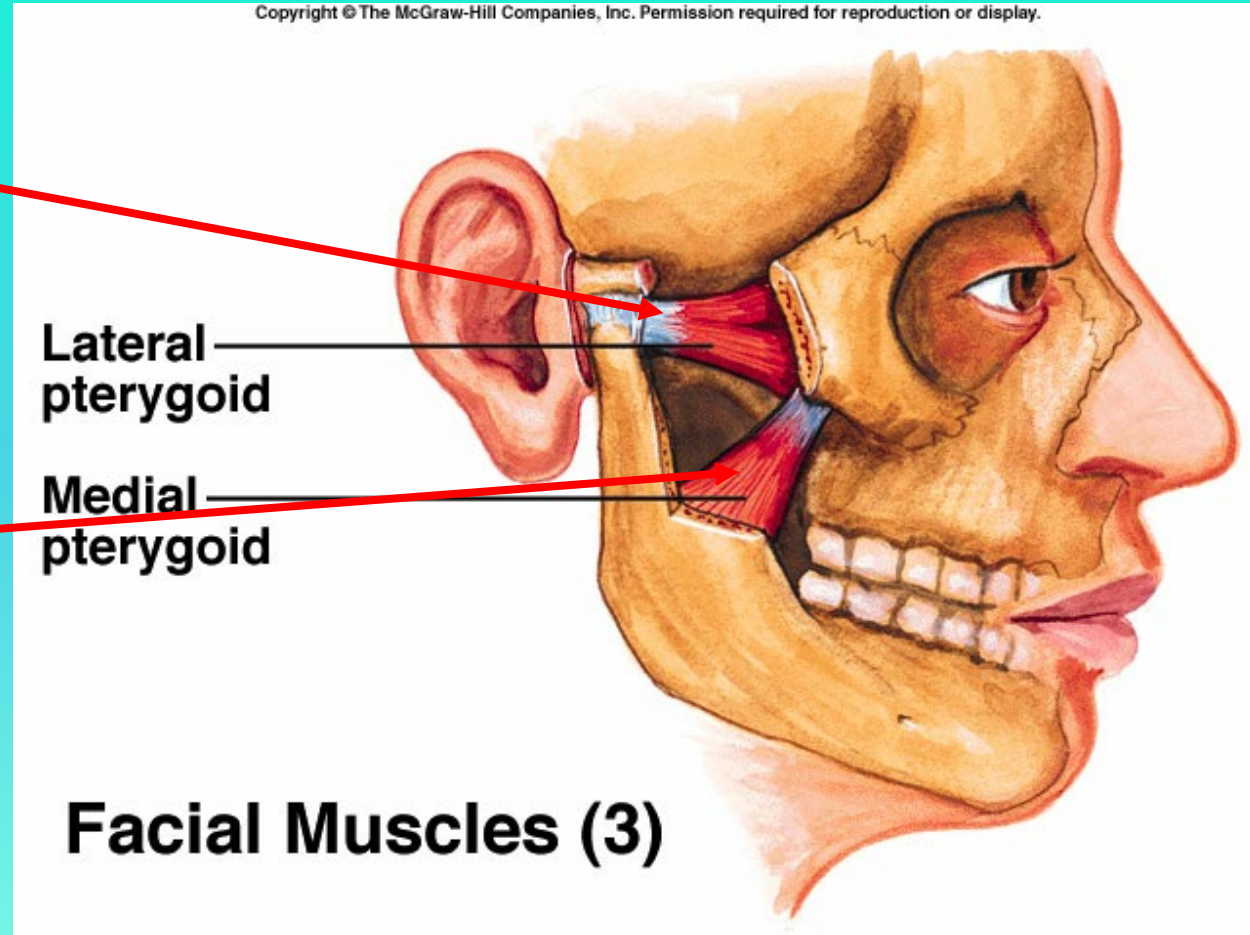
Platysma



PTERYGOIDS

Lat pterygoid
depresses the mandible

Med pterygoid
elevates the mandible

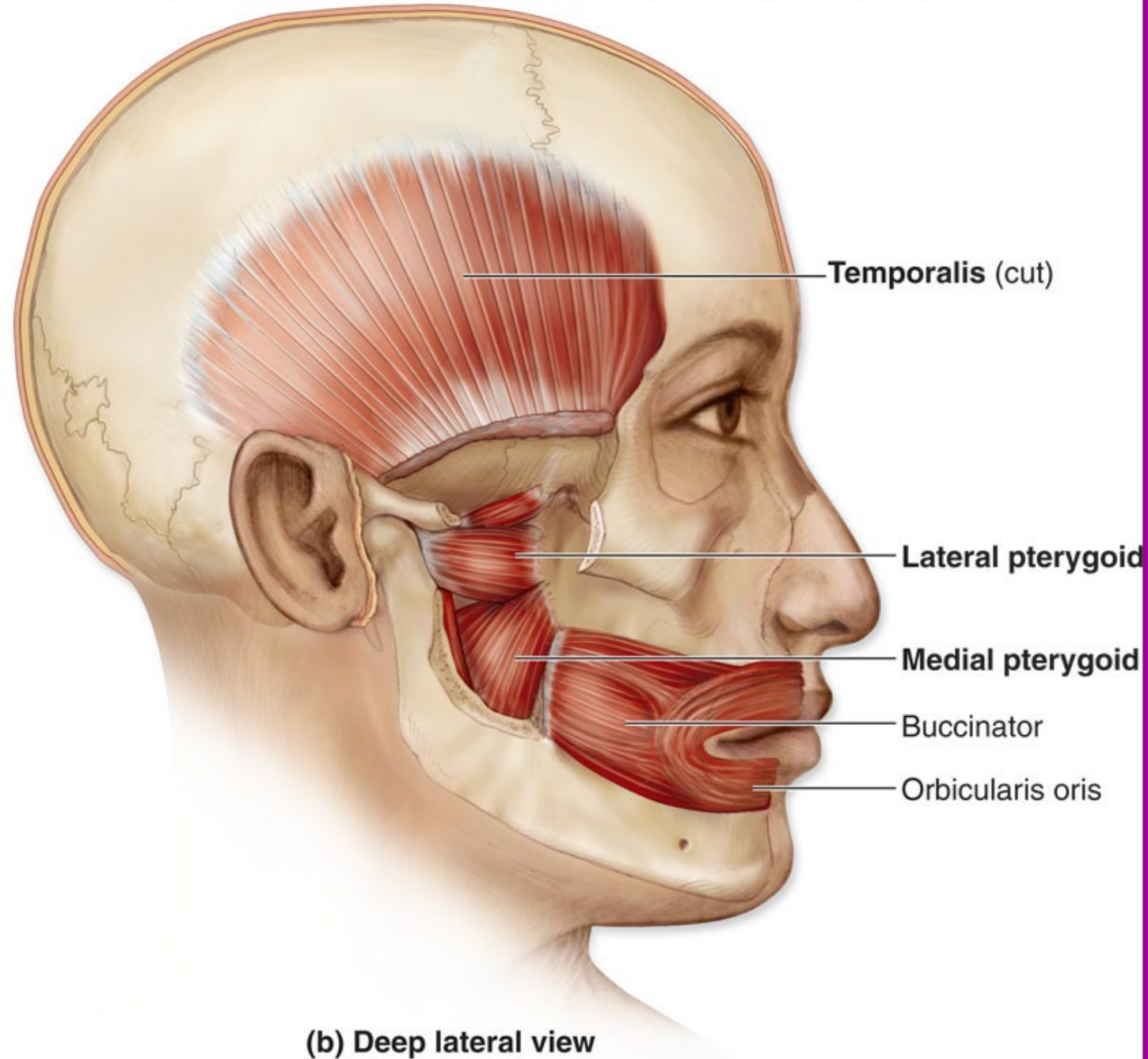


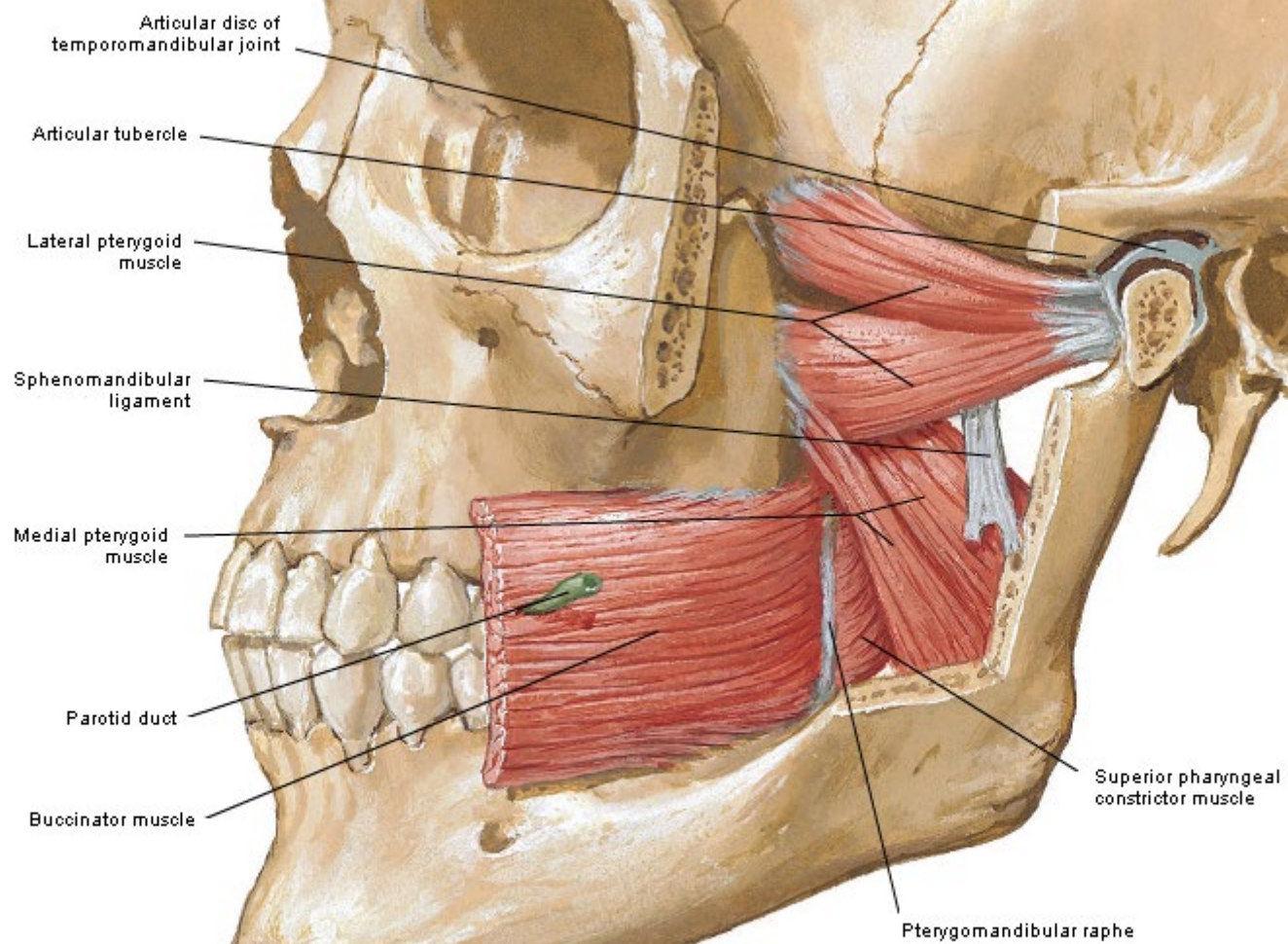


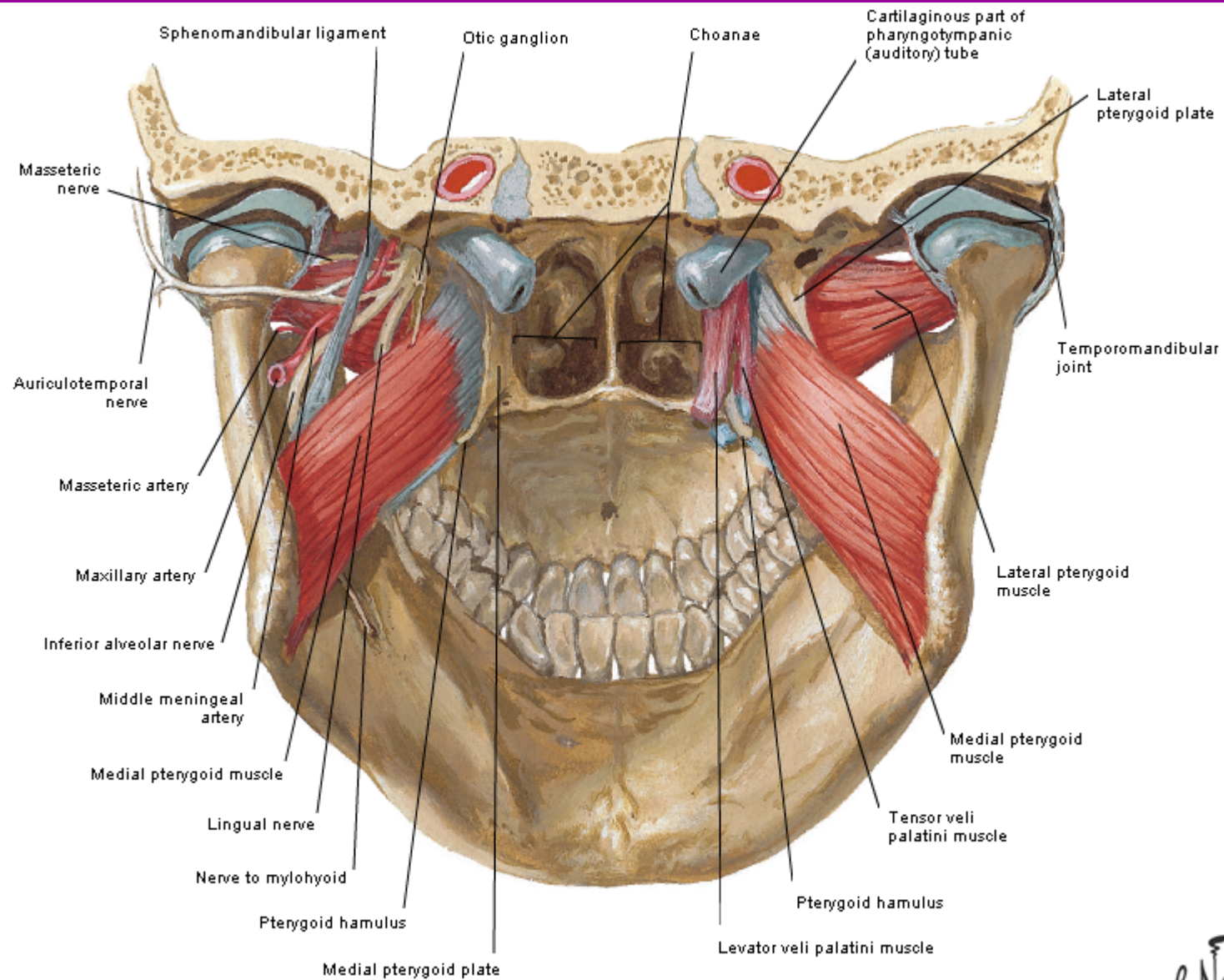
Jaws slightly opened
(hinge action predominates)



Jaws widely opened
(hinge and gliding actions combined)

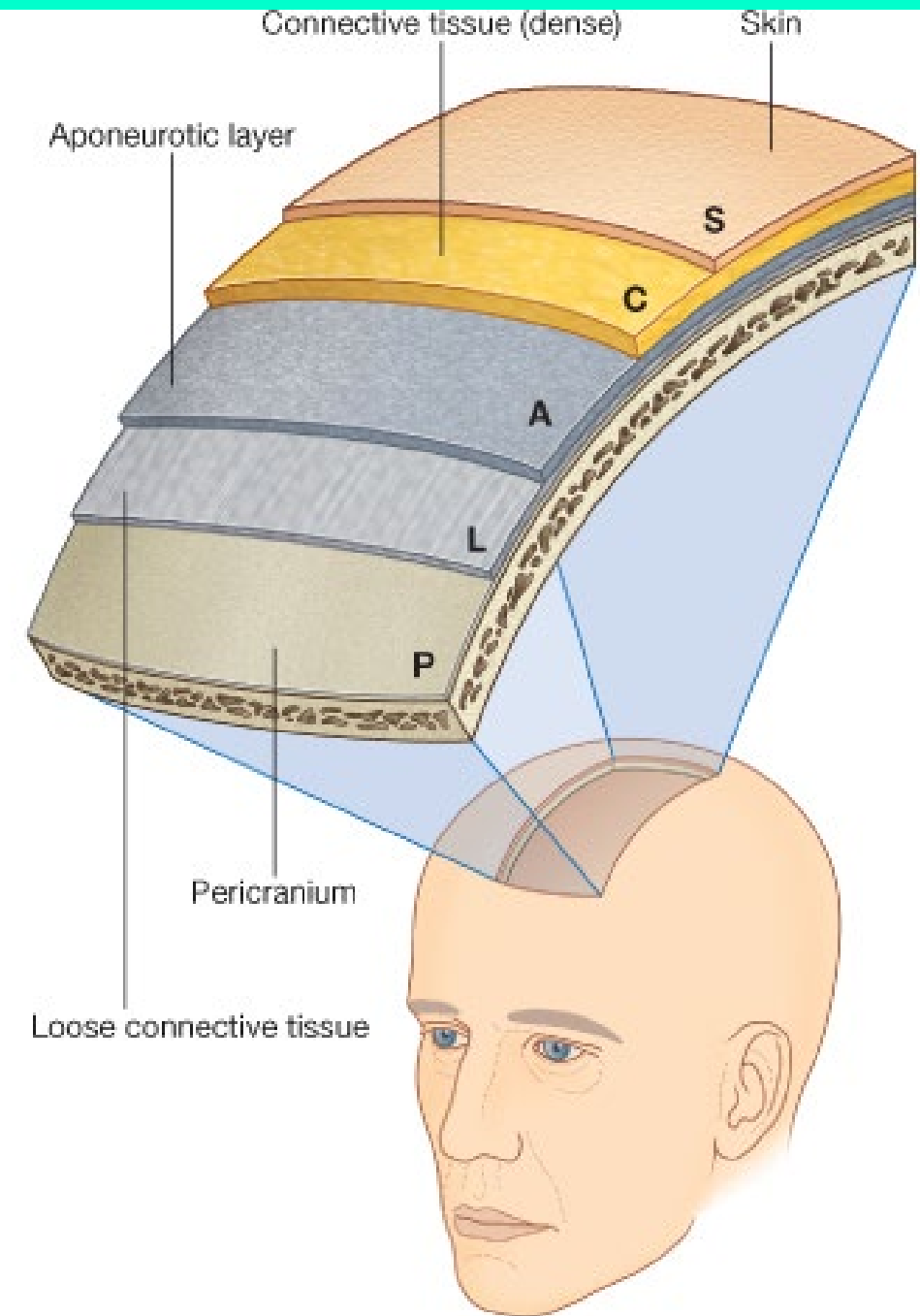






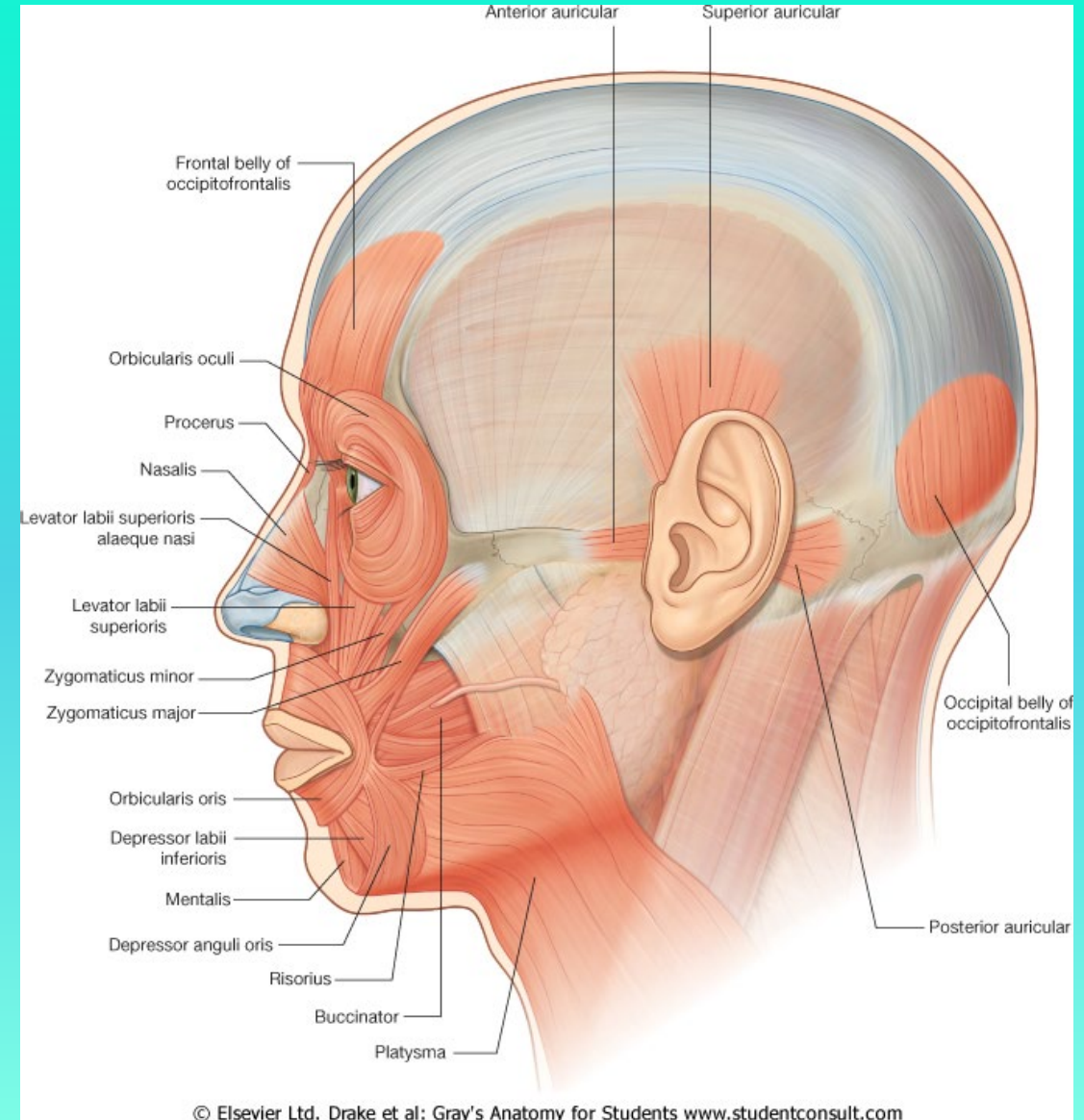
Scalp

- 1- **S**kin
- 2- **C**onnective tissue
- 3- **A**poneurosis layer
- 4- **L**oose connective tissue
- 5- **P**ericranium

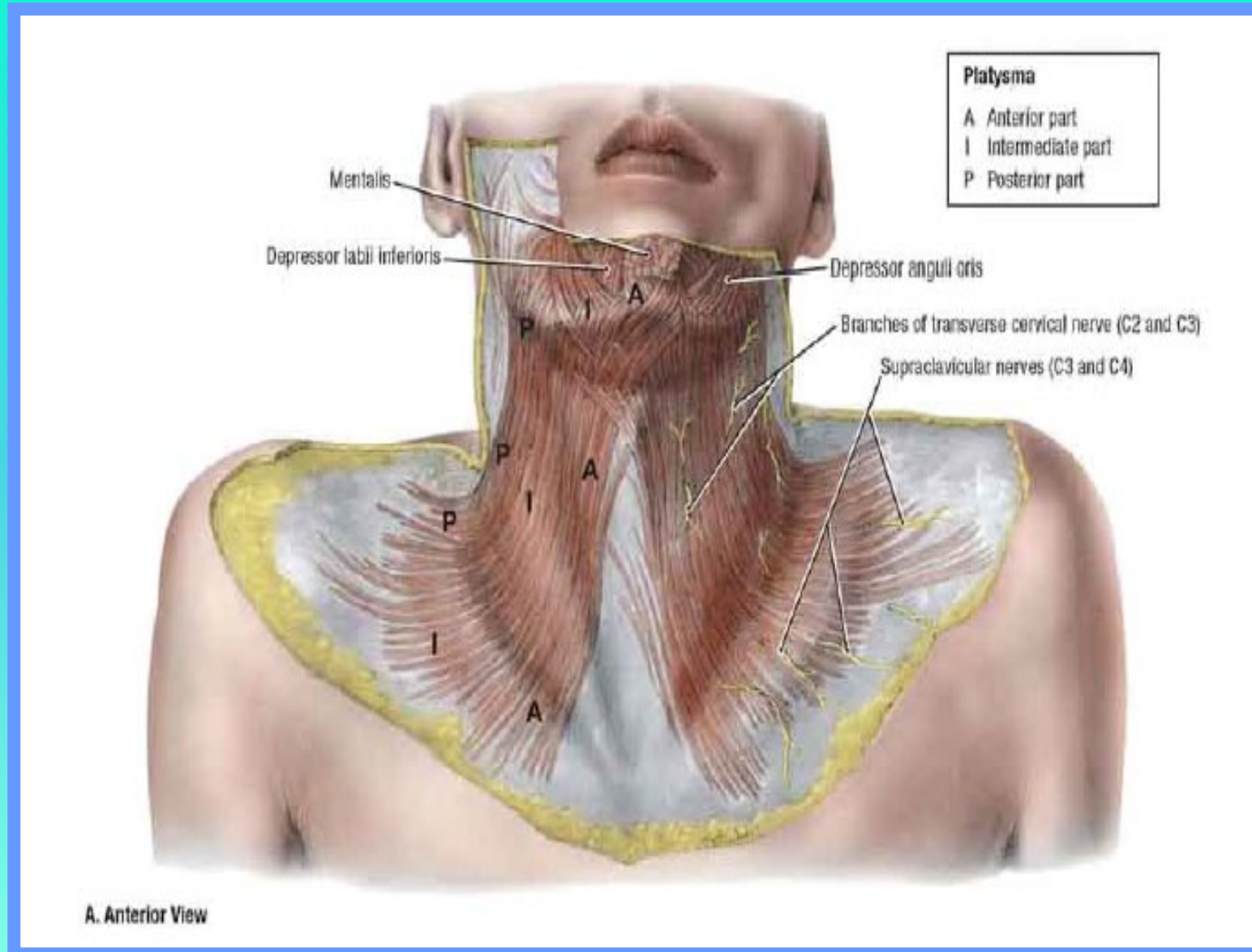


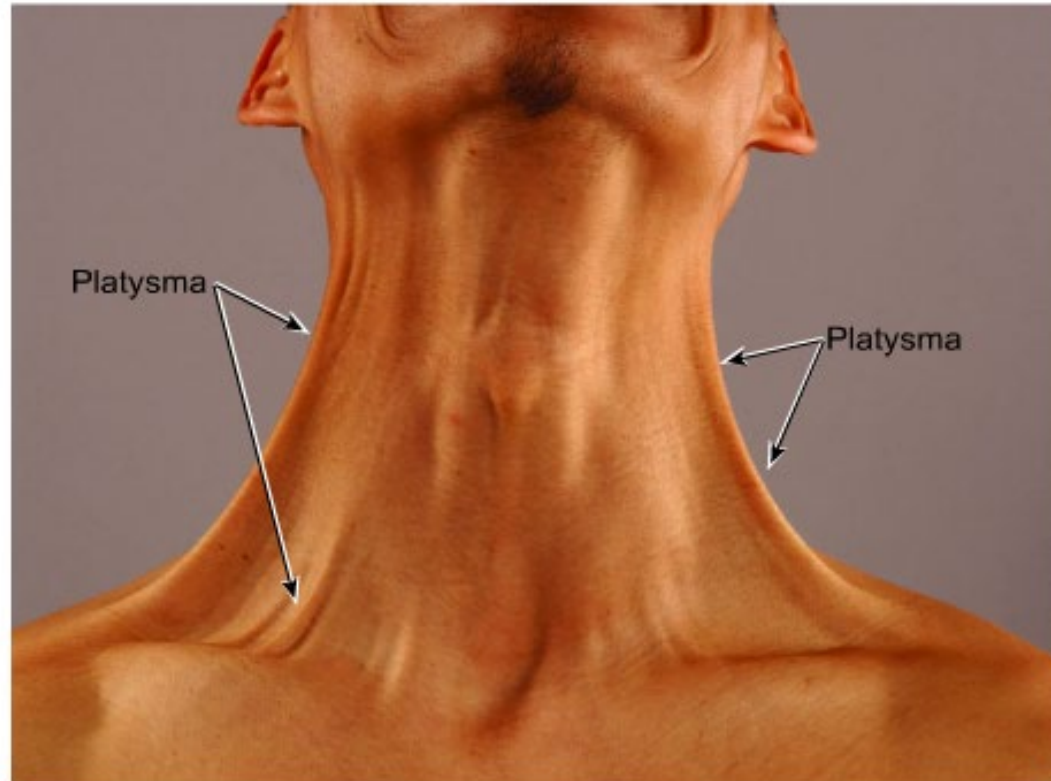
Mscles of the SCALP

- 1-Ant. auricular
- 2-Sup. auricular
- 3-Post. auricular
- 4-Occipitofrontalis
(Epicranius)

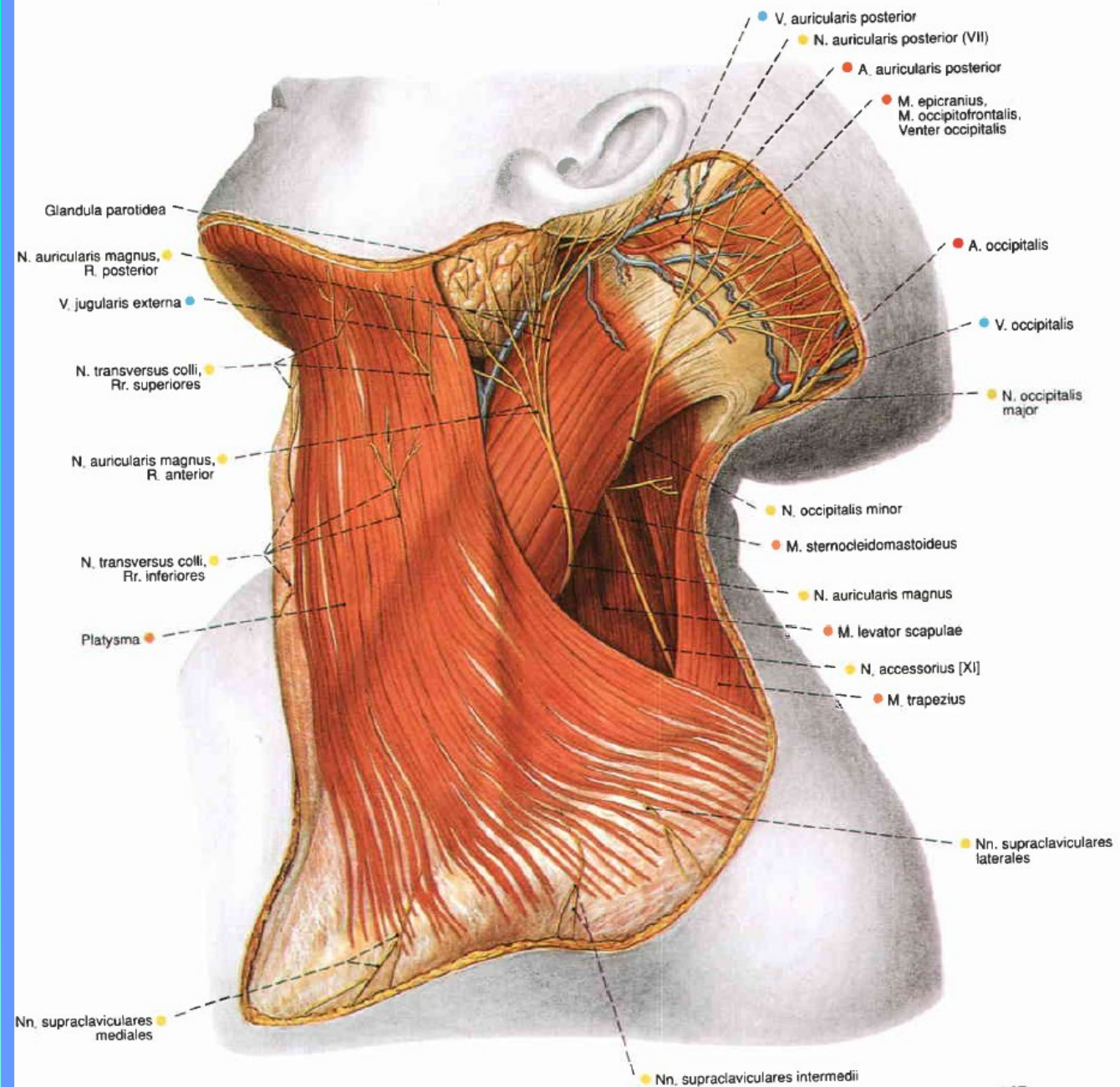


Platysma





Anterior View

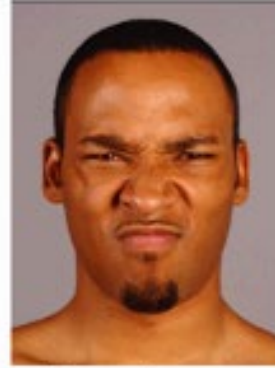




Occipitofrontalis



Corrugator supercilii



Procerus + transverse
part of nasalis



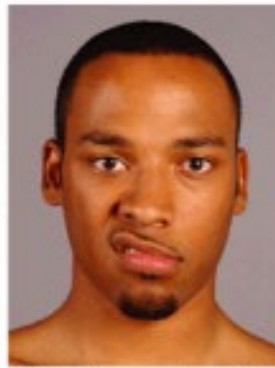
Orbicularis oculi



Lev. labii sup. alaeque nasi +
alar part of nasalis



Buccinator + orbicularis oris



Zygomaticus major + minor



Risorius



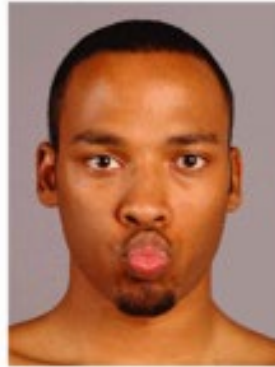
Risorius + depressor
labii inferioris



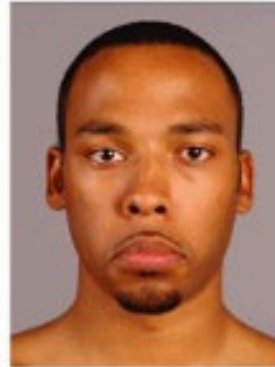
Levator labii superioris +
depressor labii



Dilators of mouth:
Risorius plus levator labii superioris
+ depressor labii inferioris



Orbicularis oris



Depressor anguli oris



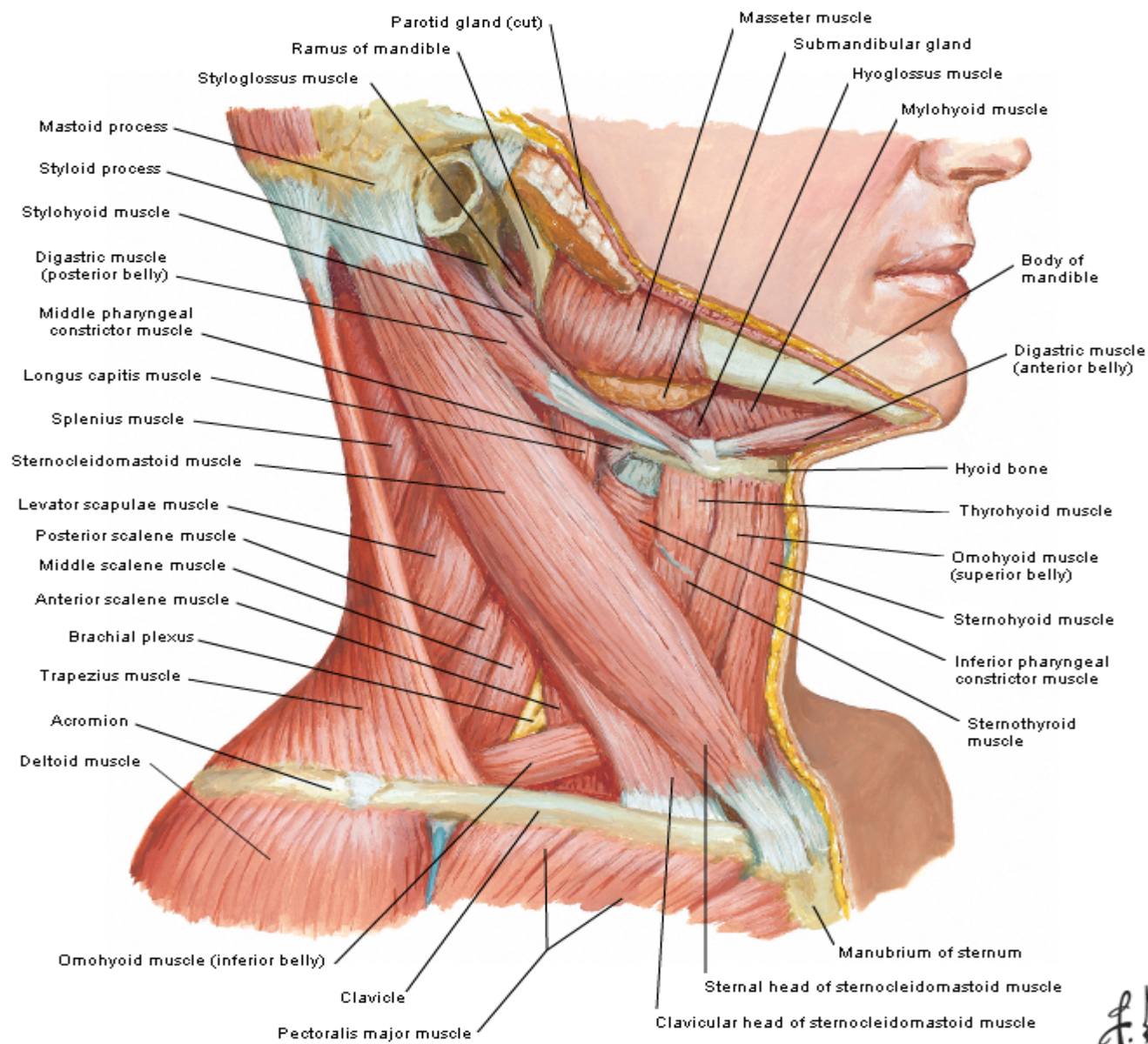
Mentalis



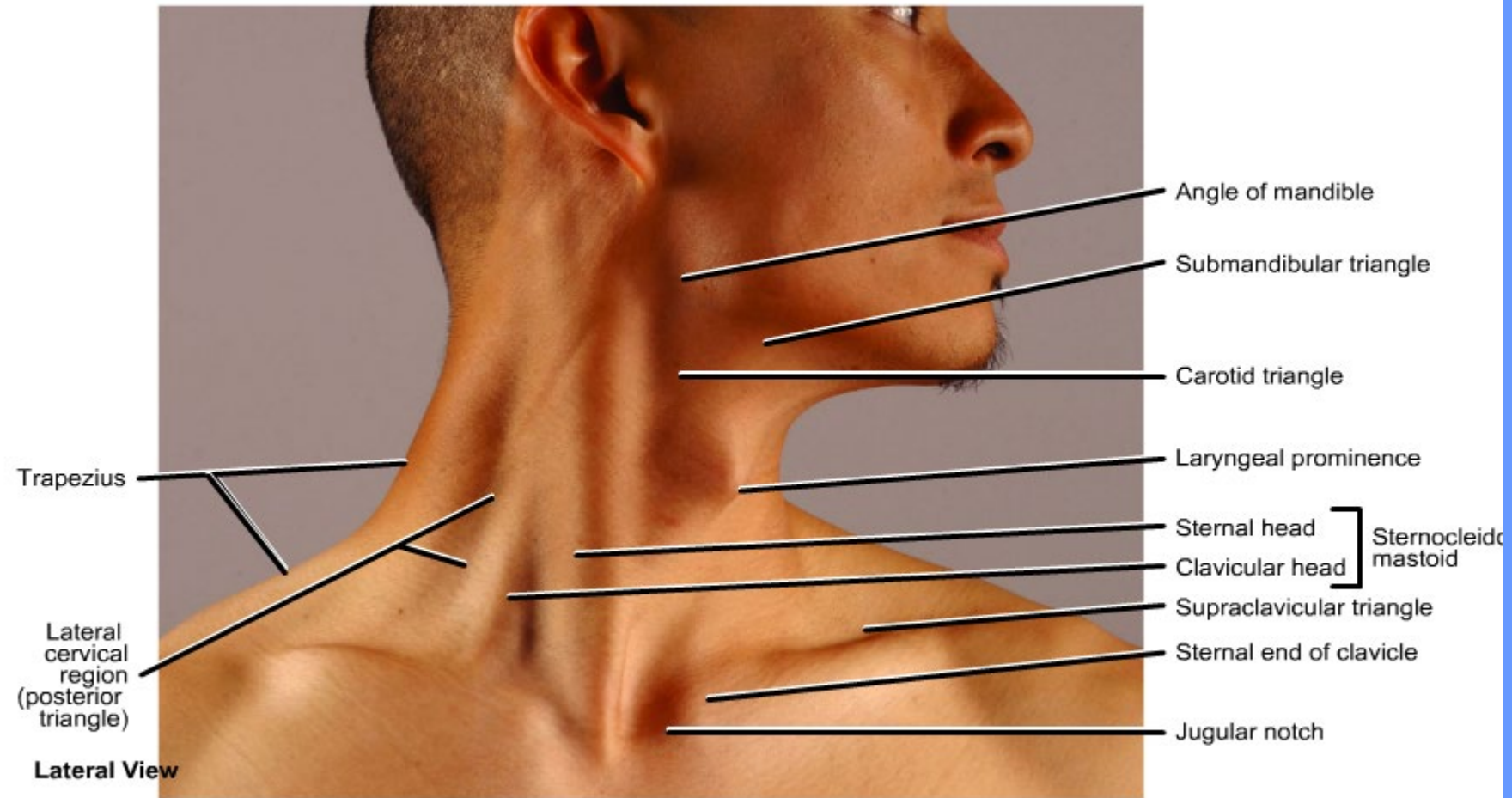
Platysma

Muscles

- Head and neck
 - Sternocleidomastoid
 - Trapezius

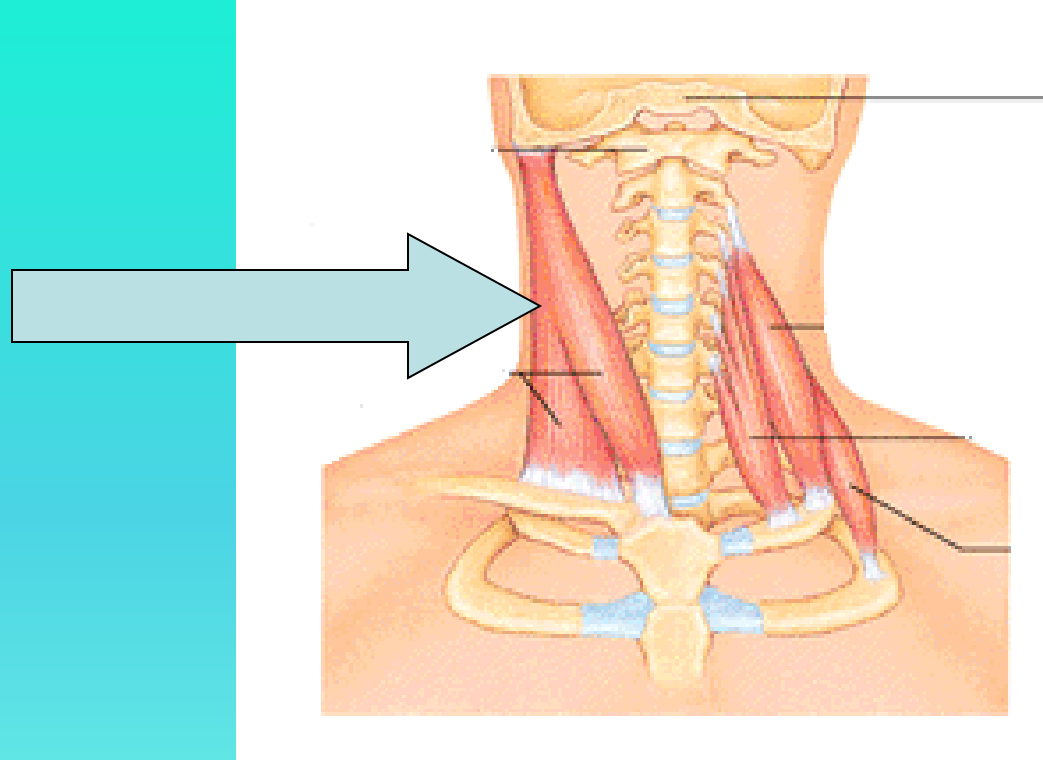






STERNOCLEIDOMASTOIDEUS

Flexes and Rotates Head



O: Sternum Manubrium & Clavicle

I: Mastoid process

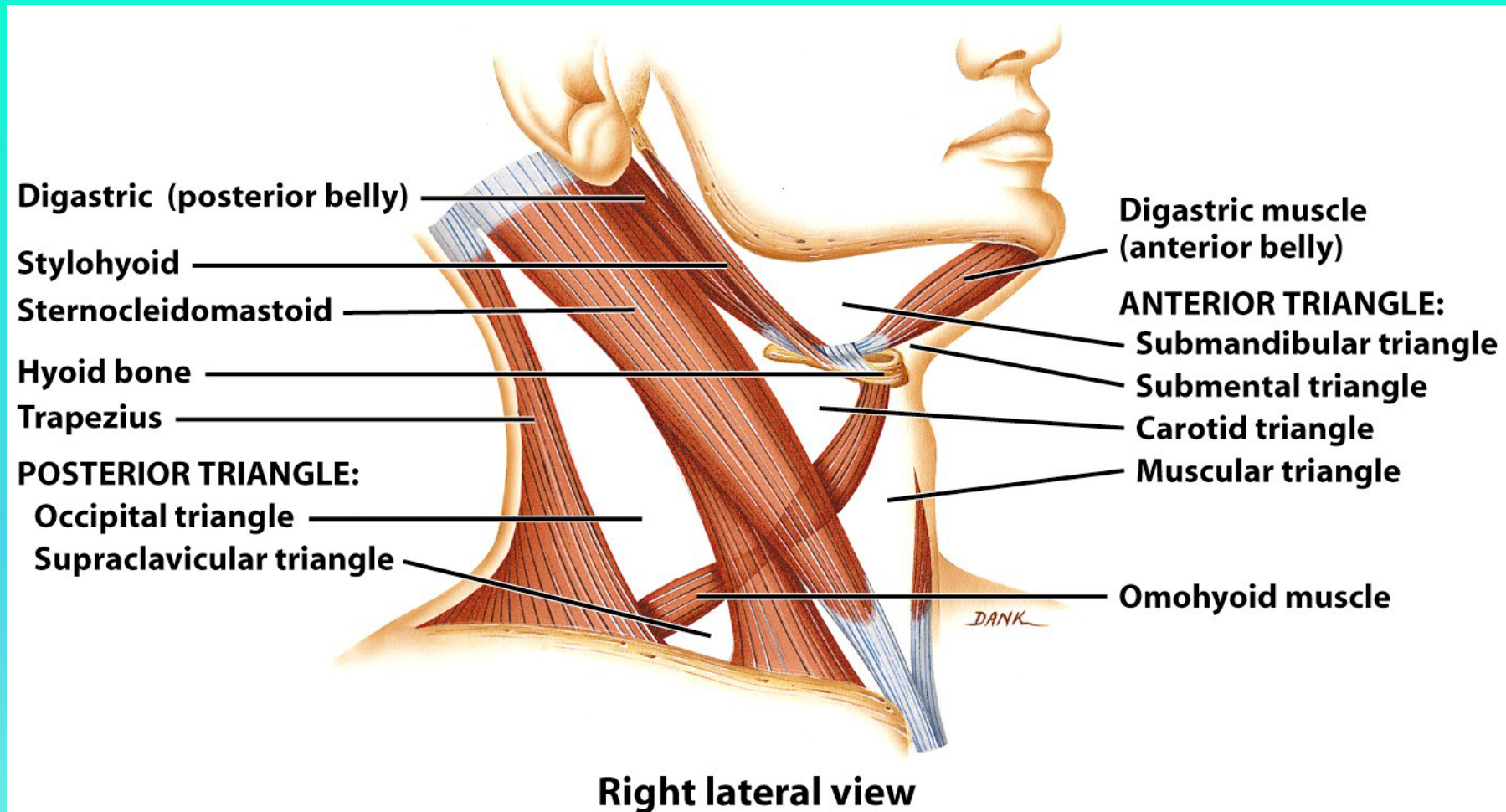
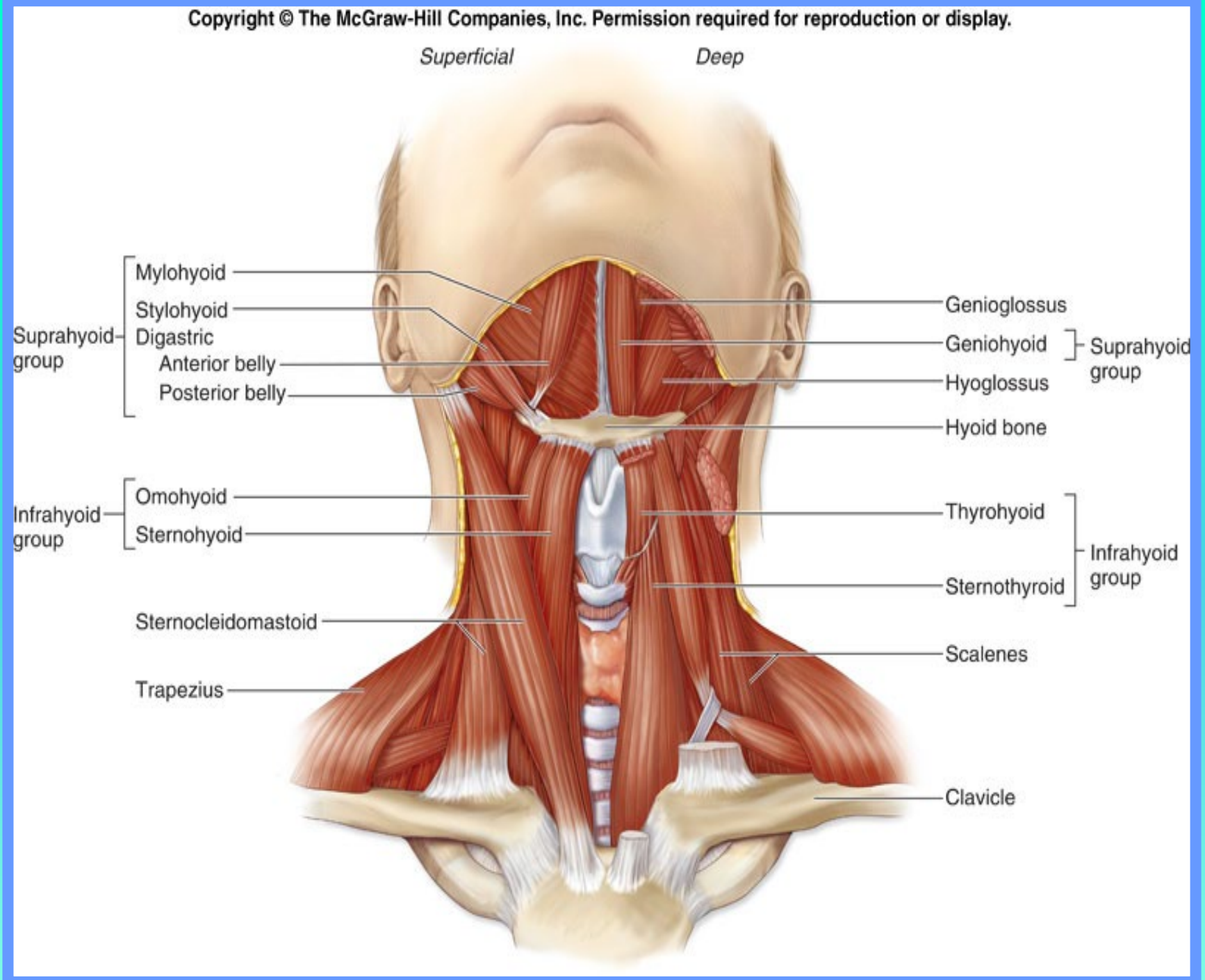


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Muscles of the Anterior Neck

- suprahyoid muscles
 - superior to hyoid bone
- infrahyoid muscles
 - inferior to hyoid bone

Muscles of the Anterior Neck



Mylohyoid

Stylohyoid

Hyoid bone

**Omohyoid
(superior belly)**

Sternohyoid

**Sternocleido-
mastoid**

**Omohyoid
(inferior belly)**

**Anterior
belly**

**Posterior
belly**

Digastric

Stylohyoid (cut)

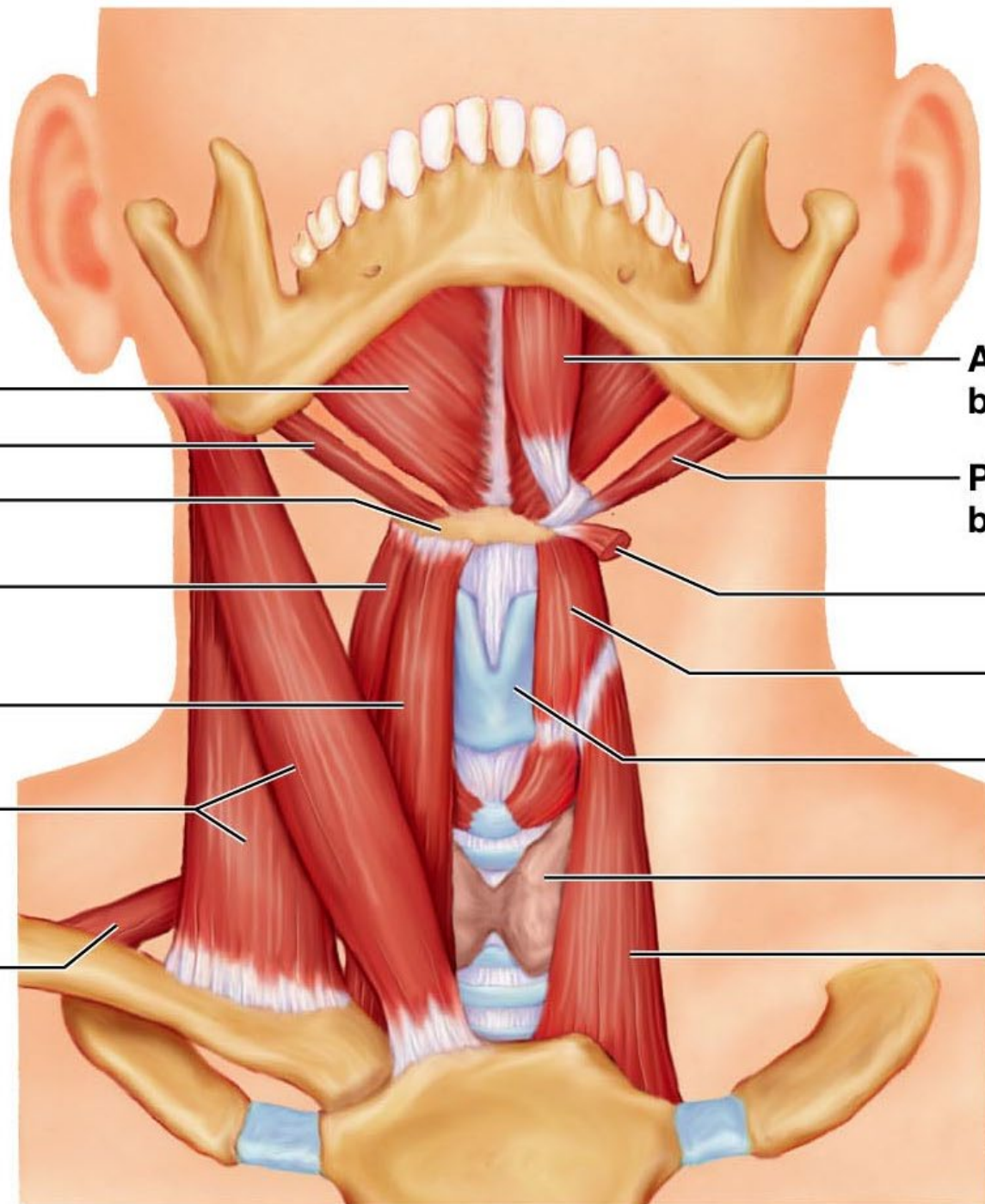
Thyrohyoid

**Thyroid cartilage
of the larynx**

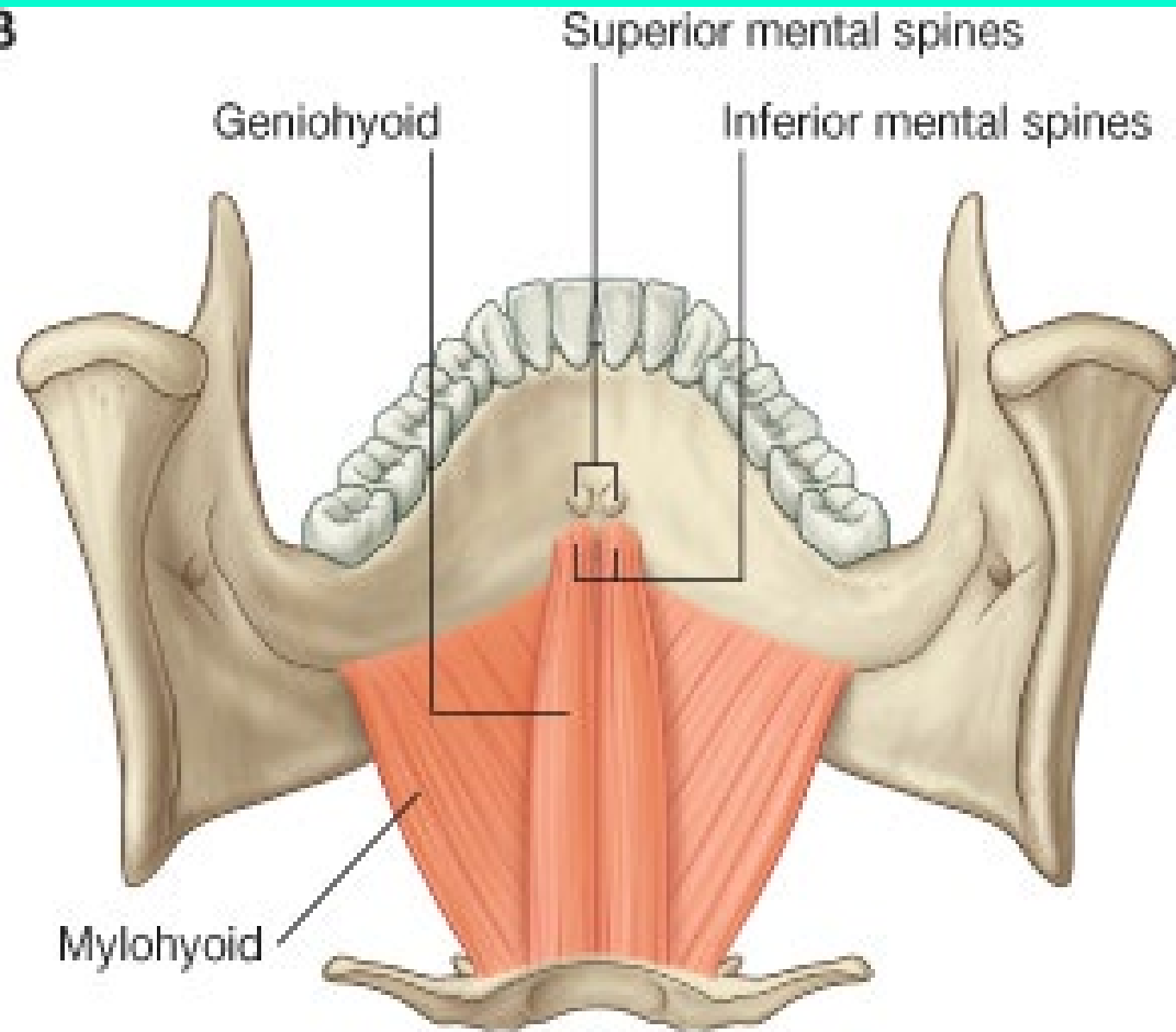
Thyroid gland

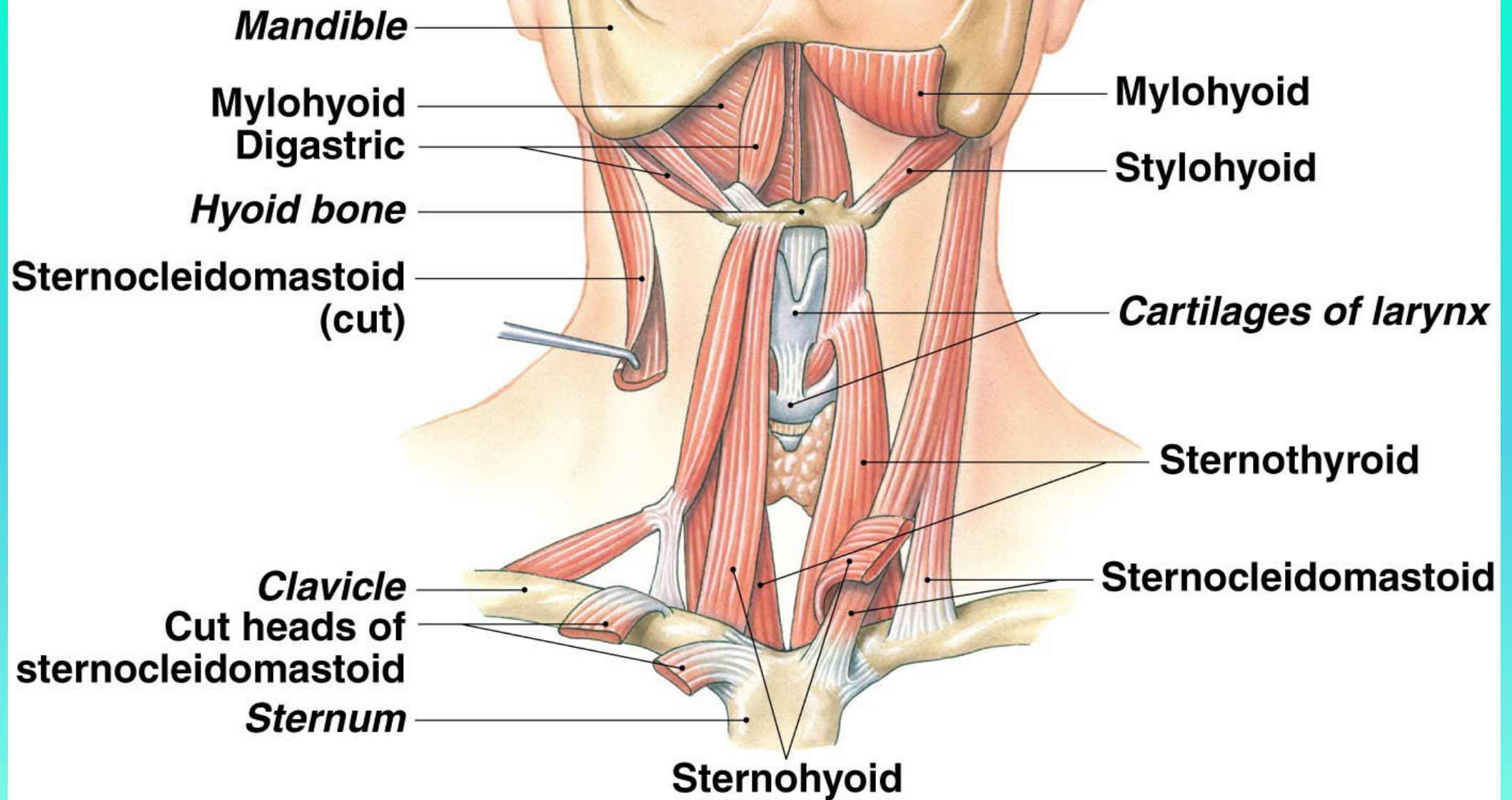
Sternothyroid

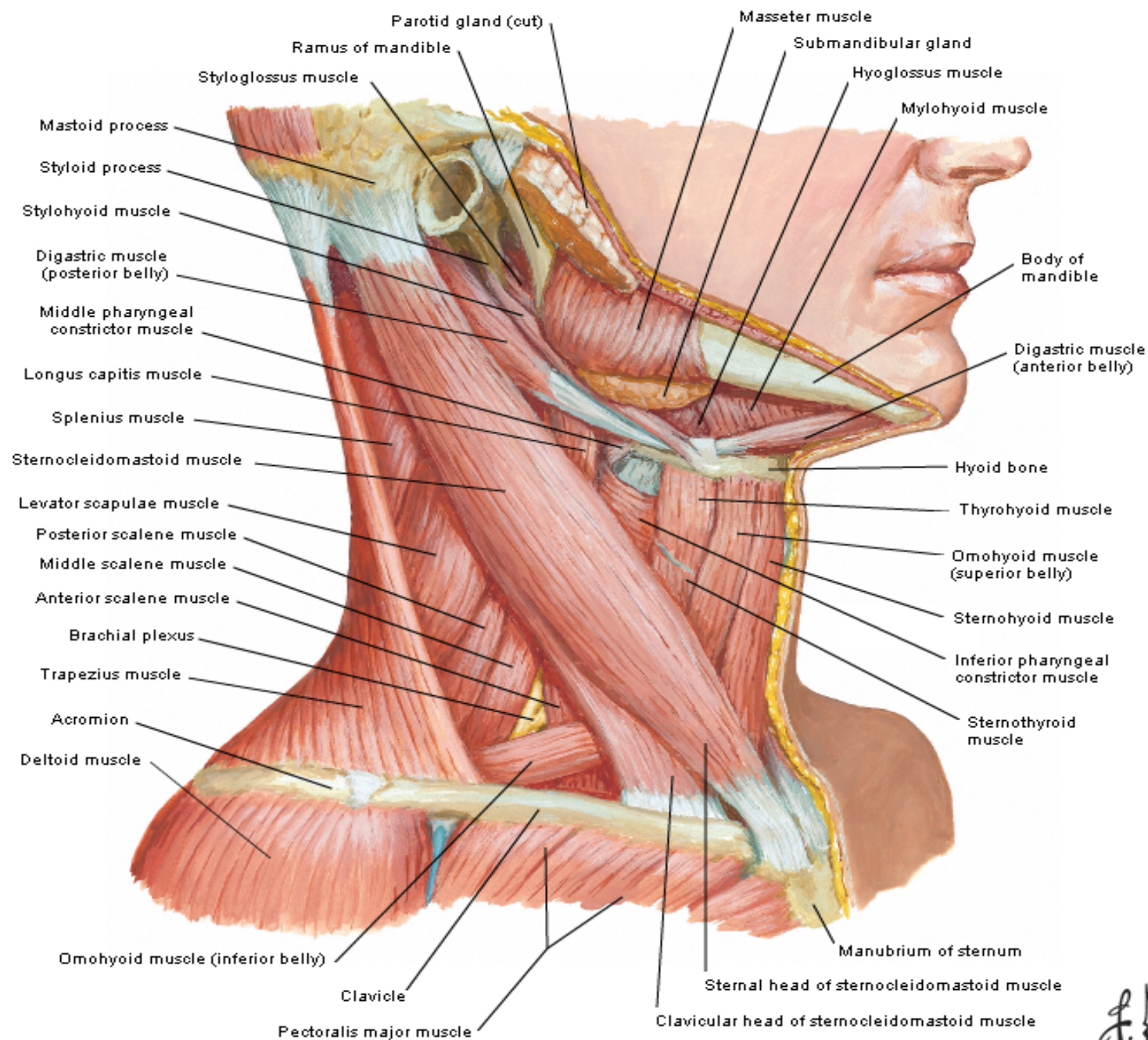
(a)



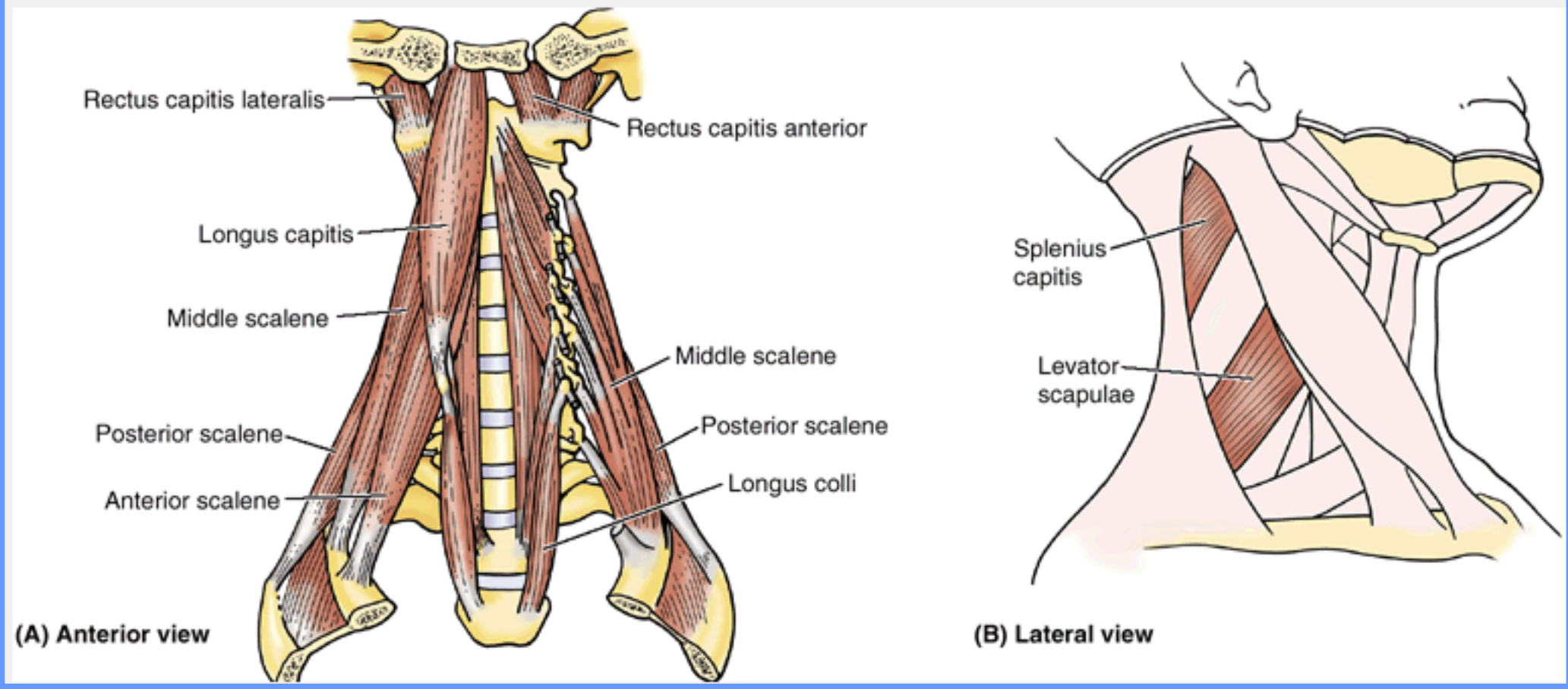
B

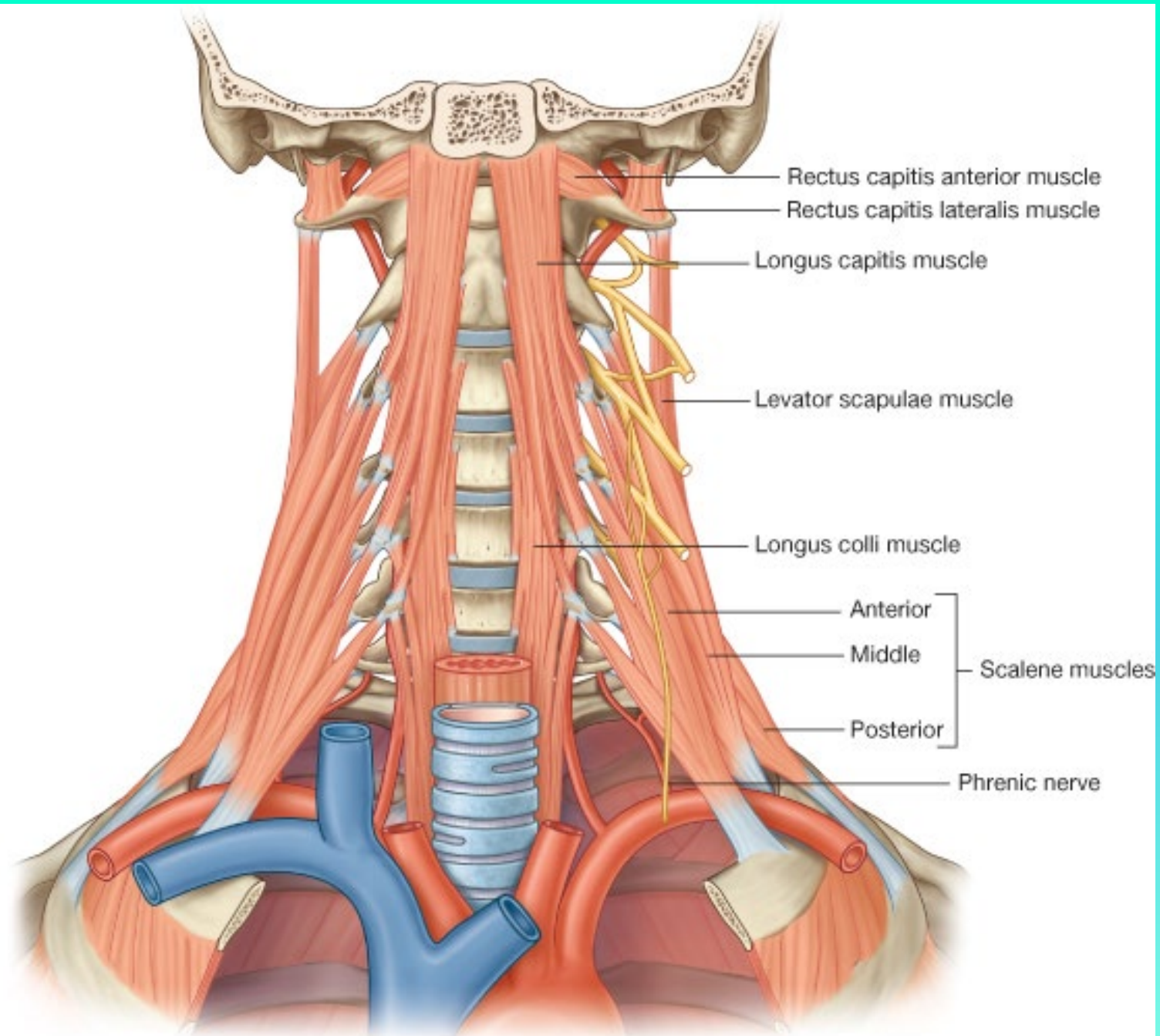


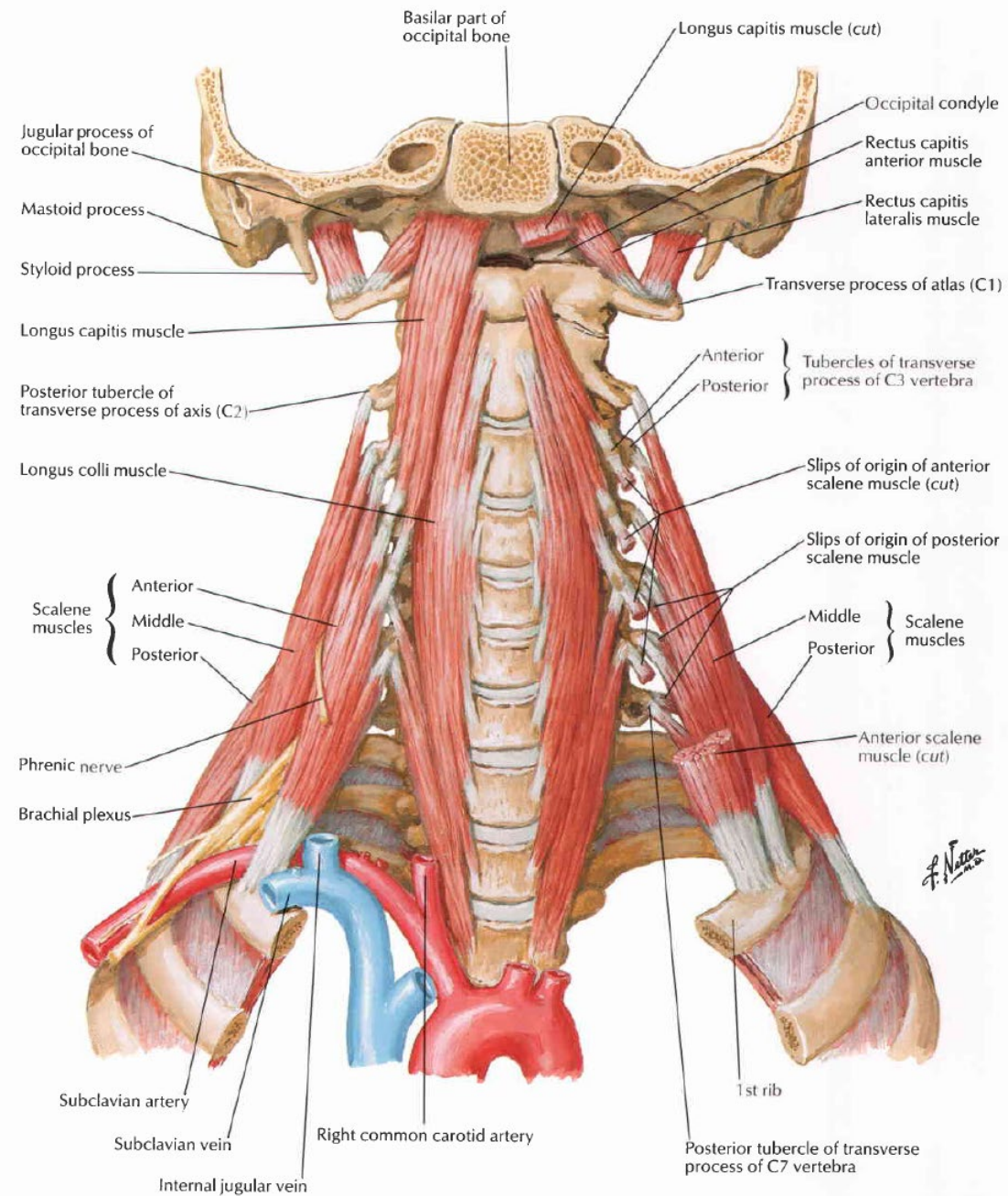




Scalene and Prevertebral Muscles







MUSCLES OF TRUNK (THORAX)

- PECTORALIS MAJOR
- PECTORALIS MINOR
- SERRATUS ANTERIOR
- EXTERNAL INTERCOSTALS
- INTERNAL INTERCOSTALS
- TRANSVERSUS THORACIS
-

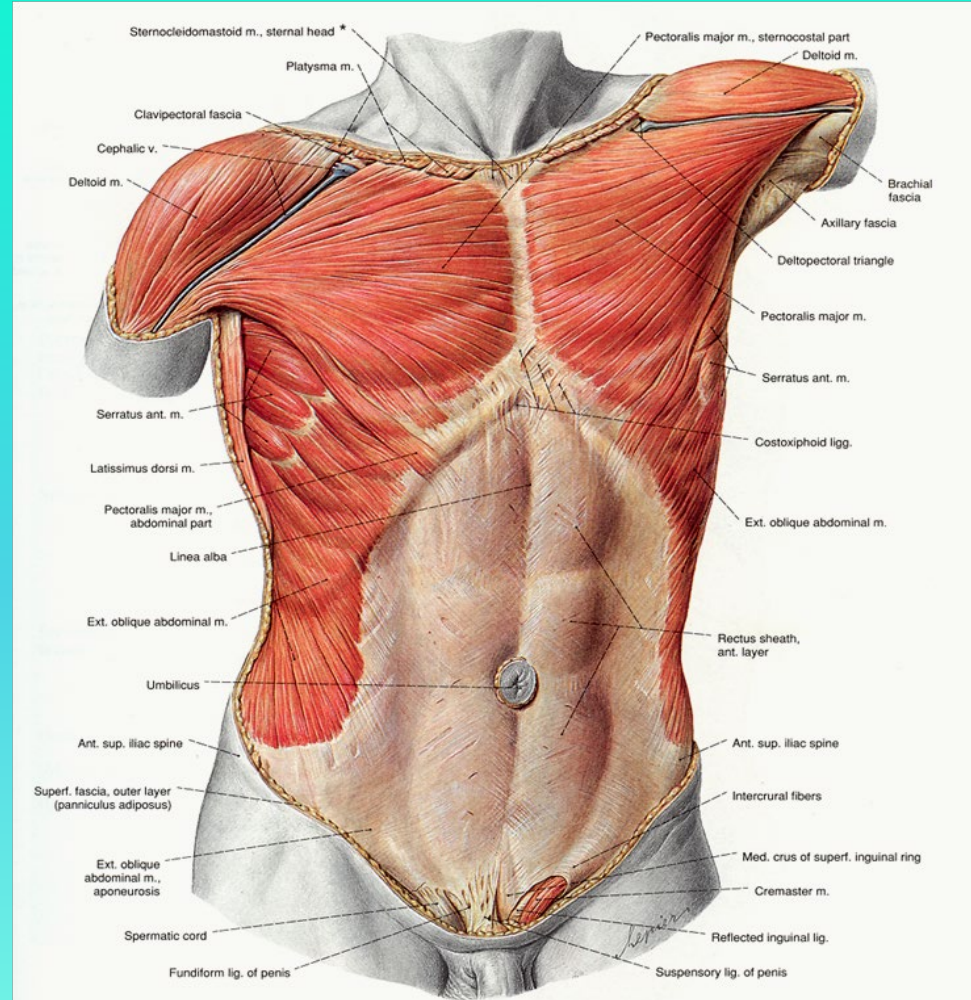
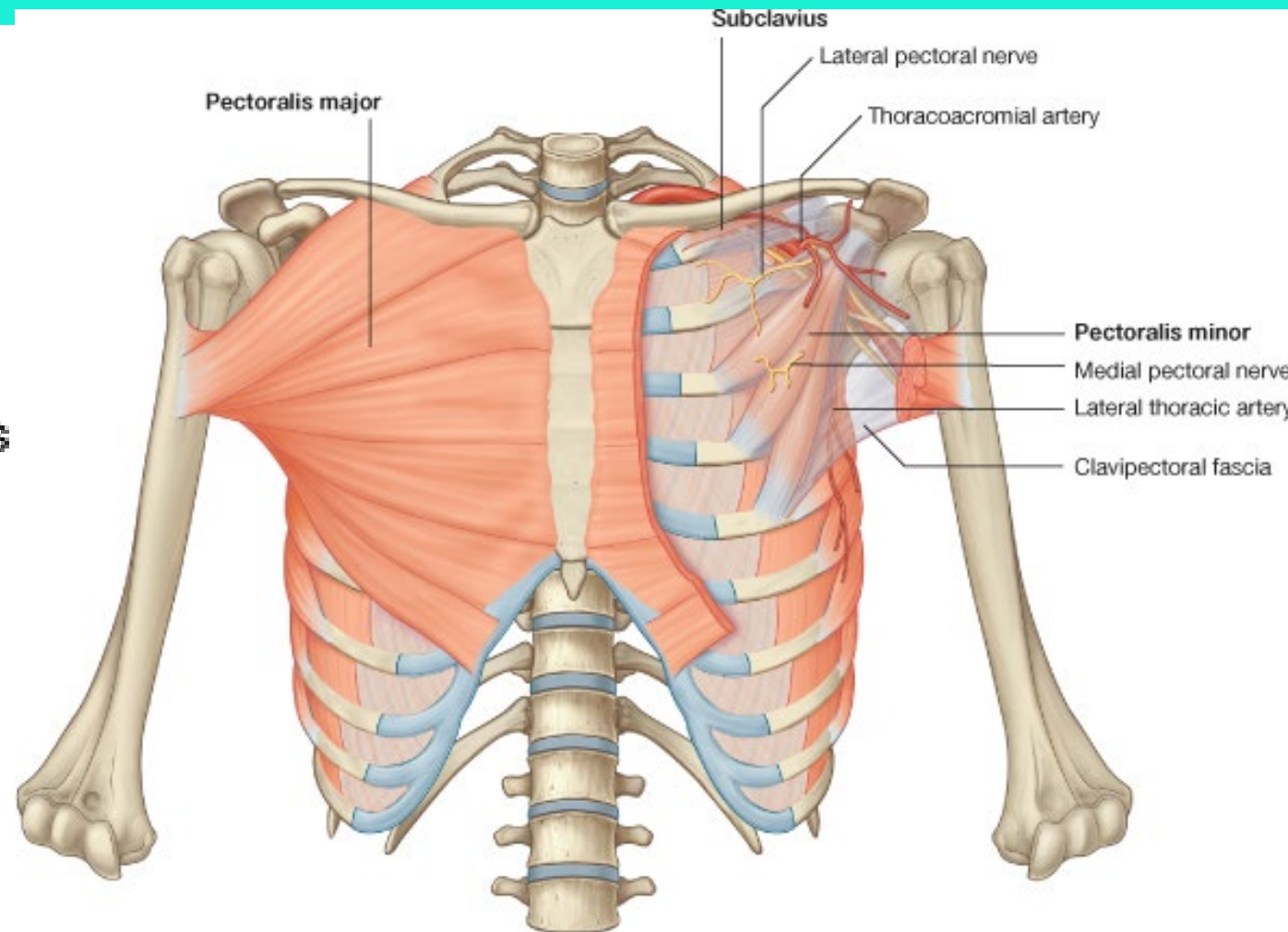
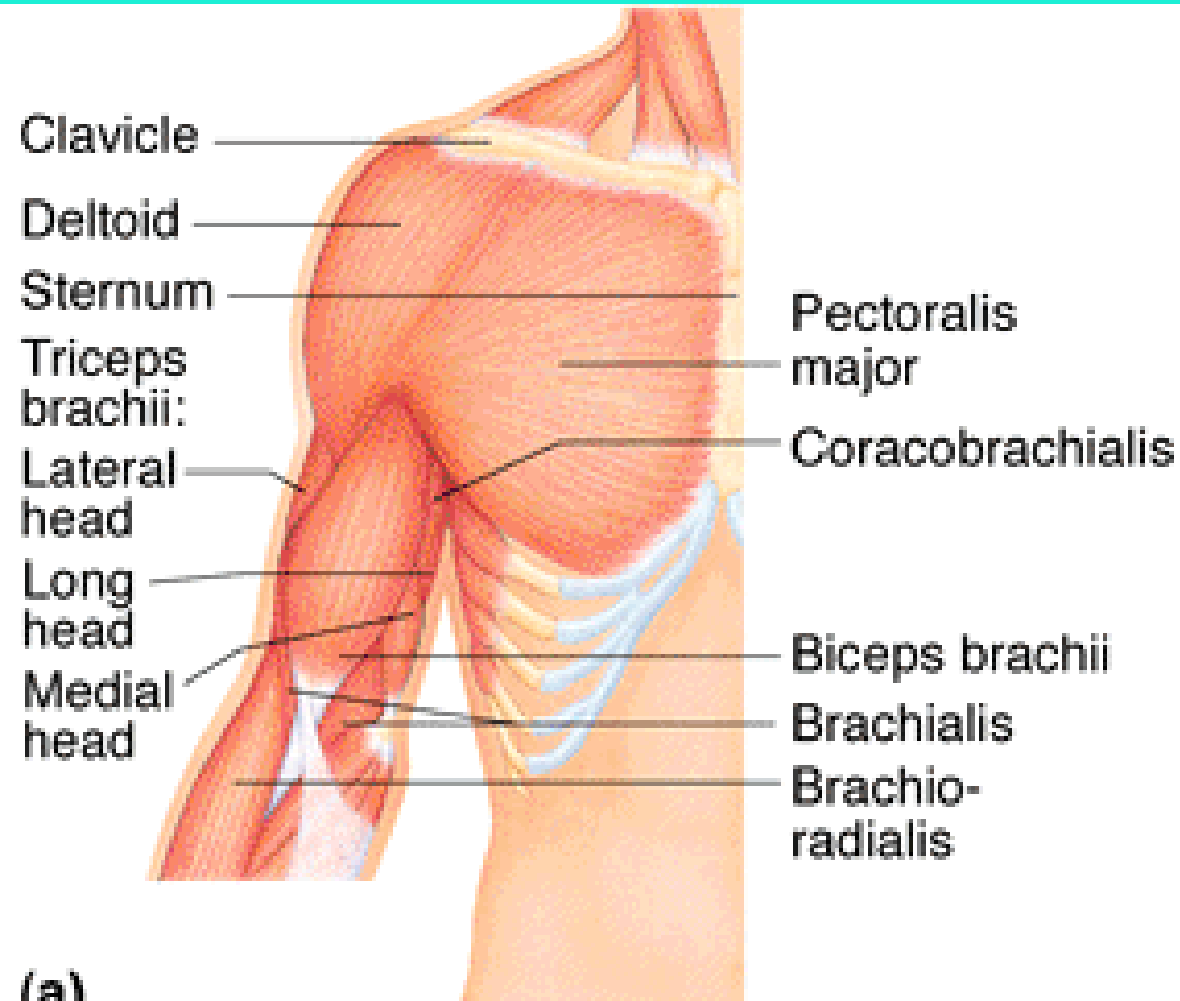
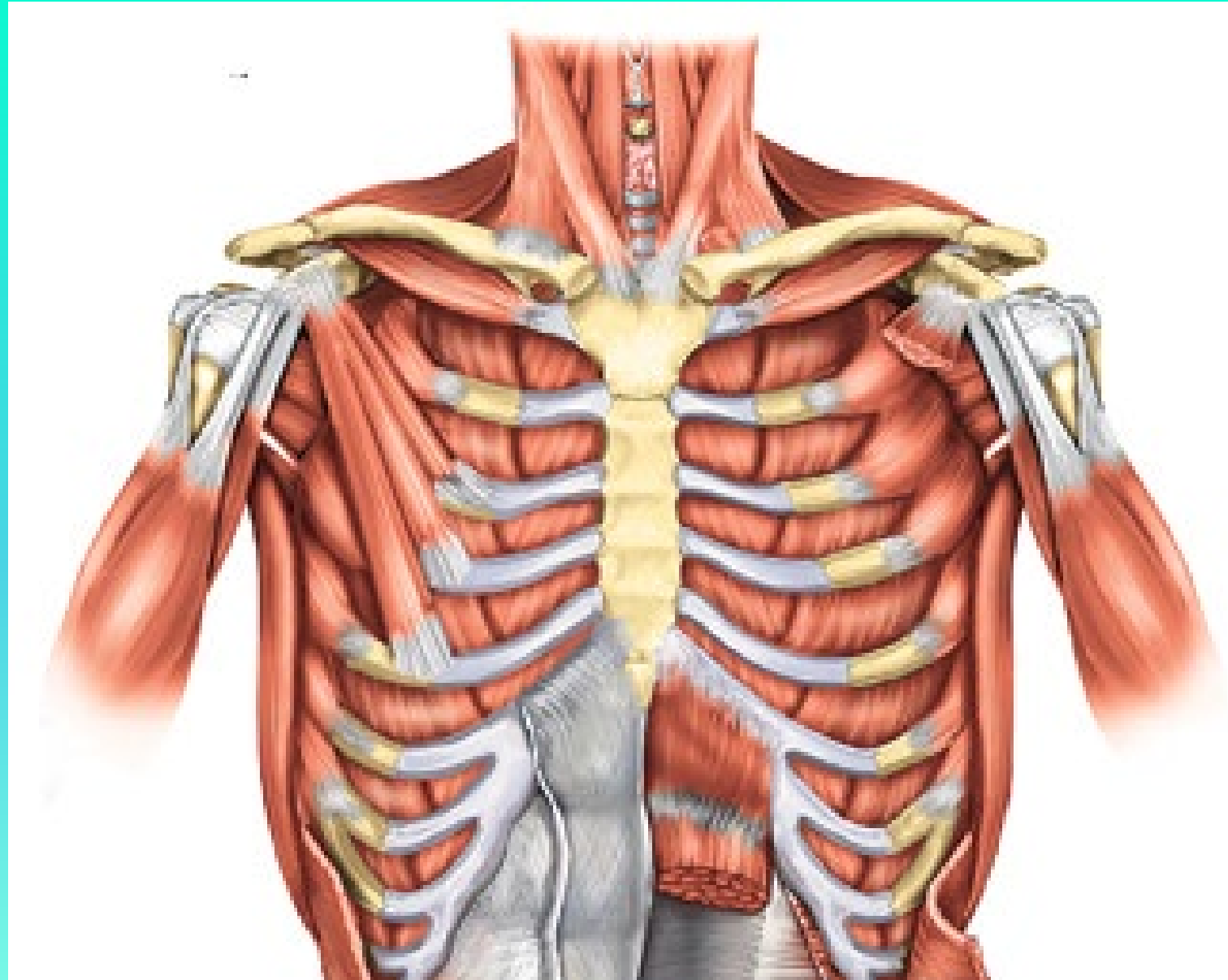


Fig. 91. The superficial muscles of the thoracic and abdominal walls.

* Generally accepted terminology

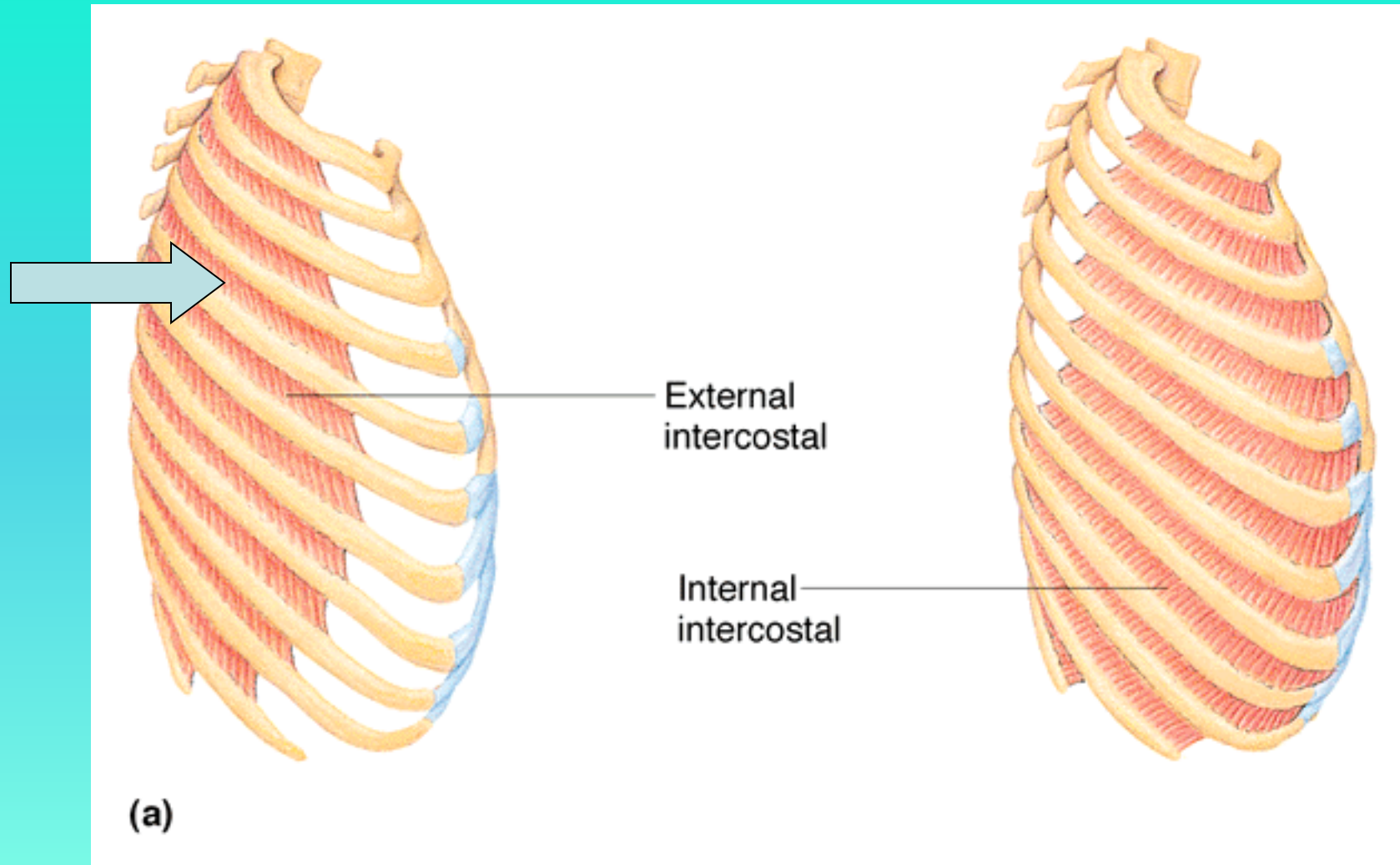
PECTORALIS MAJOR





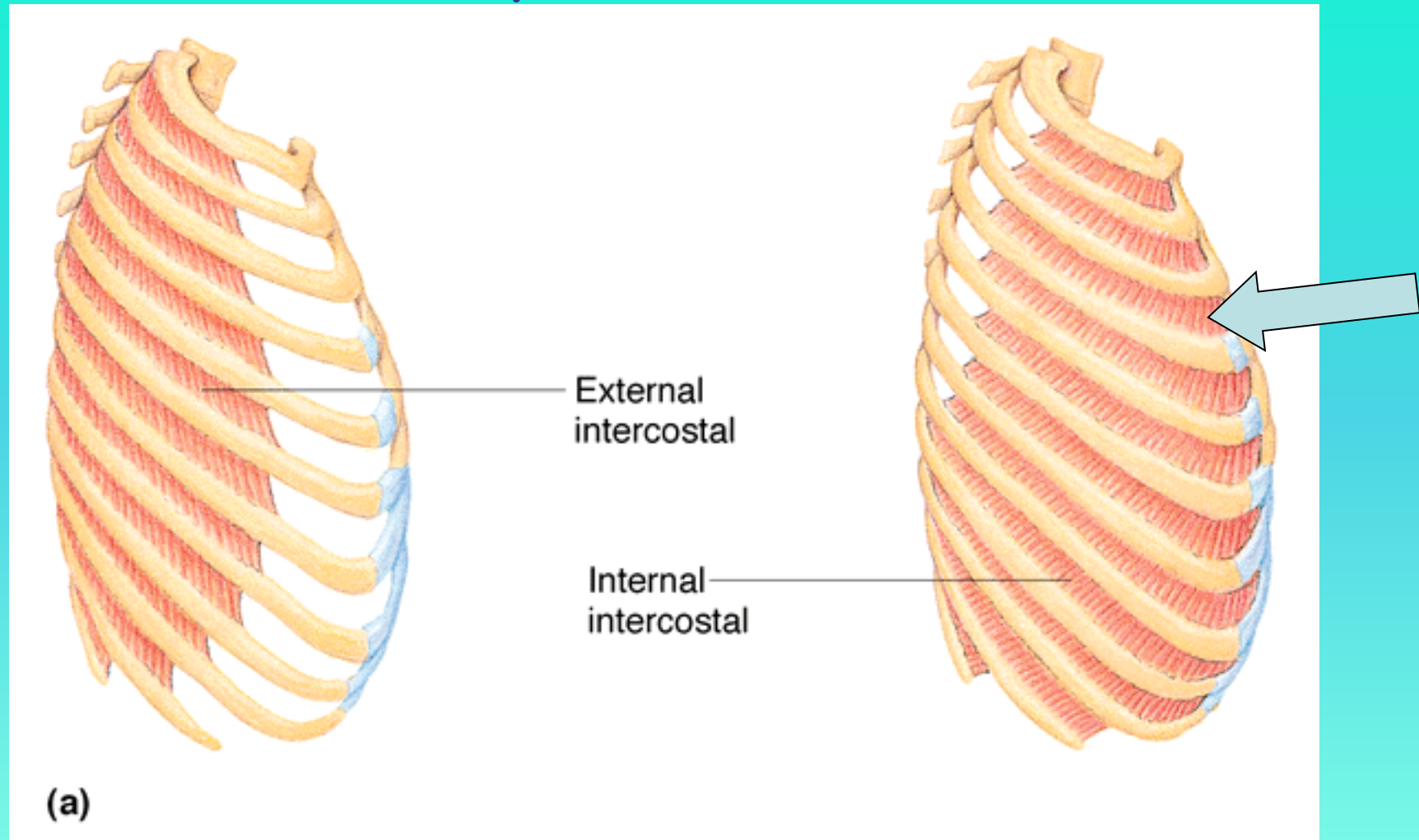
EXTERNAL INTERCOSTALS

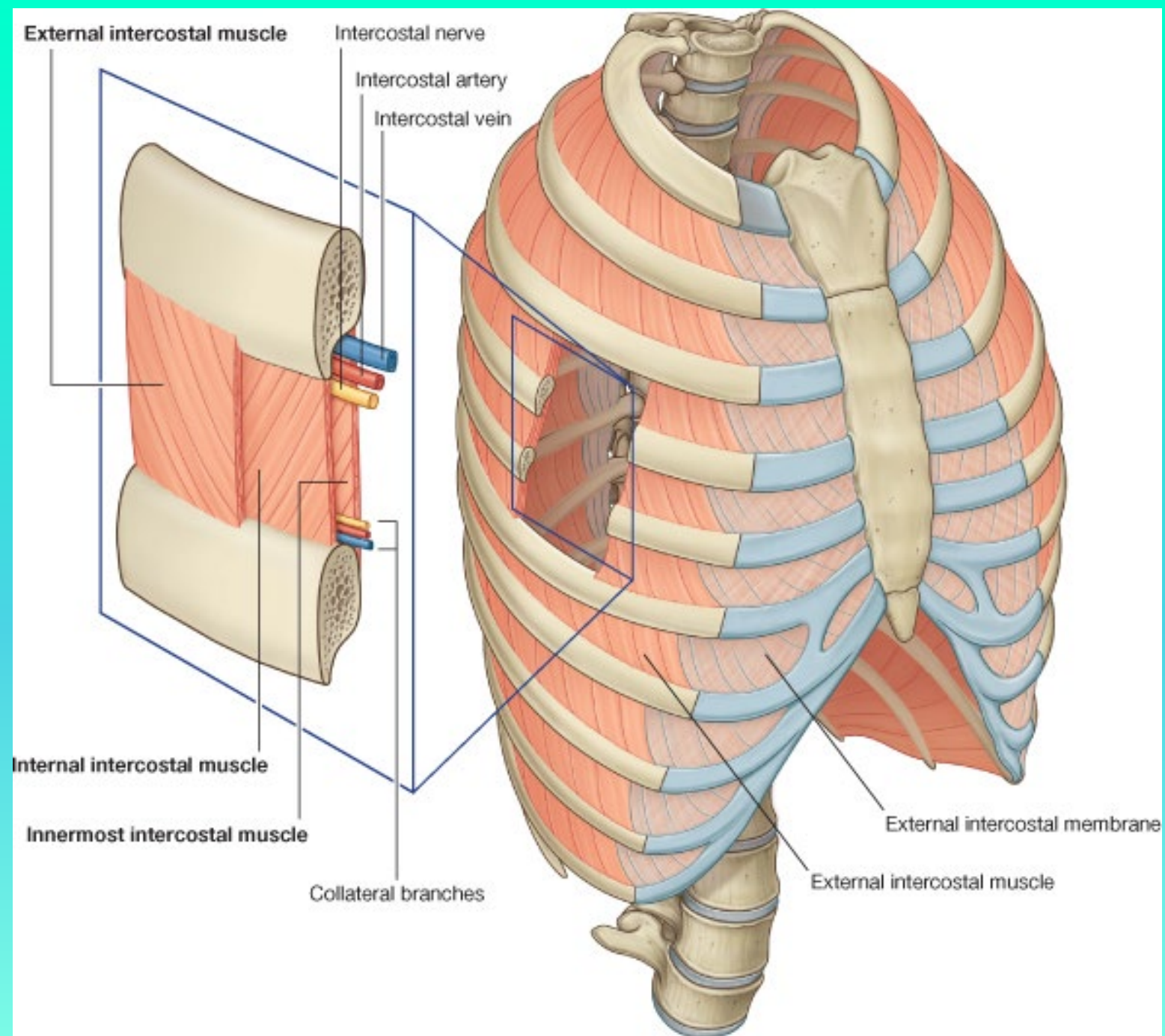
Elevate ribs



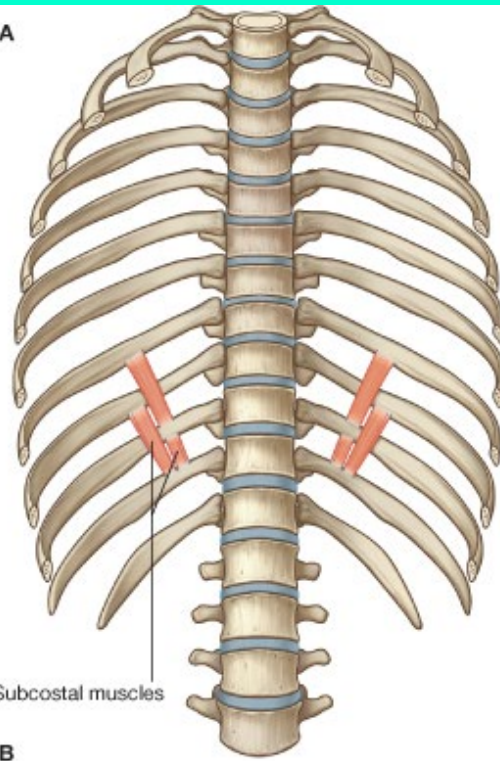
INTERNAL INTERCOSTALS

Depress ribs

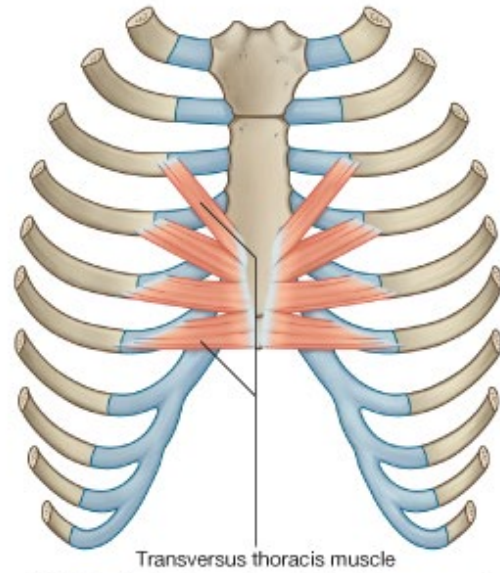




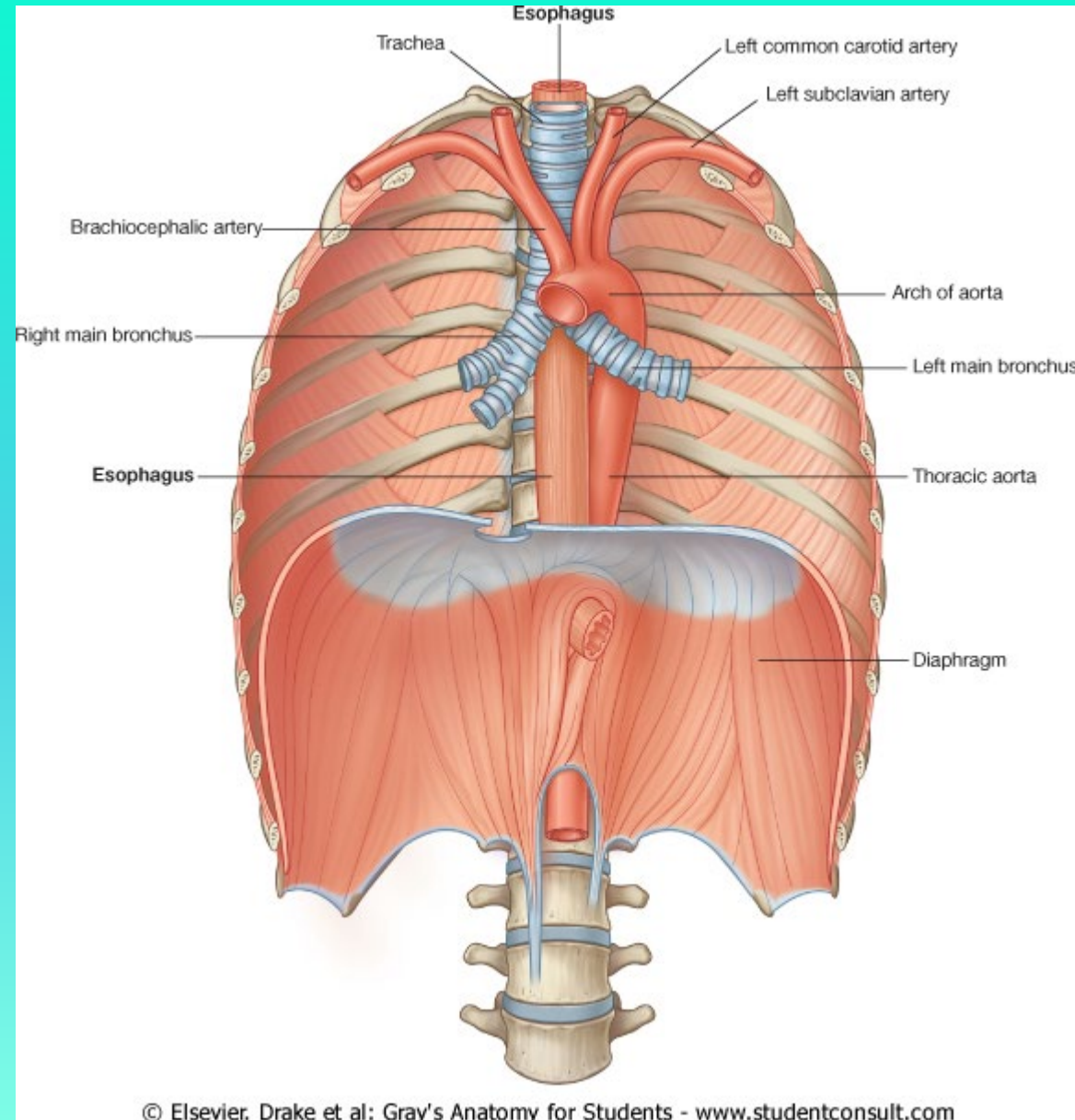
A



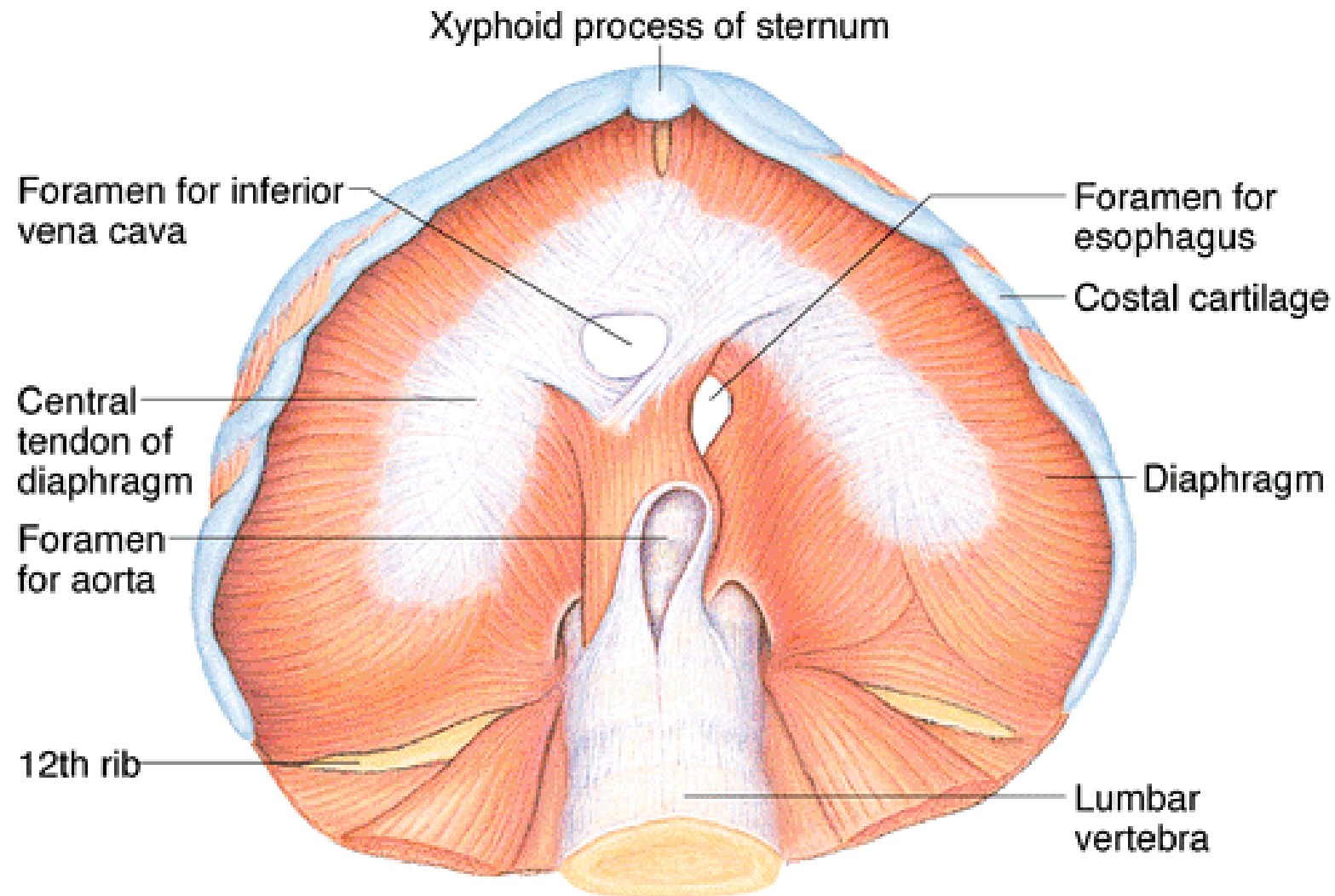
B



DIAPHRAGM

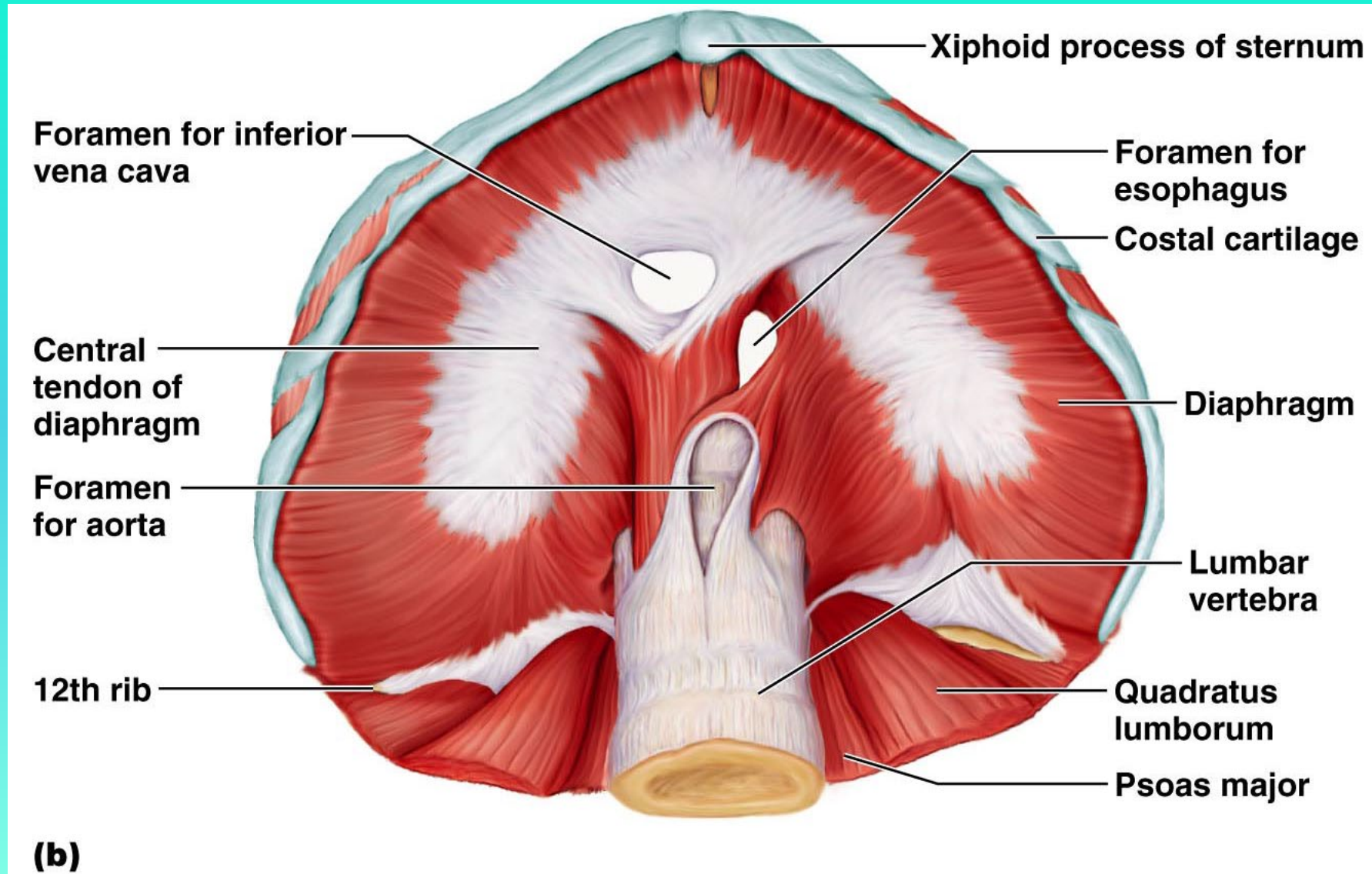


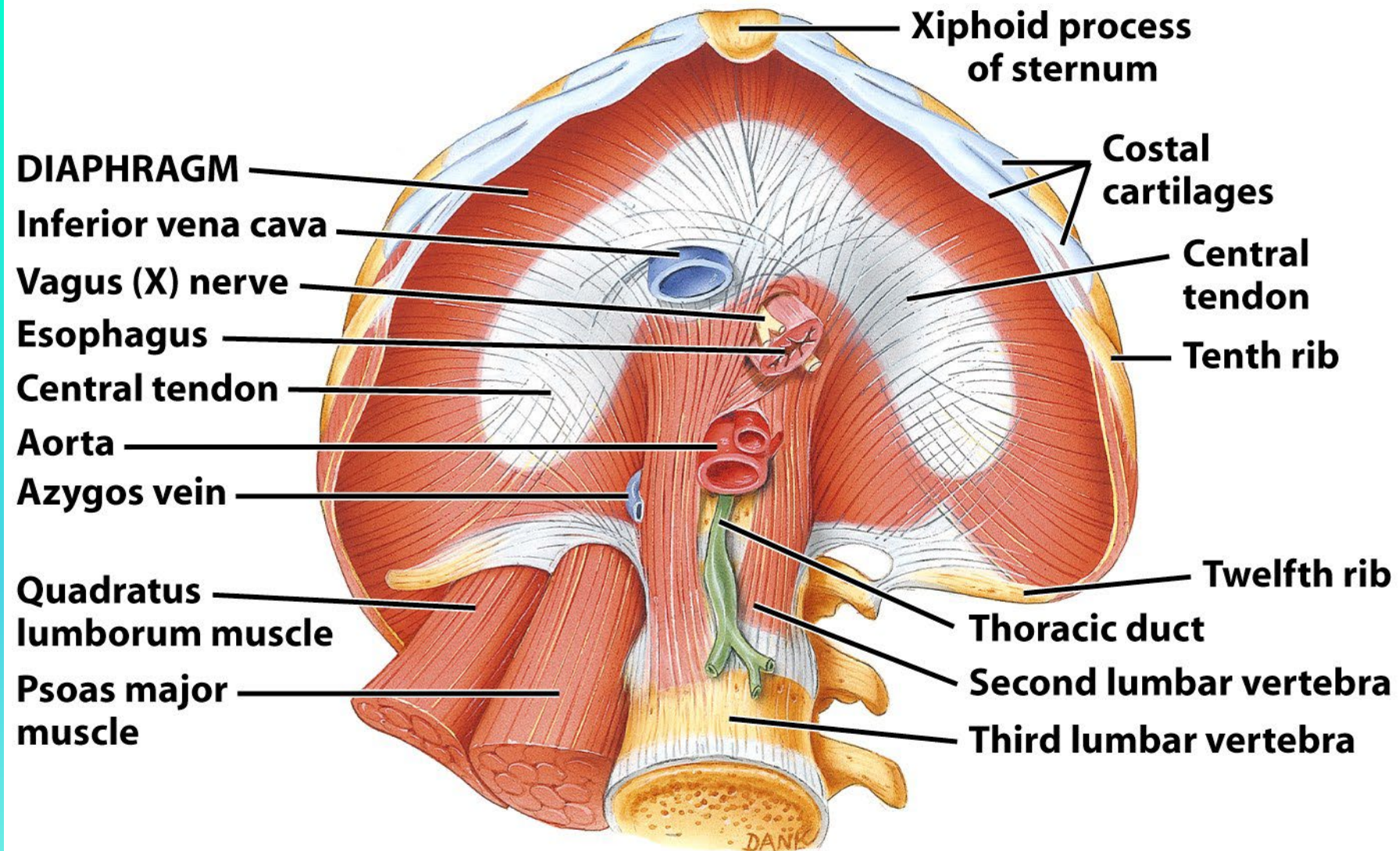
Inspiration



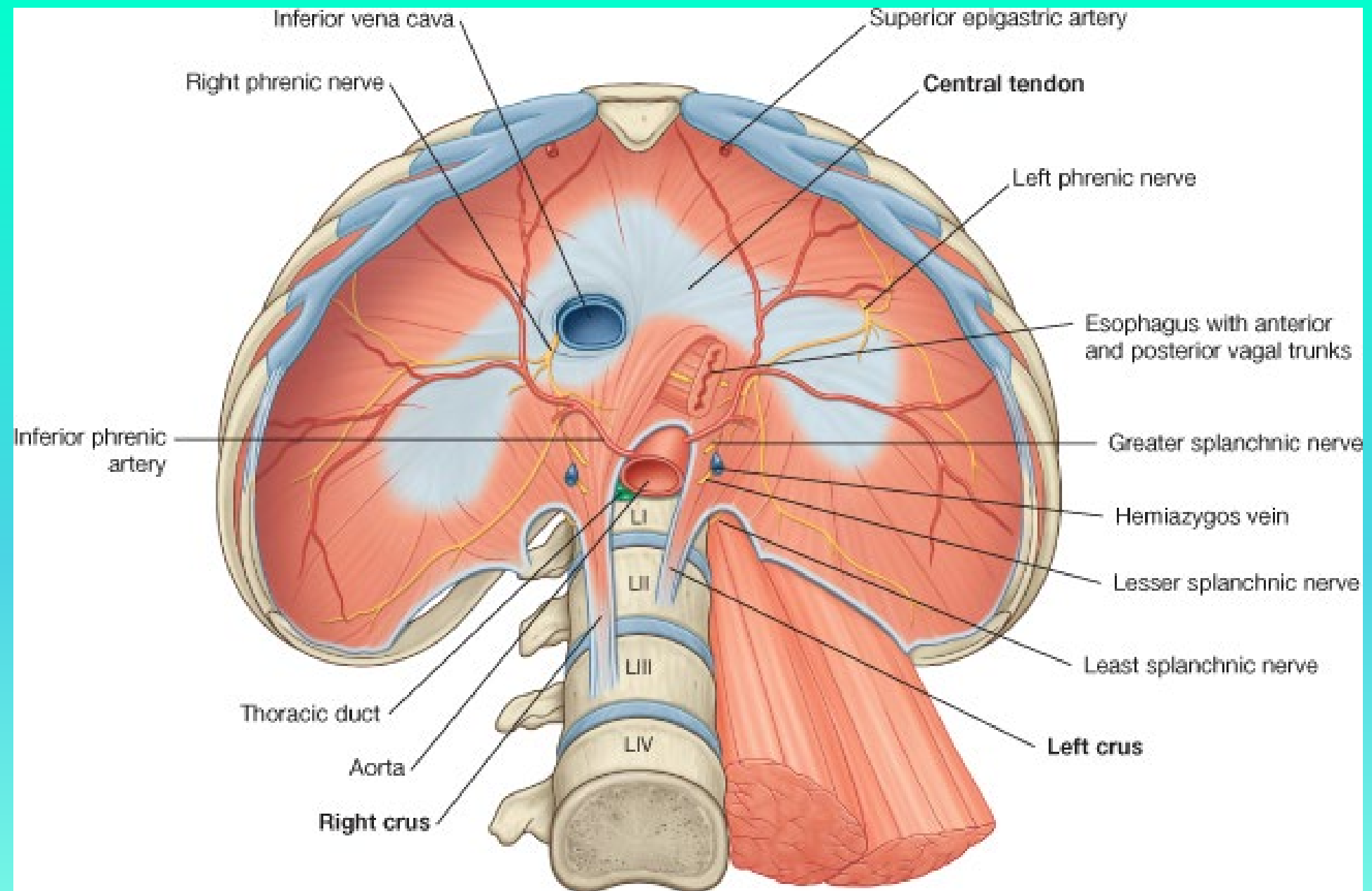
(b)

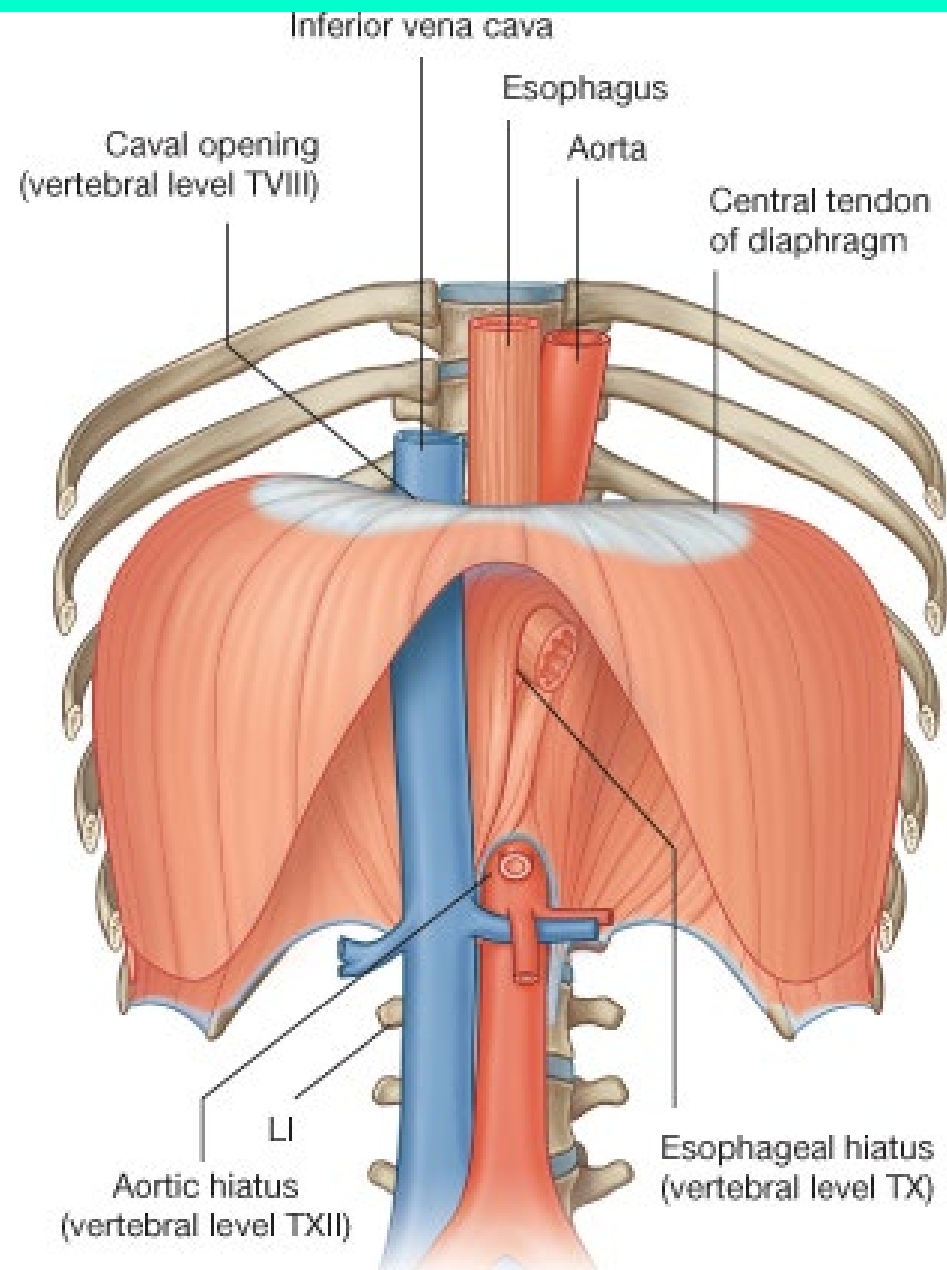
Deep Muscles of the Thorax – Breathing

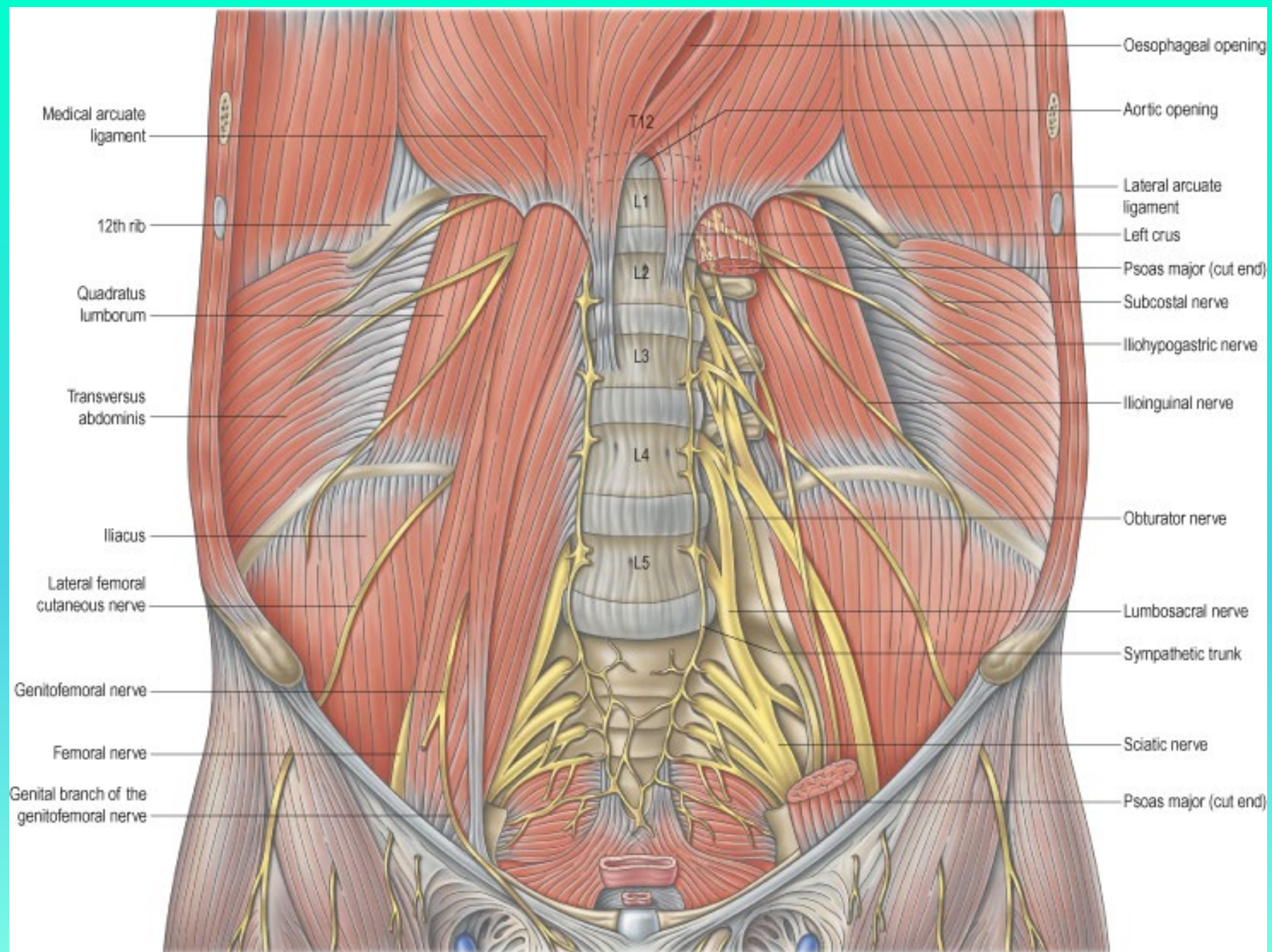




Inferior view of diaphragm



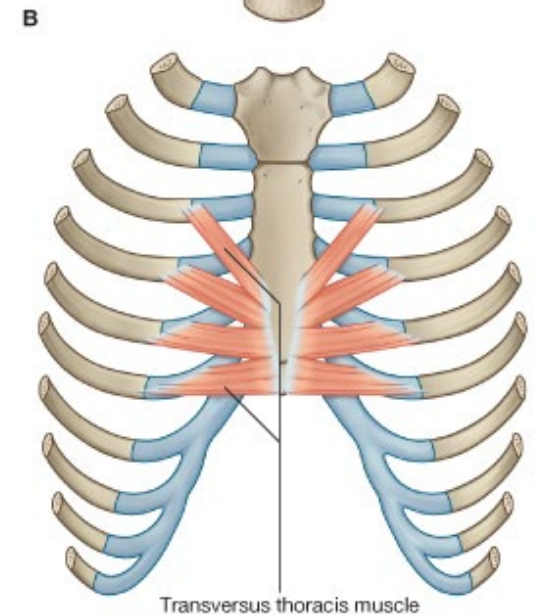
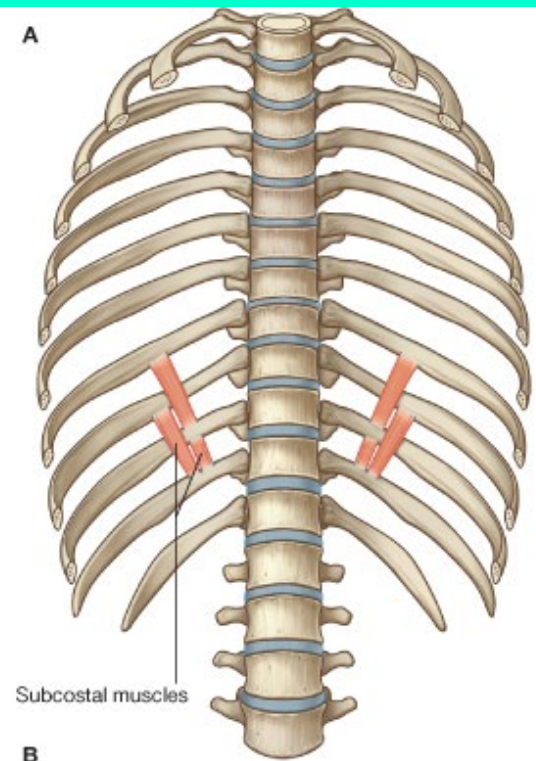


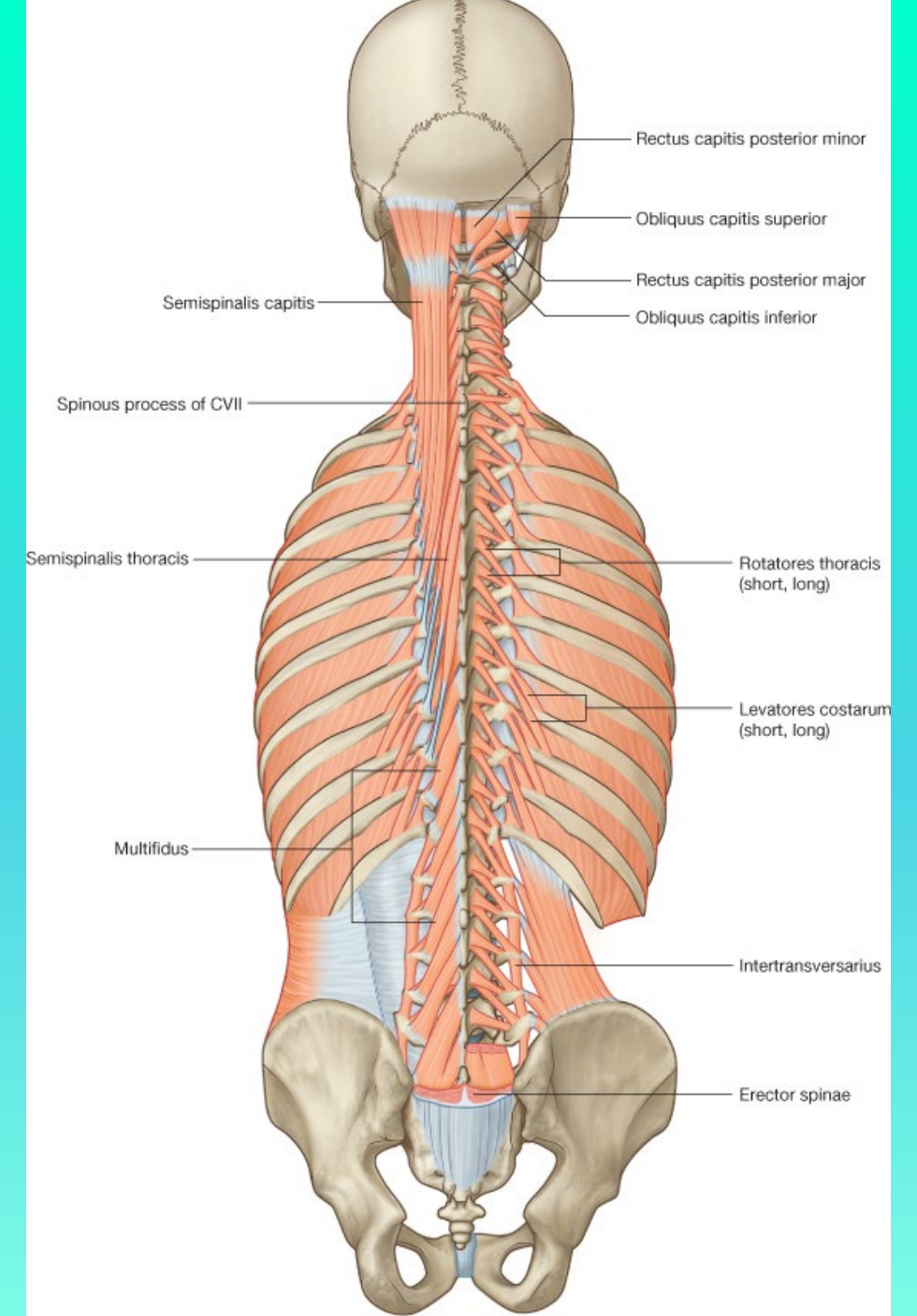
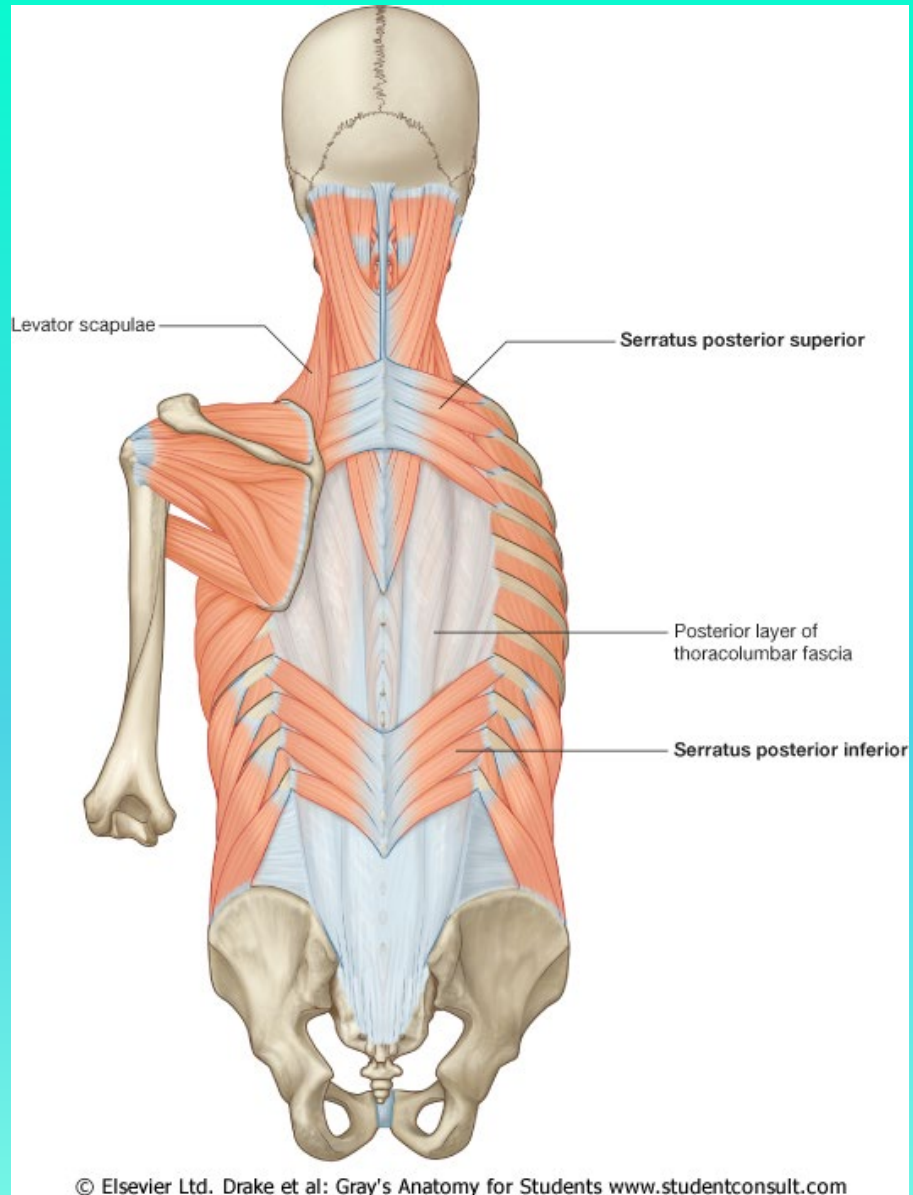


Chest Wall Muscles

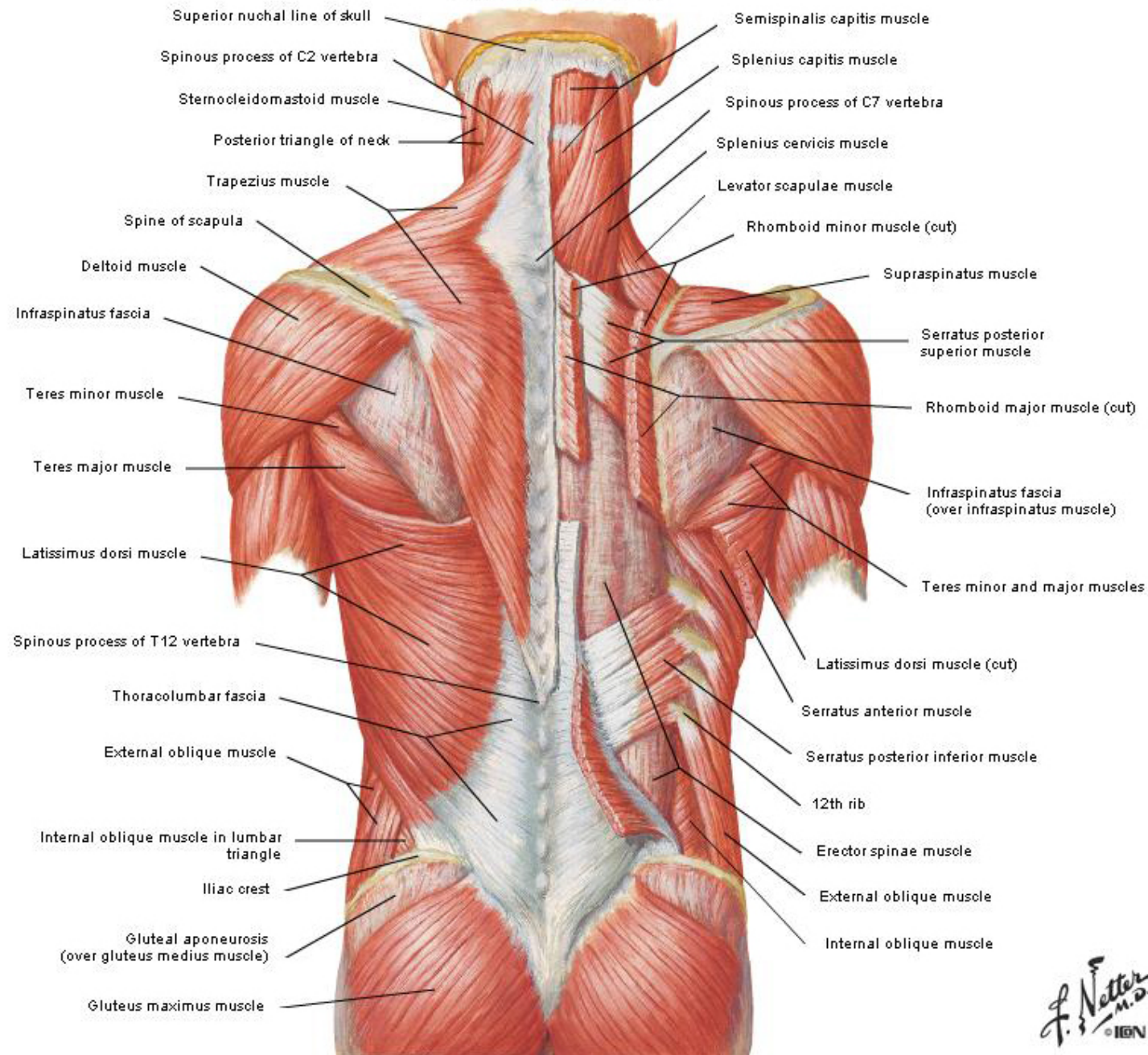
Respiratory Muscles:

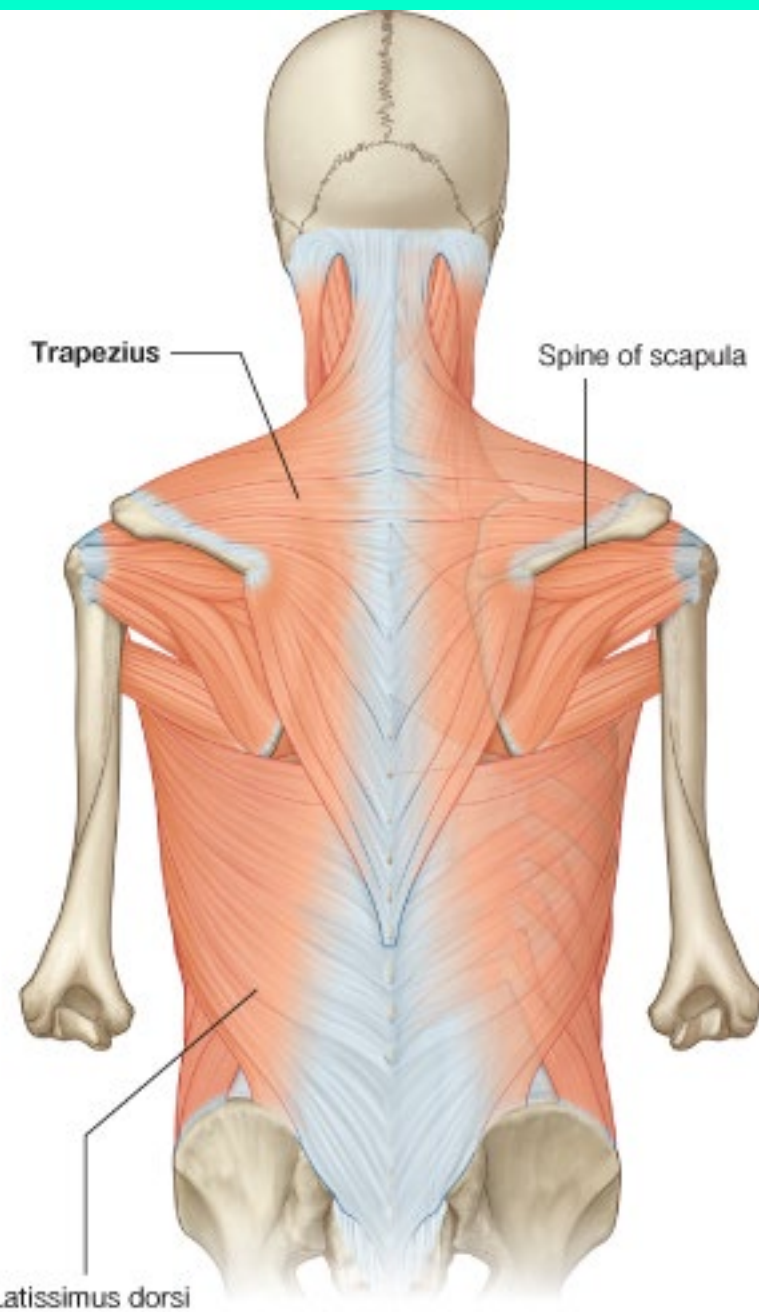
- 1- Intercostal mm.
- 2- Subcostal mm.
- 3- Transverse thoracis m.
- 4- Levator costarum mm.
- 5- Serratus post. sup. m.
- 6- Serratus post. inf. m.
- 7- Diaphragm

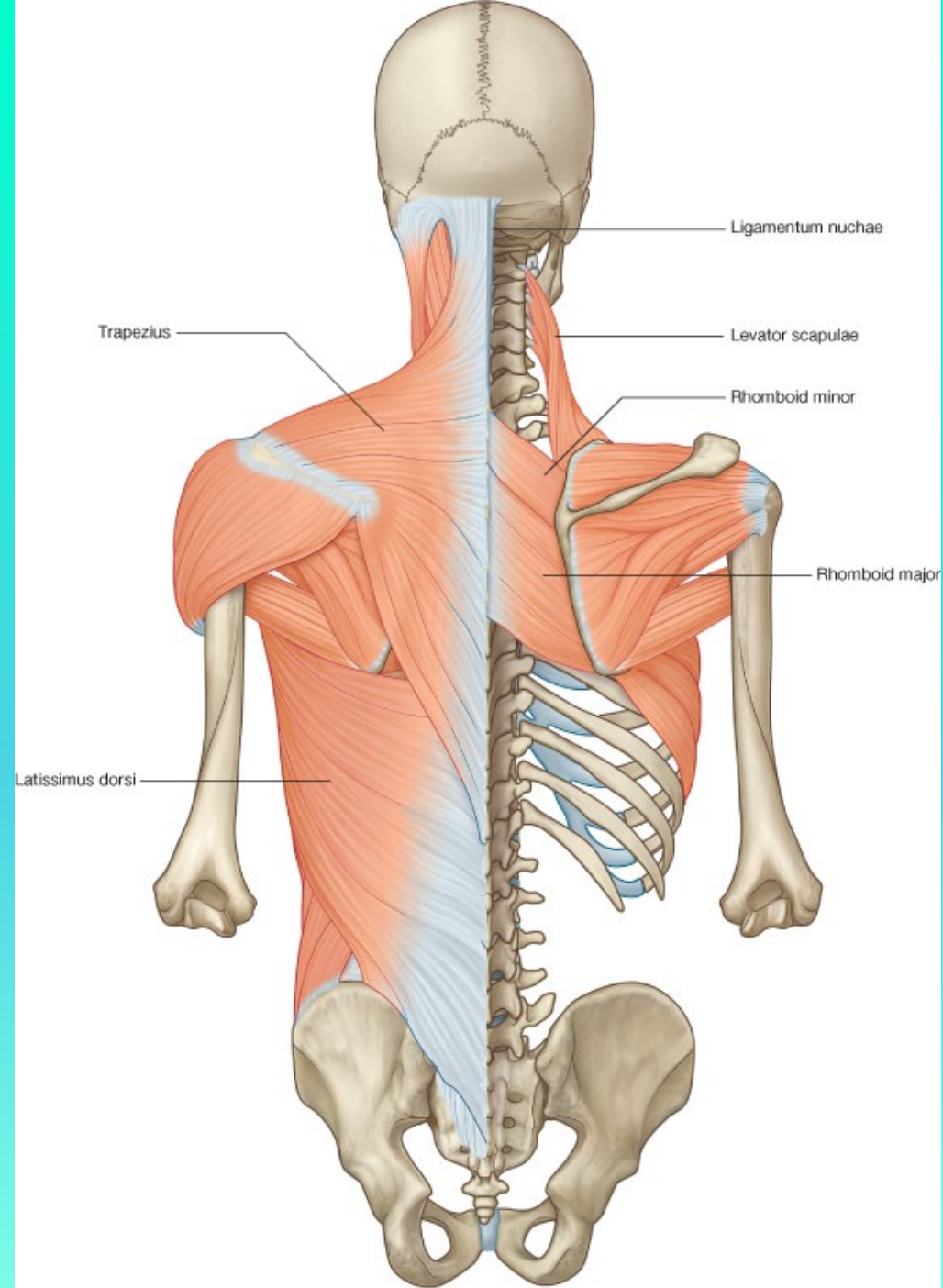




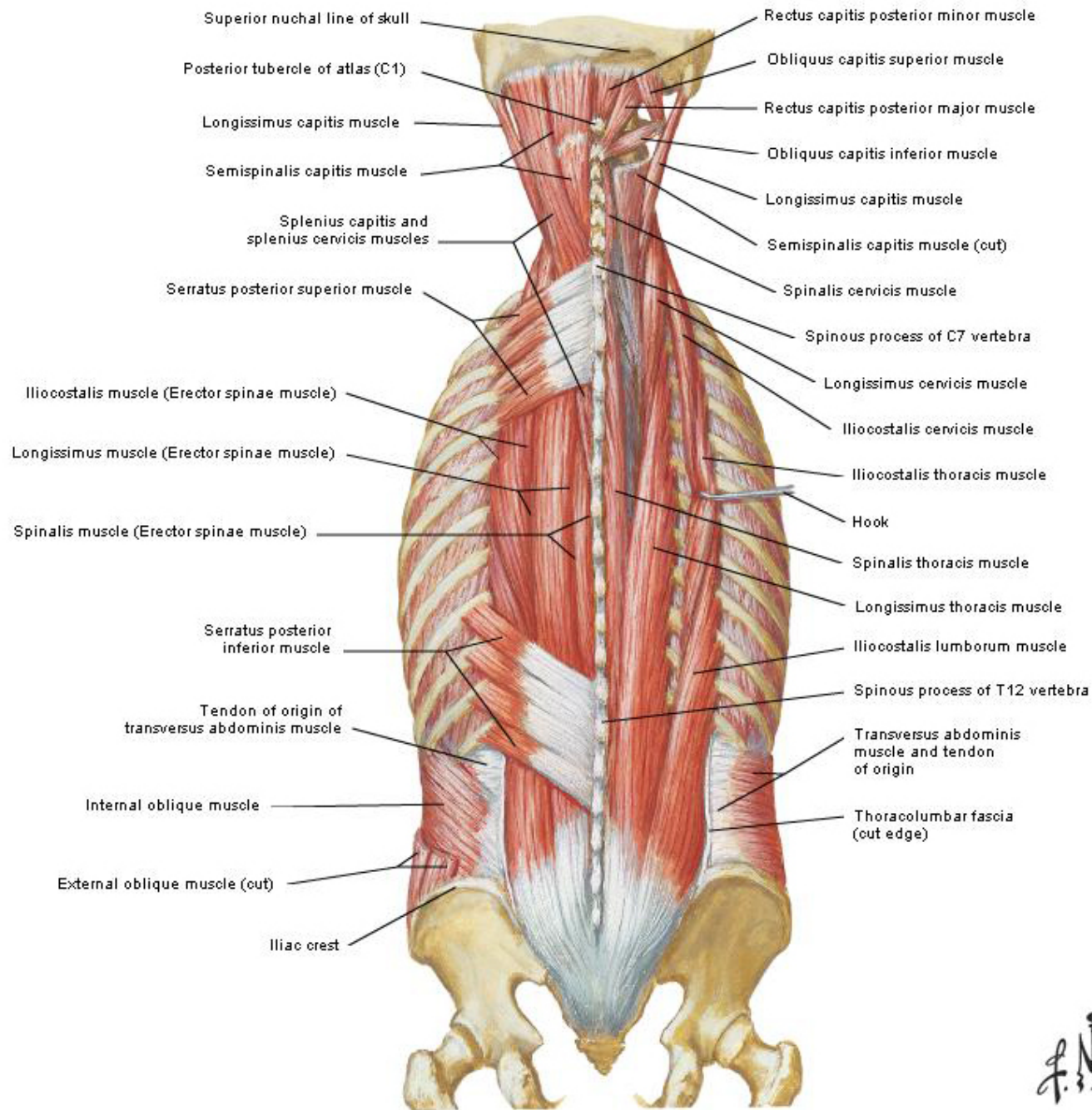
Muscles of Back Superficial Layers



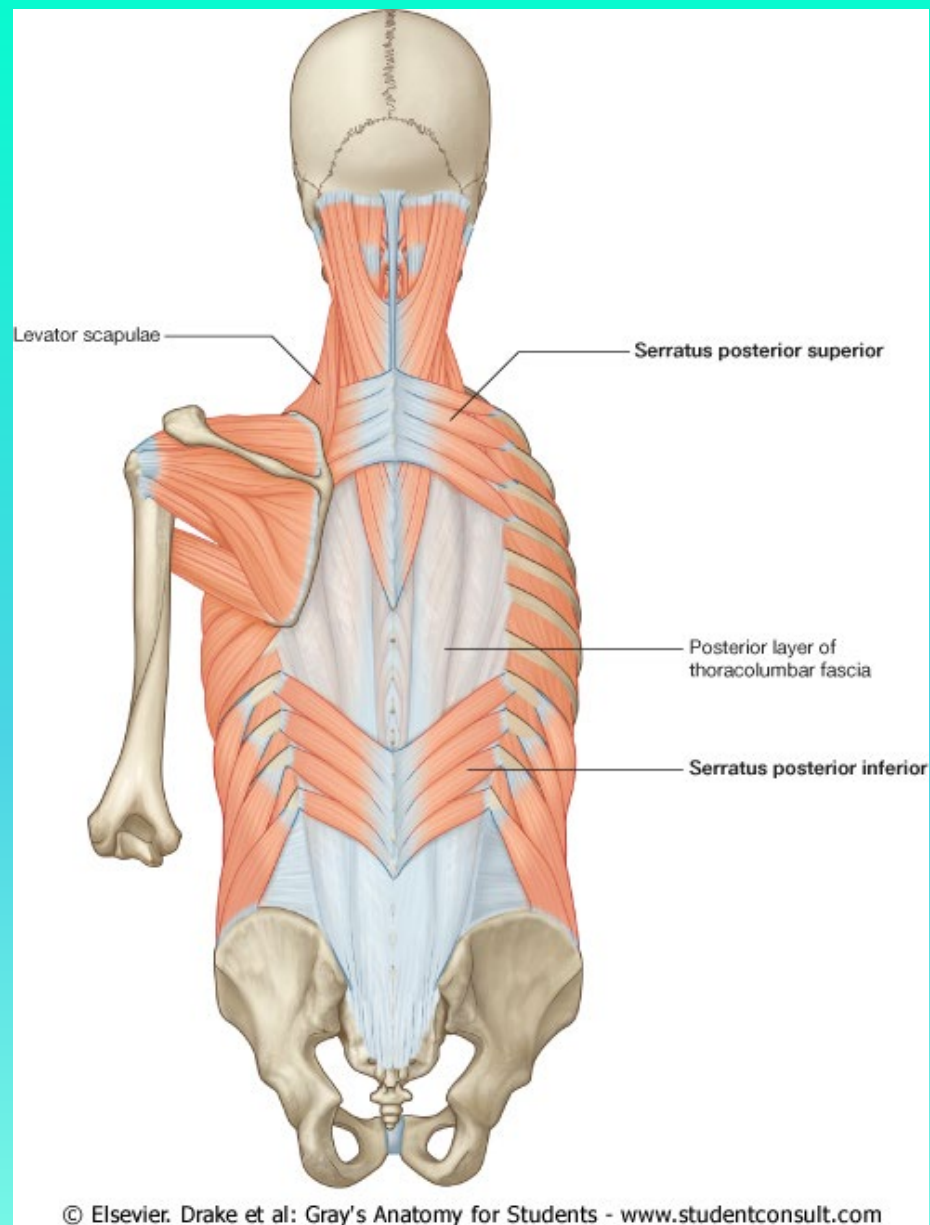




Muscles of Back: Intermediate Layers



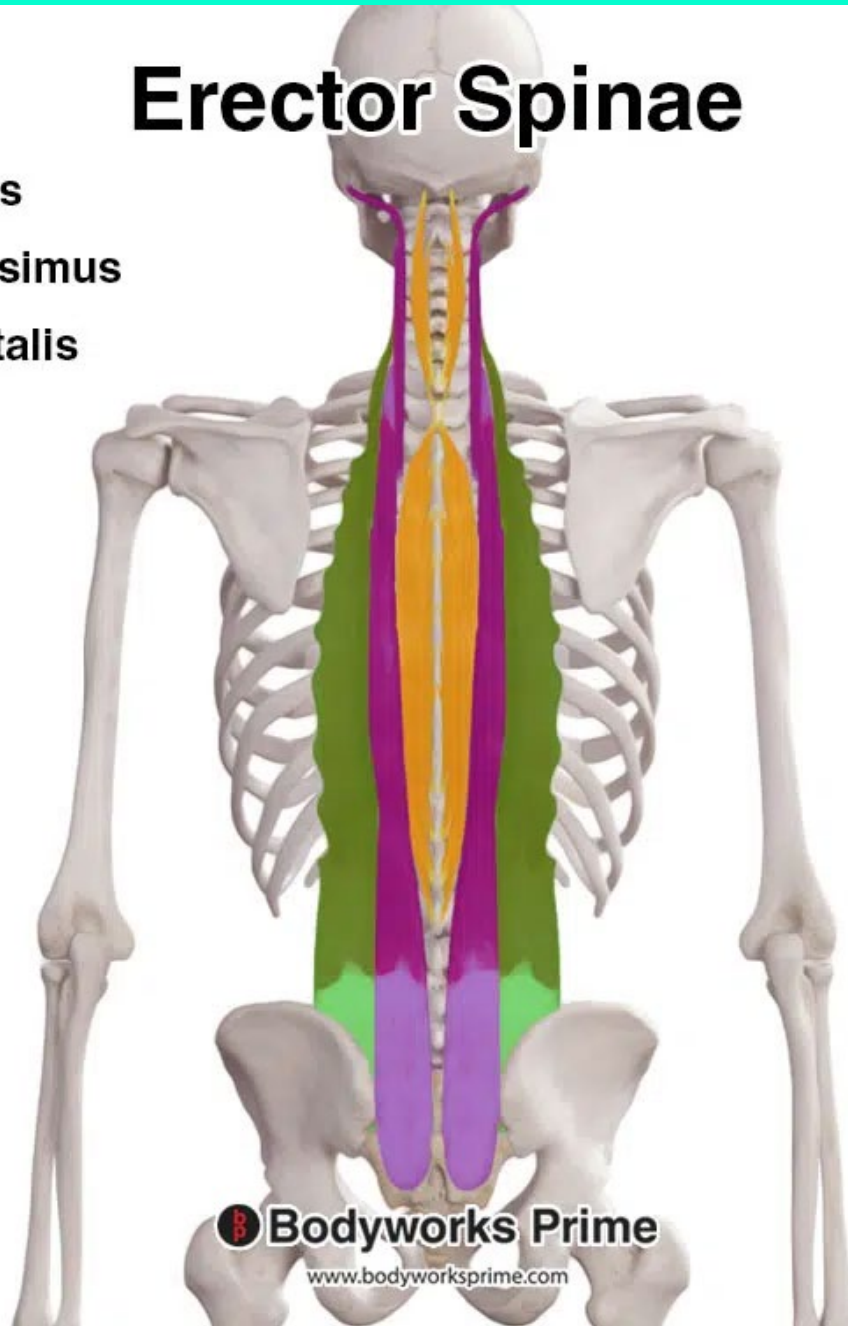
F. Netter M.D.
© IGV

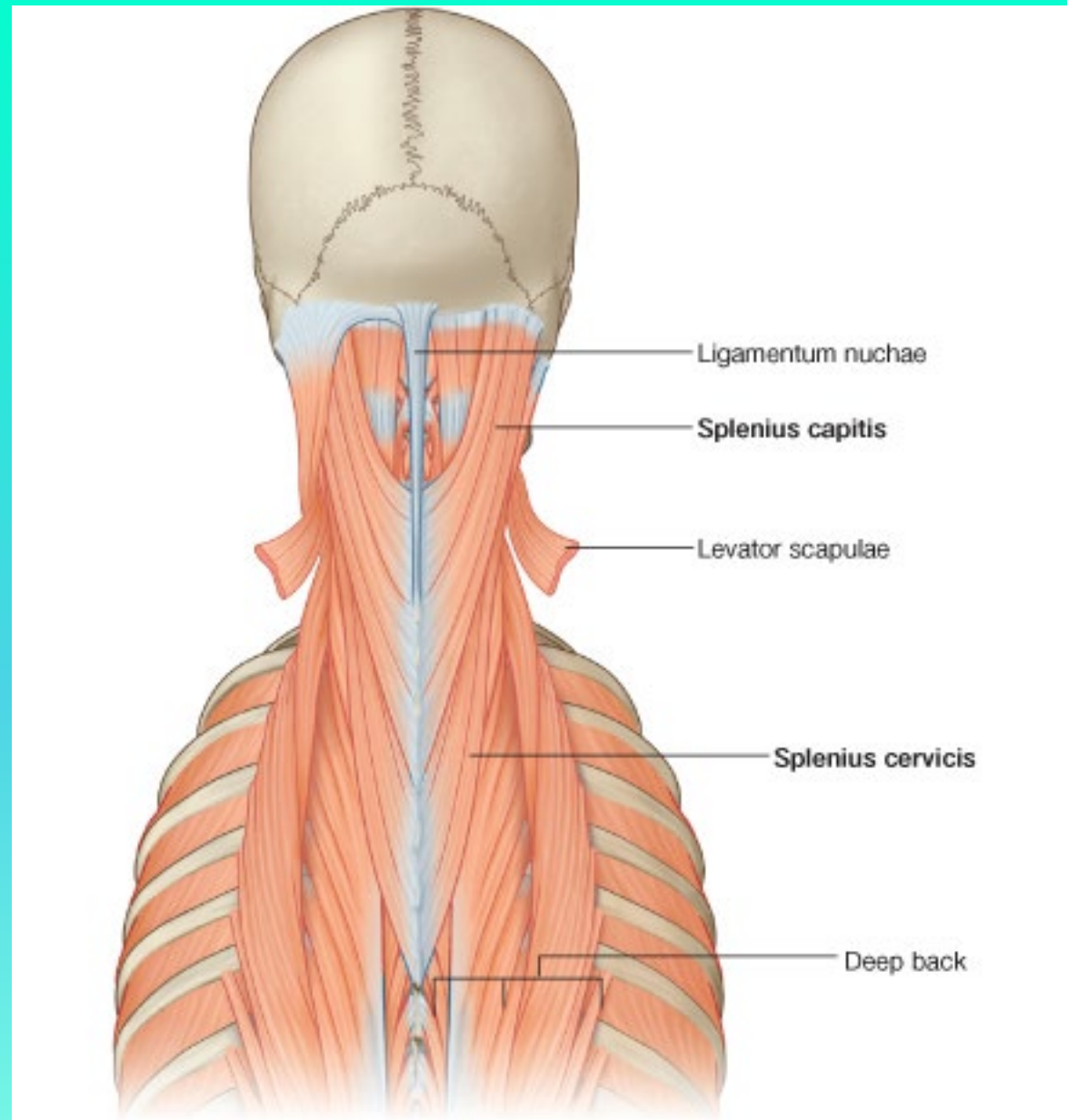


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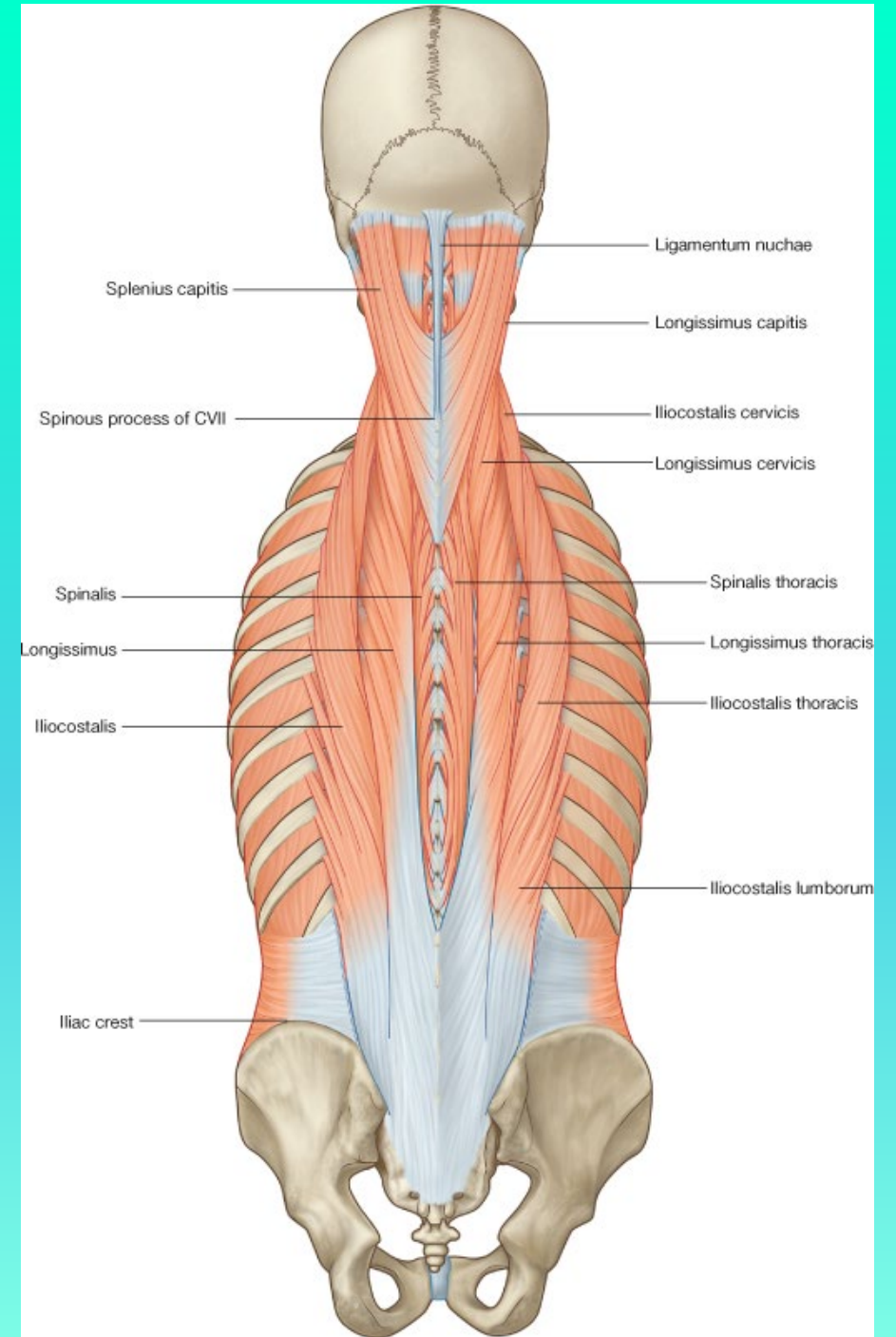
Erector Spinae

- Spinalis
- Longissimus
- Iliocostalis





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- **Spinalis**

Spinalis capitis: spinous processes of C6-T2 and nuchal ligament

Spinalis cervicis: spinous processes of C7-T1 and nuchal ligament

Spinalis thoracis: spinous processes of T11-L2 vertebrae

- **Longissimus**

Longissimus capitis: transverse processes of C4-T4

Longissimus cervicis: transverse processes of T1-T4

Longissimus thoracis: dorsal surface of sacrum & median sacral crest, posterior superior iliac spine, & transverse processes of L1-L5

- **Iliocostalis**

Iliocostalis cervicis: angle of ribs 3-6

Iliocostalis thoracis: angle of ribs 7-12

Iliocostalis lumborum: medial end of iliac crest, lateral crest of sacrum, & thoracolumbar fascia

- **Spinalis**

Spinalis capitis: occiput

Spinalis cervicis: spinous processes of C2/C3

Spinalis thoracis: spinous processes of T2-T8

Longissimus

Longissimus capitis: posterior edge of mastoid process

Longissimus cervicis: transverse processes of C2-C6

Longissimus thoracis: transverse process of T1-T12 & dorsal aspect of ribs 3-12

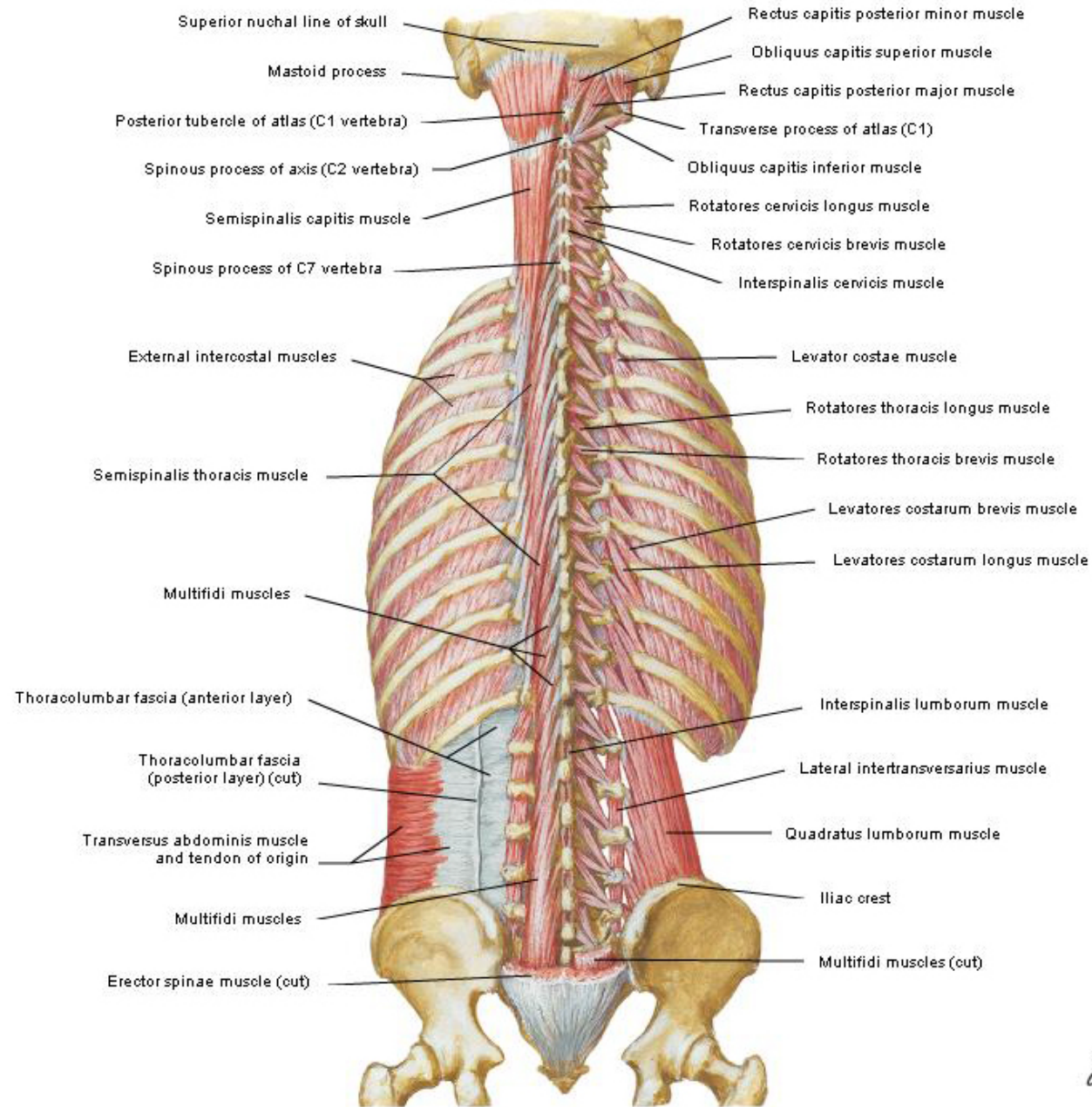
Iliocostalis

Iliocostalis cervicis: transverse process of C4-C6

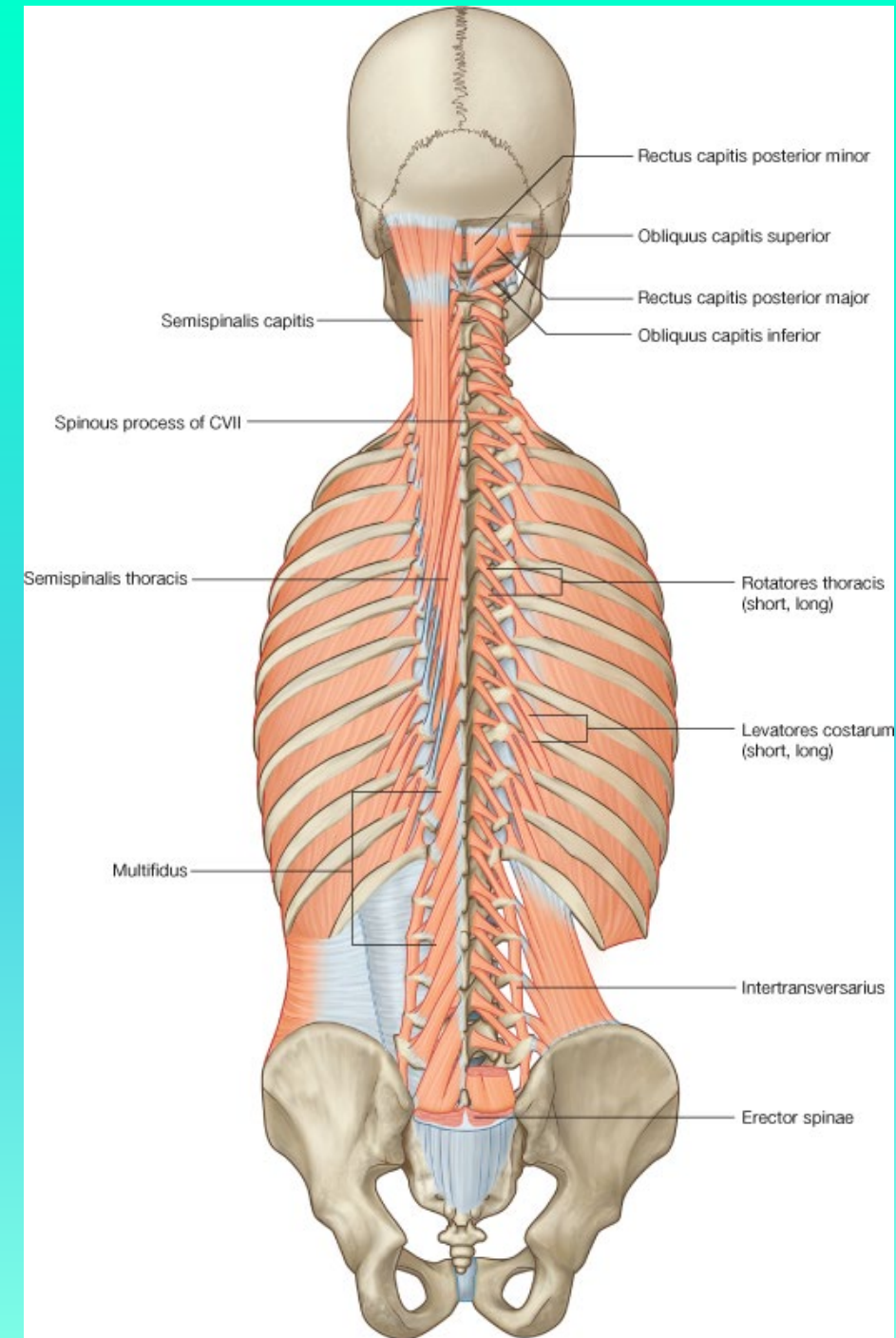
Iliocostalis thoracis: transverse process of C7 & angles of ribs 1-6

Iliocostalis lumborum: transverse processes of L1-L4 & angles of ribs 4-12

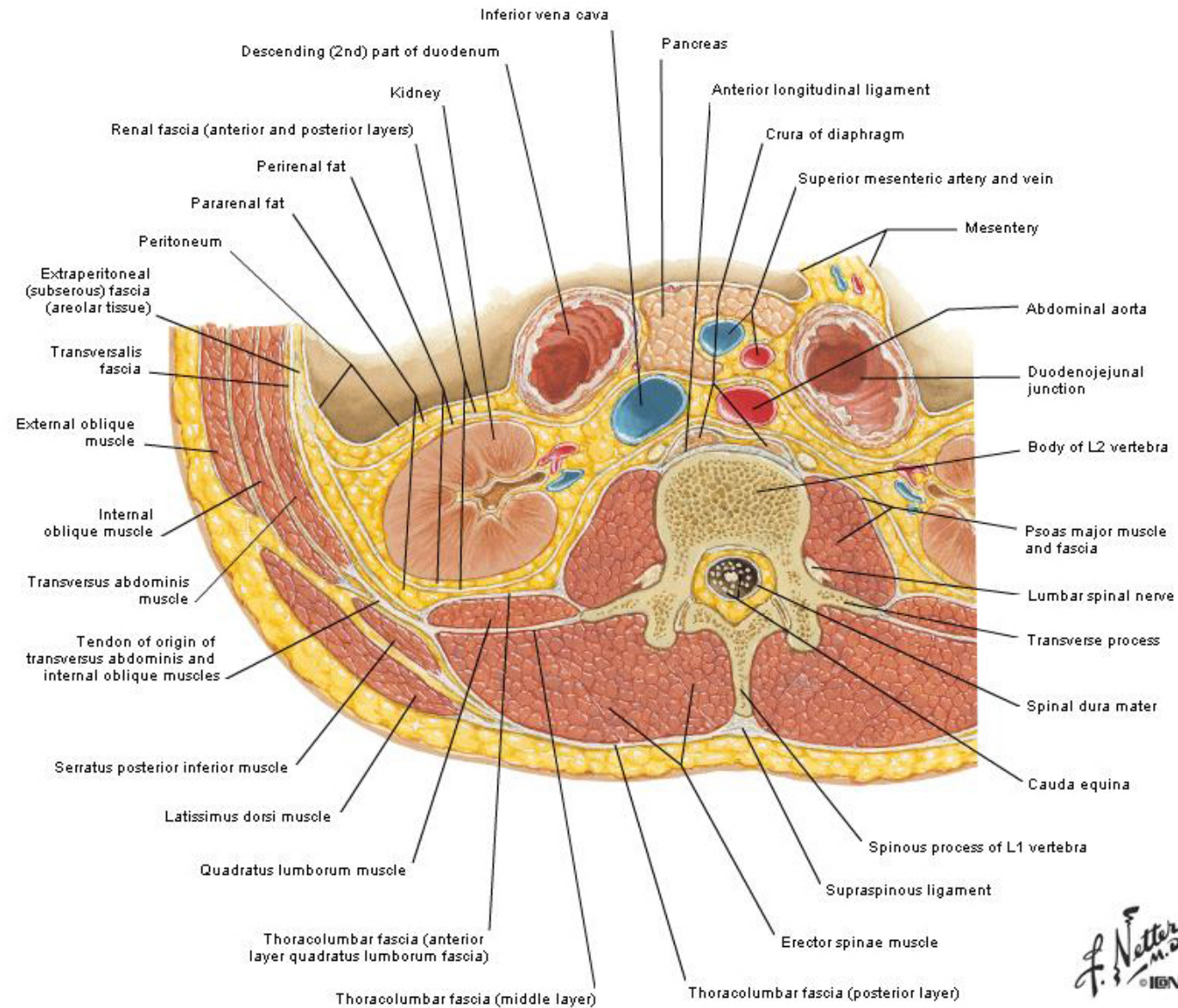
Muscles of Back Deep Layers



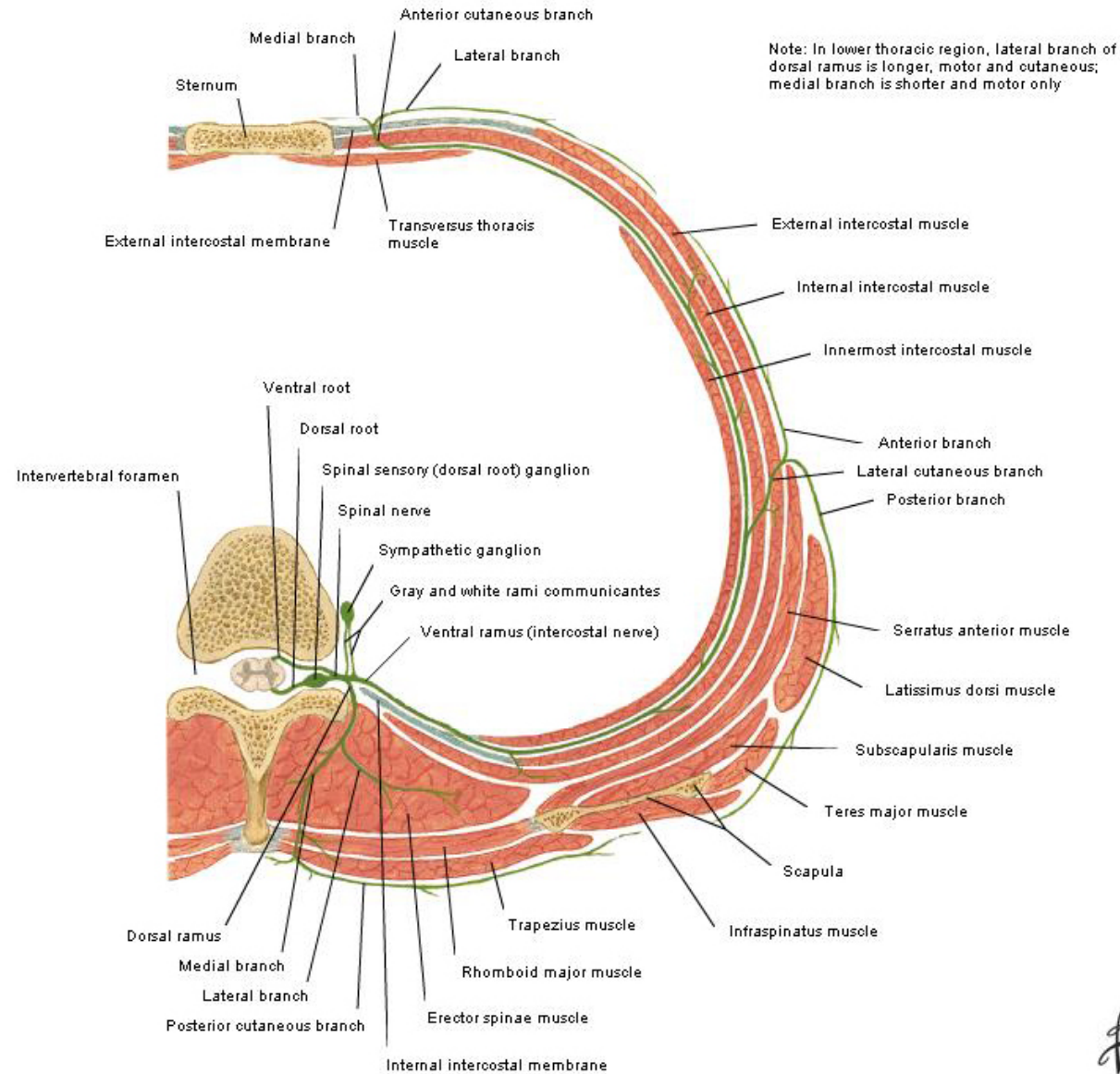
F. Netter M.D.
© IEN

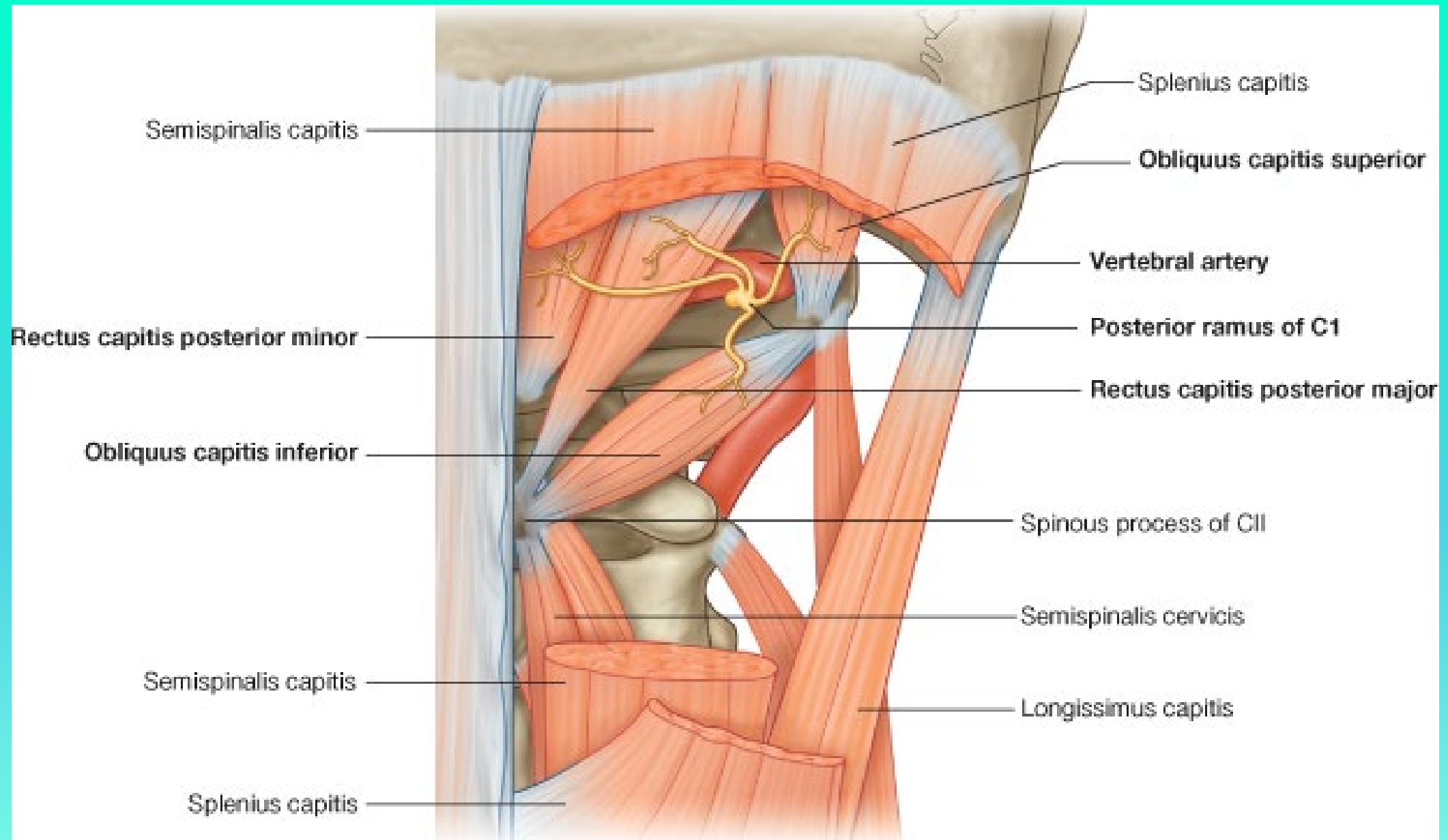


Lumbar Region of Back Cross Section

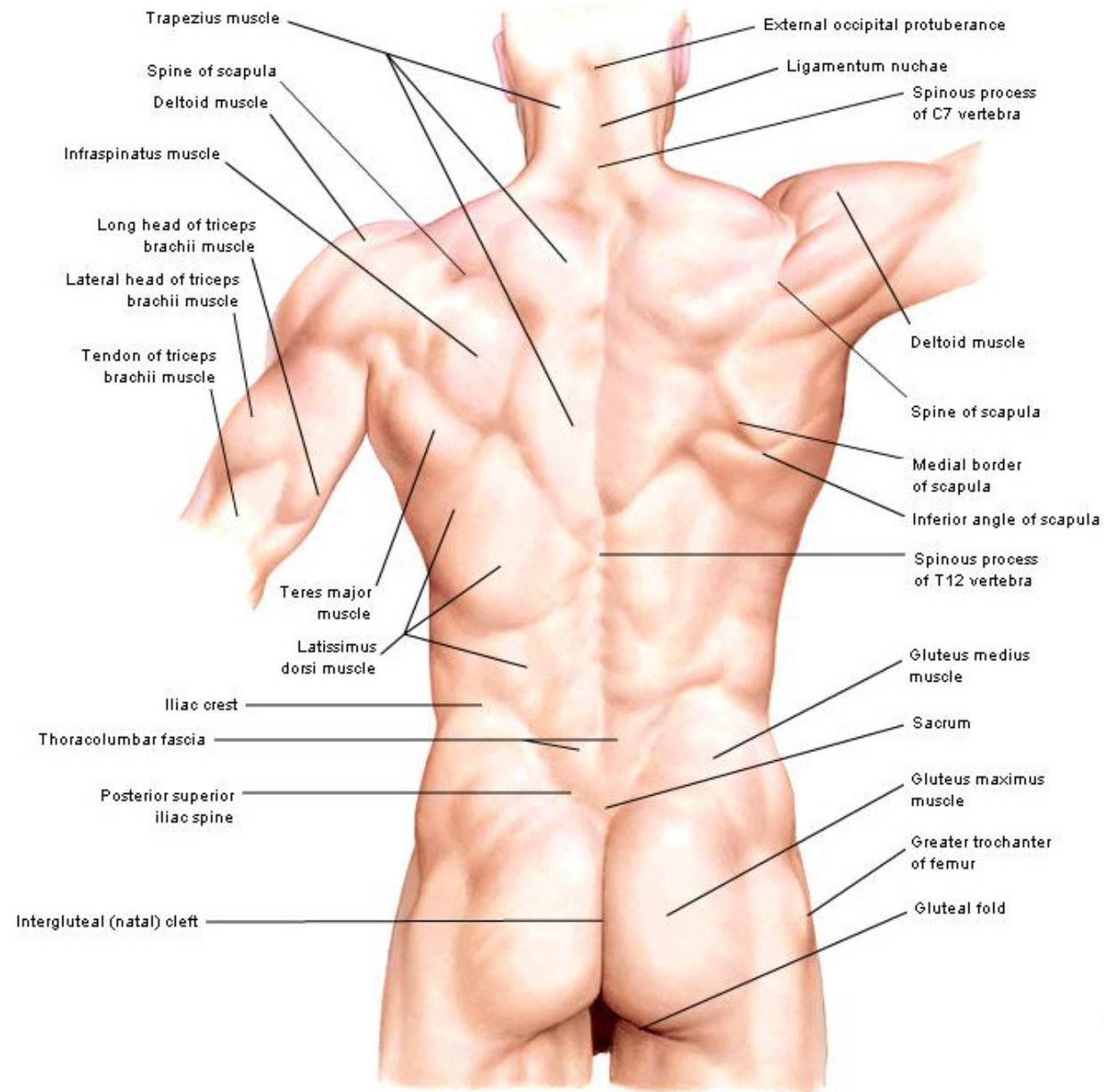


Typical Thoracic Spinal Nerve





Back



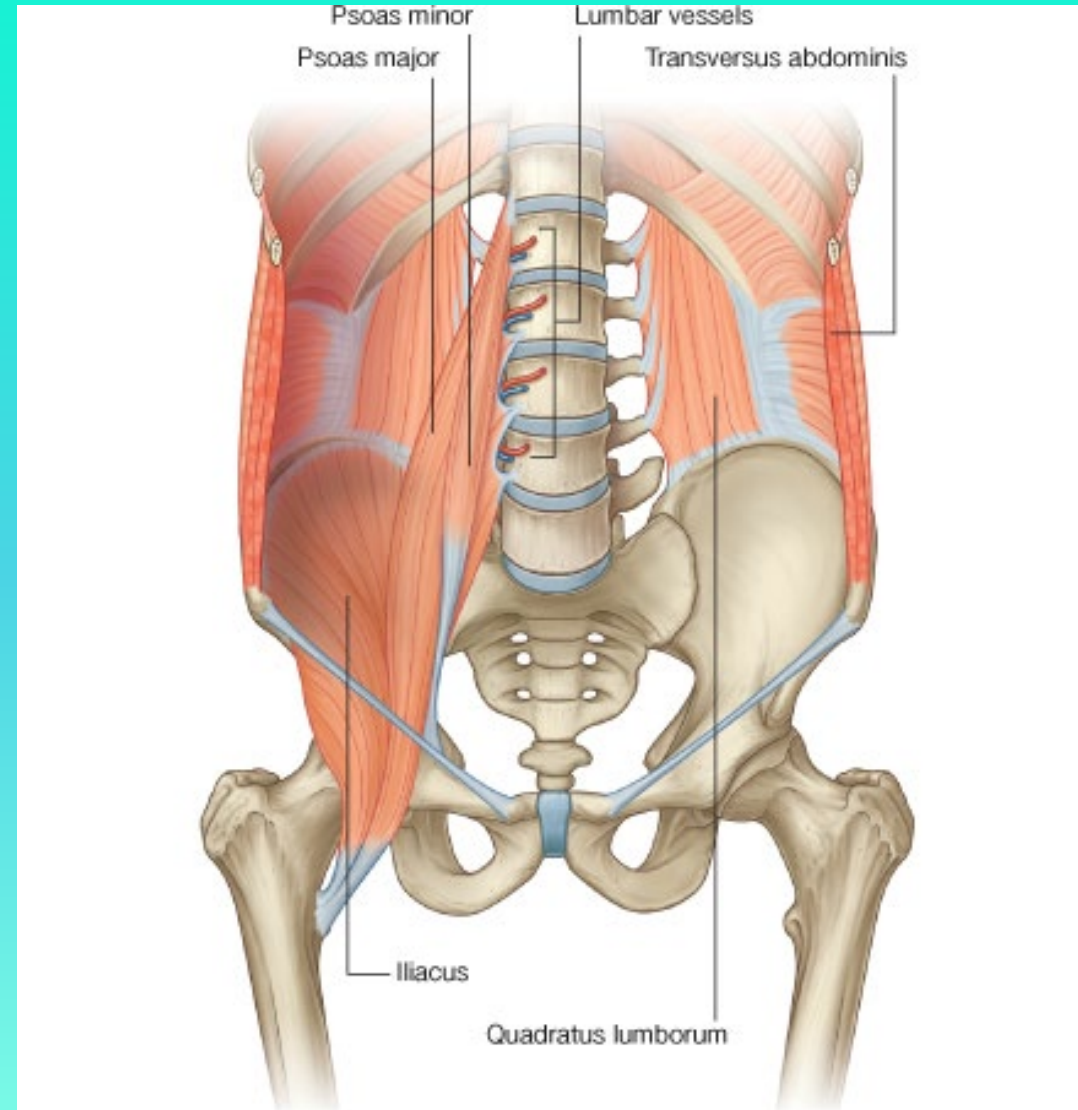
MUSCLES OF TRUNK

(ABDOMEN)

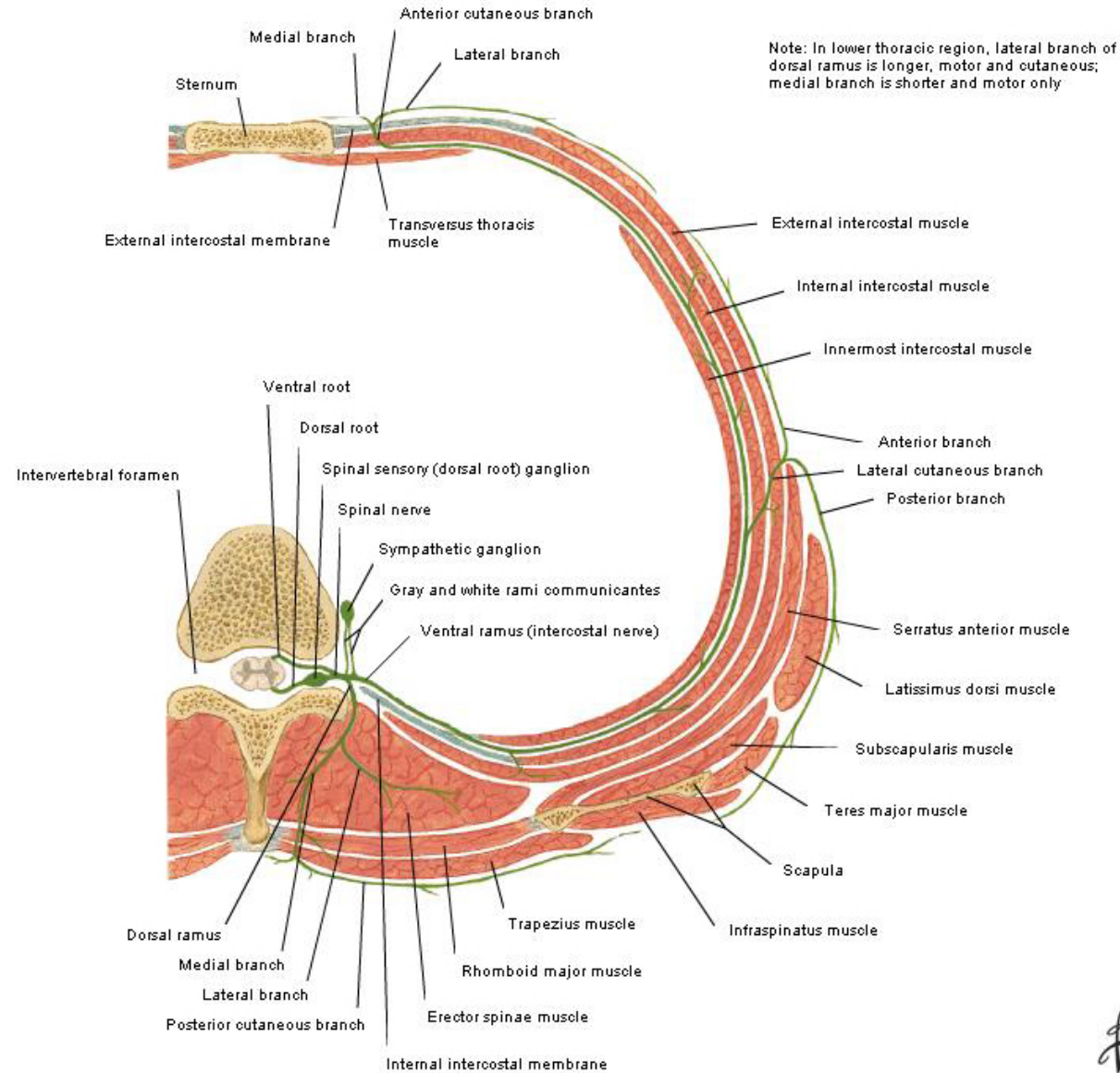
- RECTUS ABDOMINIS
- EXTERNAL ABDOMINAL OBLIQUE
- INTERNAL ABDOMINAL OBLIQUE
- TRANSVERSUS ABDOMINIS
- Muscles of the post. Abdominal wall

Muscles of the post. Abdominal wall

- 1- Psoas major
- 2- Psoas minor
- 3- Quadratus Lumborum
- 4- iliacus

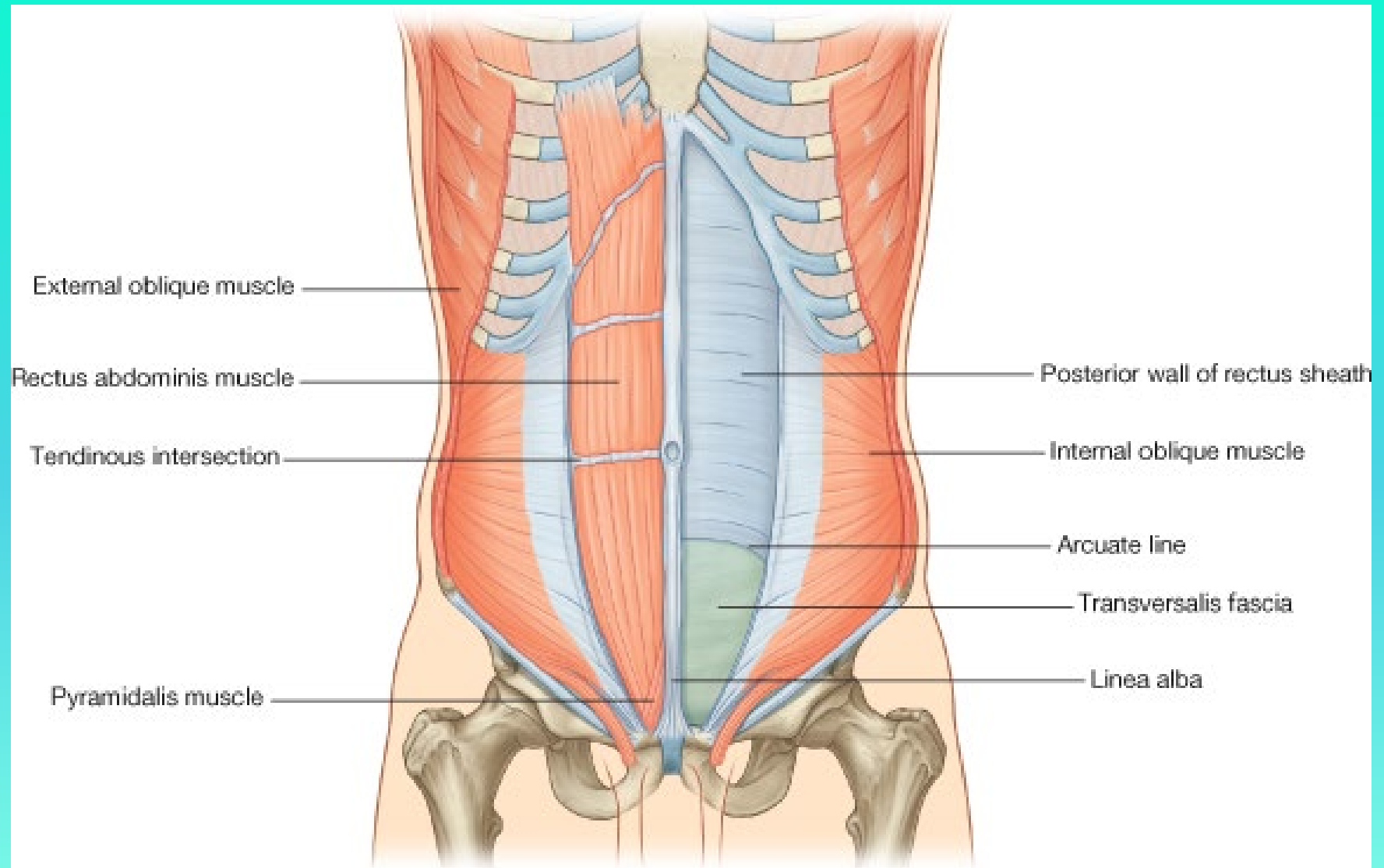


Typical Thoracic Spinal Nerve

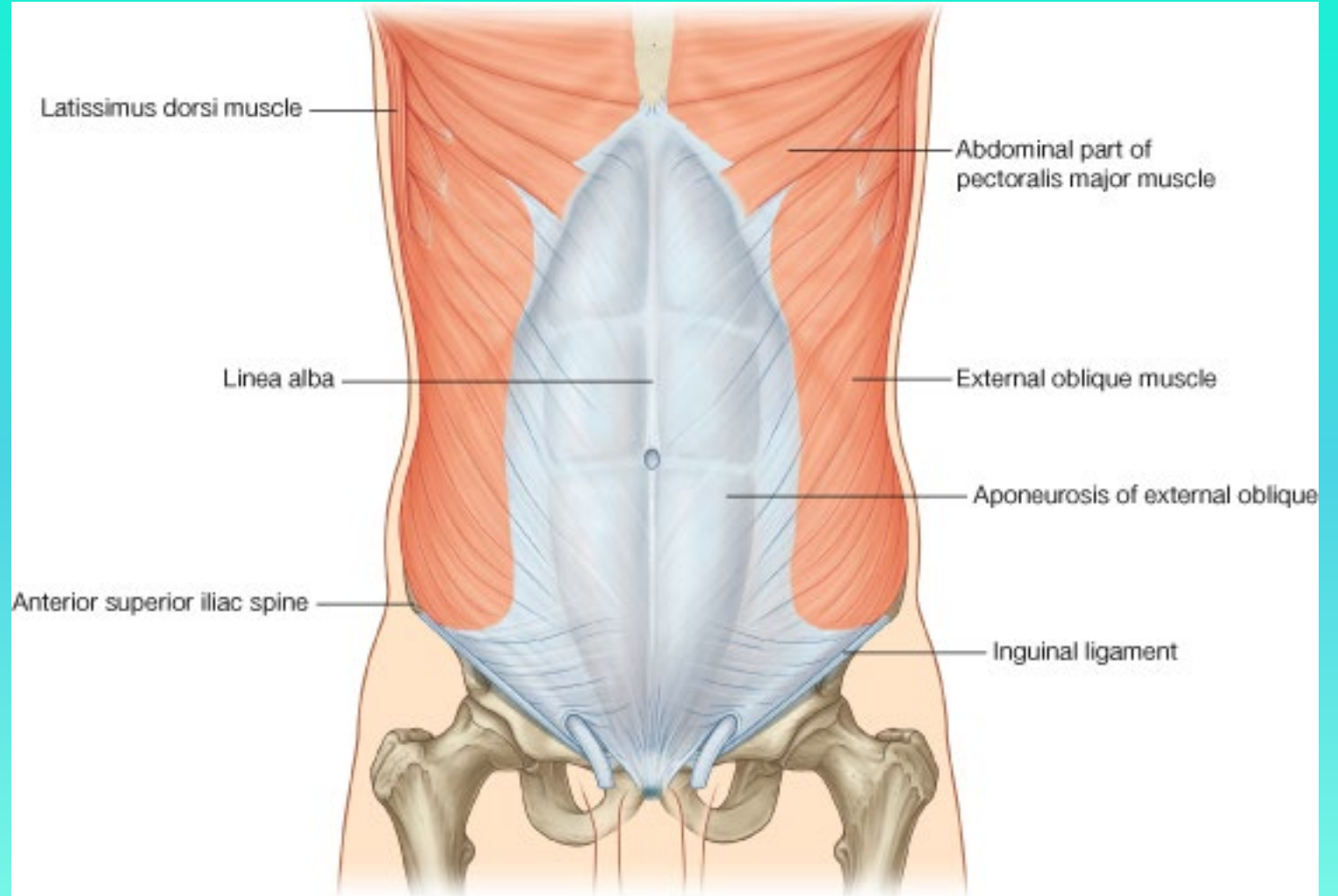
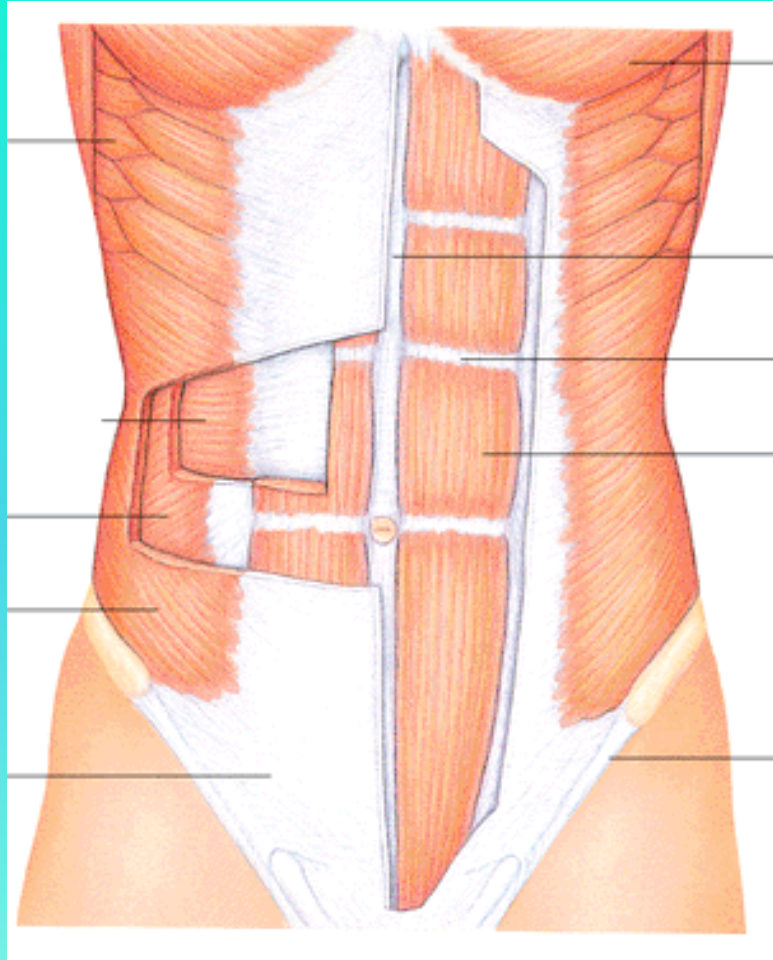


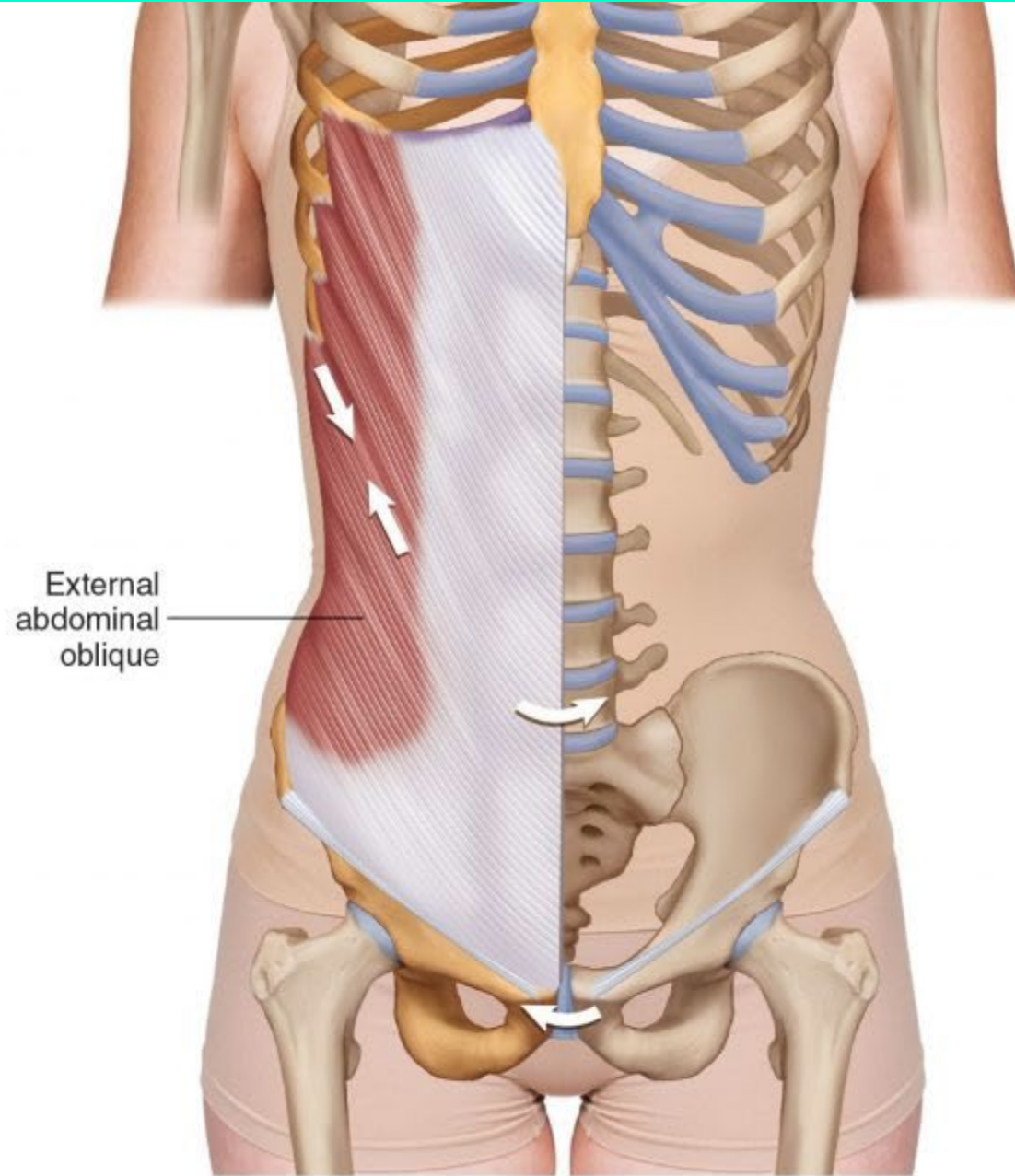
RECTUS ABDOMINUS

Flexes
Abdomen

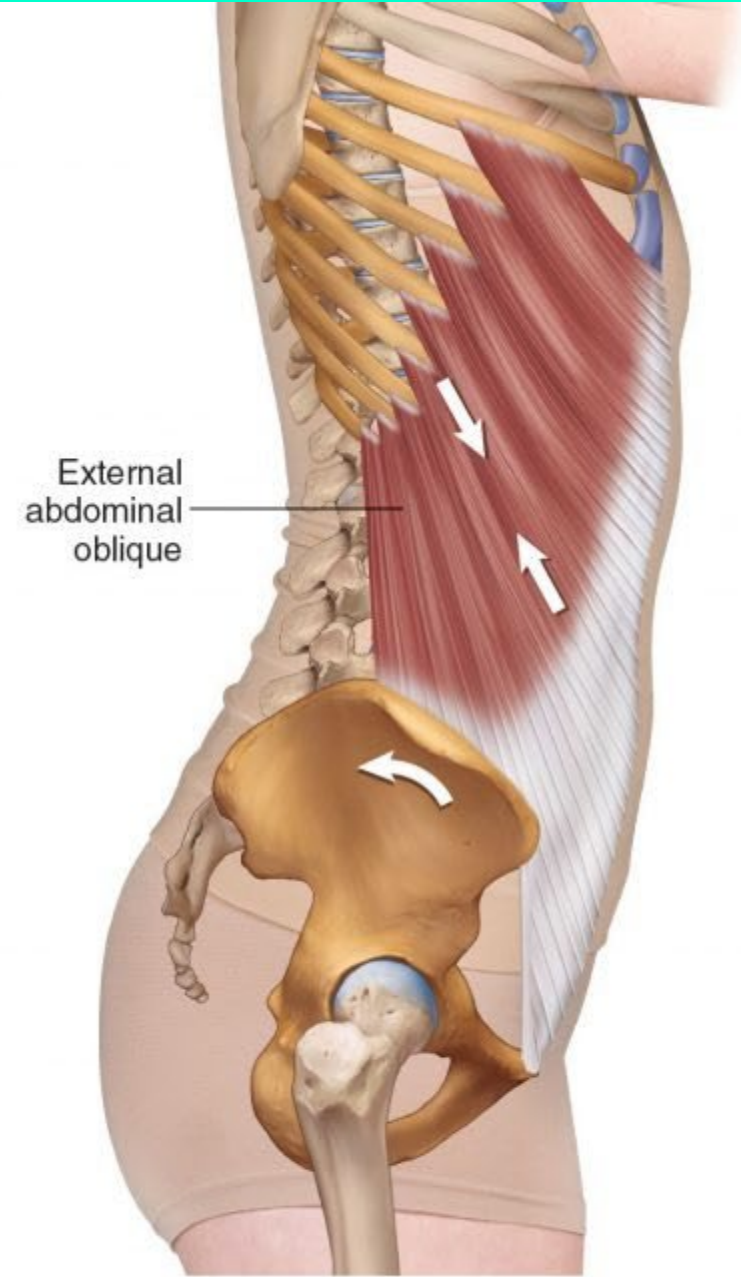


EXTERNAL OBLIQUE





A



B

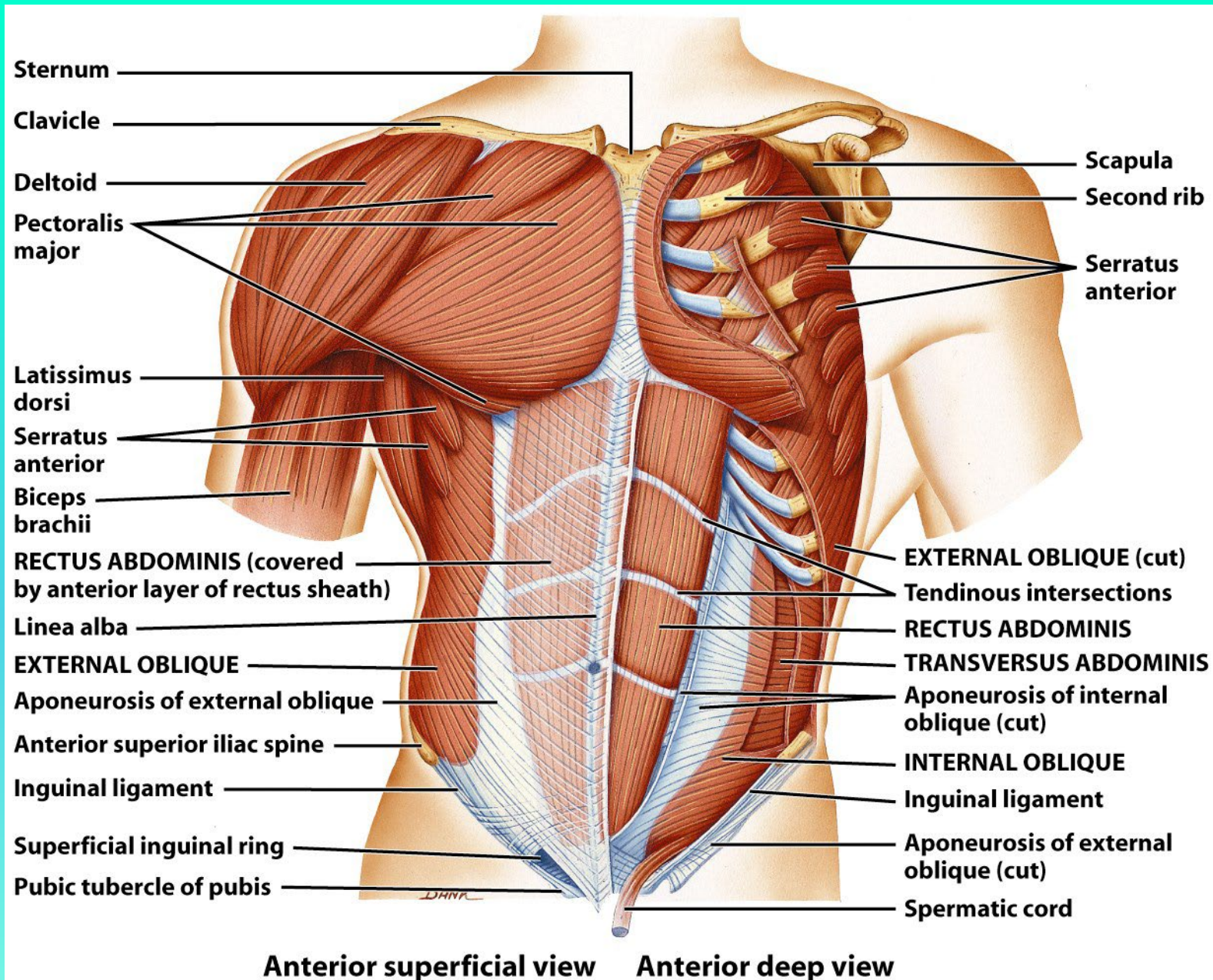


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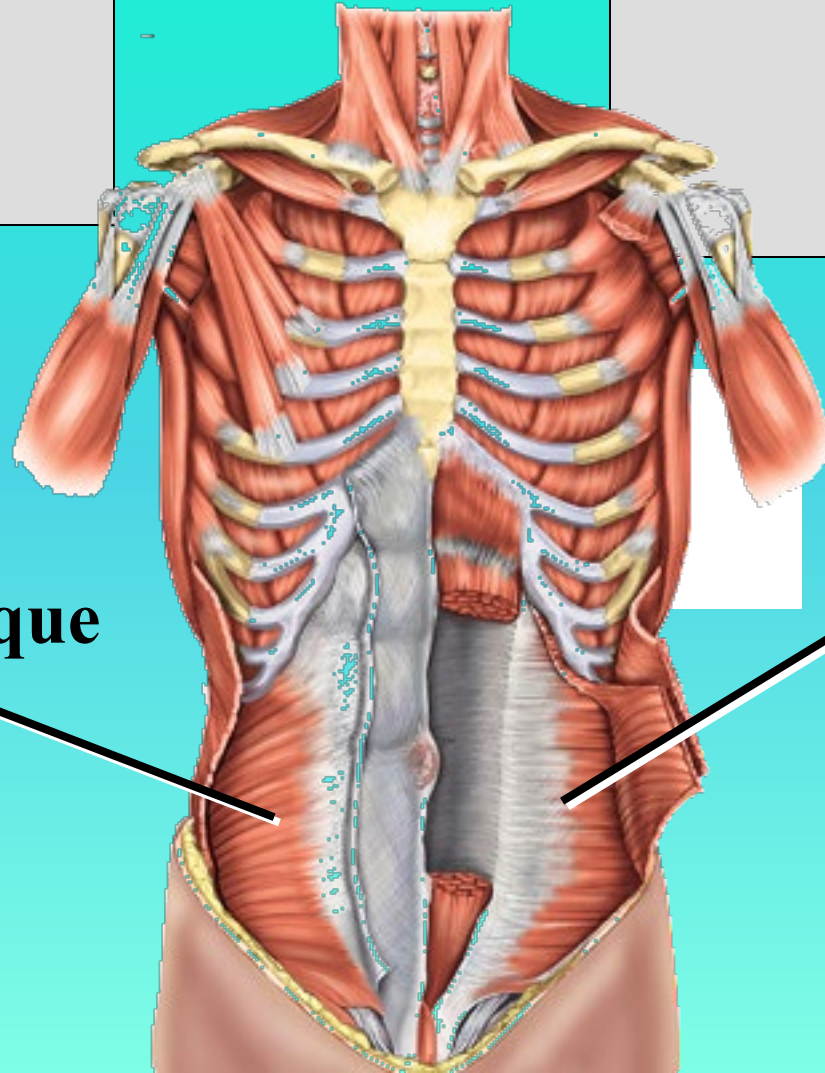
Internal Oblique -Transverse Abdominis

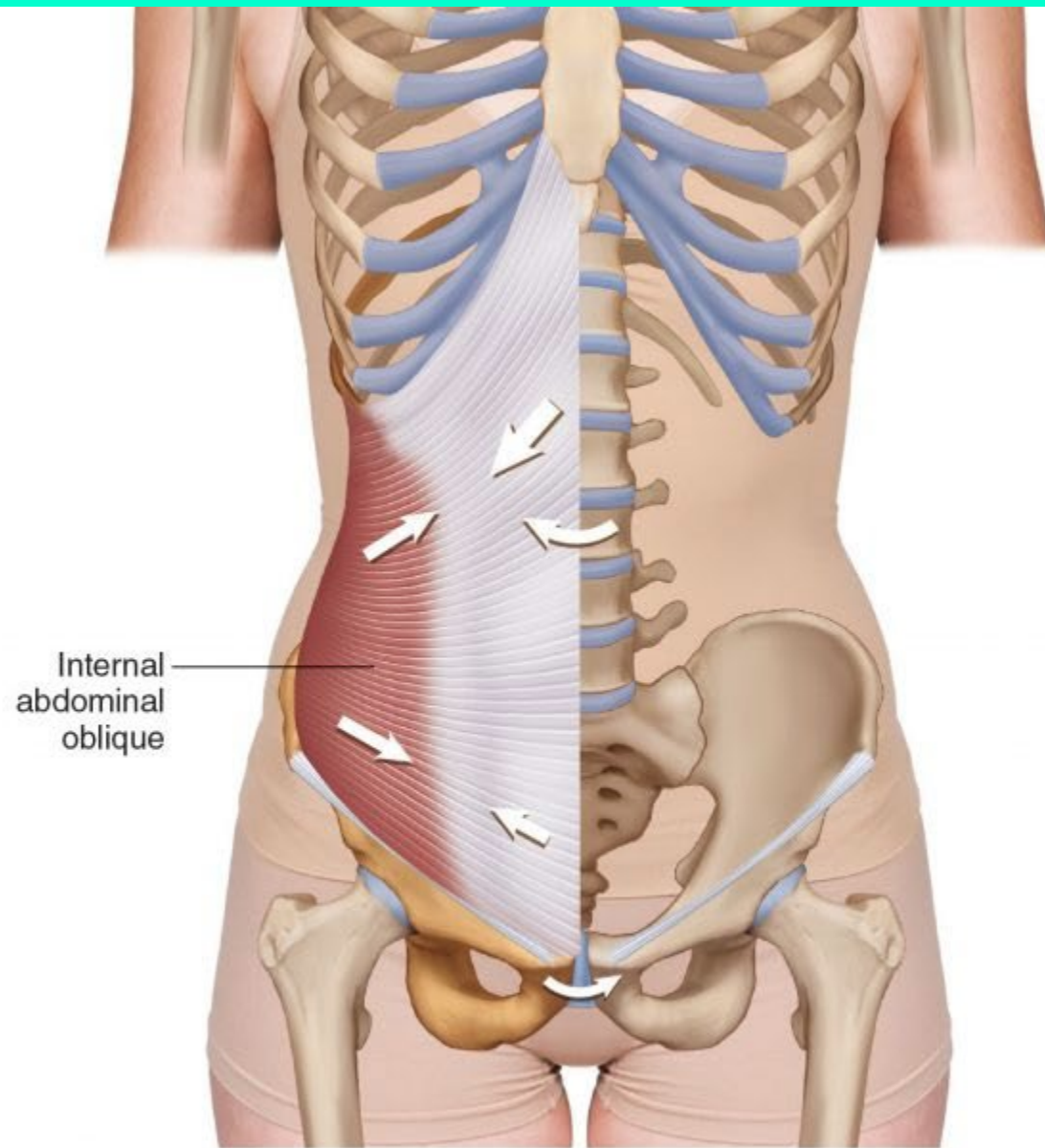
- Internal oblique

- Transverse abdominis

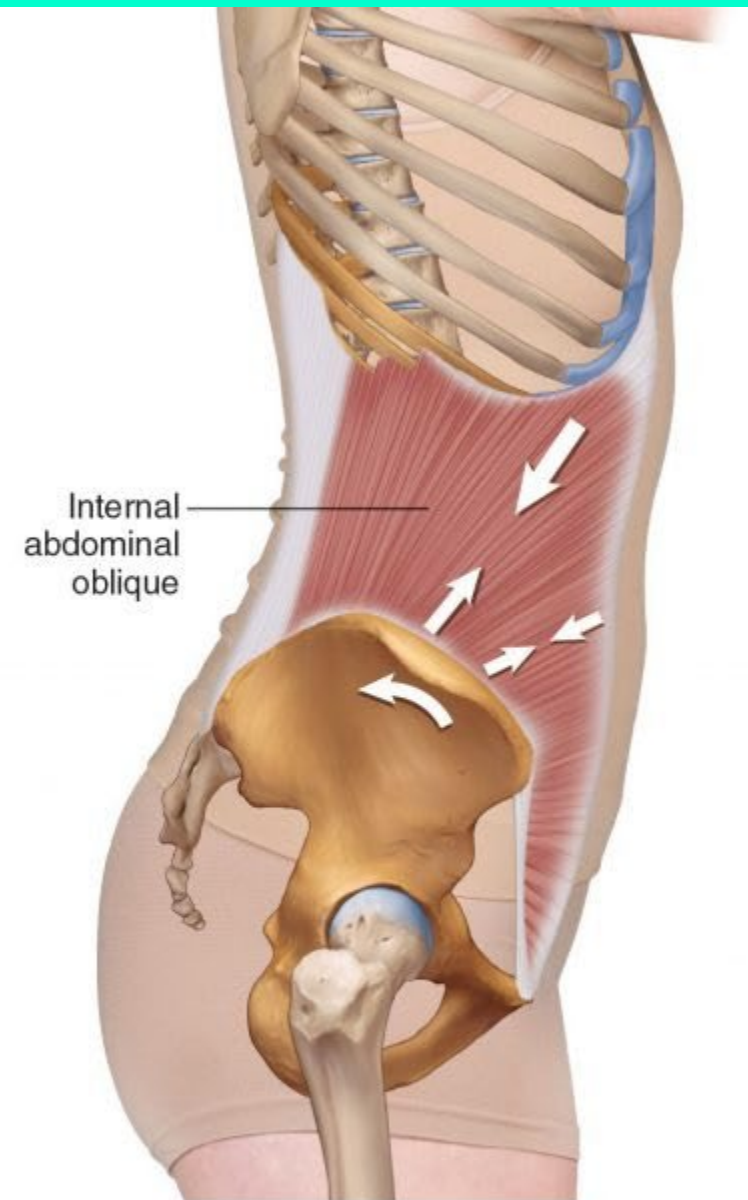
Internal oblique

**Transverse
abdominis**

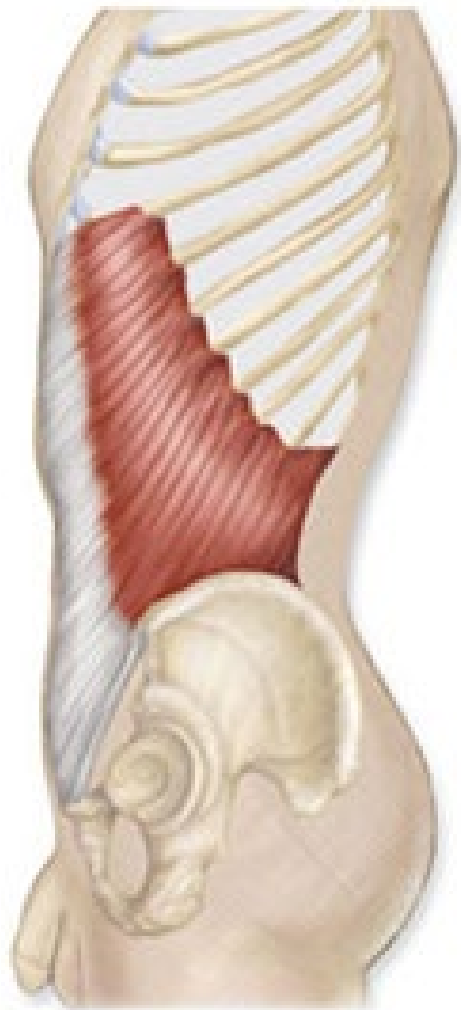




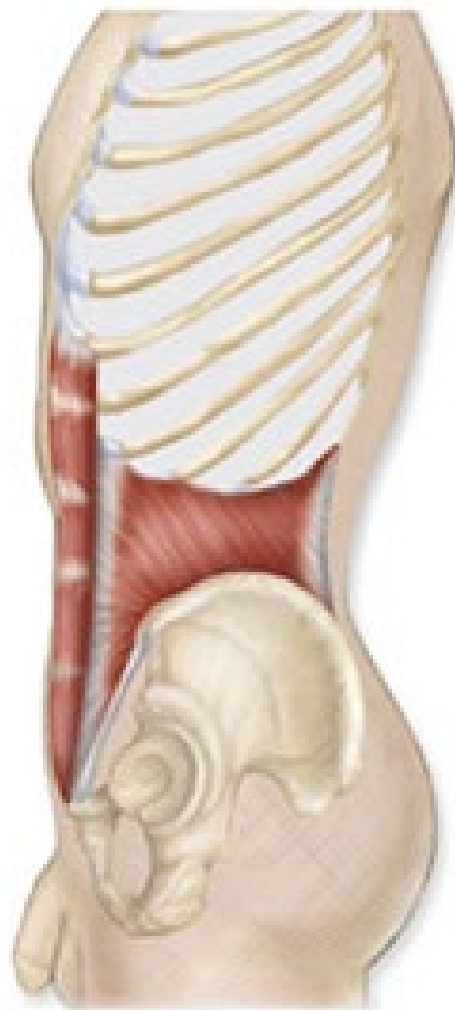
A



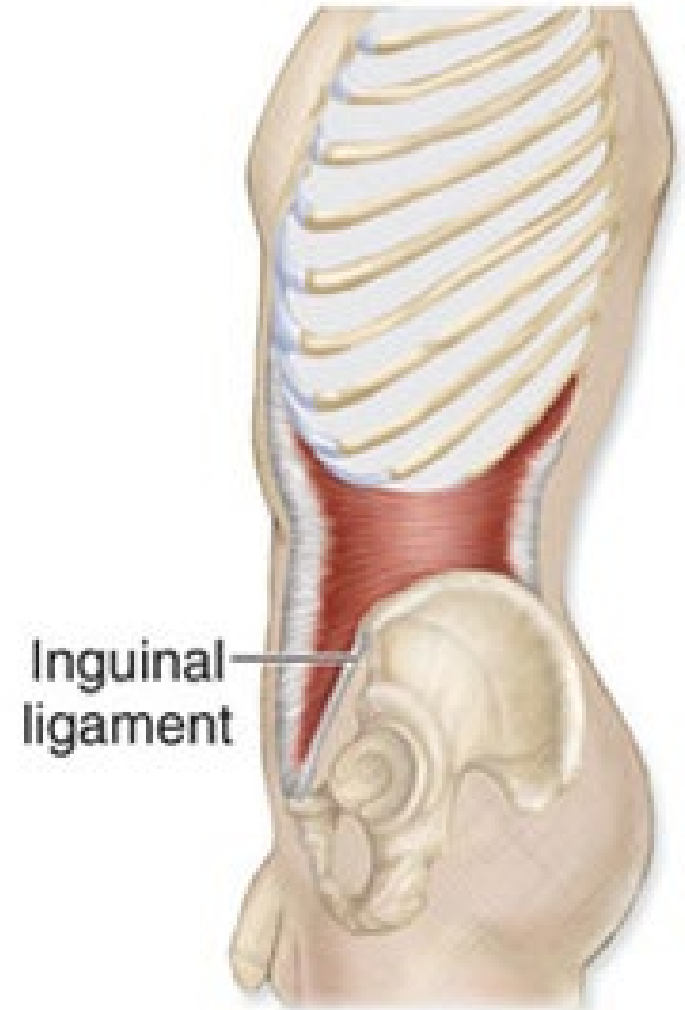
B



External oblique

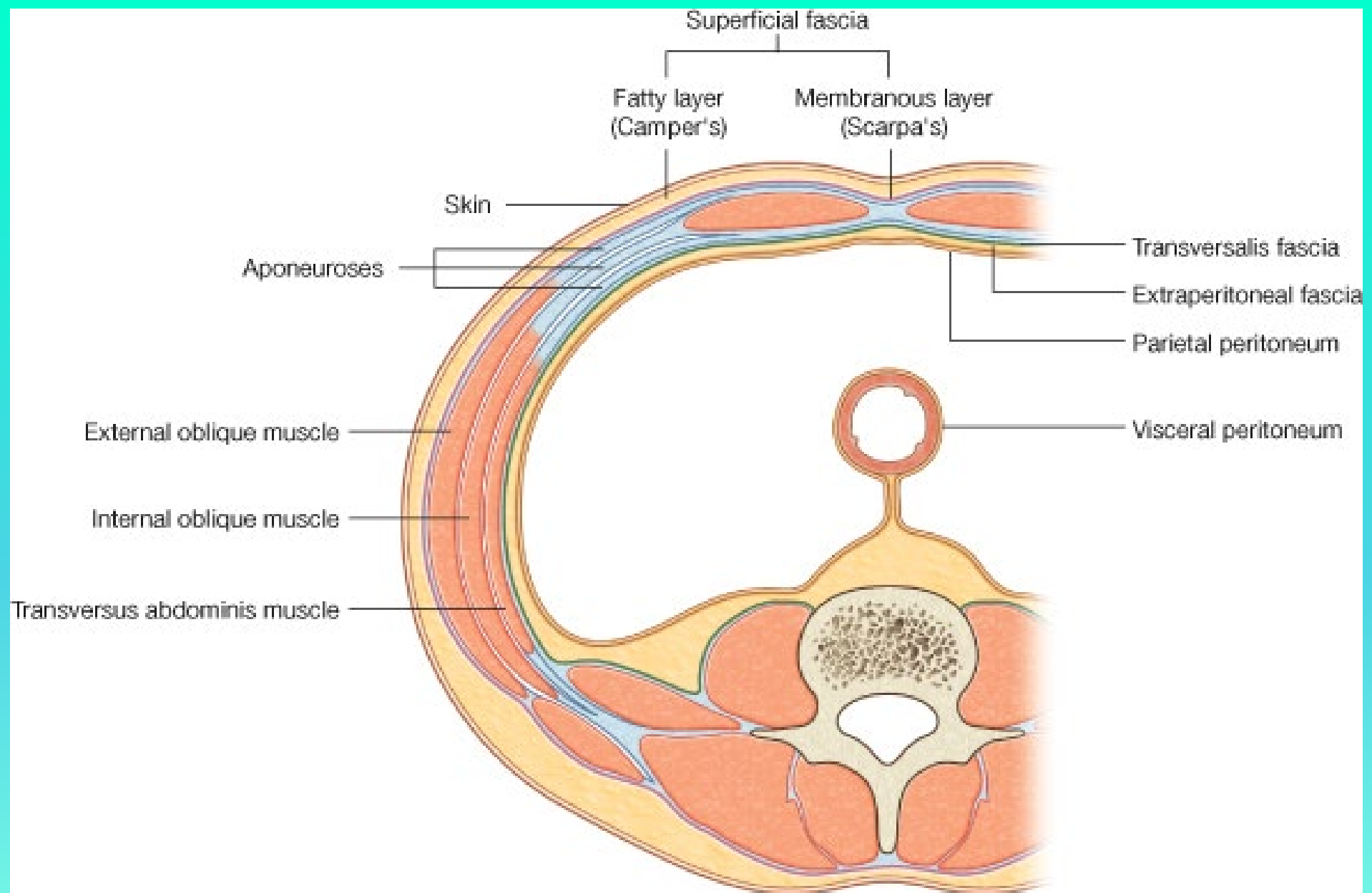


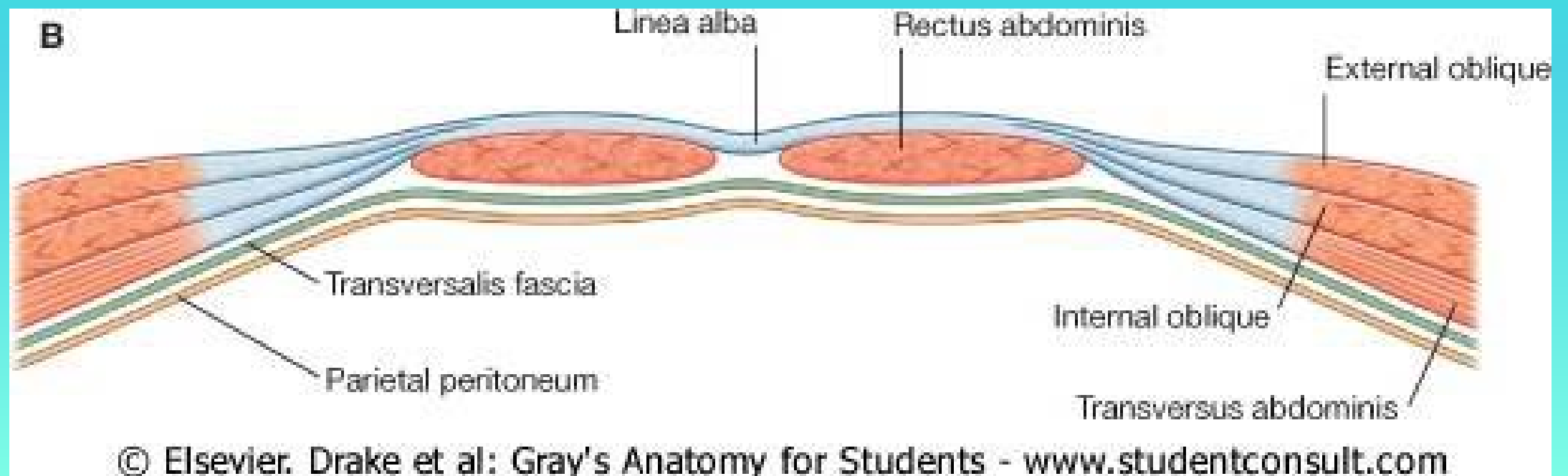
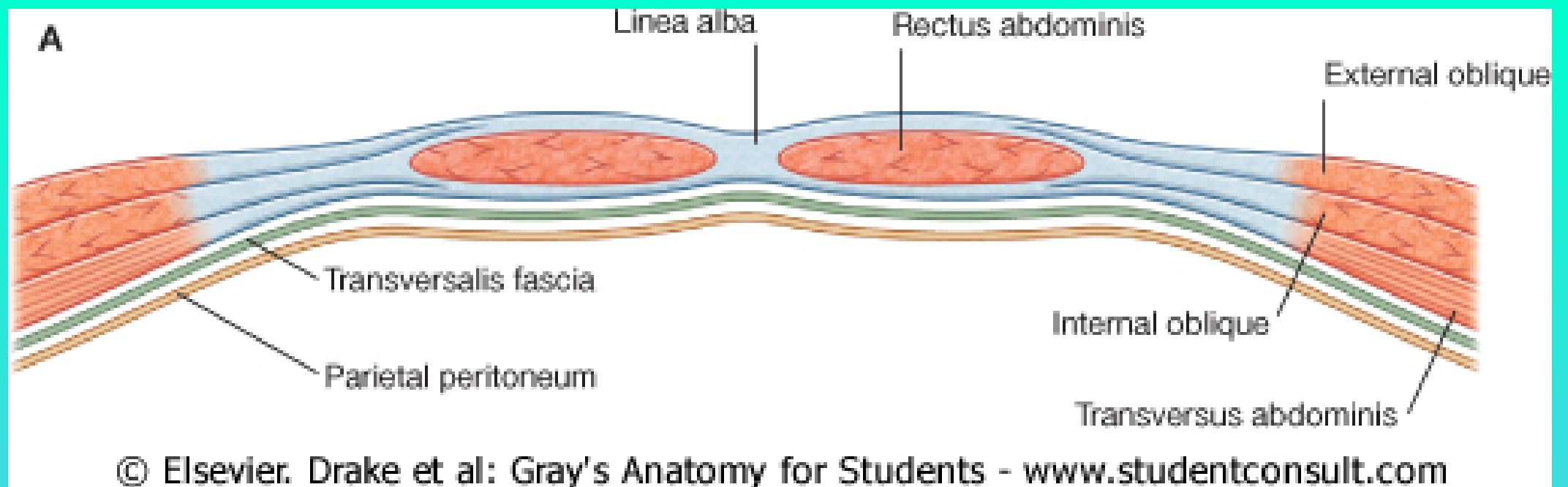
Internal oblique
and
rectus abdominis

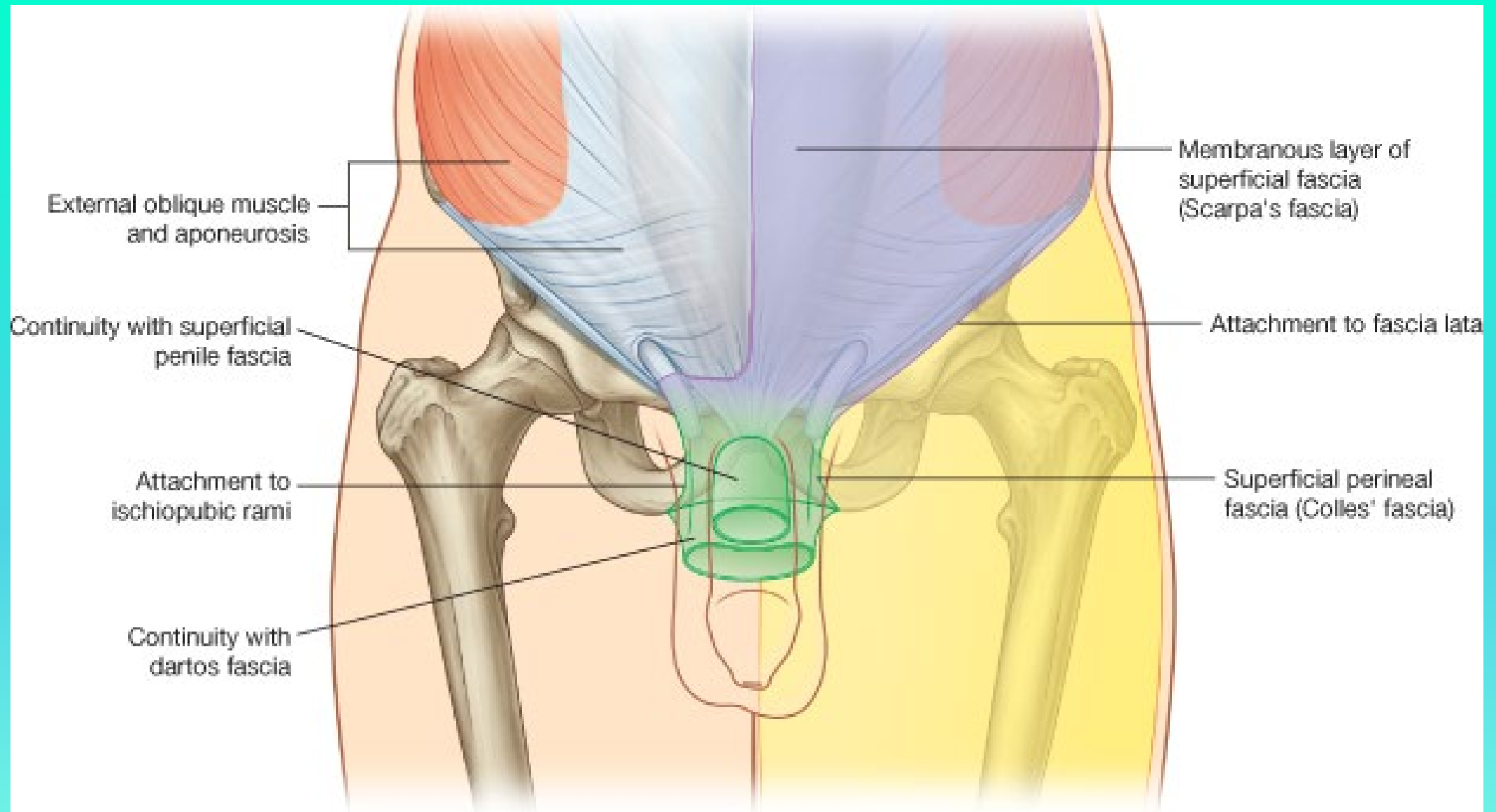


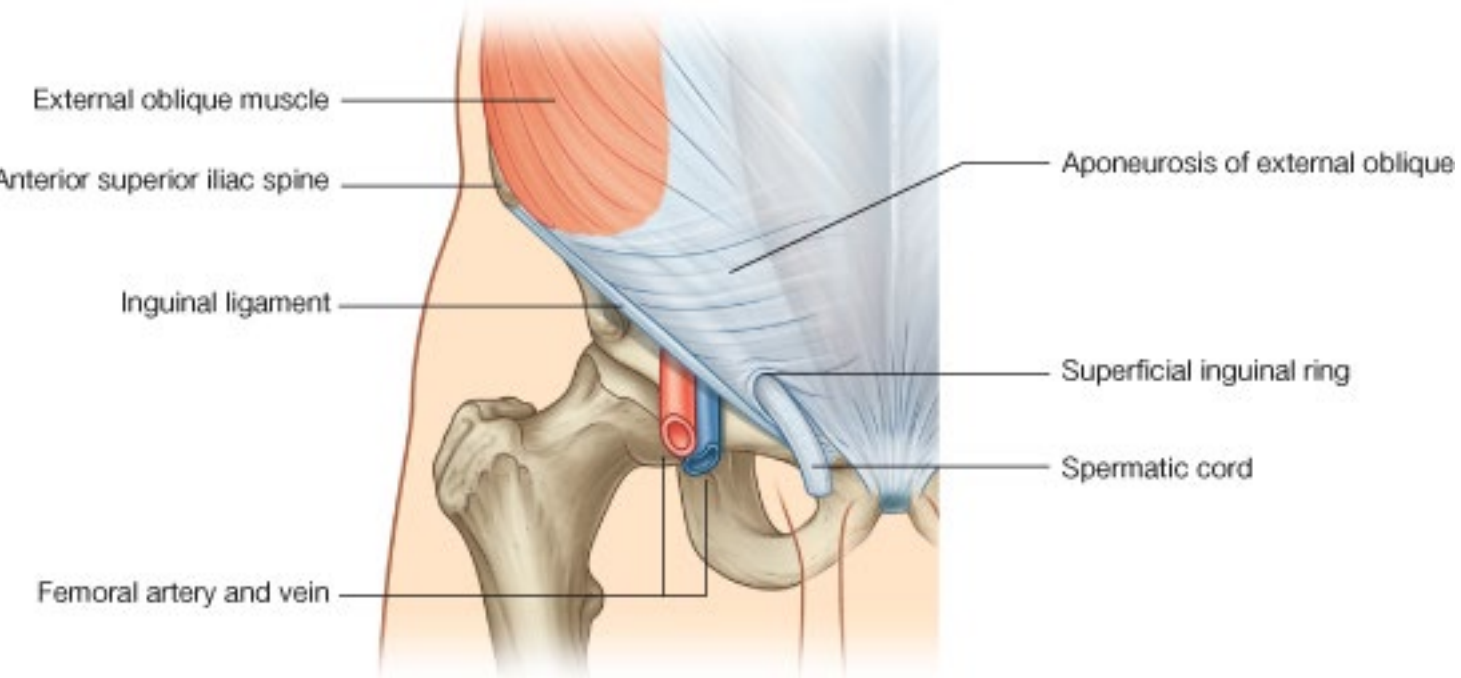
Inguinal
ligament

Transversus
abdominis

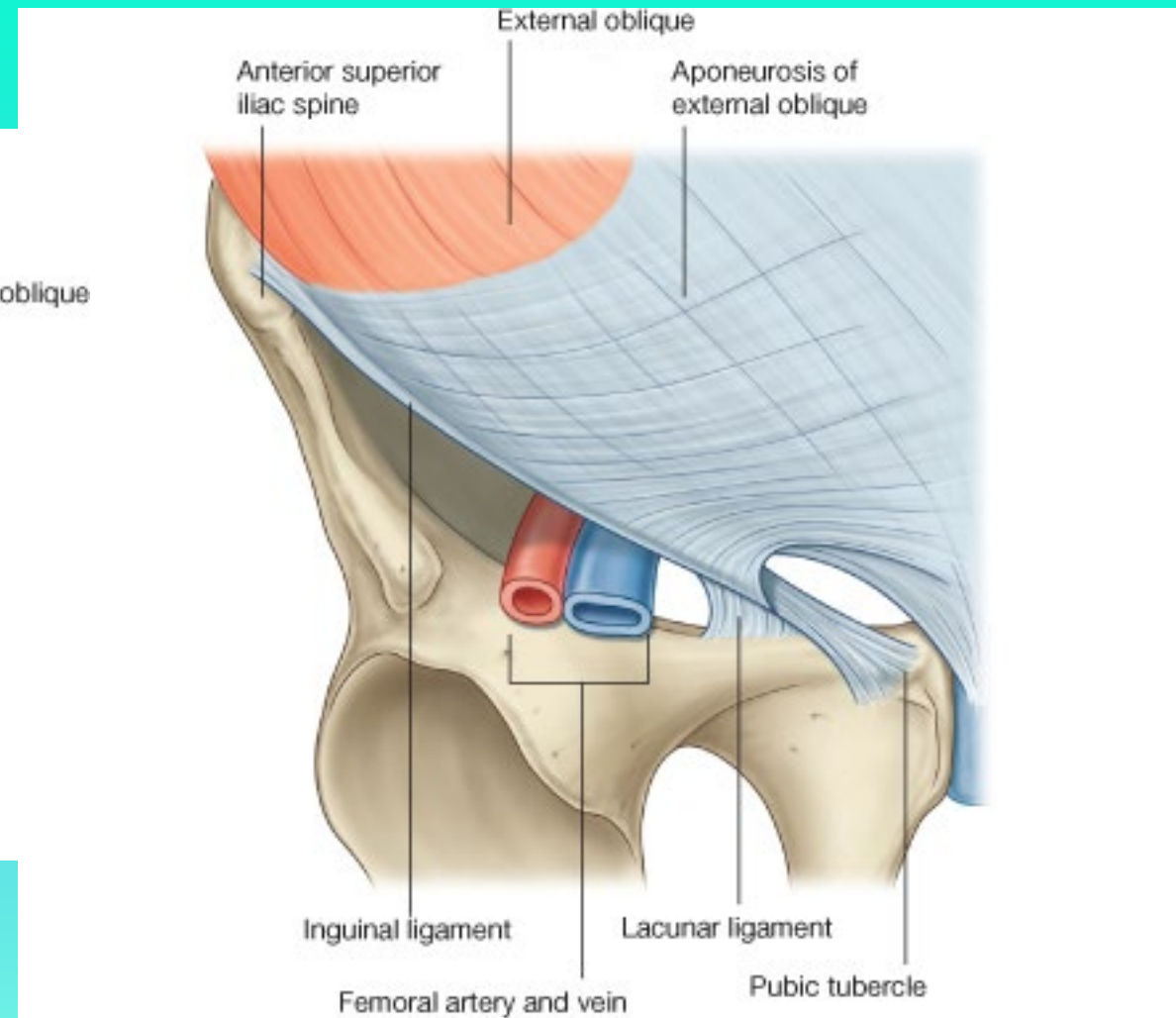




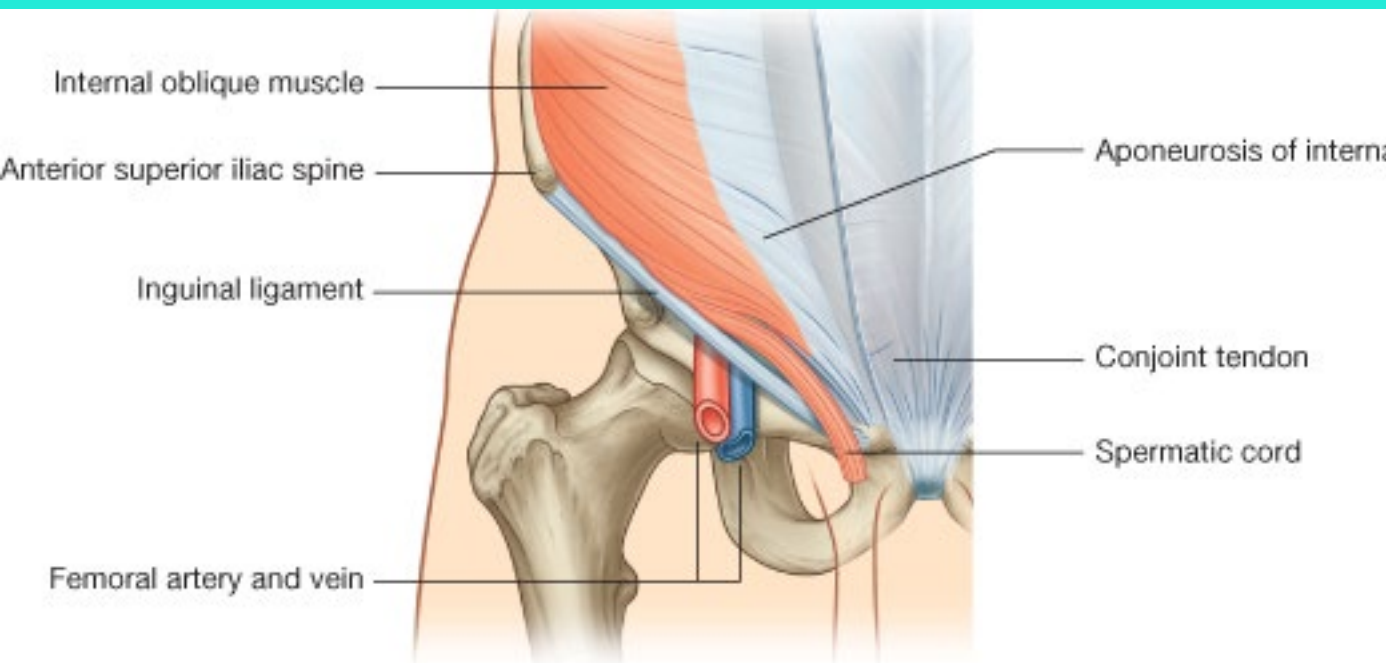




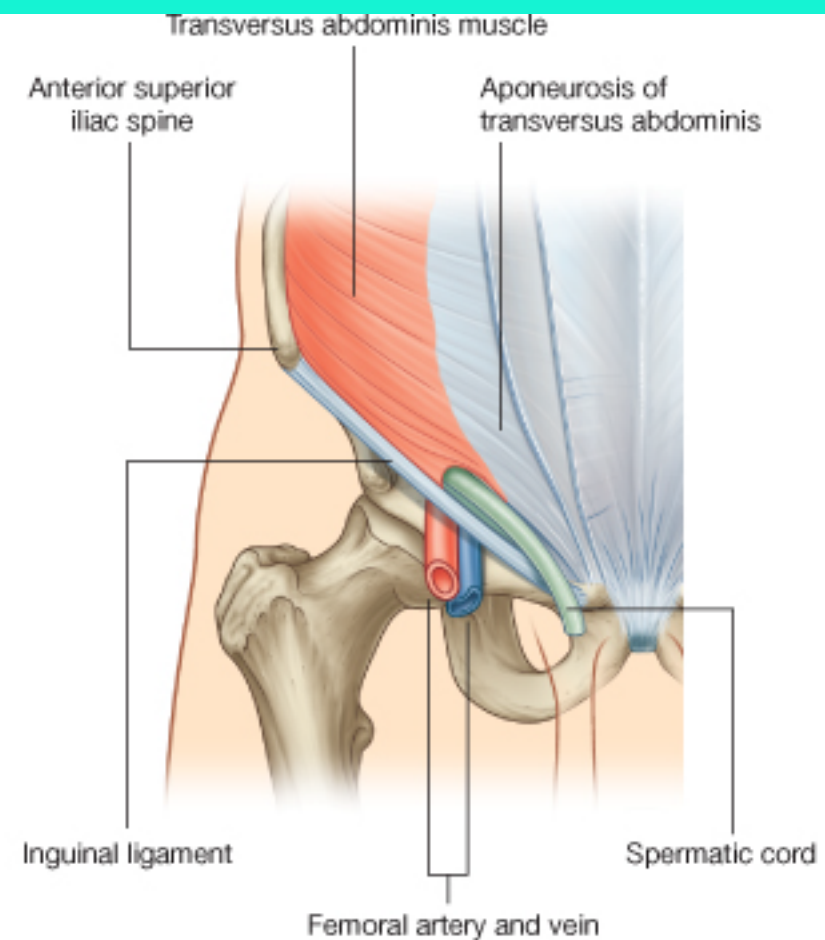
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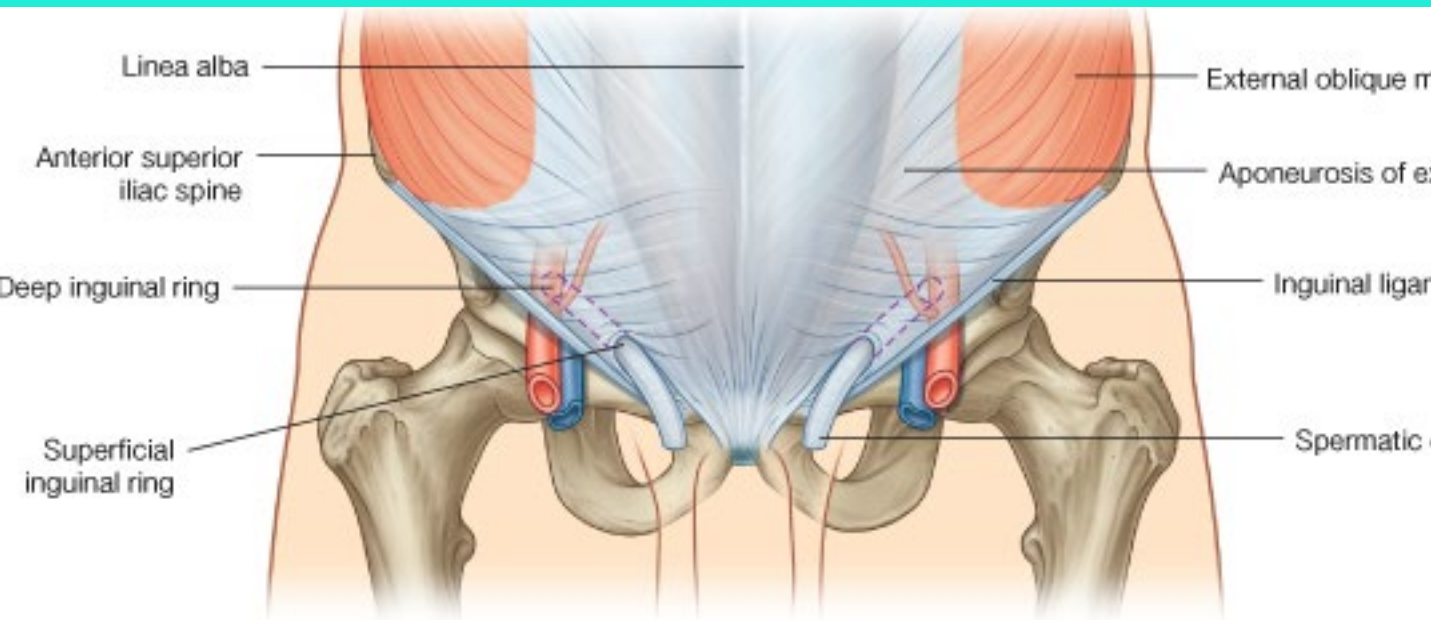
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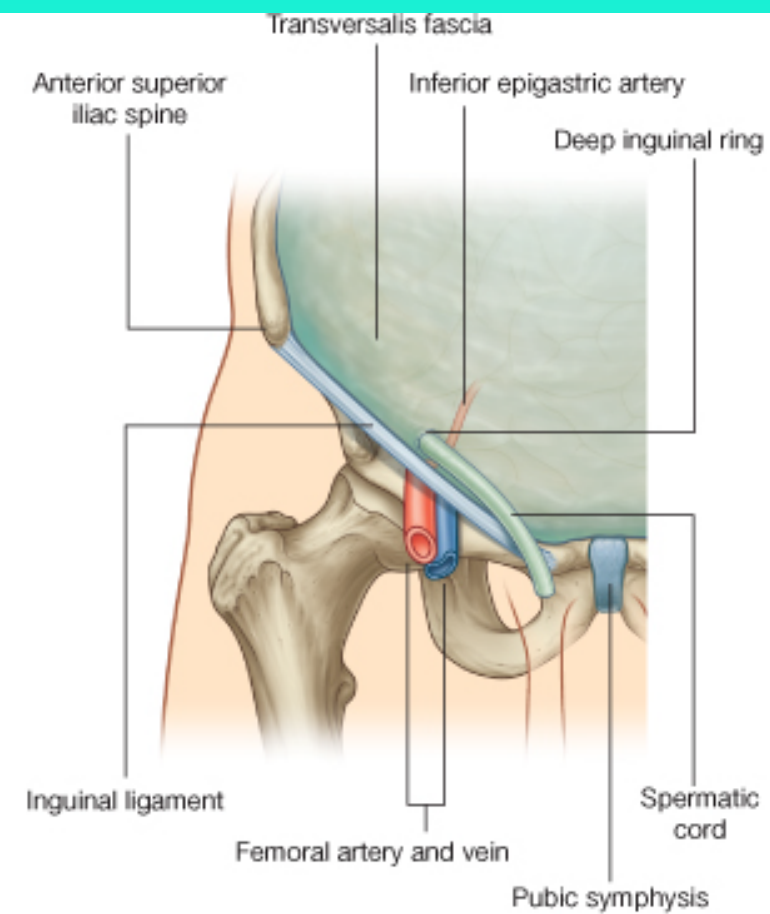
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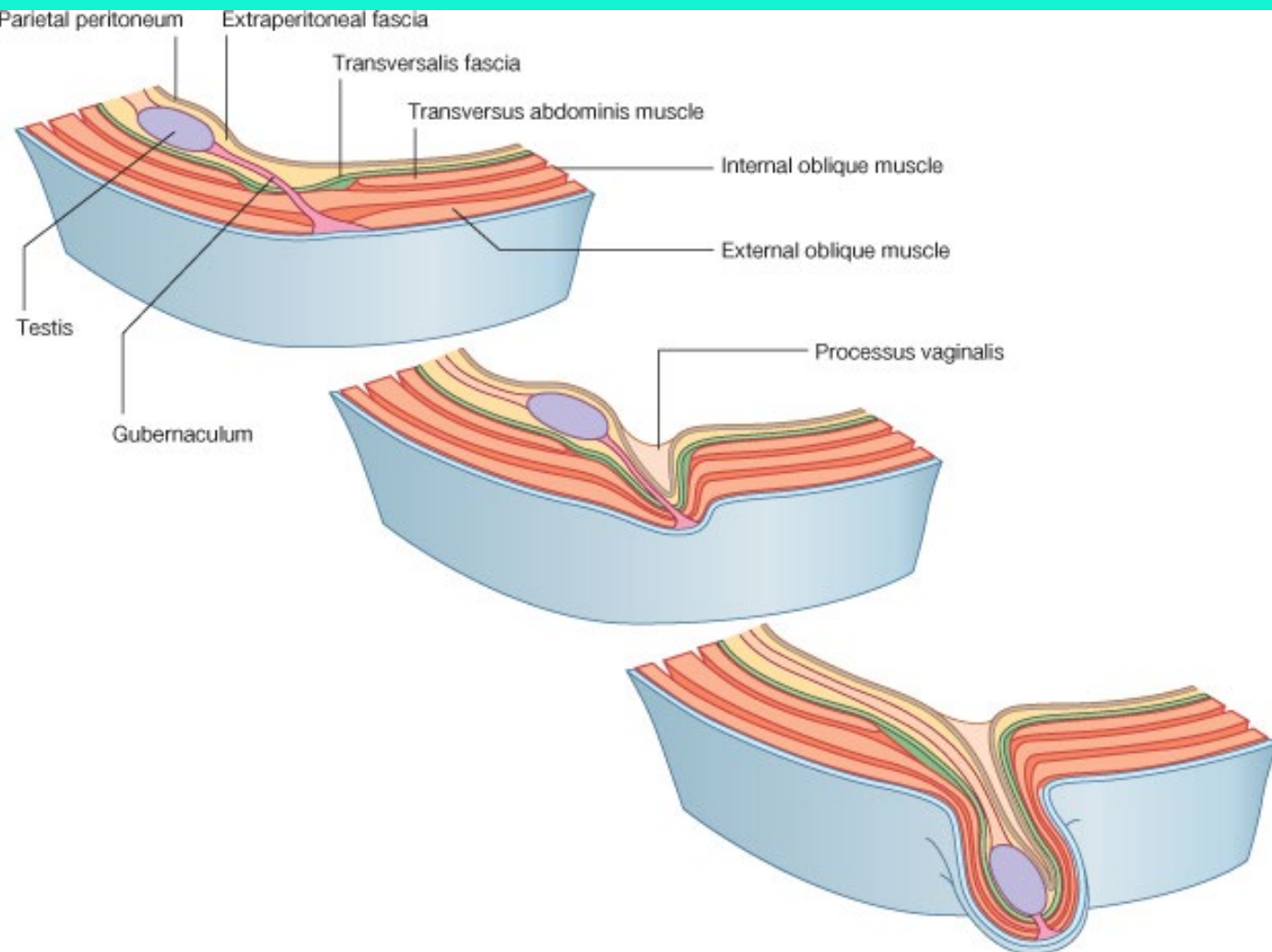
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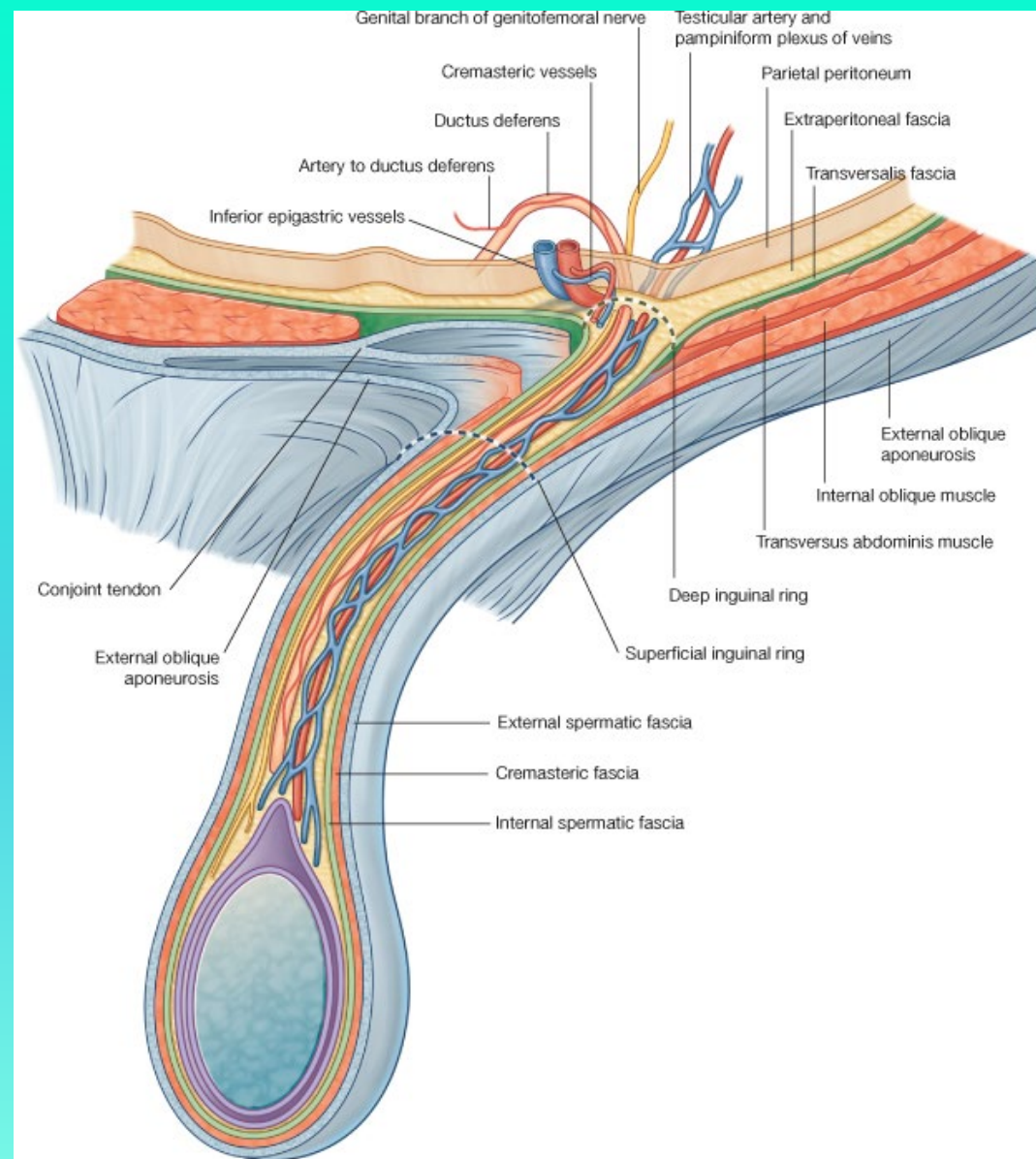
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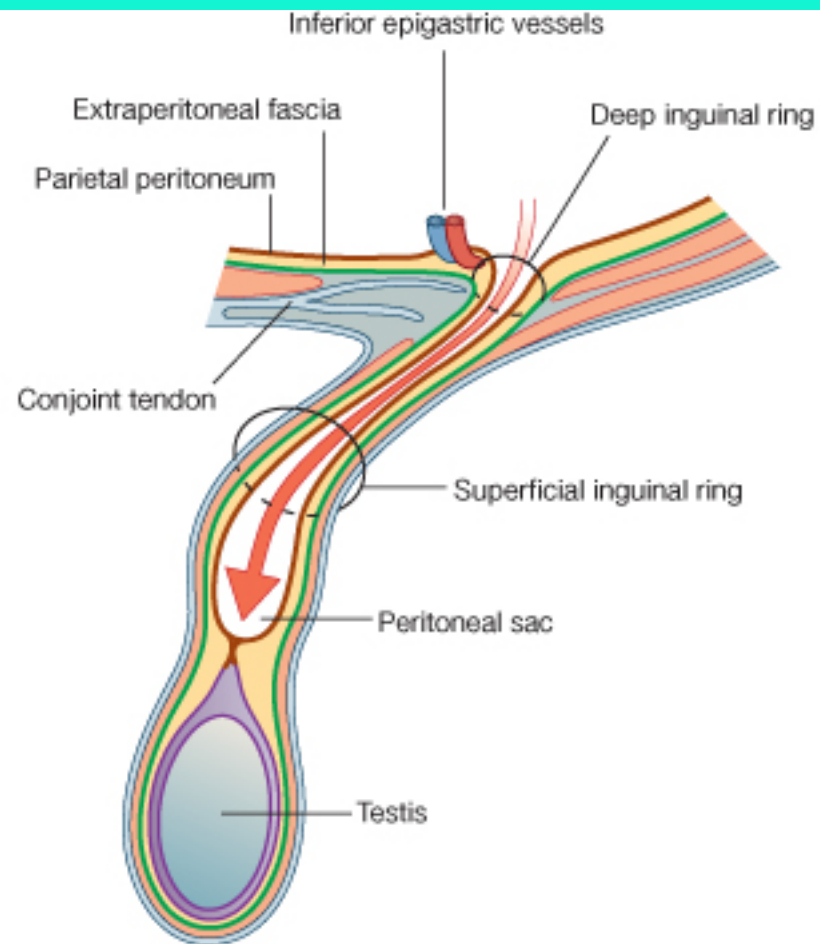
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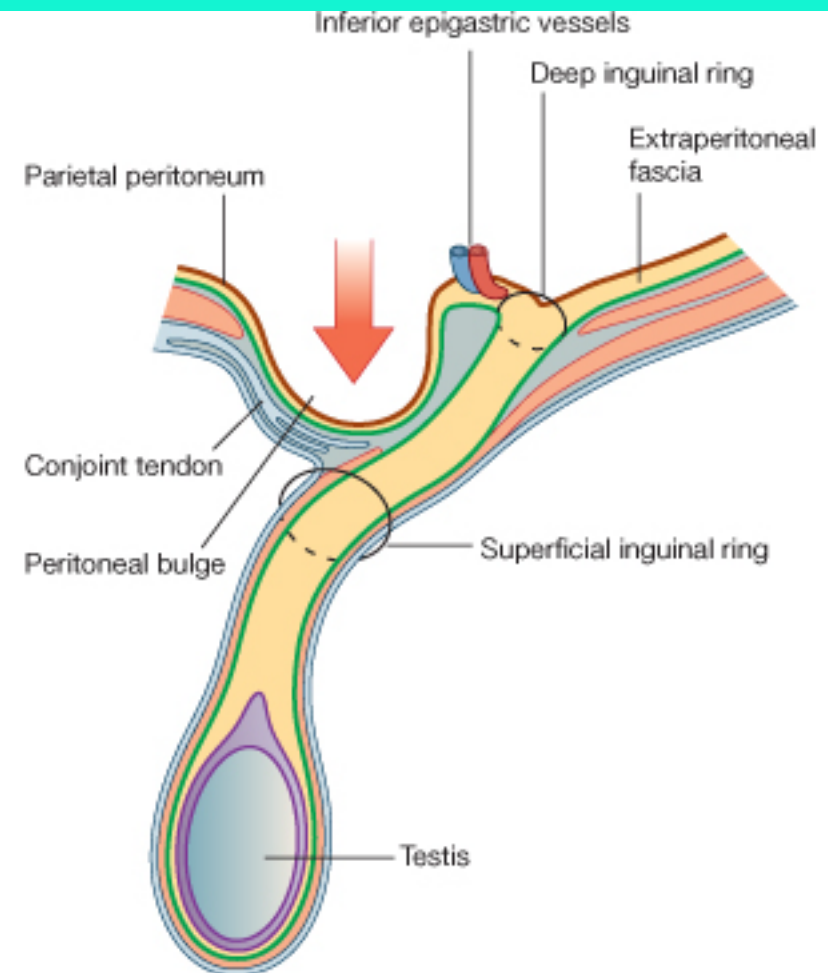
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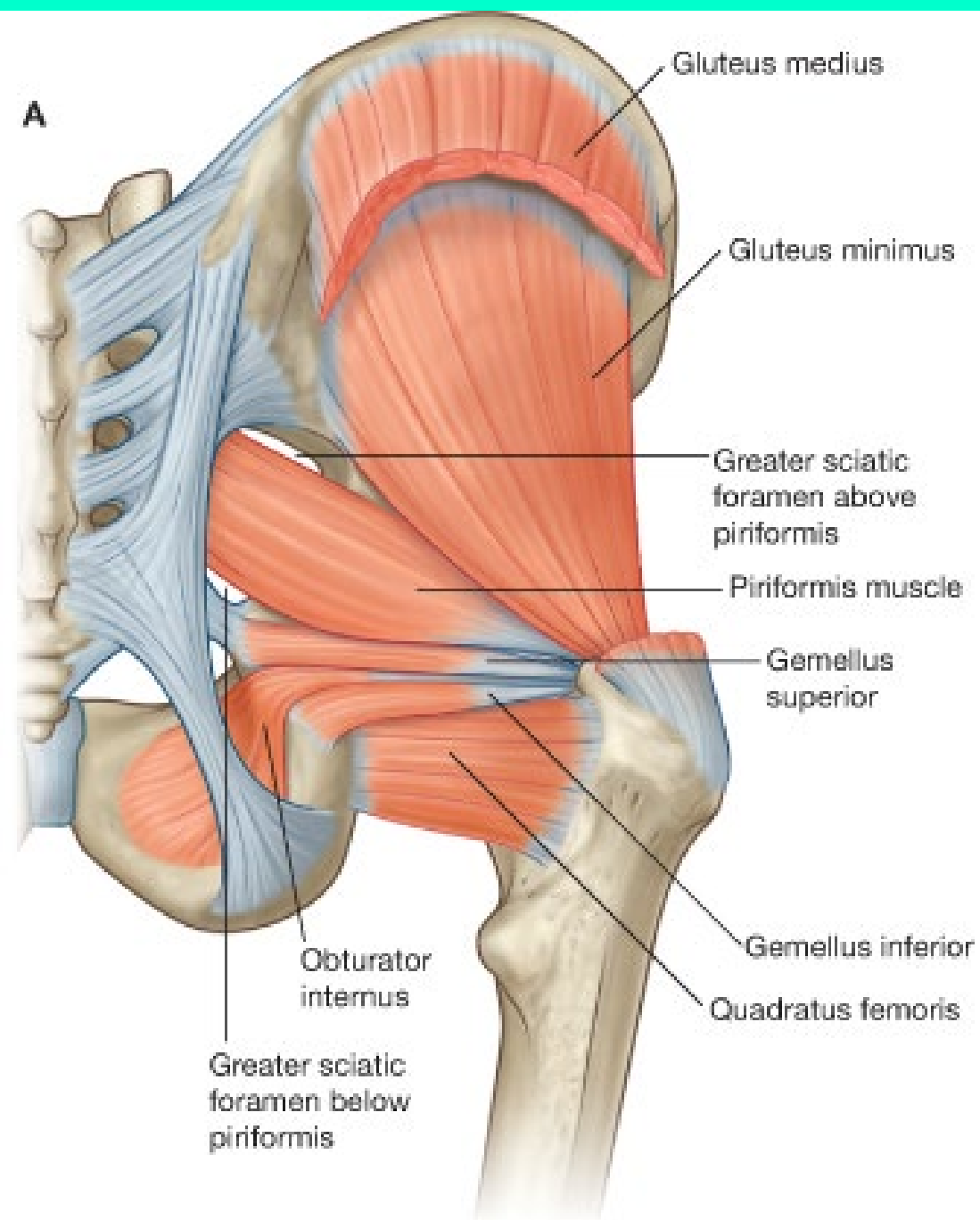
عضلات لگن

- عضلات خارجی

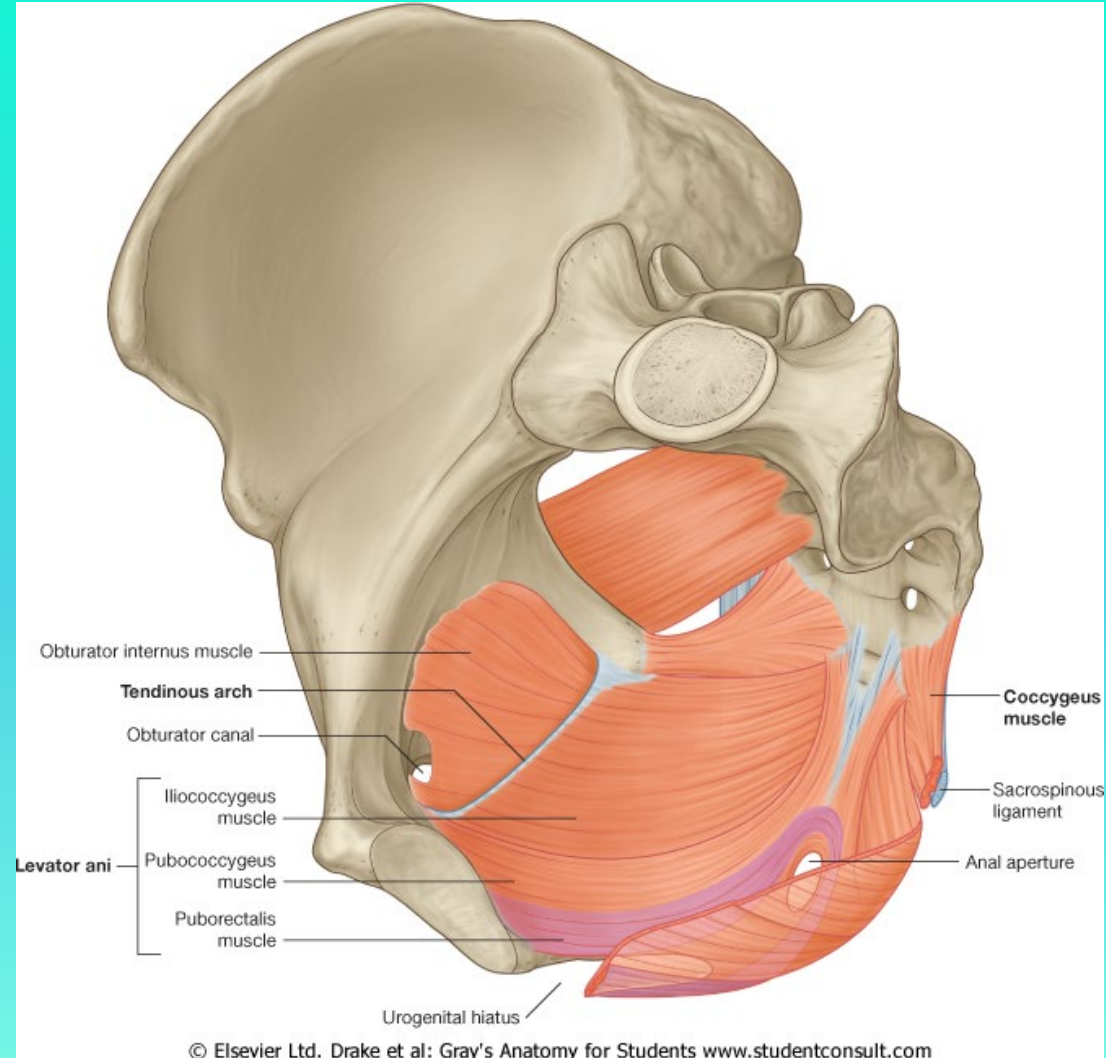
- پیریفورمیس Piriformis

- ایتوراتور داخلی Obturator internus

- عضلات داخلی



Pelvic Diaphragm



1- Pelvifemoral:

- a- Obturator internus m.
- b- Piriformis m.

2- Pelvic:

- a- Coccygeus m.
- b- Levator ani m.:

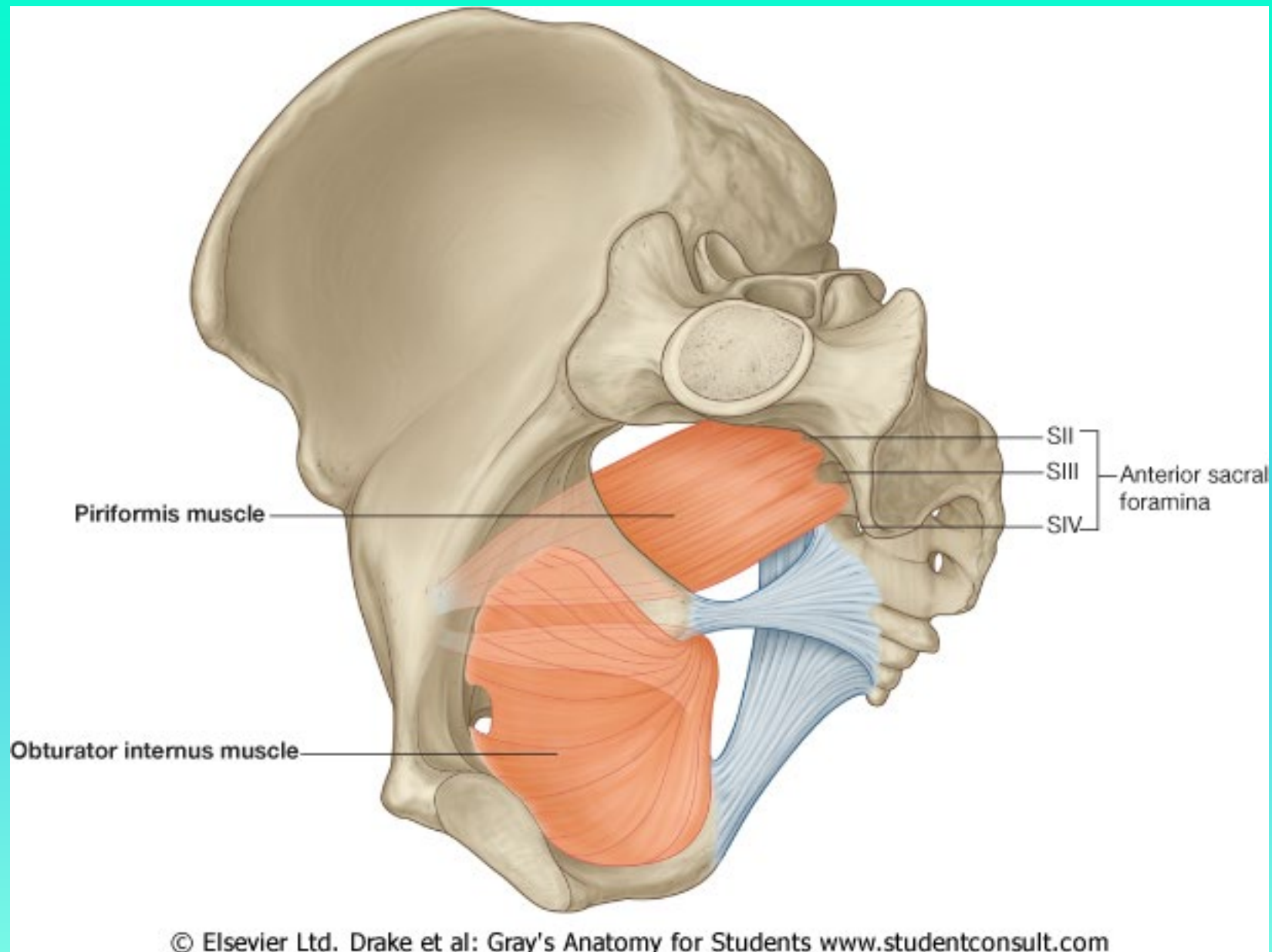
1-Pubococcygeus

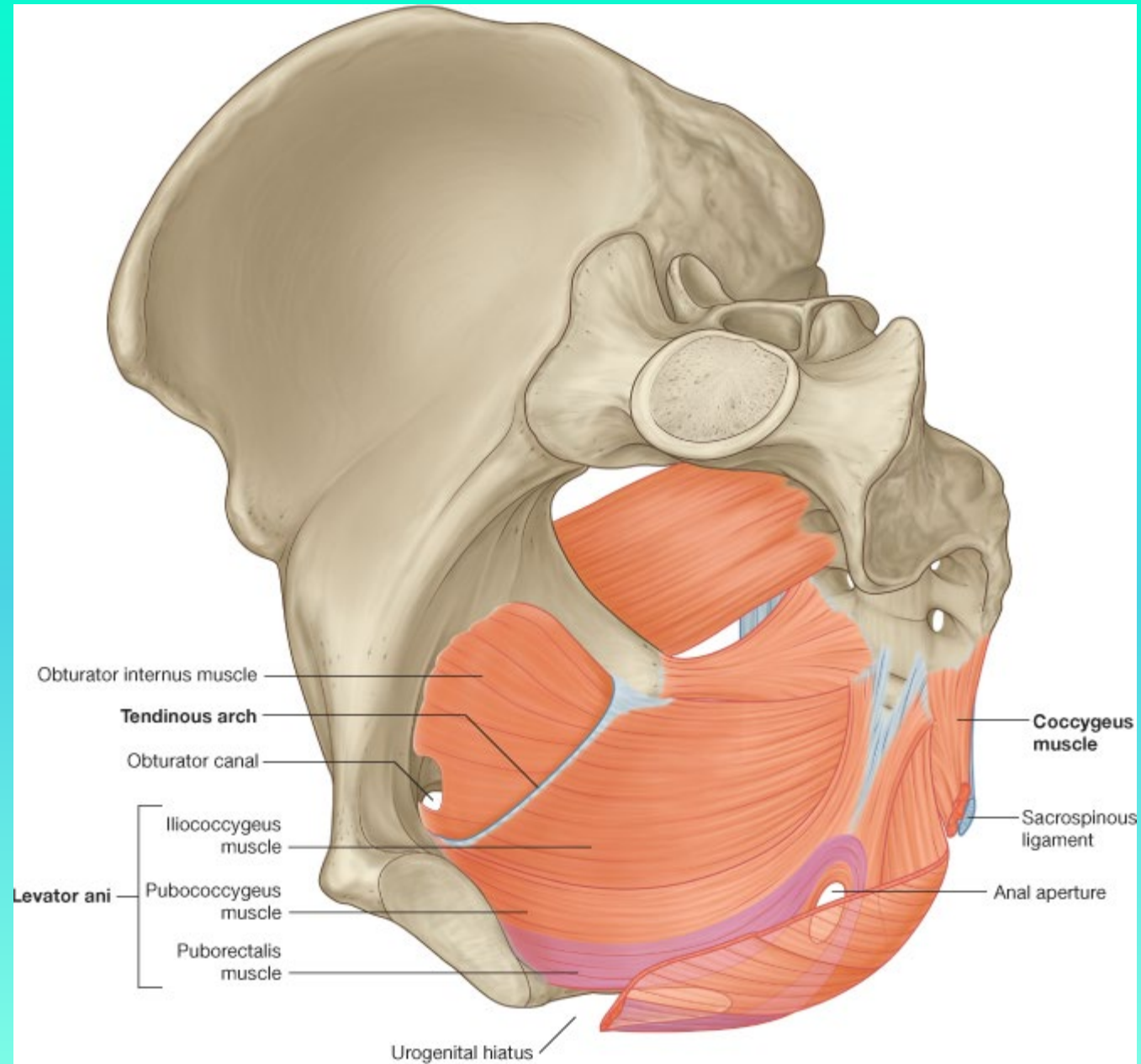
-Pubococcygeus

-Puborectalis

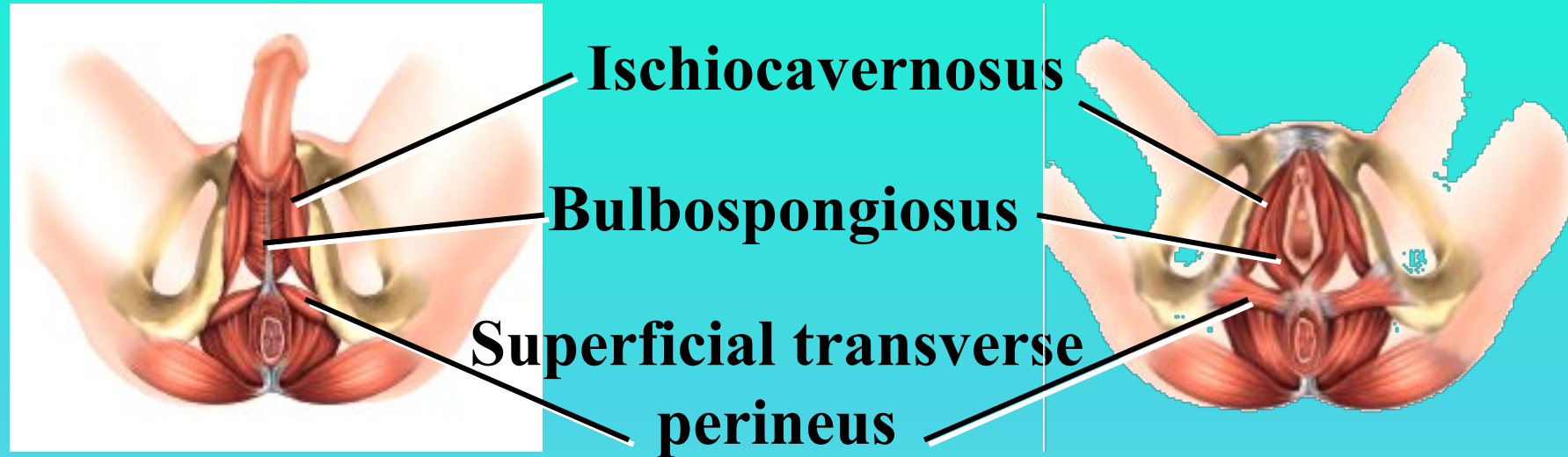
-pubovaginalis (Levator prostate)

2- Iliococcygeus

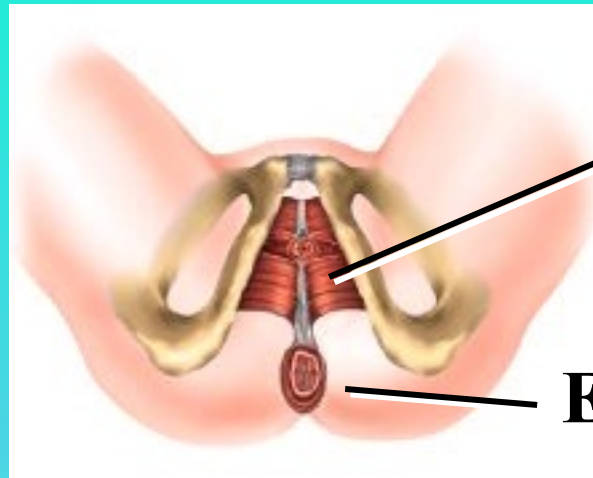




Muscles in Superficial Perineal Space

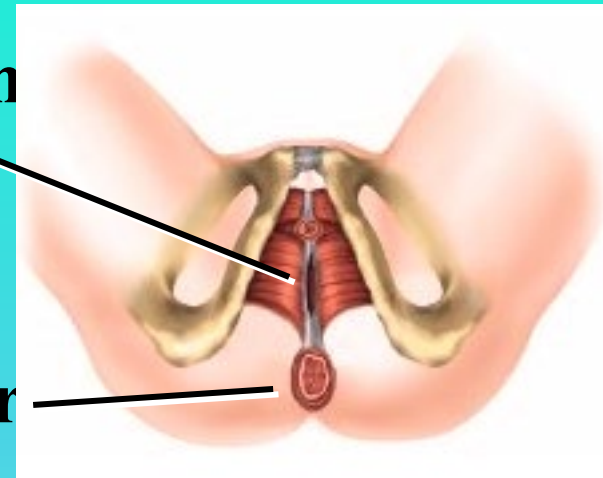


Muscles of the UG diaphragm



Urogenital diaphragm

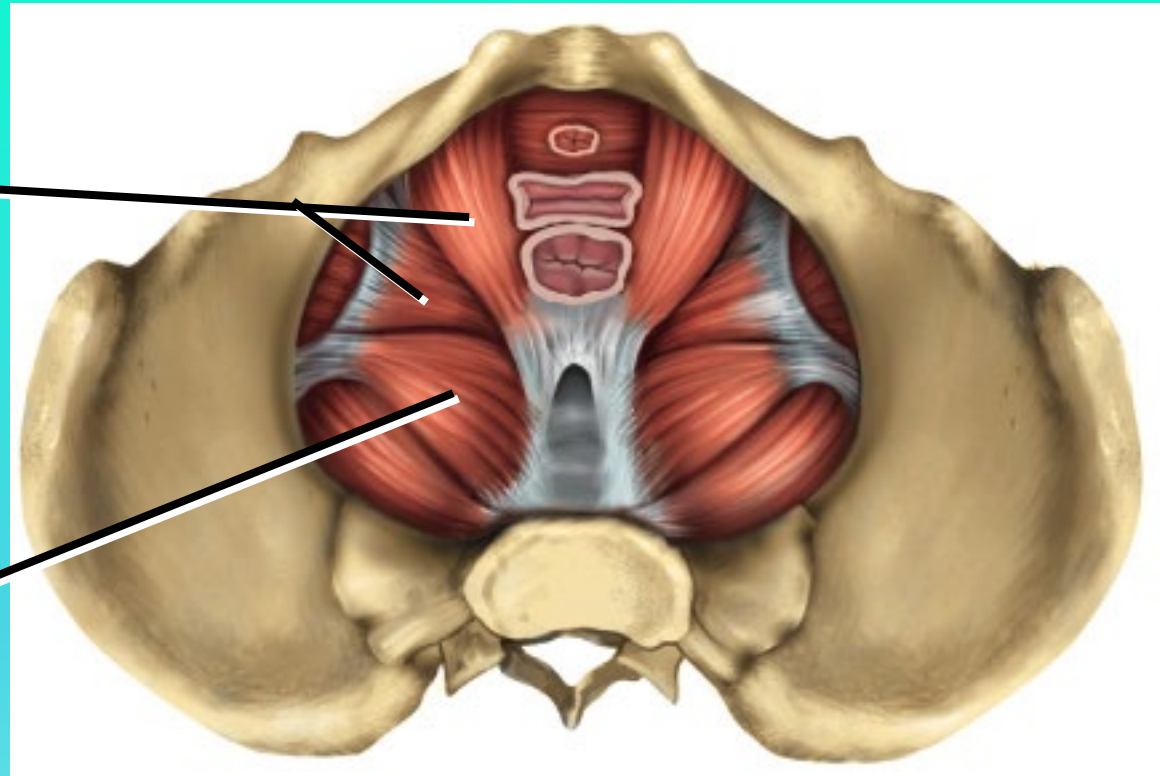
External anal sphincter



Muscles of the Pelvic Diaphragm

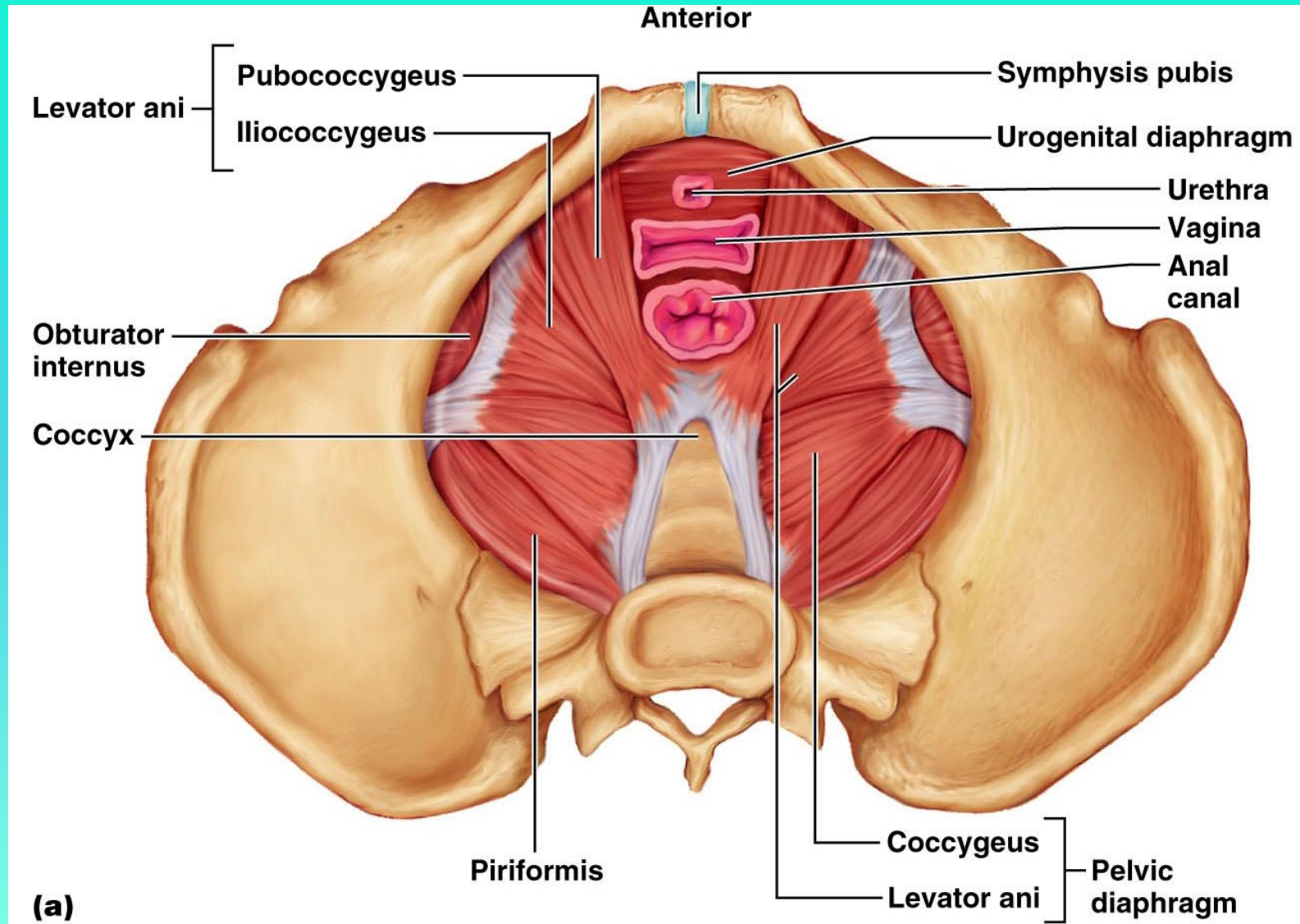
Levator ani

Coccygeus



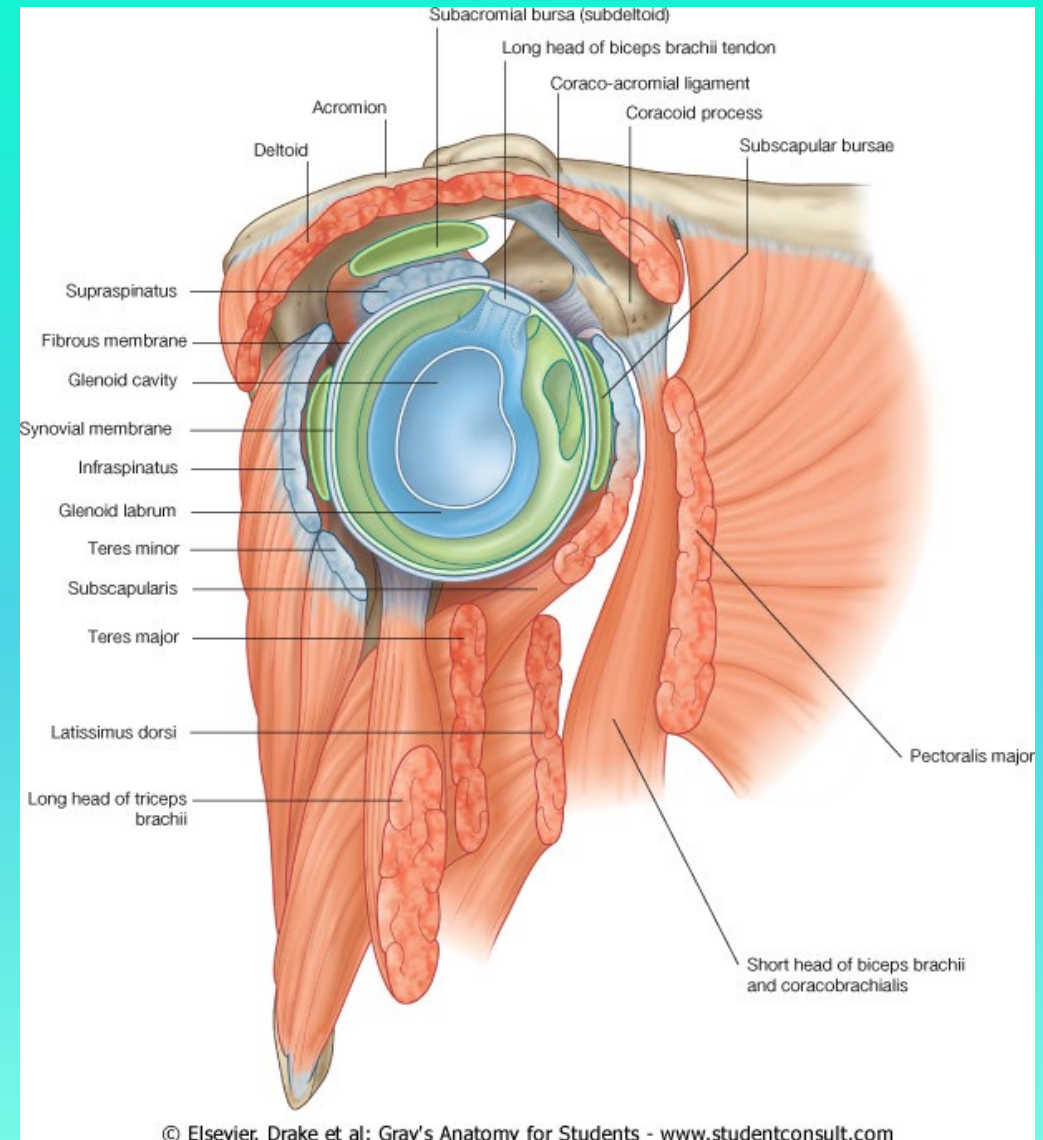
- Pelvic diaphragm = 2 muscles
 - levator ani m. supports viscera & functions during defecation
 - coccygeus m. supports and elevates pelvic floor

Muscles of the Pelvic Floor



MUSCLES OF SHOULDER

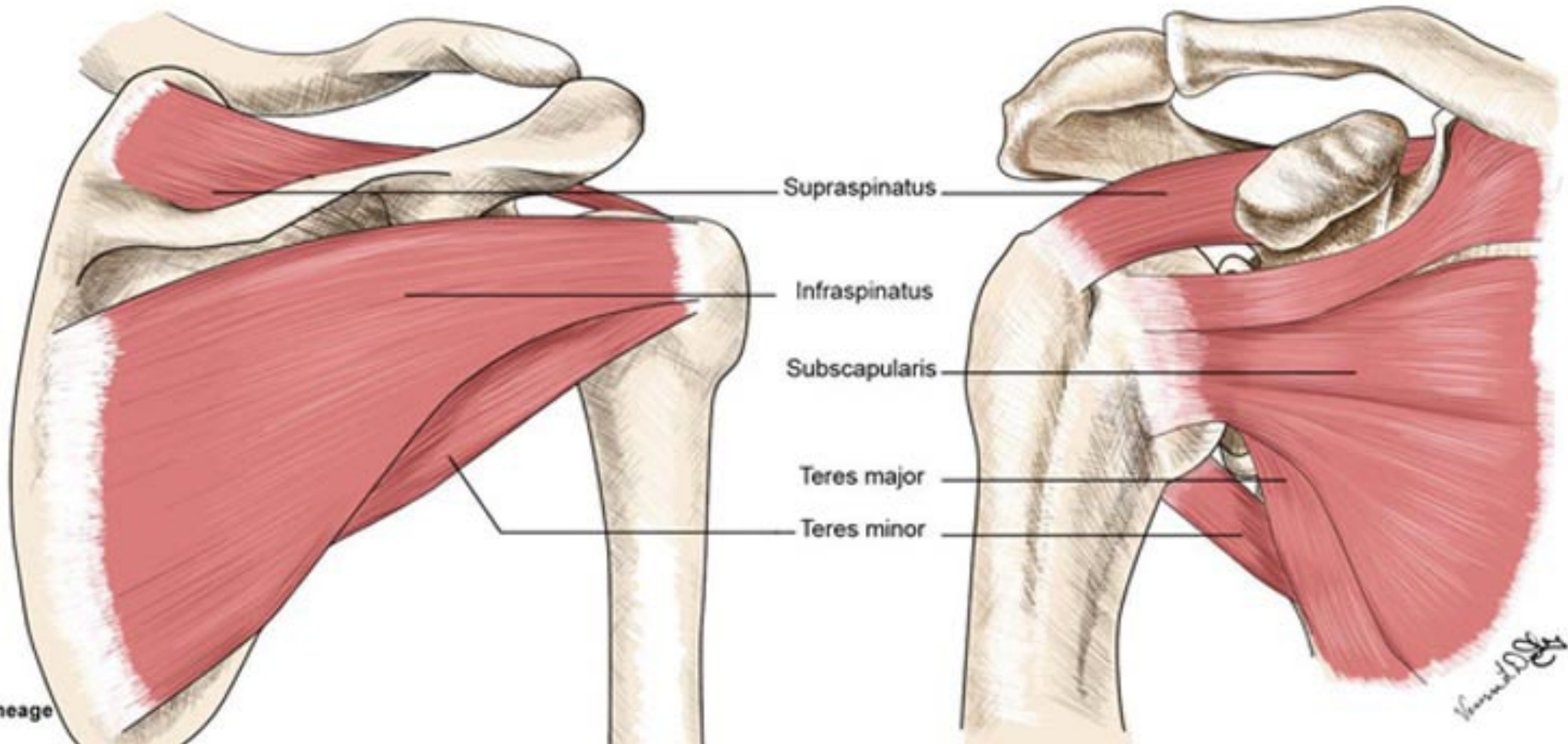
- SERRATUS ANTERIOR
- PECTORALIS MINOR
- PECTORALIS MAJOR
- LATISSIMUS DORSI
- SUPRASPINATUS
- INFRASPINATUS
- SUBSCAPULARIS
- TERES MINOR
- TERES MAJOR
- DELTOID



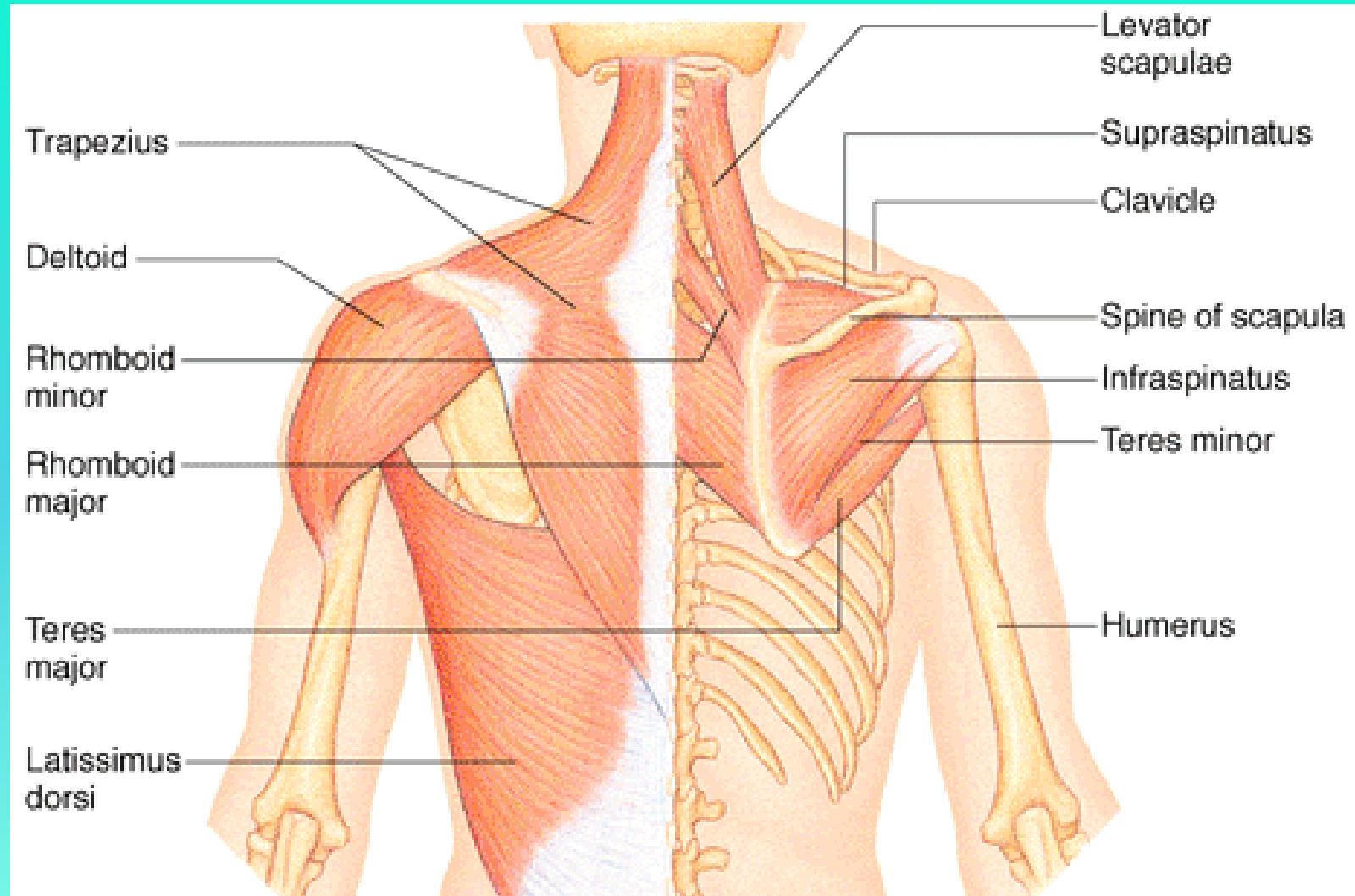
Posterior View

Rotator Cuff

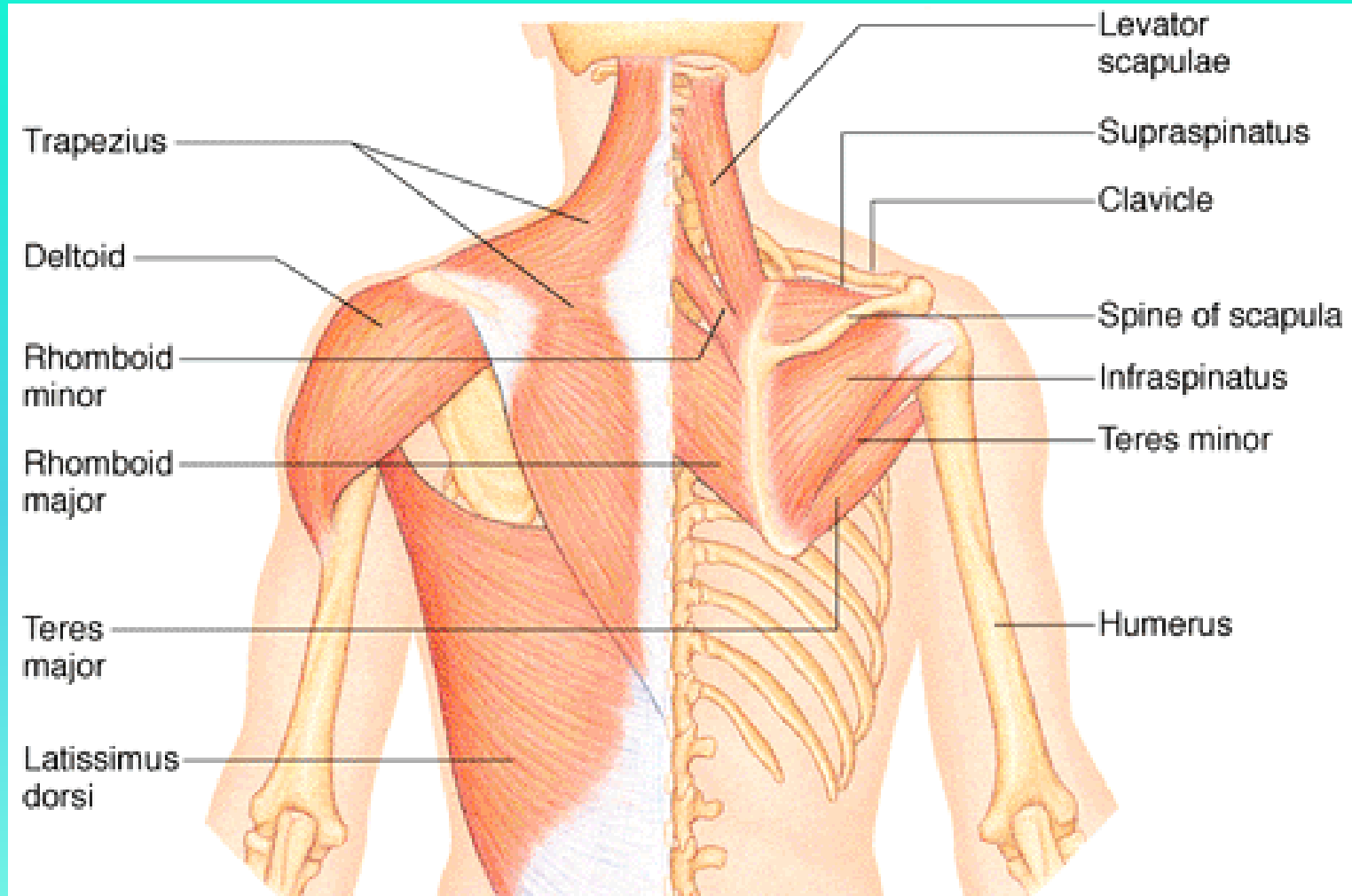
Anterior View



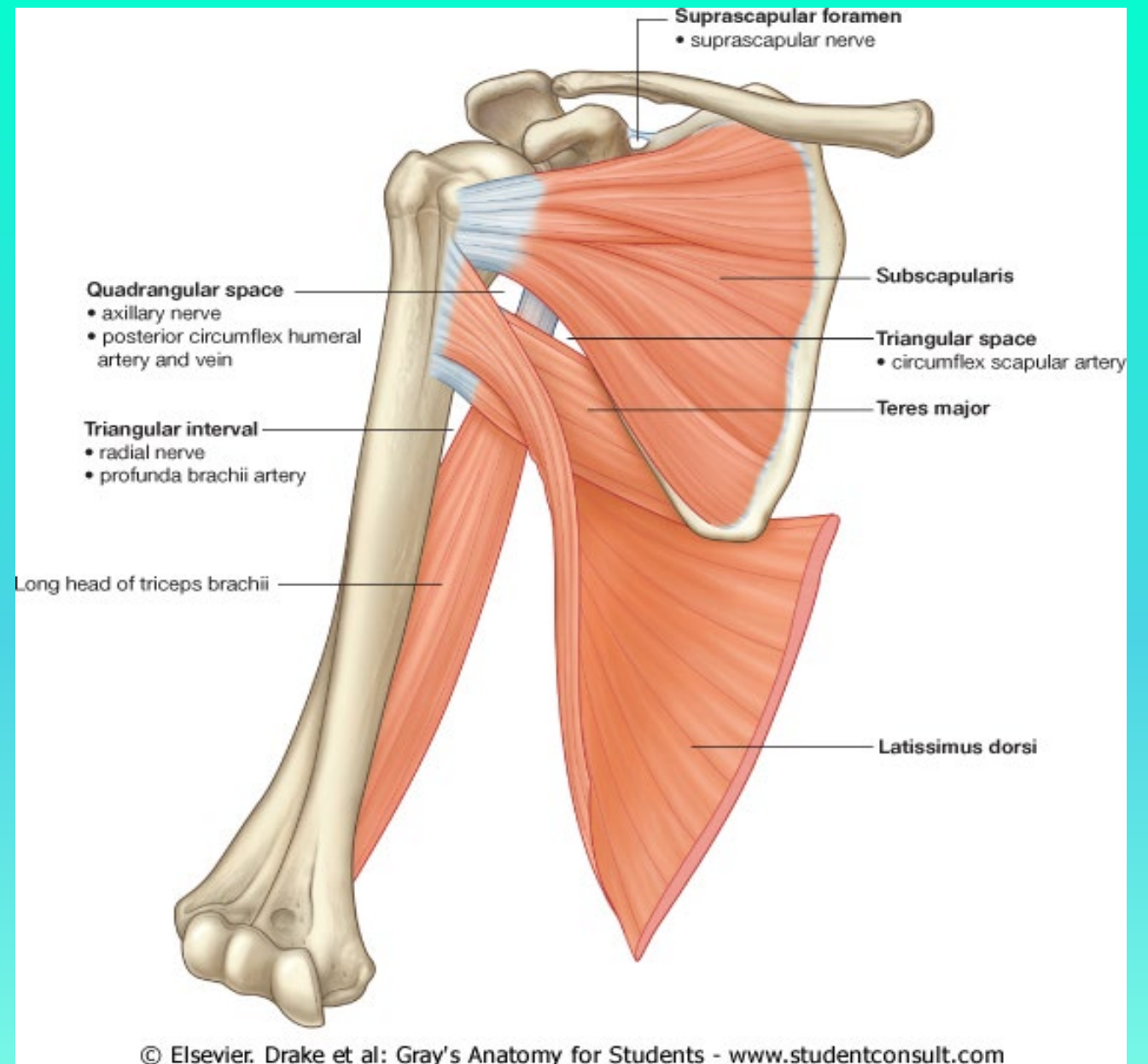
SUPRASPINATUS

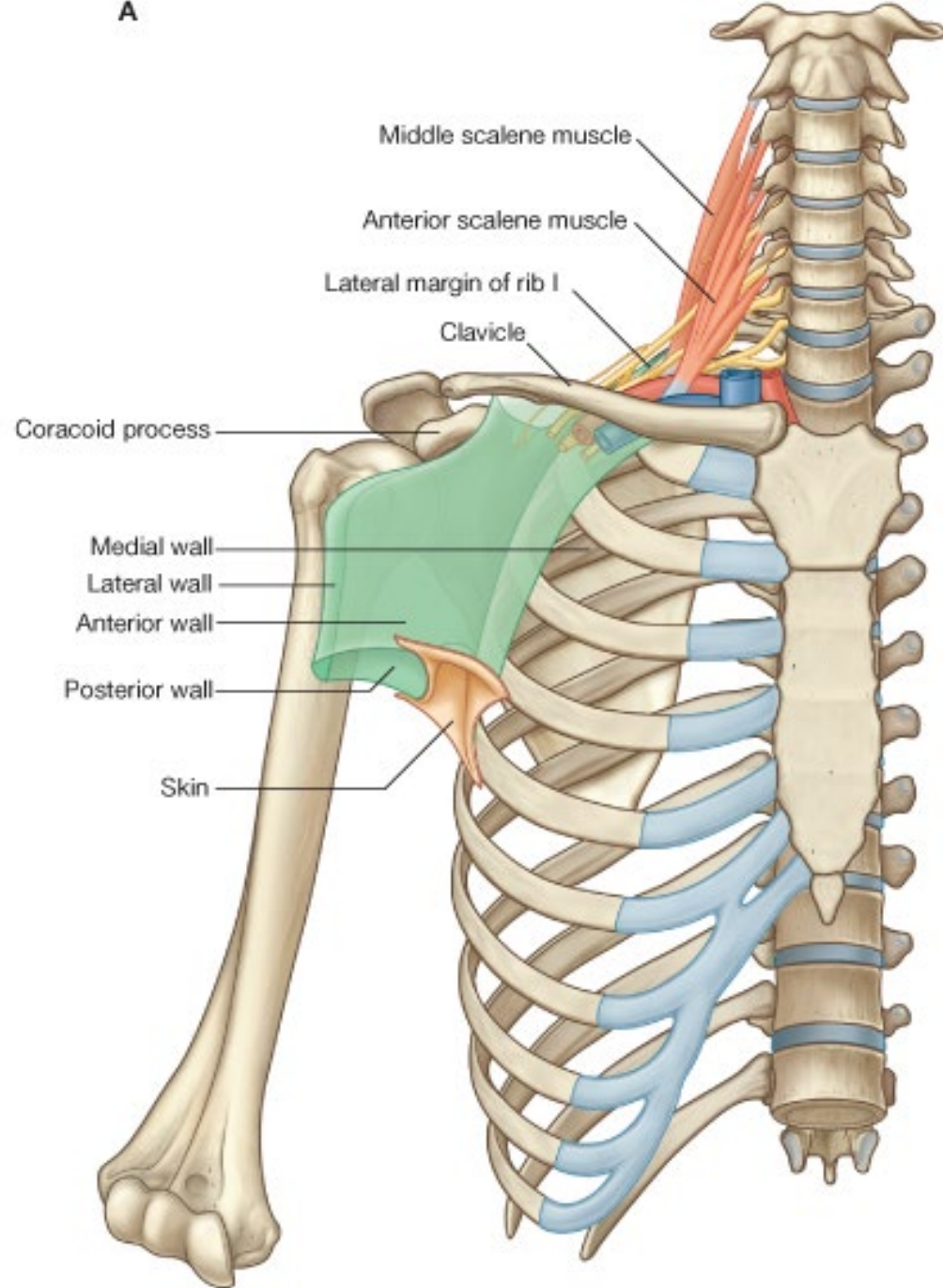


INFRASPINATUS



Subscapularis m.



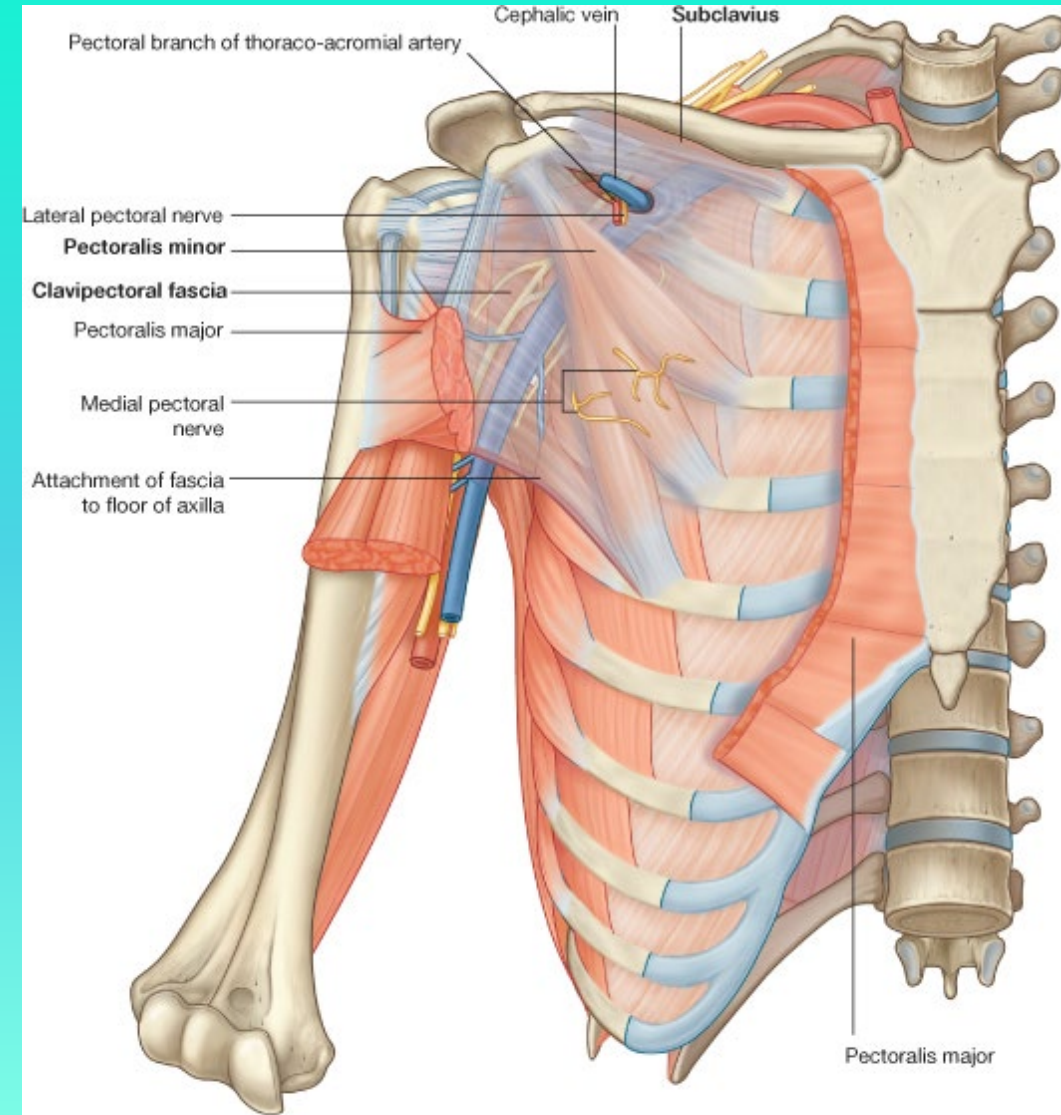
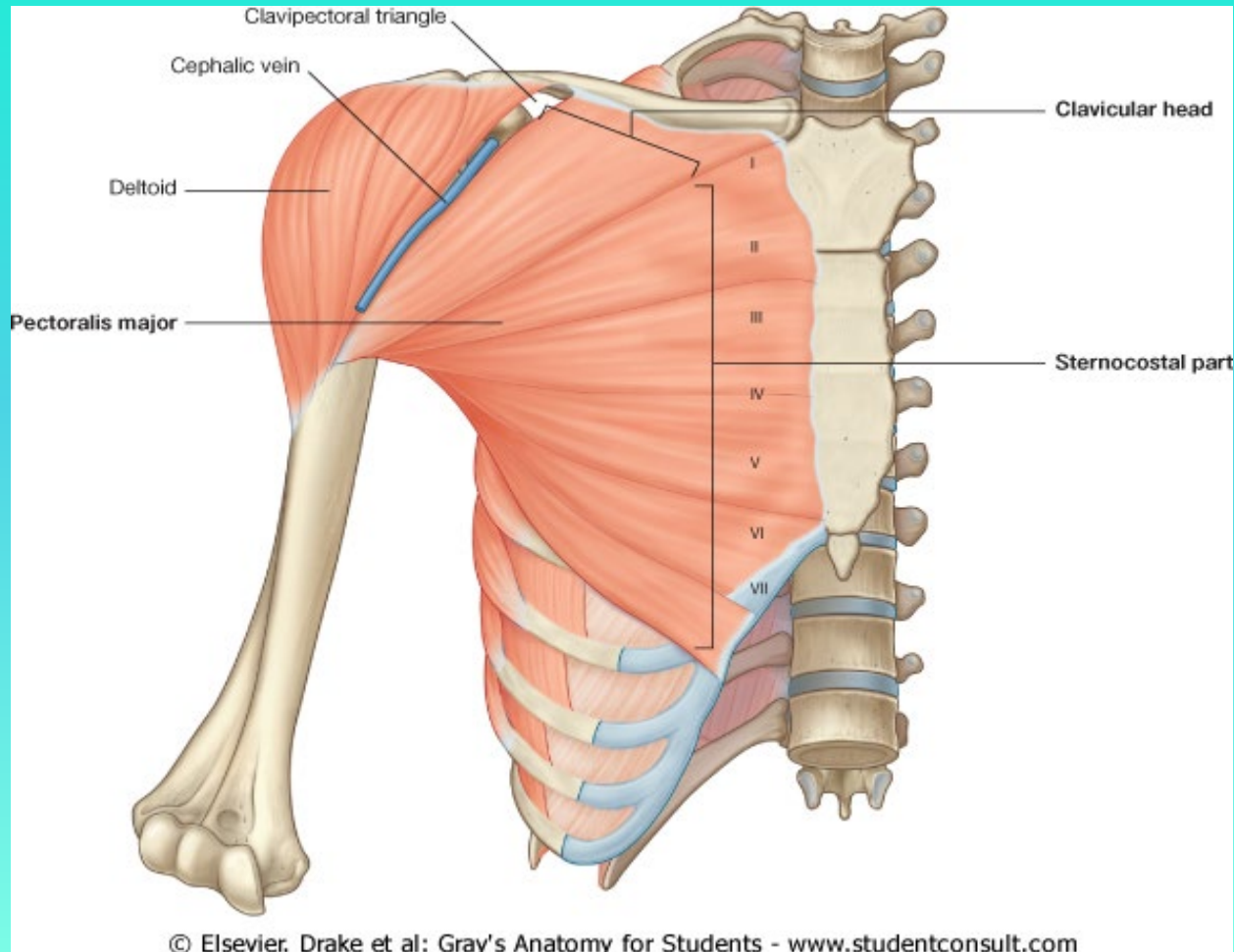


حفره زیر بغل Axilla

- راس یا انتهای فوقانی
- قاعده آگزیلا
- جدار قدامی آگزیلا
- جدار خلفی آگزیلا
- جدار داخلی آگزیلا
- جدار خارجی آگزیلا

Pectoralis major m
Pectoralis minor m.
Subclavius m.
Clavipectoral fascia

جدار قدامی آگزیلا

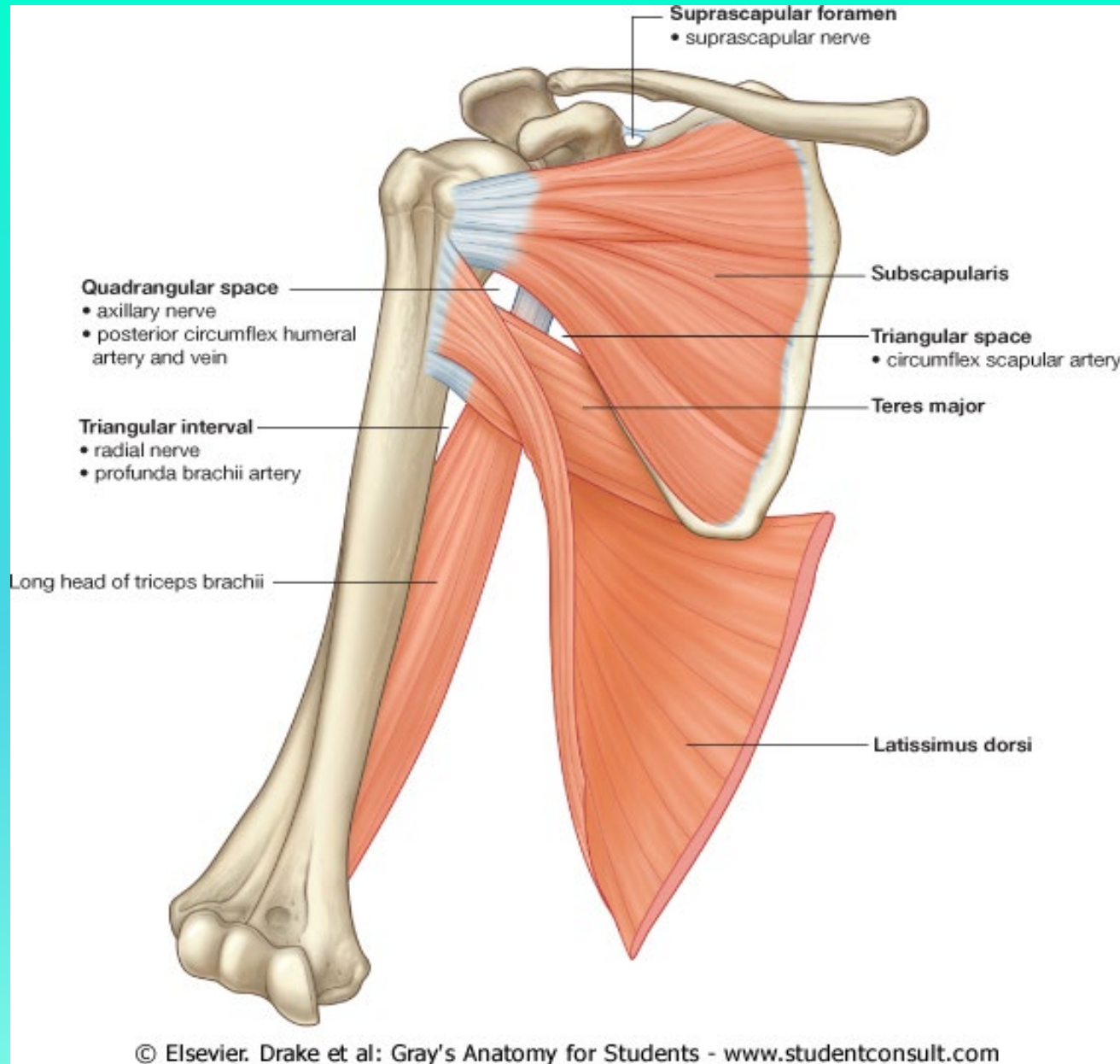


جدار خلفی آگزیلا

ساب اسکاپولار

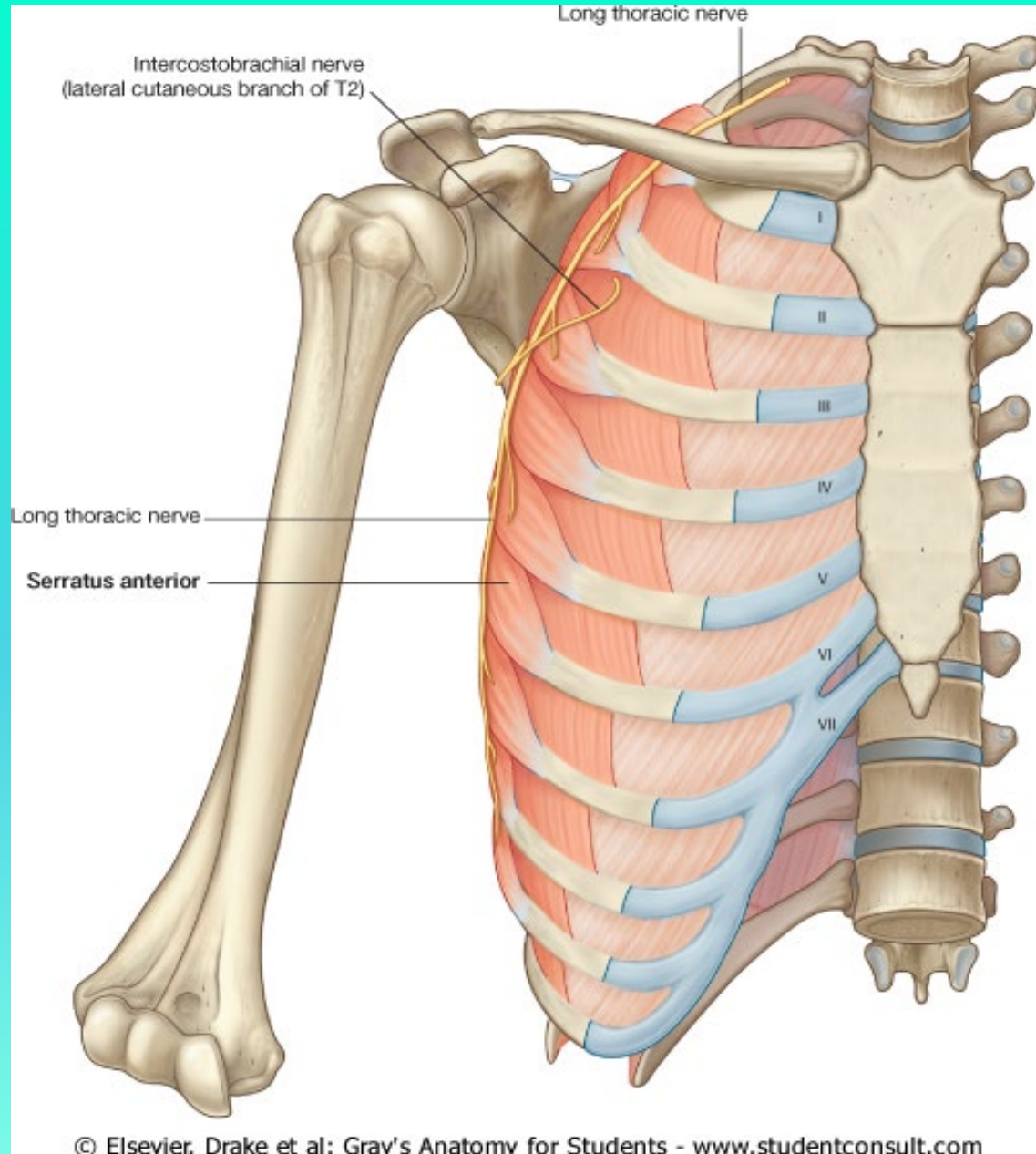
ترس ماژور

لاتیسموس دورسی



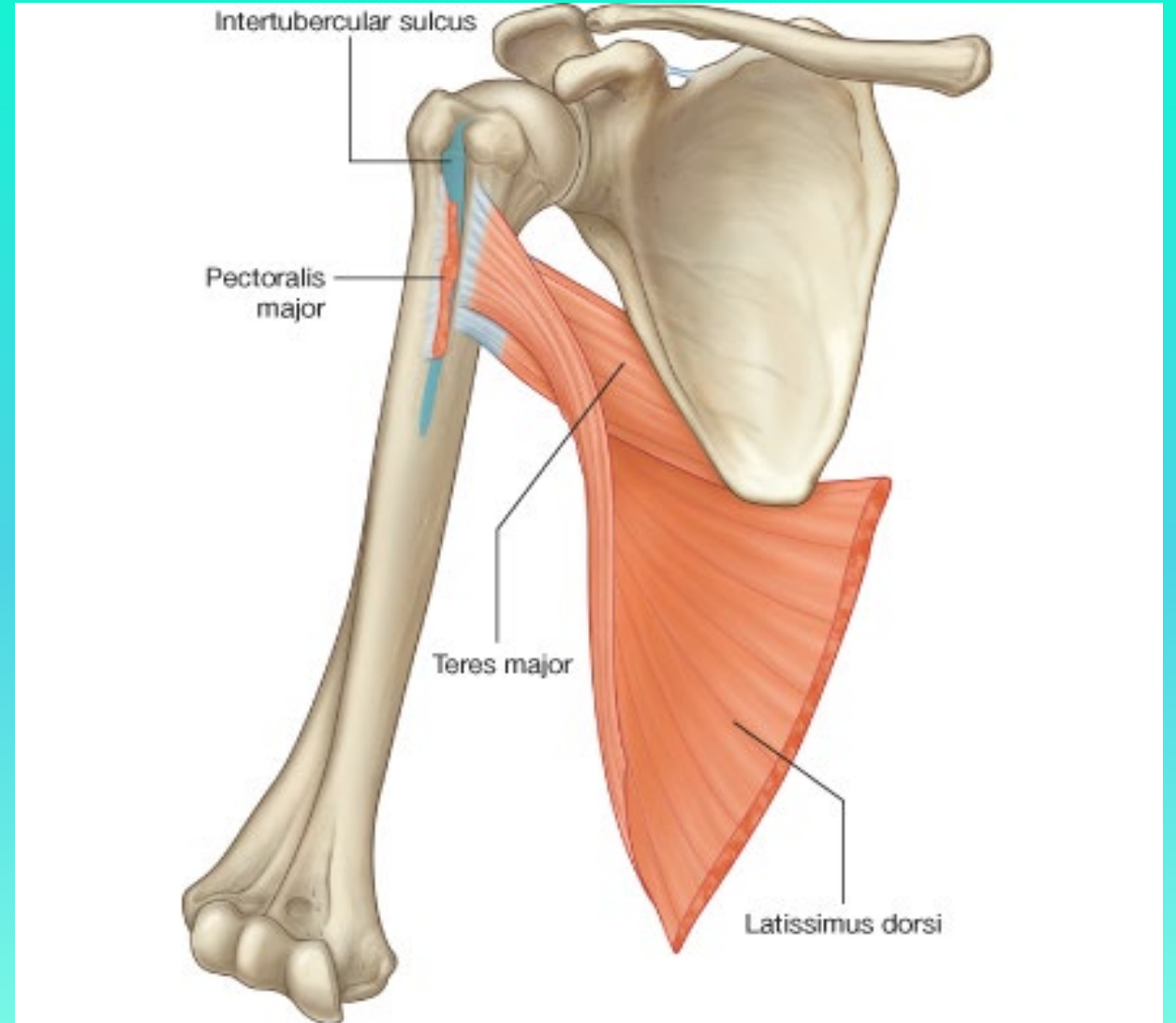
جدار داخلی آگزیلا

سراتوس انتریور
عصب: توراسیک لونگوس



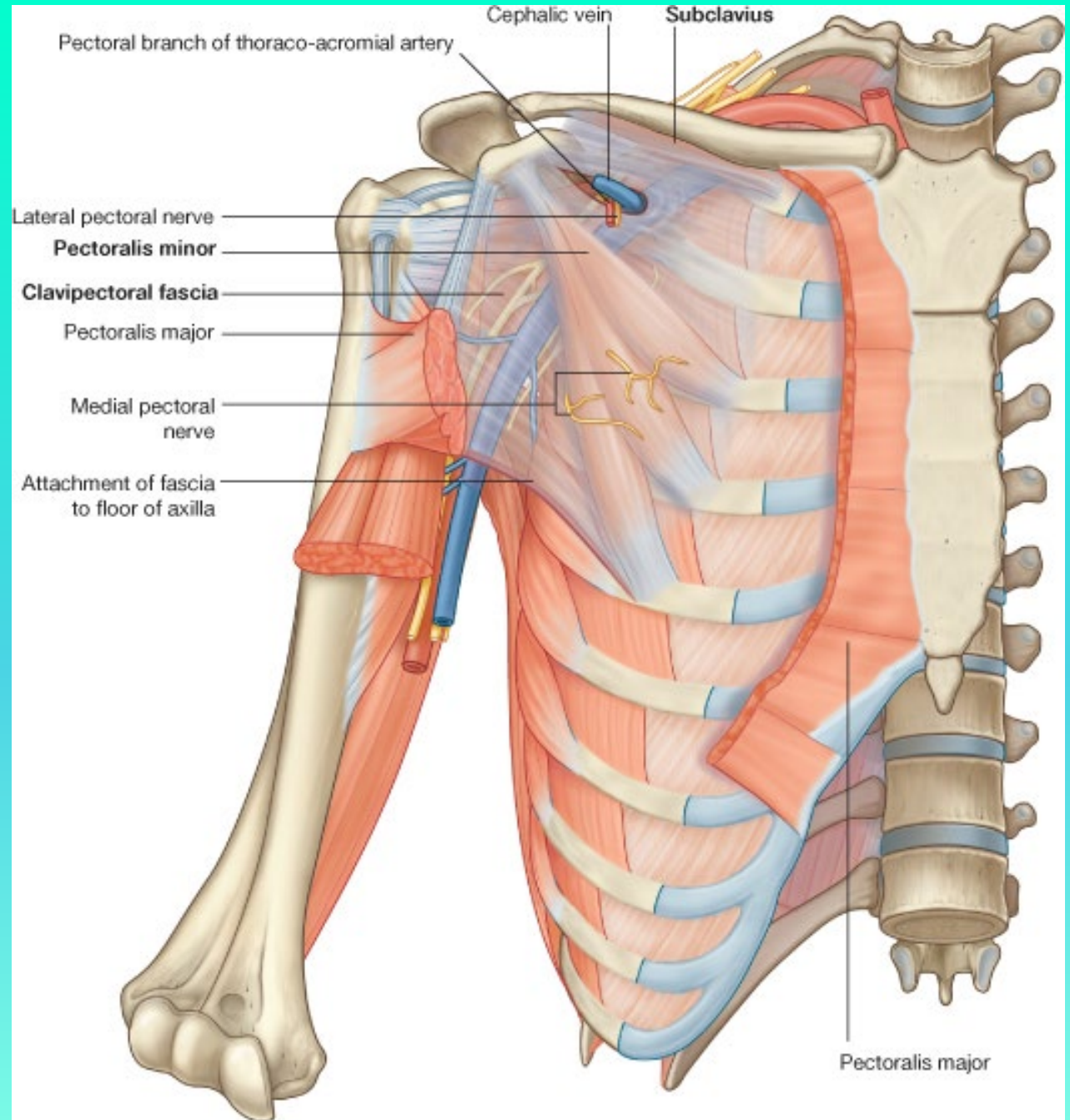
جدار خارجی آگزیلا

- 1- Intertubercular groove
- 2- Long head of Biceps
- 3- Tendon of pectoralis major
- 4- Tendon of Latissimus dorsi
- 5- Tendon of teres major



Pectoral region

- 1- Pectoralis major m.
- 2- Pectoralis minor m.
- 3- Subclavius m.



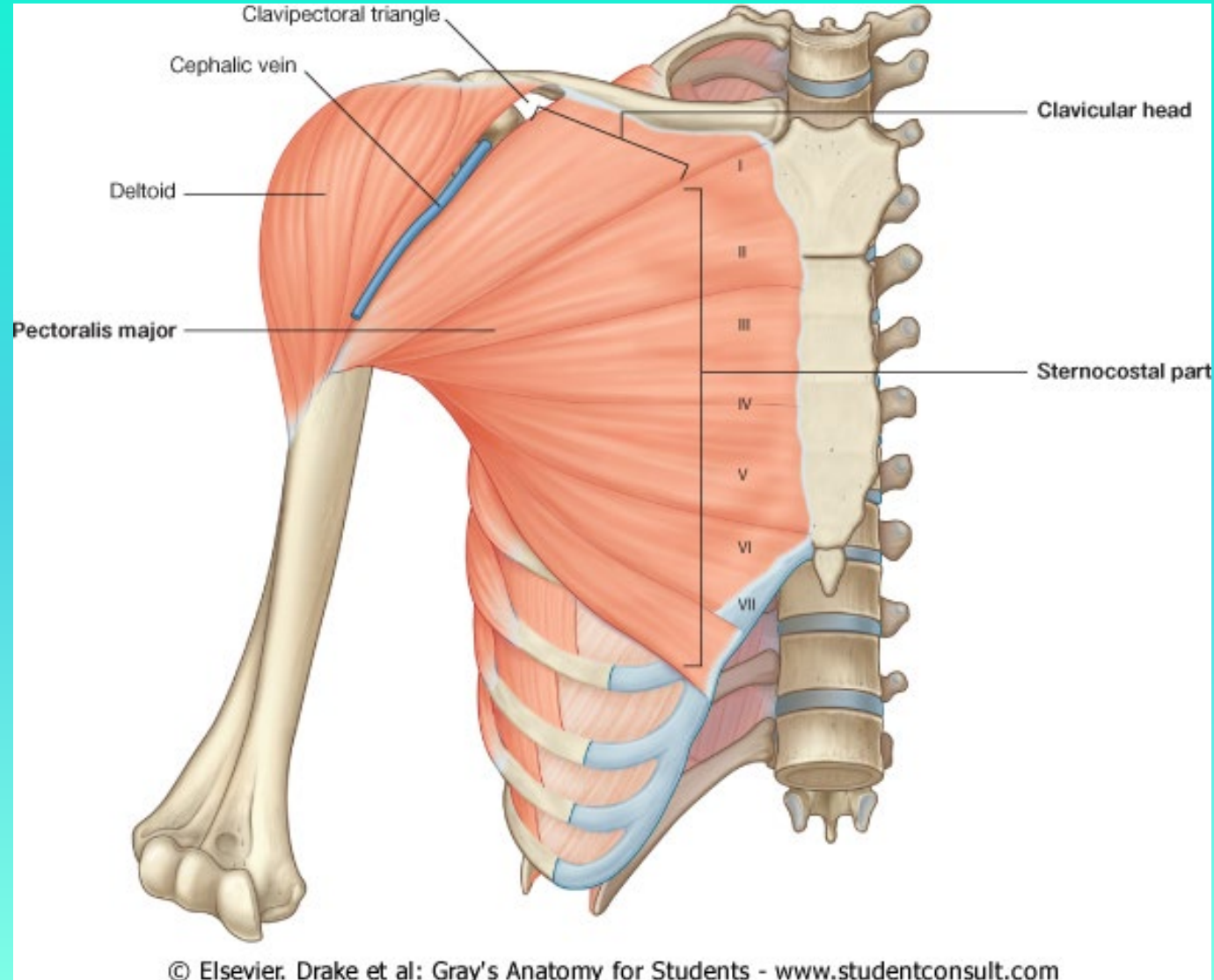
Pectoralis major m.

Origin:

- 1- Clavicle (Med. ½)
- 2- Sternum
- 3- Costal cartilages (1-6)

Insertion:

Lat. border of
intertubercular groove



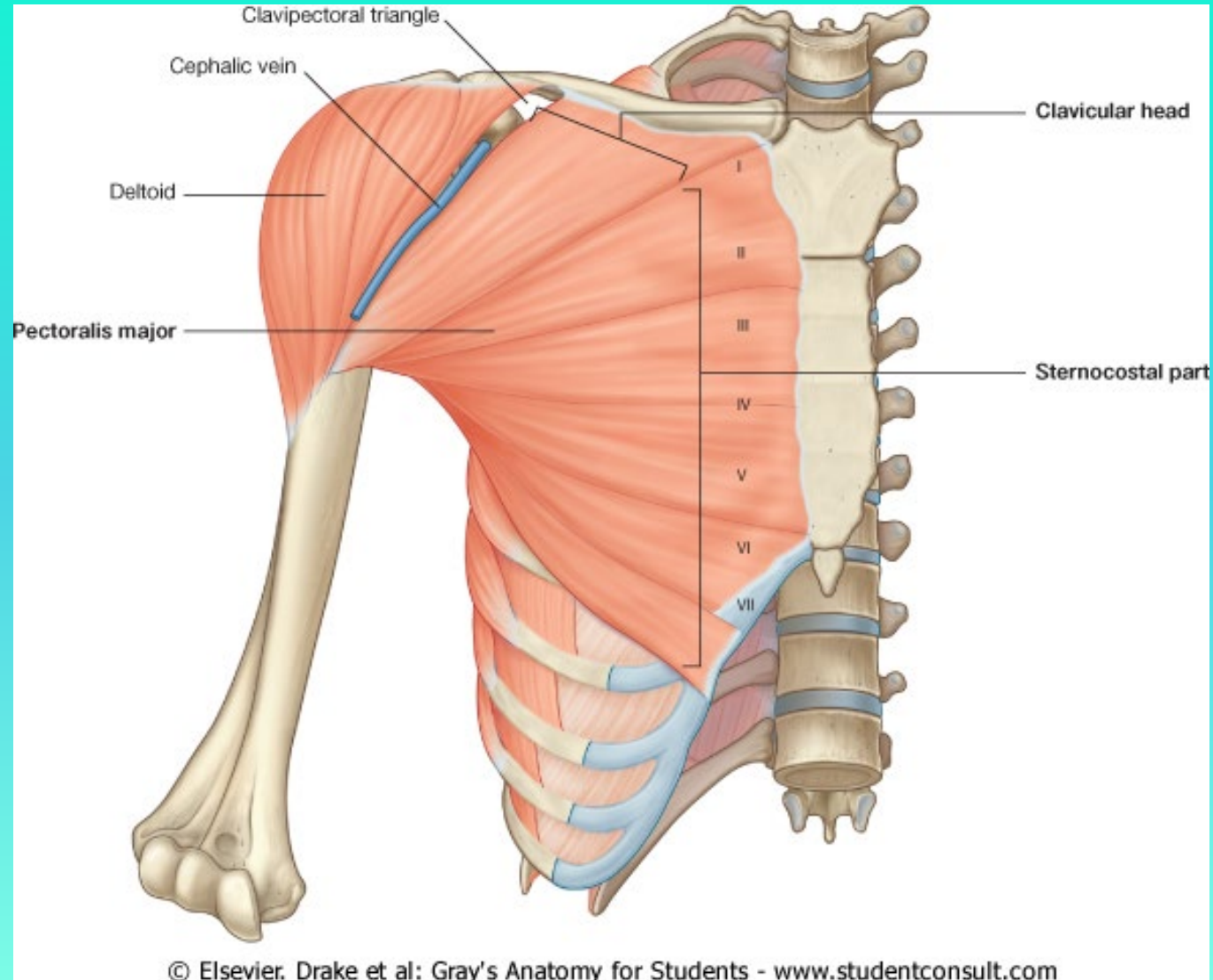
Pectoralis major m.

Action:

- 1- Flexion
- 2- Med. Rotation
- 3- Adduction

Innervation:

Med. Pectoral n.
Lat. Pectoral n.
(C₅ – T₁)



Pectoralis minor m.

Origin:

Ribs 3 – 5

Insertion:

Coracoid process

Action:

1- Protract scapula

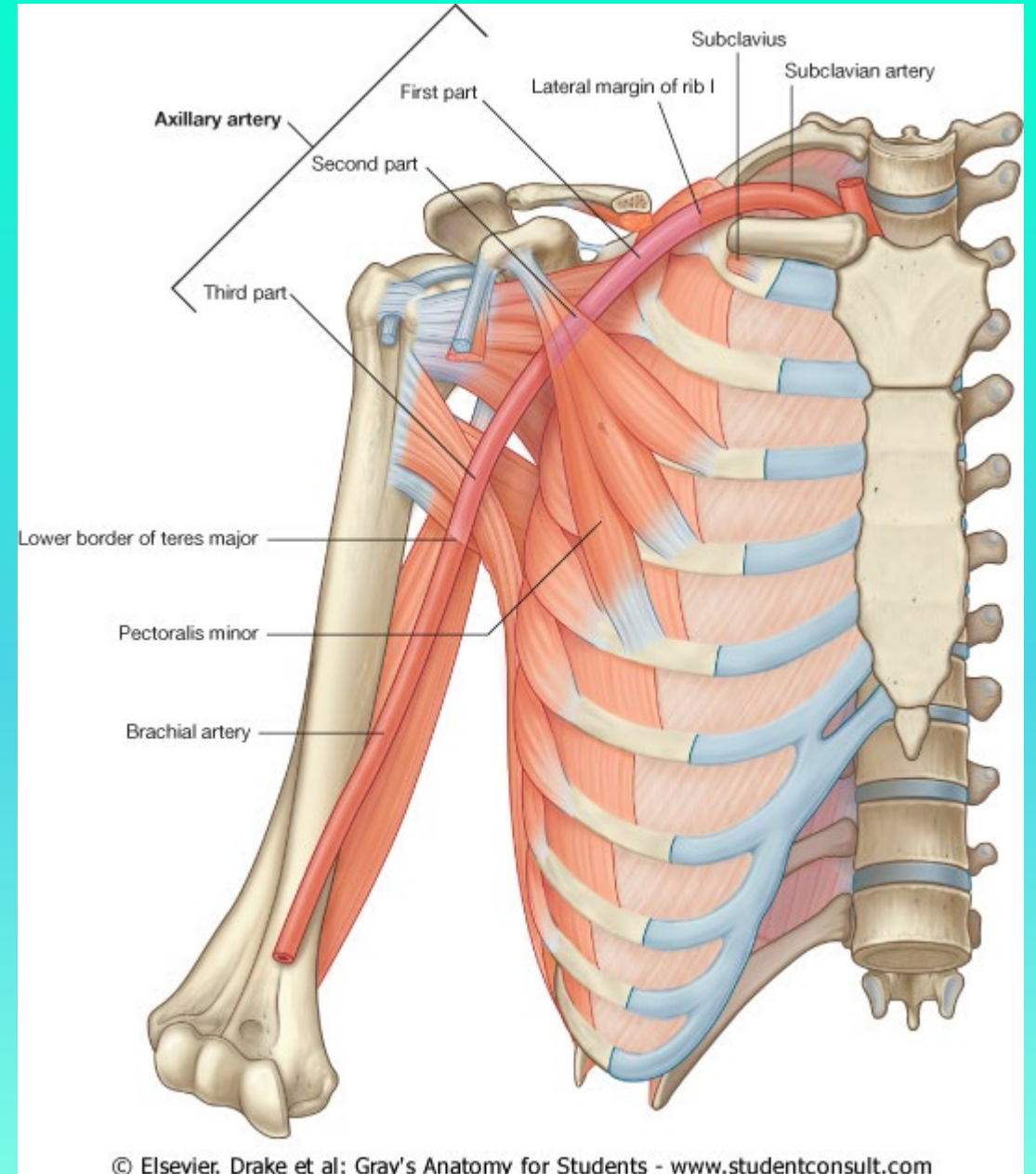
2- Med. rotation of scapula

Innervation:

Med. Pectoral n.

Lat. Pectoral n.

(C₅ – T₁)



Subclavius m.

Origin:

First rib

Insertion:

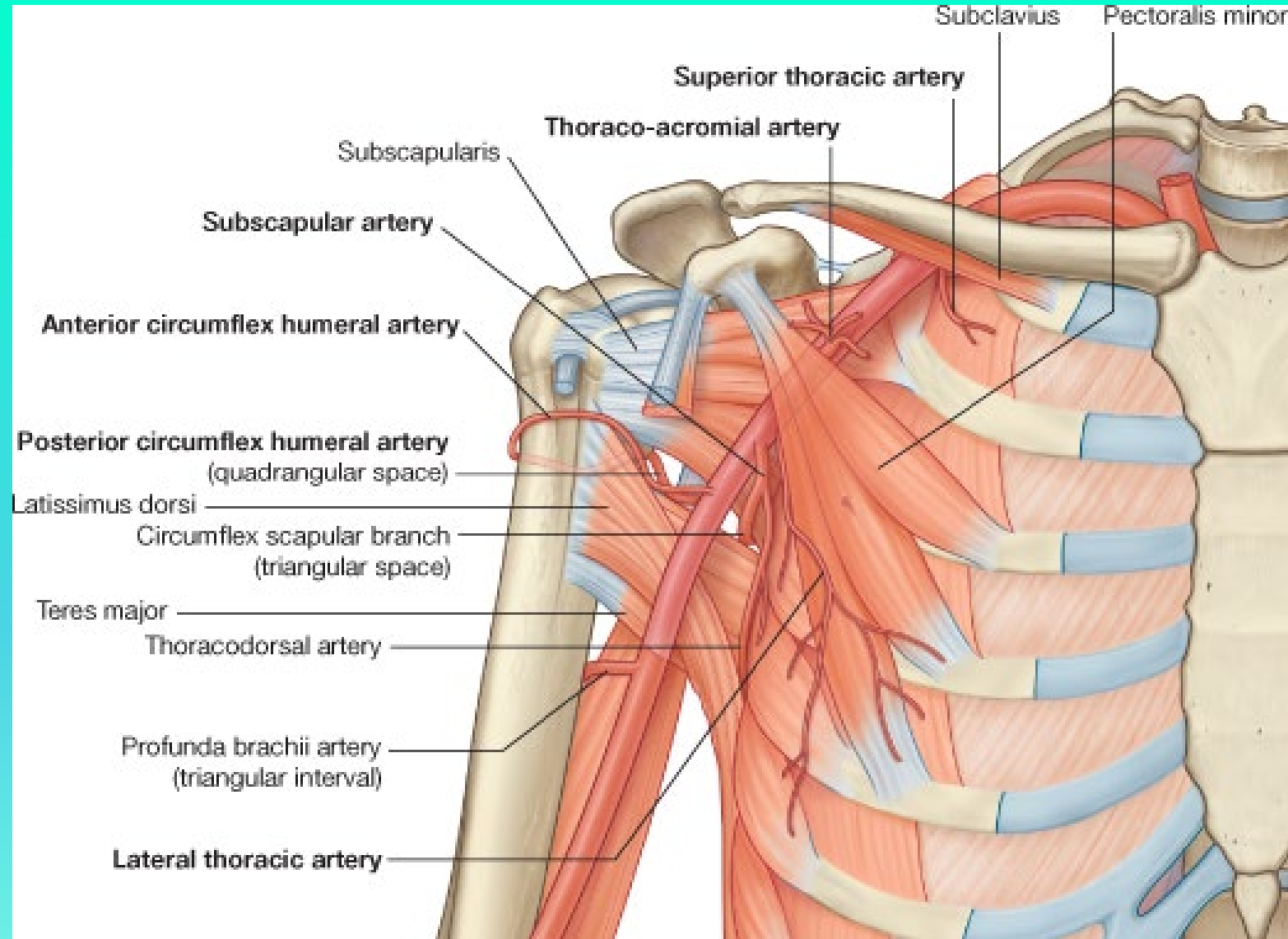
Subclavian groove

Action:

Holds clavicle to
sternum

Innervation:

Subclavian n. (C₅, C₆)



Serratus anterior m.

Origin:

Upper 8 ribs

Insertion:

Scapula, Med. border

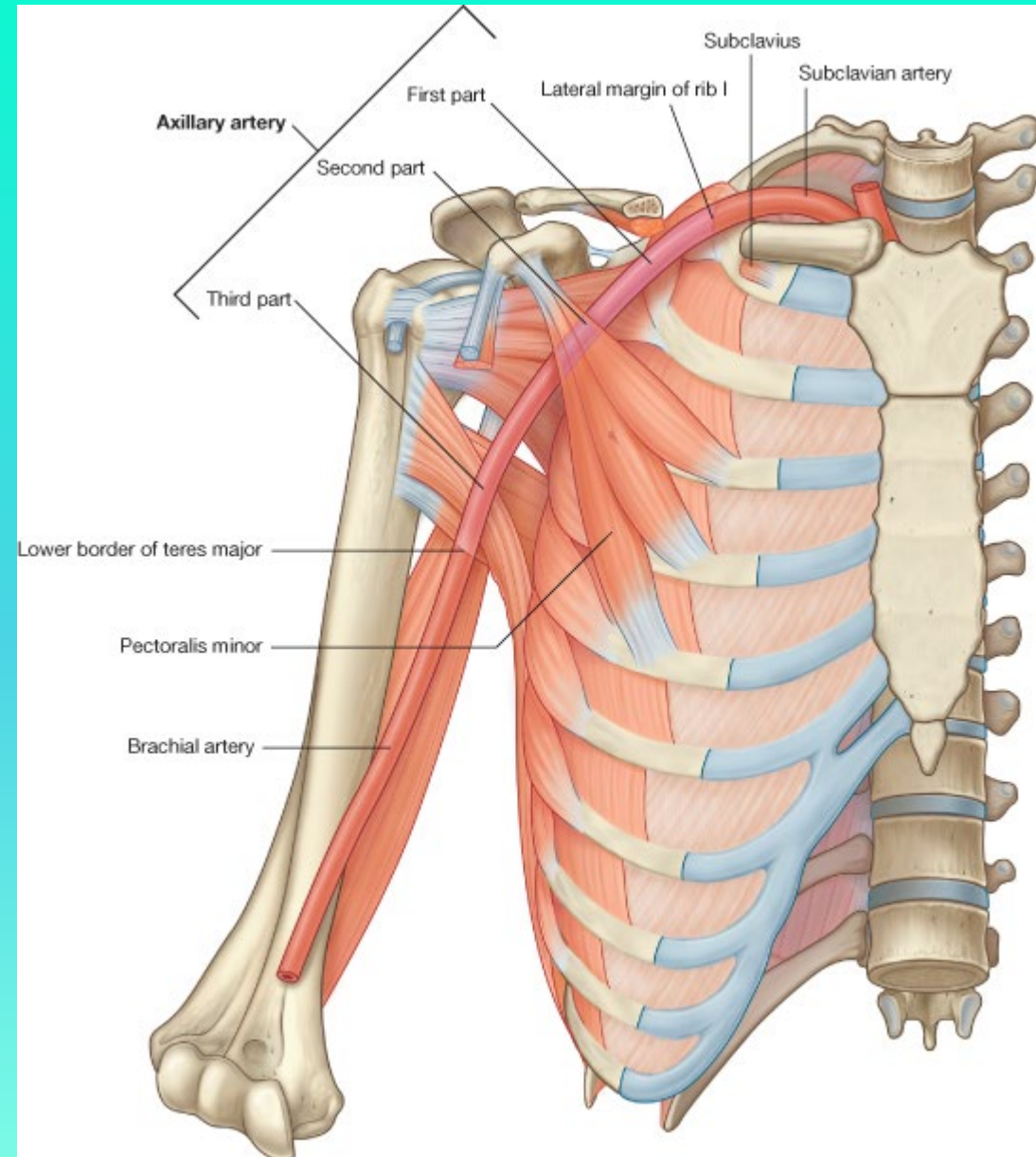
Action:

Protracts scapula

Scapula fixation on
thorax

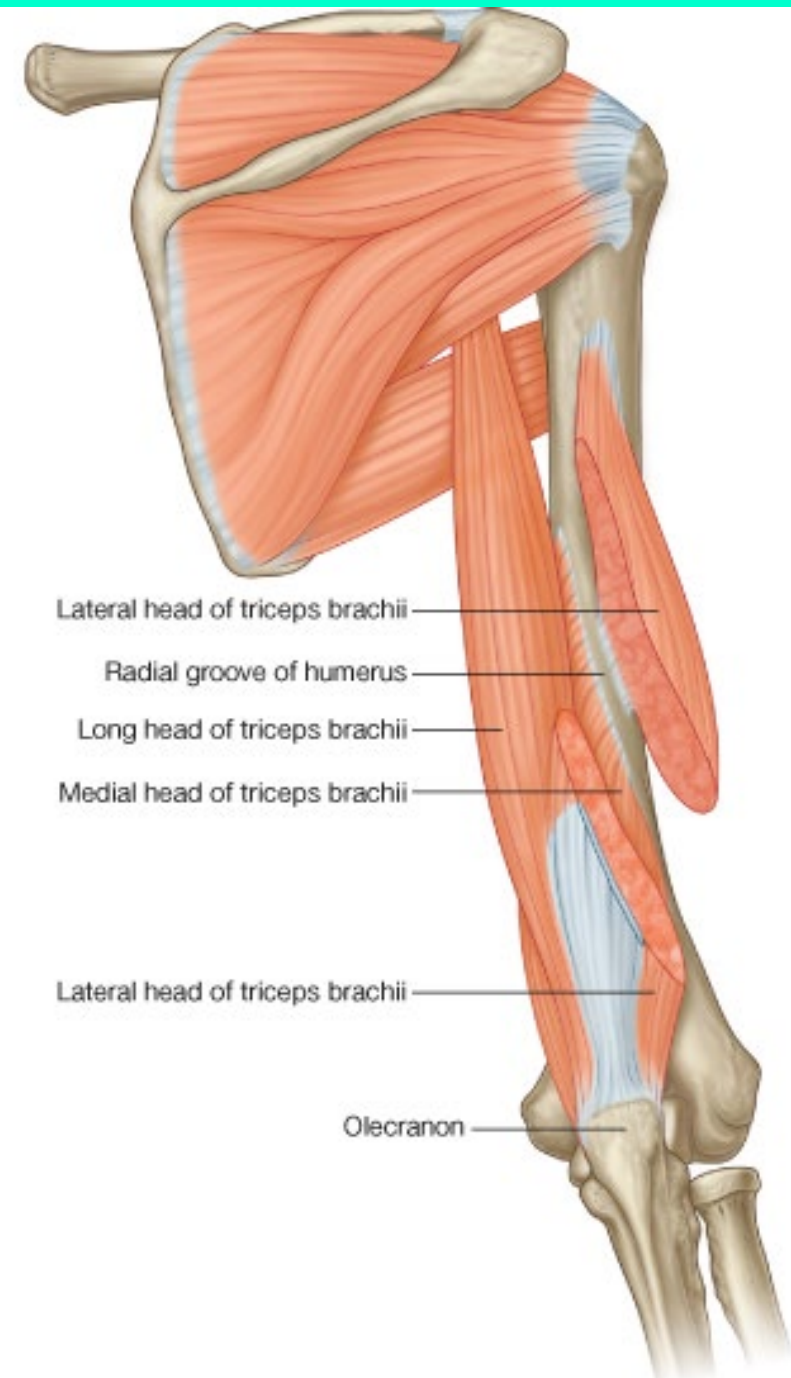
Innervation:

Long thoracic n.
(C₅, C₆, C₇)



Scapular region

- 1- Subscapularis m.
- 2- Supraspinatus m.
- 3- Infraspinatus m.
- 4- Teres major m.
- 5- Teres minor m.



Subscapularis m.

Origin:

Subscapular fossa

Insertion:

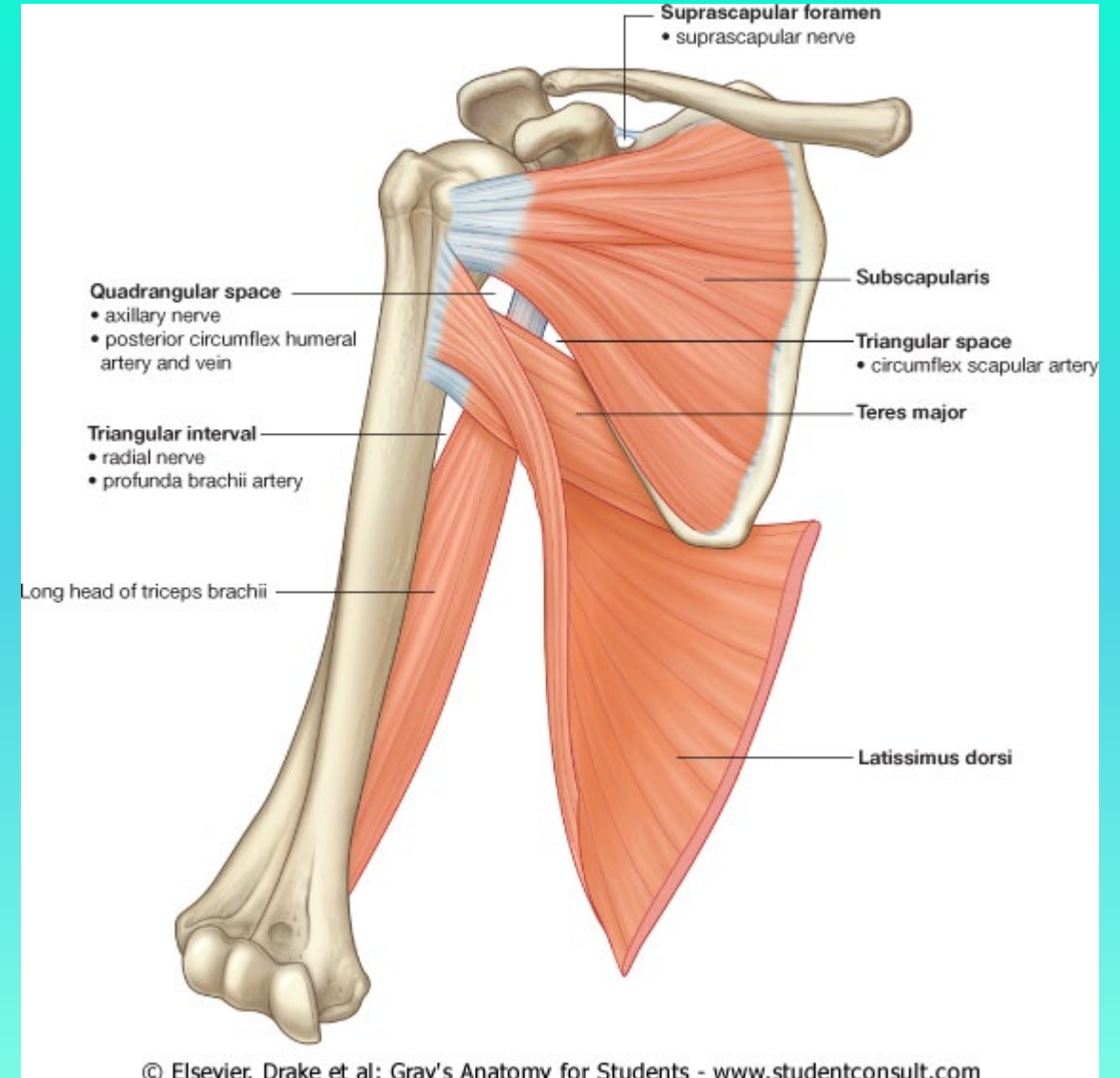
Lesser tubercle

Action:

Med. Rotation

Innervation:

Upper & Lower
subscapular n. (C₅, C₆)



Supraspinatus m.

Origin:

Supraspinous
fossa

Insertion:

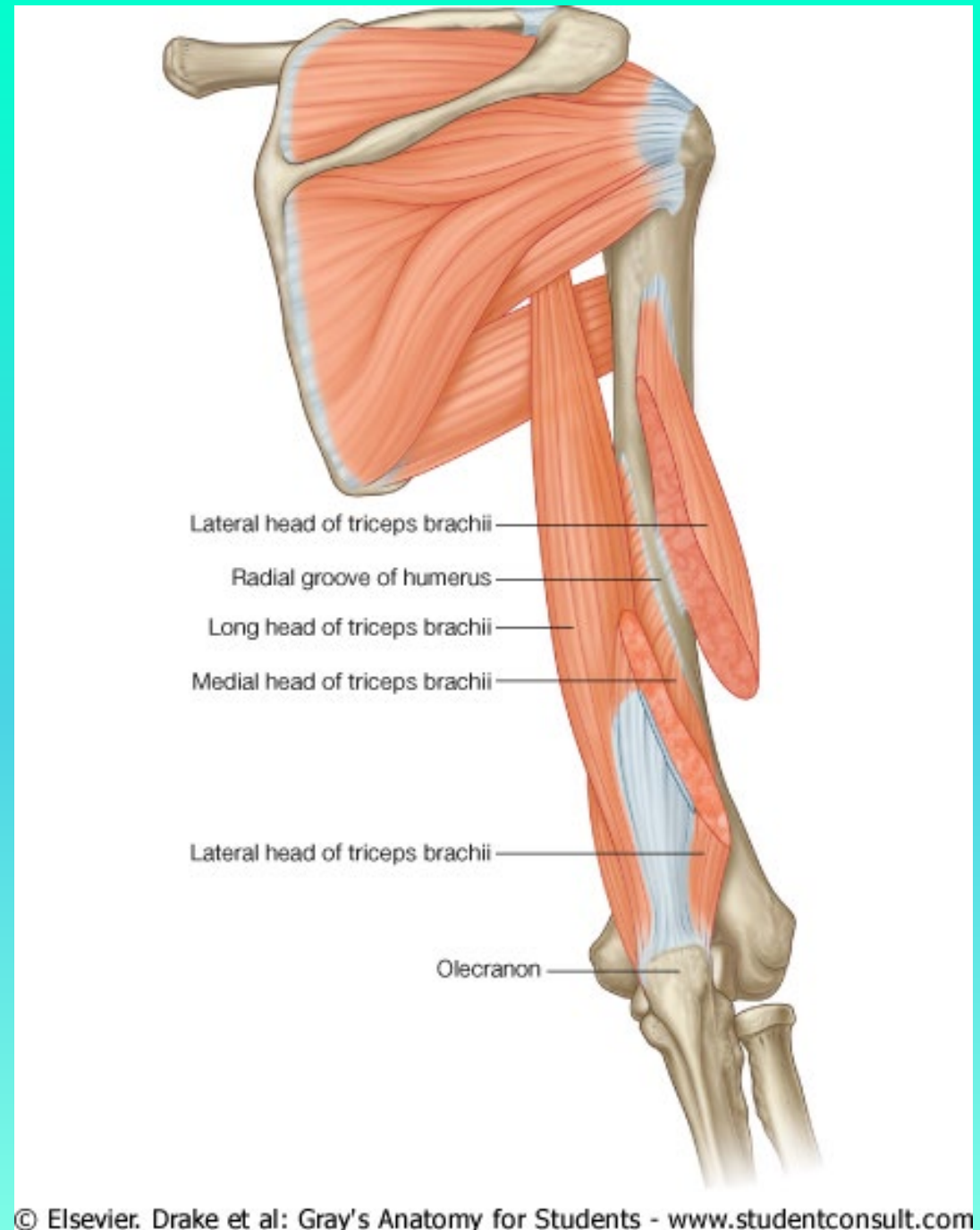
Greater tubercle

Action:

Abduction

Innervation:

Suprascapular n.
(C₅, C₆)



Infraspinatus m.

Origin:

Infraspinous fossa

Insertion:

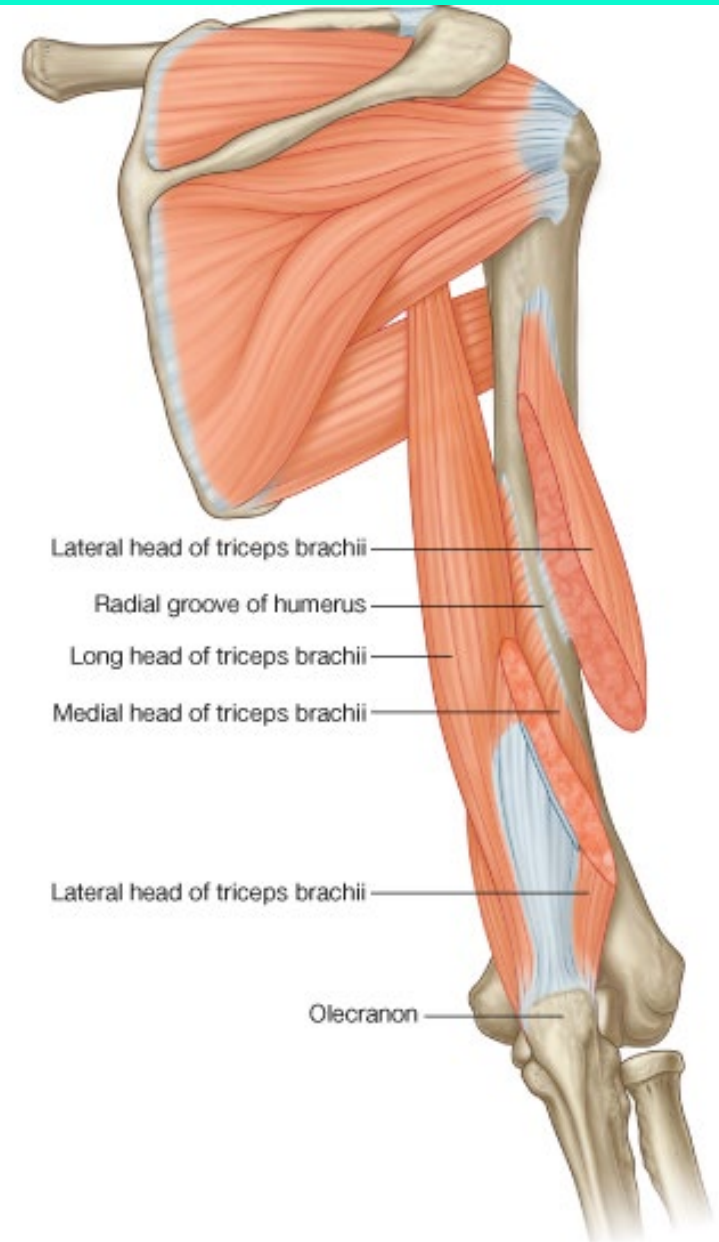
Greater tubercle

Action:

Lat. rotation

Innervation:

Suprascapular n.
(C₅, C₆)



Teres minor m.

Origin:

Scapula (Sup. 2/3
lat. border)

Insertion:

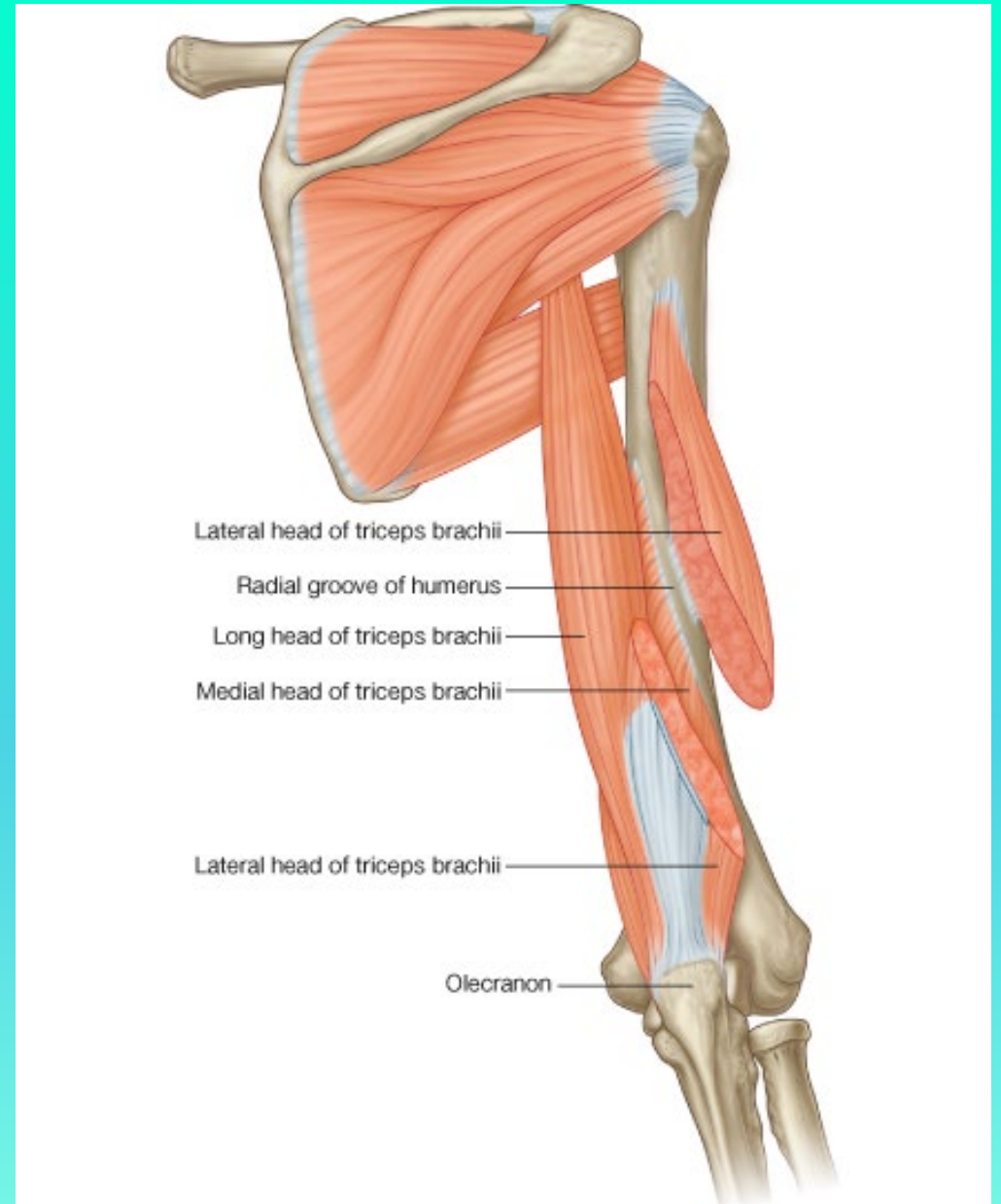
Greater tubercle

Action:

Lat. rotation

Innervation:

Axillary n. (C₅, C₆)



Teres major m.

Origin:

Scapula (Inf. 1/3 lat. border)

Insertion:

Med. border of
intertubercular
groove

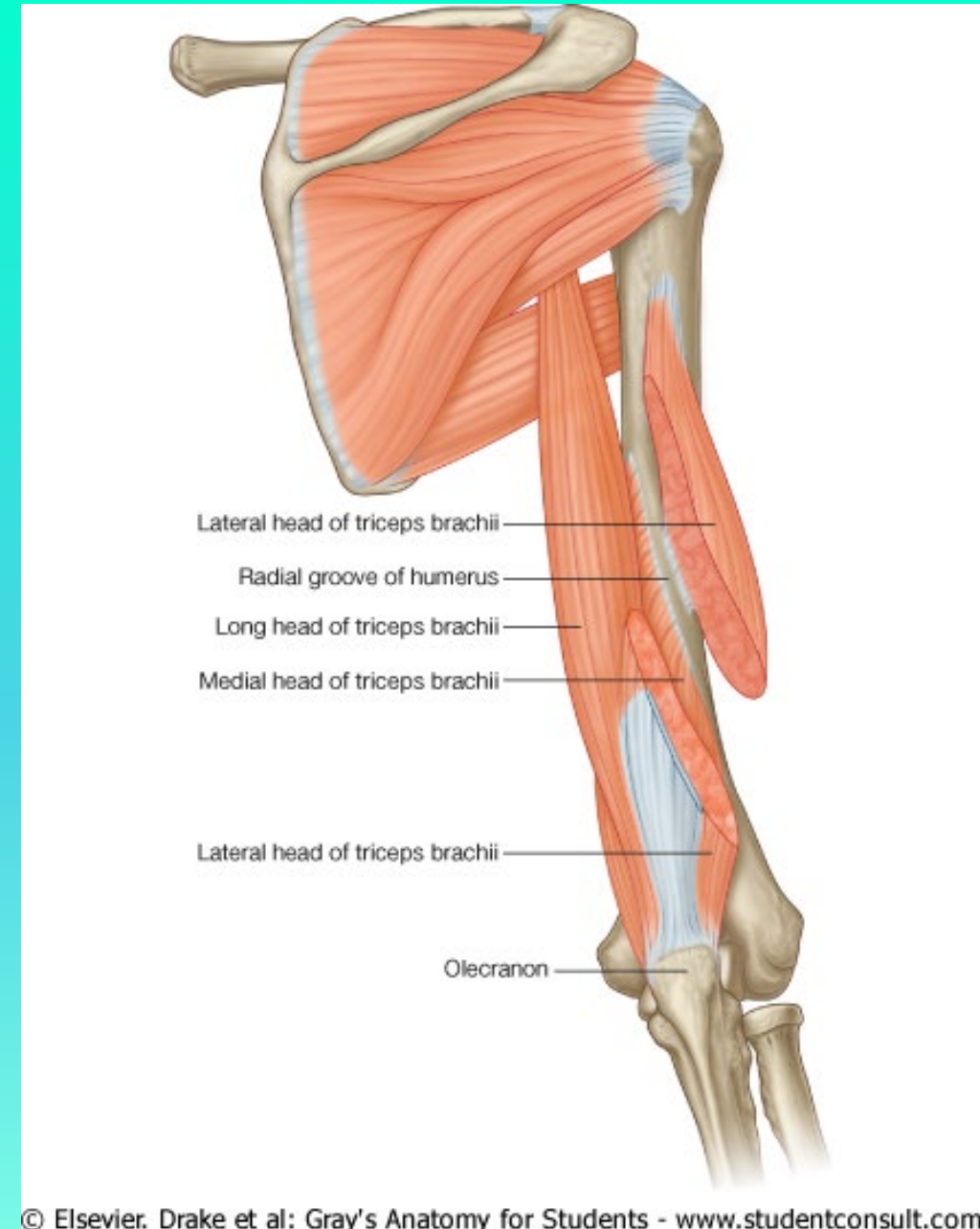
Action:

Adduction

Med. rotation

Innervation:

Lower subscapular n.
(C₅, C₆, C₇)



Origin:

- 1- Clavicle (Lat. 1/3)
- 2- Acromion
- 3- Spine of Scapula

Insertion:

Deltoid tuberosity

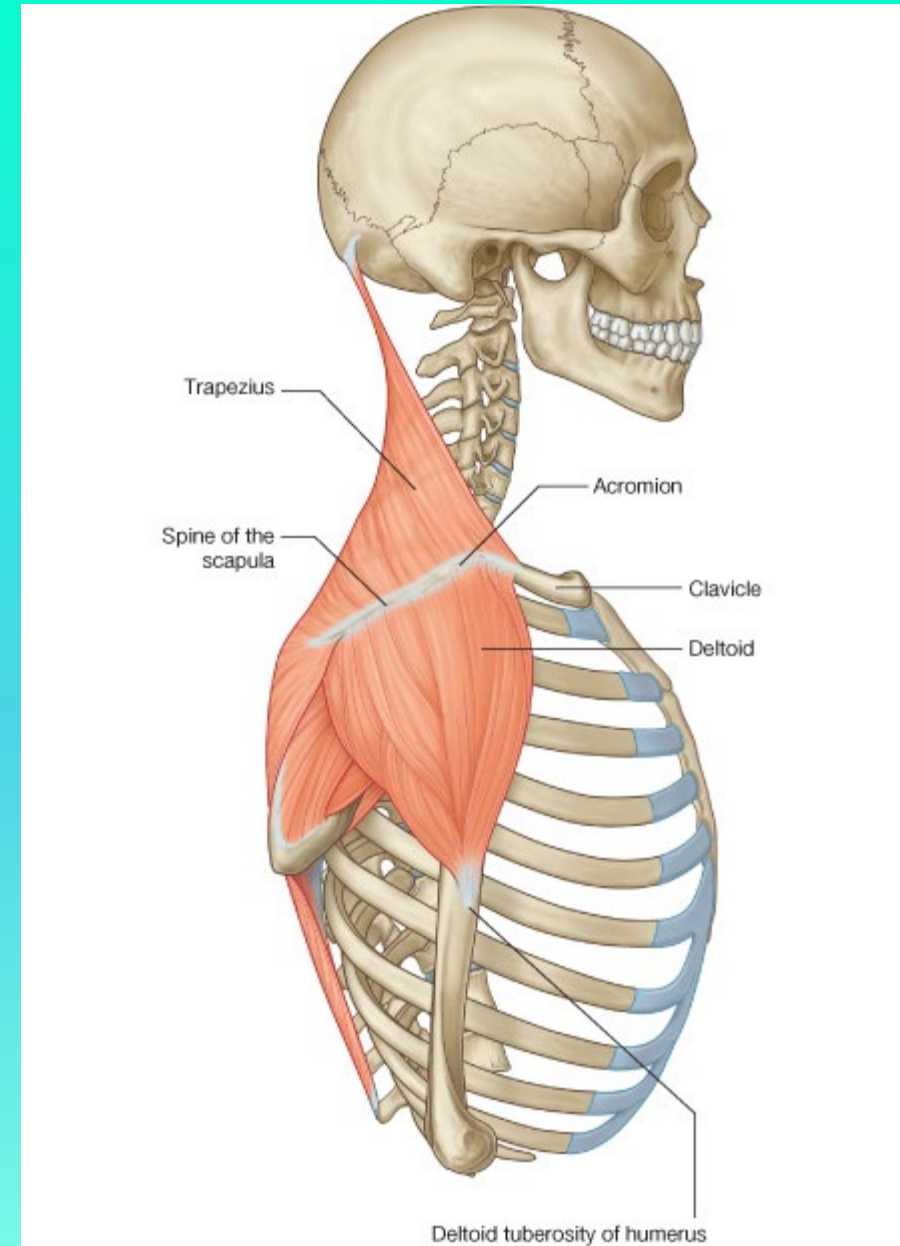
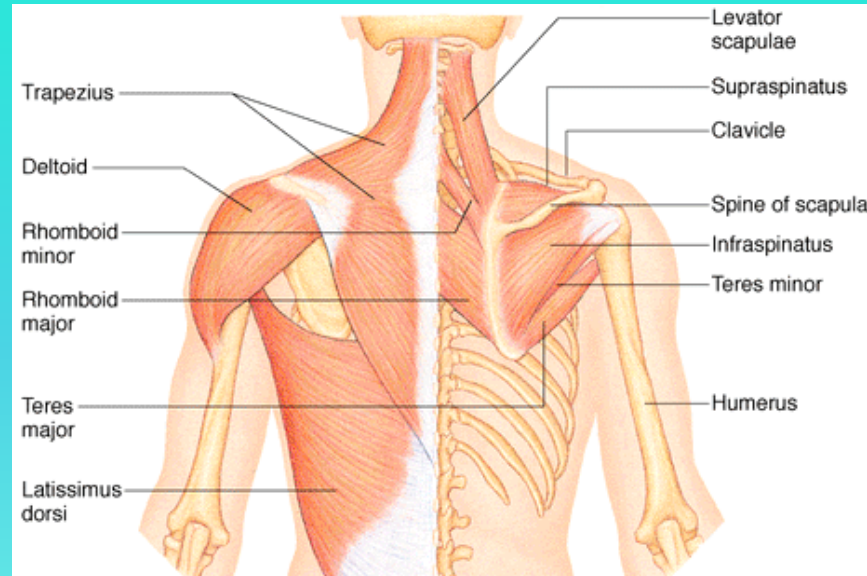
Action:

- 1- Abduction
- 2- Flexion & Med. rotation
- 3- Extension & Lat. rotation

Innervation:

Axillary n. (C₅, C₆)

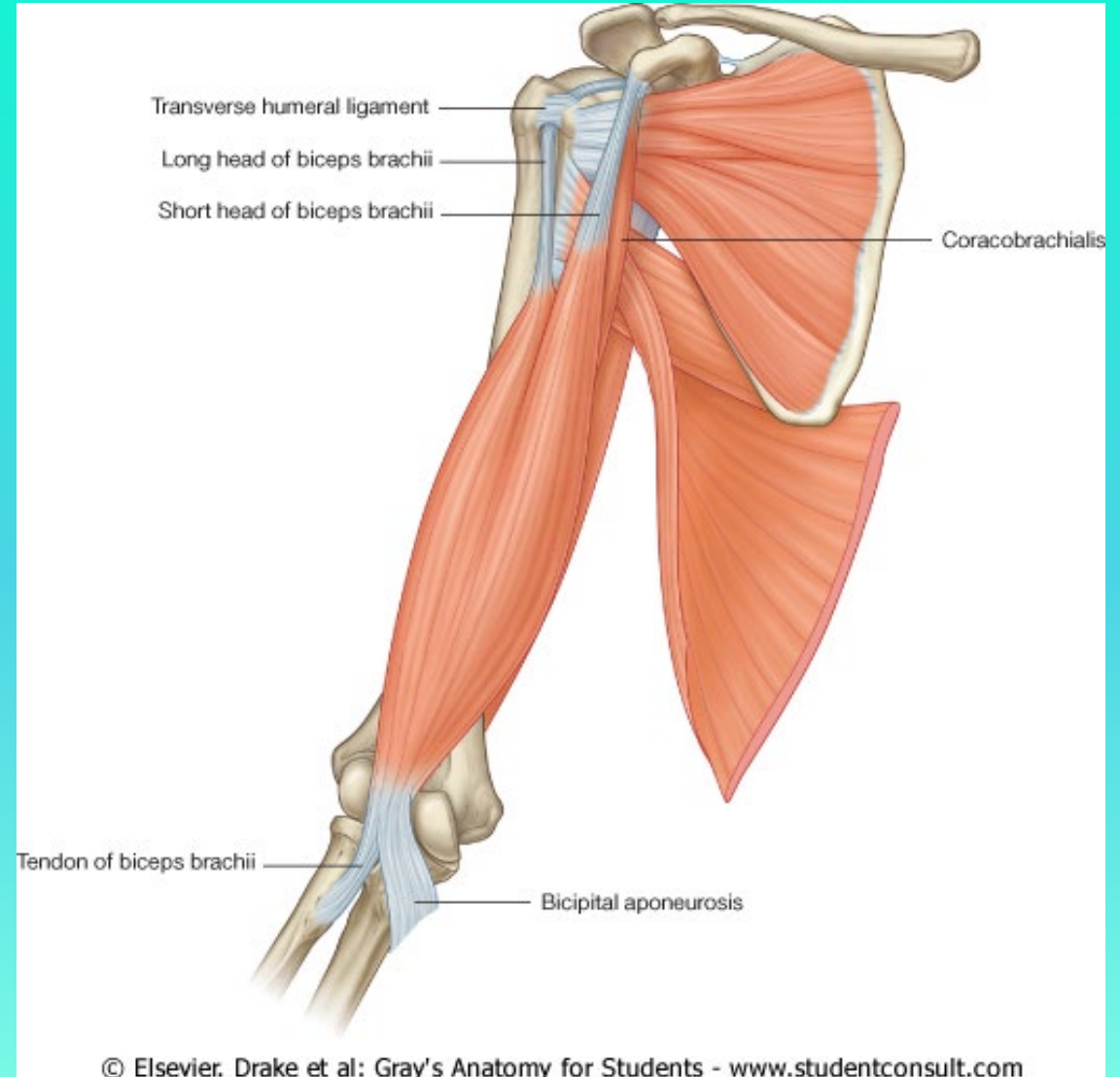
Deltoid m.

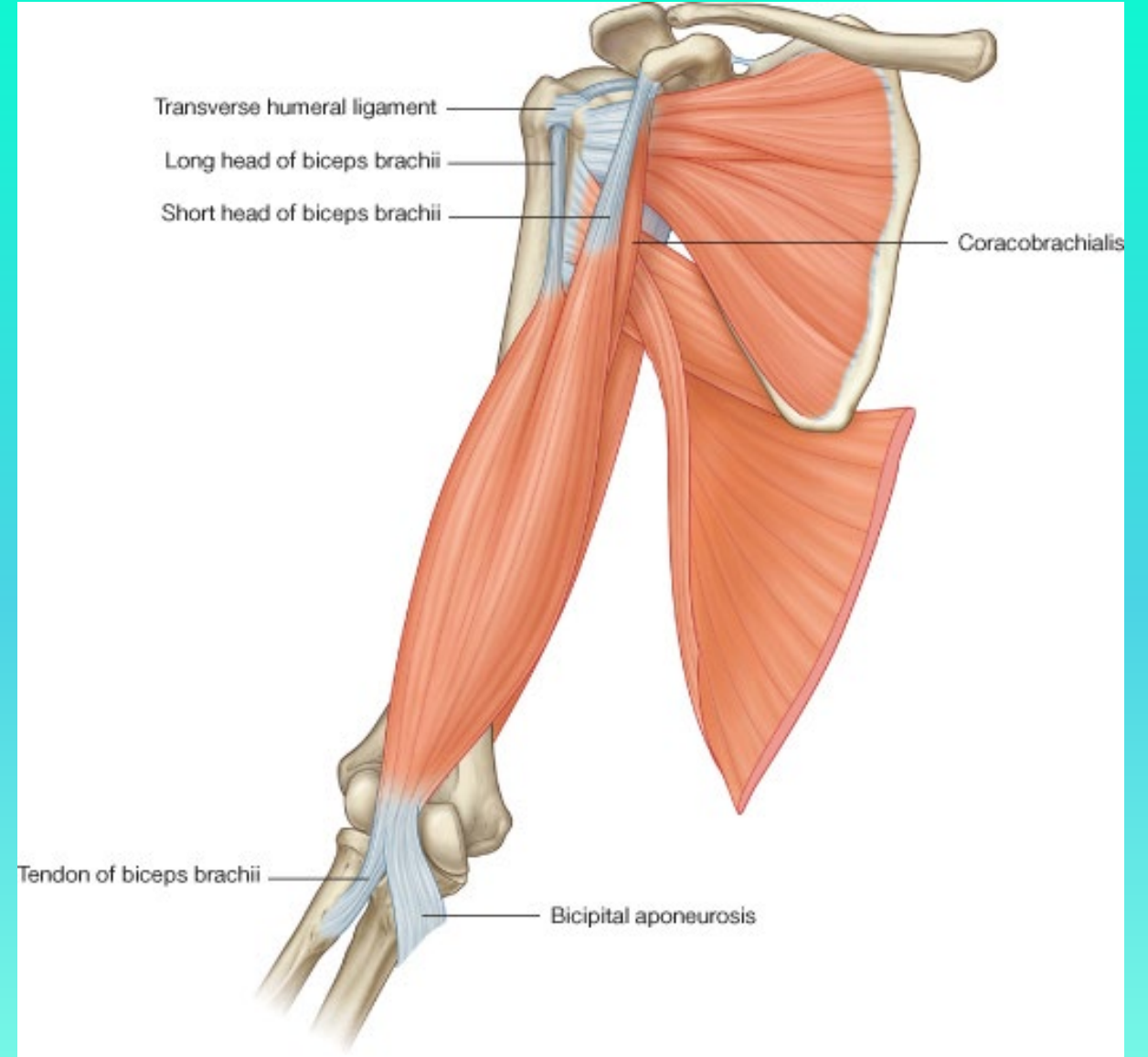
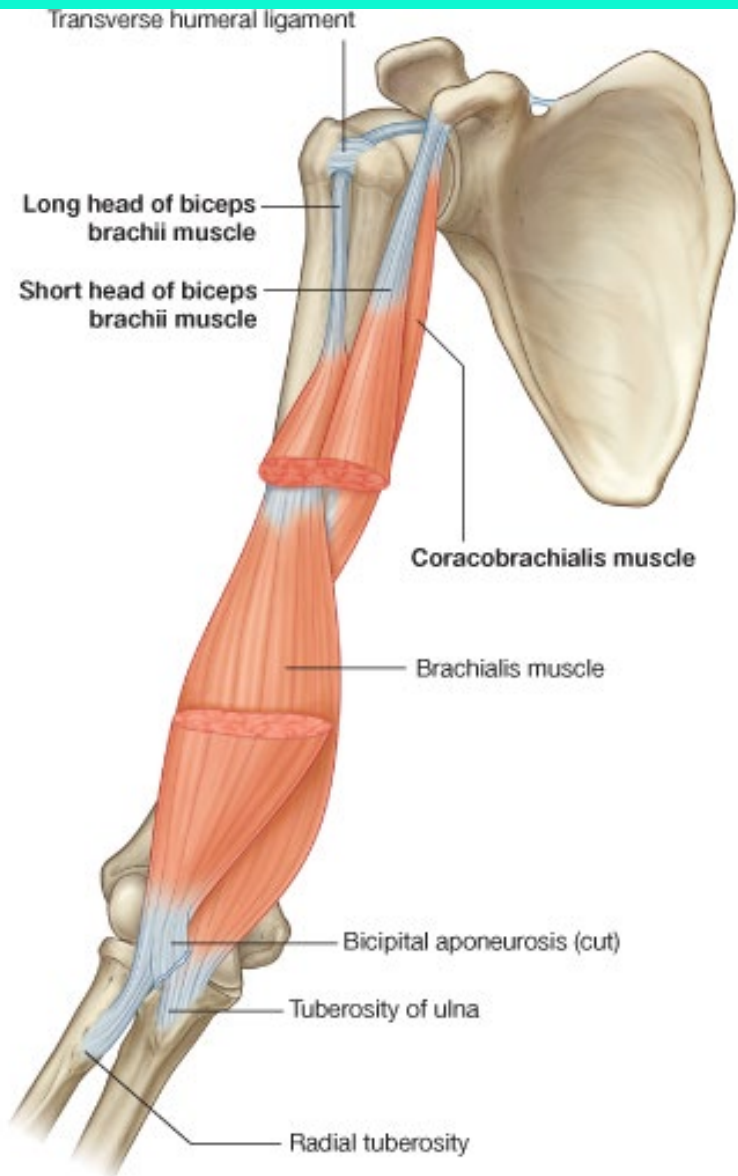


MUSCLES of the ARM

Ant. Compartment

- 1- Coracobrachialis m.**
- 2- Biceps brachii m.**
- 3- Brachialis m.**

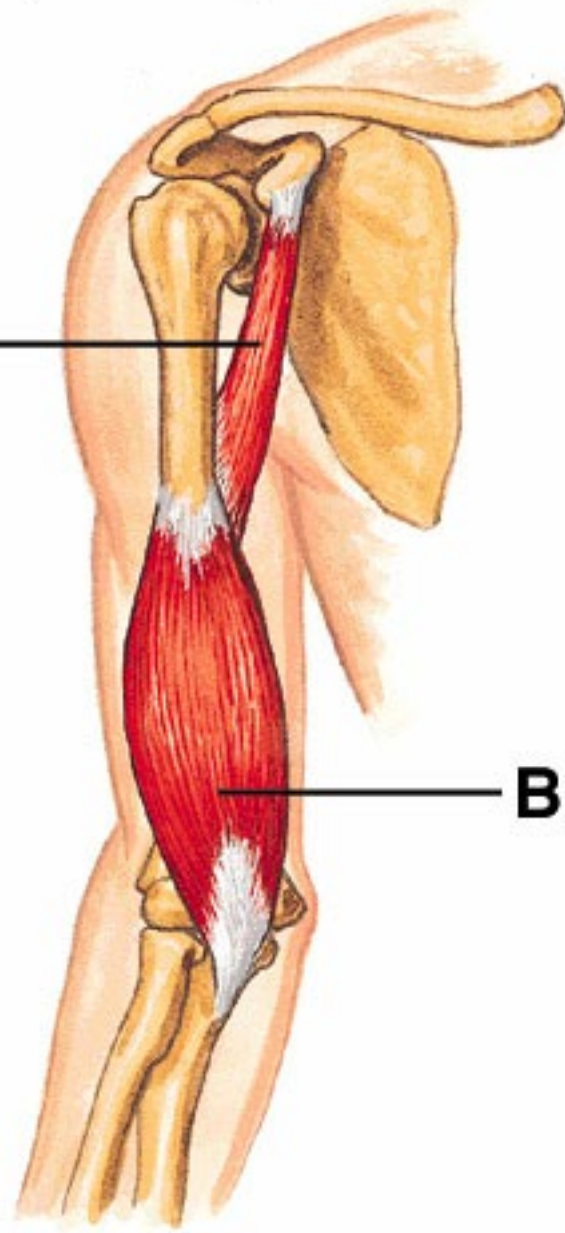




Coracobrachialis

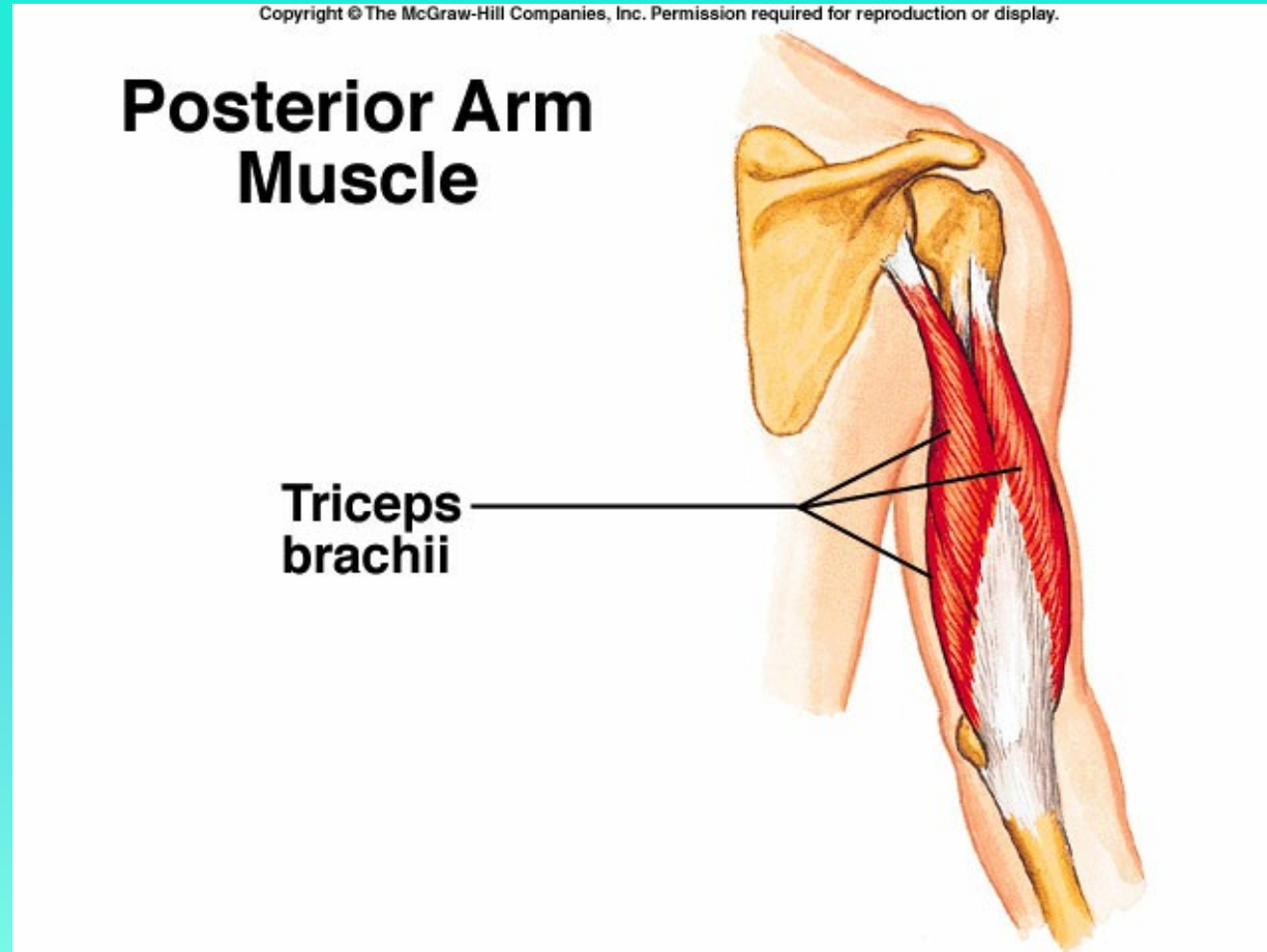
**Anterior Arm
Muscles (3)**

Brachialis



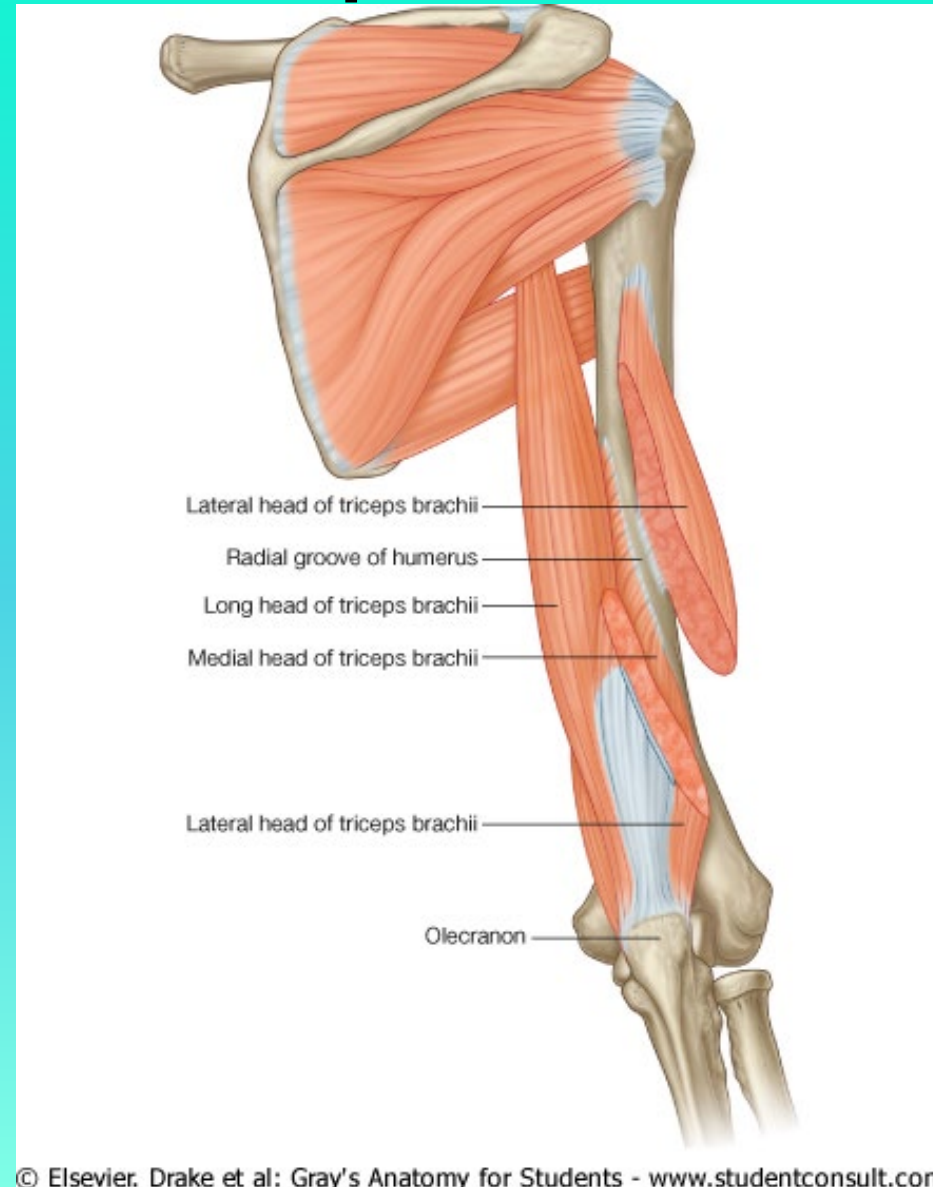
POSTERIOR ARM

- Triceps brachii

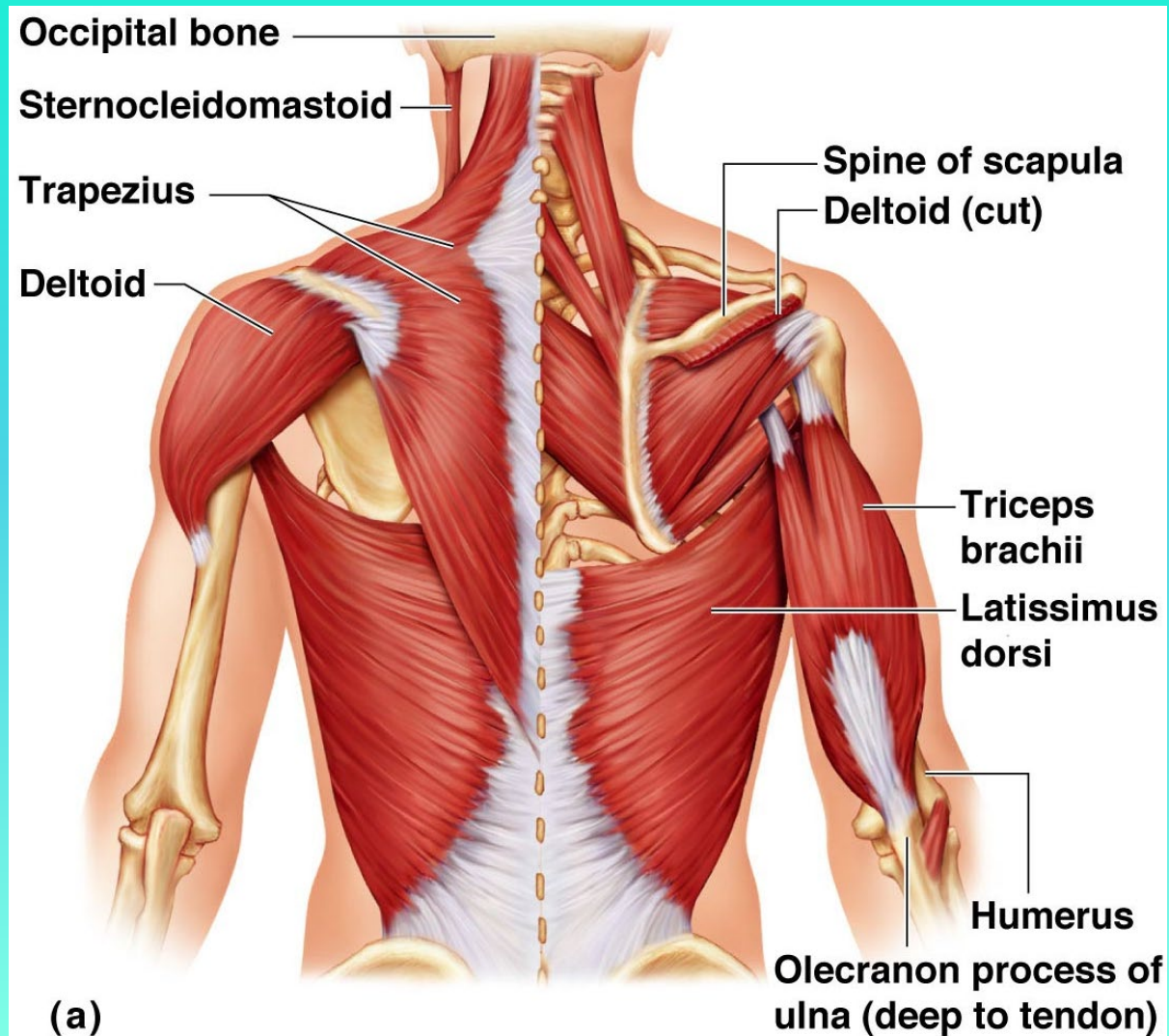


Post. Compartment

Triceps brachii m.



Muscle of Posterior Arm

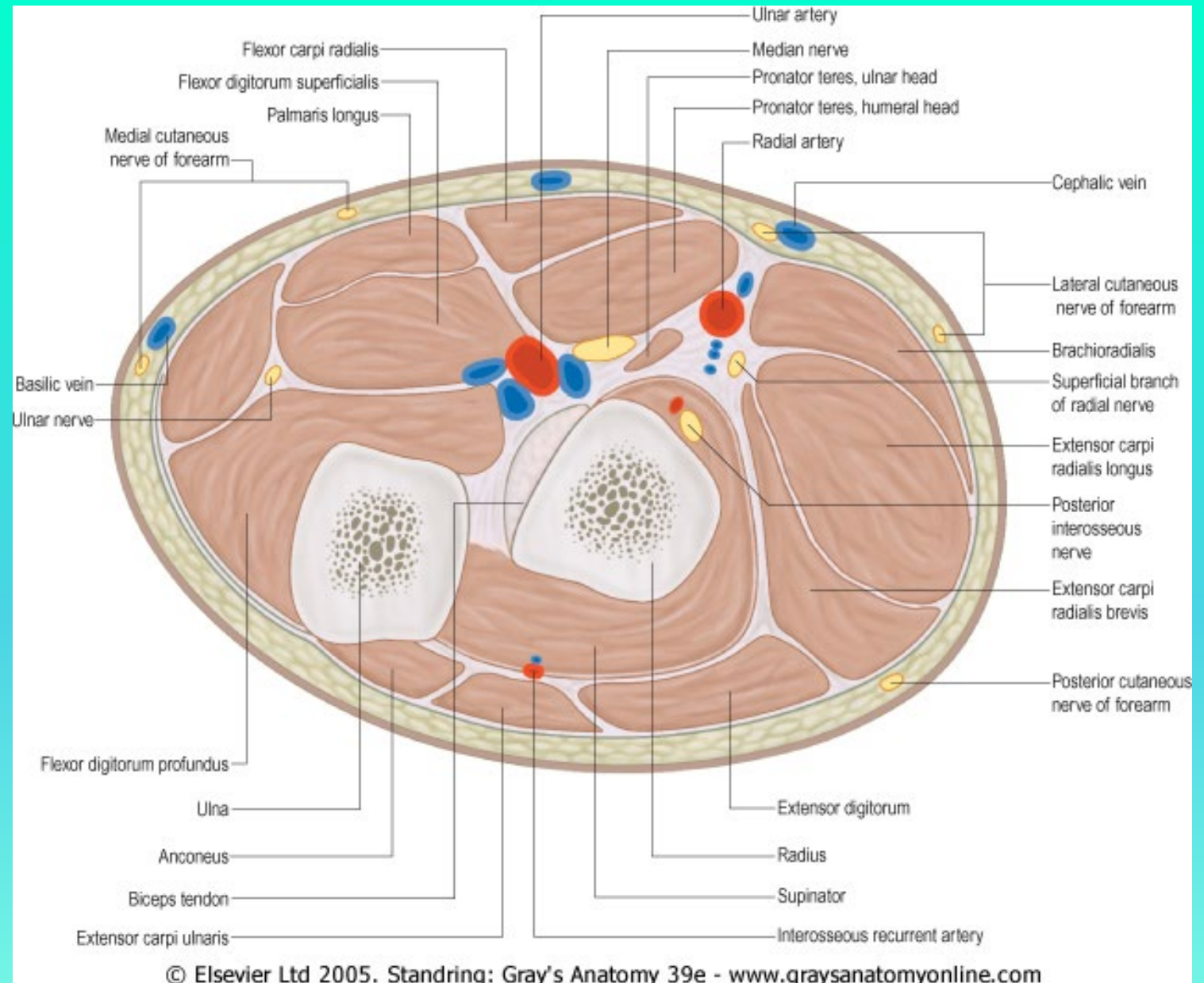


Forearm

Forearm

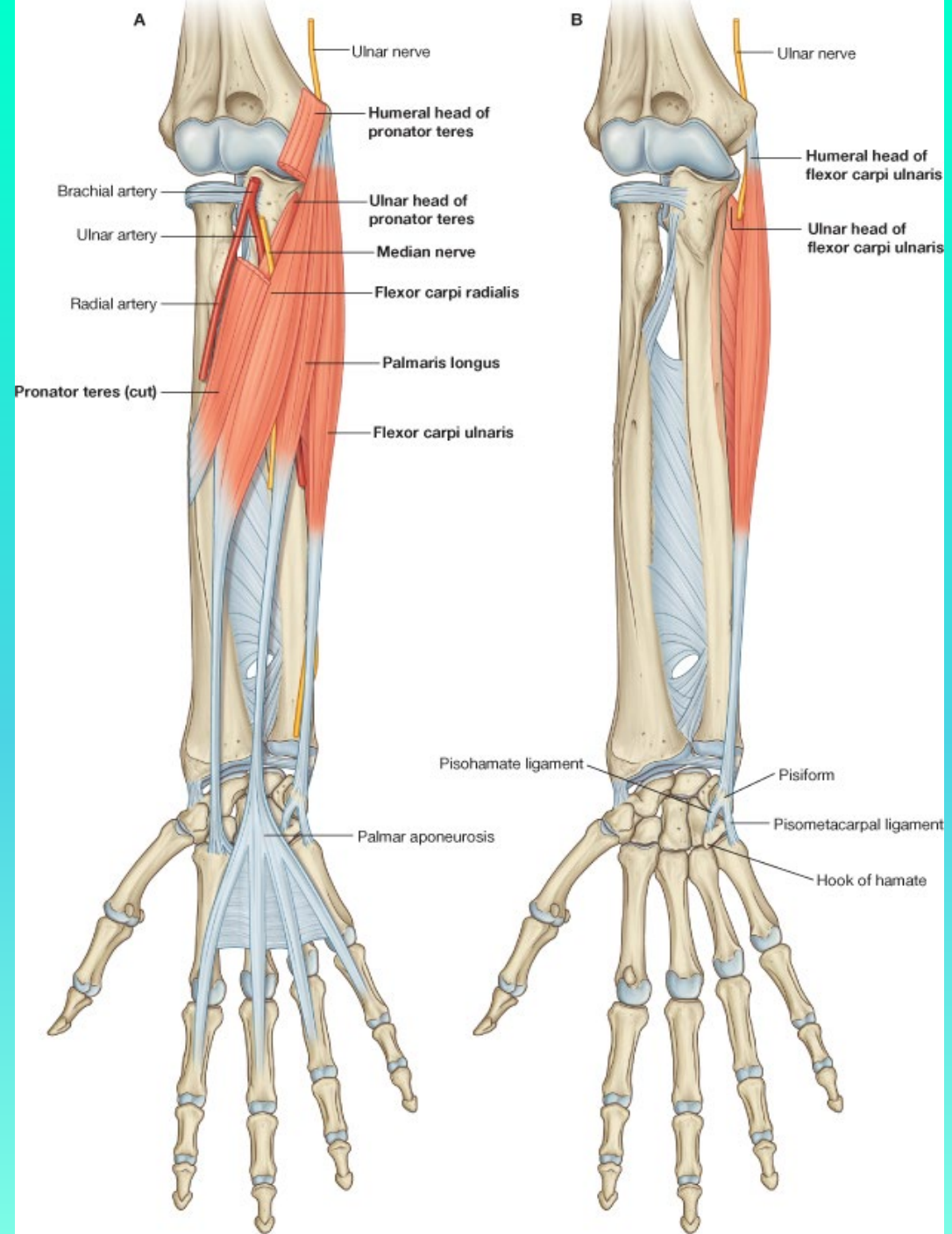
1- Ant. Compartment
(Flexor muscles)

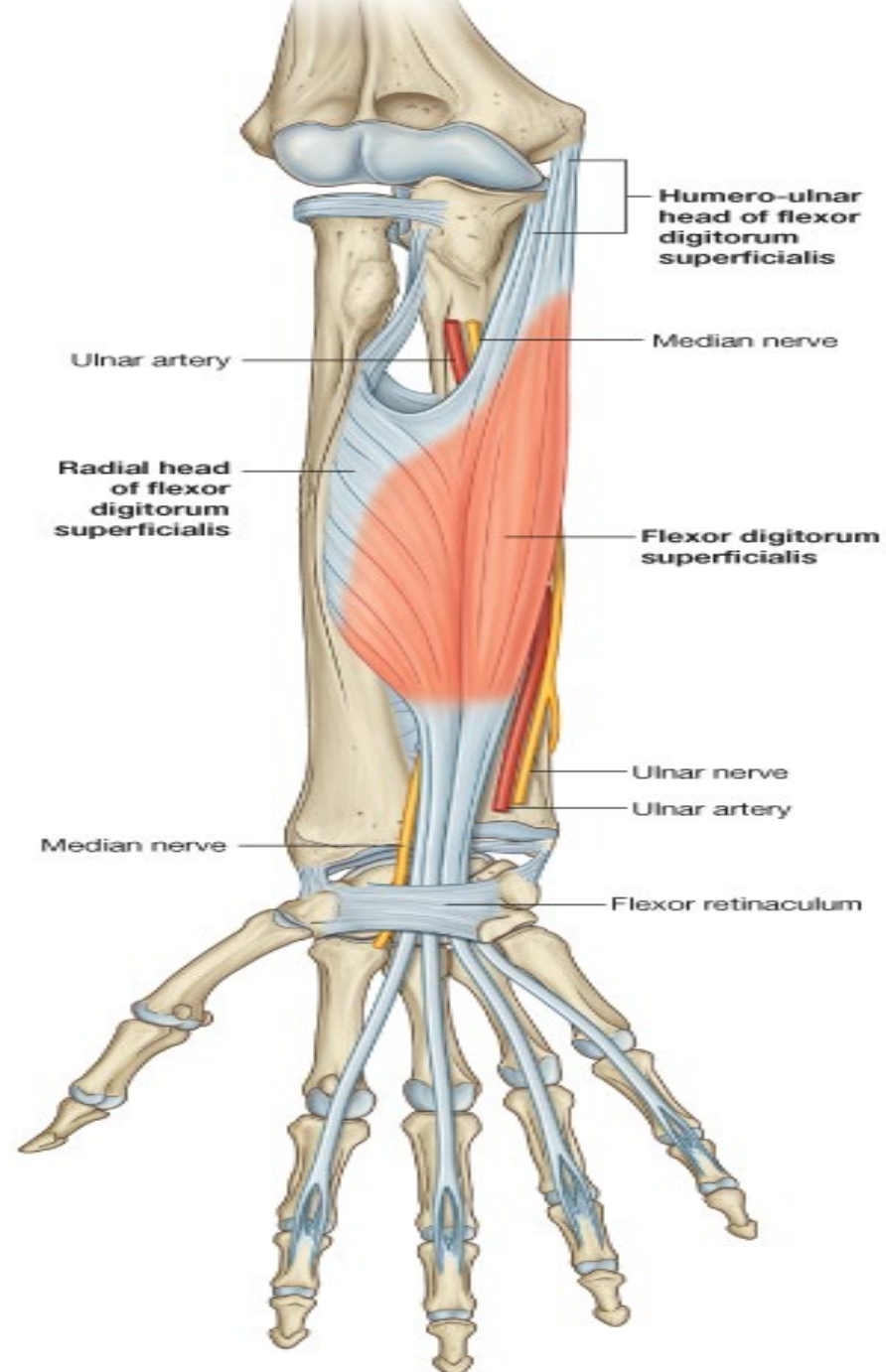
2- Post. Compartment
(Extensor muscles)



Ant. Compartment (Superficial group)

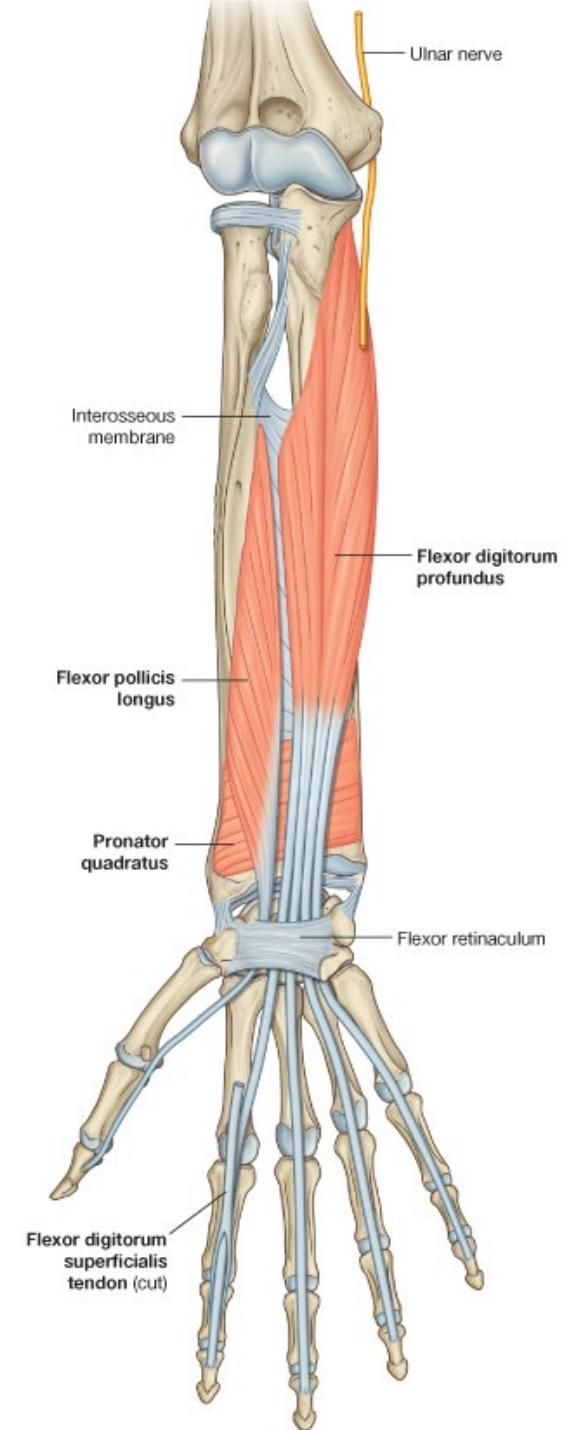
- 1- Pronator teres
- 2- Flexor carpi radialis
- 3- Palmaris longus
- 4- Flexor carpi ulnaris
- 5- Flexor digitorum superficialis





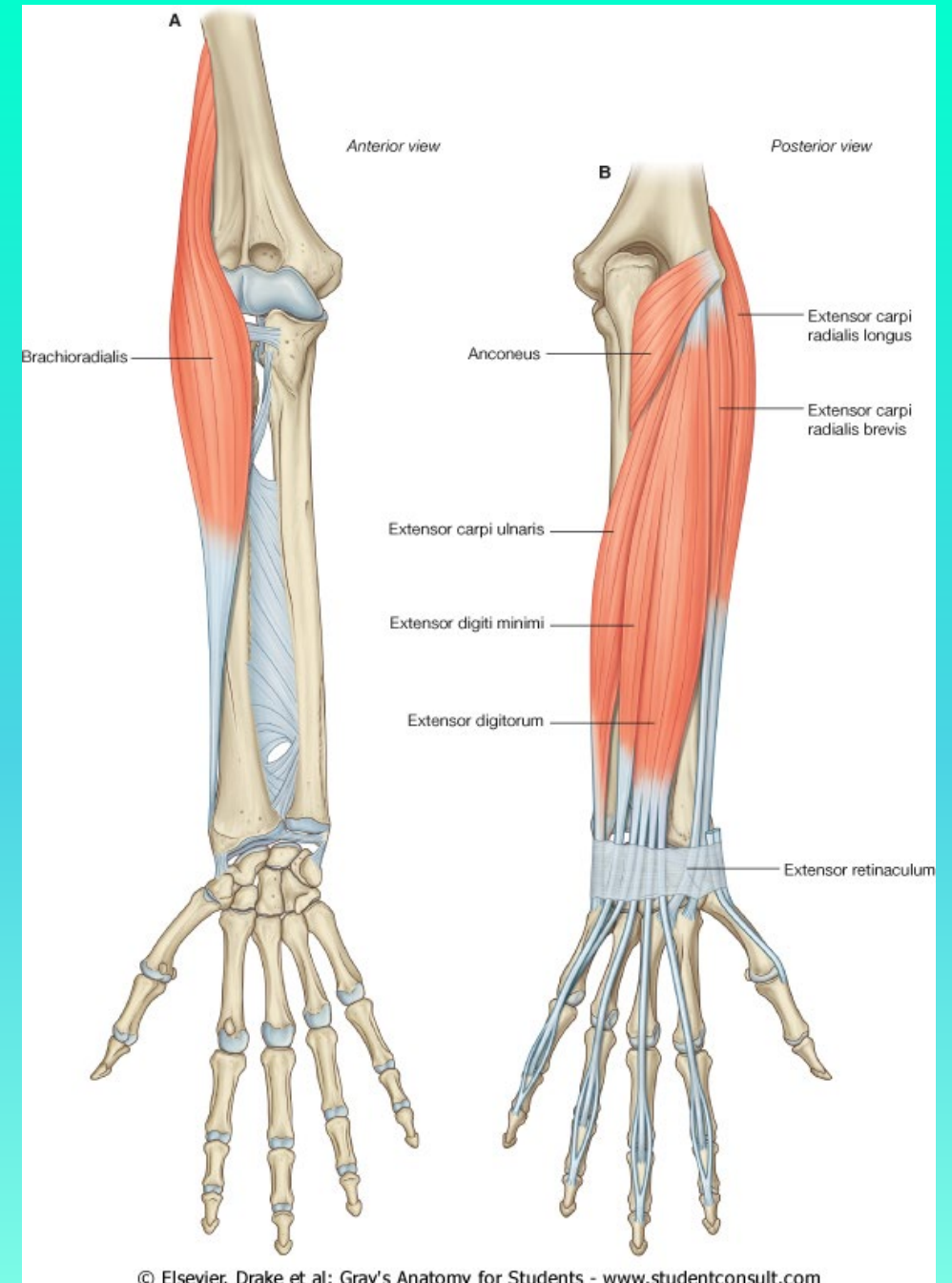
Ant. Compartment (Deep group)

- 1- Flexor digitorum profundus
- 2- Flexor pollicis longus
- 3- Pronator quadratus



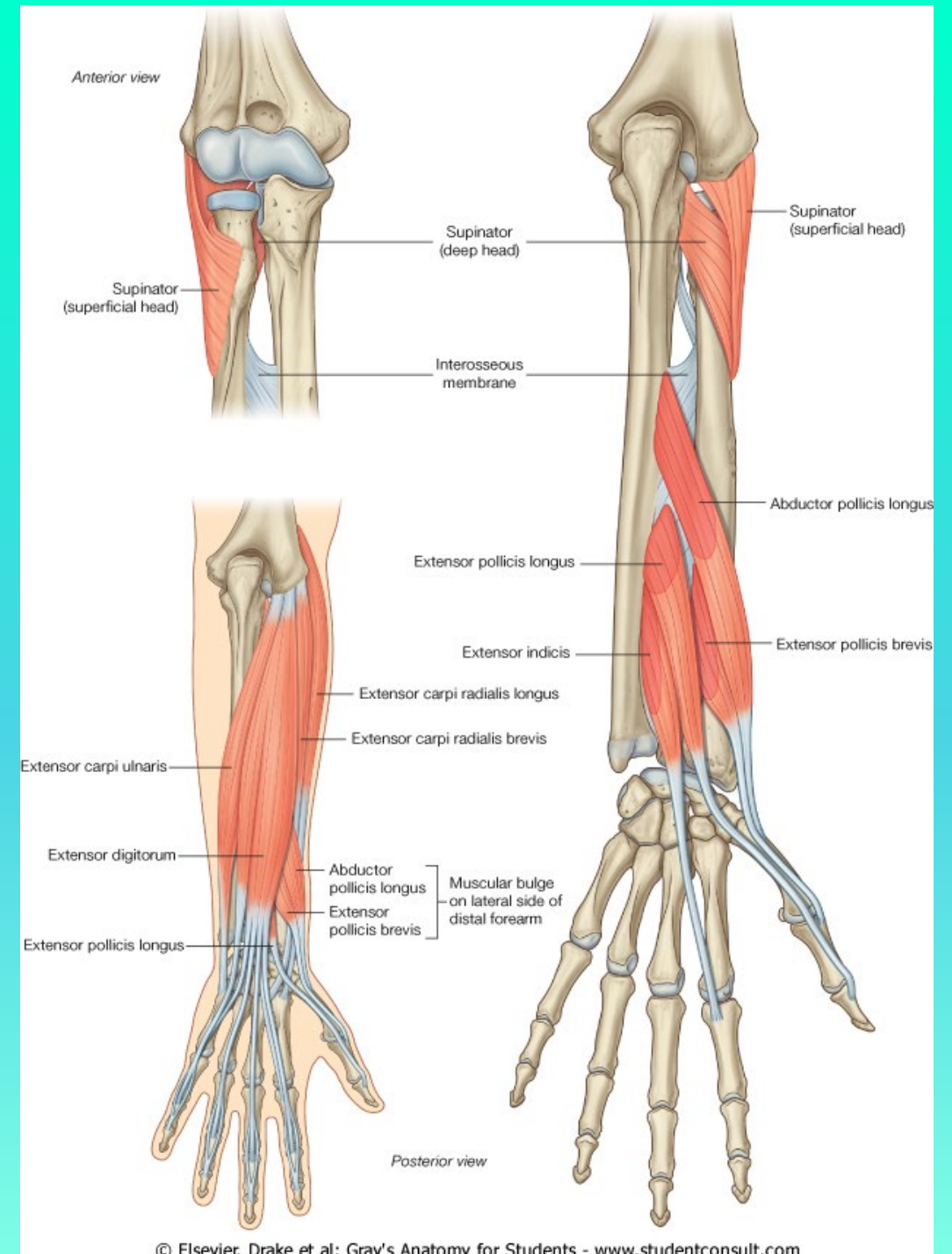
Post. Compartment (Superficial group)

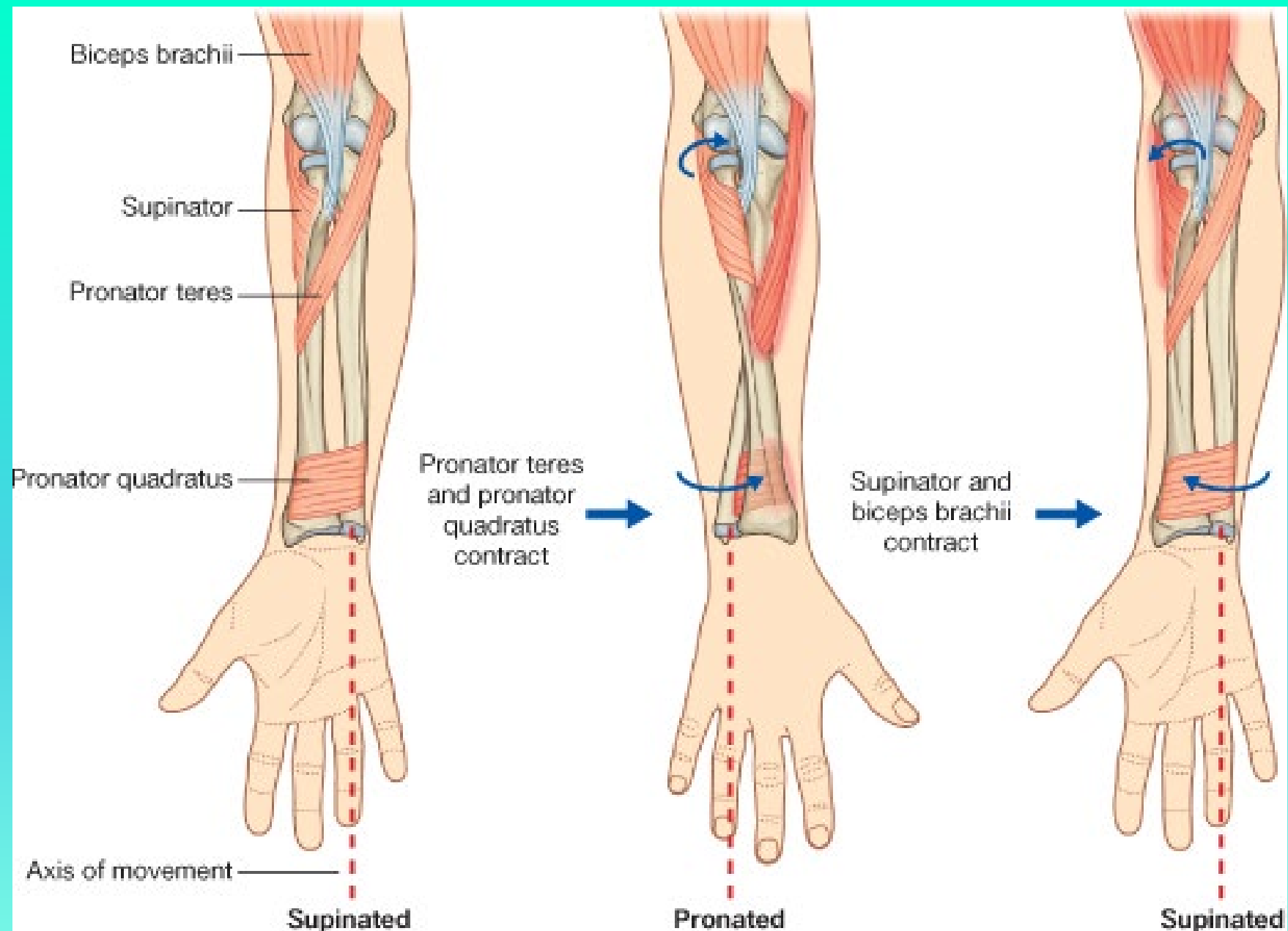
- 1- Brachioradialis
- 2- Extensor carpi radialis longus
- 3- Extensor carpi radialis brevis
- 4- Extensor digitorum
- 5- Extensor digiti minimi
- 6- Extensor carpi ulnaris
- 7- Anconeus



Post. Compartment (Deep group)

- 1- Supinator
- 2- Abductor pollicis longus
- 3- Extensor pollicis brevis
- 4- Extensor pollicis longus
- 5- Extensor indicis





Intrinsic hand muscles

- *Thenar* (ball of thumb)
- *Hypothenar* (ball of little finger)
- *Midpalm* (lumbricals, interossei)

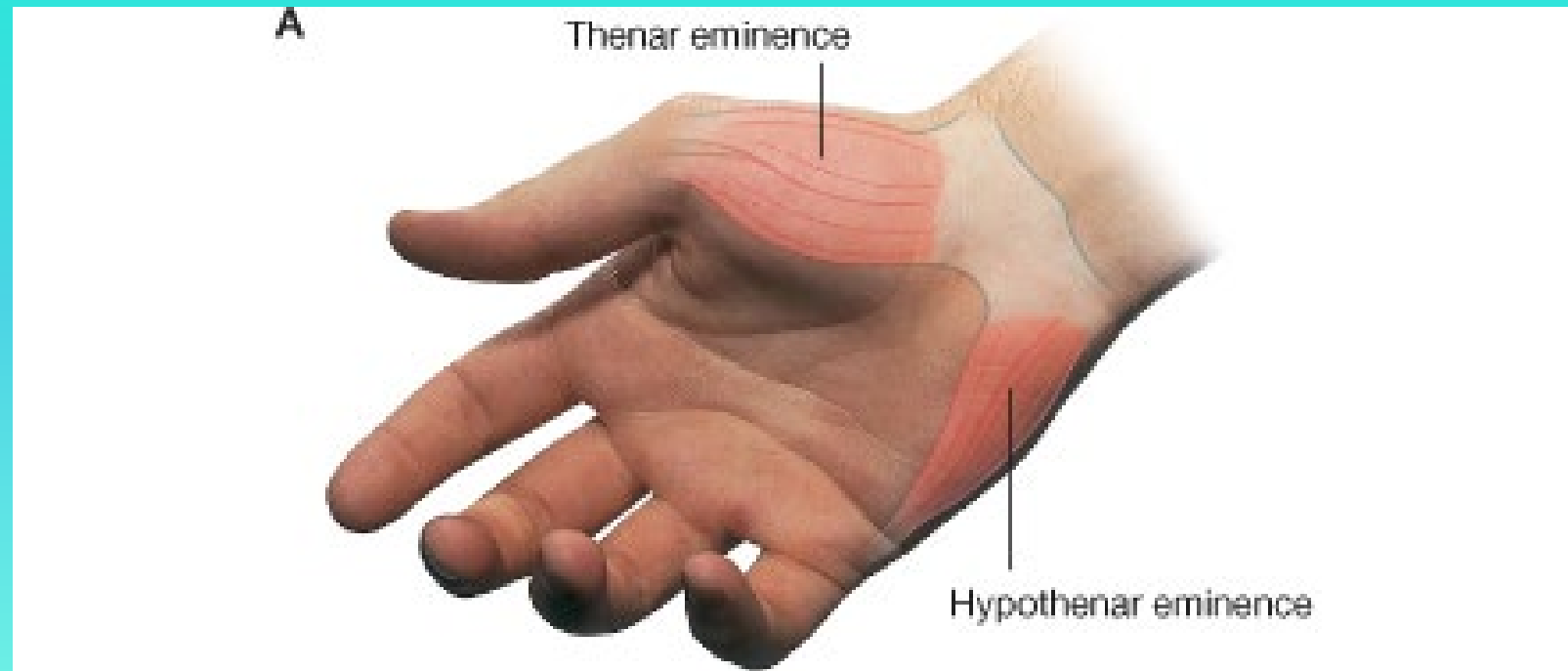
Intrinsic Muscles of the Hand

- **Thenar muscles** – ball of thumb

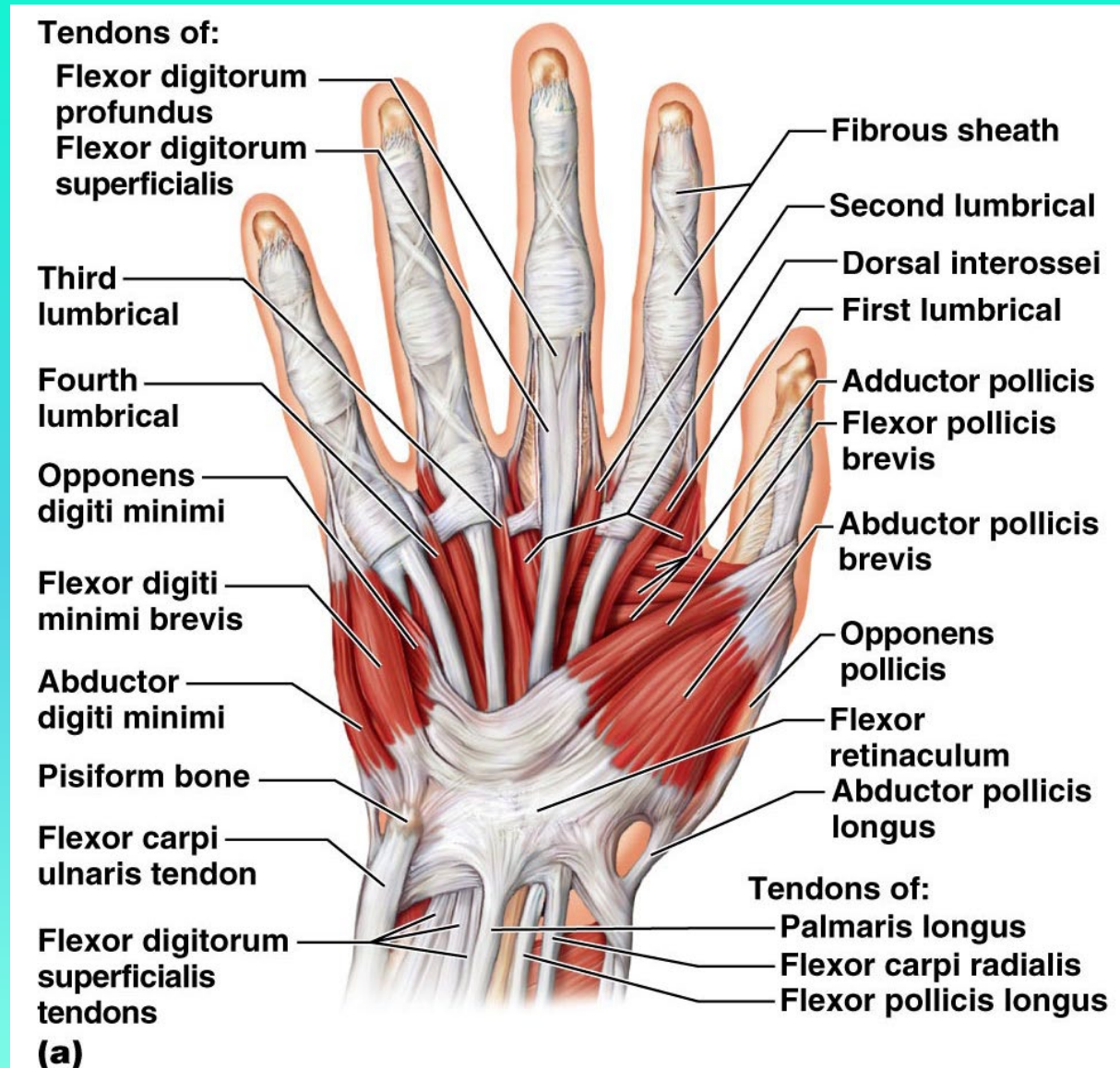
- Abductor pollicis brevis
- Flexor pollicis brevis
- Opponens pollicis
- Adductor pollicis

- **Hypothenar muscles**

- Abductor digiti minimi
- Flexor digiti minimi
- Opponens pollicis

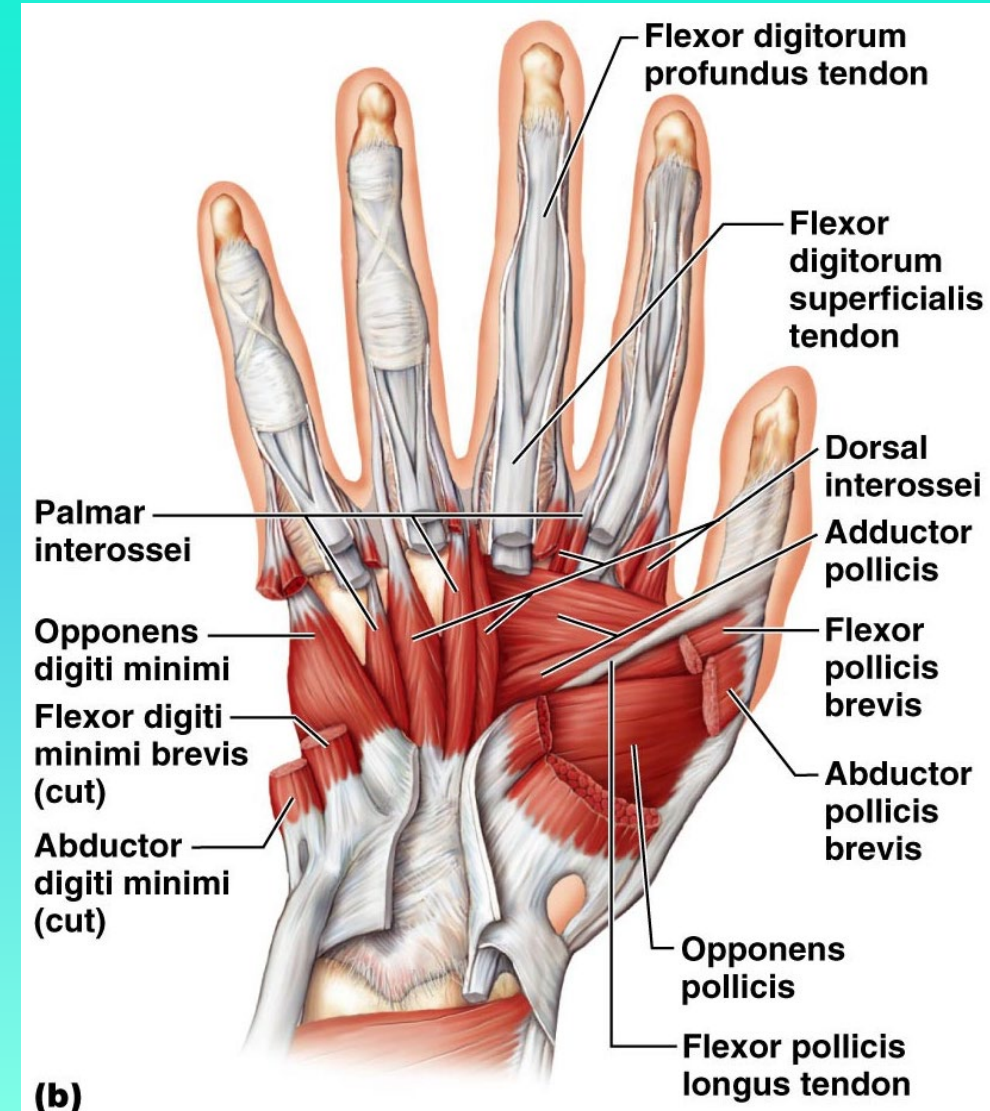


Intrinsic Muscles of the Hand

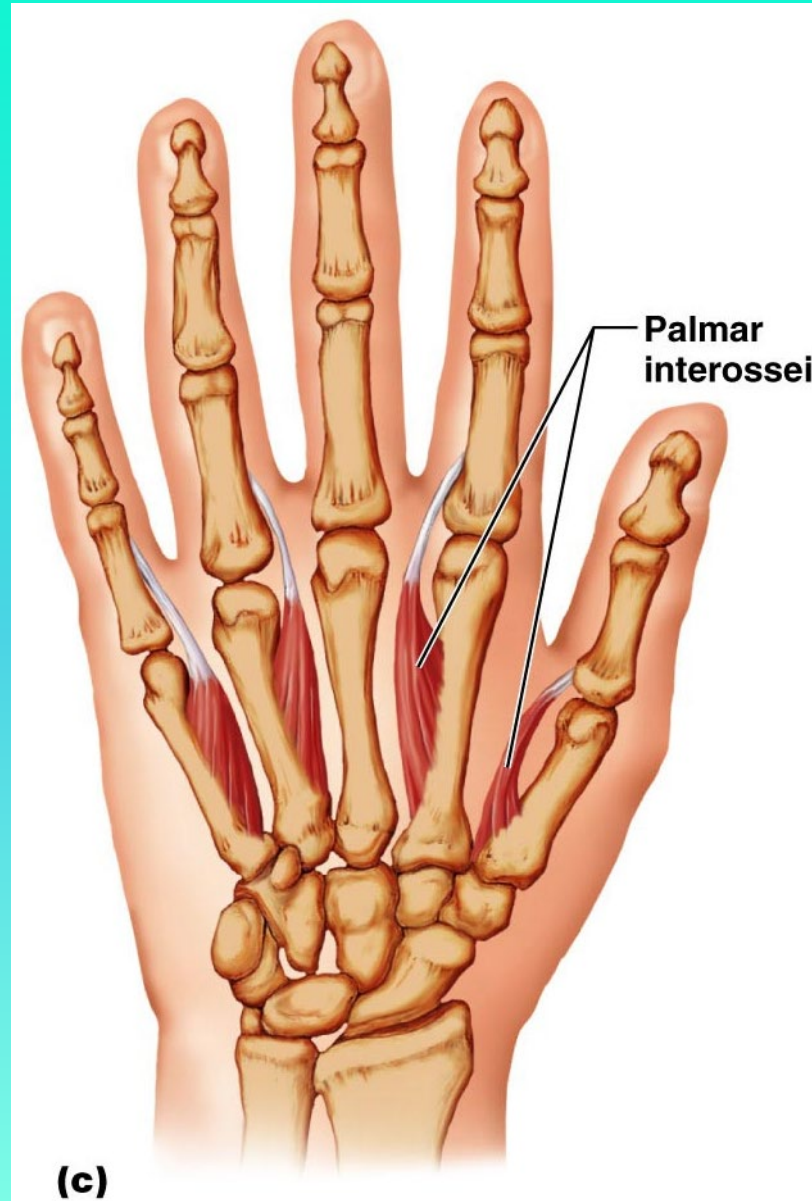


Intrinsic Muscles of the Hand

- Midpalmar muscles
 - Lumbricals
 - Palmar interossei
 - Dorsal interossei

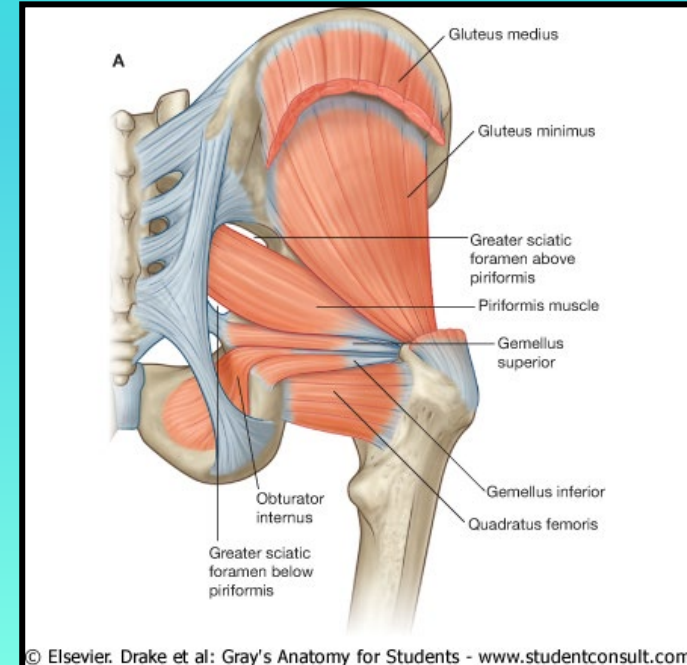
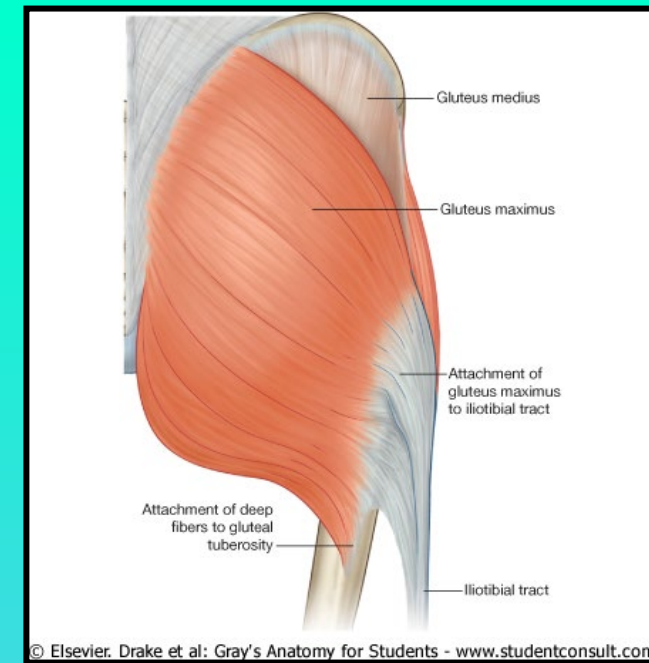


Intrinsic Muscles of the Hand



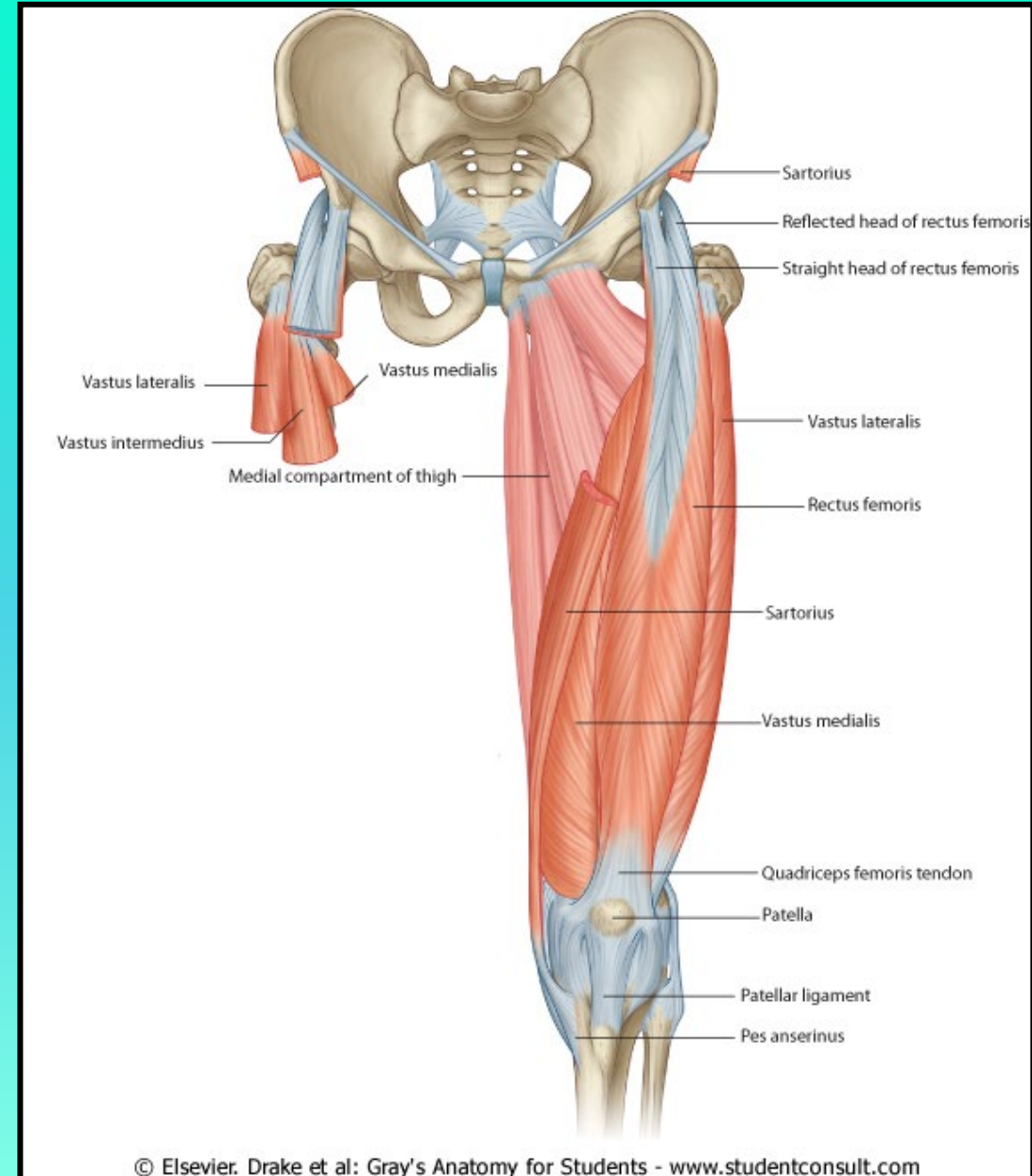
Gluteals

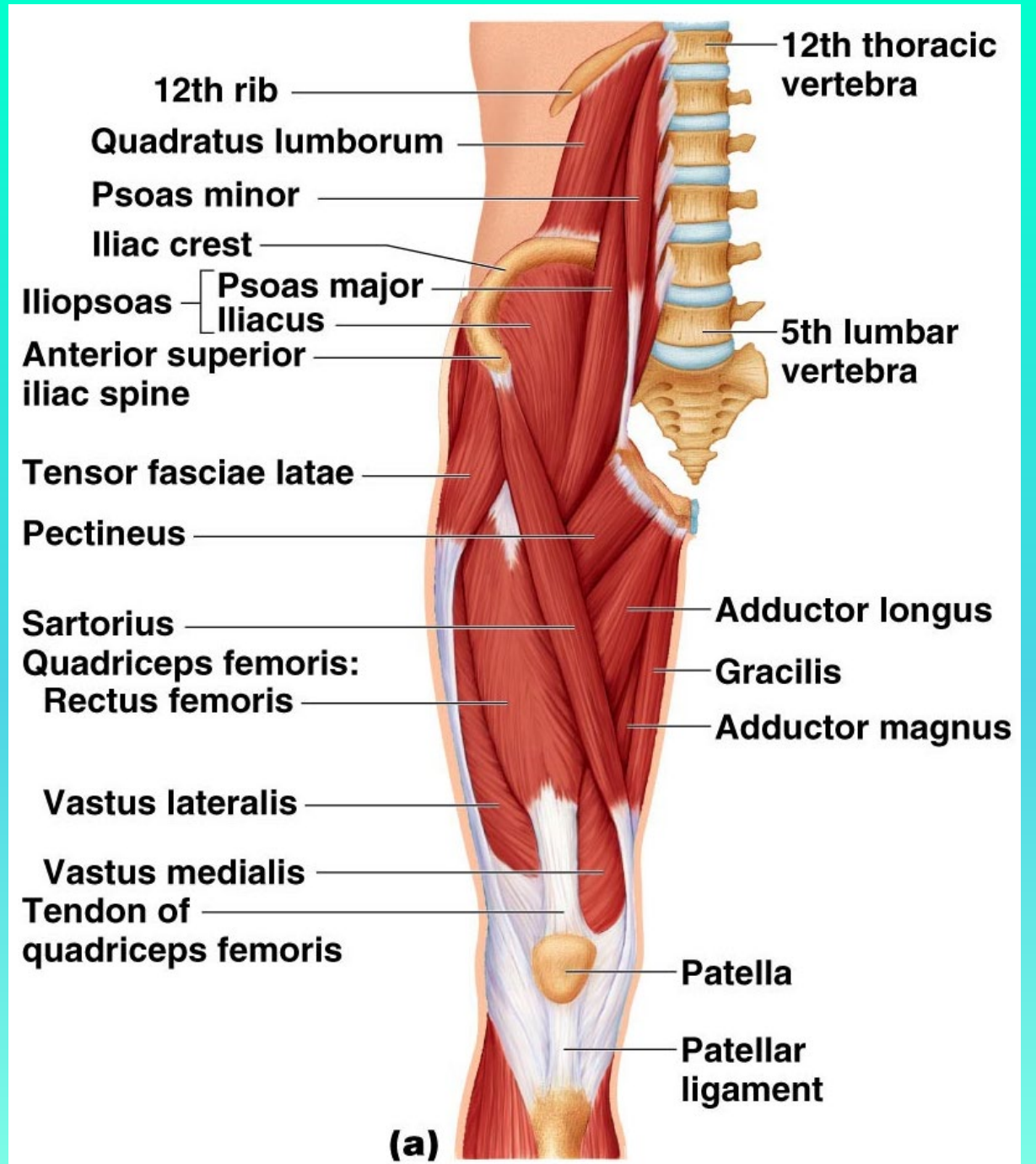
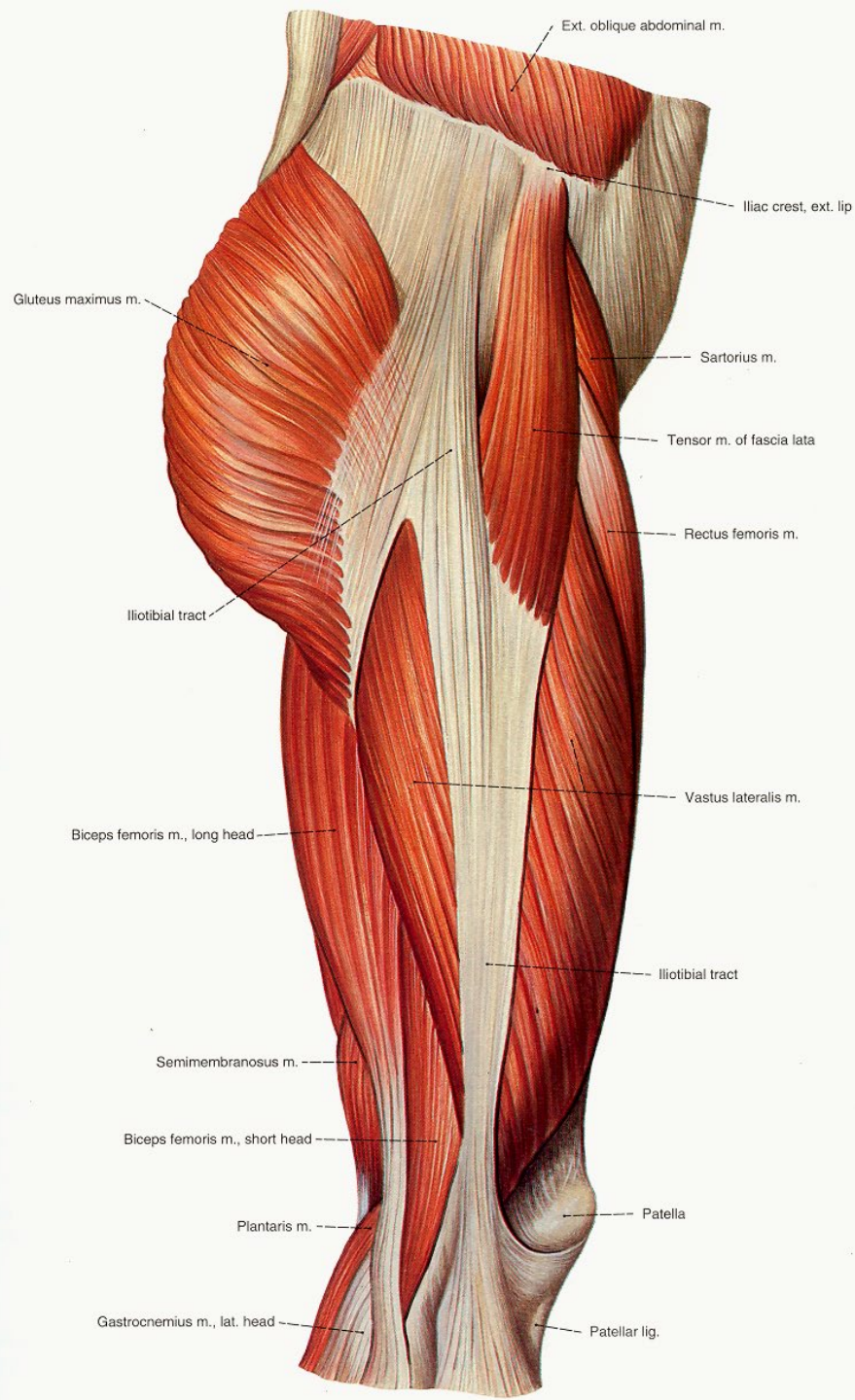
- **Gluteus maximus**
 - Origin - Ilium, sacrum and coccyx
 - Insertion - Gluteal tuberosity of femur, iliotibial tract
 - Action - Extends thigh, some lateral rotation and abduction
 - Innervation - Inferior gluteal nerve
- **Gluteus medius**
- **Gluteus minimus**
 - Origin - Ilium
 - Insertion - Greater trochanter of femur
 - Action - Abduction, medial rotation
 - Innervation - Superior gluteal nerve
- **Lesser Gluteals help stabilize hip to allow fluent bipedal walking**



Anterior Compartment Thigh

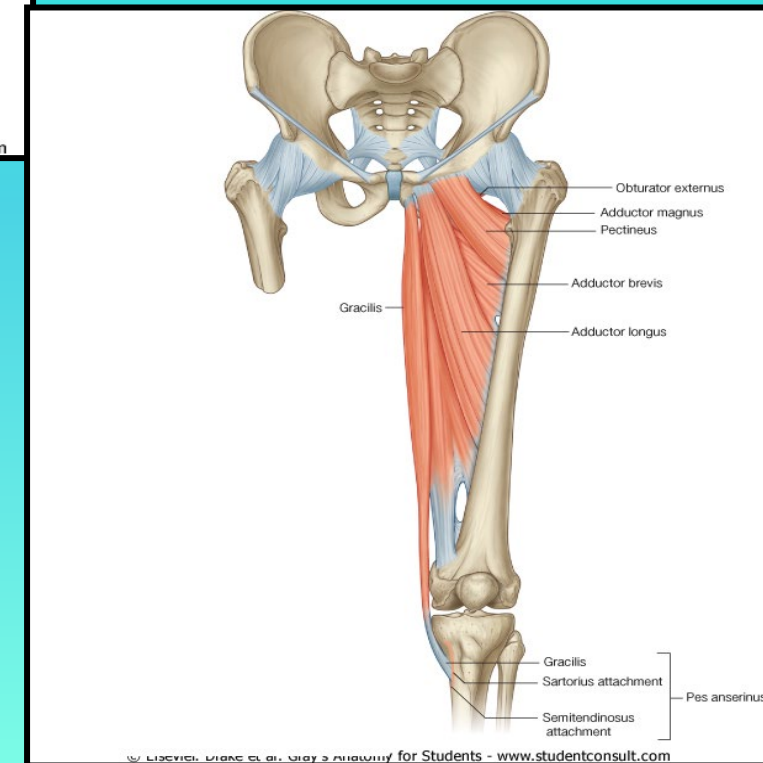
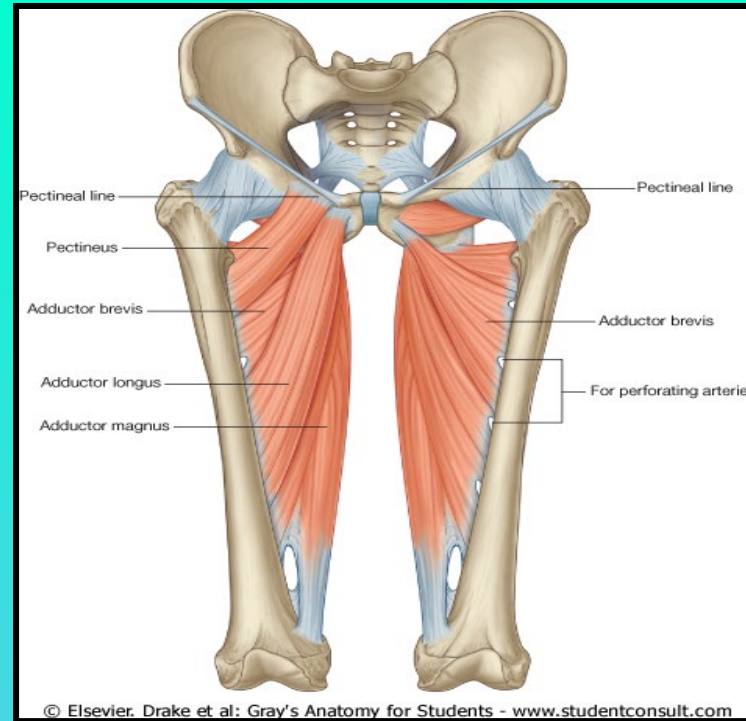
- Quadriceps femoris
 - Rectus femoris
 - Origin – anterior inferior iliac spine, margin of acetabulum
 - Insertion – patella and tibial tuberosity via the patellar ligament
 - Action – extends knee, flexes thigh
 - Vastus lateralis
 - Vastus medialis
 - Vastus intermedius
 - Origin - femur
 - Insertion – patella and tibial tuberosity via the patellar ligament
 - Action – extends knee
- Sartorius
 - Origin - anterior superior iliac spine
 - Insertion – medial tibia
 - Action - flex, abduct, lat rotate thigh; weak knee flexor





Adductors

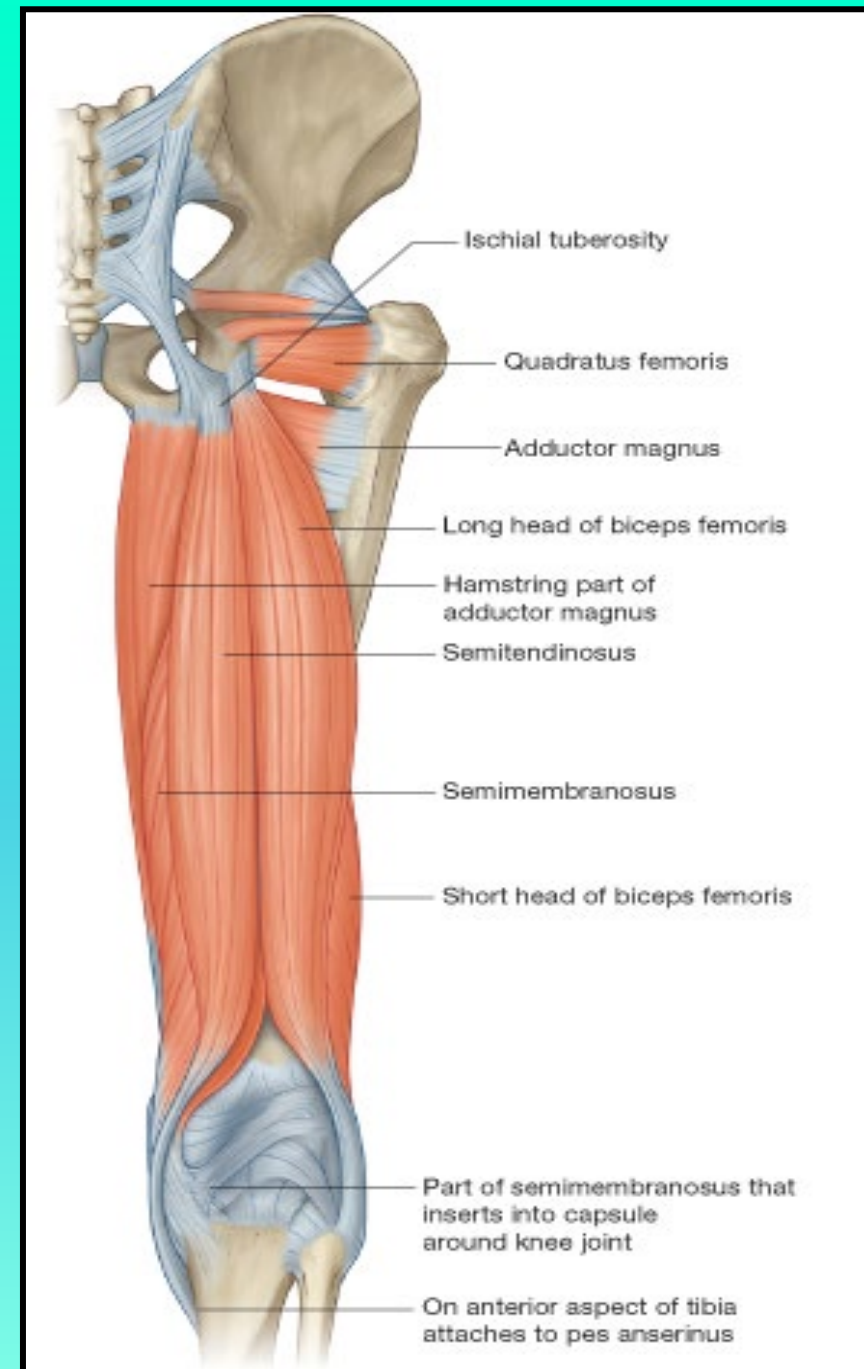
- Adductor longus
- Adductor brevis
- Adductor magnus
 - Origin – inferior pelvis
 - Insertion - femur
 - Action – **adducts** and medial rotates
 - Innervation – Obturator nerve
- Pectineus
 - Origin - pubis
 - Insertion – lesser trochanter
 - Action – **adducts**, medial rotates
 - Innervation – femoral, sometimes obturator
- Gracilis
 - Origin - pubis
 - Insertion – medial tibia
 - Action – **adducts** thigh, flex, medial, rotates leg
 - Innervation – Obturator nerve



Posterior Compartment - Hamstring

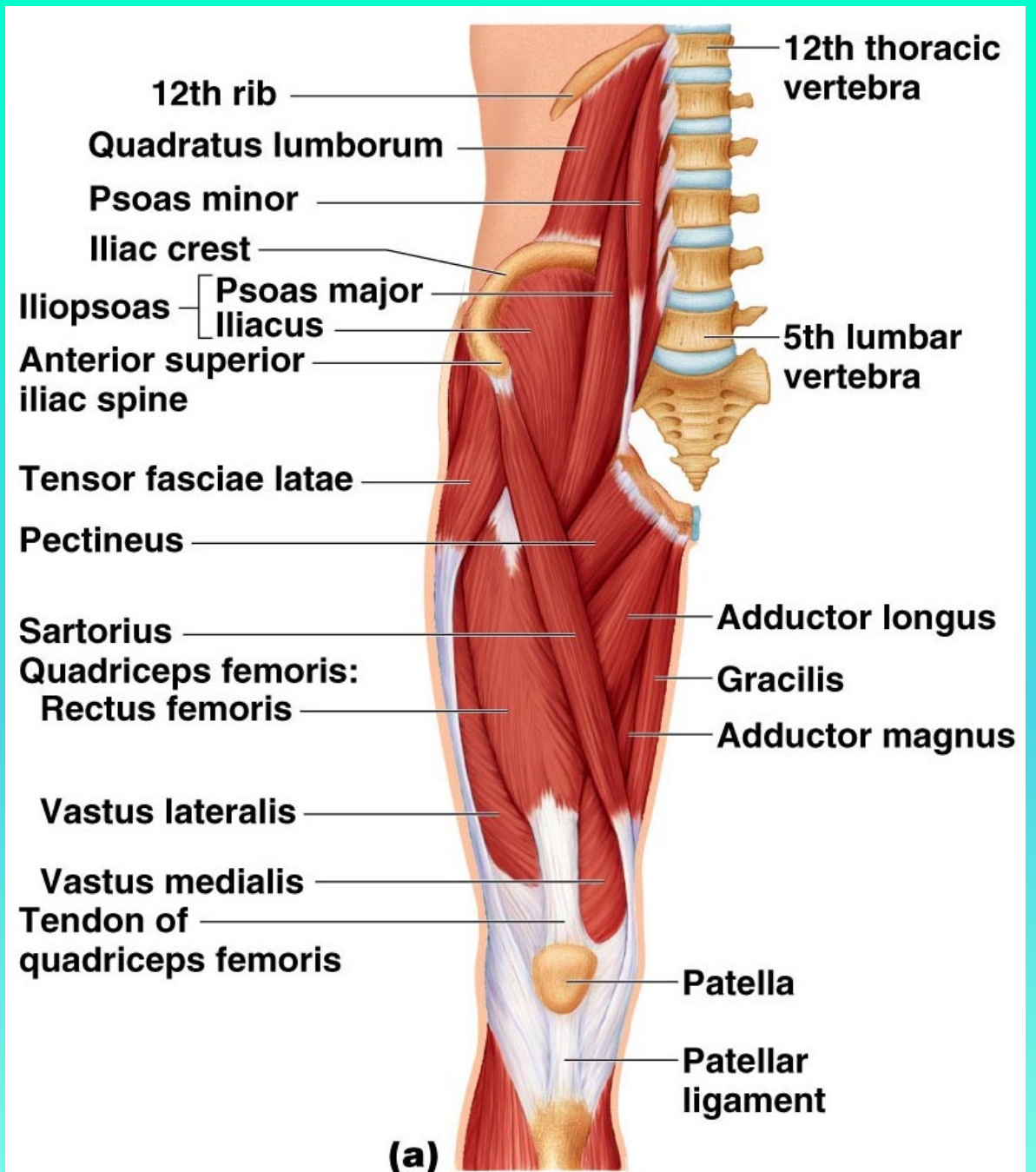
- Biceps femoris (2 heads)
 - Origin – ischial tuberosity, distal femur
 - Insertion - lateral tibia, head fibula
 - Action - thigh extension, knee flexion, lateral rotation
- Semitendinosus
- Semimembranosus
 - Origin - ischial tuberosity
 - Insertion - medial tibia
 - Action - thigh extension, knee flexion, medial rotation

Sciatic nerve innervates all of the above muscles!!!



Iliopsoas Muscle

- Three muscles:
 - Iliacus
 - Psoas major
 - Psoas minor
- Action
 - Hip flexion



Muscles of the Anterior Compartment of the Thigh

- **Quadriceps femoris**
 - Powerful knee extensors
 - Rectus femoris
 - Vastus lateralis
 - Vastus medialis
 - Vastus intermedius
 - **Tensor fasciae latae**

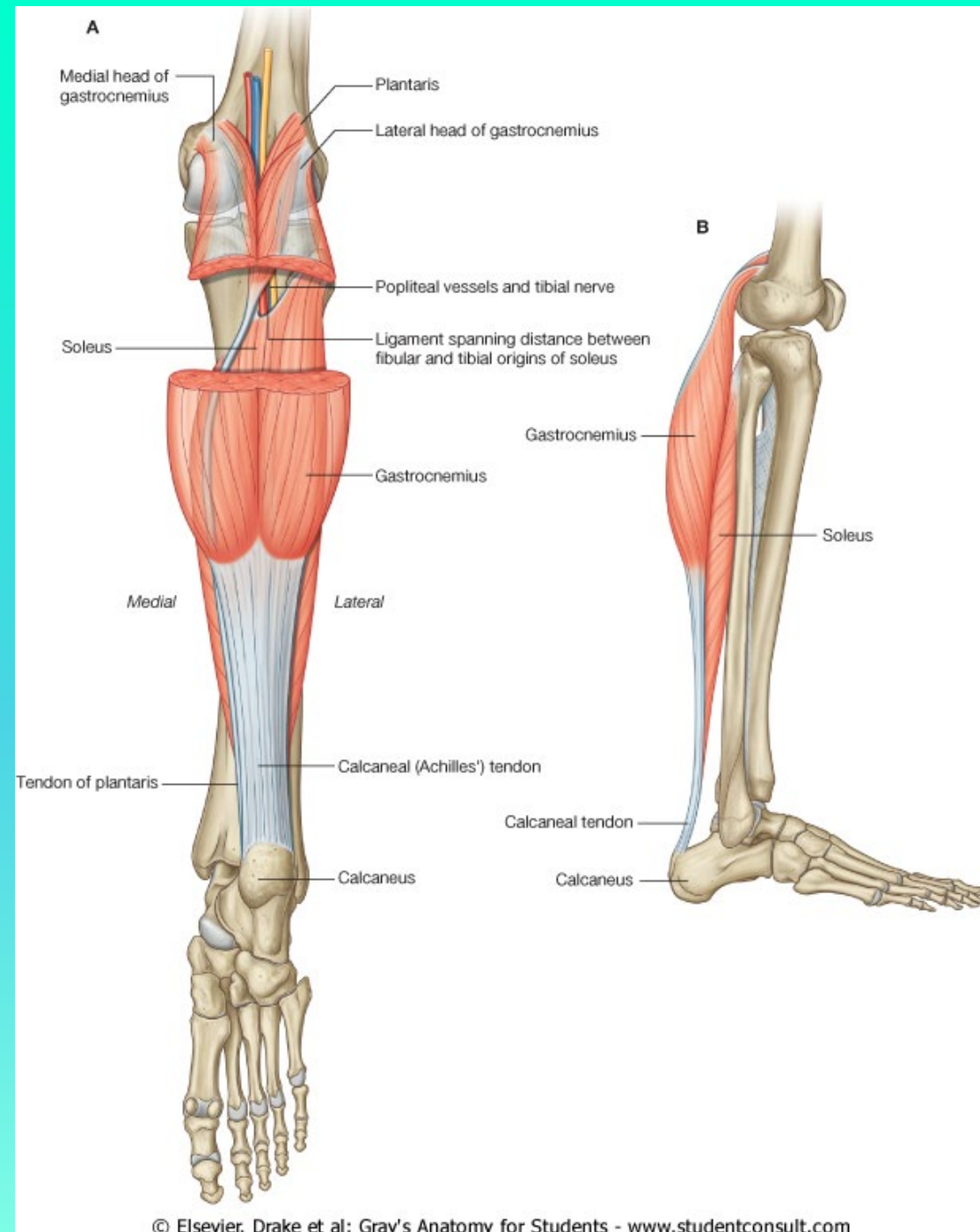
MUSCLES of the LEG

Post. compartment

Gastrocnemius

Soleus

Plantaris



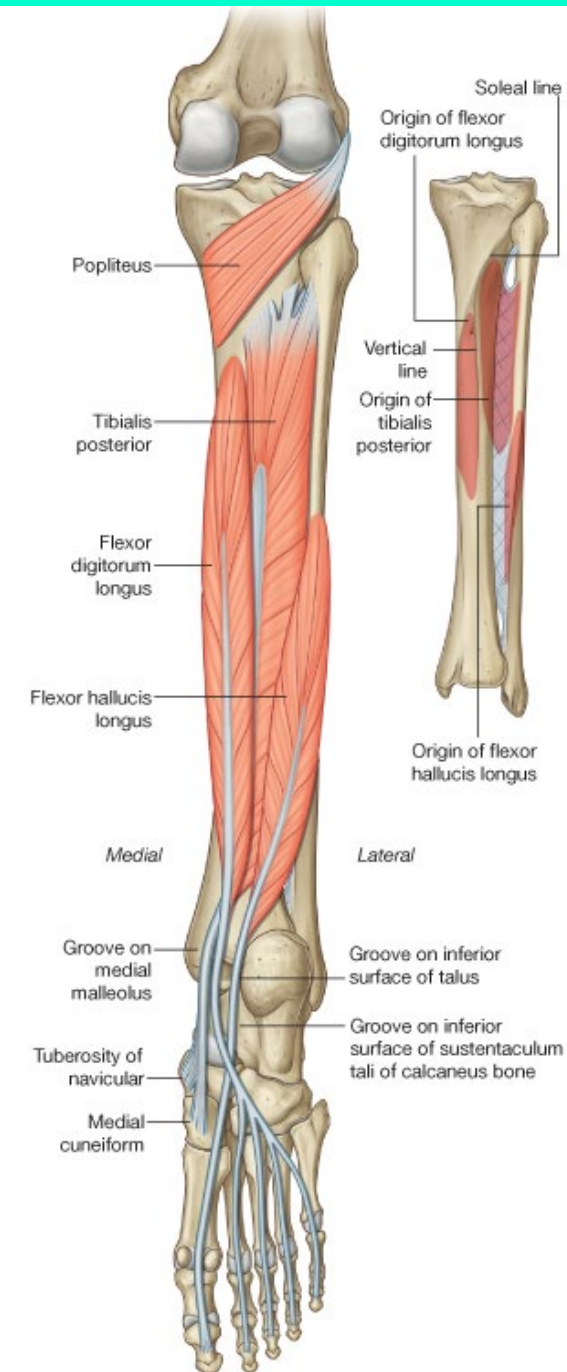
Post. compartment

Flexor digitorum longus

Flexor hallucis longus

Tibialis posterior

Popliteus

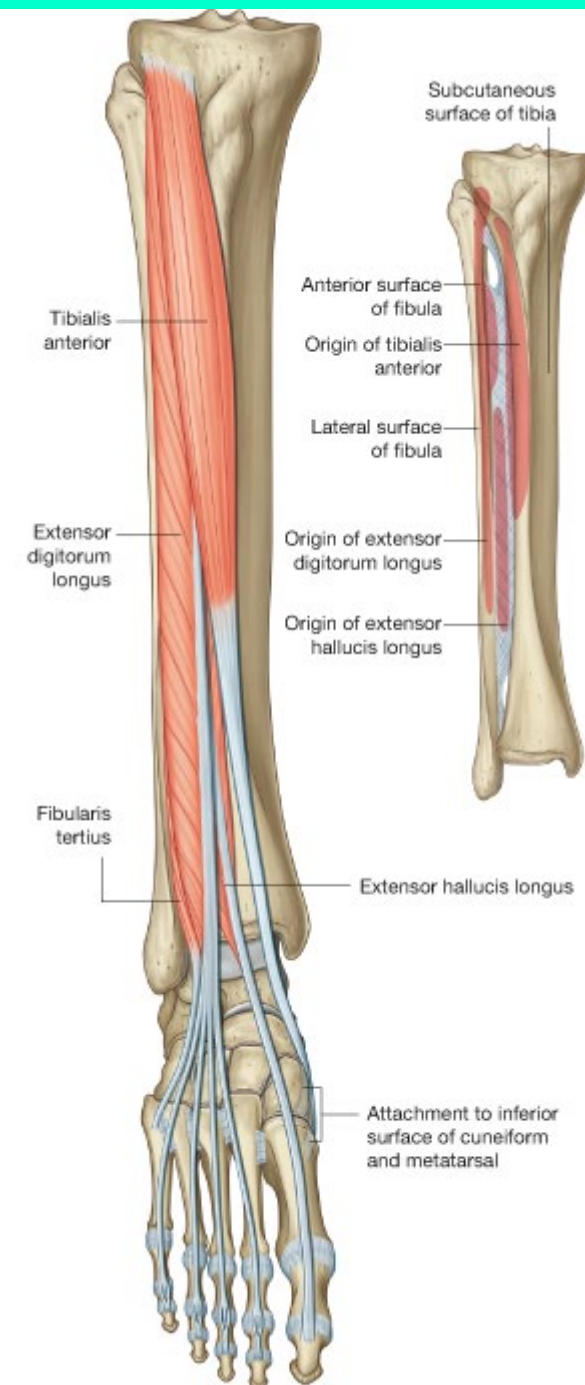


Ant. compartment

Extensor digitorum longus

Extensor hallucis longus

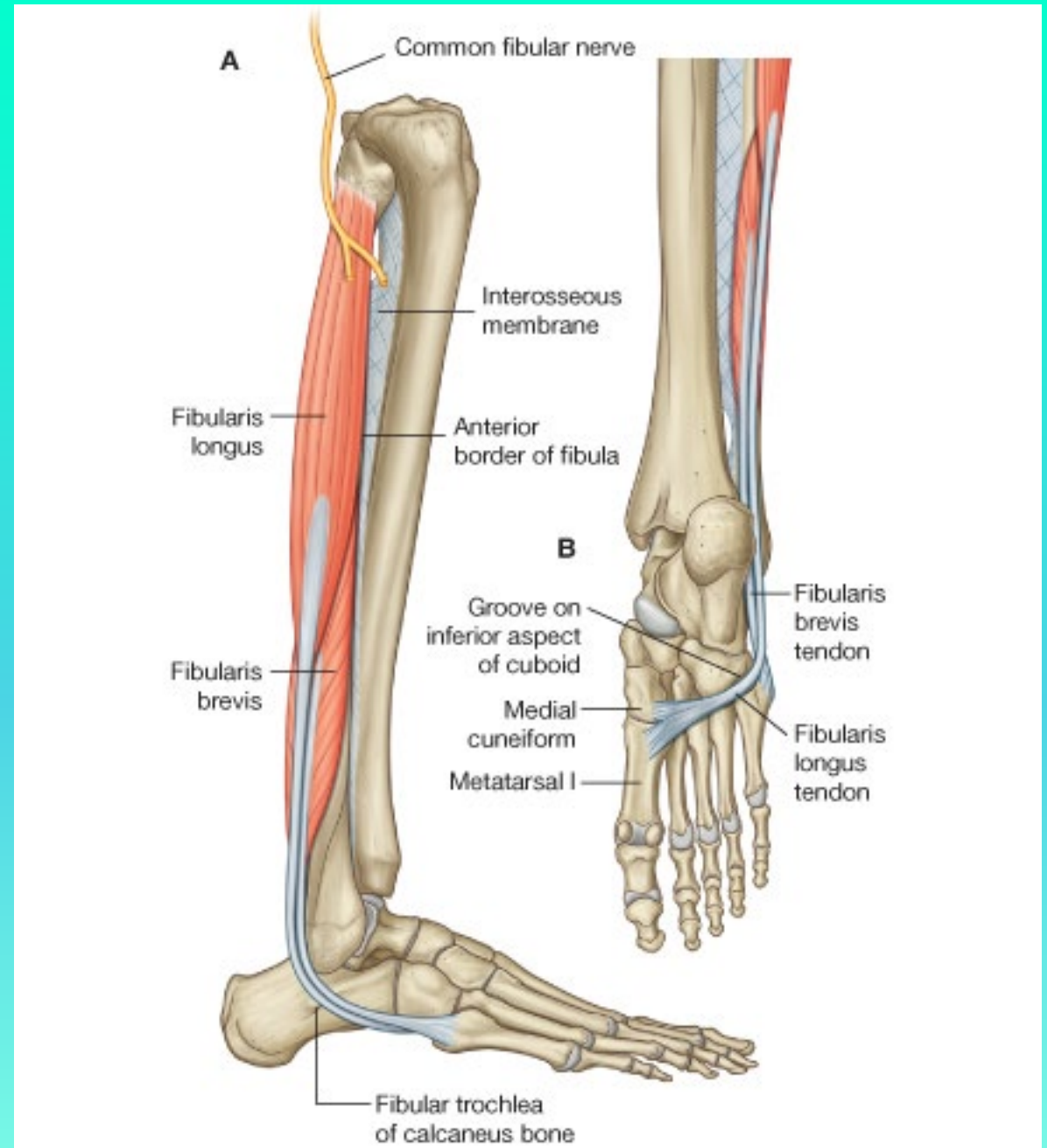
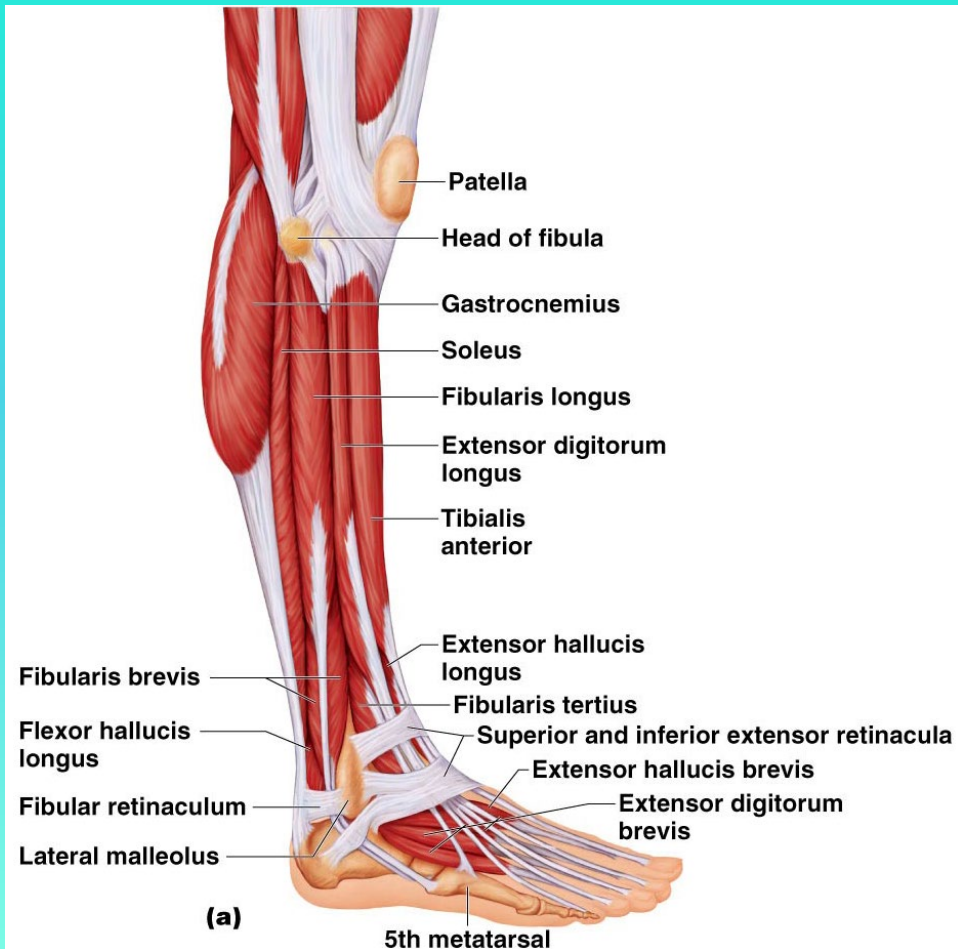
Tibialis anterior



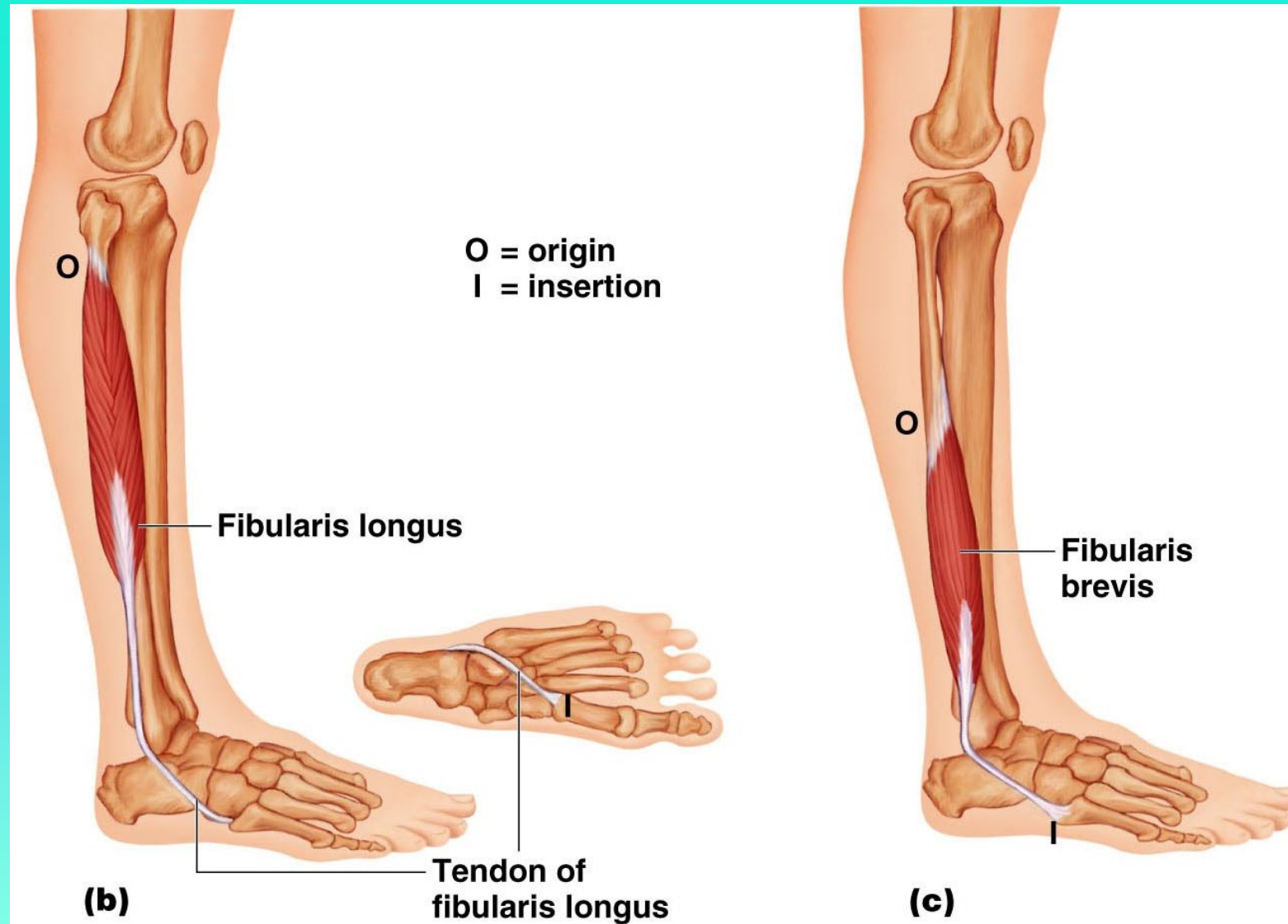
Lat. compartment

Fibularis longus

Fibularis brevis

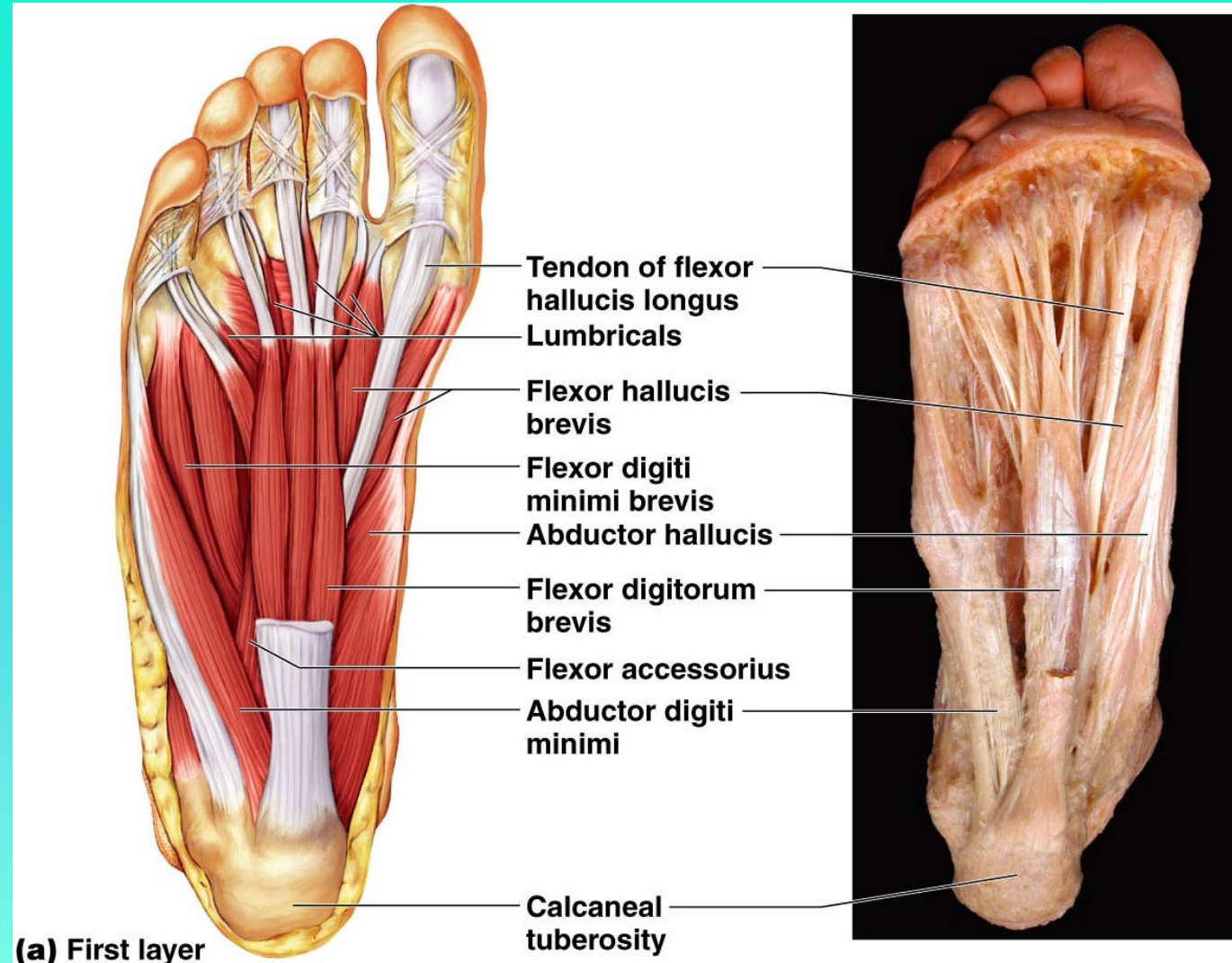


Muscles of the Lateral Compartment



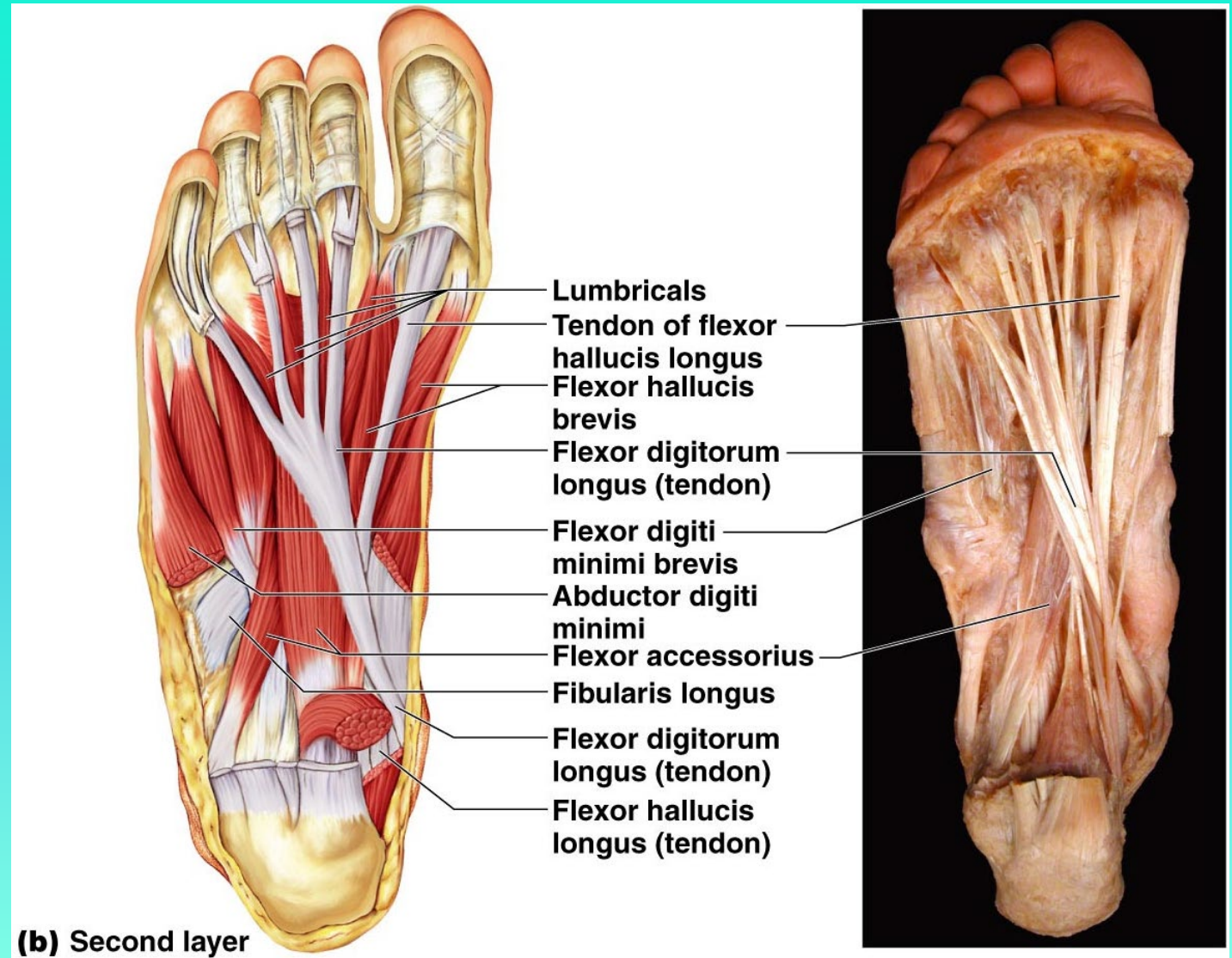
Intrinsic Muscles of the Foot

- Muscle on the dorsum of the foot
 - Extensor digitorum brevis
- Muscles on the sole of the foot
 - First layer
 - Flexor digitorum brevis
 - Abductor hallucis
 - Abductor digiti minimi



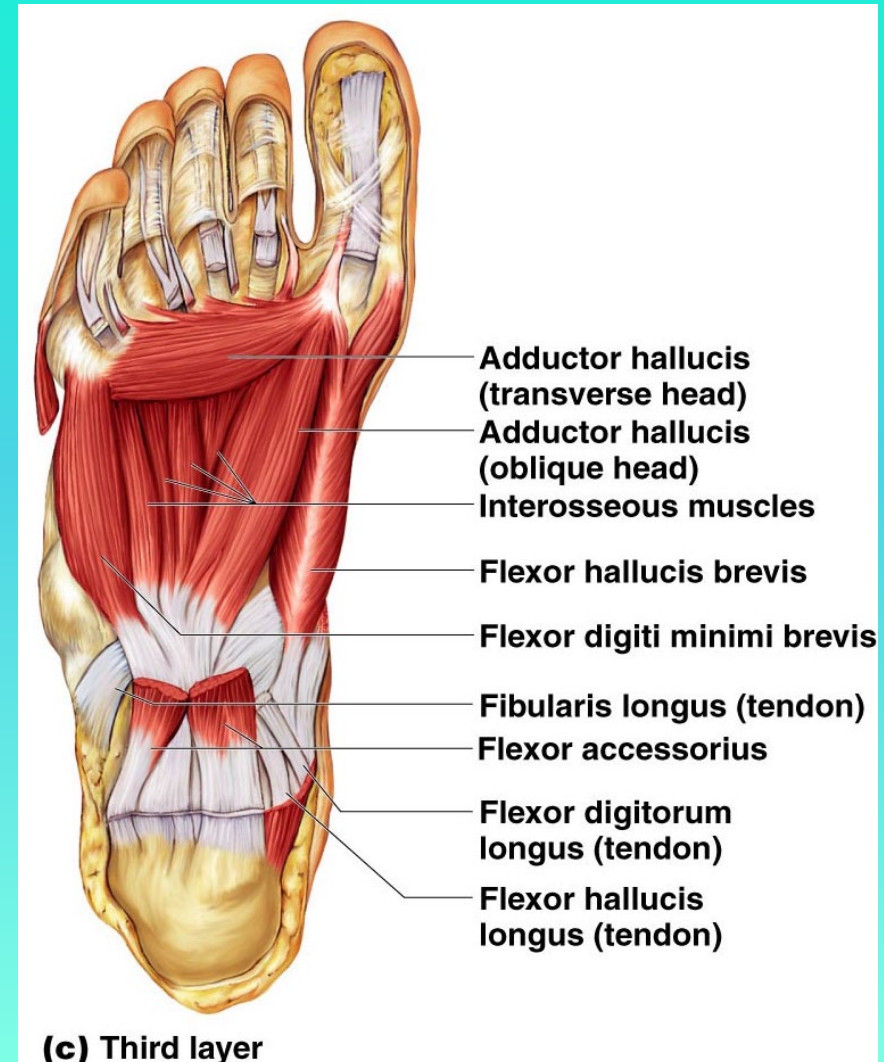
Intrinsic Muscles of the Foot

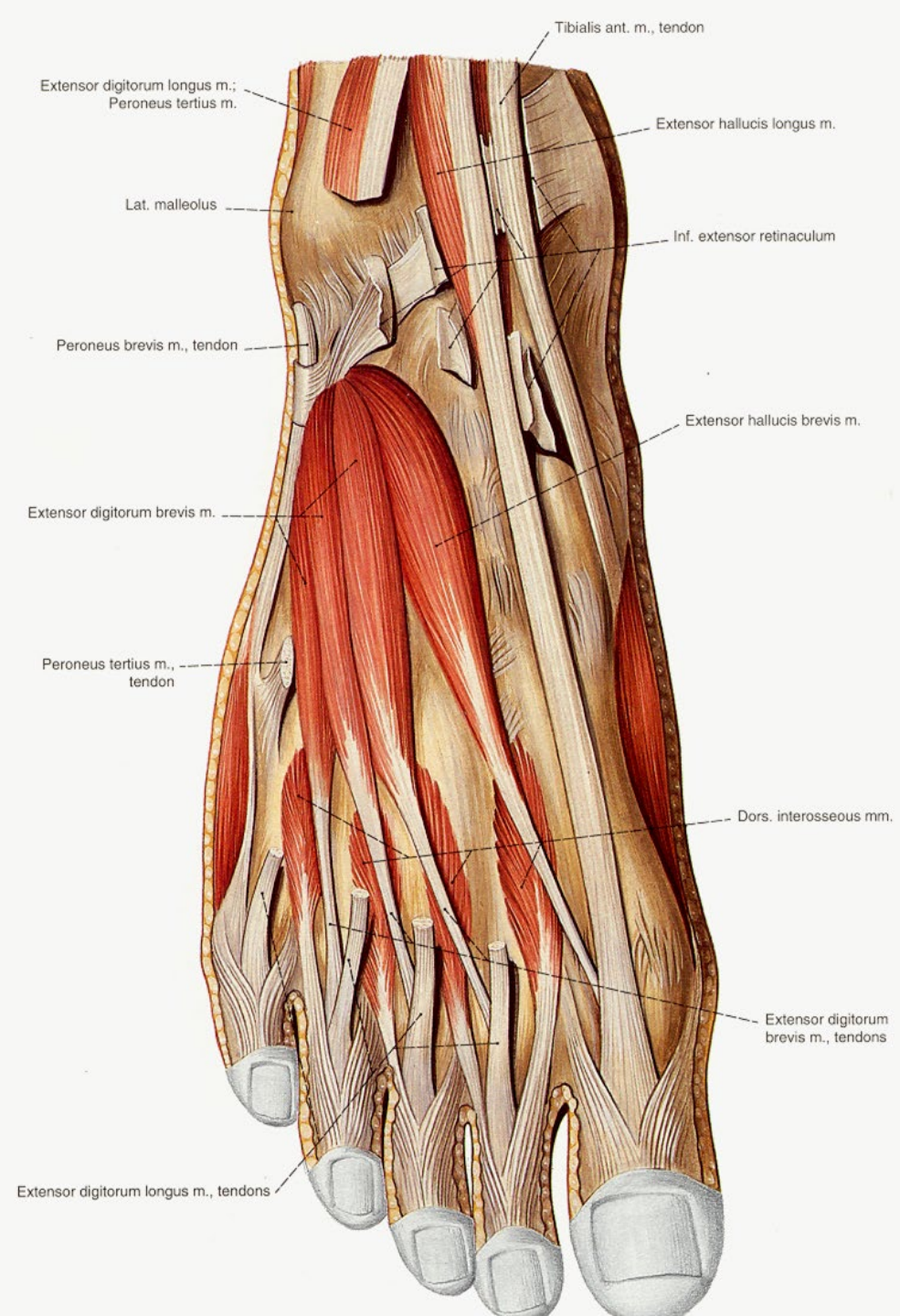
- Second layer
 - Flexor accessorius
 - Lumbricals



Intrinsic Muscles of the Foot

- Third layer
 - Flexor hallucis brevis
 - Adductor hallucis
 - Flexor digiti minimi brevis
- Fourth layer
 - Plantar and dorsal interossei





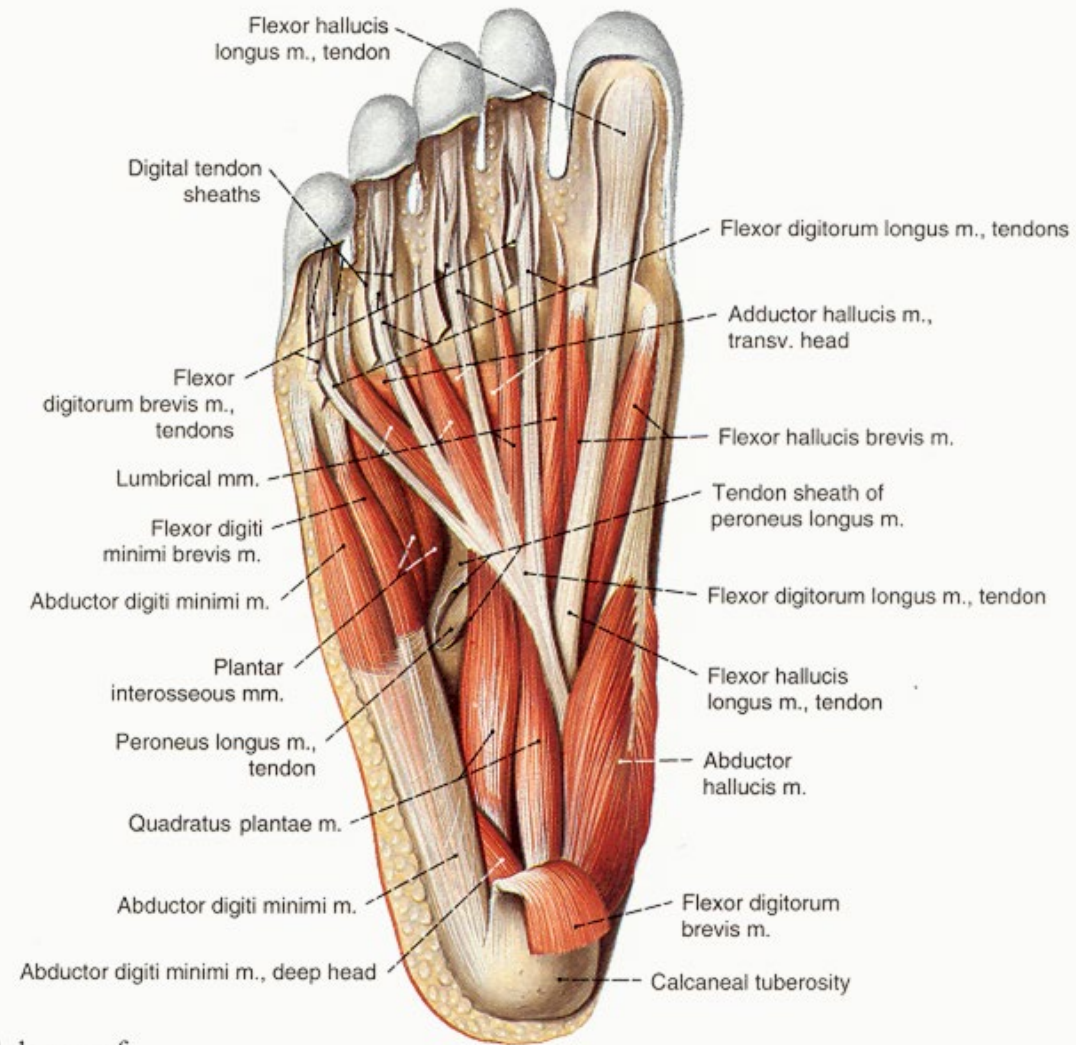


Fig. 539. The second layer of plantar muscles of the right foot. Most of the flexor digitorum brevis muscle has been removed.