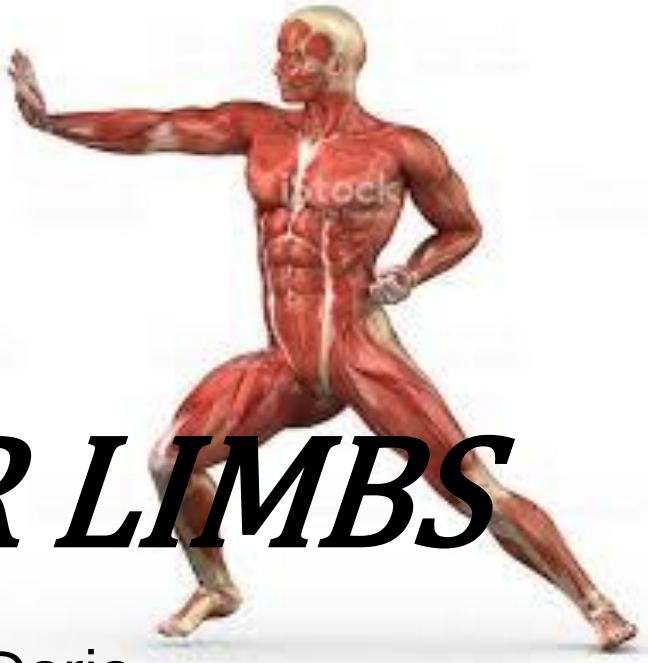
Kharkiv National Medical University

Department of Human Anatomy

MUSCLES OF THE TRUNK, UPPER AND LOWER LIMBS



Associate professor, PhD, Hordiichuk Daria

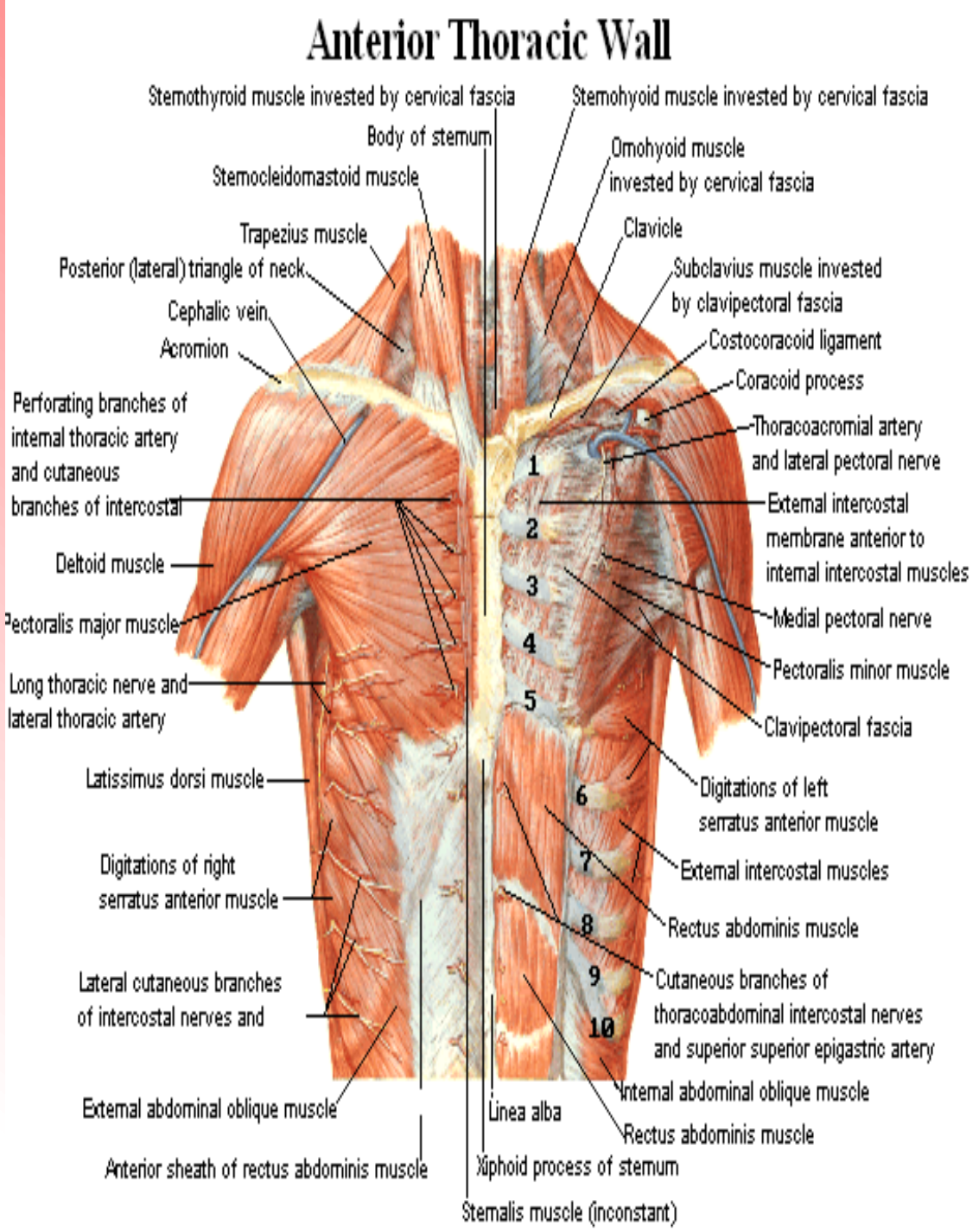
PLAN OF THE LECTURE:

1. Muscles of the chest.
2. Muscles of the back.
3. Muscles of the abdomen.
4. Muscles of the shoulder girdle and free upper limb.
5. Muscles of the pelvic girdle and free lover limb.

Muscles of the CHEST

SUPERFICIAL:

1. The greater pectoral muscle (*m. pectoralis major*)
2. The lesser pectoral muscle (*m. pectoralis minor*)
3. The subclavius muscle (*m. subclavius*)
4. The anterior serrate muscle (*m. serratus anterior*)



DEEP *MUSCLES OF THE CHEST*:

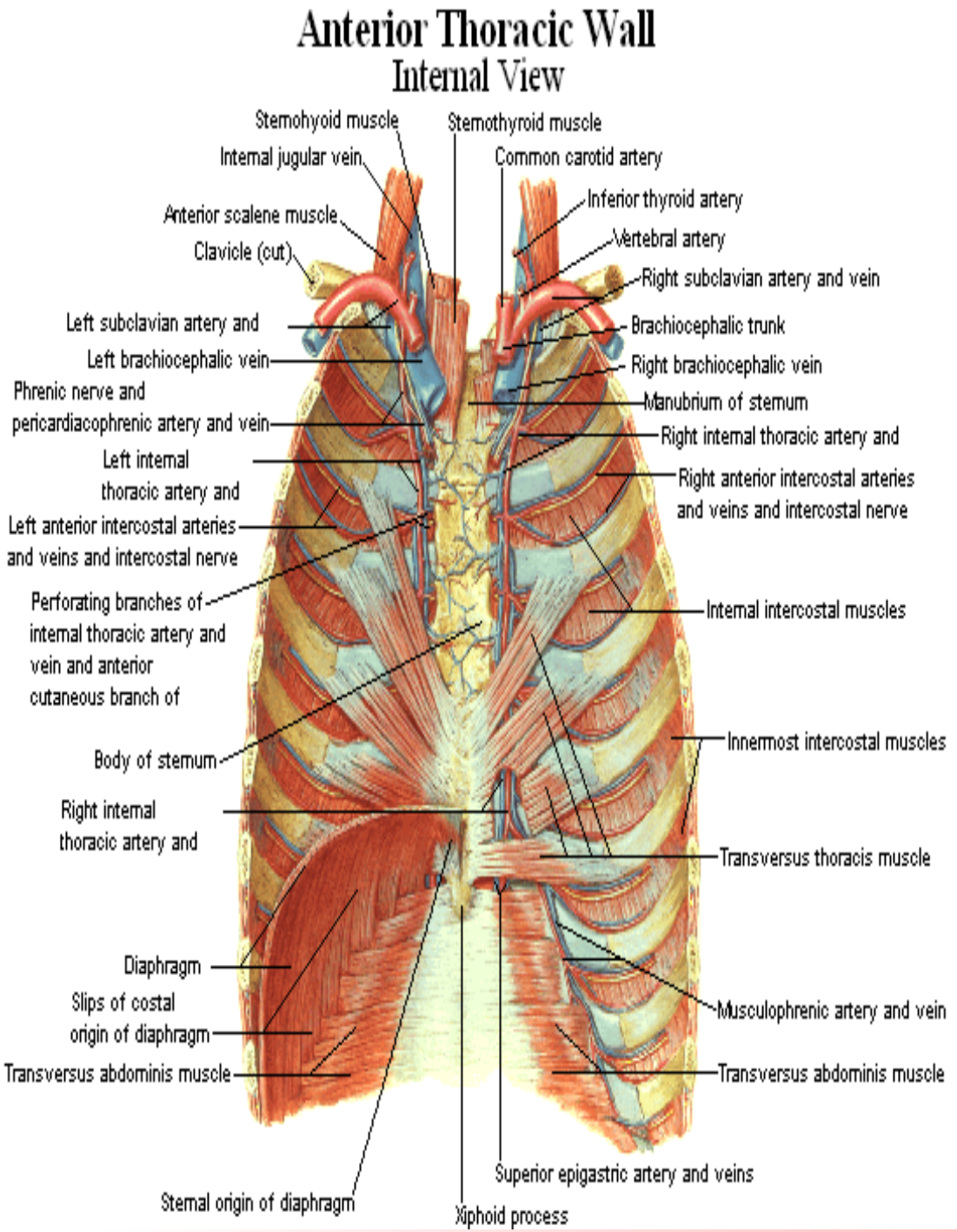
1. The external intercostal muscles (*m.m. intercostales externi*)

2. The internal intercostal muscles (*m.m. intercostales interni*)

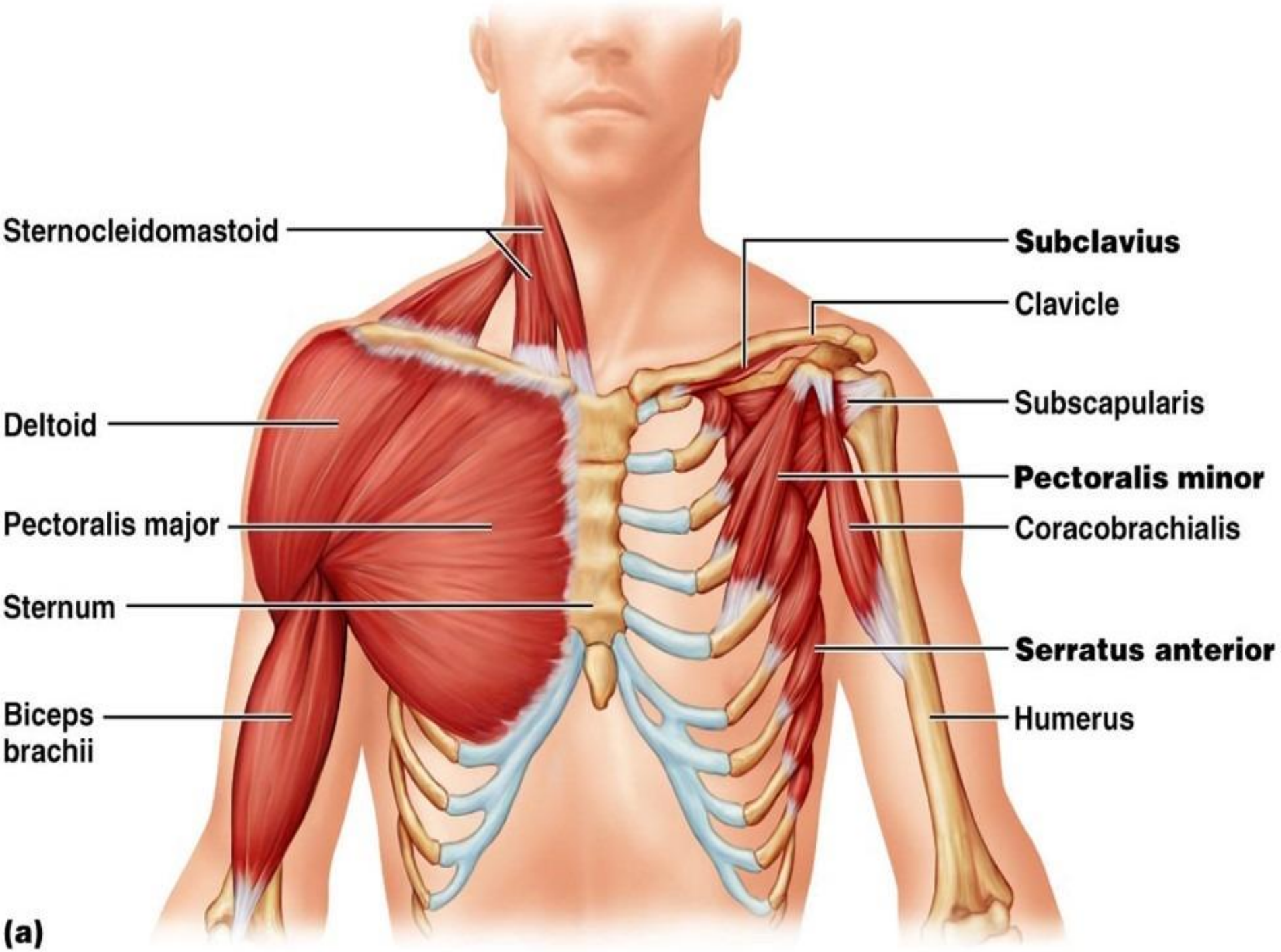
3. The subcostal muscles (*m.m. subcostales*)

4. The transversus thoracis muscle (*m. transverses thoracis*)

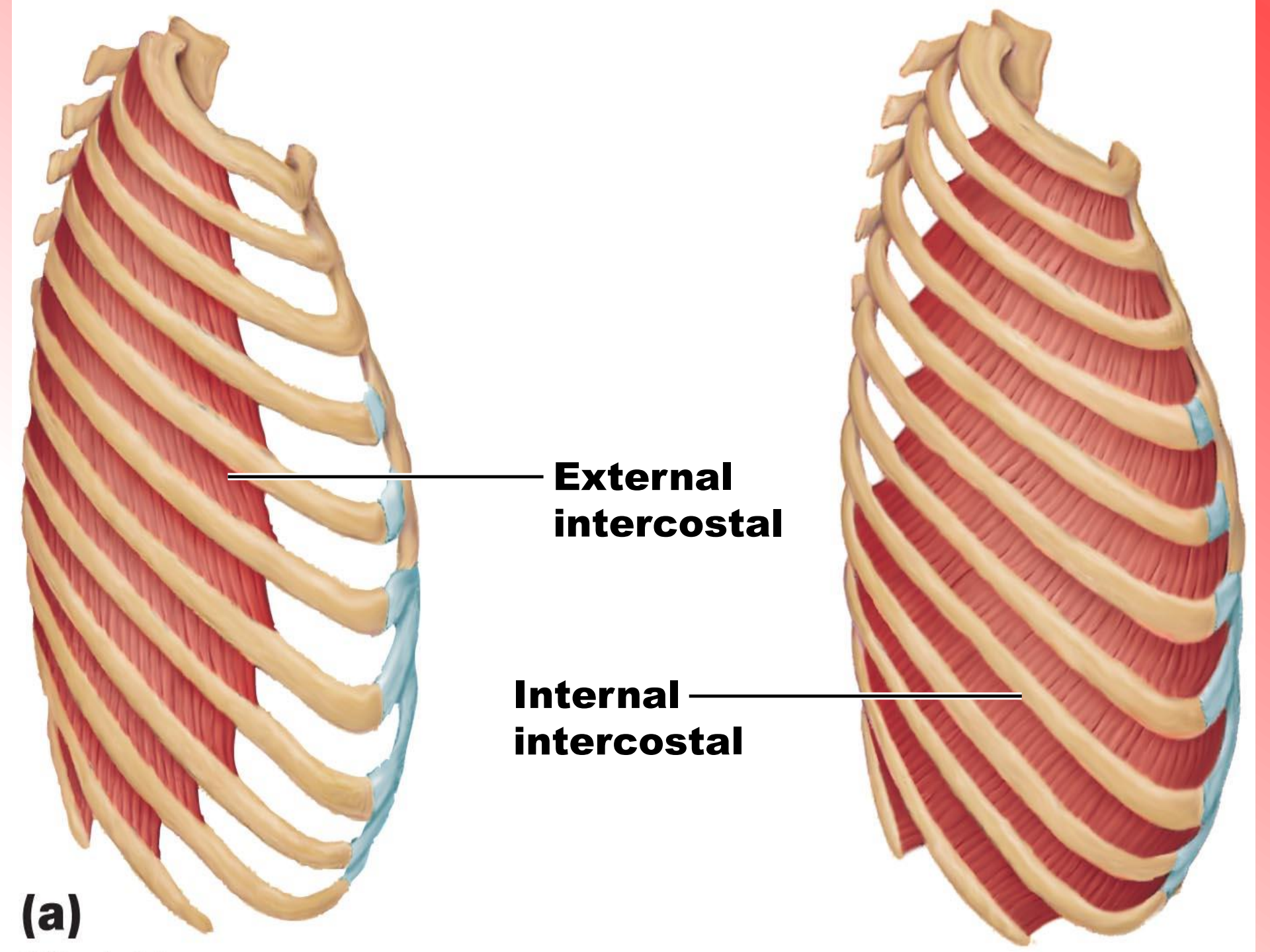
5. The levatores costarum muscles (*m. m. levatores costarum longi et breves*)

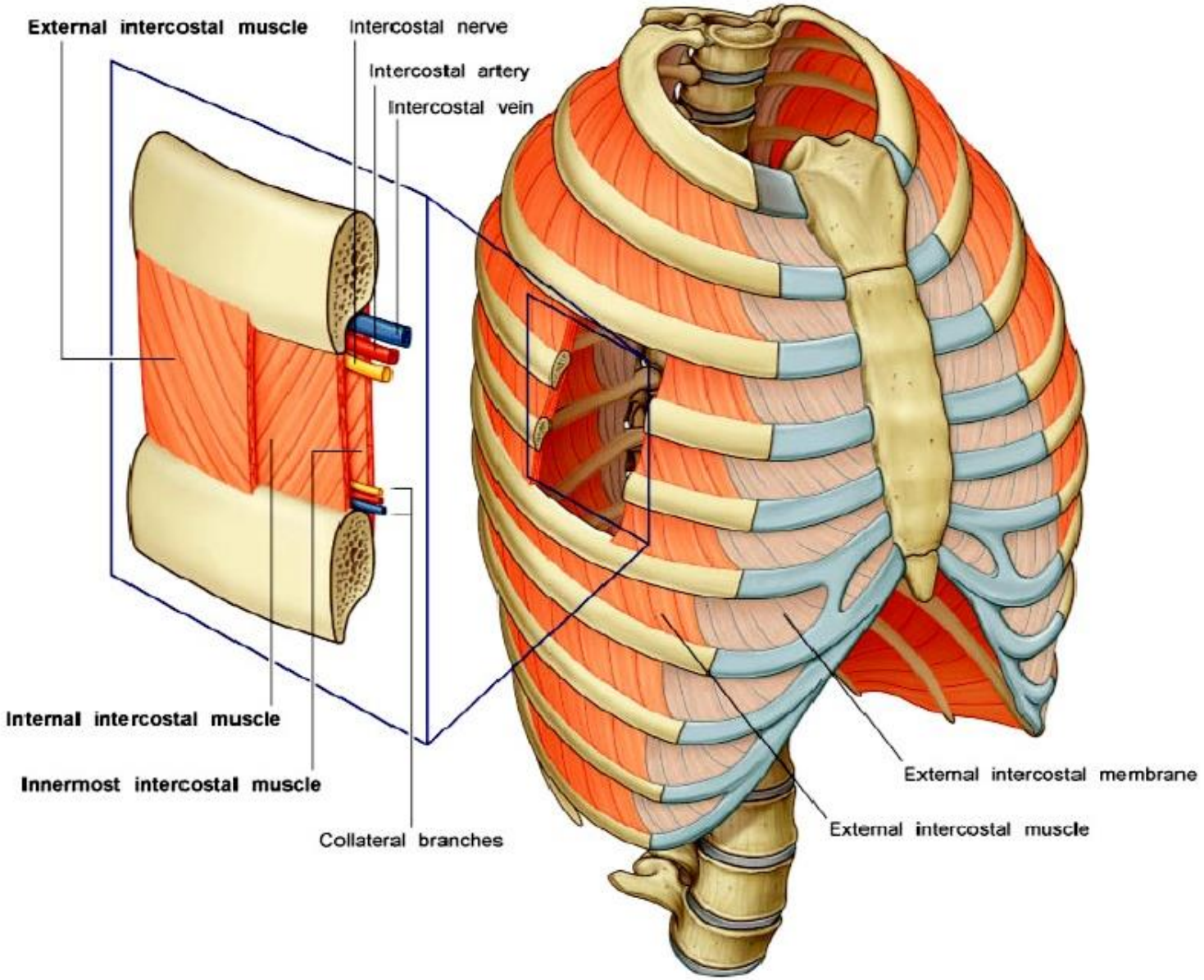


THORACIC MUSCLES		ORIGIN	INSERTION	ACTION
M. pectoralis major	pars clavicularis	clavicula (medial ½)	crista tuberculi majoris	adduction, internal rotation, arm flexion; auxiliary inspiratory m.
M. pectoralis major	pars sternocostalis	manubrium sterni et cartilagines costae (2nd-7th)		
M. pectoralis major	pars abdominalis	vagina musculi recti abdominis		
M. pectoralis minor		3rd - 5th rib	processus coracoideus scapulae	pulls the scapula; auxiliary inspiration m
M. subclavius		first rib	clavicula (inferior surface)	pulls clavicule → indirectly the shoulder distoventrally; auxiliary inspiration m.
M. serratus anterior		cranial 9 ribs	scapula (margo medialis et angulus inferior)	pulls the clavicle from the backbone; pulls inferior angle laterally → rotates scapula; auxiliary respirat. m.


Sternocleidomastoid
Deltoid
Pectoralis major
Sternum
Biceps brachii
Subclavius
Clavicle
Subscapularis
Pectoralis minor
Coracobrachialis
Serratus anterior
Humerus
(a)

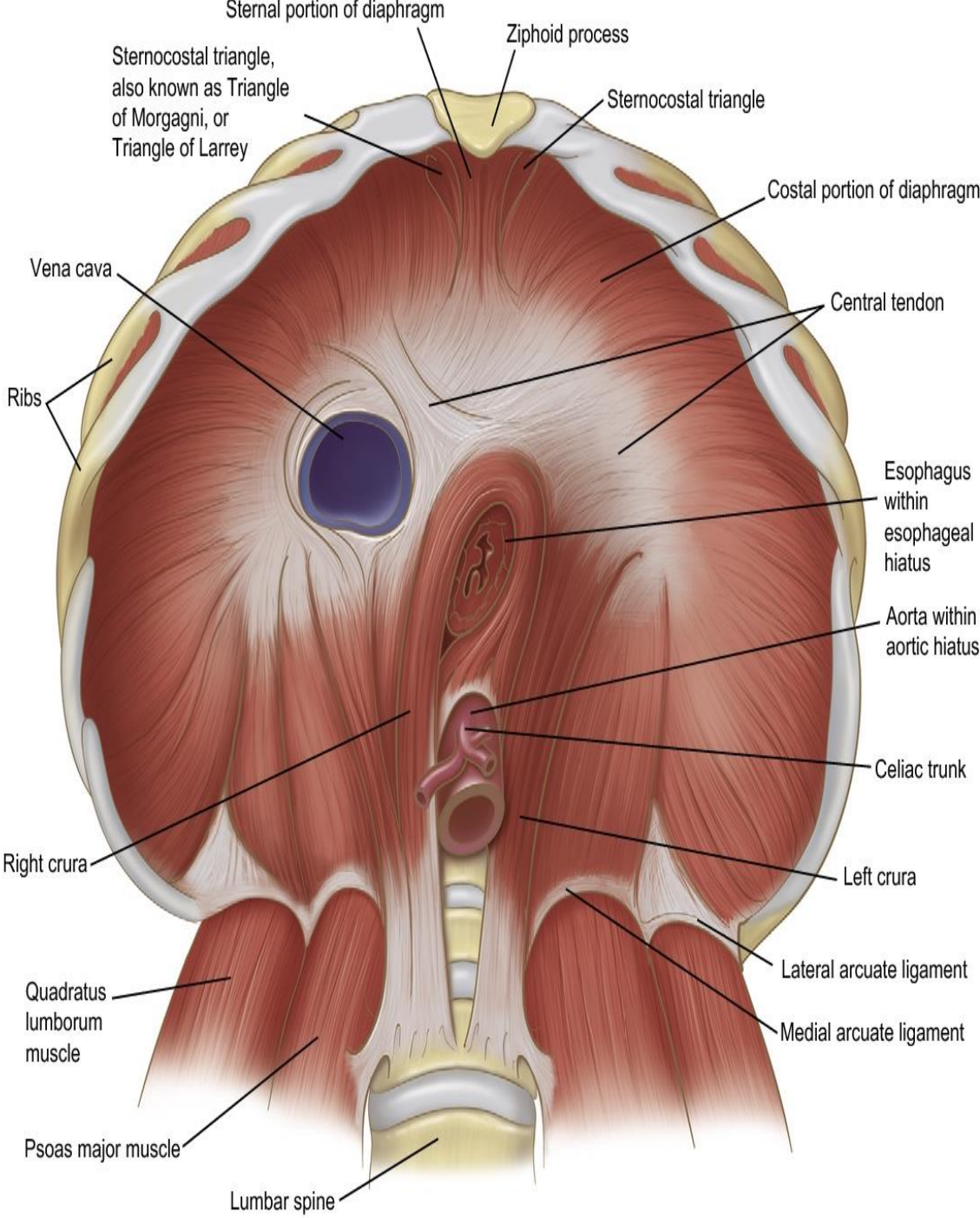
Thoracic Muscles		Origin	Insertion	Action
Mm. intercostales externi		inferior margin of ribs - from the costal tubercle to the beginning of rib cartilage	superior margin of ribs immediately below	elevation of lower ribs, thorax expansion → inspiratory m.
Mm. intercostales interni		superior margin of ribs - costal angle to sternum	inferior margin of ribs immediately above	adduction of cranial ribs to caudal ribs → expiratory m.
M. transversus thoracis		internal surface of xiphoid process and body of sternum	cartilagines costae verae	expiratory muscle
Diaphragma	sternal part	inner surface of xiphoid process	central tendon	main inspiratory muscle; abdominal press
Diaphragma	costal part	inner surface of cartilage of ribs 7-12		
Diaphragma	lumbar part, medial crus	ligamentum longitudinale anterius (vertebrae lumbales)		
Diaphragma	lumbar part, lateral crus	ligaments jump over the psoas and quadratus muscles		

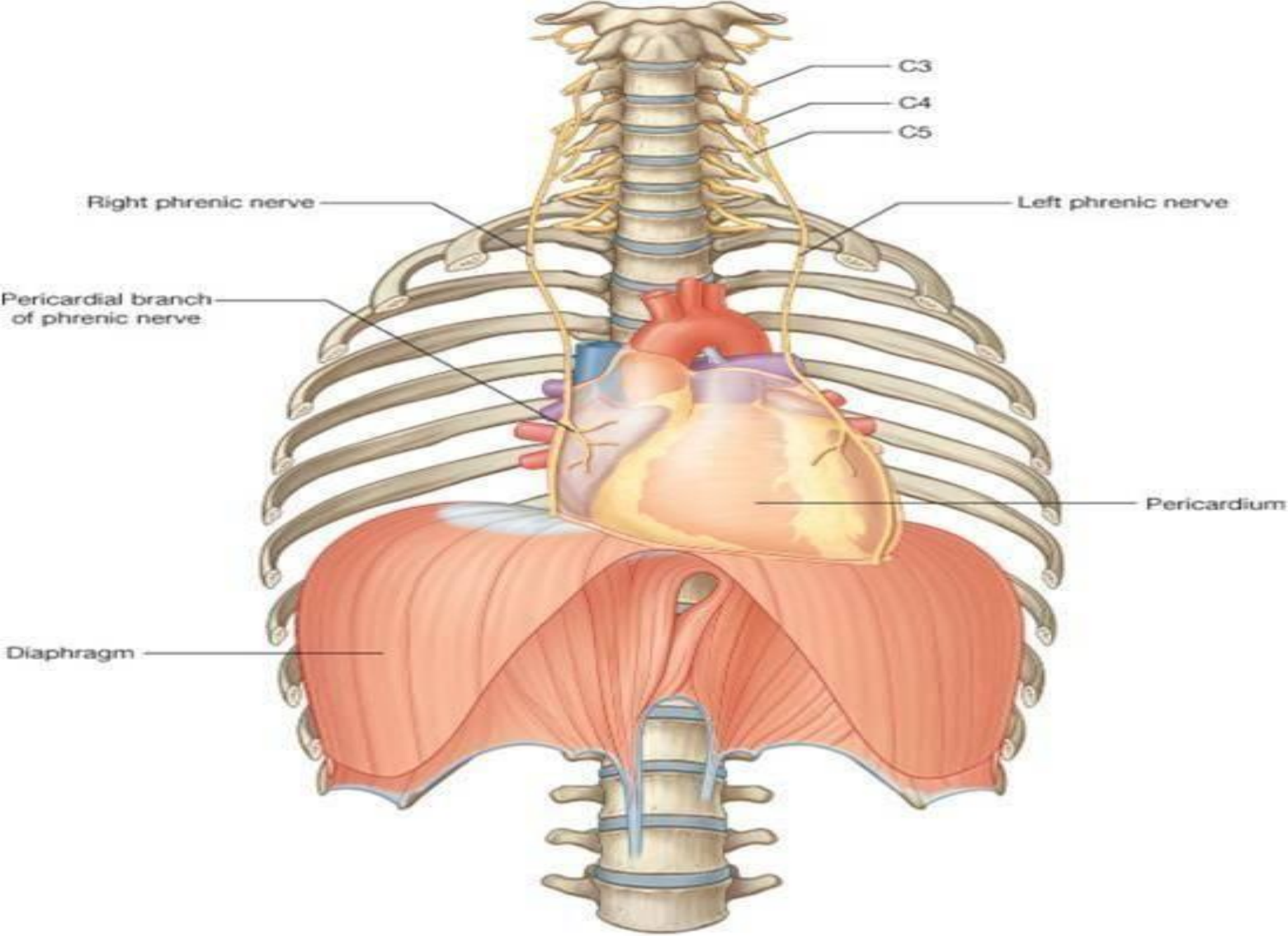

External intercostal
Internal intercostal
(a)



Diaphragm

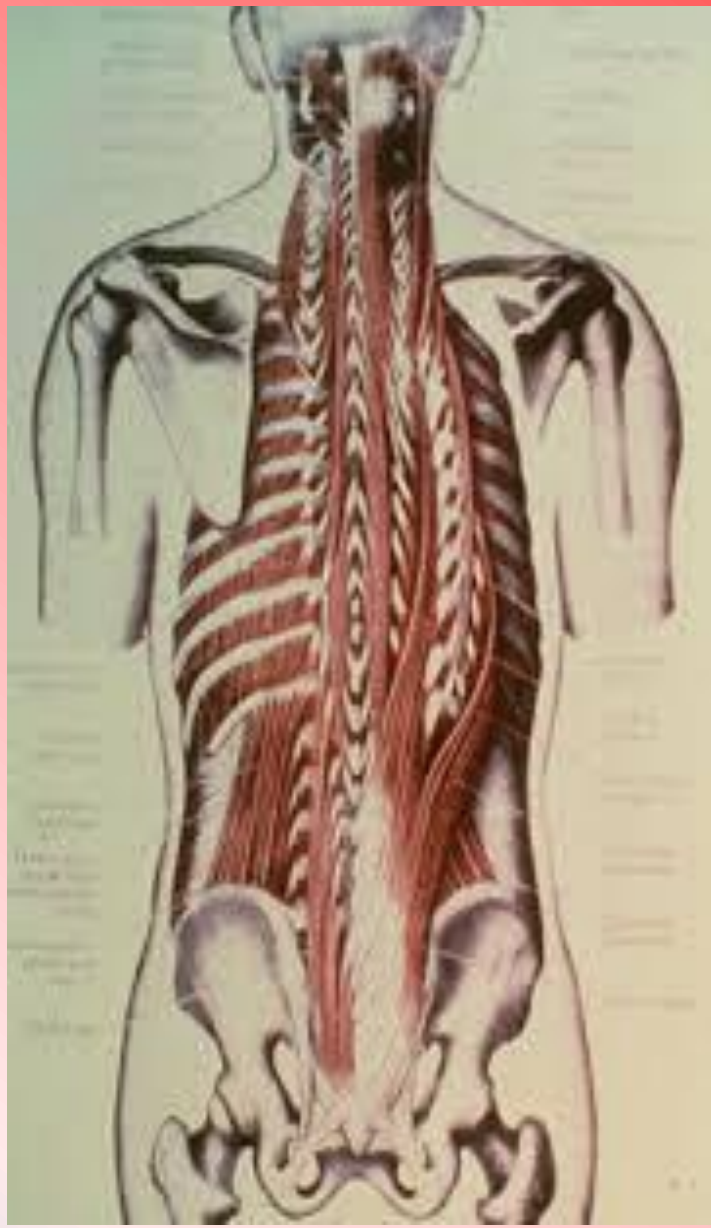
- Partition between thoracic and abdominal cavities
- **Most important muscle in inspiration**
  - Inserts along bony edge of lower ribs
  - Contraction moves diaphragm downward → increases vertical dimensions of rib cage → air flows in → inspiration

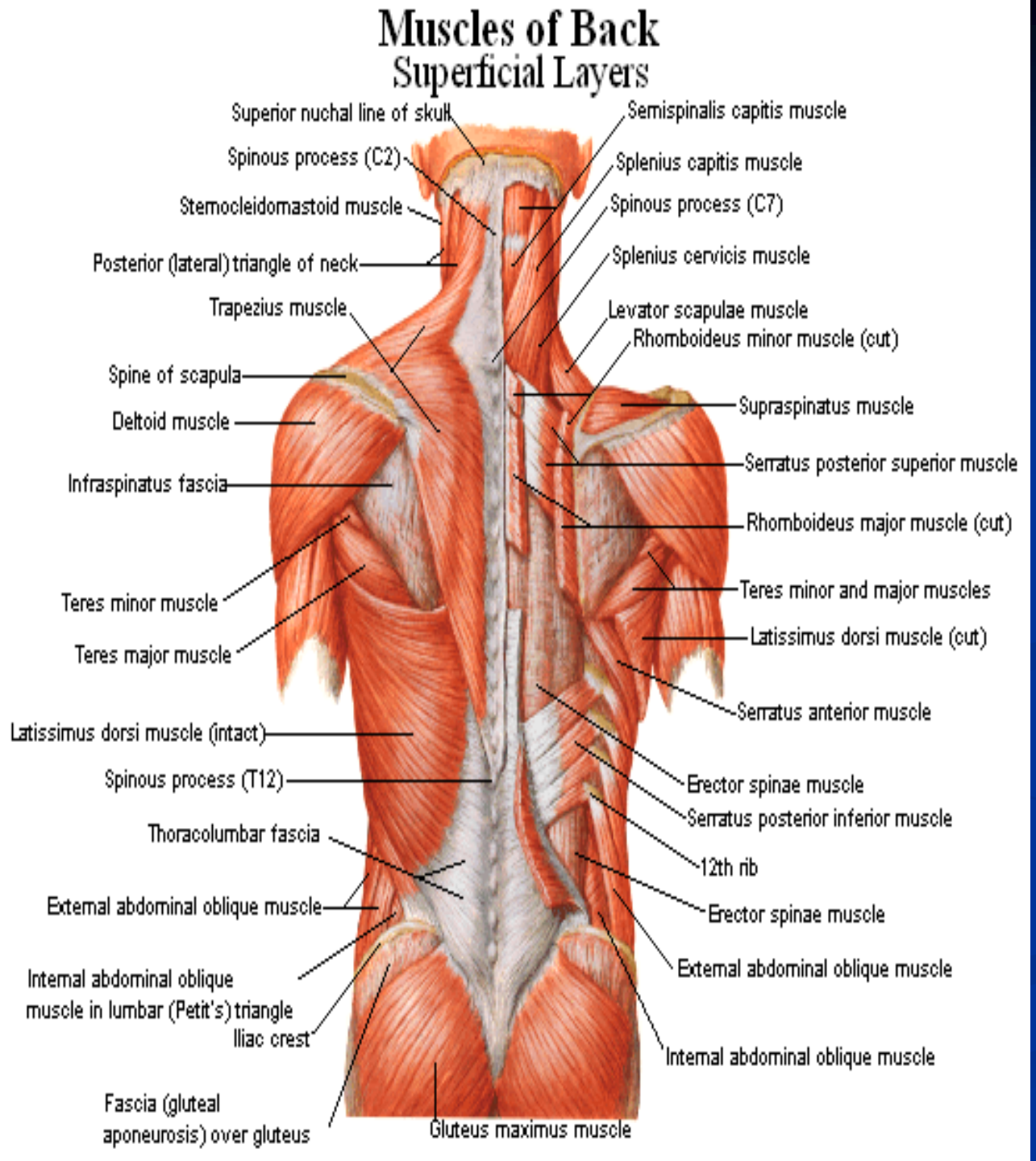



C3
C4
C5
Right phrenic nerve
Left phrenic nerve
Pericardial branch of phrenic nerve
Pericardium
Diaphragm

Muscles of the Back

Divide into Superficial and Deep





MUSCLES OF THE BACK

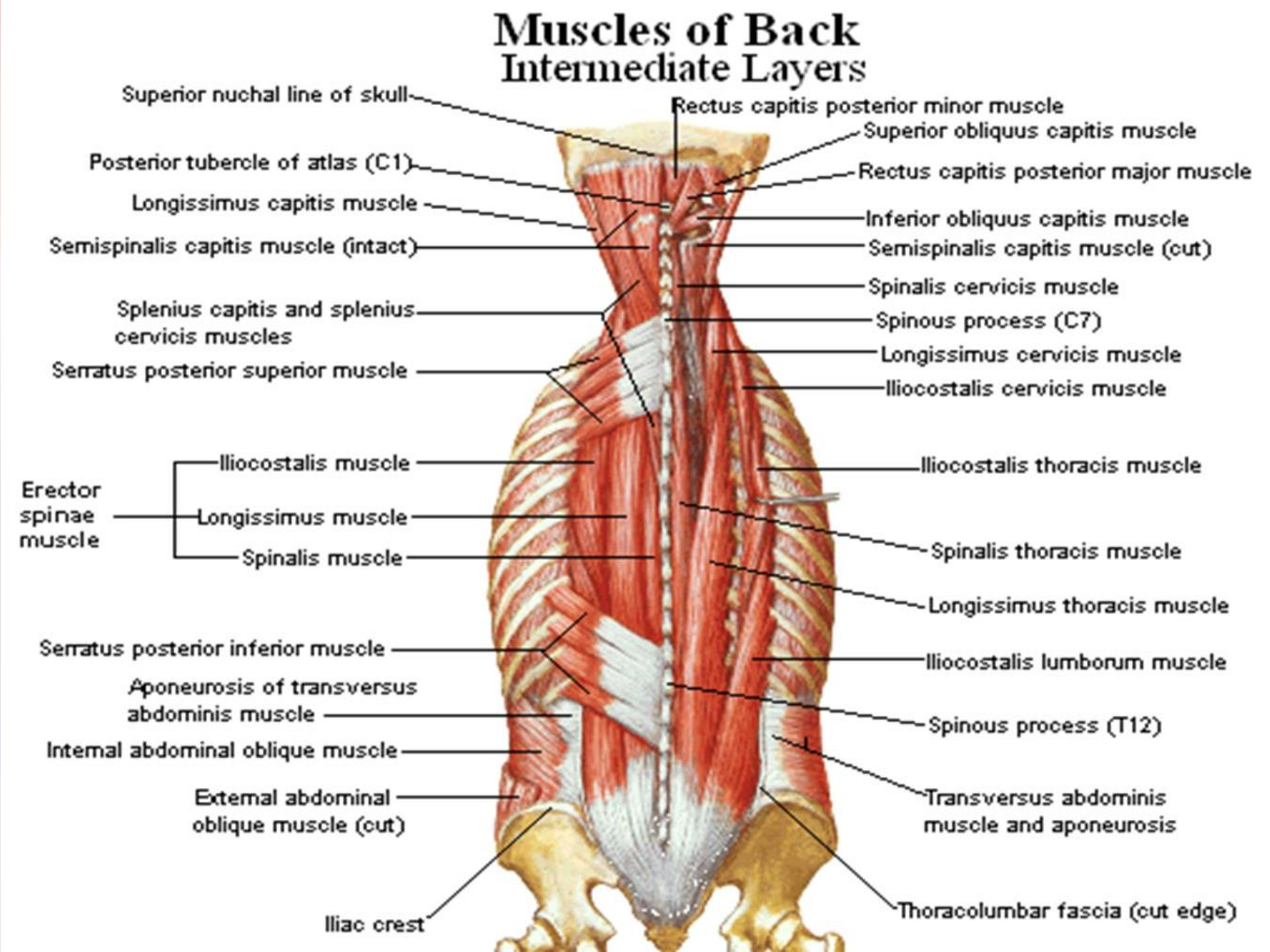
Superficial muscles:

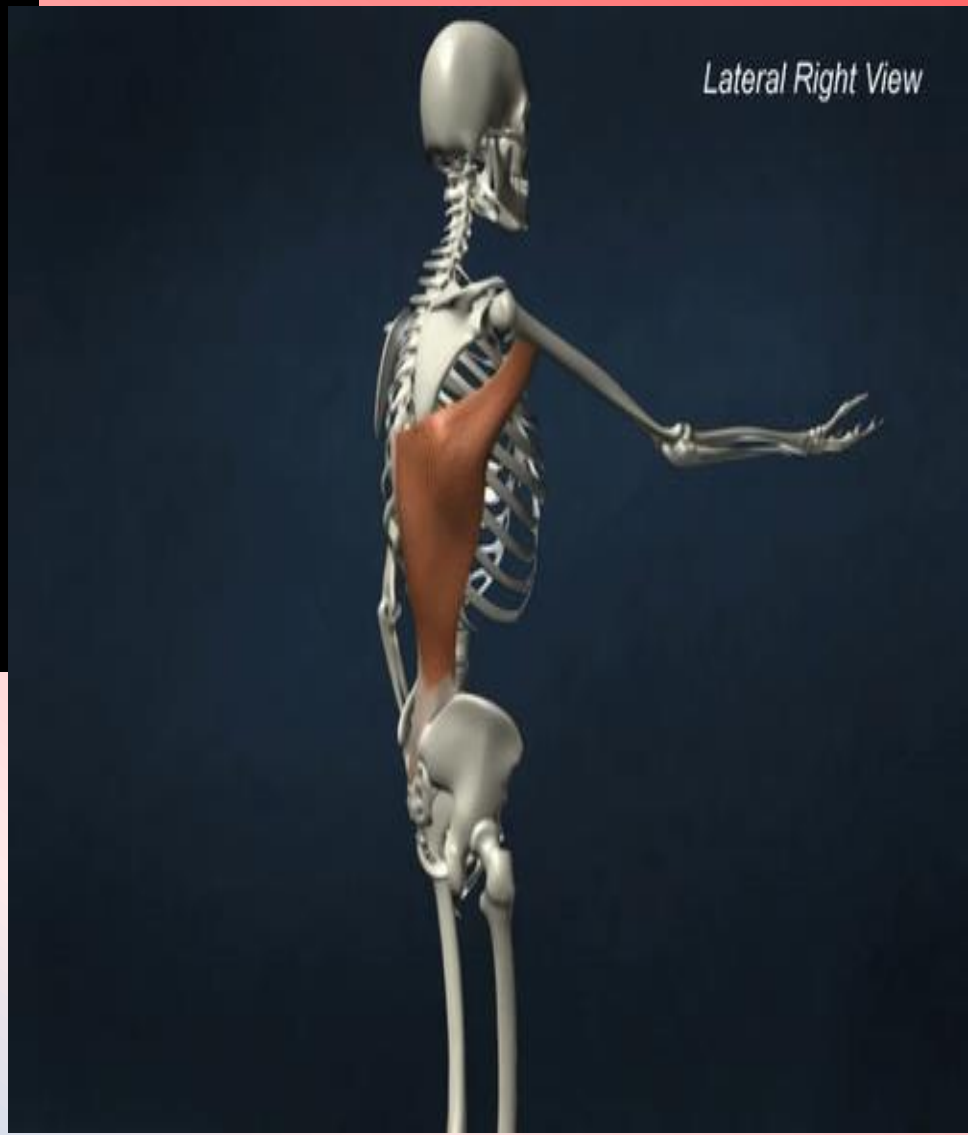
1. The trapezius muscle
2. The latissimus dorsi muscle
3. The rhomboid minor muscle
4. The rhomboid major muscle
5. The levator scapulae muscle
6. The serratus posterior superior muscle
7. The serratus posterior inferior muscle

Heterochtonnous muscles	origin	insertion	action
M. trapezius	protuberantia occipitalis externa, septum nuchae, processus spinosi C7 and all thoracic vertebrae	lateral ⅓ of clavicle, acromion and spina scapulae	adduction of shoulder, upper fibres elevates the scapula; the lower part pulls the scapula
M. latissimus dorsi	processus spinosi of caudal thoracic vertebrae, lumbar vertebrae, sacrum, crista iliaca and caudal ribs	crista tuberculi minoris	adduction, extension, medially rotation
M. levator scapulae	processus transversi of cranial cervical vertebrae	angulus superior scapulae	elevates scapula, rotates scapula medially
M. rhomboideus minor et major	processus spinosus of caudal cerical and cranial thoracic vertebrae	margo medialis scapulae	pulls the scapula medially and cranially
M. serratus posterior superior	processus spinosus of caudal cervical and cranial thoracic vertebrae	cranial ribs	elevates the ribs → auxilliary inspiratory muscle
M. serratus posterior inferior	processus spinosus of caudal thoracic and cranial lumbar vertebrae	caudal ribs	auxiliary expiratory muscle


Posterior View

Muscles of Back
Intermediate Layers




Lateral Right View

Deep muscles of the back:

1,2. The splenius capitis and cervicis muscles

3. The **lateral tract** or **sacrospinal muscle** consists of 3 parts:

-iliocostal muscle

- longissimus muscle

- spinalis muscle

4. The **medial tract** or **transversospinal muscles** divides into:

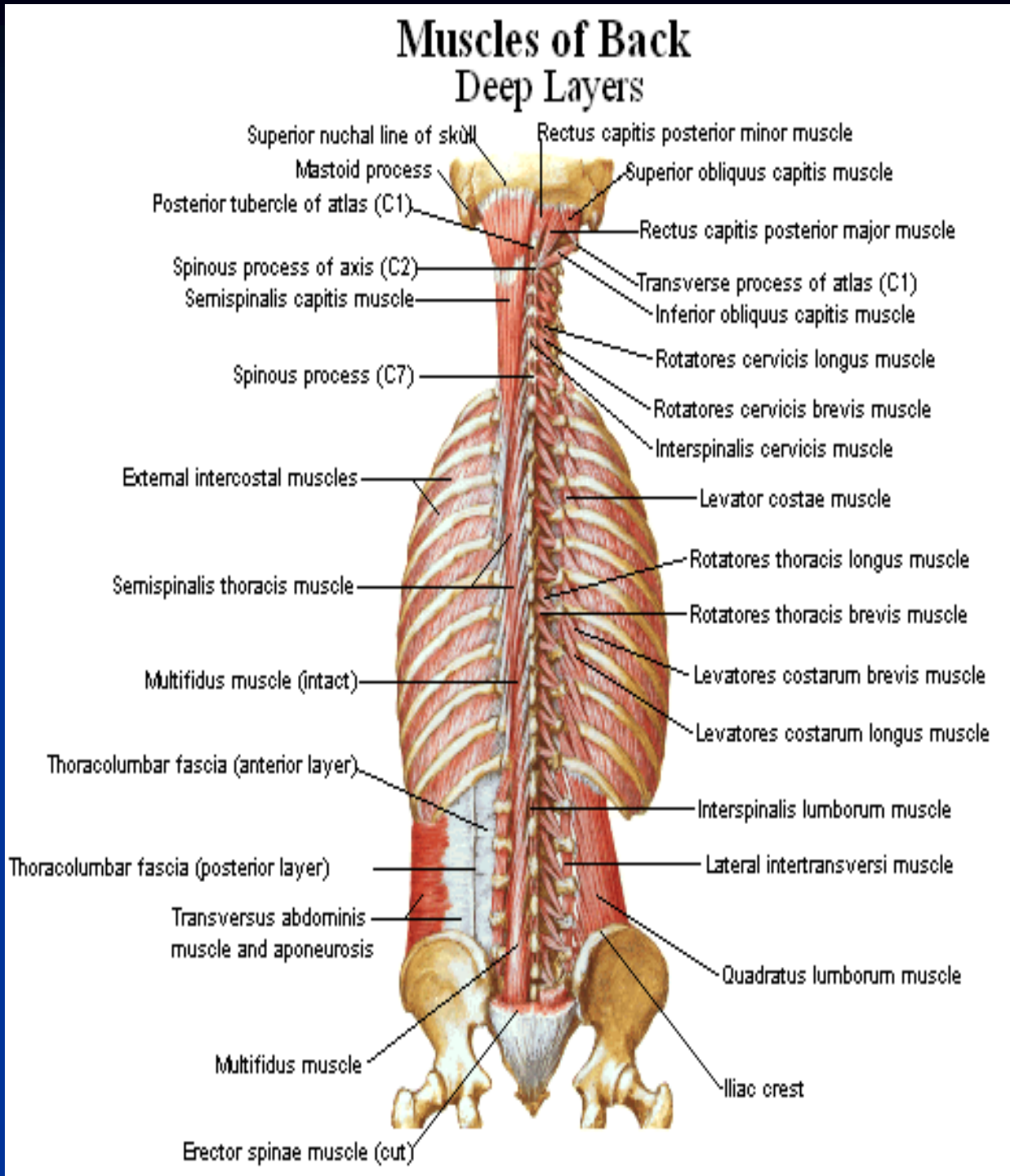
-m.m. semispinales (superficial layer)

-m.m. multifidi (middle layer)

-m.m. rotatorse (deep layer)

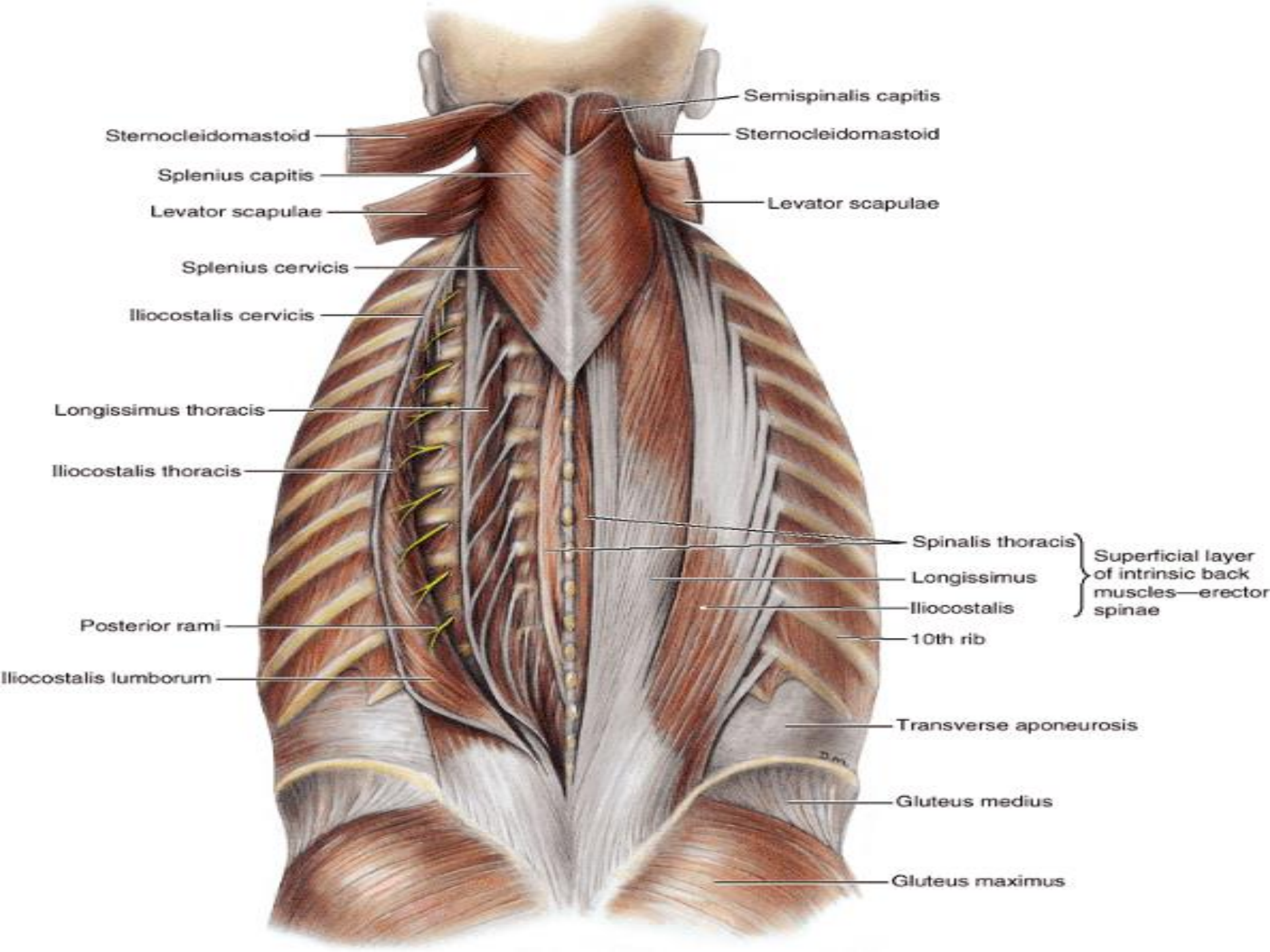
5. The intertransverse muscles flex the spine laterally.

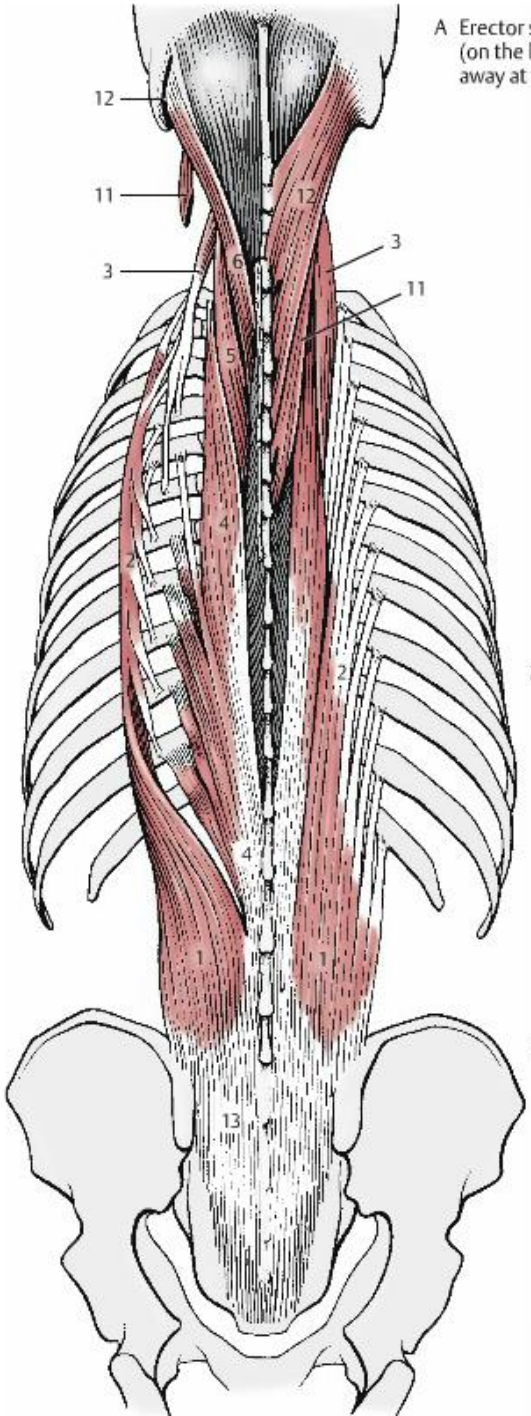
6. The interspinal muscles fix the spine.



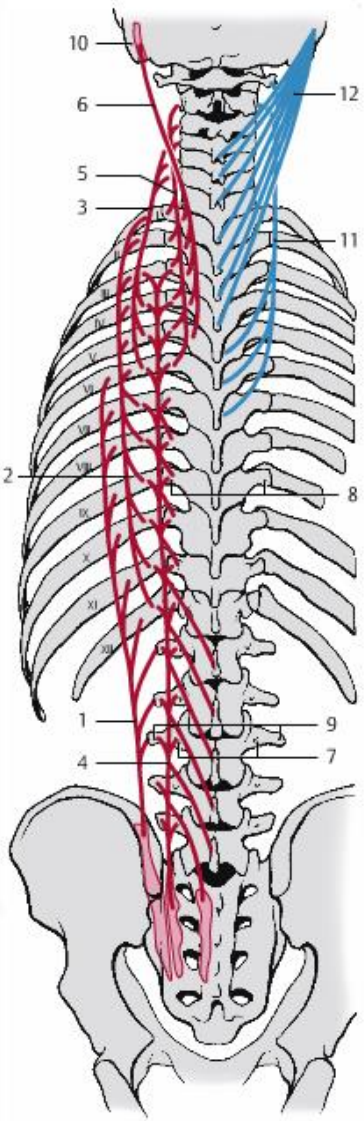
Autochtonnous muscles	Origin	Insertion	Action
M. longissimus dorsi et cervicis	fill the space between processus spinosus et transversus	medial part	bilateral - dorsiflexion, unilateral - homolateral lateroflexion
M. longissimus capitis		cranial base	
M. iliocostalis		lateral part	
Mm. spinales thoracis et cervicis	are stretched between processus spinosus of the thoracic and cervical vertebrae		unilateral - lateroflexion, bilateral - dorsiflexion
Mm. interspinales cervicis			
Mm. intertransversarii posteriores cervicis			

Autochtonnous muscles	Origin	Insertion	Action
M. semispinalis thoracis et cervicis	are stretched from transversal to the spinous processes; is located along the whole spine with insertion on the cranial base	jump over 4-5 vertebrae	bilateral - dorsiflexion, unilateral - homolateral lateroflexion and contralateral rotation
M. semispinalis capitis			
Mm. multifidi		jump over 1-3 vertebrae	
M. splenius capitis	runs from processus spinosus to processus transversus	cranial base	bilateral - dorsiflexion, unilateral - lateroflexion and homolateral rotation
M. splenius cervicis		cervical vertebrae	

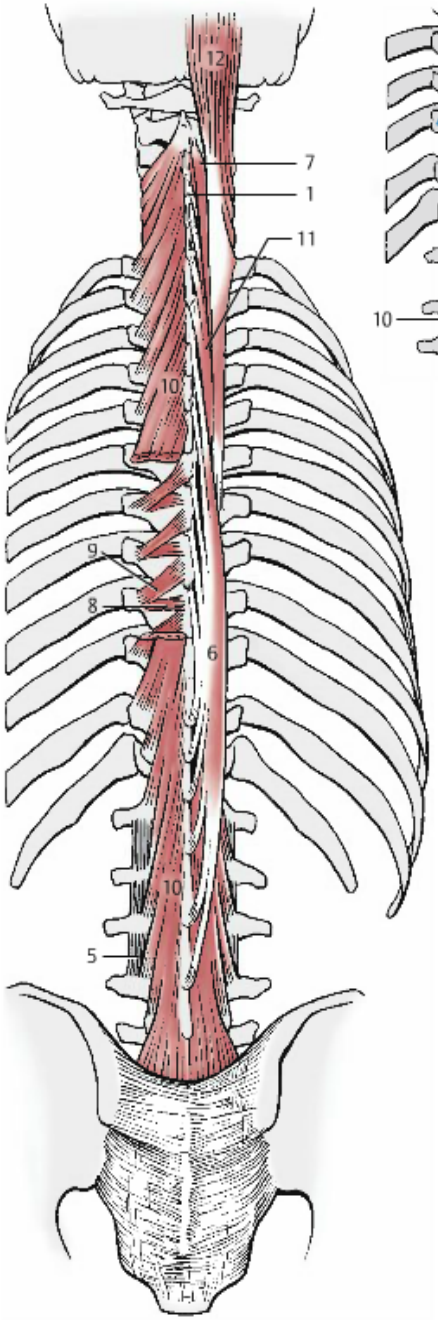

Semispinalis capitis
Sternocleidomastoid
Sternocleidomastoid
Splenius capitis
Levator scapulae
Levator scapulae
Splenius cervicis
Iliocostalis cervicis
Longissimus thoracis
Iliocostalis thoracis
Spinalis thoracis
Longissimus
Iliocostalis
Superficial layer of intrinsic back muscles—erector spinae
Posterior rami
10th rib
Iliocostalis lumborum
Transverse aponeurosis
Gluteus medius
Gluteus maximus



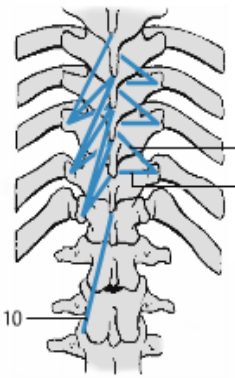
A Erector spinae muscle (on the left the splenii have been cut away at their origin and insertion)



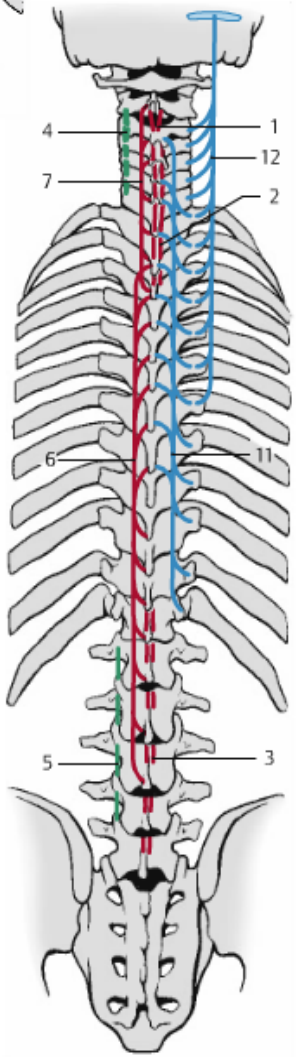
B Diagram of origin, course, and insertion of muscles



A Erector spinae muscle, multifidus muscle partially removed to make the rotator muscles visible)



C Diagram of origin, course, and insertion of transversospinales



B Diagram of origin, course, and insertion of straight muscle system

Muscles of the ABDOMEN

Anterior group

1.The rectus abdominis muscle

2.The pyramidal muscle

The lateral group

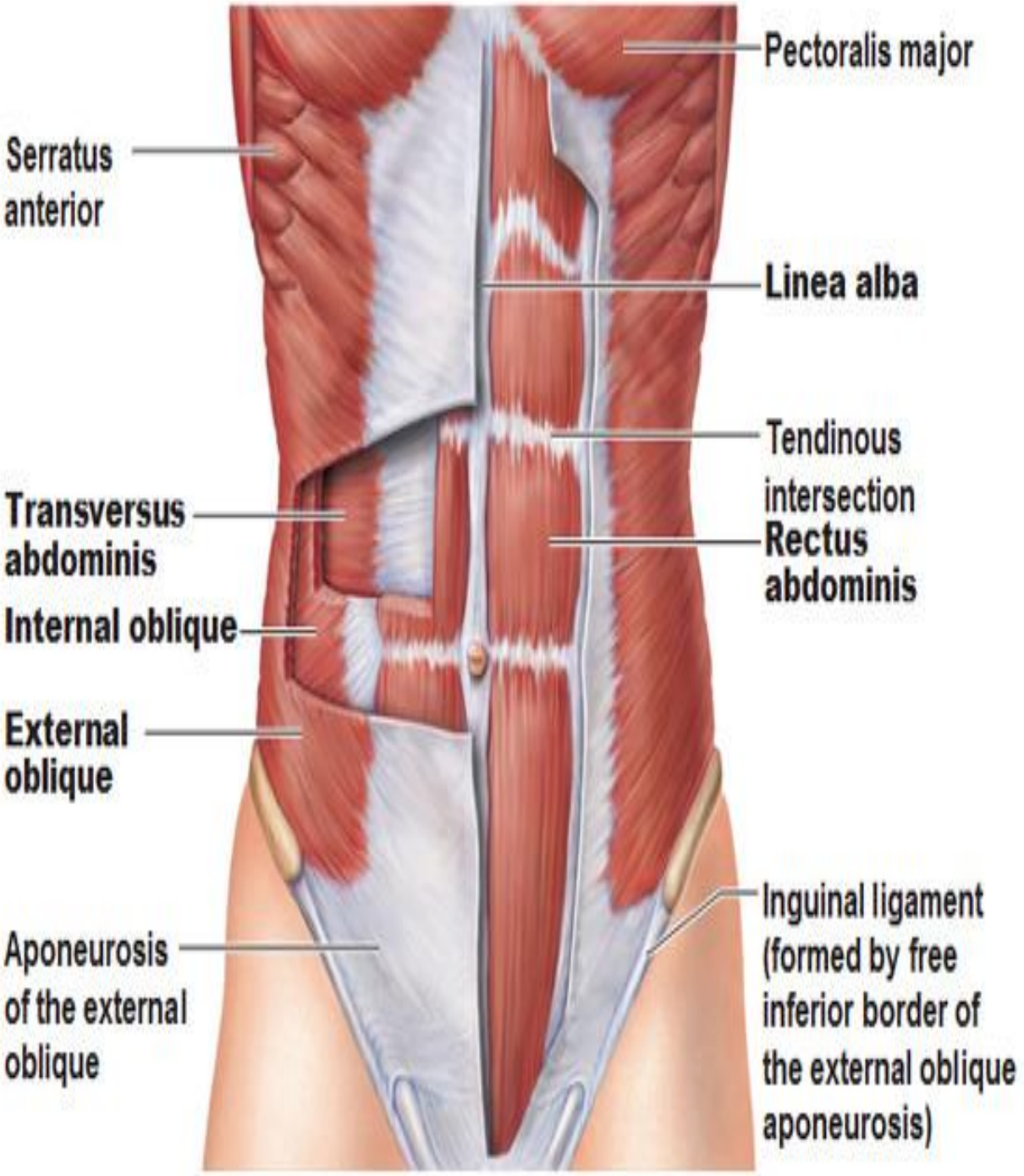
1.The external oblique muscle

2. The internal oblique muscle

3. The transverse muscle

The posterior group

1. The quadrate muscle of the loin

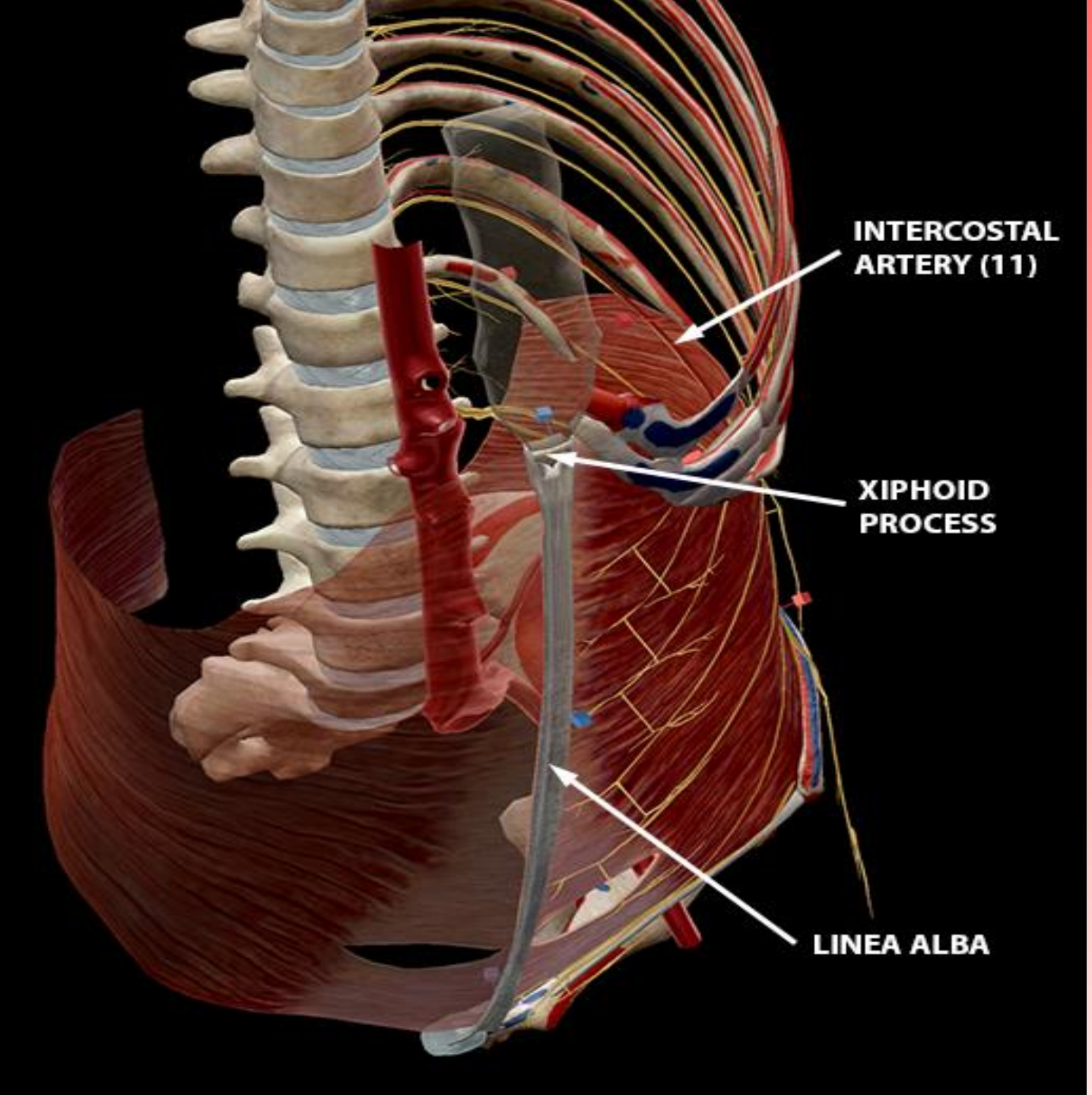


Abdominal muscles	Origin	Insertion	Action
M. rectus abdominis	xiphoid process and costal cartilages 5 - 7	tuberculum pubicum	trunk anteflexion; increase abdominal press
M. obliquus externus abdominis	lower ribs	crista iliaca, ligamentum inquinale, vagina musculi recti abdominis	↑ abdominal press; bilateral - anteflexion, unilateral - contralateral rotation
M. obliquus internus abdominis	fascia thoracolumbalis, crista iliaca, ligamentum inquinale	lower ribs et vagina musculi recti abdominis	auxiliary expiration m, ↑ abdominal press; bilateral - dorsiflexion, unilateral - homolateral rotation
M. transversus abdominis	fascia thoracolumbalis, crista iliaca, lower ribs	vagina musculi recti abdominis	auxiliary respiratory m, ↑ abdominal press; unilateral - homolateral lateroflexion
M. quadratus lumborum	The muscle is attached between last rib, iliac crest and lumbar vertebrae		unilateral - homolateral lateroflexion, bilateral - dorsiflexion of backbone


Anterolateral View

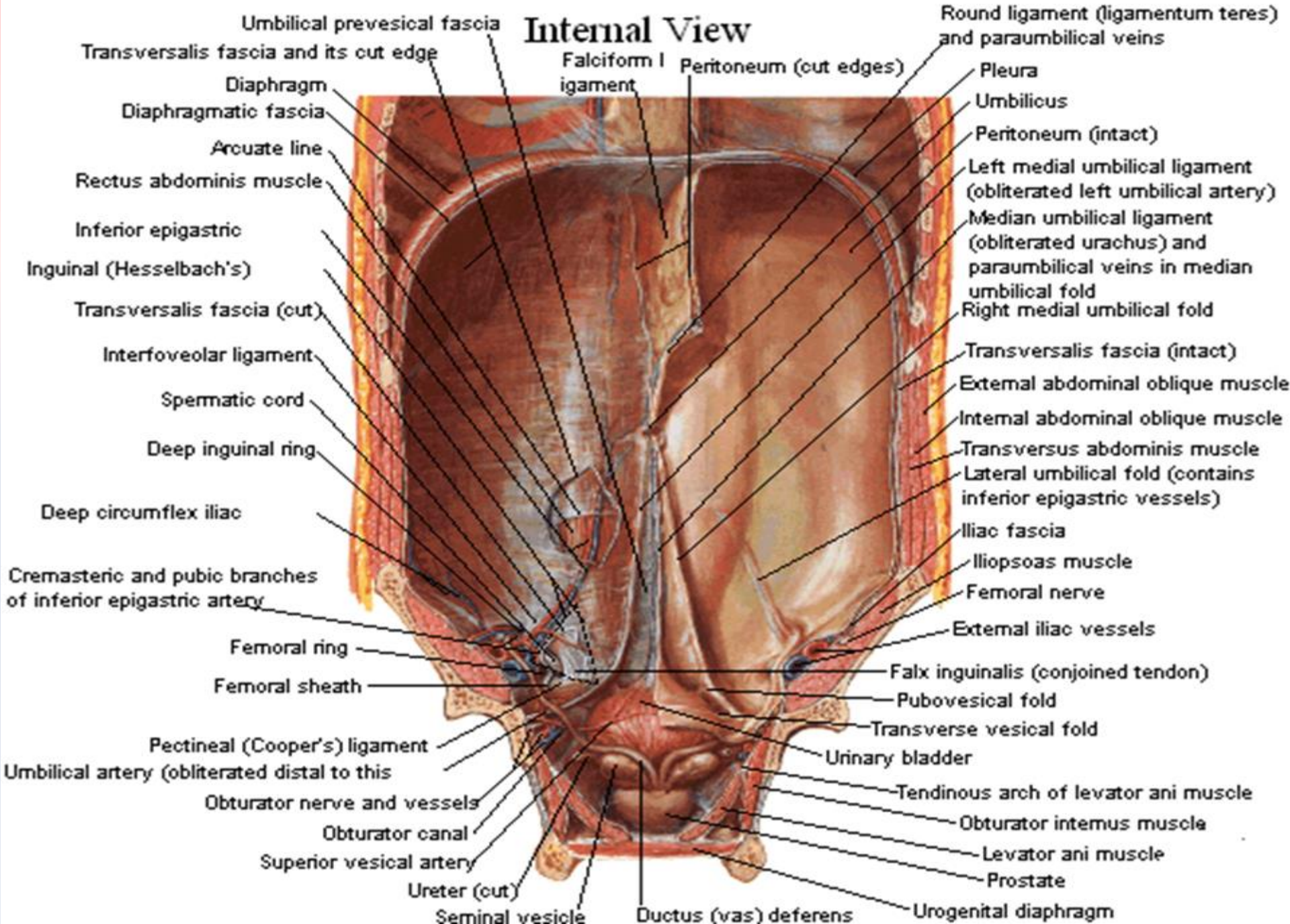
ANTERIOR ABDOMINAL WALL

- **Muscles of abdominal wall are continue anteriorly and medially as strong sheet-like aponeuroses**
- **Between the midclavicular line and the midline form the rectus sheath enclosing the rectus abdominis muscle**
- **In midline aponeuroses interweave with their fellows of the opposite side forming a midline raphe = LINEA ALBA (extends from the xiphoid process to the pubic symphysis)**
- **The deep surface of the transversus abdominis muscle and its aponeurosis is transversalis fascia**


INTERCOSTAL ARTERY (11)
XIPHOID PROCESS
LINEA ALBA

Anterior Abdominal Wall

Internal View



SUPRAVESICAL FOSSA

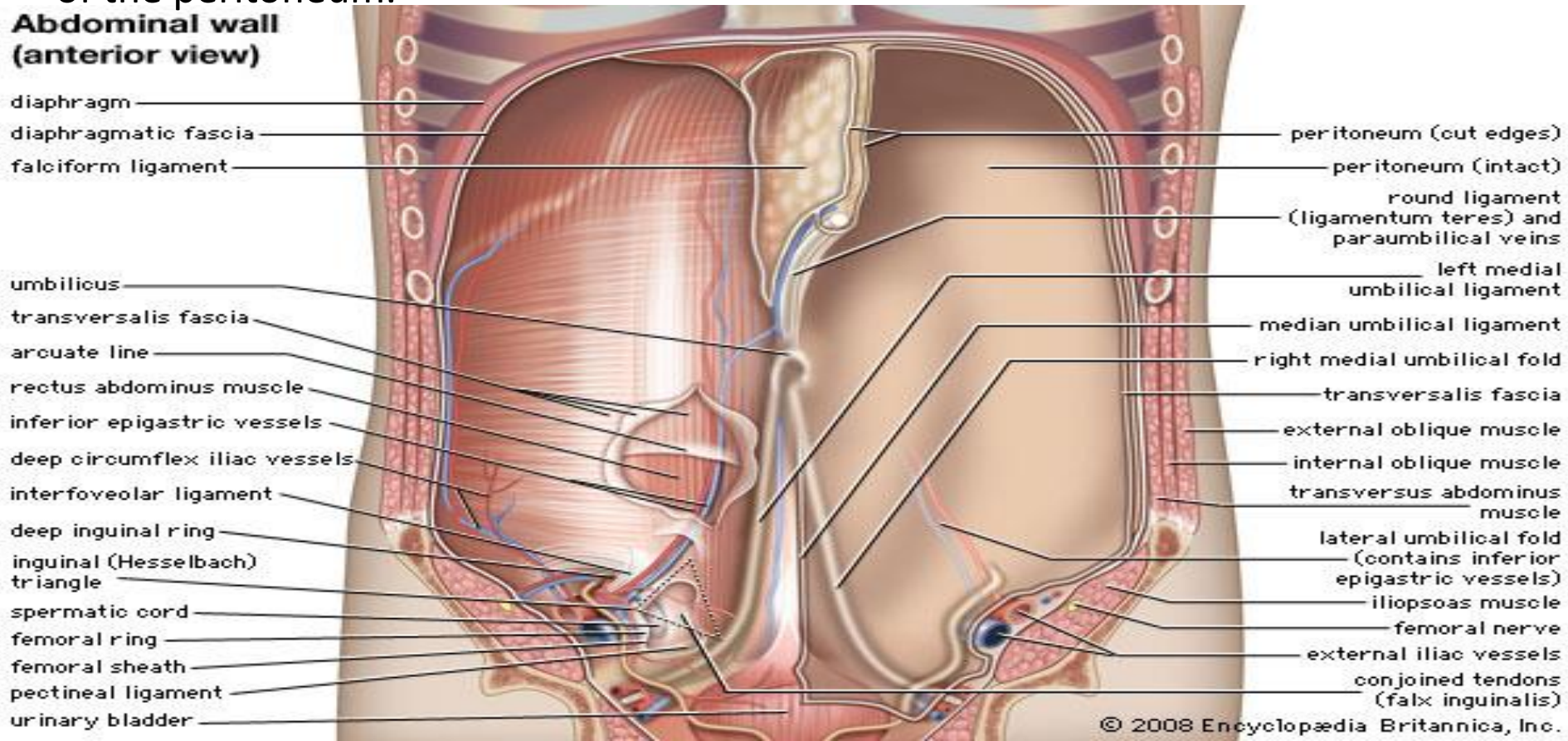
Is a depression on the anterior abdominal wall between the median and medial umbilical folds of the peritoneum.

MEDIAL INGUINAL FOSSA

Is a depression on the anterior abdominal wall between the medial and lateral umbilical folds of the peritoneum. It lies lateral to the supravesical fossa. Is the fossa where most direct inguinal hernias occur.

LATERAL INGUINAL FOSSA

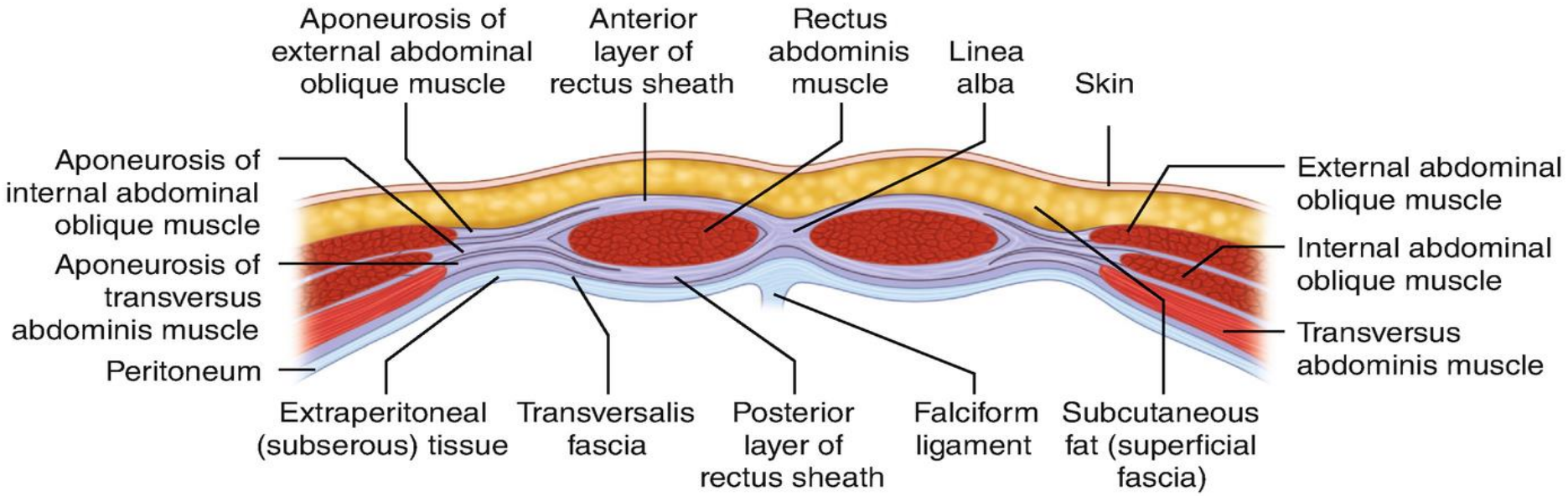
Is a depression on the anterior abdominal wall, lateral to the lateral umbilical fold of the peritoneum.



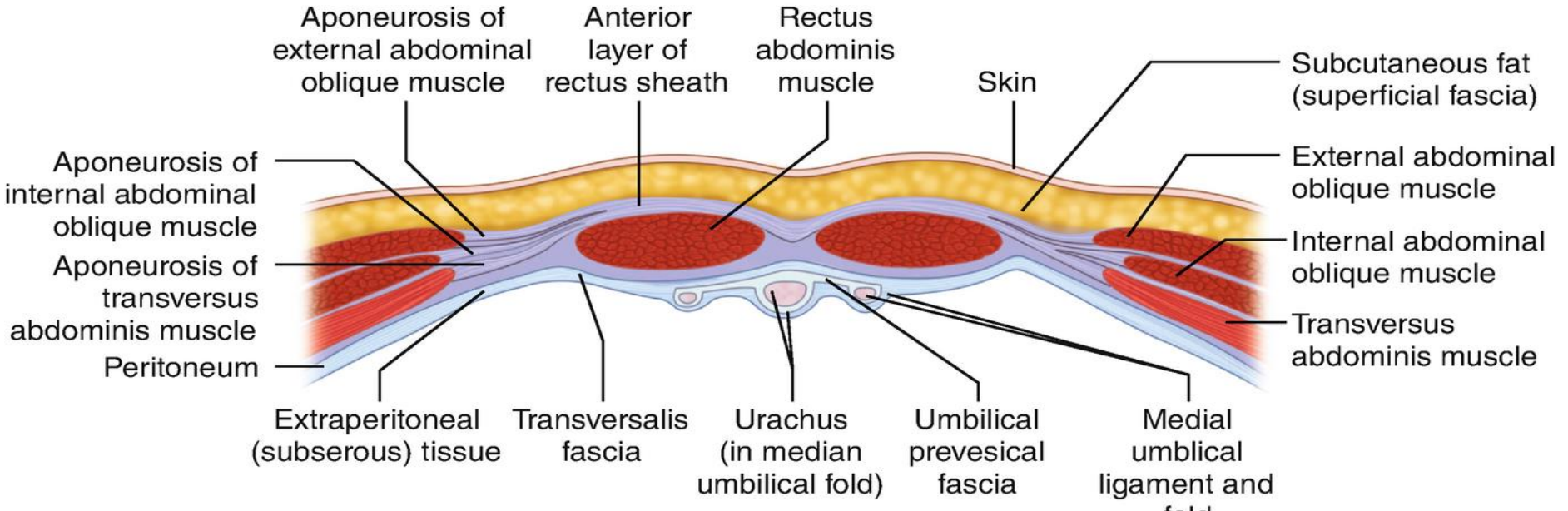
ANTERIOR ABDOMINAL WALL

- **Approximately one third of the distance from the umbilicus to the pubic crest, the aponeuroses of the three flat muscles pass anterior to the rectus abdominis to form the anterior layer of the rectus sheath**
- **Leaving only the relatively thin transversalis fascia to cover the rectus abdominis posteriorly**
- **Arcuate line – demarcates the transition between the aponeurotic posterior wall of the sheath covering the superior three quarters of the rectus and the transversalis fascia covering the inferior quarter**

Section above arcuate line



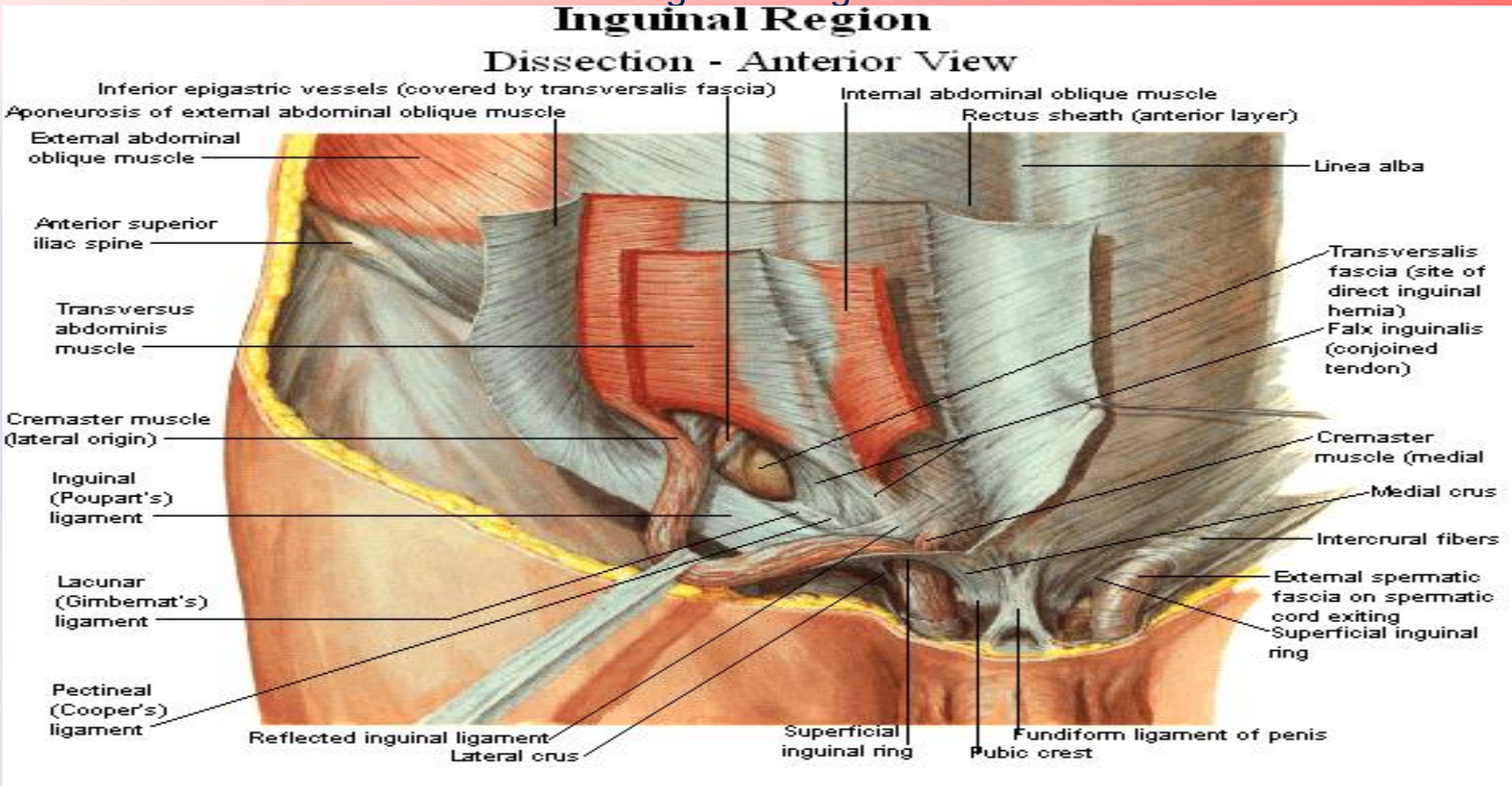
Section below arcuate line

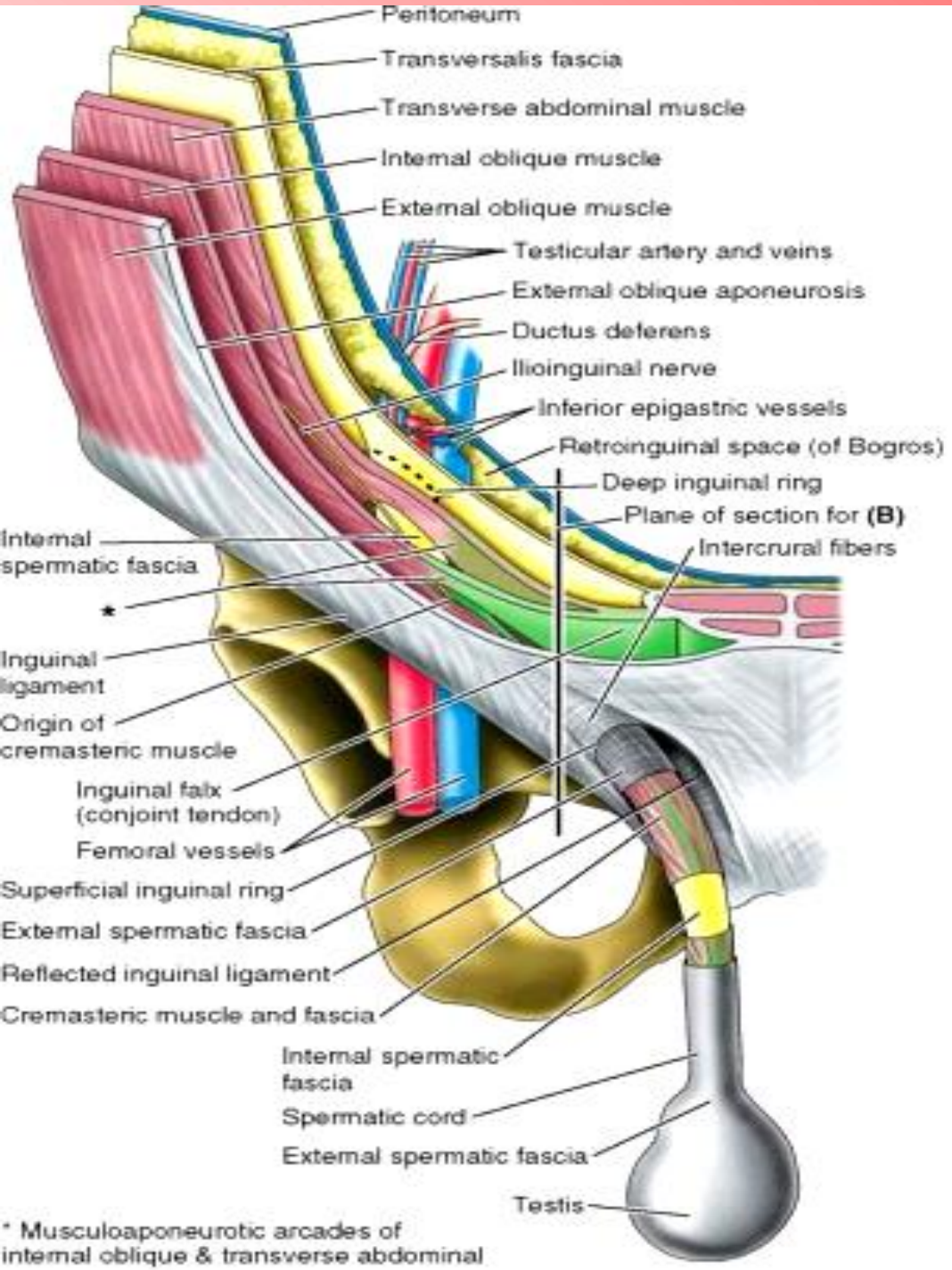


INGUINAL CANAL –

Is a passage through the lower anterior abdominal wall situated just above the medial half of the inguinal ligament.

Extends downward and medialy from the deep inguinal ring to the superficial inguinal ring.





The inguinal canal has 4 walls: anterior, posterior, superior and inferior.

The anterior wall is formed by the aponeurosis of the external oblique muscle;

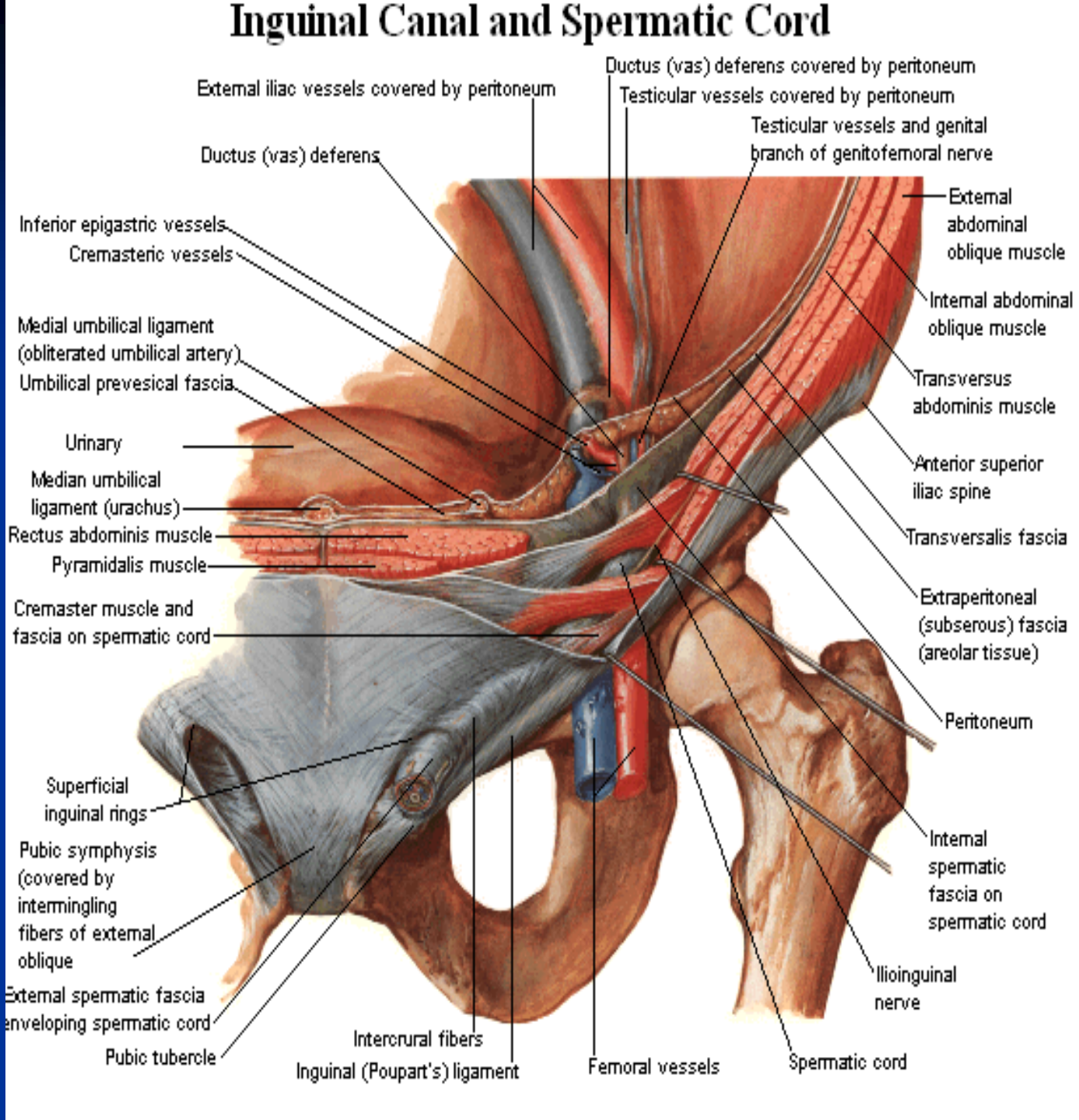
the posterior wall – by the transverse fascia,

the superior wall – by the lower edges of the internal oblique and transverse abdominal mm.

the inferior wall is formed by the inguinal ligament.

The **deep inguinal ring (annulus inguinalis profundus)** is situated in the region of the lateral inguinal fossa in the form of an infundibular recess in the transverse fascia of the abdomen.

The **superficial inguinal ring (anulus inguinalis superficialis)** is situated beneath the skin between medial and lateral crura of the aponeurosis of the external oblique muscle, above the superior ramus of the pubis.



Muscles of Respiration

Muscles of inspiration

Accessory

Sternocleidomastoid

Sternocleidomastoid - This accessory muscle of inspiration elevates the

Middle scalene

Anterior scalene

Posterior scalene

Scalenes - These accessory muscles of inspiration elevate and fix the upper ribs.

Principal

External intercostals

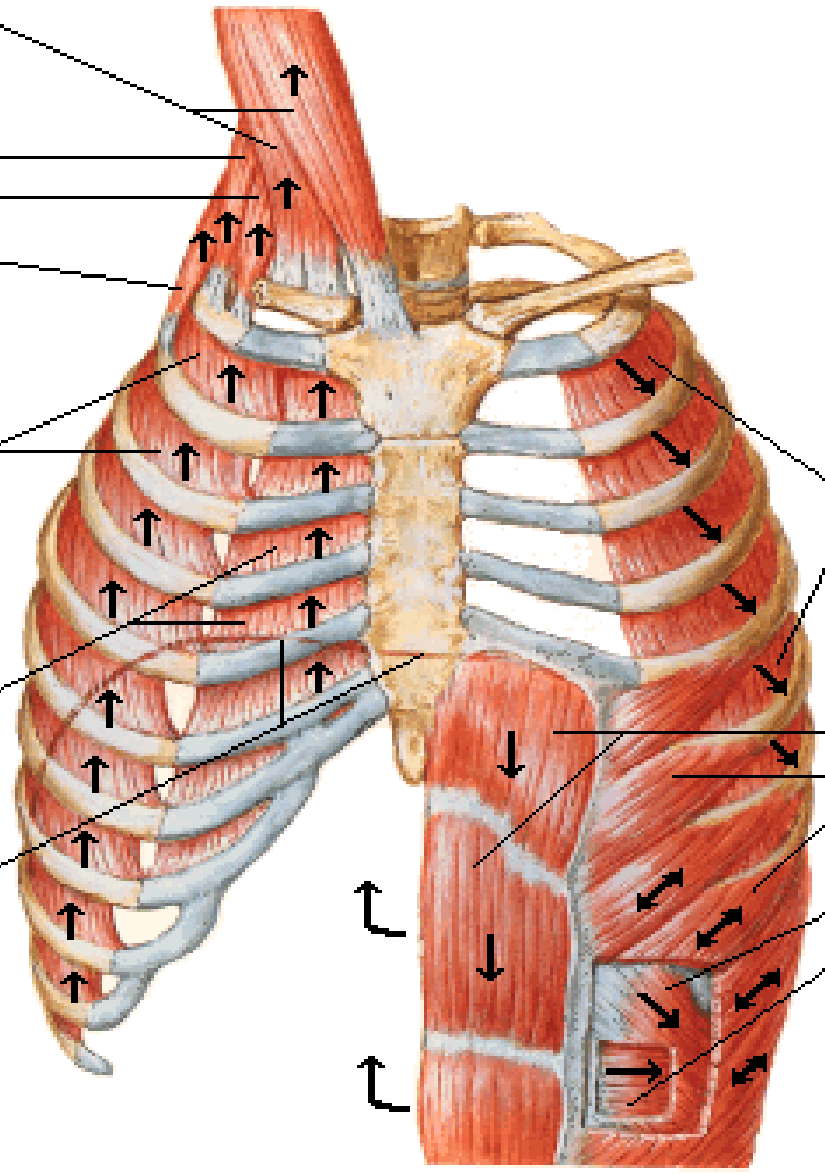
External intercostals - These principal muscles of inspiration elevate the ribs, thus increasing the width of the thoracic cavity.

Interchondral part of internal intercostals

Interchondral part - This part acts as a principal muscle of inspiration by elevating the ribs

Diaphragm

Diaphragm - The domes of this principal muscle of inspiration descend, thus increasing the longitudinal dimension of the thoracic cavity. The diaphragm also helps in elevating the lower ribs



Muscles of expiration

Quiet breathing

Expiration results from passive recoil of lungs

Active breathing

Internal intercostals, except interchondral part

Internal intercostals - These muscles of active expiration lower the ribs, thus decreasing the width of the thoracic cavity

Rectus abdominis

External oblique

Internal oblique

Transversus abdominis

Abdominal muscles - This muscle of active expiration depress the lower ribs and compress abdominal contents, thus pushing up the diaphragm.

MUSCLES OF THE UPPER LIMB

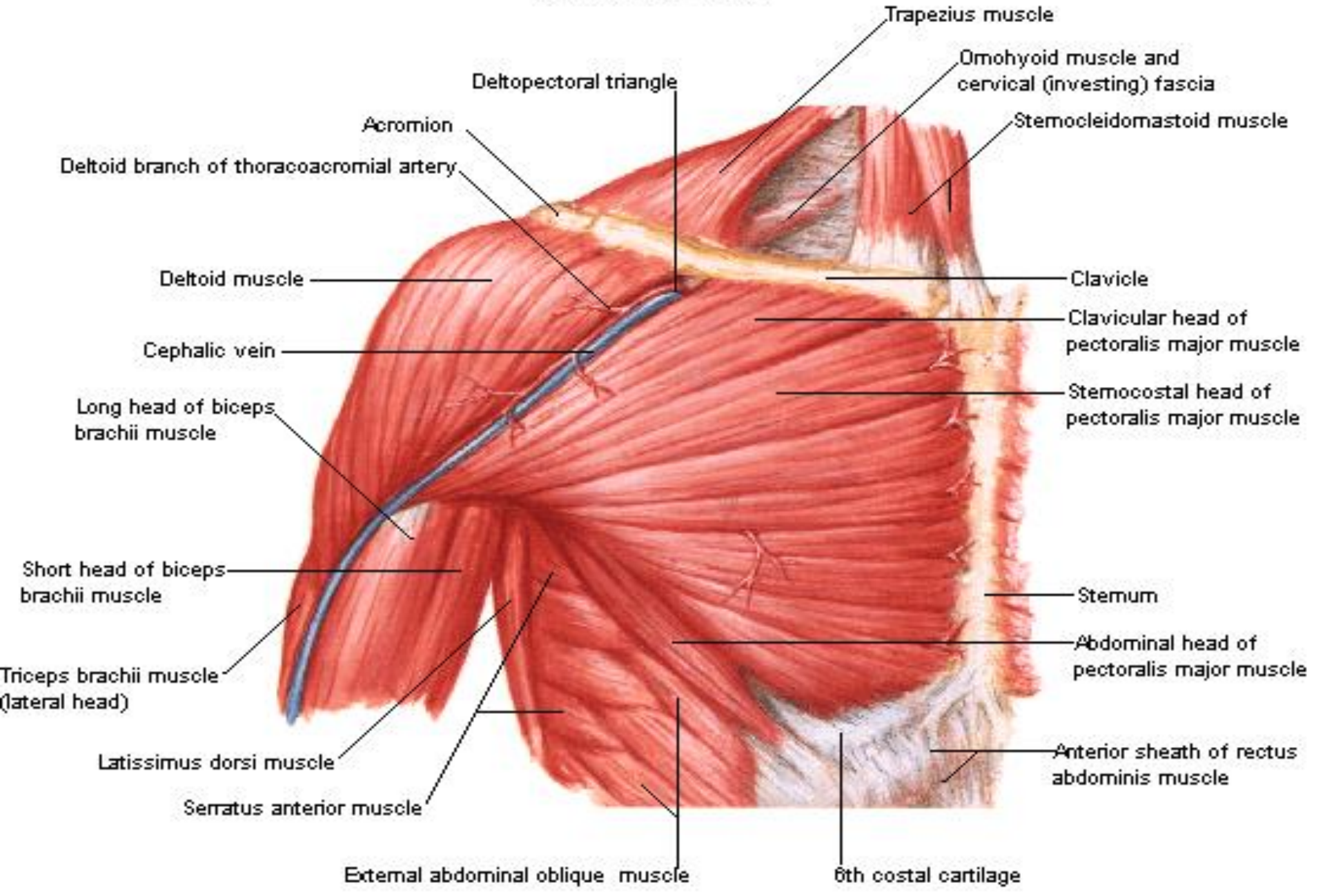
The muscles of the upper limb can be classified into the muscles of the shoulder joint, the muscles of the arm, the muscles of the forearm and the muscles of the hand.

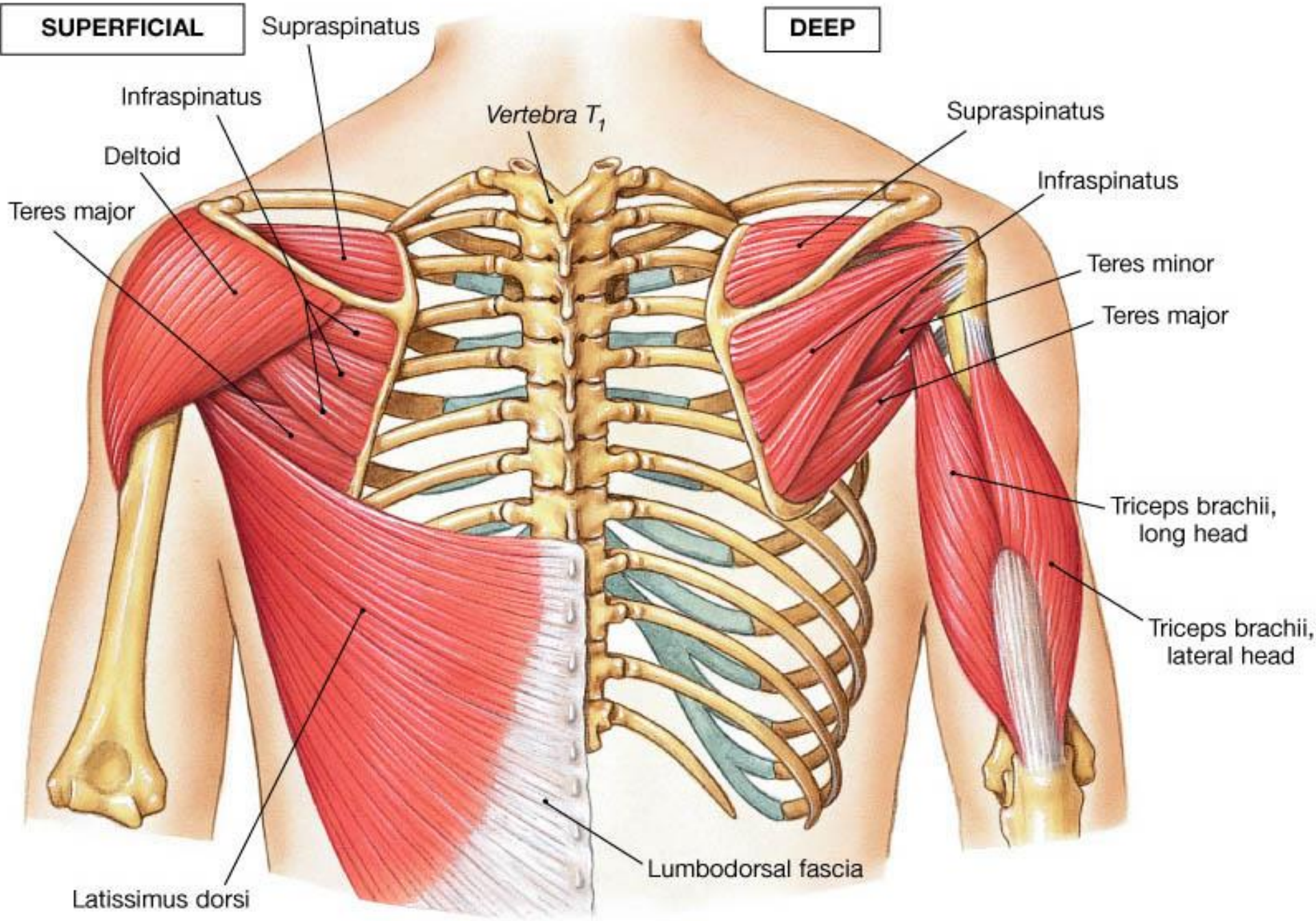
MUSCLES OF THE SHOULDER GIRDLE

The Dorsal group	The Ventral group
1.The deltoid muscle 2.The supraspinatus muscle 3.The infraspinatus muscle 4.The teres minor muscle 5. The teres major muscle	1.The subscapular muscle

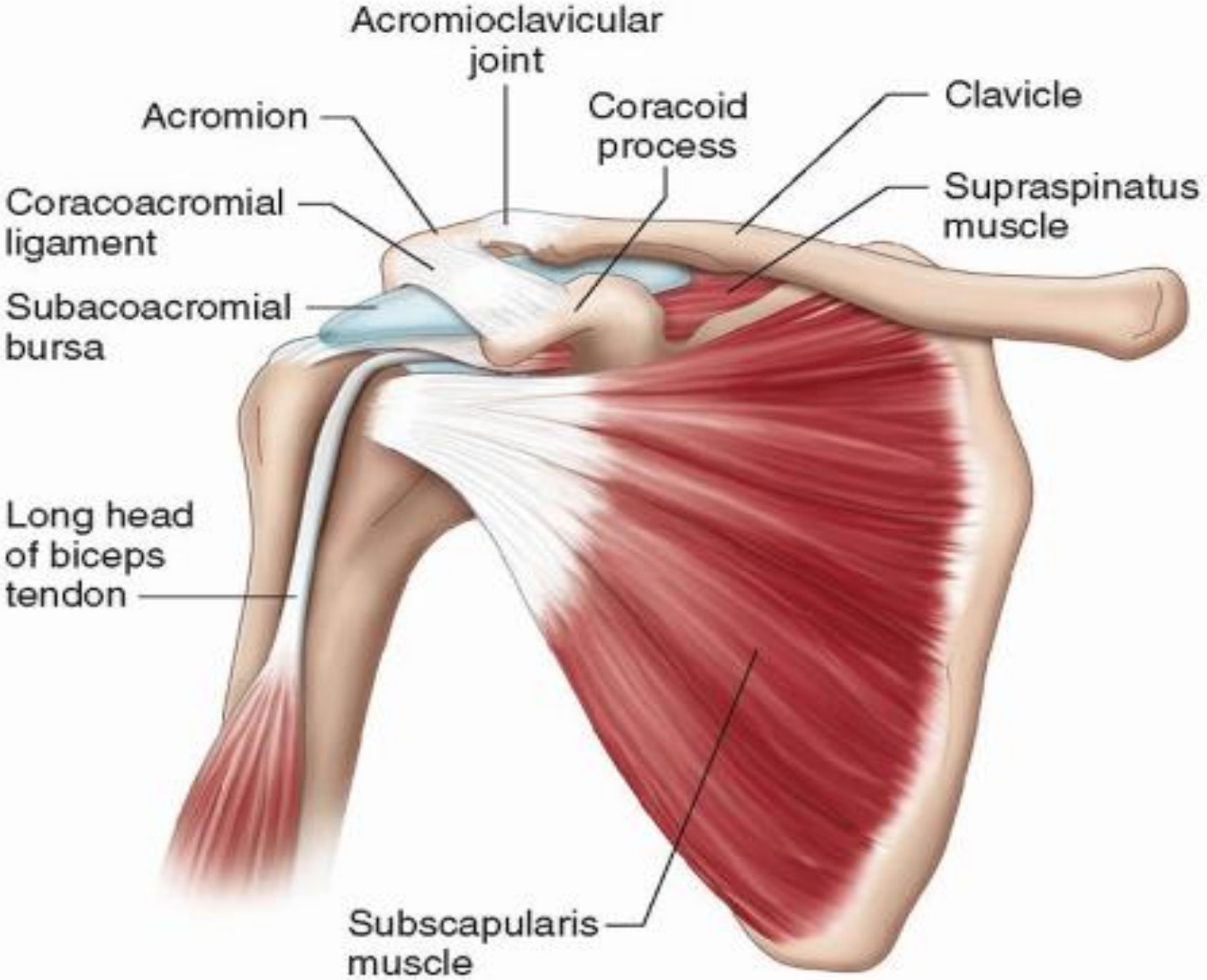
Muscles of Shoulder

Anterior View

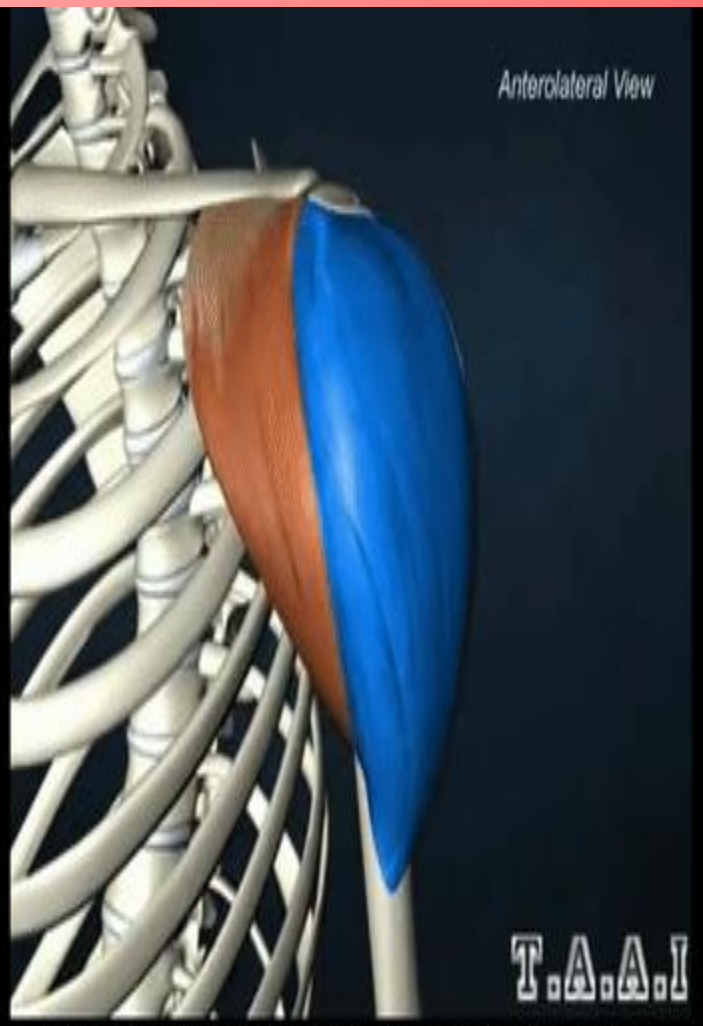




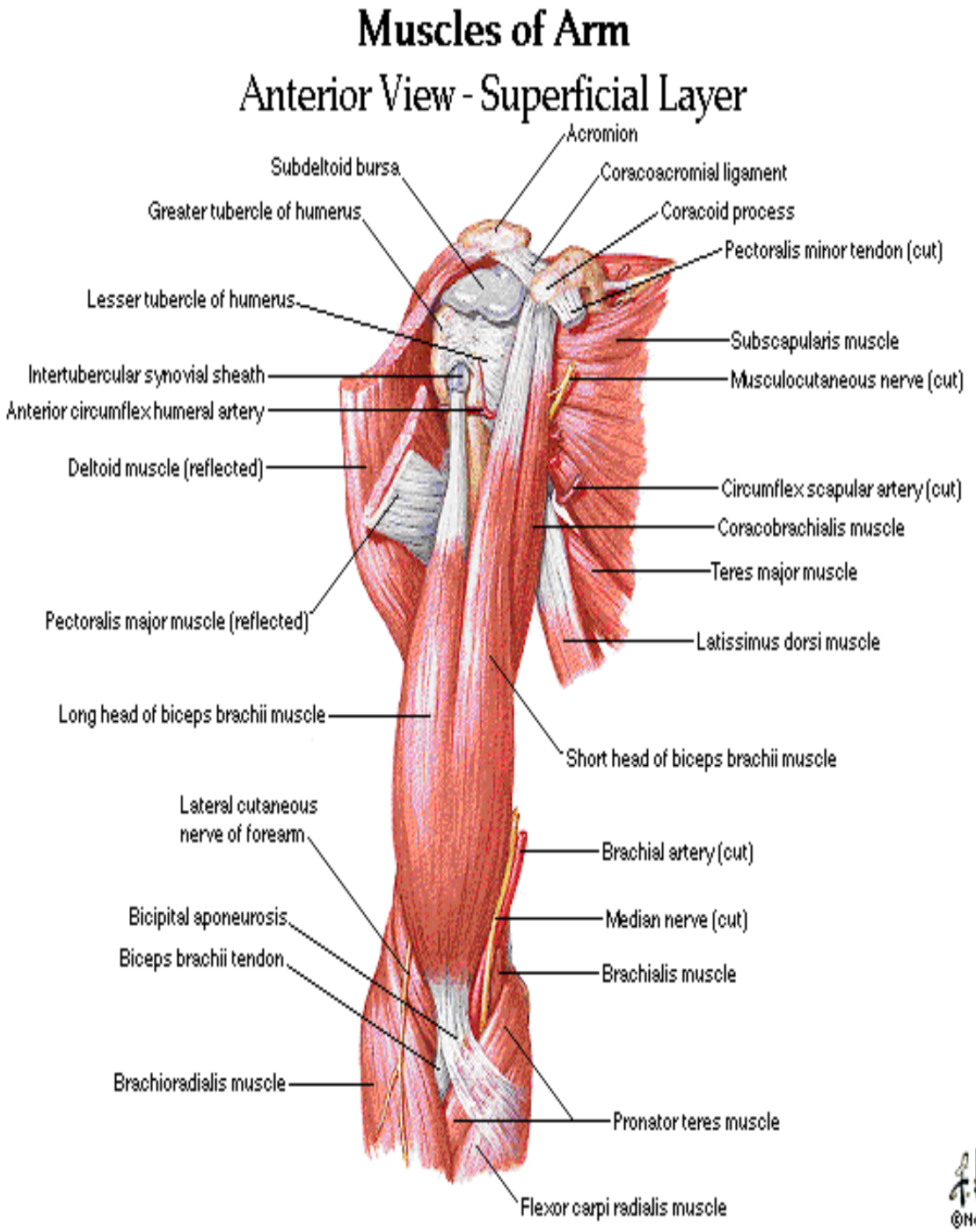
(b) Posterior view


Acromioclavicular joint
Acromion
Coracoid process
Clavicle
Coracoacromial ligament
Supraspinatus muscle
Subacoacromial bursa
Long head of biceps tendon
Subscapularis muscle

the humerus. The posterior fibers extend the arm at the shoulder



The middle fibers abduct the arm. They are innervated by the axillary

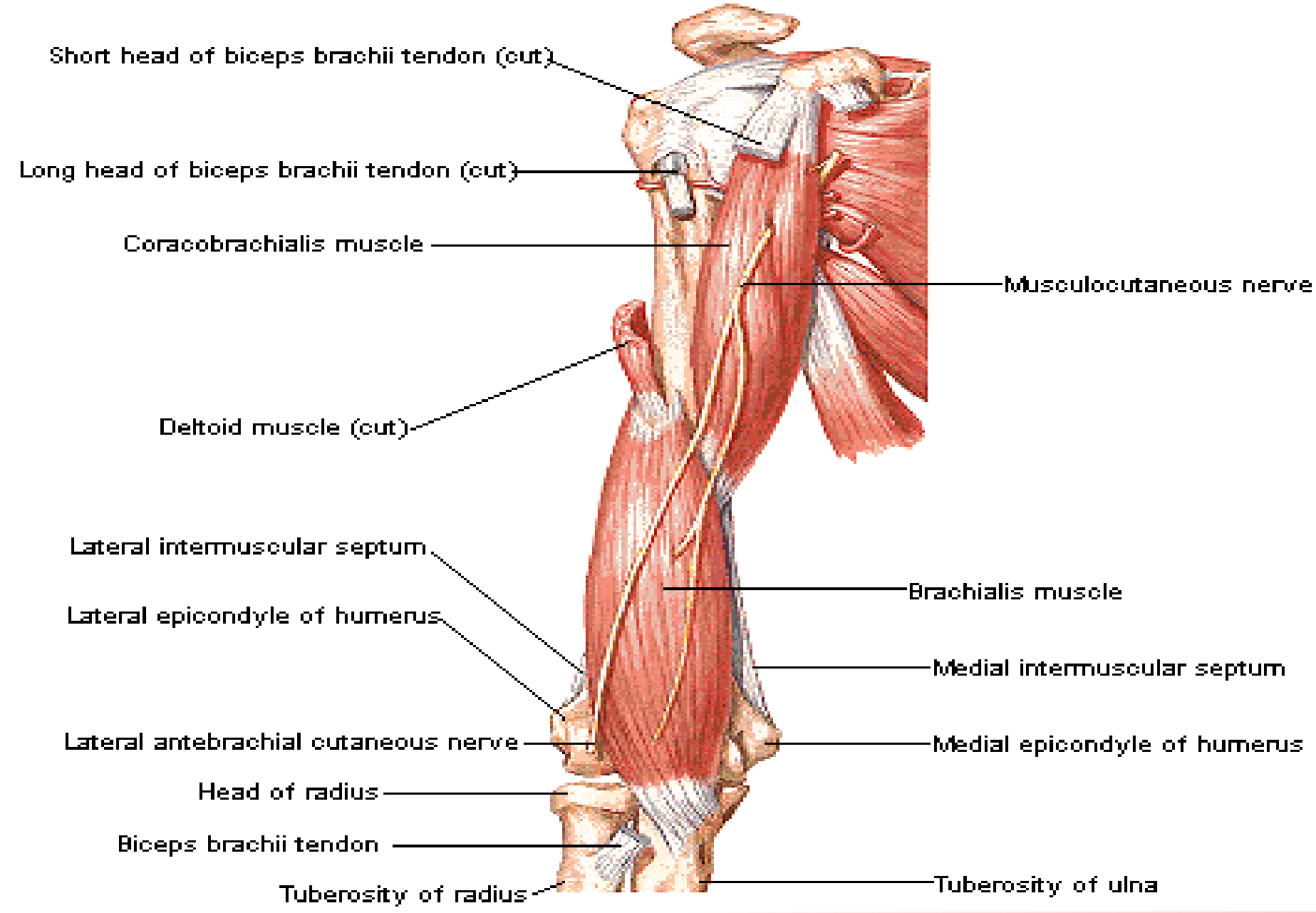


Muscles of the upper arm
Anterior muscles
(*flexors*)
1.The biceps brachii m.
2.The coracobrachial m.
3. The brachialis m.

Posterior muscles
(*extensors*)
1.The triceps brachii m.
2.Elbow's m. (m.anconeus)

Muscles of Arm

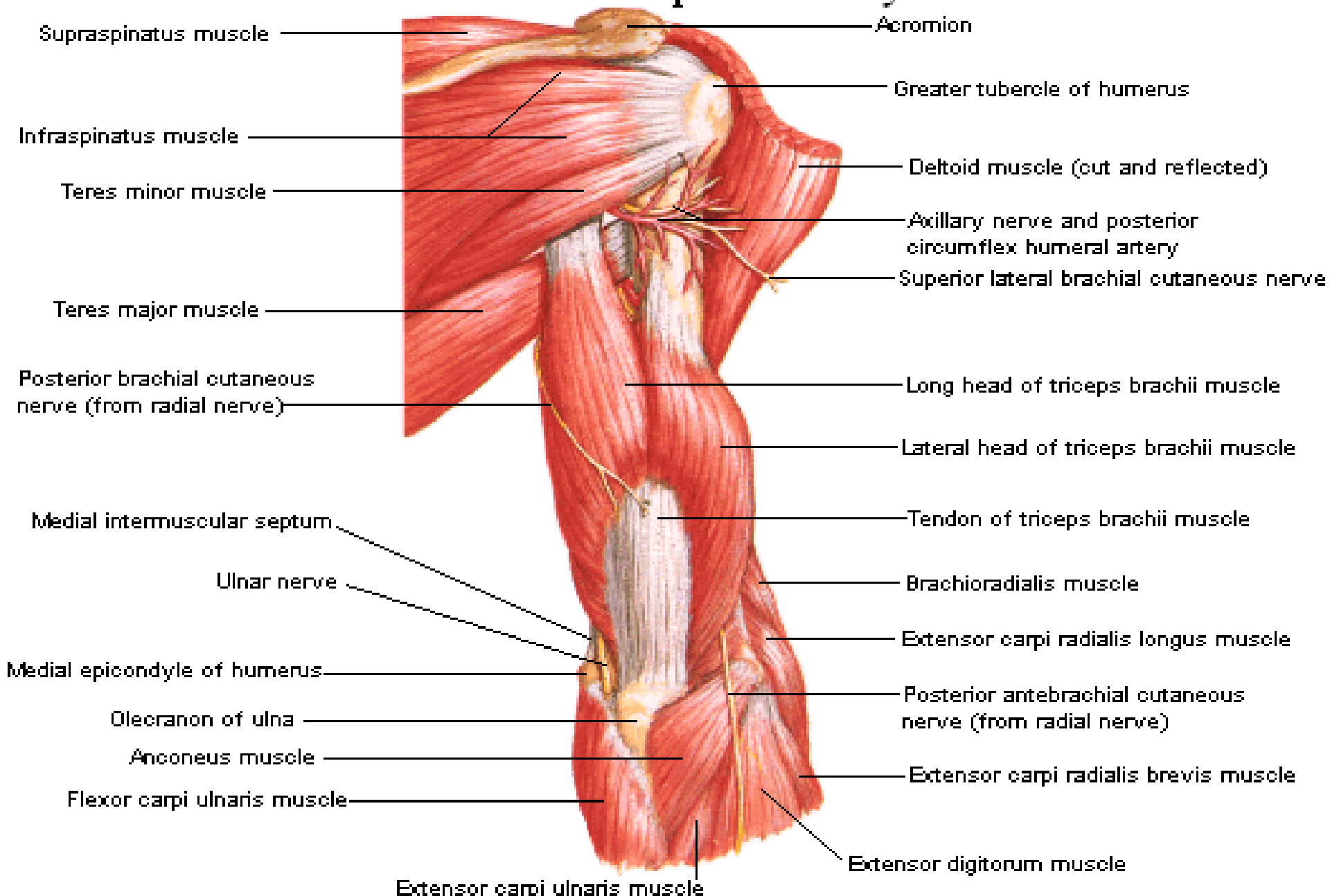
Anterior View - Deep Layer



Muscle	Origin	Insertion	Action
Anterior muscles (flexion)			
Biceps brachii	Coracoid process; tubercle above glenoid cavity	Radial tuberosity	Flexes and supinates forearm
Brachialis	Front of distal humerus	Coronoid process of ulna	Flexes the elbow
Brachioradialis	Lateral supracondylar ridge at distal end of humerus	Base of styloid process of radius	Flexes the forearm
Posterior muscles (extension)			
Triceps brachii	Infraglenoid tubercle of scapula; posterior shaft of humerus; posterior humeral shaft distal to radial groove	Olecranon process of ulna	Extends the forearm
Anconeus	Lateral epicondyle of humerus	Lateral aspect of olecranon process of ulna	Extends elbow

Muscles of Arm

Posterior View - Superficial Layer



THE TOPOGRAPHY OF THE UPPER ARM

- **RADIAL CANAL** is located behind the humerus. It is bounded by *the radial groove* of the humerus in the front and by the triceps brachii in the back. The canal has a spiral path. The radial canal begins on the medial surface of the arm between the medial and lateral heads of the triceps brachii and exits on the lateral surface of the arm between the brachialis and brachio-radialis.

  The canal gives passage to the radial nerve and a. profunda brachii.

- **MEDIAL BICIPITAL GROOVE** lies medially between the biceps brachii and brachialis; it transmits the main neurovascular bundle of the upper arm.

- **LATERAL BICIPITAL GROOVE** lies laterally between the biceps brachii and brachialis; it gives passage to the cephalic vein.

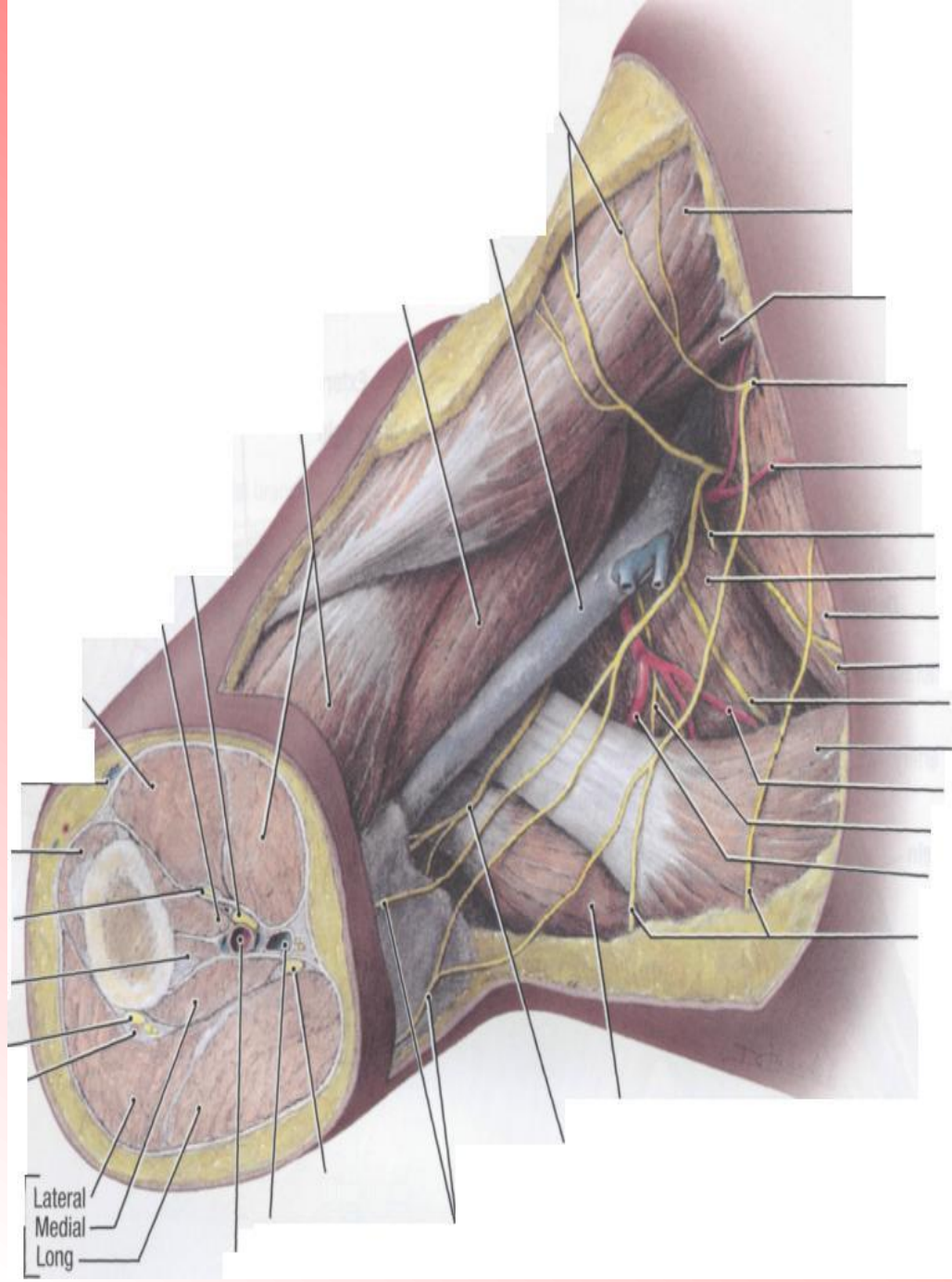
THE AXILLARY FOSSA

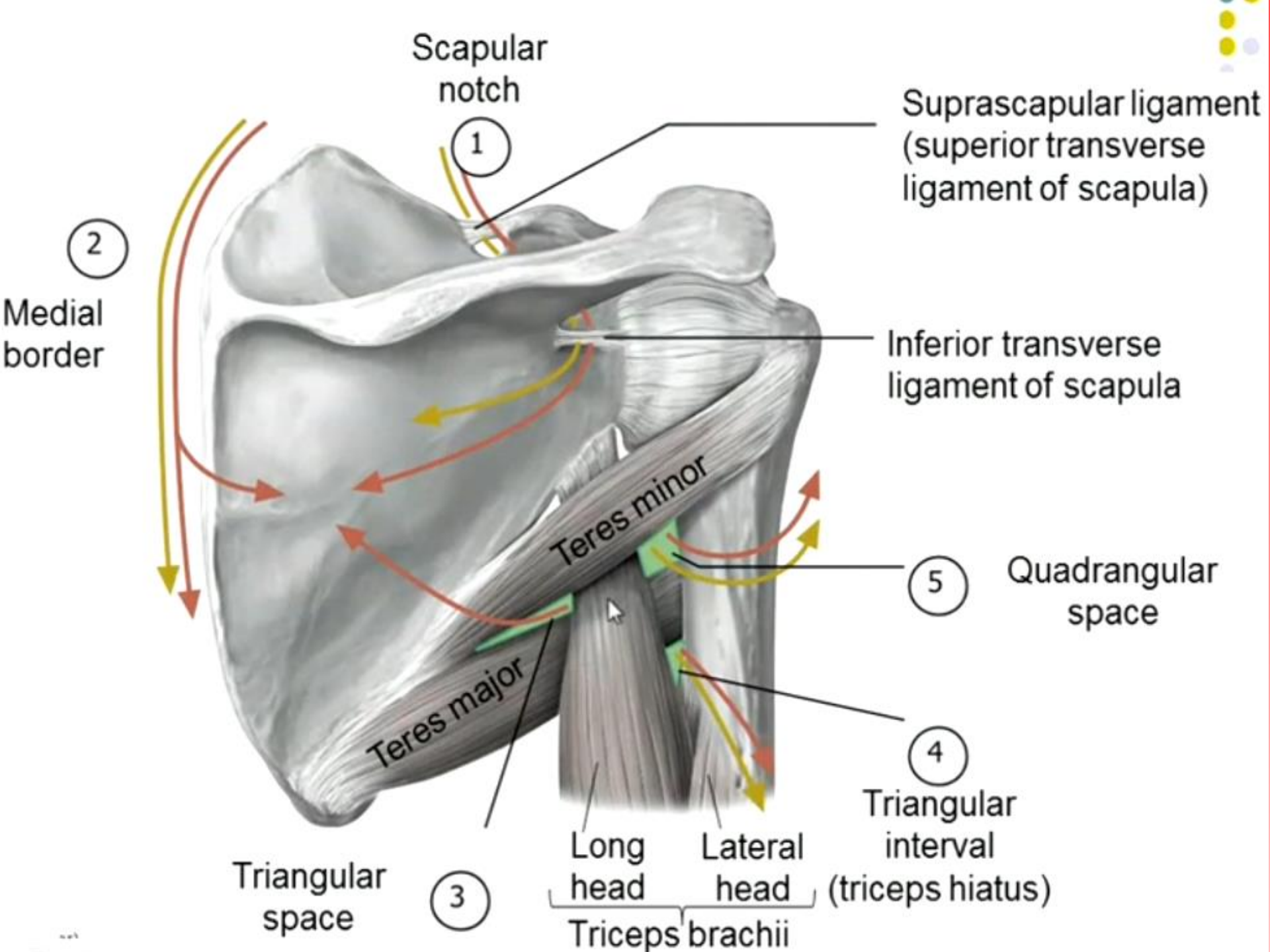
Walls. The axillary cavity has 4 walls formed by the following muscles:

- **ANTERIOR** — pectoralis major and minor;
- **POSTERIOR** — subscapularis, teres major, and latissimus dorsi;
- **MEDIAL** — serratus anterior;
- **LATERAL** — short head of the biceps brachii, coracobrachialis, and humerus.

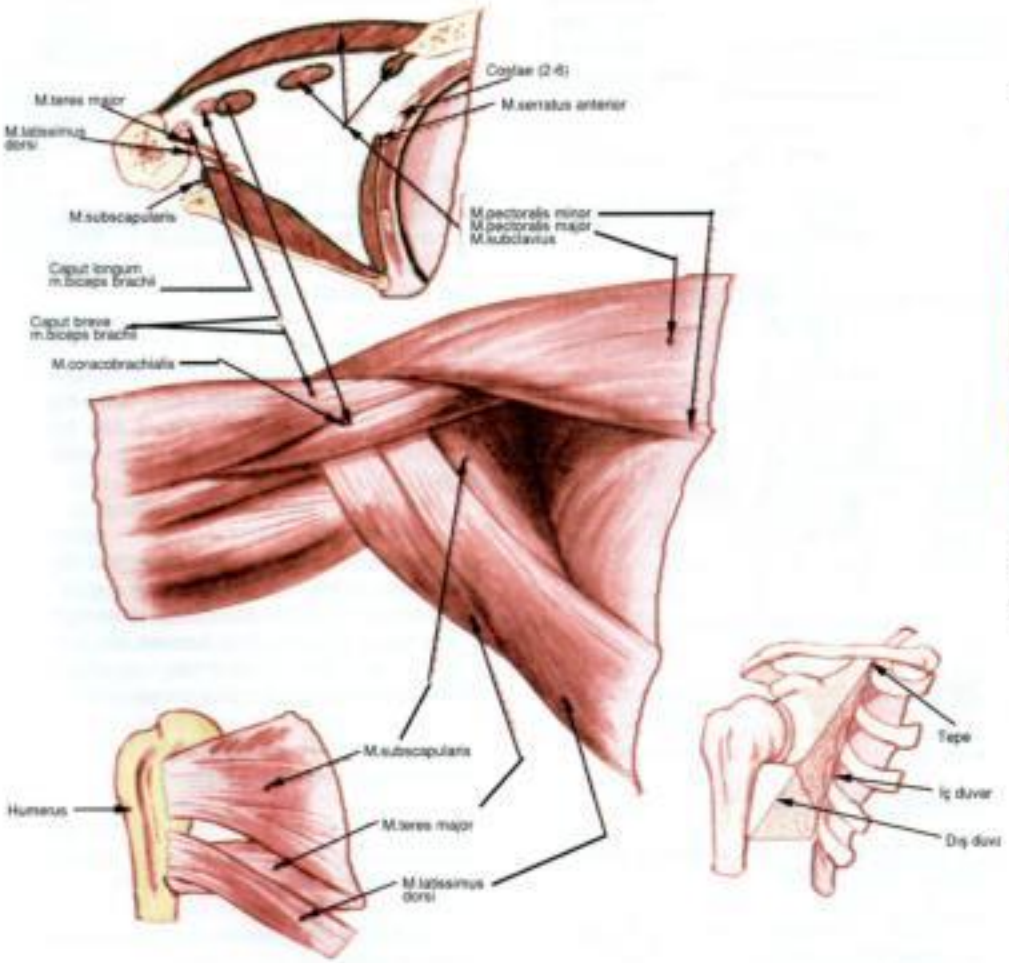
ON THE POSTERIOR WALL THERE ARE *2 OPENINGS*:

- **QUADRIANGULAR OPENING** bounded by the teres major (below), subscapularis (above), long head of the triceps brachii (medially), and humerus (laterally);
- **TRIANGULAR OPENING** bounded by the teres major (below), subscapularis (above), and long head of the triceps brachii (laterally).

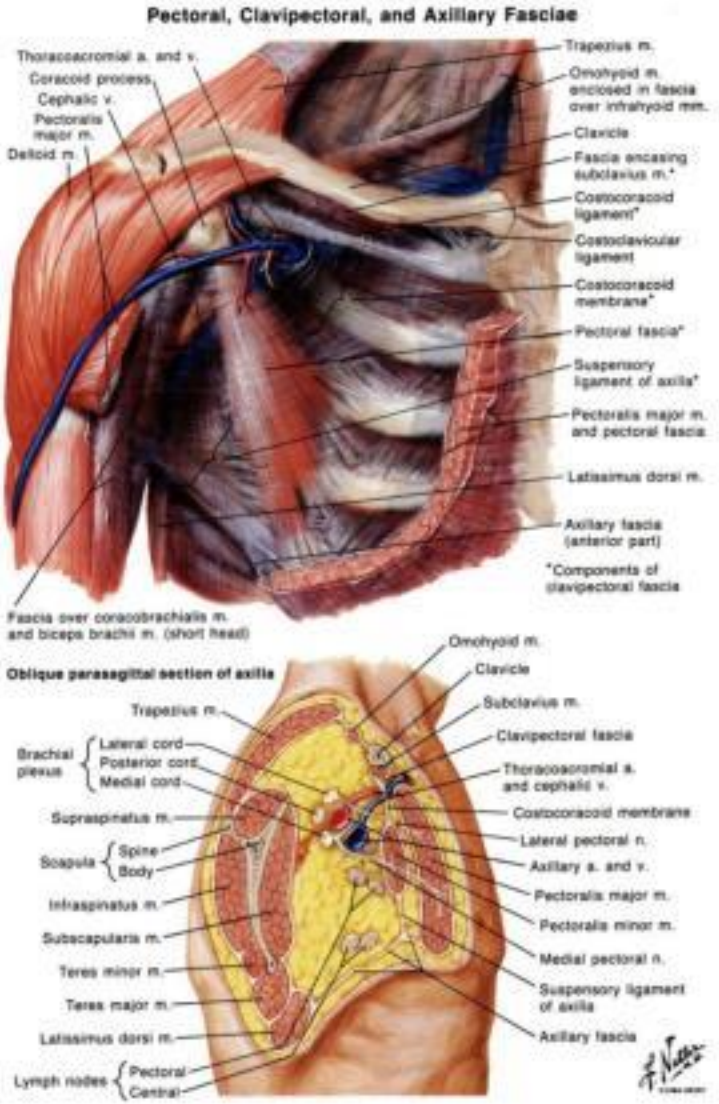



Scapular notch
1
Suprascapular ligament (superior transverse ligament of scapula)
2
Medial border
Inferior transverse ligament of scapula
Teres minor
5
Quadrangular space
Teres major
4
Triangular interval (triceps hiatus)
Long head
Lateral head
Triangular space
3
Triceps brachii

Fossa Axillaris



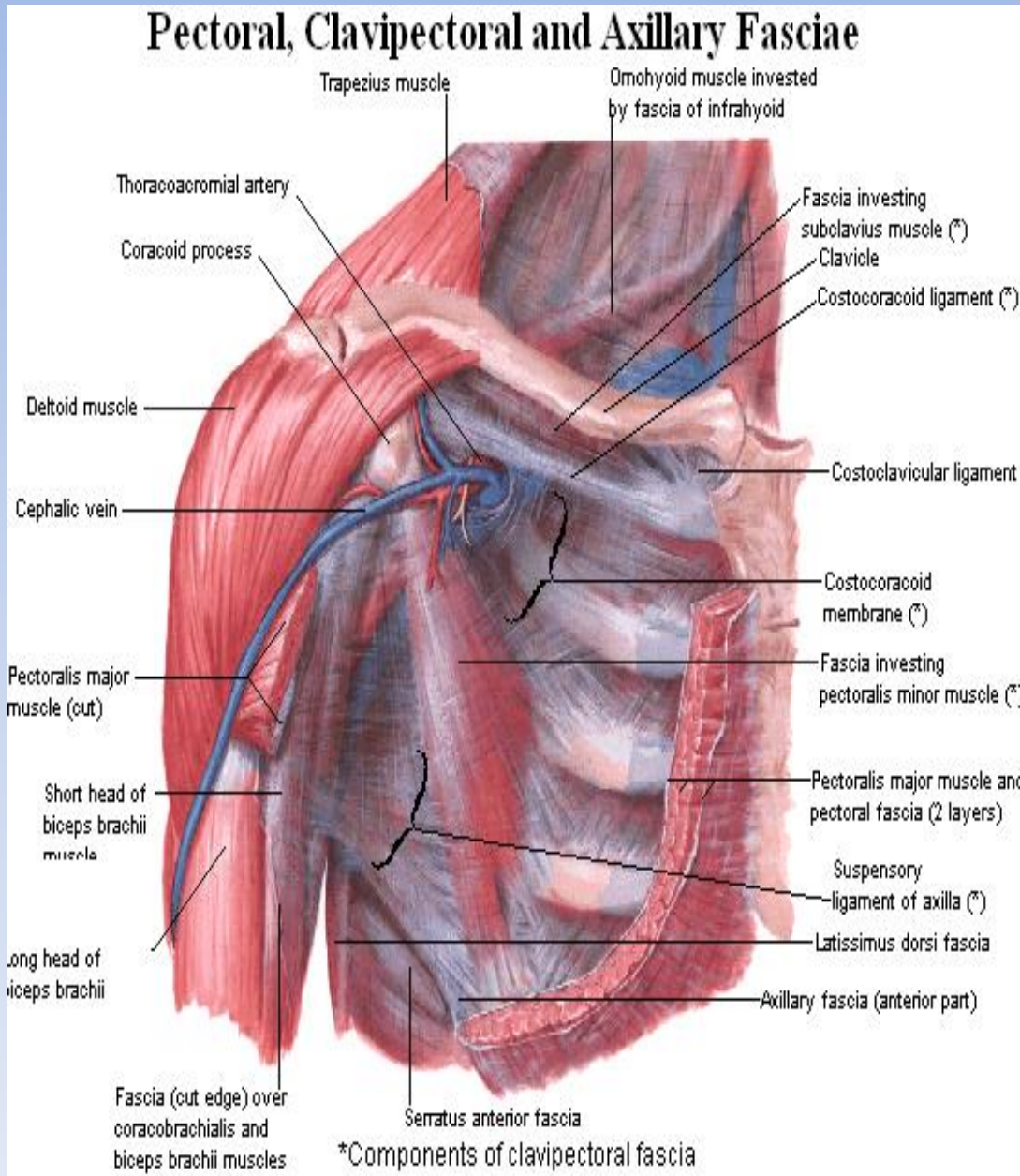
Şekil 62. Horizontal kesit ve önden fossa axillaris'in duvarları.



TRIANGLES OF THE ANTERIOR WALL OF THE AXILLARY FOSSA

For better orientation, three triangles are distinguished on the anterior wall of the axillary cavity:

- **CLAVIOPECTORAL TRIANGLE** resides between the clavicle and the upper border of the pectoralis minor;
- **PECTORAL TRIANGLE** corresponds to the projection of the pectoralis minor;
- **SUBPECTORAL TRIANGLE** located between the inferior borders of the pectoralis minor (above) and pectoralis major (below); laterally it is bounded by the deltoid. Between the pectoralis major and deltoid there is a deep deltoidopectoral groove.



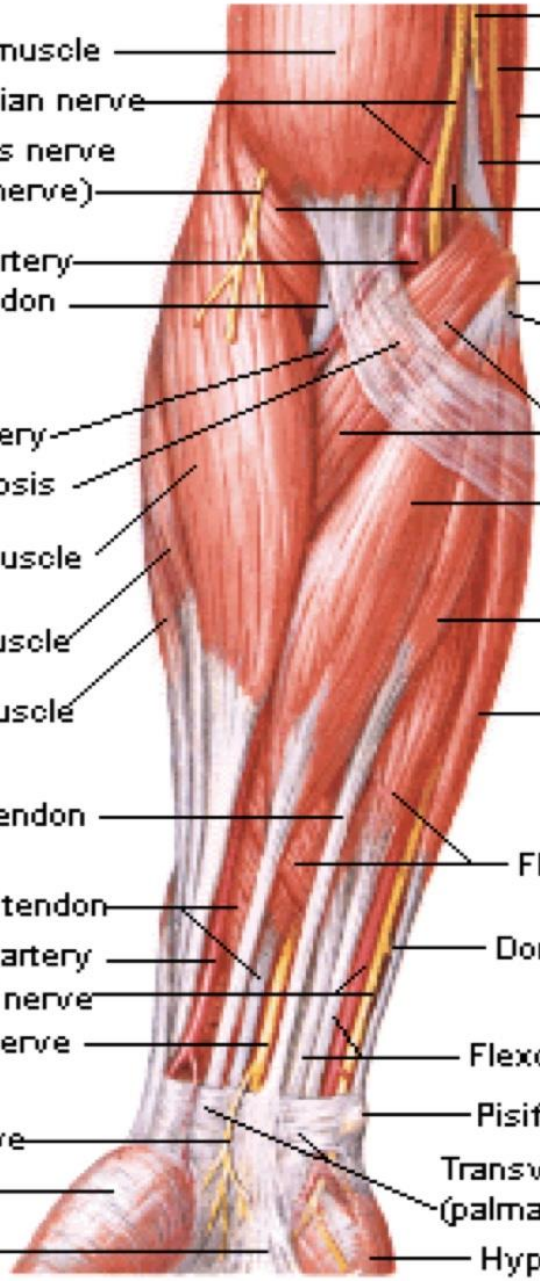
MUSCLES OF THE FOREARM

The muscles of the forearm are separated into two groups according to position and function: the anterior group is composed of flexors and pronators, the posterior group is composed of extensors and supinator. Each group consists of a superficial and deep layers.

The Anterior group, Superficial layer (*flexors*)	**The Anterior Group, Deep layer (*flexors*)**
1. The round pronator muscle 2.The radial flexor of the wrist 3.The long palmar muscle 4.The ulnar flexor of the wrist 5.The superficial flexor of the fingers	6.The long flexors of the thumb 7.The deep flexor of the fingers 8.The square pronator muscle

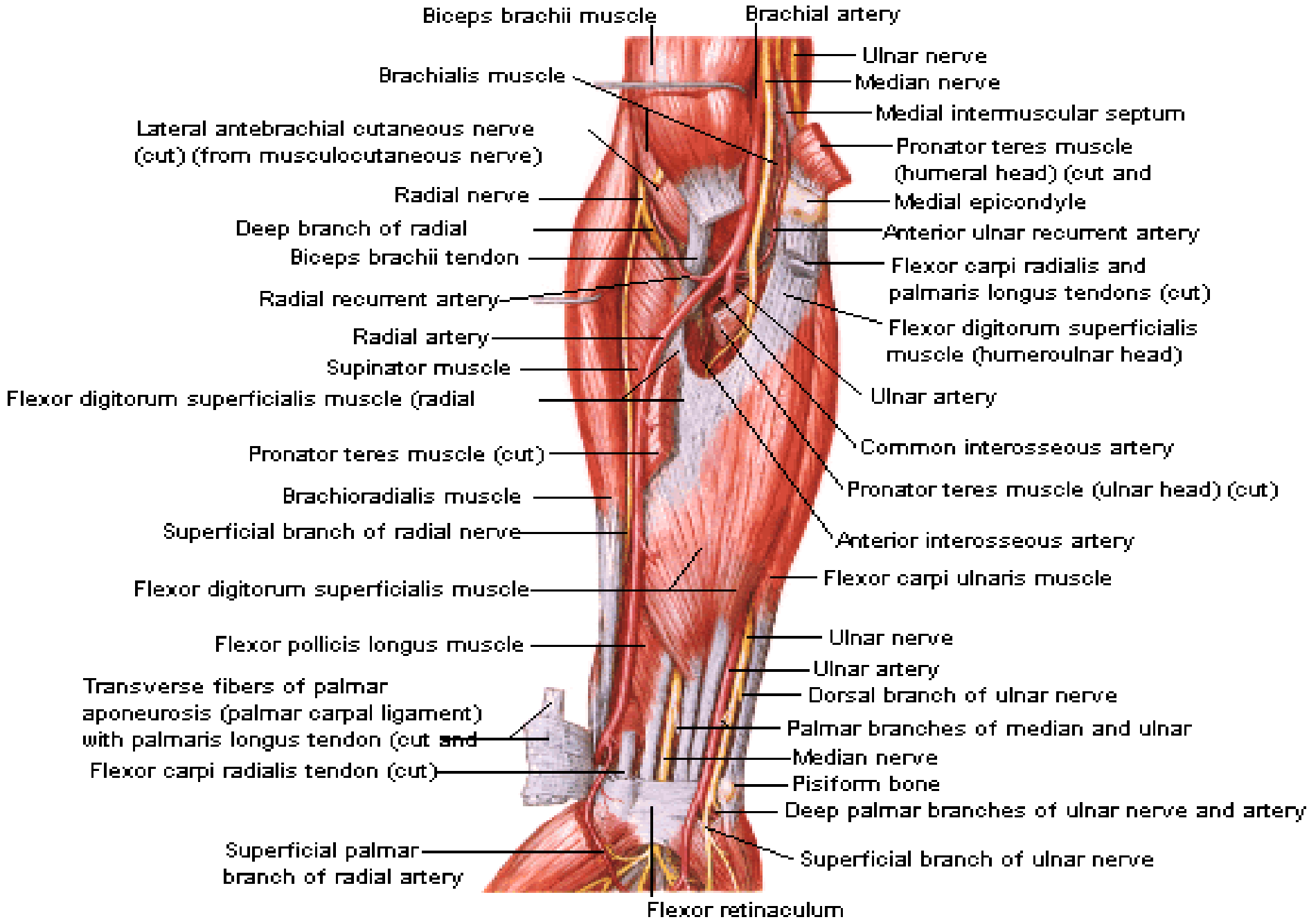
Muscles of Forearm [Superficial Layer]

Anterior View

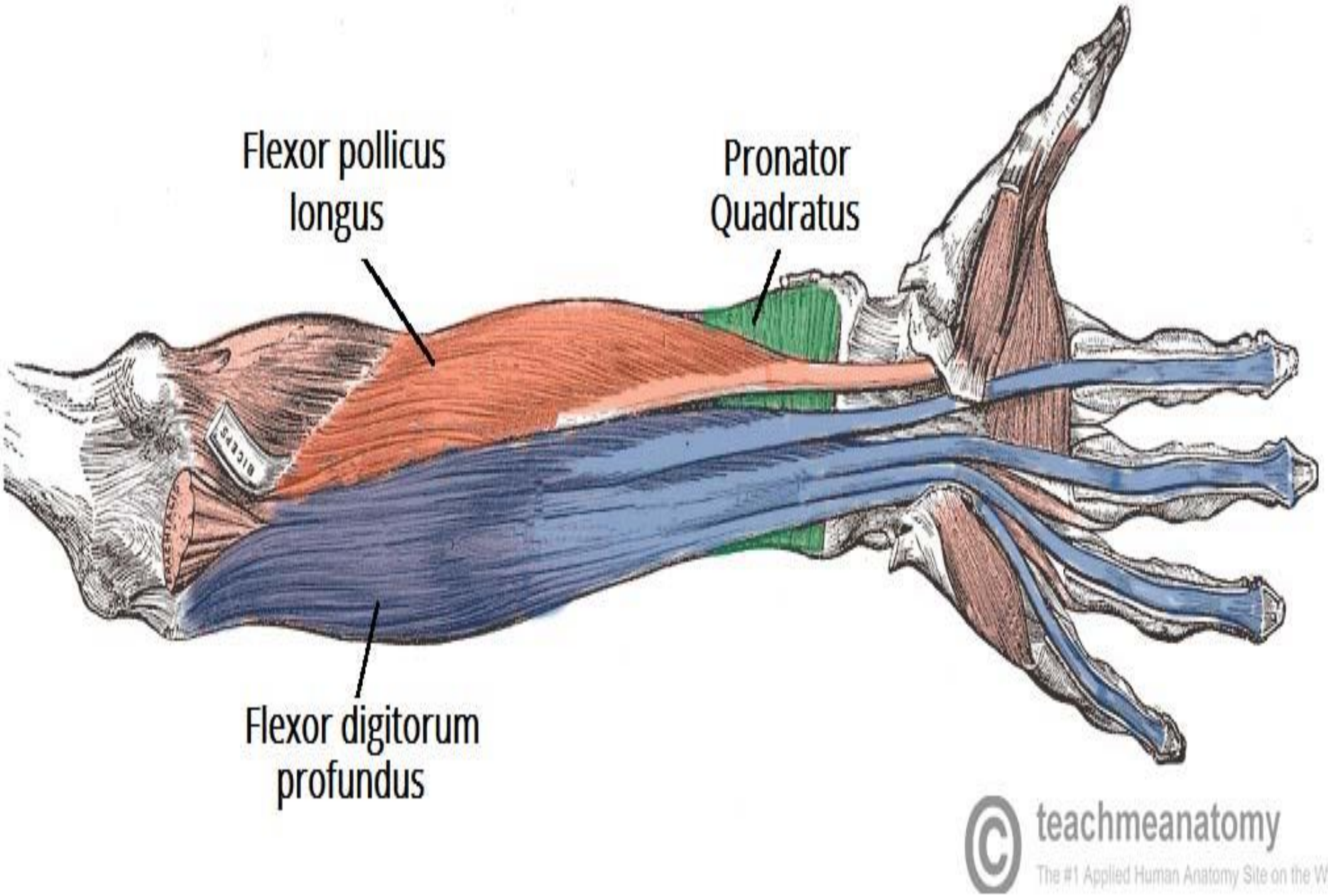


Medial antebrachial cutaneous nerve
Biceps brachii muscle
Ulnar nerve
Brachial artery and median nerve
Triceps brachii muscle
Lateral antebrachial cutaneous nerve (terminal musculocutaneous nerve)
Medial intermuscular septum
Brachialis muscle
Ulnar artery
Medial epicondyle of humerus
Biceps brachii tendon
Common flexor tendon
Radial artery
Pronator teres muscle (a superficial flexor)
Bicipital aponeurosis
Flexor carpi radialis muscle (a superficial flexor)
Brachioradialis muscle
Palmaris longus muscle (a superficial flexor)
Extensor carpi radialis longus muscle
Extensor carpi radialis brevis muscle
Flexor carpi ulnaris muscle (a superficial flexor)
Palmaris longus tendon
Flexor digitorum superficialis muscle (a superficial
Flexor pollicis longus muscle and tendon
Radial artery
Dorsal branch of ulnar nerve
Ulnar artery and nerve
Median nerve
Flexor digitorum superficialis tendons
Pisiform bone
Palmar branch of median nerve
Transverse fibers of palmar aponeurosis (palmar carpal ligament)
Thenar muscles
Palmar aponeurosis
Hypothenar muscles

Muscles of Forearm [Intermediate Layer]



DEEP LAYER OF FOREARM MUSCLES



The Posterior group

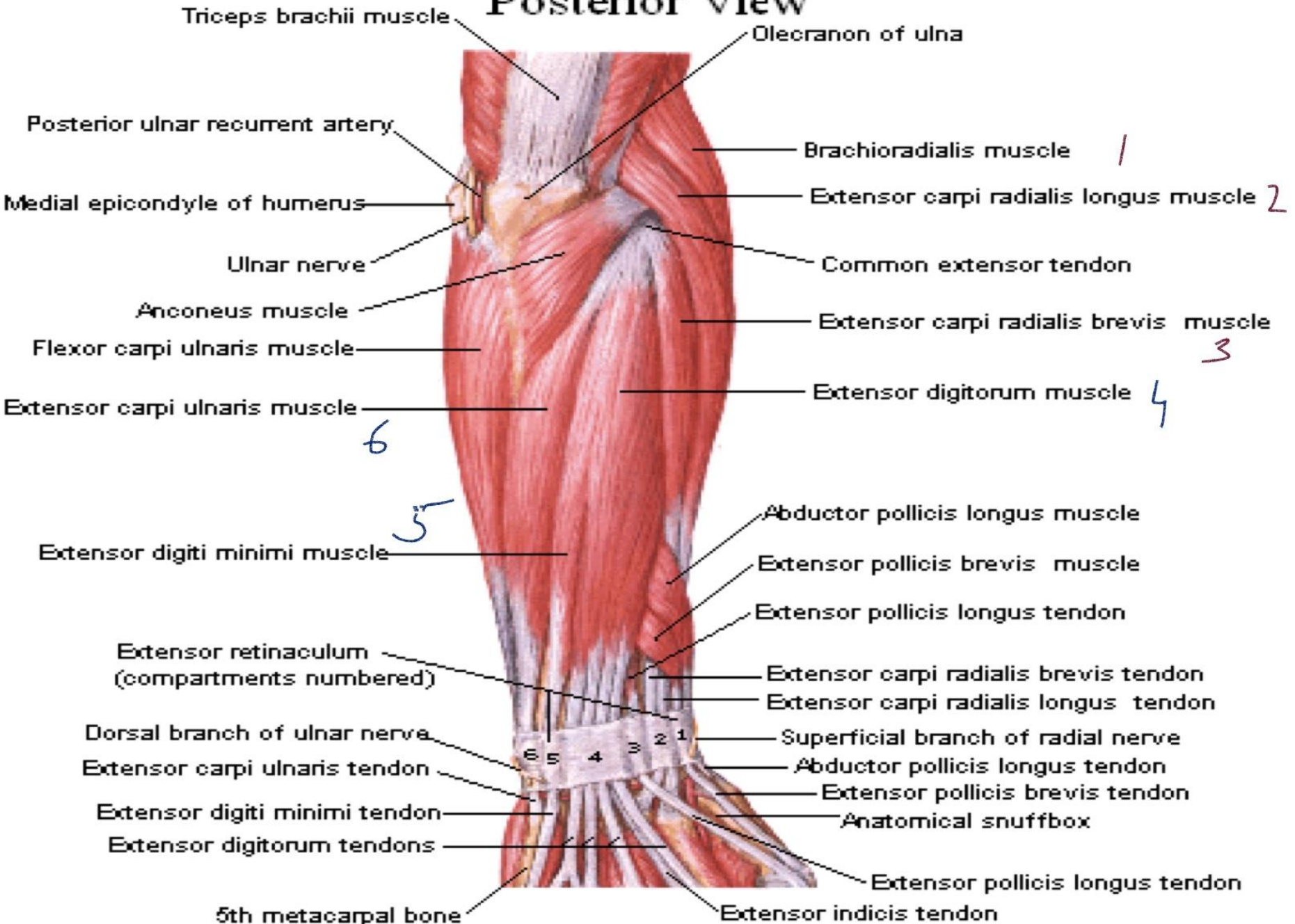
The muscles of the posterior group of the forearm are divided into two subgroups: radial and ulnar. The first occupies the anterolateral surface of the forearm, while the second occupies the posterior surface and is formed by the superficial and deep layers.

The Posterior Radial Group	The Posterior Ulnar group
1.The brachioradial muscle	**Superficial layer**
2.The long radial extensor of the wrist	4.The common extensor of the fingers
3.The short radial extensor of the wrist	5.The extensor of the little finger
	6.The ulnar extensor of the wrist
	Deep layer
	7. The supinator muscle
	8. The long abductor of the thumb
	9. The short extensor of the thumb
	10. The long extensor of the thumb
	11. The extensor of the index

MUSCLE	PROXIMAL ATTACHMENT	DISTAL ATTACHMENT	FUNCTION
Brachioradialis	Upper two thirds of the lateral supracondylar ridge and lateral intermuscular septum of the humerus	Base of the styloid process of the radius (forms the lateral margin of the cubital fossa)	Flexion of the elbow (optimal action in the midprone position)
Extensor carpi radialis longus	Lower third of the supracondylar ridge of the humerus	Base of the second metacarpal	Extension and abduction of the wrist
Extensor carpi radialis brevis	Common extensor origin on the lateral epicondyle of the humerus	Base of the third metacarpal	Extension and abduction of the wrist
Extensor digitorum	Common extensor origin on the lateral epicondyle of the humerus	Via the dorsal digital expansion to the posterior surfaces of phalanges of the fingers	Extension of finger and wrist joints
Extensor digiti minimi	Common extensor origin on the lateral epicondyle of the humerus	Dorsal digital expansion of the little finger	Extension of the little finger
Extensor carpi ulnaris	Common extensor origin on the lateral epicondyle of the humerus	Base of the fifth metacarpal	Extension and adduction of the wrist

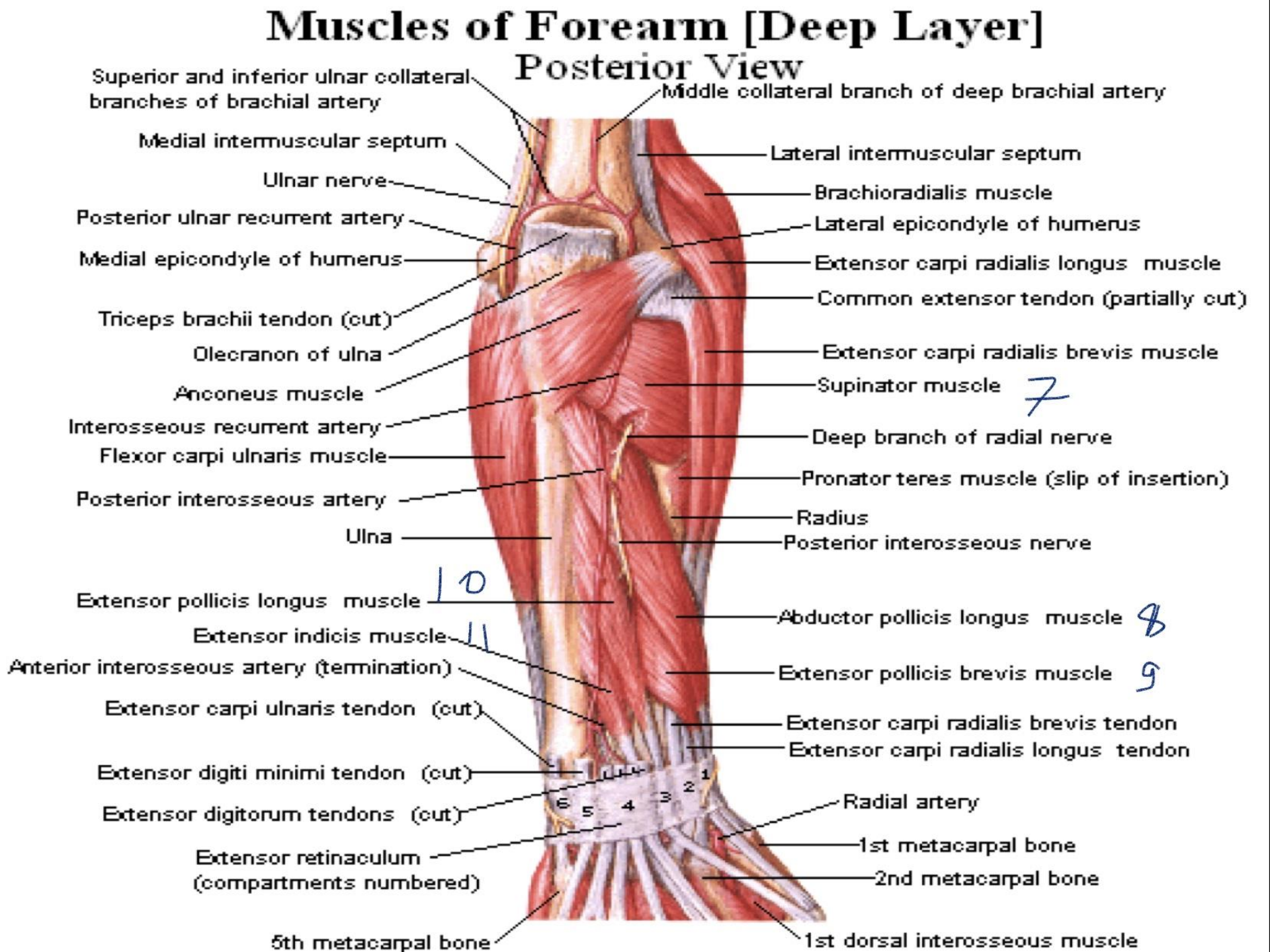
Muscles of Forearm [Superficial Layer]

Posterior View



Muscles of Forearm [Deep Layer]

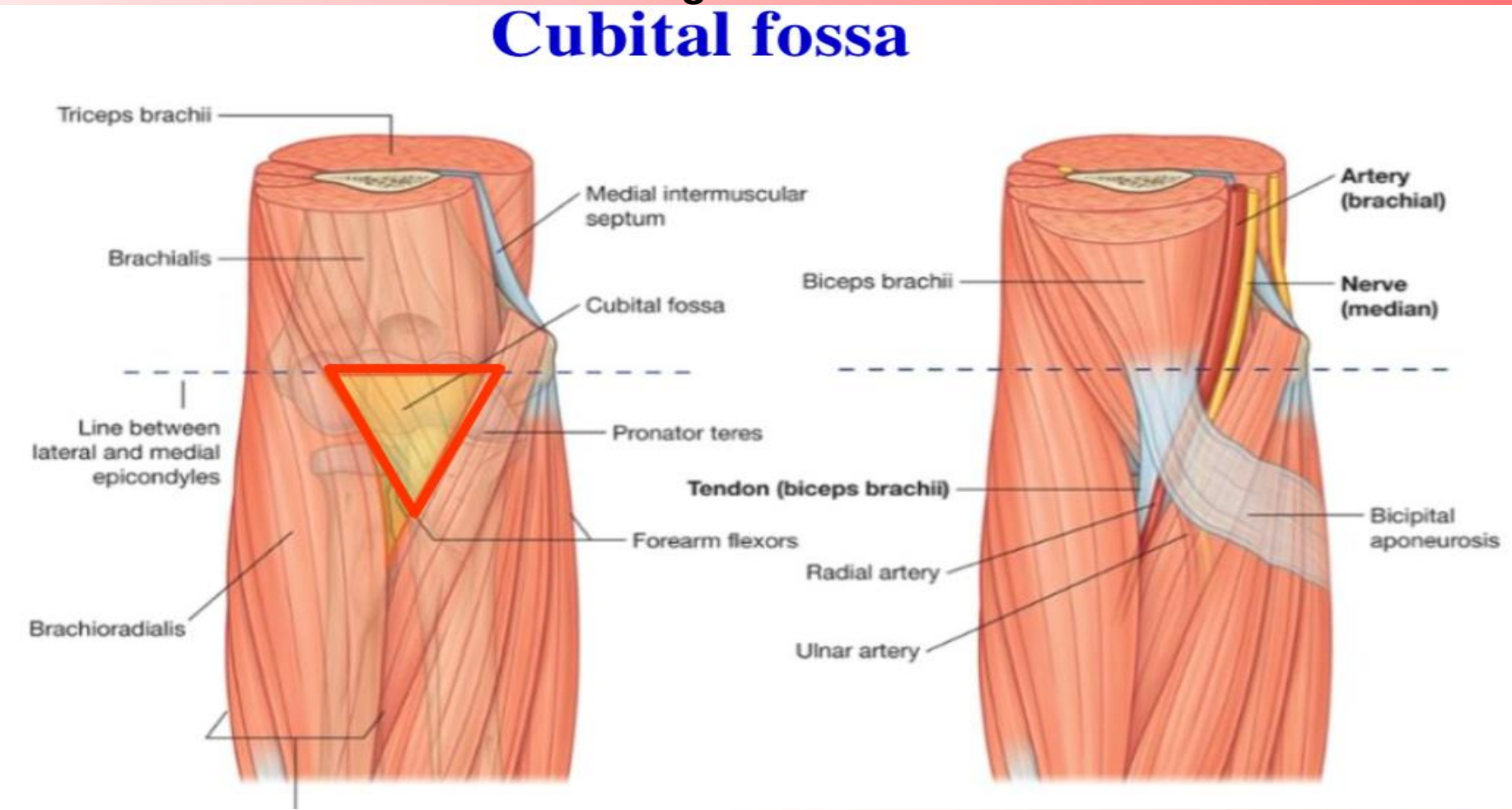
Posterior View



THE TOPOGRAPHY OF THE FOREARM

The cubital fossa is bounded by the brachialis above; below it is bounded by the brachioradialis (laterally) and pronator teres (medially).

Within the borders of the cubital fossa there are two grooves located on each side from the brachialis — **medial cubital groove** and **lateral cubital groove.**



The topography of the forearm

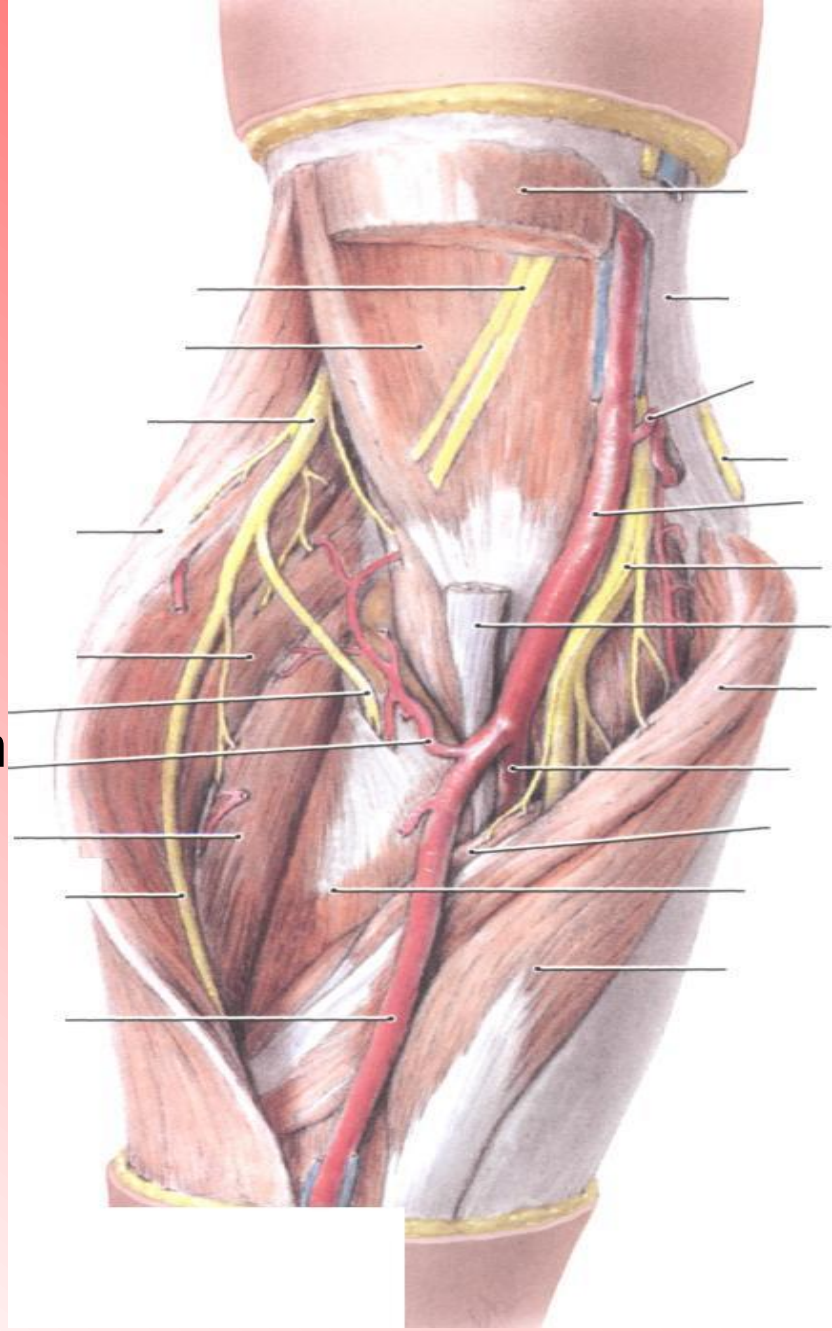
- **The ulnar groove** of the forearm lies between the flexor carpi ulnaris and flexor digitorum superficialis.

  It transmits the ulnar nerve, artery, and vein.

- **The median groove** of the forearm resides in the lower part of the forearm between the flexor carpi radialis and flexor digitorum superficialis.

  It contains the median nerve.

- **The radial groove** runs between the flexor carpi radialis and brachioradialis It transmits the radial artery, vein, and nerve.



MUSCLES OF THE LOWER LIMB

THE MUSCLES OF THE LOWER LIMB

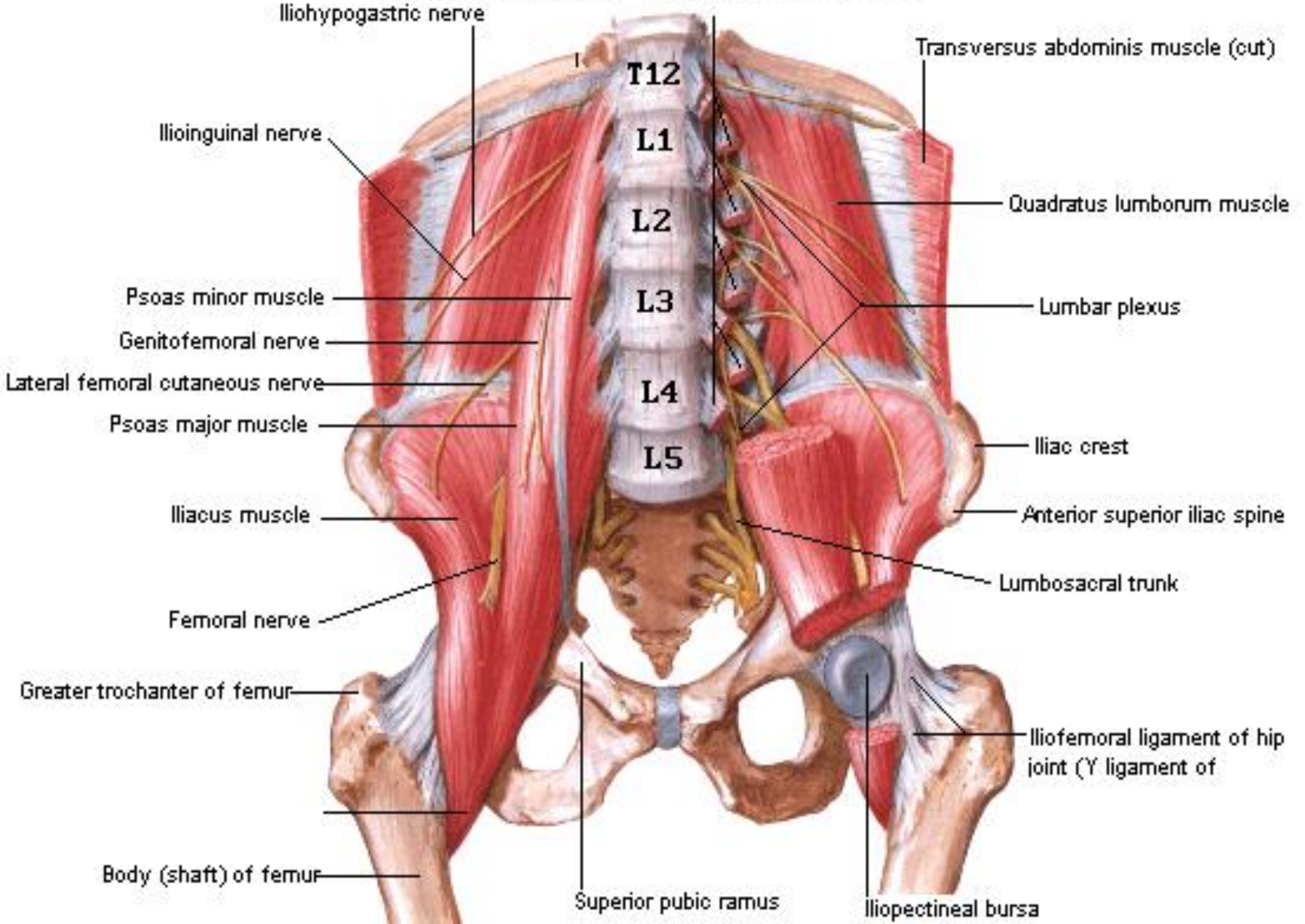
All other muscles of the lower limb are autochthonous. They are grouped into the muscles of the pelvic girdle, thigh, leg, and foot.

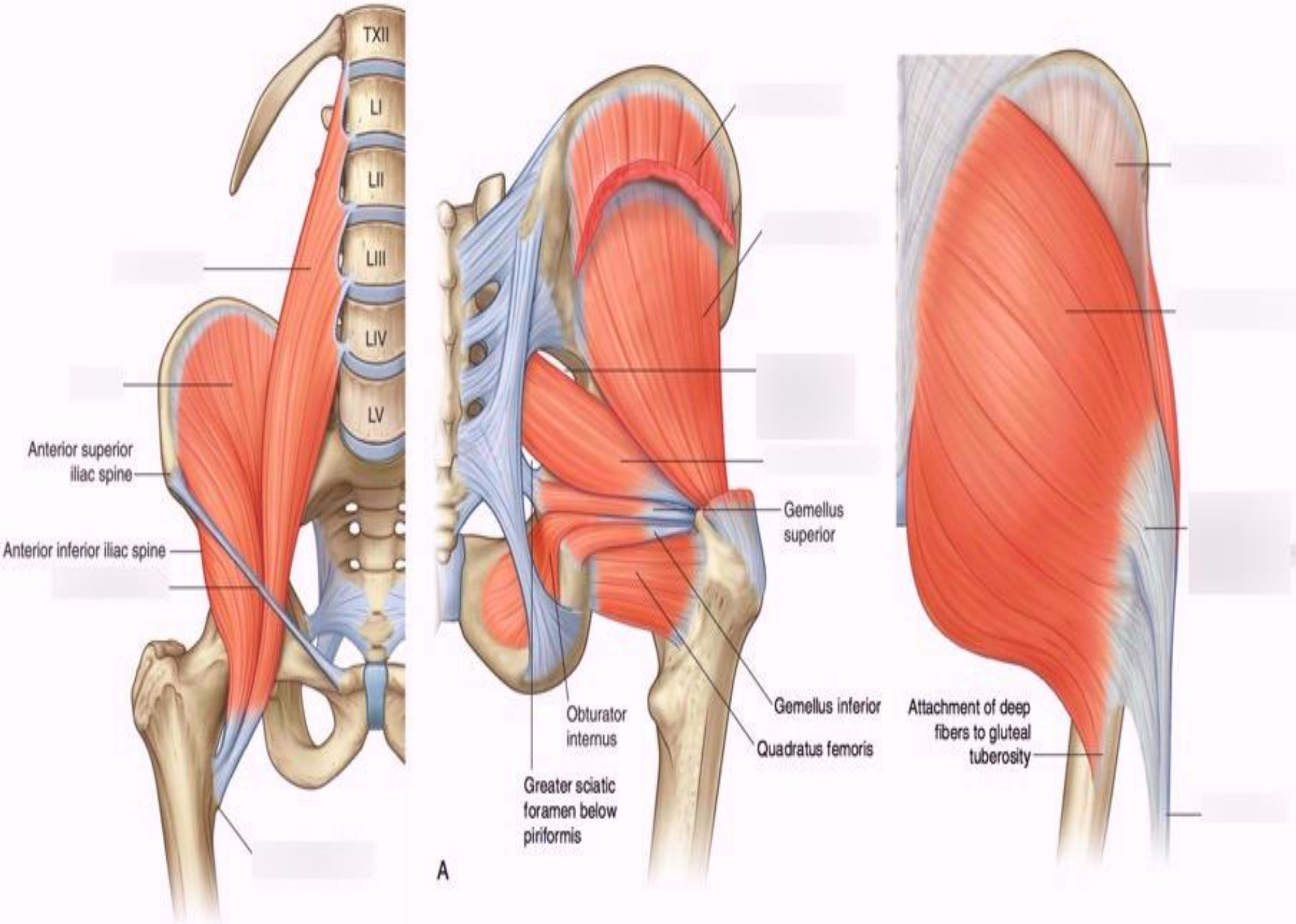
MUSCLES OF THE PELVIC GIRDLE

The muscules of the pelvic girdle are divided into anterior group (flexors) and posterior group (extensors, rotators and abductors), which pass from the pelvic girdle to the femur and allow movements at the hip joint.

The Anterior Group	The Posterior group
1.The iliopsoas muscle **1) The greater psoas muscle** **2) The iliacus muscle** **2.The lesser psoas muscle**	**1.The gluteus maximus muscle** **2.The gluteus medius muscle** **3. The gluteus minimus muscle** **4.The tensor fascial latae muscle** **5.The piriformis muscle** **6.The obturator internus muscle** **7-8.The gemellus superior** and **inferior muscles** **9.The quadratus femoris muscle** **10.The obturator externus muscle**

Psoas and Iliacus Muscles




TXII
LI
LII
LIII
LIV
LV
Anterior superior iliac spine
Anterior inferior iliac spine
Gemellus superior
Gemellus inferior
Quadratus femoris
Obturator internus
Greater sciatic foramen below piriformis
Attachment of deep fibers to gluteal tuberosity
A

THE TOPOGRAPHY OF THE LOWER LIMB

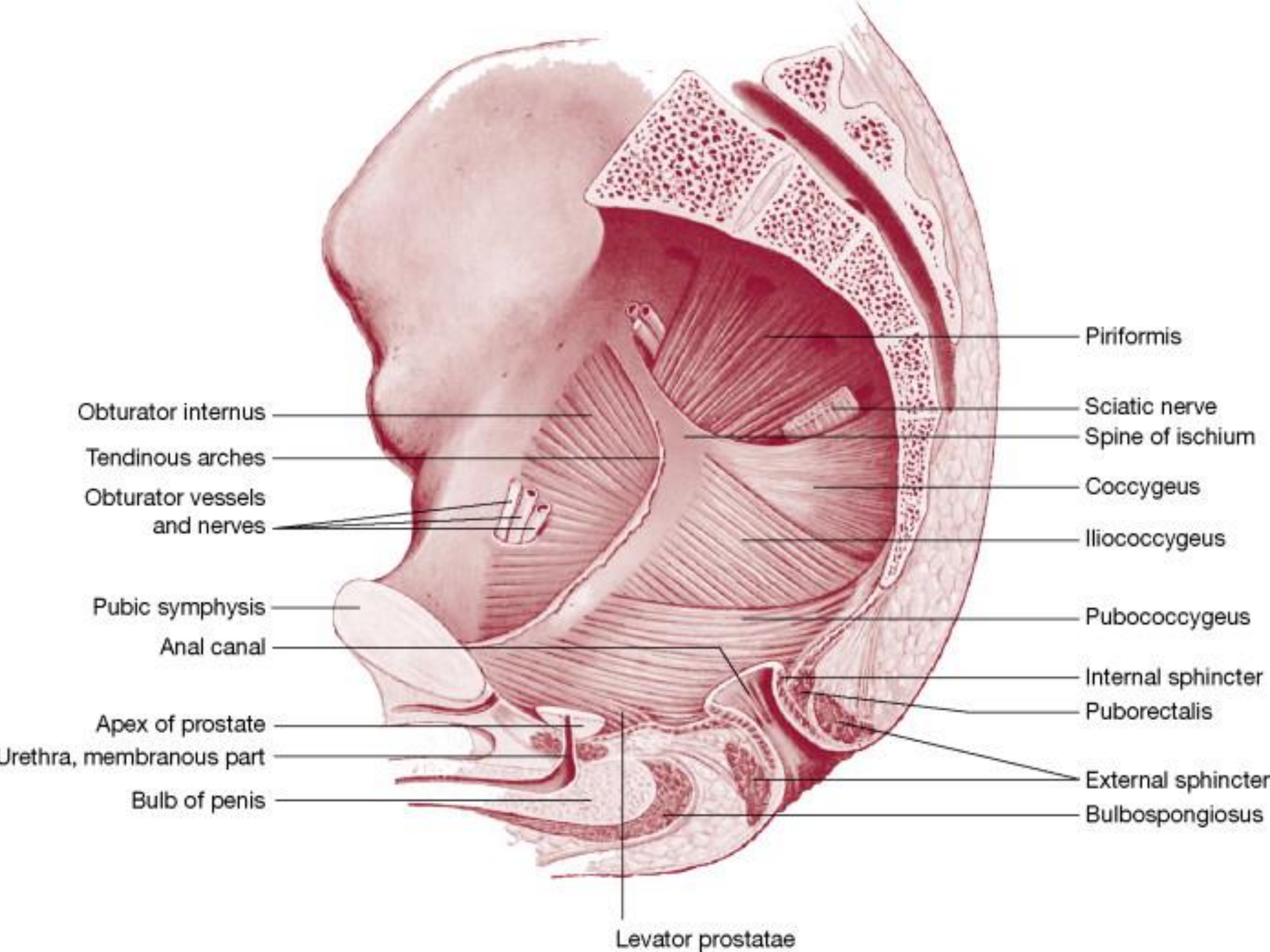
On the lower limb there are several topographo-anatomical structures, which have a clinical significance.

THE REGION OF THE PELVIC GIRDLE

- **The suprapiriform foramen** resides in the region of the ischium within the greater sciatic foramen above the piriformis. It gives passage to the superior sciatic vessels and nerve.
- **The infrapiriform foramen** is located below the piriformis in the same area. This foramen transmits the inferior sciatic vessels and nerves.
- **The obturator canal** is bounded by the obturator groove of the pubis, obturator membrane, and by the obturator internus.

  The canal transmits the obturator vessels and nerve.

- **Clinical applications.** The supra- and infra- piriform foramina as well as the obturator canal may serve as the exit location for the hernias (sciatic and obturator hernias). The purulent masses from the pelvis may spread through these openings into the gluteal region.


Piriformis
Sciatic nerve
Spine of ischium
Coccygeus
Iliococcygeus
Pubococcygeus
Internal sphincter
Puborectalis
External sphincter
Bulbospongiosus
Obturator internus
Tendinous arches
Obturator vessels and nerves
Pubic symphysis
Anal canal
Apex of prostate
Urethra, membranous part
Bulb of penis
Levator prostatae

MUSCLES OF THE THIGH

The muscles of the thigh are divided into three groups: anterior (extensors of the leg and flexors of the thigh), posterior (flexors of the leg and extensors of the thigh) and medial (adductors). The last group acts only on the hip joint, where as the first two groups act on the knee joint also.

I. The Anterior Group

(*extensors of the leg and flexors of thigh*)

1. **The quadriceps femoris muscle :**

-The rectus femoris muscle

- The vastus lateralis muscle

- The vastus medialis muscle

- The vastus intermedius muscle

2. **The sartorius or tailor's muscle**

3. **The articular muscle of the knee**

II. The Posterior Group

(*flexors of the leg and extensors of thigh*)

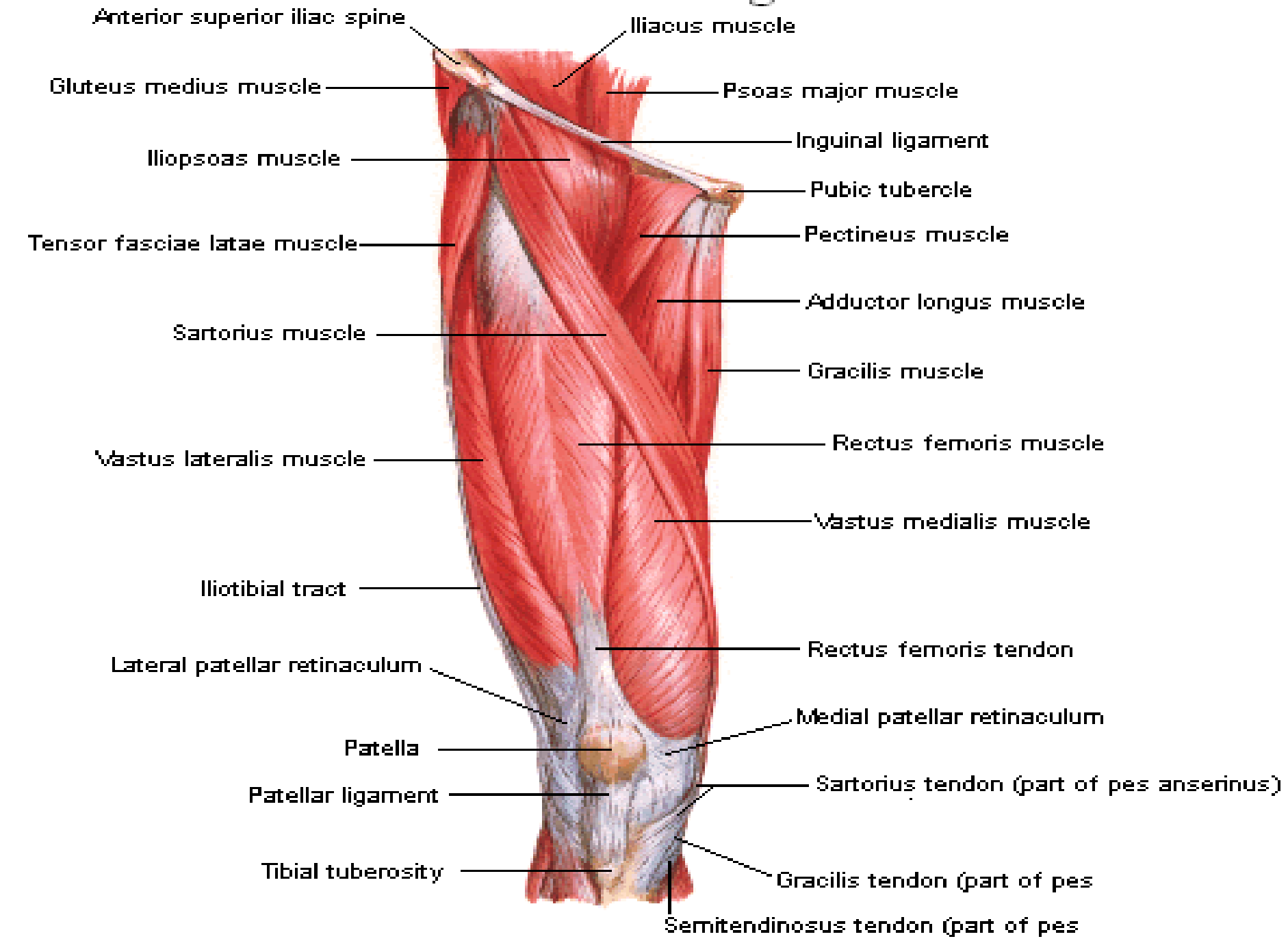
1. **The semitendinosus muscle**
2. **The semimembranosus muscle**
3. **The biceps femoris muscle**
4. **The popliteus muscle**

III. The medial group

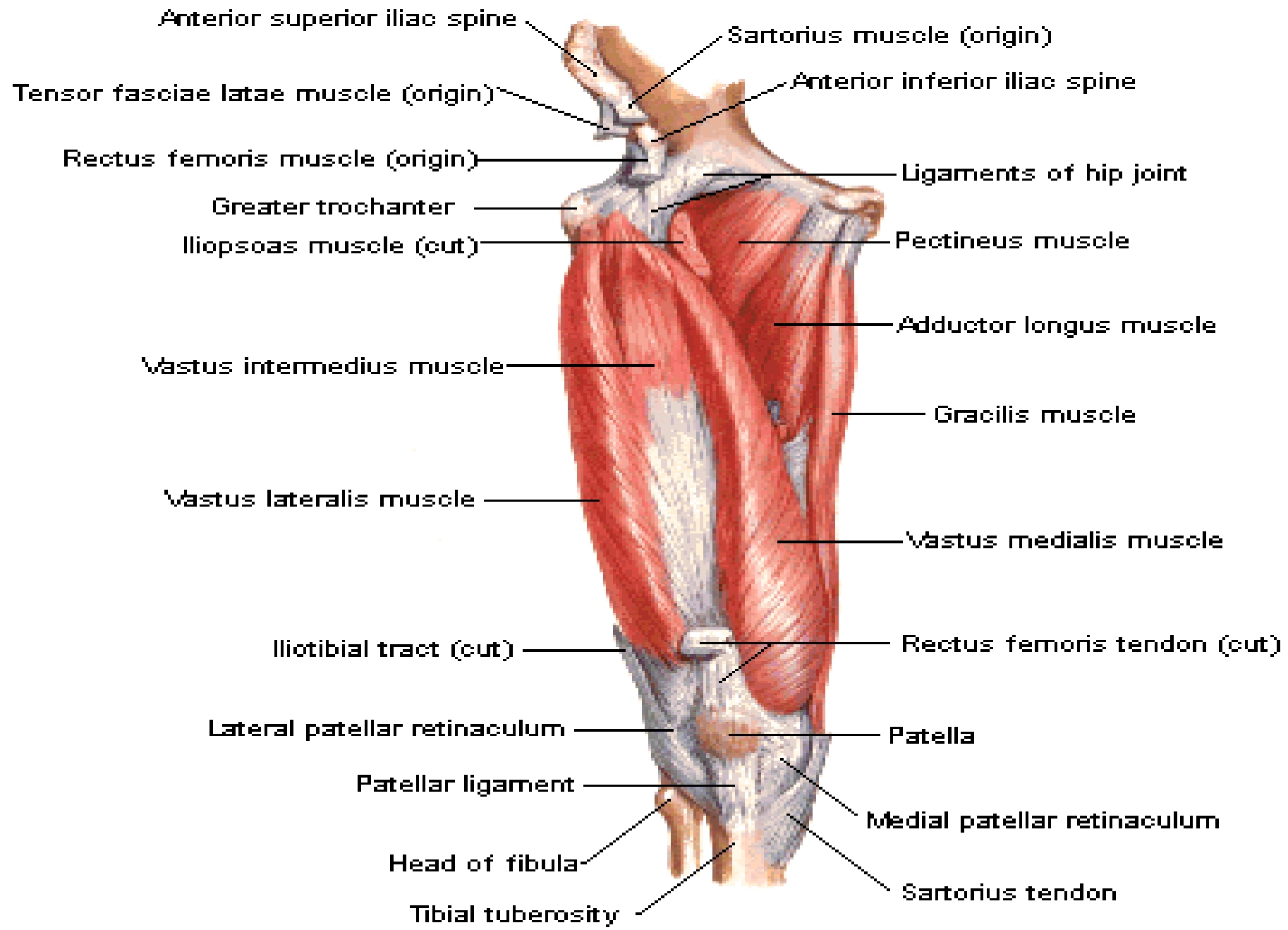
(adductors)

1. **The pectineus muscle**
2. **The long adductor muscle**
3. **The short adductor muscle**
4. **The greater adductor muscle**
5. **The small adductor muscle**
6. **The graceful or slender muscle**

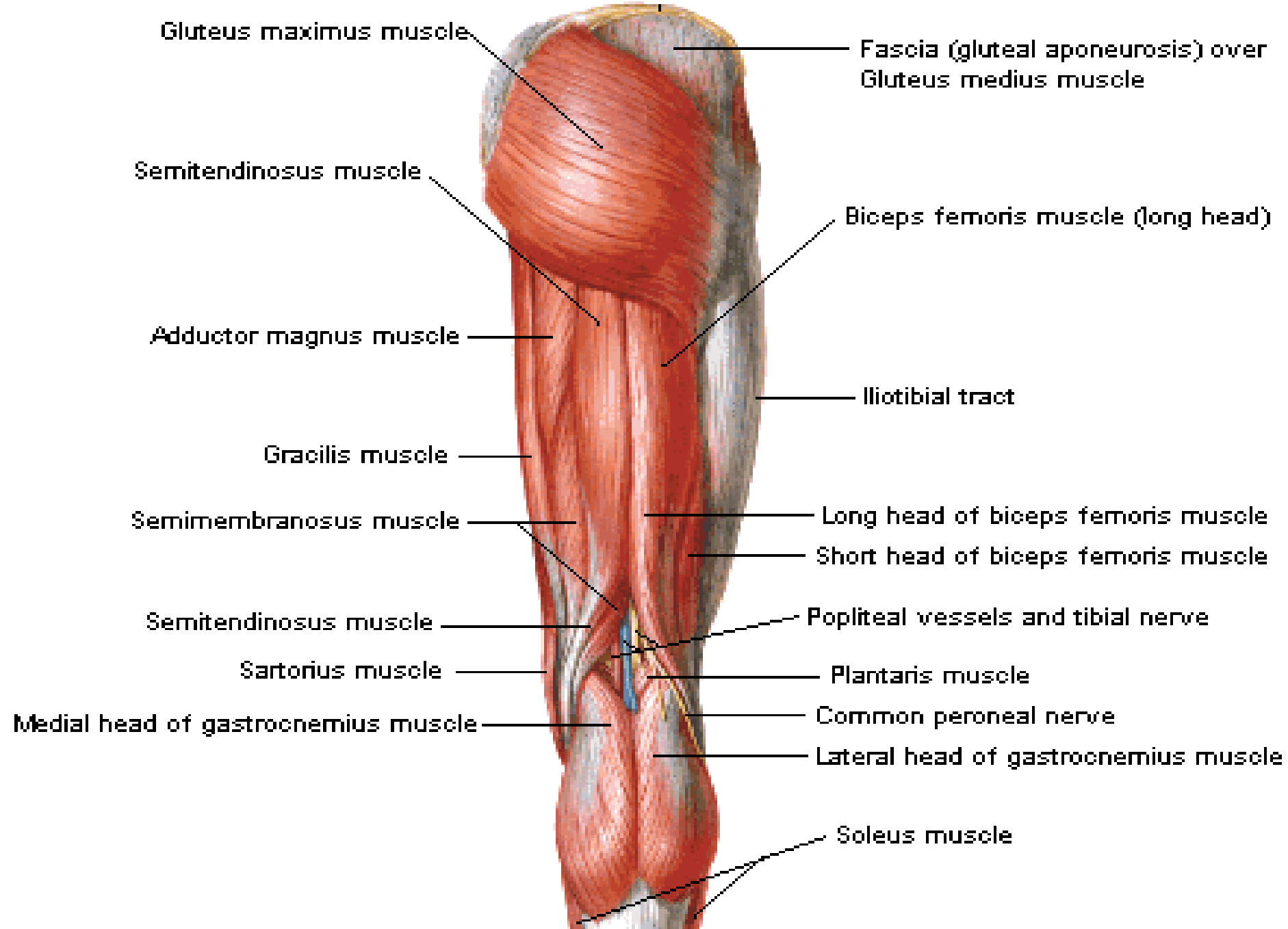
Muscles of Thigh



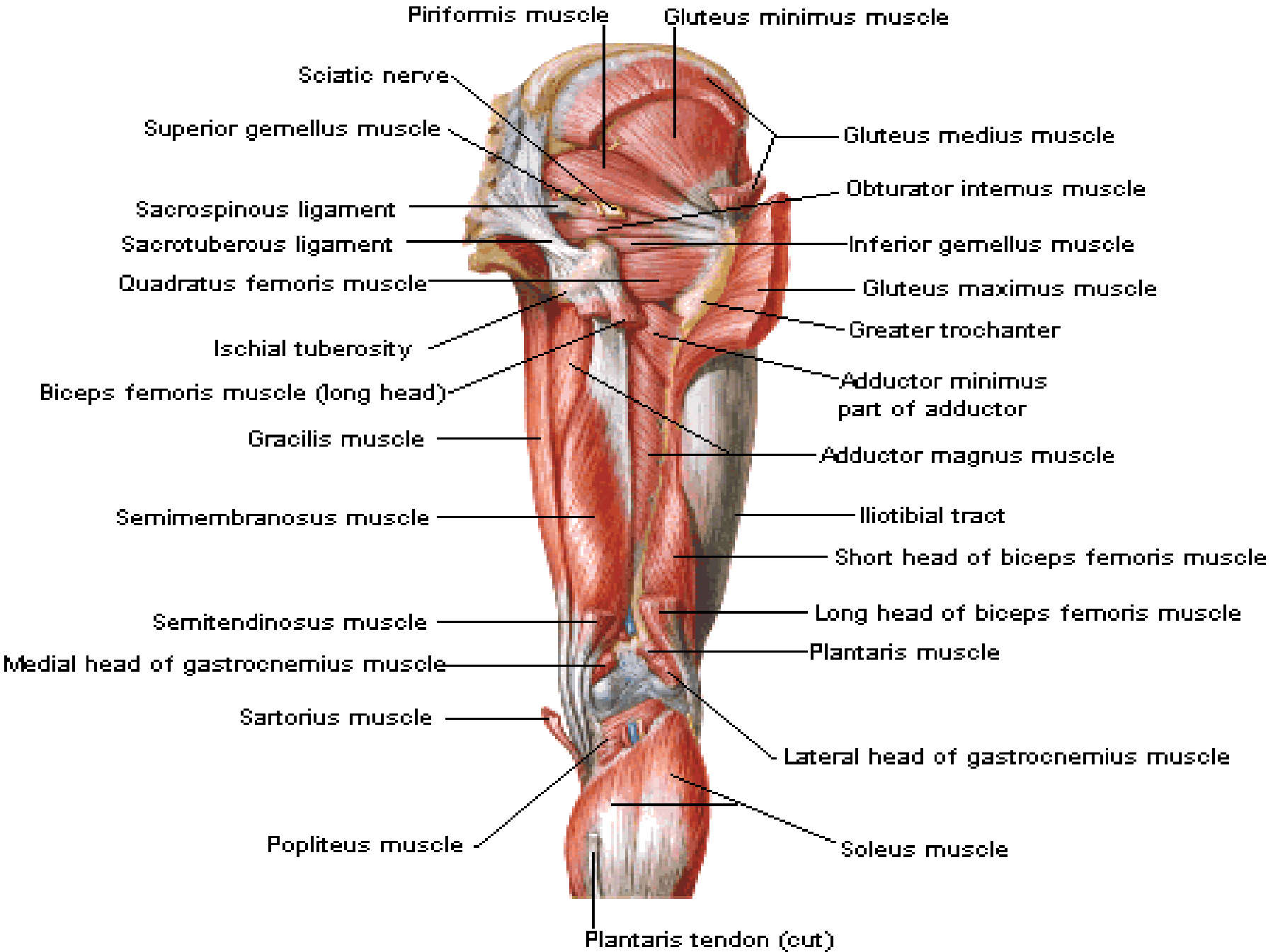
Muscles of Thigh

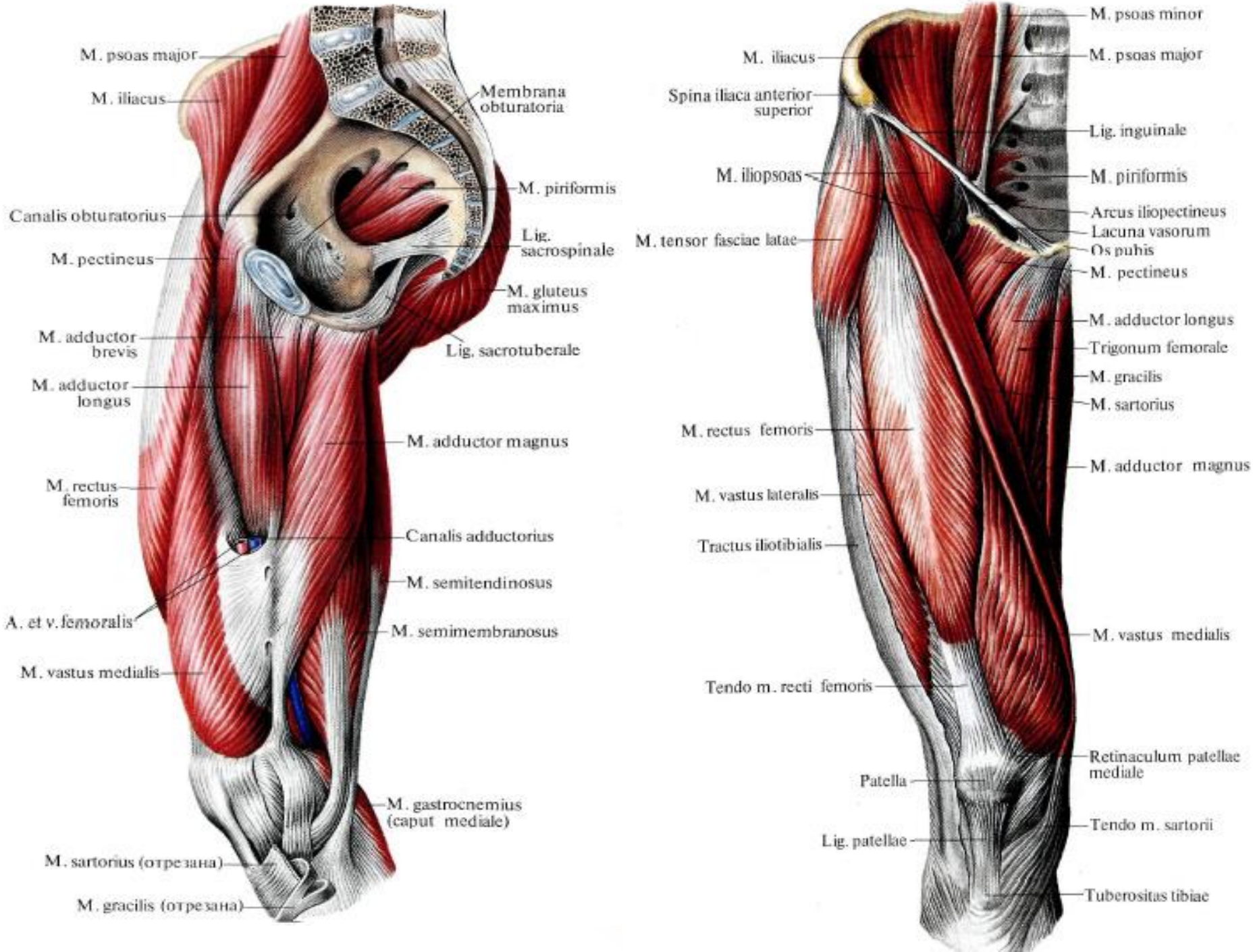


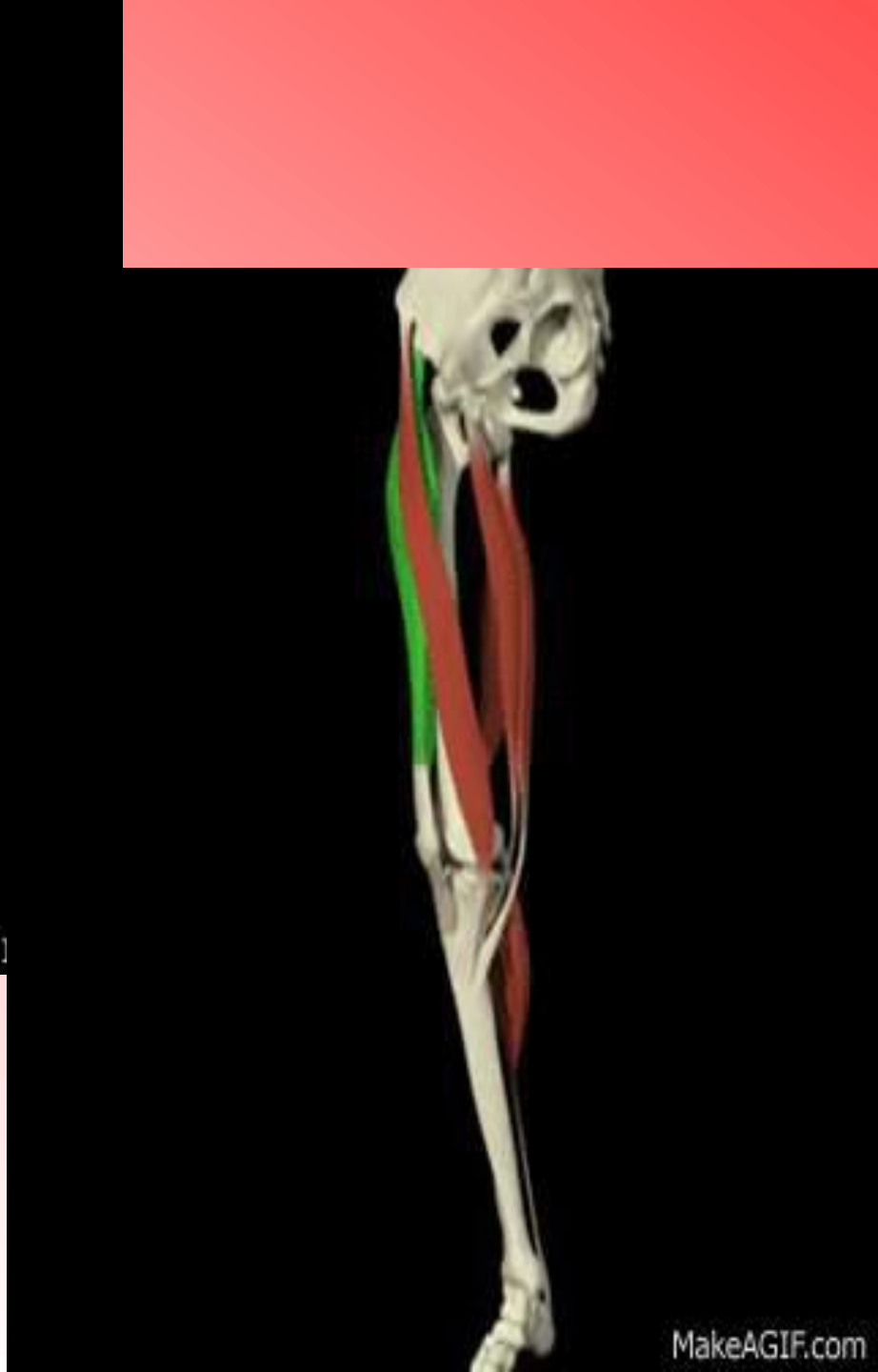
Muscles of Hip and Thigh



Muscles of Hip and Thigh




M. psoas major
M. iliacus
Membrana obturatoria
M. piriformis
Canalis obturatorius
Lig. sacrospinale
M. pectineus
M. gluteus maximus
M. adductor brevis
Lig. sacrotuberale
M. adductor longus
M. adductor magnus
M. rectus femoris
Canalis adductorius
M. semitendinosus
A. et v. femoralis
M. semimembranosus
M. vastus medialis
M. gastrocnemius (caput mediale)
M. sartorius (отрезана)
M. gracilis (отрезана)
M. psoas minor
M. iliacus
M. psoas major
Spina iliaca anterior superior
Lig. inguinale
M. iliopsoas
M. piriformis
Arcus iliopectineus
Lacuna vasorum
M. tensor fasciae latae
Os pubis
M. pectineus
M. adductor longus
Trigonum femorale
M. gracilis
M. sartorius
M. rectus femoris
M. adductor magnus
M. vastus lateralis
Tractus iliotibialis
M. vastus medialis
Tendo m. recti femoris
Retinaculum patellae mediale
Patella
Tendo m. sartorii
Lig. patellae
Tuberositas tibiae



THE REGION OF THE THIGH

The muscular space resides below the inguinal ligament on the lateral side.

It is bounded:

- medially — by the thickened region of the fascial layer — iliopectineal arch, in the front and above — by the inguinal ligament,
- laterally and in the back — by the ilium.

The muscular space gives passage to the iliopsoas and femoral nerve.

The vascular space resides behind the inguinal ligament, medially from the muscular space, from which it is separated by the iliopectineal arch.

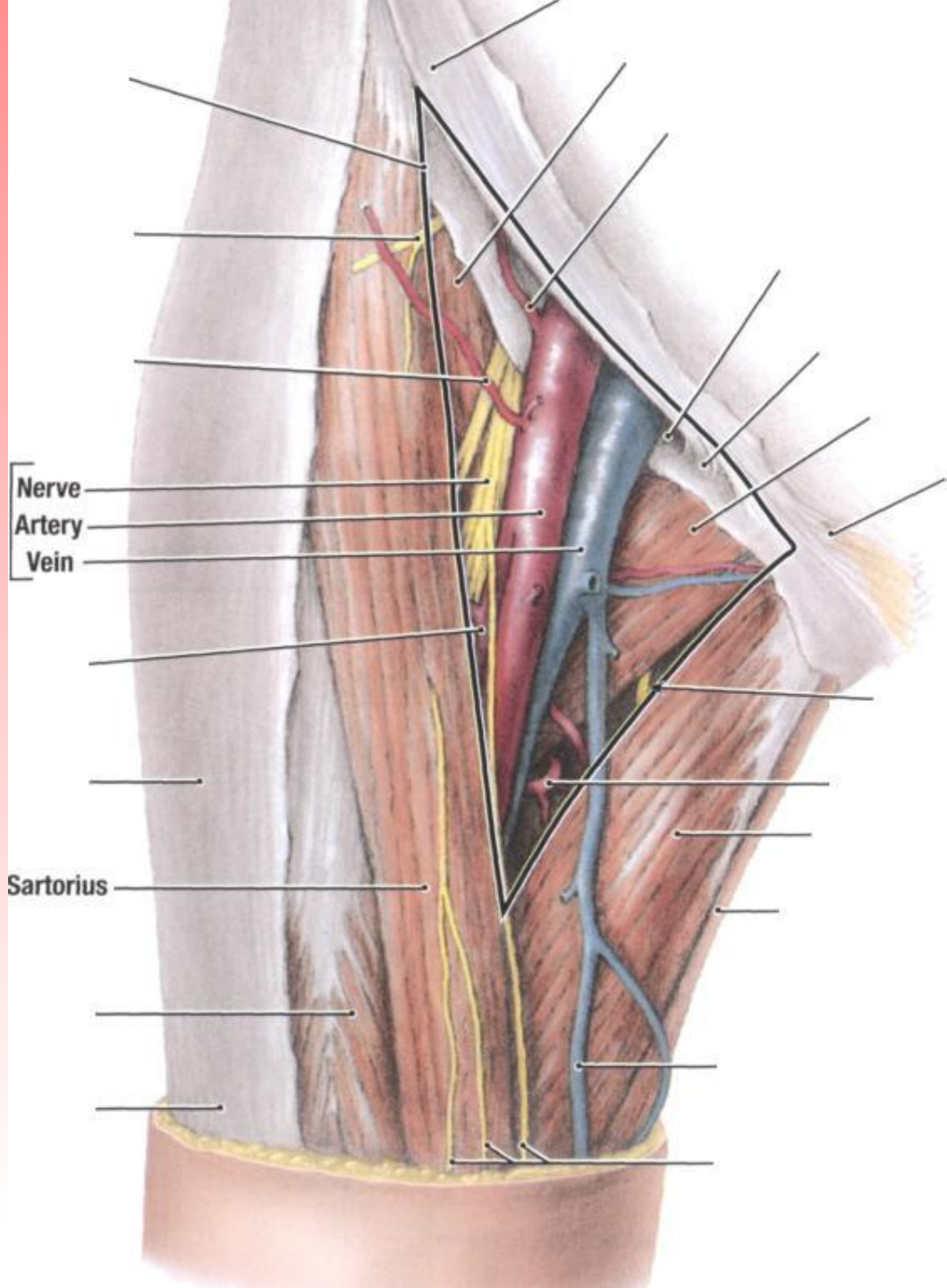
- In the front and above the vascular space is bounded by the inguinal ligament,
- posteriorly — by the thick periosteum of the pubis,
- laterally — by the iliopectineal arch,
- medially — by the lacunar ligament.

The vascular space transmits the femoral artery (resides laterally) and femoral vein (resides medially).

THE REGION OF THE THIGH

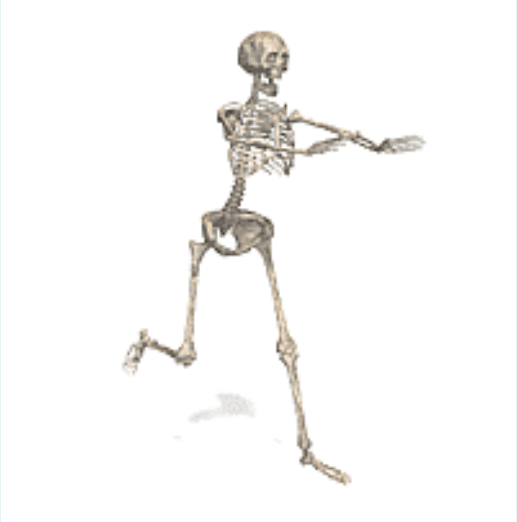
The femoral triangle resides on the anterior surface of the thigh.

- It is bounded by the inguinal ligament above, sartorius laterally, and adductor longus medially.
- The triangle contains the main neurovascular bundle of the thigh and lymph nodes.

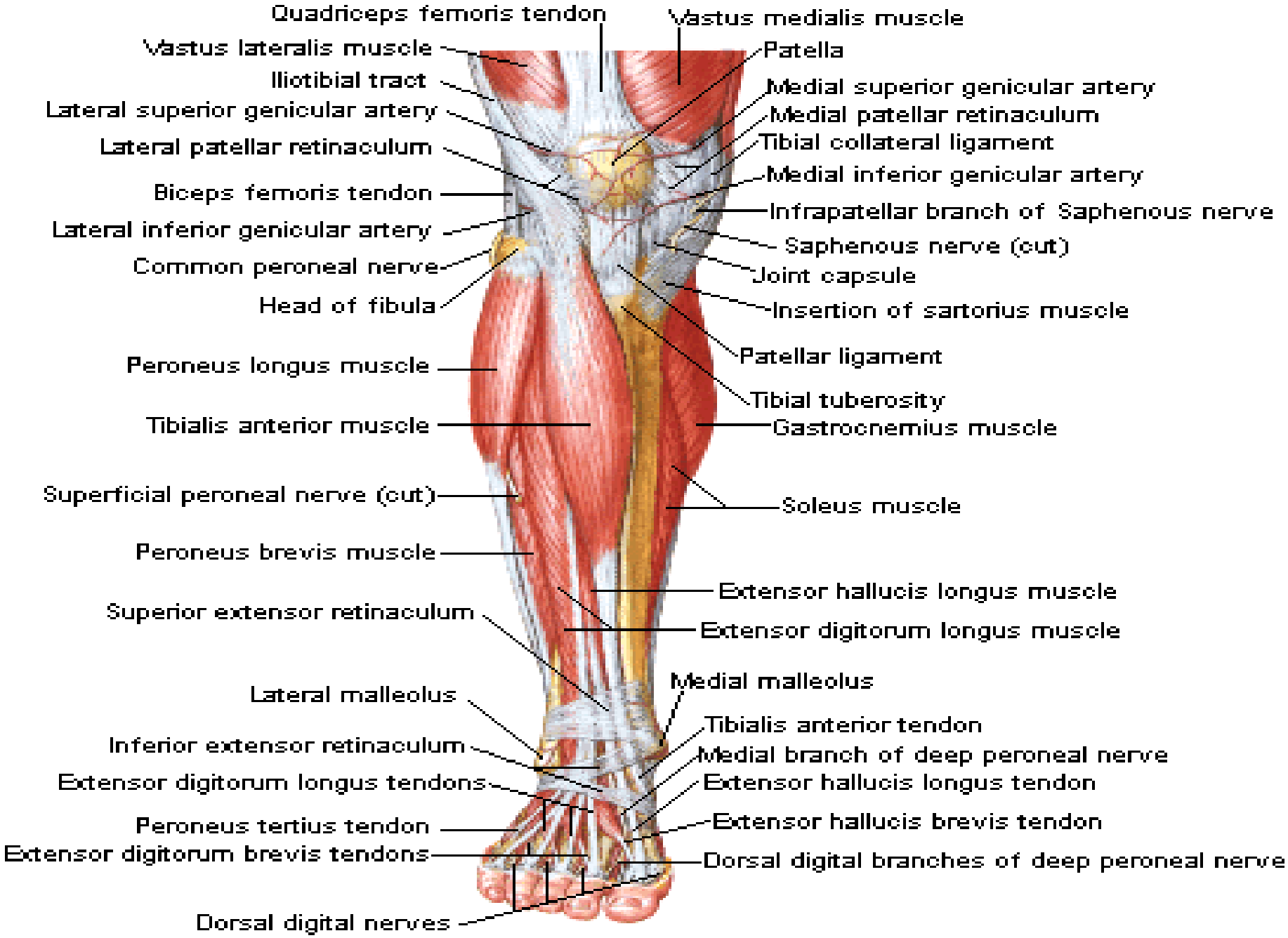


MUSCLES OF THE LEG

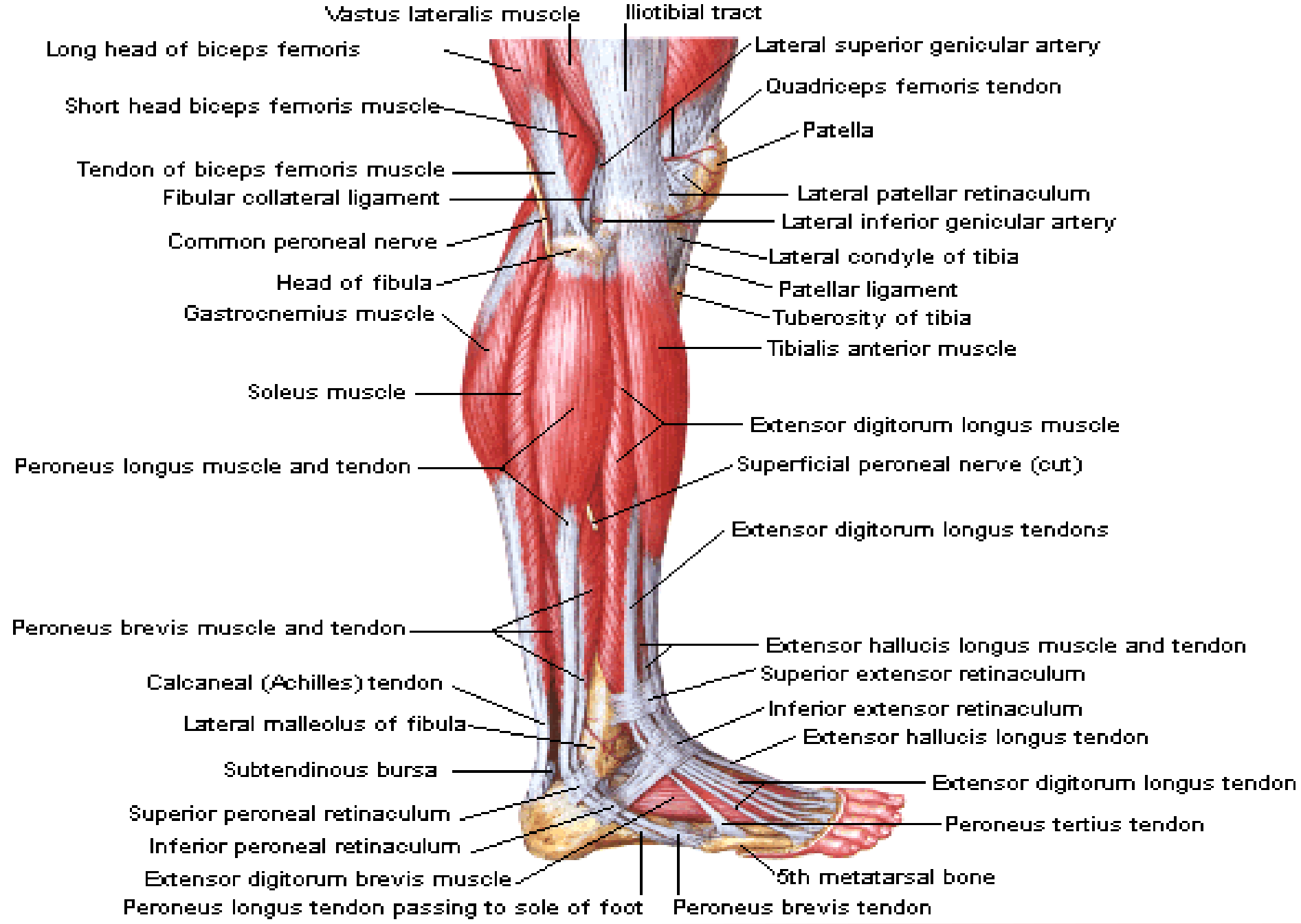
The muscles of the leg are divided into three groups: the anterior (extensors), the posterior (flexors) and the lateral (abductors and pronators).

The Anterior Group (*extensors*)	The Lateral Group (*abductors and pronators*)	The Posterior Group (*flexors*)
1. The anterior tibial muscle 2. The long extensor of the toes 3. The peroneus tertius muscle 4. The long extensor of the big toe	1.The long peroneal muscle 2.The short peroneal muscle 	<u>Superficial layer</u> 1. The triceps surae muscle 2. The gastrocnemius muscle 3. The soleus muscle 4. The plantaris muscle <u>Deep layer</u> 1. The long flexor of the toes 2. The posterior tibial muscle 3. The long flexor of the big toe

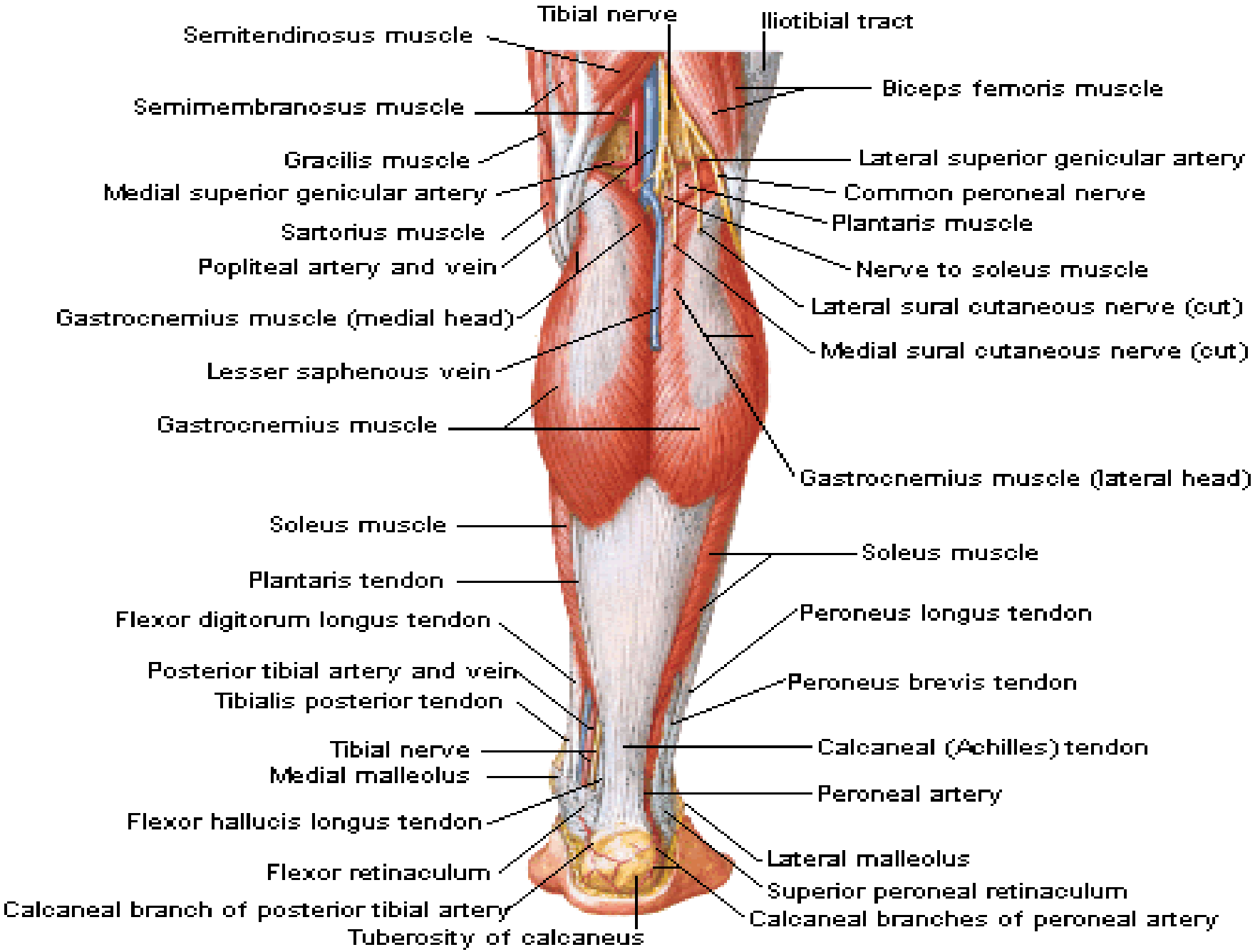
Muscles of Leg



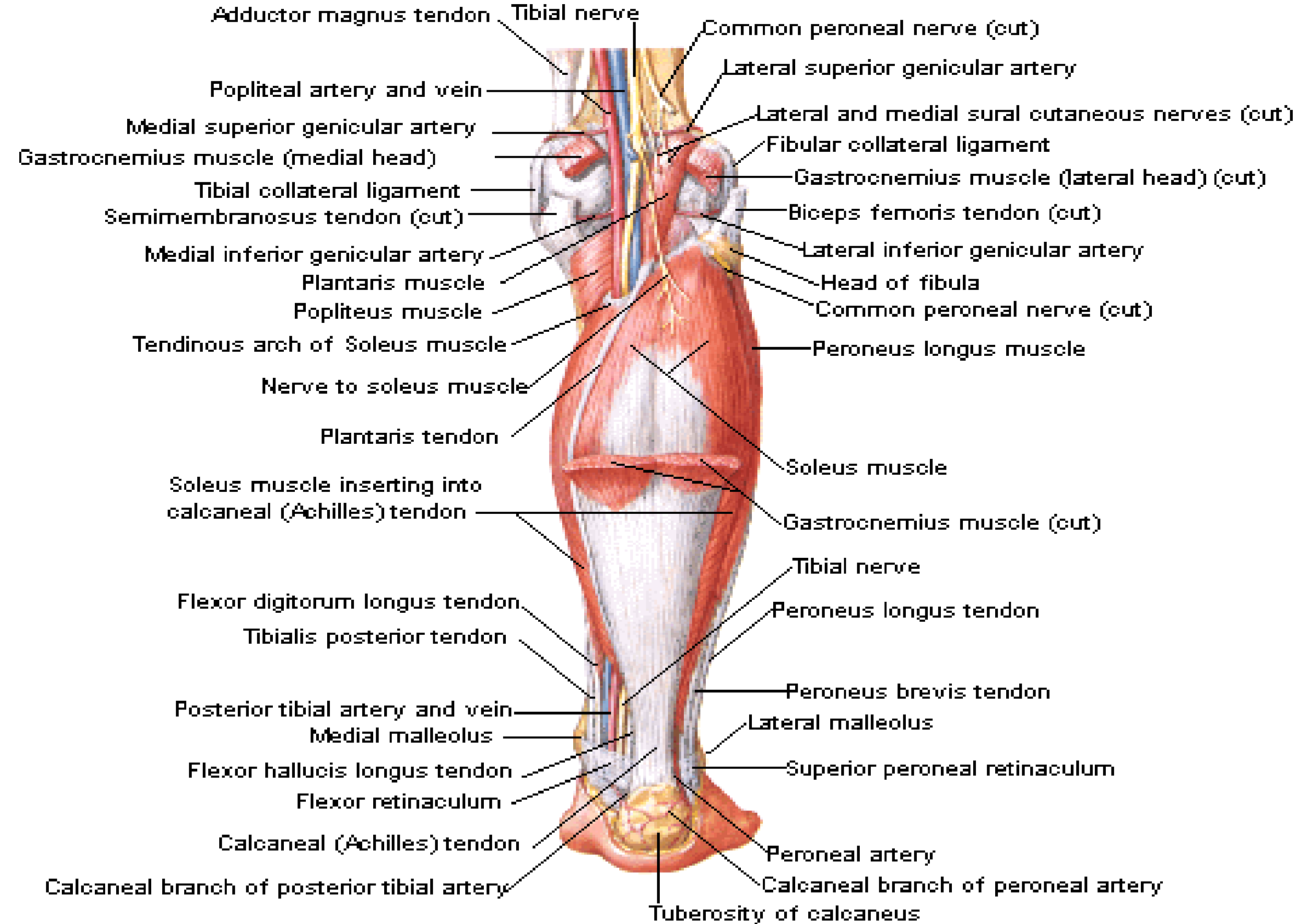
Muscles of Leg

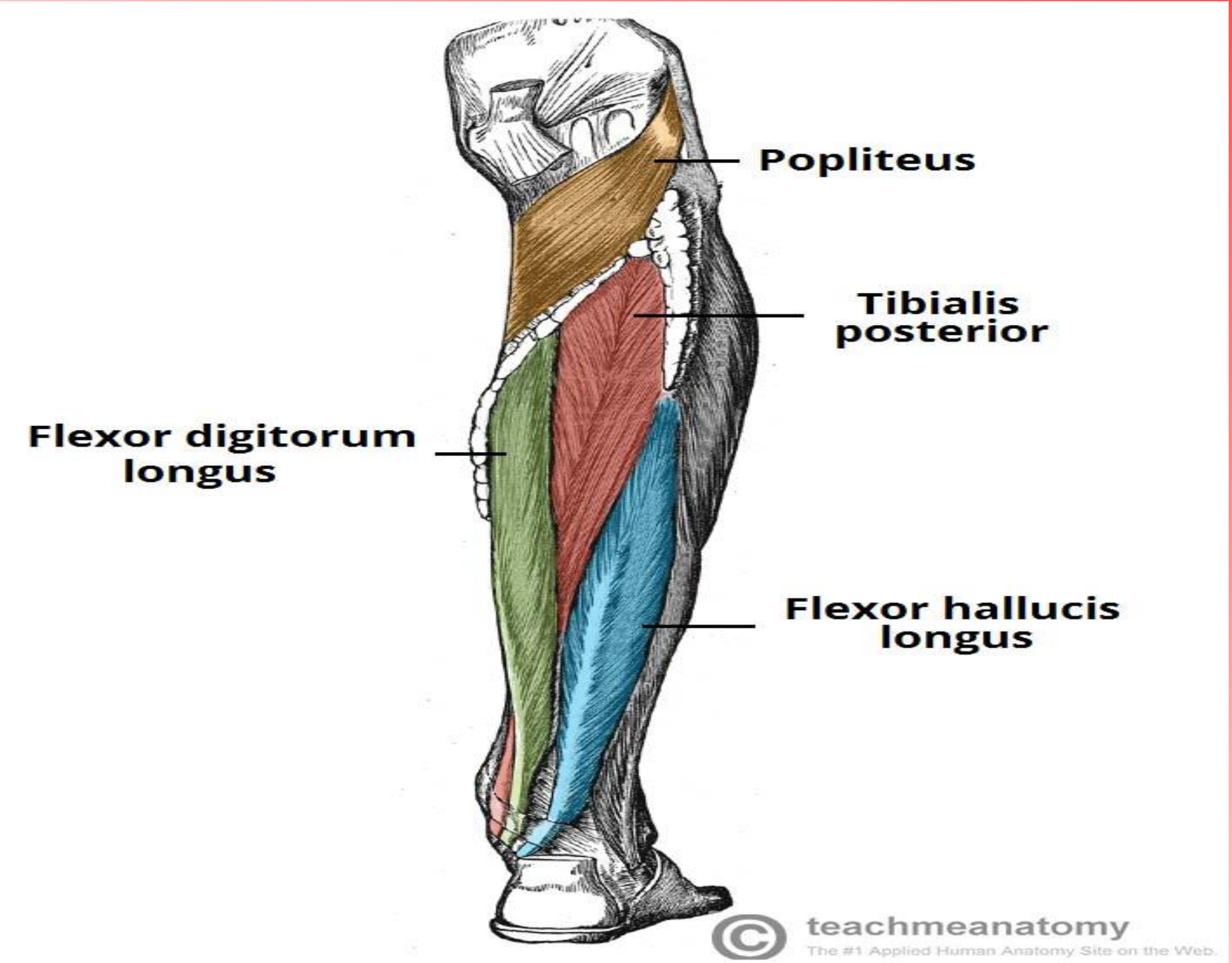


Muscles of Leg



Muscles of Leg



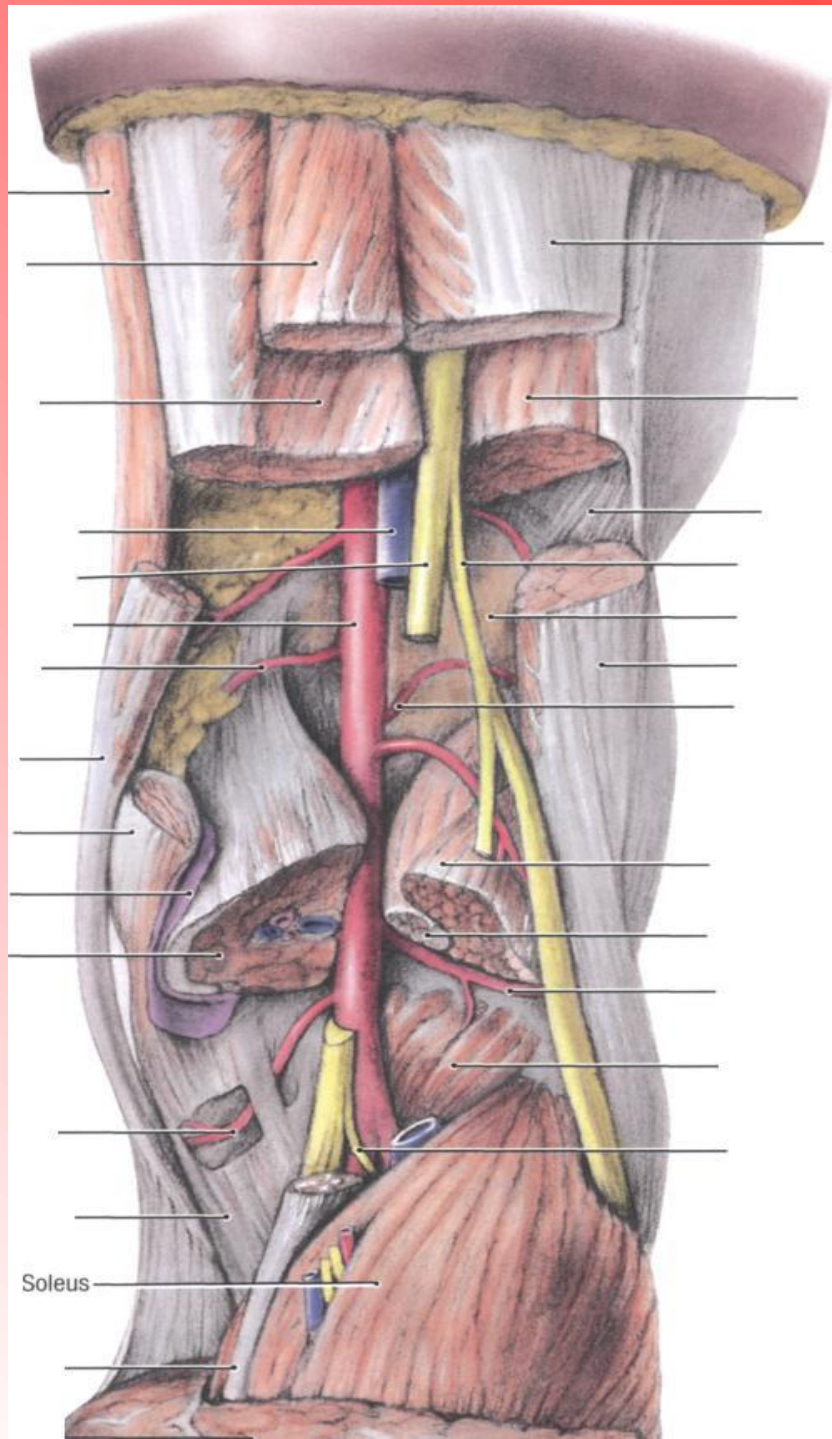

Popliteus
Tibialis posterior
Flexor digitorum longus
Flexor hallucis longus
teachmeanatomy
The #1 Applied Human Anatomy Site on the Web.

THE REGION OF THE LEG

THE POPLITEAL FOSSA resides in the back on the border between the thigh and the leg. It is rhomboid in shape.

- *Above*, it is bounded by the **BICEPS FEMORIS (LATERALLY)**, **SEMITENDINOSUS AND SEMIMEMBRANOSUS (MEDIALLY).**
- *Below*, the fossa is bounded by the two heads of the **GASTROCNEMIUS**.
- The *bottom* of the popliteal fossa (anterior wall) is formed by the **Popliteal Surface, Facies Poplitea, Of The Femur And The Capsule Of The Knee Joint**.

The main neurovascular bundle passes through the popliteal fossa. The lymph nodes and vessels occupy the fossa along with the adipose tissue.



THE REGION OF THE LEG

The cruropopliteal canal leads from the popliteal fossa into the leg. It resides in the back between the deep muscles of the leg and the soleus.

- Therefore, its anterior wall is formed by the tibialis posterior, while the anterior wall — by the soleus.
- The canal has three openings — superior, inferior, and anterior. The superior opening of the canal is bounded by the popliteus in the front and by *the tendineous arch of the soleus* in the back.
- The inferior opening resides between the tibialis posterior and soleus, where the latter becomes the Achilles tendon. The anterior opening is located in the upper part of the interosseous membrane of the leg.

The inferior musculoperoneal canal is the branch of the cruropopliteal canal in the lateral direction. Its anterior wall is formed by the posterior surface of the fibula, while its posterior wall — by the flexor hallucis longus. It transmits the fibular vessels.

The superior musculoperoneal canal is an independent canal, which resides in the upper third of the leg between the lateral surface of the fibula and peroneus longus. It gives passage to the superficial peroneal nerve.

THANK YOU FOR ATTENTION!!!