

Student Manual

Yoga Medicine® 20-Hour Anatomy Intensive



1. Intro

What follows is a brief overview of the anatomy of the human body. Keep in mind that the human body is a complex and dynamic system that is constantly changing. Our understanding of the body is also constantly changing as we learn more and more that the body is not just a set of separate parts but a finely tuned machine that is dependent on every other part of the system. In anatomy, we will deconstruct the parts of the body to give us a starting point of how the body works, however in reality it is often much more complex than this.

Please keep in mind that there is always more to learn in this subject. We have distilled the information down to the most important and relevant topics as a yoga teacher to understand the effects of our yoga practice on our bodies.

2. Terminology

MEDIAL close to the midline

LATERAL away from the midline

SUPERIOR above or toward the head

INFERIOR below or away from the head

PROXIMAL closer to the trunk (refers to the limbs)

DISTAL away from the trunk (refers to the limbs)

ANTERIOR toward the front of the body

POSTERIOR toward the back of the body

SUPERFICIAL closer to the surface of the body/skin

DEEP further from the surface of the body/skin

3. Bones/Skeleton

The skeleton provides structure & support for the body as well as the levers that the muscles are used to manipulate. The outside of the bone is solid & covered with a sensitive membranous cover called the periosteum, while the inside is porous & spongy.

- Bones support the body
- Protect the organs & tissues
- Store minerals that make the bone hard (calcium, phosphorus...)
- Acts as levers that the muscles can move
- The marrow produces red & white blood cells as well as platelets.

Bones are two-thirds minerals or rigid tissue and one-third collagen/organic matter or elastic tissue. This allows our bones to be stiff and supportive but to also bow slightly and absorb shock. Our bones will grow & become stronger with applied stress to them, via gravity, muscular contractions, yoga, really any movement against some sort of resistance. Our bones are constantly being remodeled (broken down, reabsorbed and rebuilt). Every two years your bone cells are replaced, this process slows with aging, inadequate nutrients, stress, smoking, alcohol, menopause and lack of exercise. However every time a muscle pulls on the periosteum of the bone it stimulates growth.

BONES & REFERENCE POINTS TO KNOW

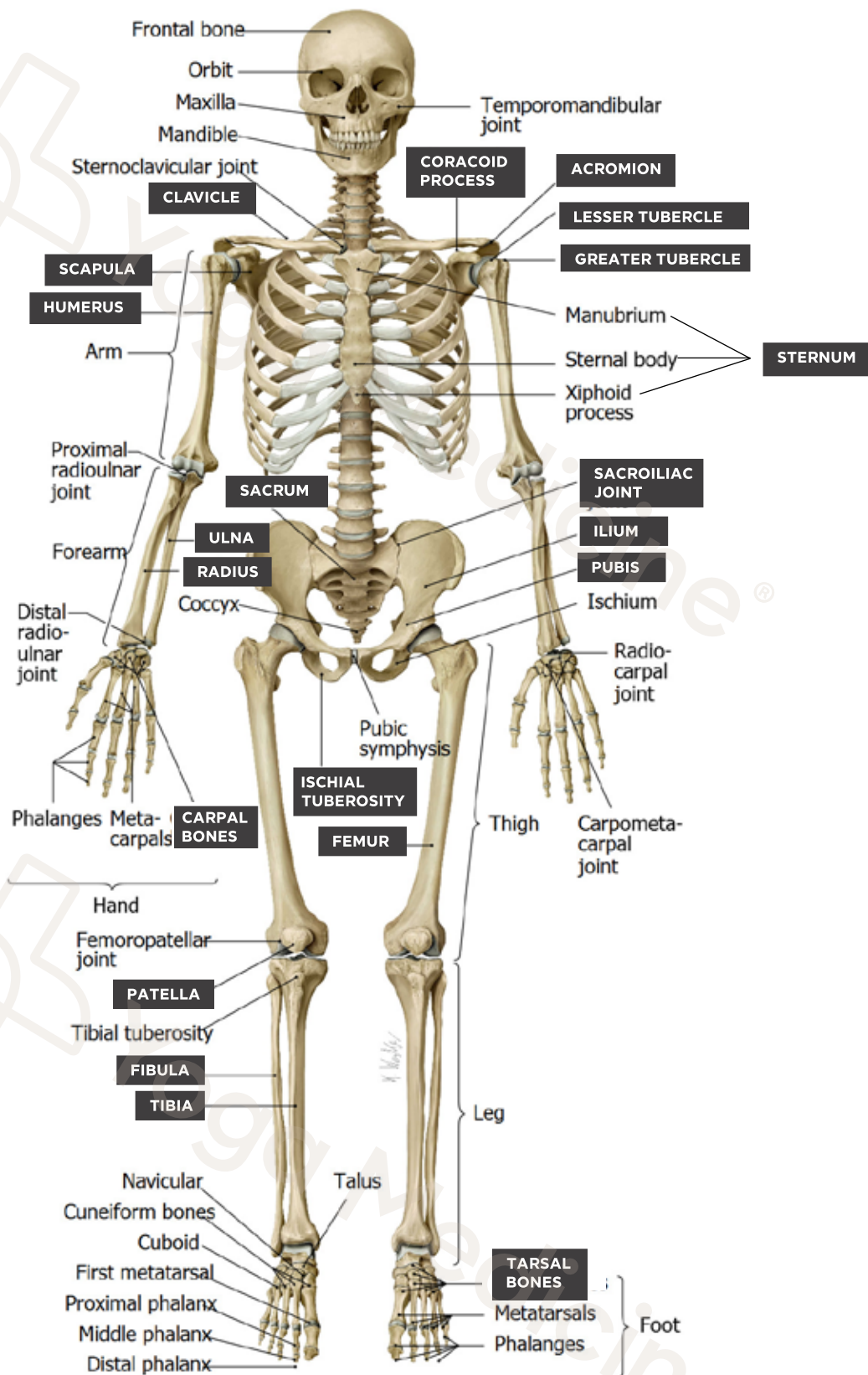
1. Scapula: spine, fossa's, coracoid, acromion
2. Clavicle, AC joint
3. Sternum, SC Joint
4. Upper extremity: Humerus (greater & lesser tuberosity, bicipital groove), Radius, Ulna, Carpals
5. Ribs (Costals)
6. Pelvis: Ilium: iliac crest, iliac fossa, ASIS, PSIS, ischial tuberosity, pubis, sacrum & SI joint, acetabulum
7. Lower extremity: Femur (greater & lesser trochanter), patella, fibula, tibia, tarsals

SPINE CONSISTS OF

- **7 CERVICAL** vertebra (C1-7) with a natural lordosis
- **12 THORACIC** vertebra (T1-12) with a natural kyphosis
- **5 LUMBAR** vertebra (L1-5) with a natural lordosis
- **SACRUM** with a slight natural kyphosis
- **COCCYX**

BONES

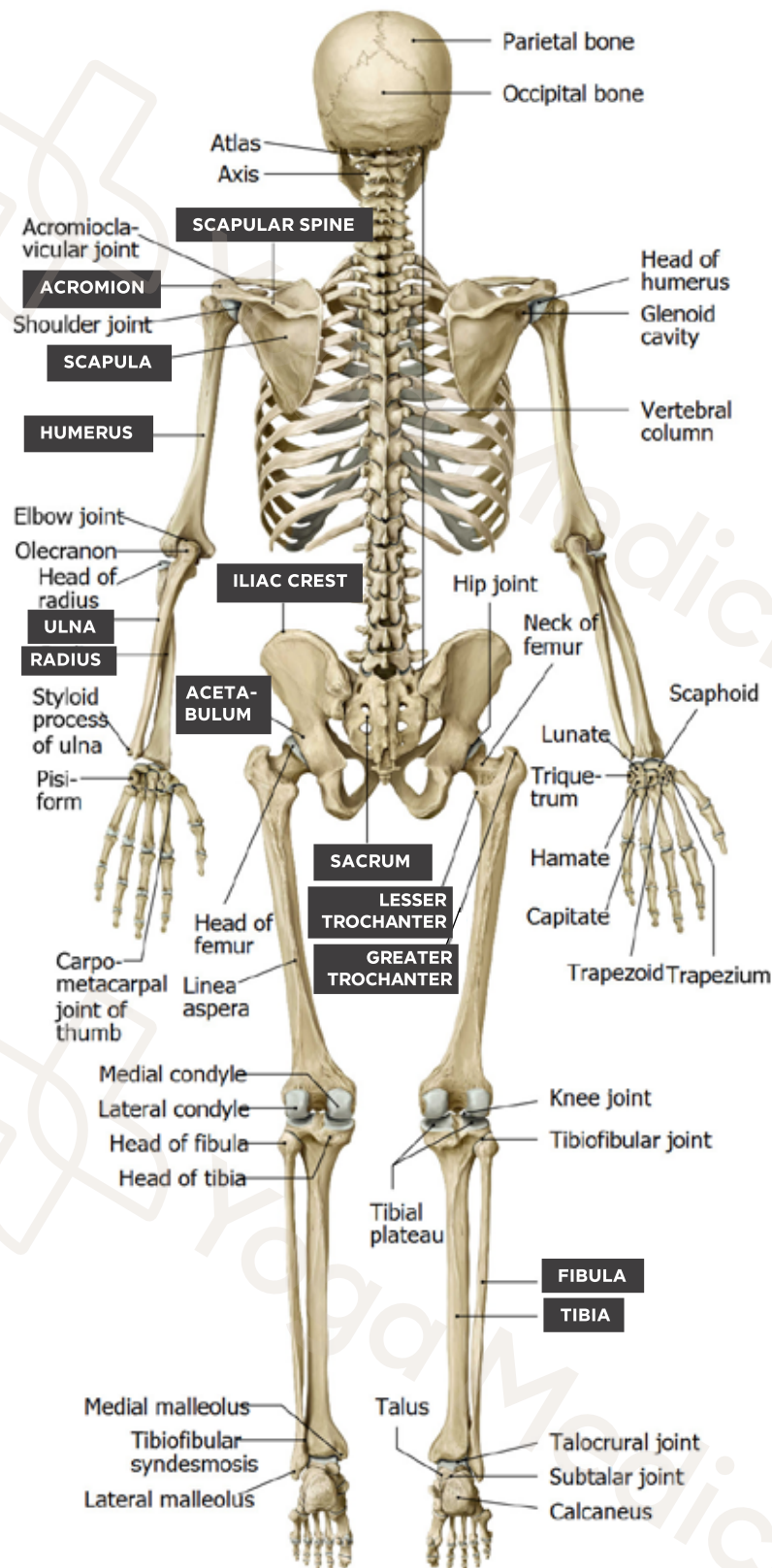
ANTERIOR VIEW



Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 4.38 A, Illustrator: Karl Wesker,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

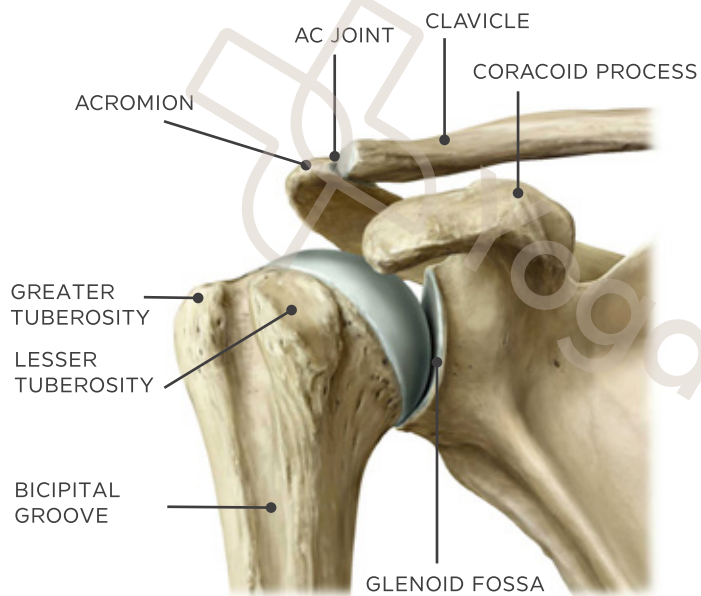
BONES

POSTERIOR VIEW

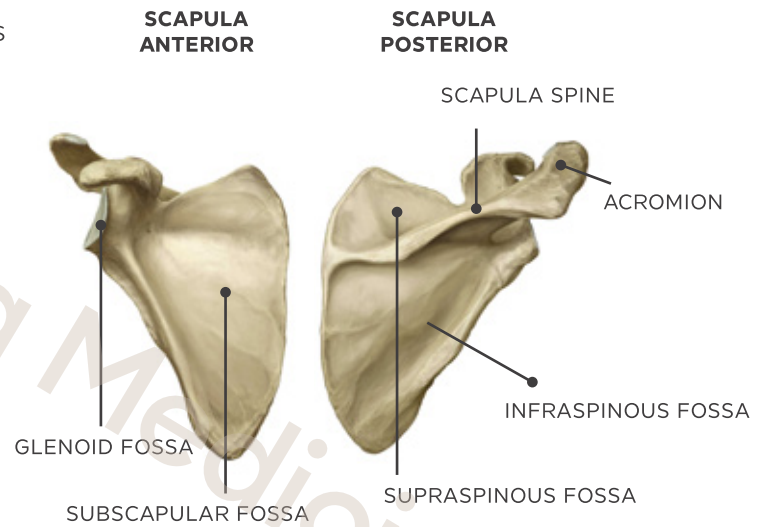


Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 4.38 B, Illustrator: Karl Wesker,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

BONES OF THE SHOULDER & HIP JOINT

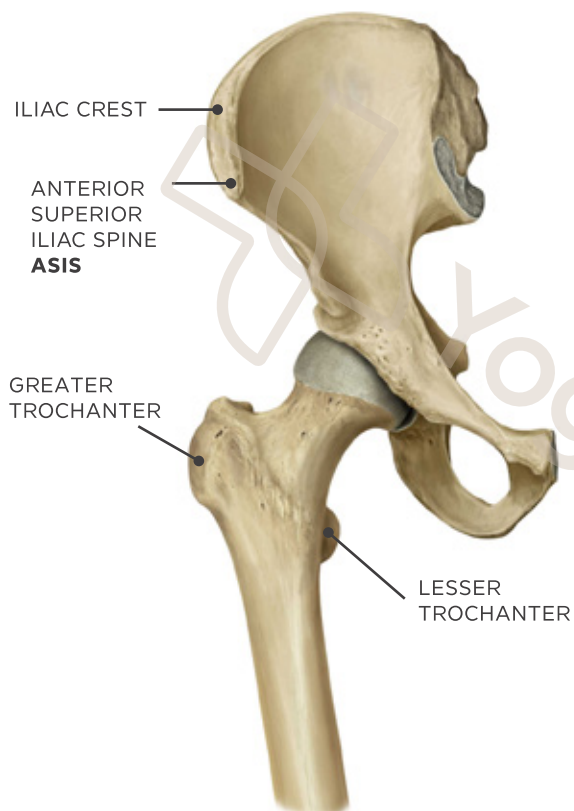


Atlas of Anatomy, 2nd ed., Fig. 21.11 A, Illustrator: Karl Wesker.
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

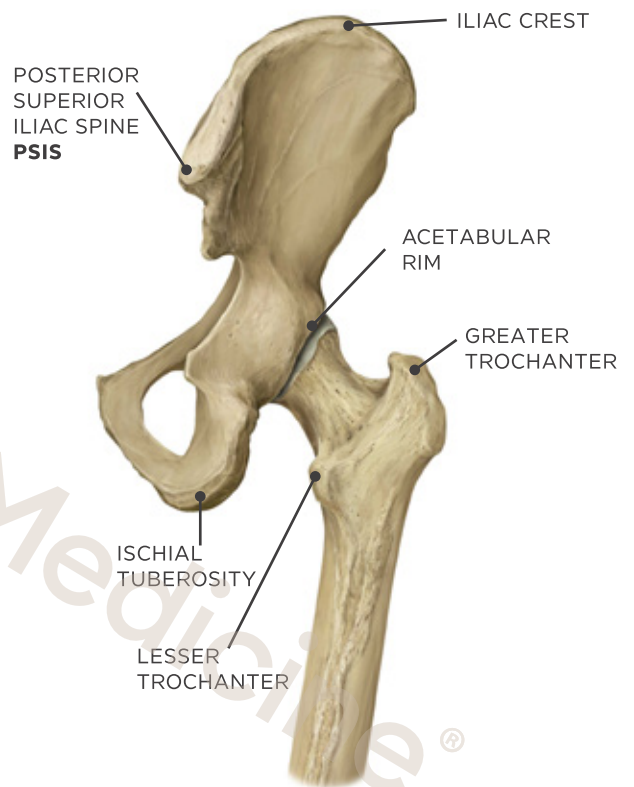


ANTERIOR

POSTERIOR



Gilroy, Atlas of Anatomy, 2nd ed., Fig. 26.6 A, Illustrator: Karl Wesker.
©2017 Thieme Medical Publishers, Inc. All Rights Reserved.



Gilroy, Atlas of Anatomy, 2nd ed., Fig. 26.6 B,
©2017 Thieme Medical Publishers, Inc. All Rights Reserved.

4. Joints

Where 2 bones meet; there are 3 major types:

1. FIBROUS

Join flat bones together with very limited movement (skull & pelvic bones)

2. CARTILAGINOUS

Slightly movable with cartilage between the bones (vertebra, ribs/sternum)

3. SYNOVIAL

Freely movable, surrounded by a ligamentous joint capsule that secretes synovial fluid to lubricate the joint; includes:

- Ball & socket (hip)
- Hinge (knee)
- Compressive joints (spine)

LAYERS OF A SYNOVIAL JOINT

- Bone
 - Cartilage
 - Joint Capsule
 - Ligaments
 - Tendons
 - Deep muscles
 - Superficial muscles
- passive stability*
- active stability*

CARTILAGE - strong & dense to provide a smooth joint surface & absorb shock (labrum, meniscus, plus all synovial joints have hyaline cartilage covering articulating bones), however has no direct blood supply and so must receive nutrients from the bone or synovial fluid. There is usually little if any direct nerve supply to this tissue so pain signaling is limited here.

JOINT CAPSULE

- Connects and encapsulated joint
- Adds to passive stability
- Creates lubrication to reduce wear and tear.

5. Ligaments

Connect bone to bone

- Connective tissue: mostly collagen with a small amount of elastin to allow for very minimal stretching
- Contain sensory nerves that communicate with the muscles & central nervous system to warn the brain of overstretching
- Ligaments have very little blood supply and therefore heal very slowly
- Critical component to the passive stability of the joints

LIGAMENTS EXAMPLES IN THE KNEE®

1. Medial collateral ligament (MCL)
2. Lateral collateral ligament (LCL)
3. Anterior cruciate ligament (ACL)
4. Posterior cruciate ligament (PCL)

6. Tendons

Connect muscle to bone

- A connective tissue extension of the muscle fibers
- Very little elasticity and can be overstretched
- Can become inflamed or irritated from chronic repetitive motions, leading to tendonitis
- Also have very little blood supply so heal very slowly like the ligaments

7. Skeletal muscle

- Produce movement by by contracting and pulling on bones, composed of motor units bundled into muscle fibers. Depending on the movement, different muscle fibers of each muscle may contract or relax to perform precise movements.
- Highly elastic with good blood flow which helps them recover from injury much easier

- Contraction of the muscles moves blood and lymph through the tissues, however in states of chronic contraction the circulation is decreased, causing inflammation, hypoxia and sometimes fibrous (scar) tissue buildup.
- Muscles usually act as a coordinated group, even when a muscle is relaxed a few muscles cells stay contracted (muscle tone) to keep them ready to respond. Unfortunately many of us carry too much tension in certain areas and not enough in others, causing biomechanical discrepancies as a result; this is where the awareness aspect of yoga is so transformational.
- Help the ligaments support the joints. Good support here can help prevent injury.

TYPES OF MUSCLE CONTRACTION

1. CONCENTRIC

Shortens the muscle to create movement

2. ECCENTRIC

The muscle lengthens as it contracts

3. ISOMETRIC

Tension without movement

AGONIST prime mover

ANTAGONIST opposes the prime mover

SYNERGIST assists the prime mover

8. Fascia

Our fascia is like the saran wrap around us that holds everything together. Our fascia acts like a web to support, position and shape the body. Research has shown that fascia does contain contractile cells and is able to contract in a smooth muscle-like manner and consequently influence musculoskeletal dynamics and postural patterns. The fascia connects and integrates our movements to allow the muscles to support and assist each other. This is why when we move it isn't just one or two muscles performing the action as you might see in the textbooks, but rather a symphony of contractions to support and spread out the effort so no one area takes all the pressure. Unfortunately poor posture or biomechanics can reprogram the fascia to hold the tissues improperly

and even change joint position and function over time, leading to uneven wearing on the joints. The good news is that through yoga or other forms of therapy these patterns can slowly be reprogrammed over time!

- One continuous interconnected system composed of connective tissue that exists from head to toe without interruption
- Both flexible & strong
- Supports, connects, protects and communicates
- Fascial connections (anatomy trains) integrate our movements to allow the muscles to support and assist each other.
- Has contractile capacity slowly over time which contributes to wound healing and contractures of the tissues.
- Repetitive postures or movements can reshape the fascia over time

FASCIA COMPOSED OF

1. **CELLS:** mainly white blood cells & fibroblasts
2. **FIBERS:** mainly collagen & elastin
3. **GROUND SUBSTANCE:** viscous fluid or gel that surrounds the fibers & cells

THREE KINDS OF FASCIA

1. SUPERFICIAL FASCIA

- » Immediately under the skin
- » Houses adipose tissue
- » Blends with dermis and anchors it to the underlying myofascia
- » Provides a passageway for nerves and blood vessels

2. DEEP FASCIA

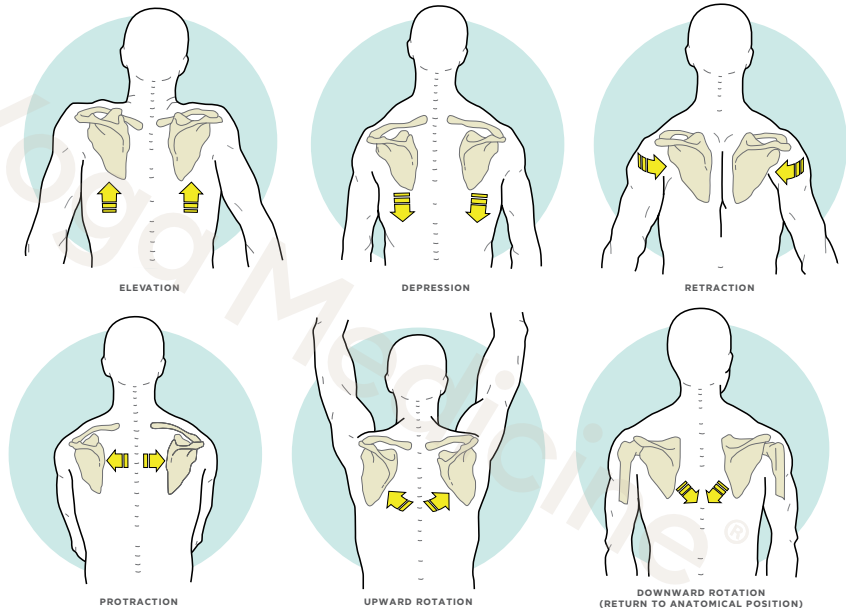
- » Dense fibrous connective tissue
- » Surrounds bones, nerves and blood vessels
- » Surrounds, interpenetrates, and interlinks muscles and groups of muscles

3. VISCERAL FASCIA

- » Wraps and suspends organs within their cavities

9. Movements

1. **SHOULDER:** flexion, extension, abduction, adduction, internal rotation & external rotation
2. **SCAPULA:** protraction & retraction, elevation & depression, upward & downward rotation
3. **FOREARM:** pronate & supinate
4. **HIP:** flexion, extension, abduction, adduction, internal rotation & external rotation
5. **ANKLE:** inversion, eversion, dorsiflexion, plantarflexion
6. **SPINE:** flexion, extension, lateral flexion (left & right), rotation (left & right) and axial extension (lengthening the midline)
7. **PELVIS:** anterior & posterior tilt



©2017 Yoga Medicine®

10. Spine

3 MAIN FUNCTIONS

1. Hold upright
2. Protect spinal cord
3. Allow for movement

SPINAL CORD

The spinal cord is a column of millions of nerve fibers that carry messages from your brain to the rest of your body. It extends from the brain to the area between the end of your first lumbar vertebra and top of your second lumbar vertebra. Below this level, the spinal canal contains a group of nerve fibers, called the cauda equina. Each vertebra has a hole in the center, so that when they stack on top of each other they form a hollow tube that holds and protects the entire spinal cord and its nerve roots.

A protective membrane, called the dura mater covers the spinal cord. The dura mater forms a watertight sac around the spinal cord and the spinal nerves. Inside this sac, the spinal cord is surrounded by spinal fluid.

NERVE ROOTS

The spinal cord branches off into 31 pairs of nerve roots, which exit the spine through small openings on each side of the vertebra called neural foraminae. The two nerve roots in each pair go in opposite directions when traveling through the foraminae. The nerve root allows nerve signals to travel to and from your brain to the rest of your body.

The nerves in each area of the spinal cord connect to specific parts of your body. The nerves of the cervical spine go to the upper chest and arms. The nerves of the thoracic spine go to the chest and abdomen. The nerves of the lumbar spine reach to the legs, pelvis, bowel, and bladder. These nerves coordinate and control all the body's organs and parts, allow you to control your muscles and to feel sensations. If your body is being hurt in some way, your nerves signal the brain. Damage to the nerves themselves can cause pain, tingling, or numbness in the area where the nerve travels. Without nerve signals, your body would not be able to function.

SPINAL DISCS

The discs are like shock absorbers between the bones of the spine and are designed to help the back stay flexible while resisting forces in many different planes of motion. Each disc has two parts:

- A firm, tough outer layer (annulus fibrosus). If the disc tears in this area, it can become quite painful.
- A soft, jelly-like core (nucleus pulposus). This part of the disc contains proteins that can cause the tissues they touch to become swollen and tender. If these proteins leak out to the outer layer of disc they can cause a great deal of pain.

Discs are primarily avascular; only periphery receives blood supply. Instead it receives nutrients & fluid through movement (imbibe). Discs are also poorly innervated, usually with nerve supply only in the outer few millimetres of the annulus fibrosus.

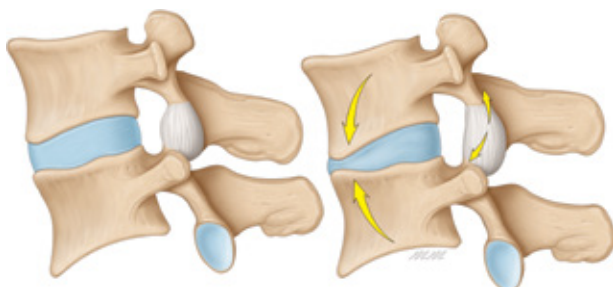
FACET JOINTS

The facet joints are bony connections that link the vertebrae together and give them the flexibility to move against each other. There are two facet joints between each pair of vertebrae, one on each side. The facet joints give the spine its flexibility and stability.

The facet joints are synovial joints covered with articular cartilage, a slick spongy material that allows the bones to glide against one another without much friction. Synovial fluid inside the joint keeps the joint surfaces lubricated, like oil lubricates the parts of a machine. This fluid is contained inside the joint by the joint capsule, a watertight sac of soft tissue and ligaments that fully surrounds and encloses the joint.

The facet joints also comprise two of the three weight bearing points of the spine with the vertebral body, with the disc being the third weight bearing point on the spine.

THREE WEIGHT BEARING POINTS



OPTIMIZING FUNCTION

PROGRESSIVELY MORE PRESSURE ON DISCS	
Supine	70lb
Stand	100lb
Stand slight fold	150lb
Stand fold	210lb
Lifting a weight while folding	400lb
Seated	150lb
Seated slight fold	180lb
Seated fold	270lb

Progressively more pressure on discs

- Supine
- Standing
- Seated
- Standing twist or fold
- Seated twist or fold

MOVEMENTS OF THE SPINE

CERVICAL

- Most movement in all directions
- C1/atlas - "yes"
- C2/axis - "no"

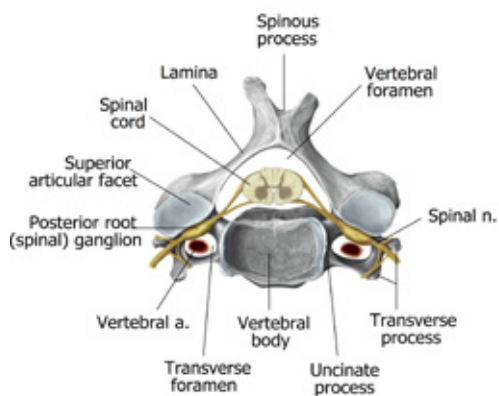
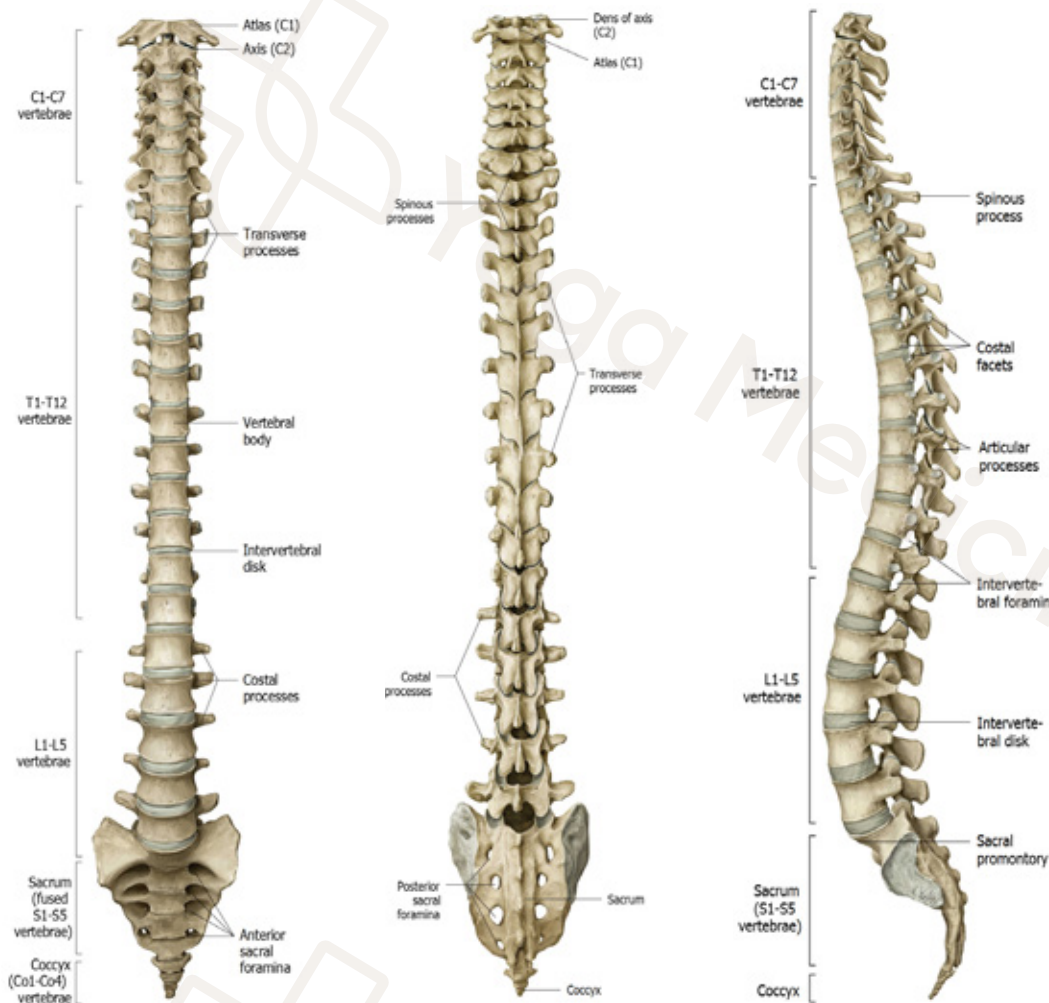
THORACIC

- Mostly rotation
- Some lateral flexion
- Very limited flexion and extension due to the attachment of the ribs & shape of the spinous process.

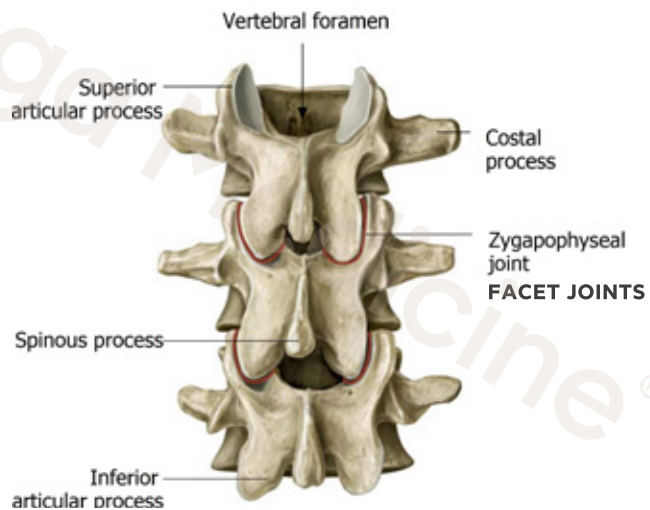
LUMBAR

- Mostly flexion and extension
- Some lateral flexion
- Very little rotation

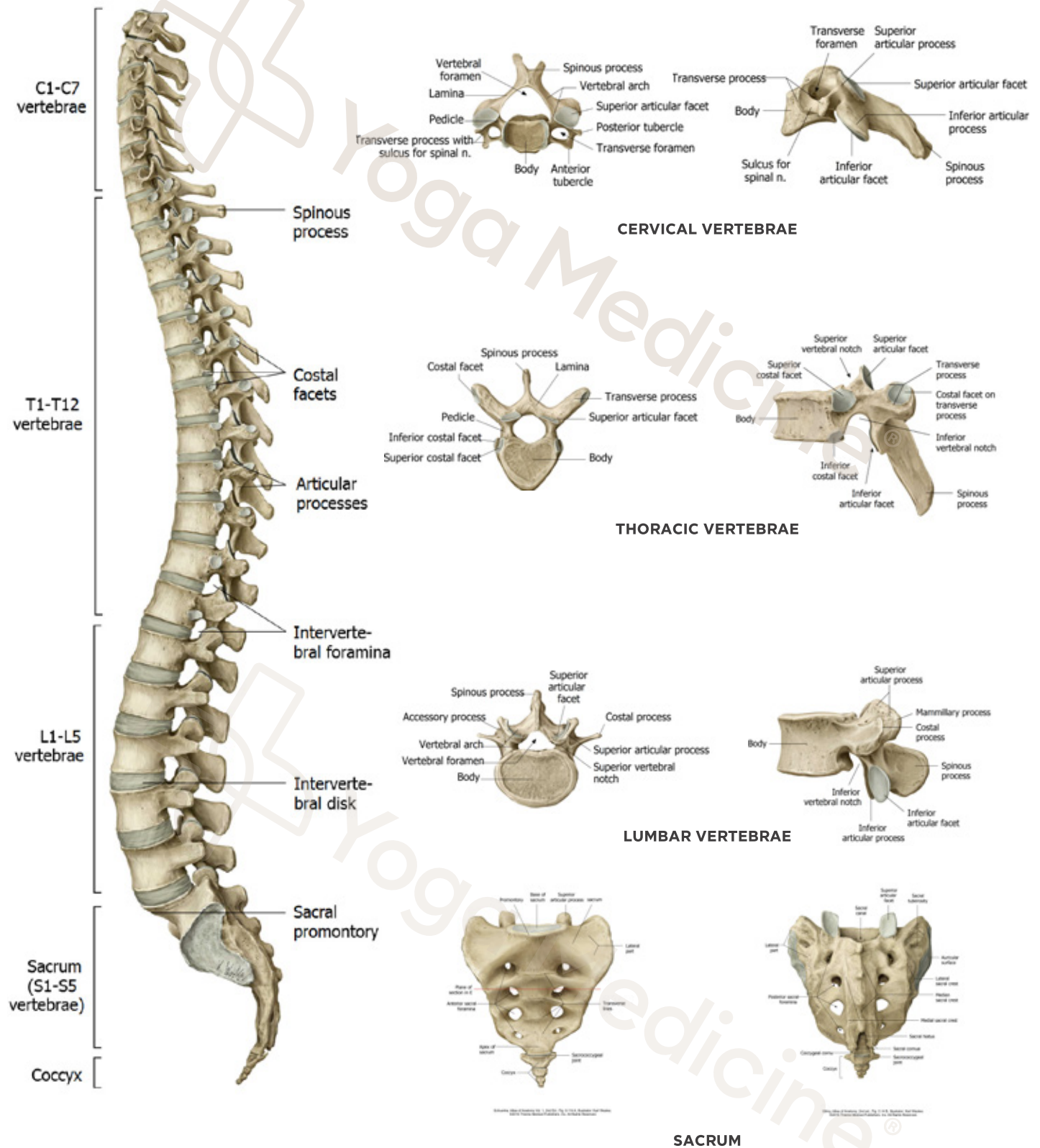
VERTEBRAL COLUMN



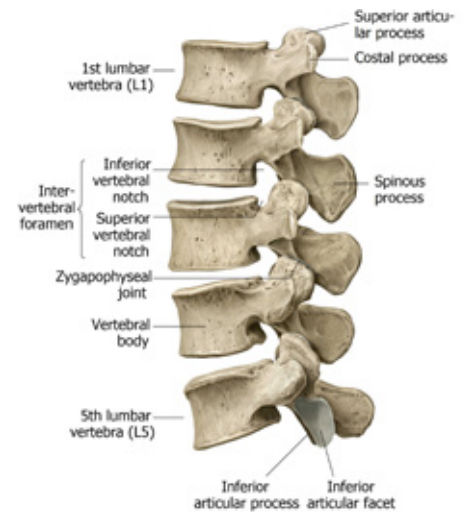
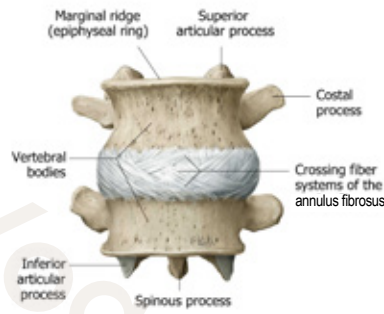
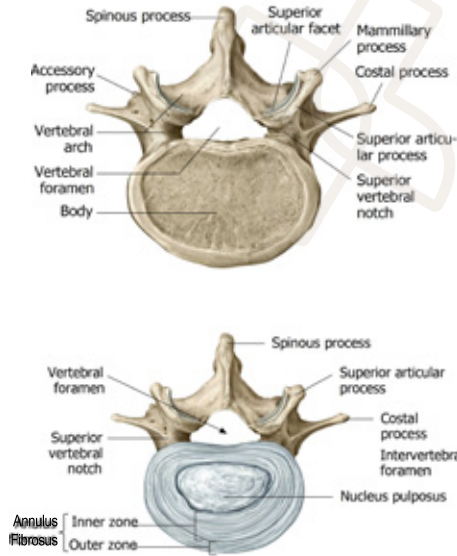
Atlas of Anatomy, 10th ed., Fig. 2.294 B.
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.



VERTEBRAL DIFFERENCES



LUMBAR VERTEBRAE

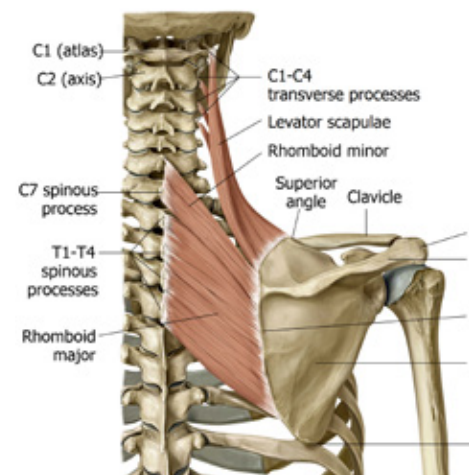


Atlas of Anatomy, 2nd ed., Fig. 2.12, Illustration Karl Wesner
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

11. Shoulder Girdle

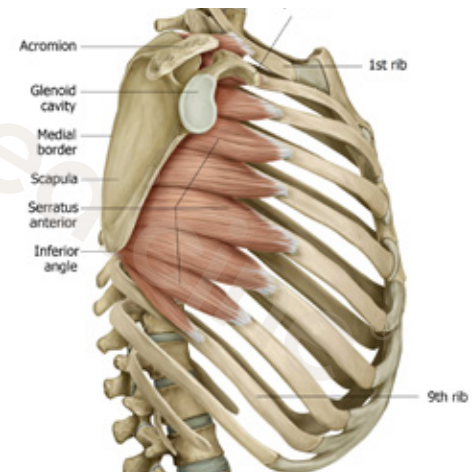
1. RHOMBOIDS MAJOR & MINOR

Origin: Spinous process of C7-T5
Insertion: Medial border of scapula
Action: Retract scapula, stabilize scapula
Poses:



2. SERRATUS ANTERIOR

Origin: Lateral surface of upper 8-9 ribs
Insertion: Medial border of scapula
Action: Protract scapula, stabilize scapula
Poses:

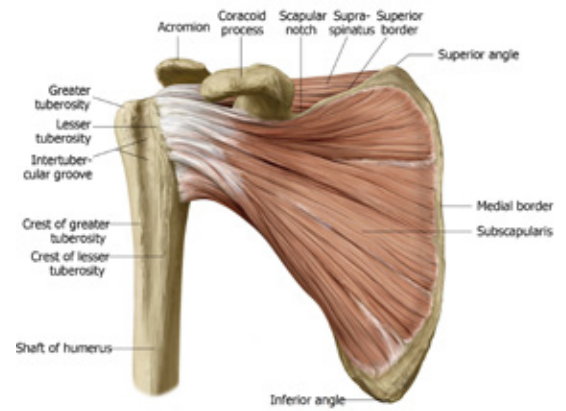


3. ROTATOR CUFF

(Subscapularis, Supraspinatus, Infraspinatus, Teres minor)

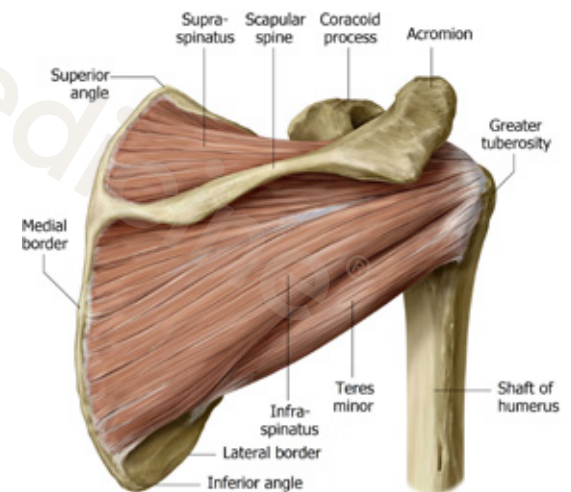
3A. SUBSCAPULARIS

Origin: Subscapular fossa (anterior scapula)
Insertion: Lesser tubercle of humerus
Action: Internally rotate humerus, stabilize humerus
Poses:



3B. SUPRASPINATUS

Origin: Supraspinous fossa on scapula
Insertion: Greater tubercle of humerus
Action: Abduction of humerus, stabilize humerus
Poses:



3C. INFRASPINATUS

Origin: Infraspinous fossa on scapula
Insertion: Posterior greater tubercle of humerus
Action: External rotation of humerus, stabilize humerus
Poses:

3D. TERES MINOR

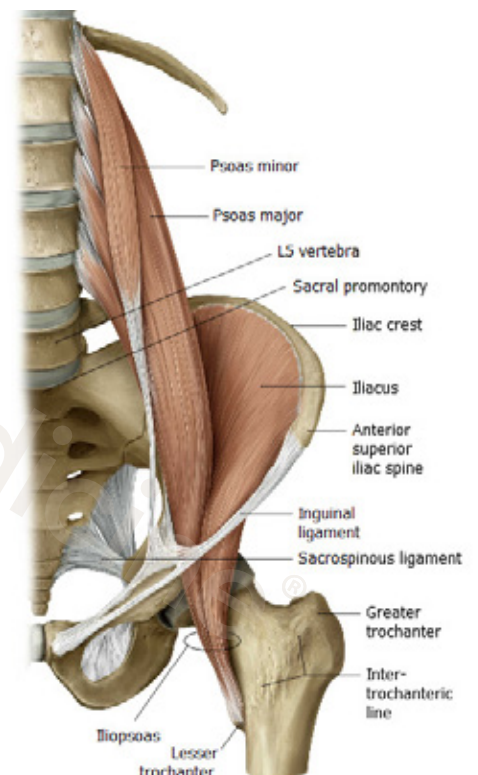
Origin: Lateral border of scapula
Insertion: Posterior greater tubercle of humerus
Action: External rotation of humerus, stabilize humerus
Poses:

Atlas of Anatomy, 2nd ed., Fig. 21.24 E, Illustration Karl Mosler, ©2014 Thieme Medical Publishers, Inc. All Rights Reserved.

12. Pelvic Girdle, Thigh

1. ILIACUS AND PSOAS

Origin: Psoas - Transverse process, body & discs of T12-sacrum
 Iliacus - Iliac fossa
Insertion: Lesser trochanter
Action: Hip flexion, lumbar extension/lordosis
Poses:



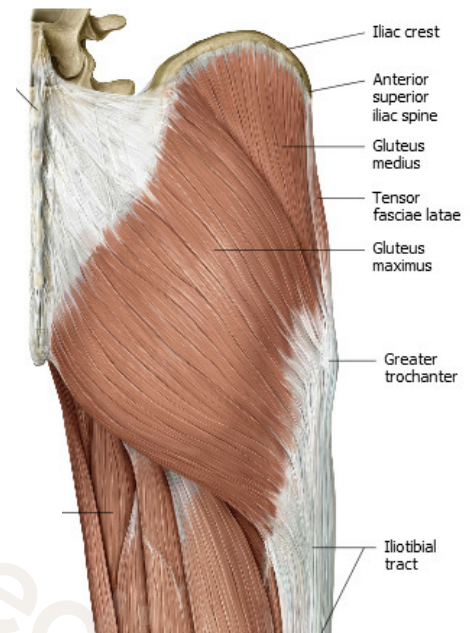
2. GLUTEUS MAXIMUS

Origin: Lateral border of sacrum

Insertion: Gluteal tuberosity & iliotibial band

Action: Hip extension, hip external rotation

Poses:



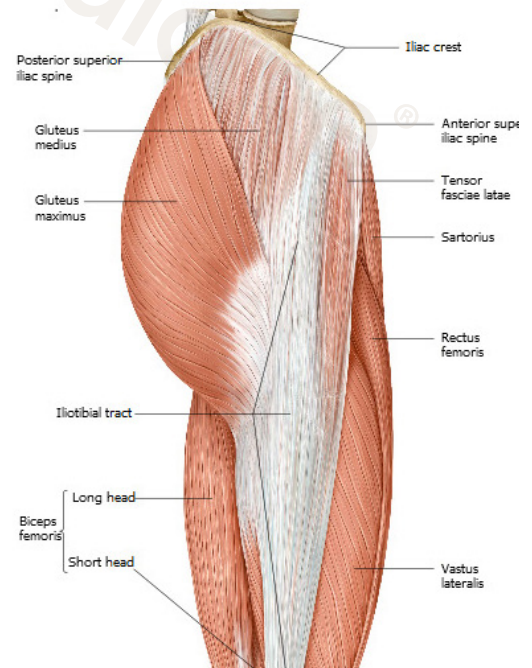
3. GLUTEUS MEDIUS

Origin: Under iliac crest

Insertion: Greater trochanter

Action: Hip abduction, stabilize pelvis on one leg

Poses:



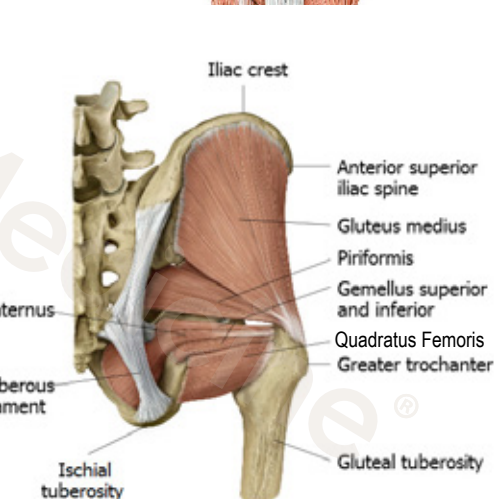
4. TENSOR FASCIA LATA

Origin: ASIS

Insertion: Iliotibial band

Action: Hip flexion, abduction & internal rotation

Poses:



5. EXTERNAL ROTATORS:

PIRIFORMIS & GOGOQ MUSCLES

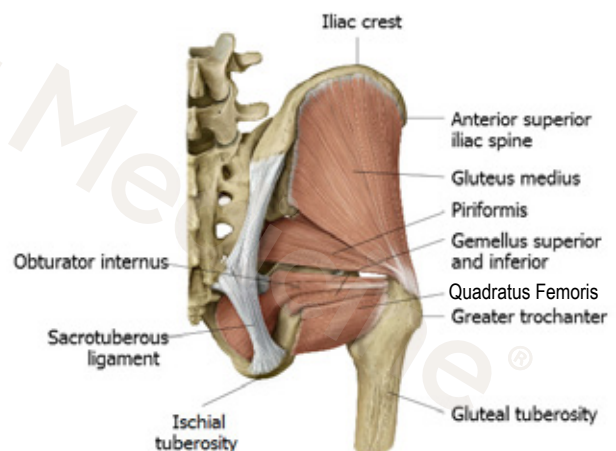
(Gemellus Superior, Gemellus Inferior, Obturator internus, Obturator externus, Quadratus femoris)

Origin: Lateral border of sacrum

Insertion: Greater trochanter

Action: External rotator

Poses:



Atlas of Anatomy, 2nd ed., Fig. 26.20 A, Illustrator: Karl Wesker, ©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

6. ADDUCTORS

Origin: Pubic bone & ischial tuberosity

Insertion: Linea aspera of femur

Action: Adduction of the hip

Poses:

7. QUADRICEPS

(Vastus Lateralis, Medialis, Intermedius & Rectus Femoris)

7A. VASTUS LATERALIS, MEDIALIS, INTERMEDIUS

Origin: Femur

Insertion: Tibial tuberosity via patellar tendon

Action: Extend knee

Poses:

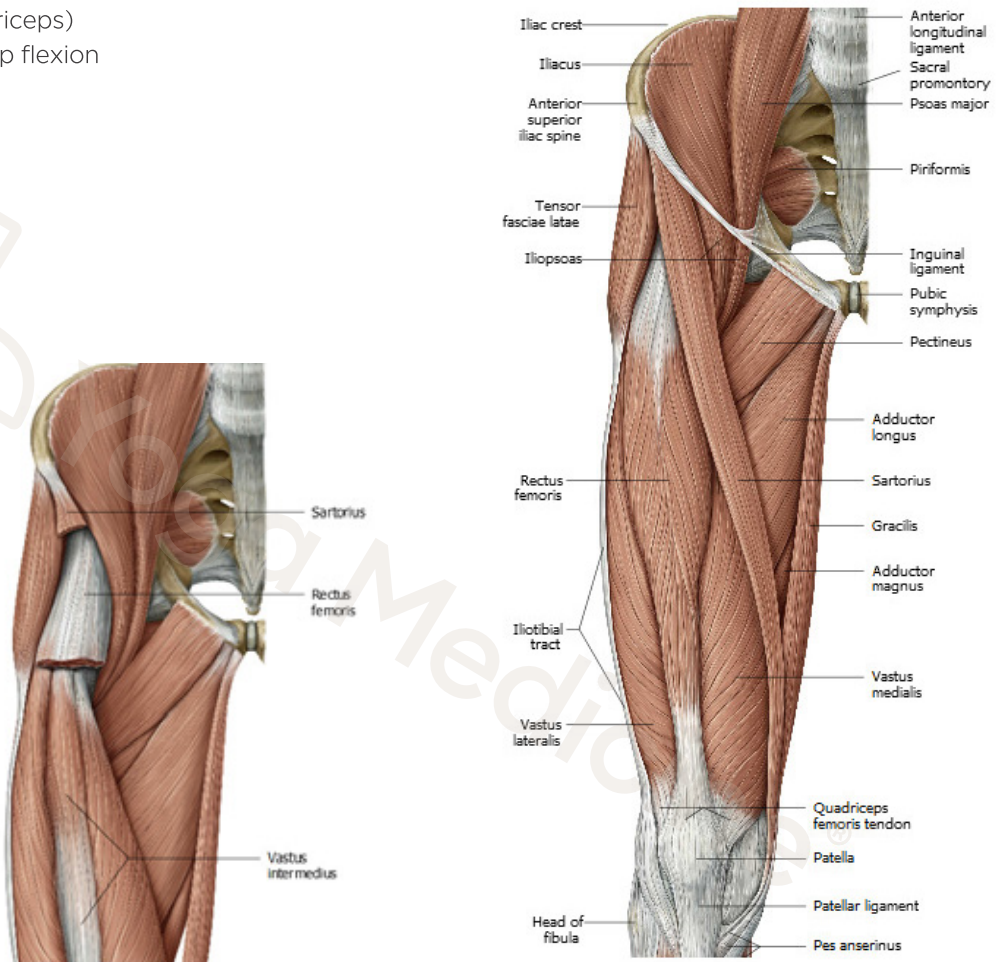
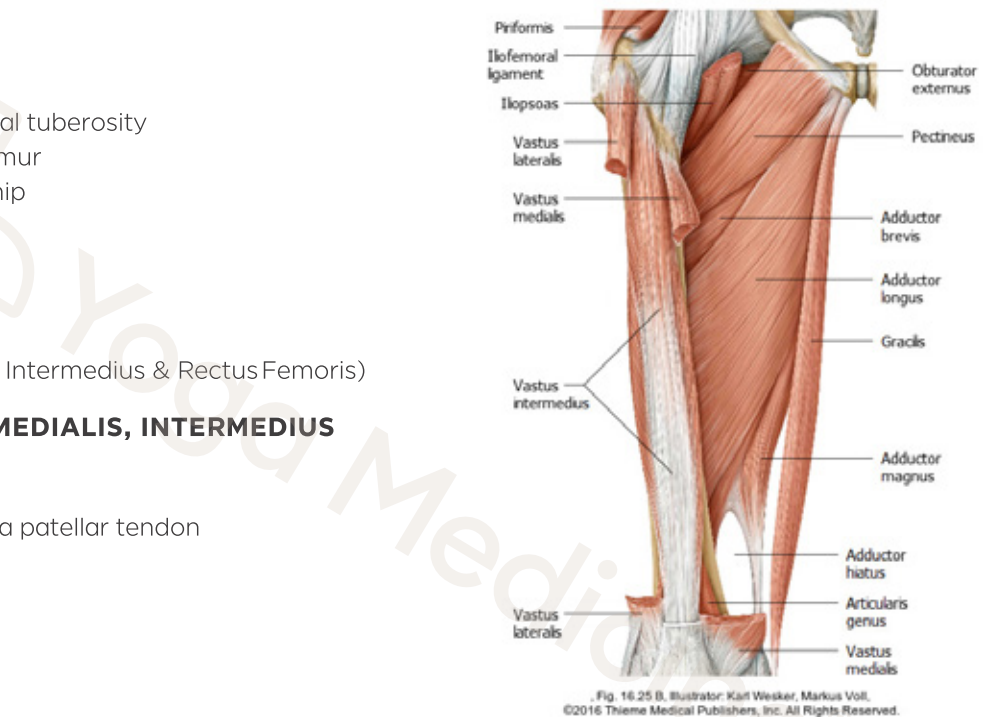
7B. RECTUS FEMORIS

Origin: AIIIS

Insertion: Tibial tuberosity via patellar tendon
(with rest of quadriceps)

Action: Knee extension, hip flexion

Poses:



Atlas of Anatomy, 2nd ed., Fig. 26.11 A, Illustrator: Karl Wesker, ©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

8. HAMSTRINGS

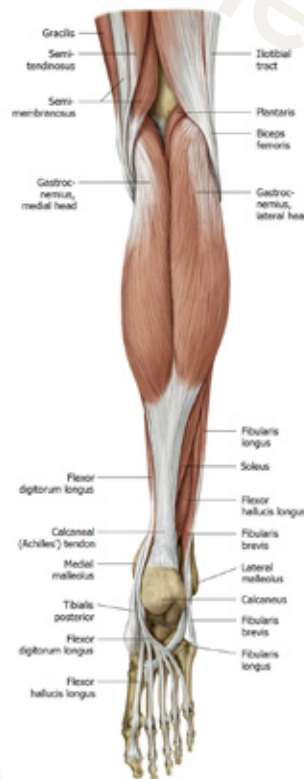
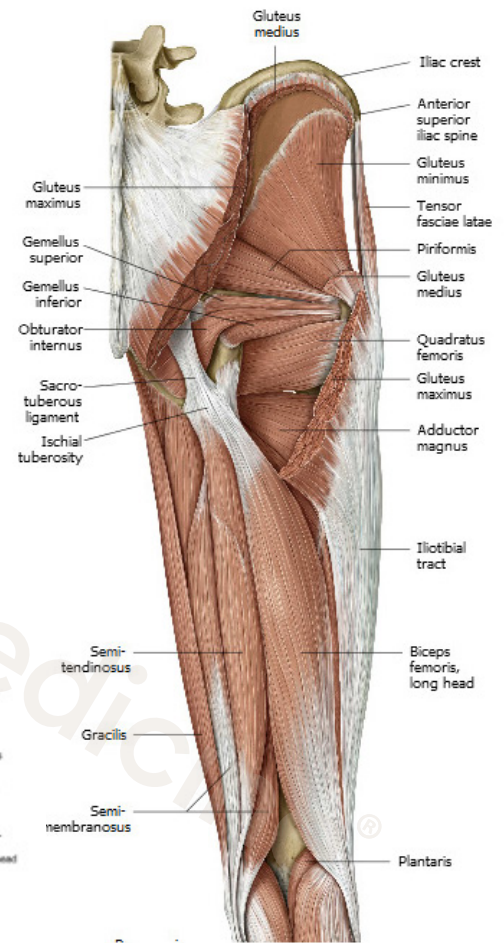
(Semimembranosus, Semitendinosus, Biceps Femoris Longus & Brevis)

8A. SEMIMEMBRANOSUS & SEMITENDINOSUS

Origin: Ischial tuberosity
Insertion: Medial condyle of tibia
Action: Extension of hip, flexion of knee
Poses:

8B. BICEPS FEMORIS LONGUS & BREVIS

Origin: Ischial tuberosity & femur
Insertion: Head of fibula
Action: Extension of hip, flexion of knee
Poses:



of Anatomy, 2nd ed., Fig. 26.14 B, Illustrator: Karl Wesker, 116 Thieme Medical Publishers, Inc. All Rights Reserved.

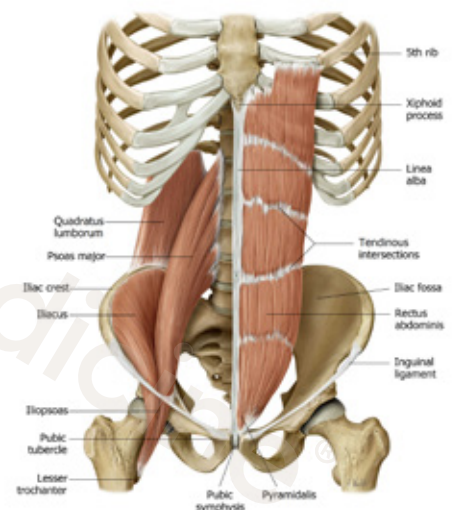
9. GASTROCNEMIUS

Origin: Superior to lateral & medial femoral condyles
Insertion: Achilles tendon to calcaneus
Action: Plantar flex foot, flex knee
Poses:

13. Trunk

1. RECTUS ABDOMINIS

Origin: Pubic bone
Insertion: Xiphoid process of sternum & costal cartilage of ribs 5-7
Action: Flexion of lumbar spine
Poses:



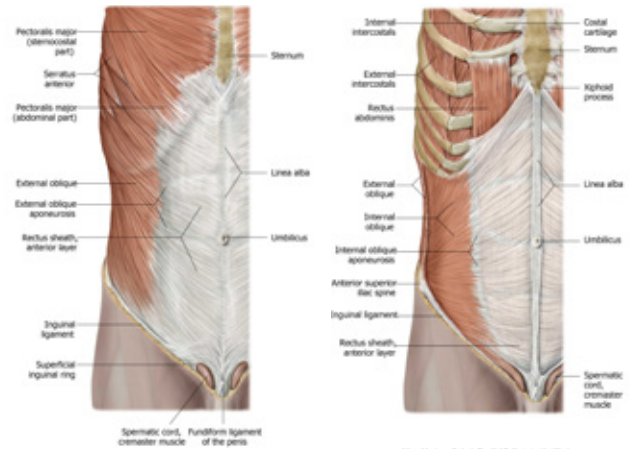
Atlas of Anatomy, 2nd ed., Fig. 11.10 A, Illustrator: Karl Wesker, 116 Thieme Medical Publishers, Inc. All Rights Reserved.

2. OBLIQUES

Origin & Insertion: Together create X shape across abdomen around sides of waist

Action: Rotation, lateral flexion, flexion of lower spine

Poses:

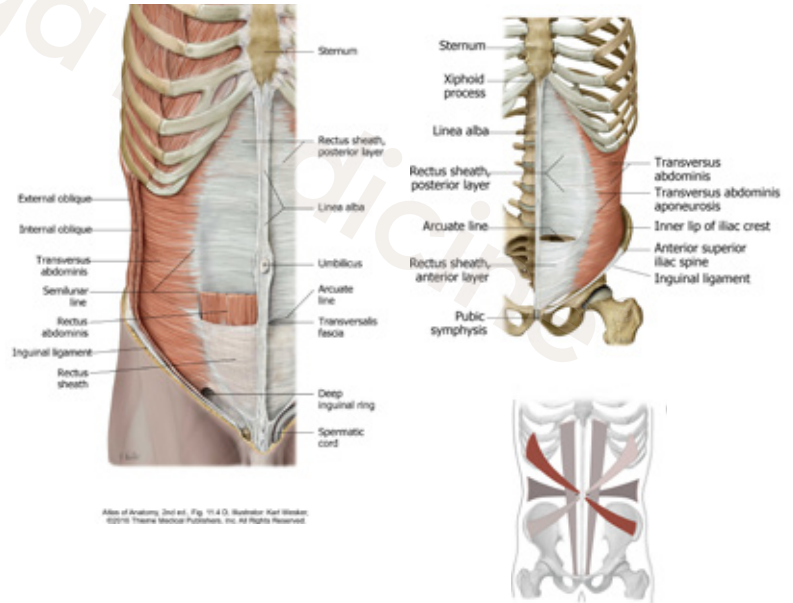


3. TRANSVERSE ABDOMINIS

Origin & Insertion: Runs between pelvis & ribcage to wrap around waist to back

Action: Compress abdominal contents, draw in around waist to support abdominal organs and lumbar spine and to create axial extension

Poses:



4. ERECTOR SPINAE

(iliocostalis, longissimus & spinalis)

Origin & Insertion: Large ropey muscles that run along sides of spine from sacrum to occiput, attaching to ribs & vertebrae along the way (iliocostalis- most lateral, longissimus & spinalis- most medial)

Action: Extend vertebral column

Poses:

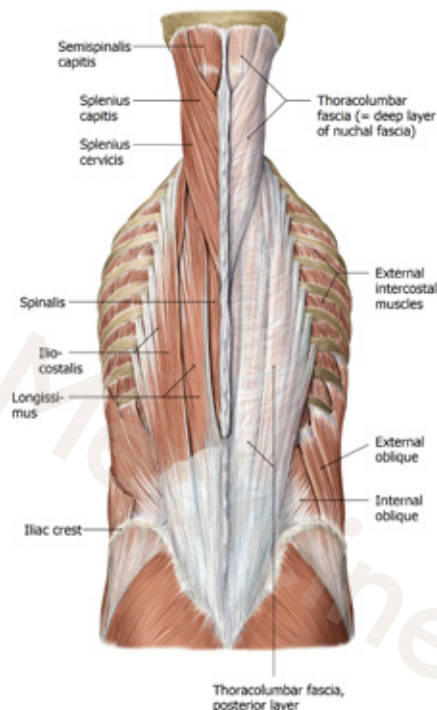


Fig. 3.5 B, Illustrator: Wiesner/Voll, ©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

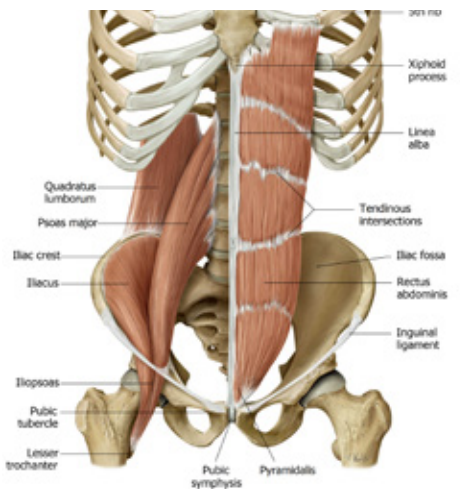
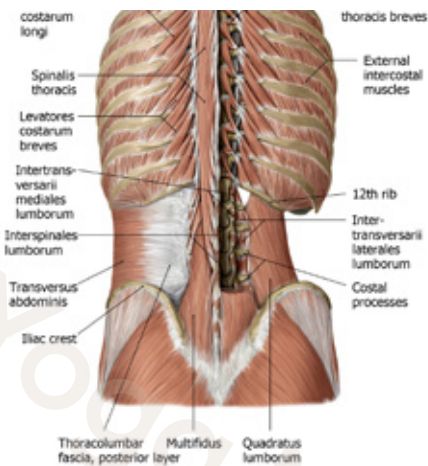
5. QUADRATUS LUMBORUM

Origin: Iliac crest

Insertion: Last rib & transverse process of lumbar vertebrae

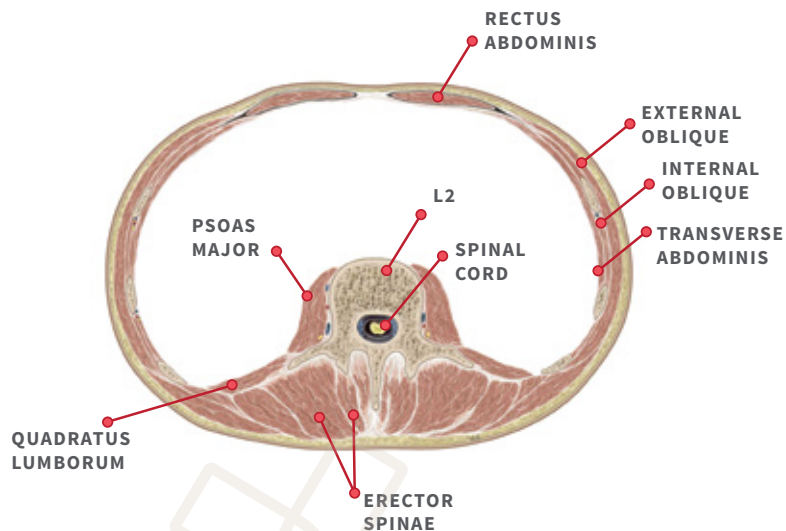
Action: One side= lateral flexion of vertebral column, both sides= extension of spine

Poses:

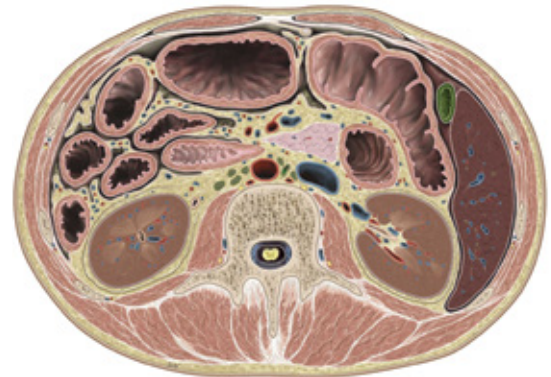


Atlas of Anatomy, 3rd ed., Fig. 11.10A, Illustration: Karl Wesner
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF THE TRUNK (TRANSVERSE SECTION OF ABDOMEN AT L2)



Gray's Atlas of Anatomy, 3rd ed., Fig. 17.1 C, Illustration: Wesner/Vol.
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.



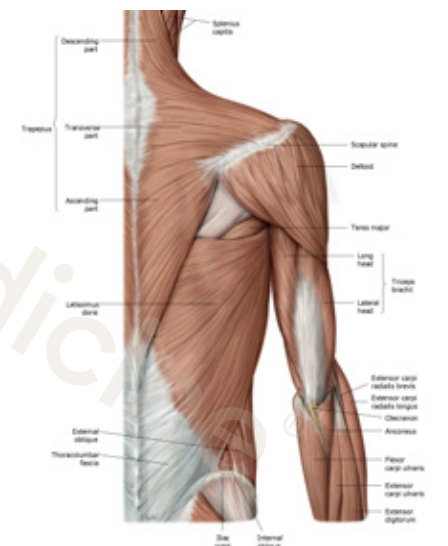
6. LATISSIMUS DORSI

Origin: Spinous process of T7-L5, thoracolumbar fascia, iliac crest, inferior 3-4 ribs, inferior angle of scapula

Insertion: Medial to bicipital groove

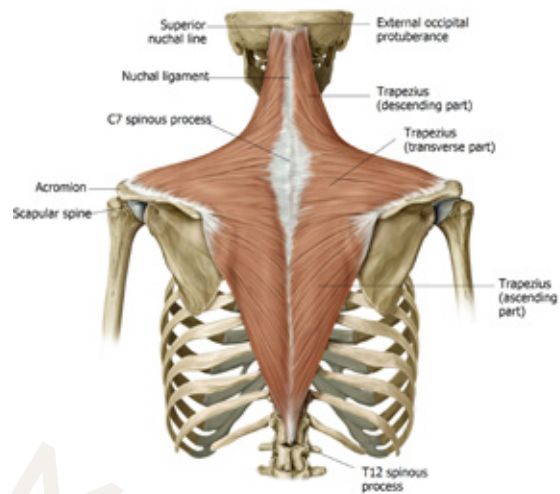
Action: Adduct, extend & internally rotate the arm, rotation of trunk

Poses:



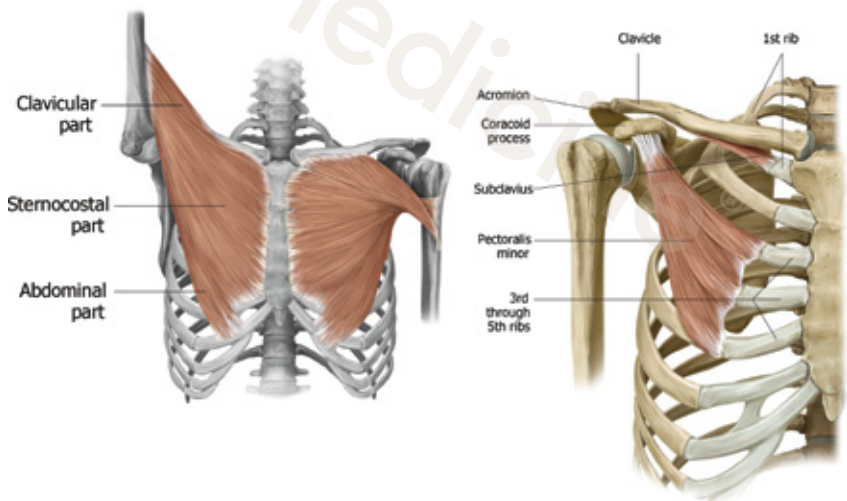
7. TRAPEZIUS

Origin: Spinous process of C1-T12
Insertion: Lateral spine of scapula, acromion process and lateral 1/3rd of clavicle
Action: Upper- elevate scapula, Middle- retract scapula, Lower- depress scapula
Poses:



8. PECTORALIS MAJOR

Origin: Medial 2/3rd of clavicle, sternum, costal cartilage (upper 6), aponeurosis of external obliques
Insertion: Lateral edge of bicipital groove
Action: Adduction, internal rotation, flexion & extension of humerus
Poses:

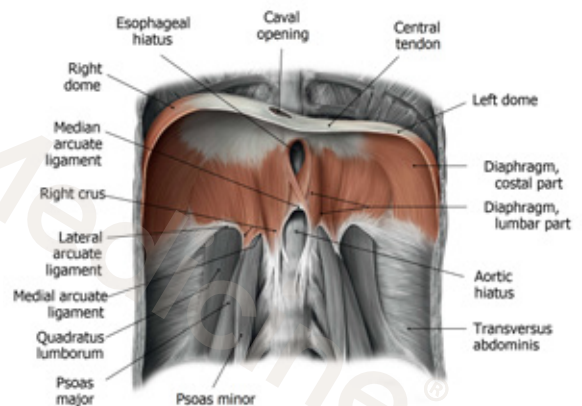


9. PECTORALIS MINOR

Origin: Ribs 3-5
Insertion: Coracoid process
Action: Anterior stability for scapula, lift ribs in respiration
Poses:

10. DIAPHRAGM

Origin: Lower ribs and T12 - L2
Insertion: Central tendon
Action: Relaxed breathing

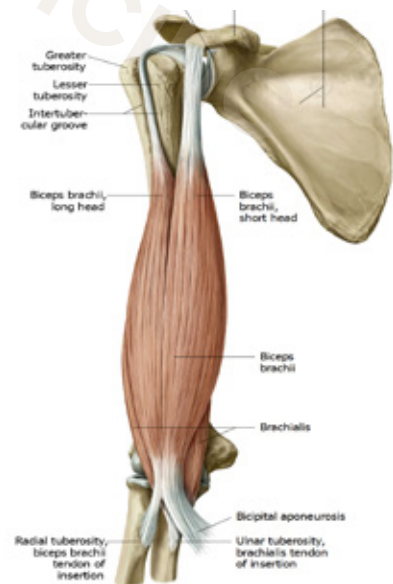
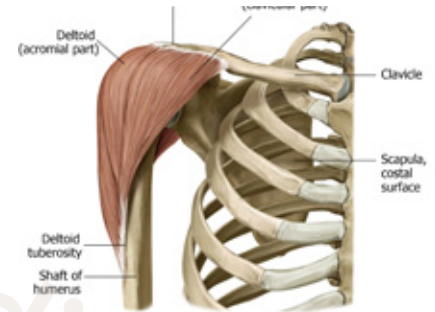
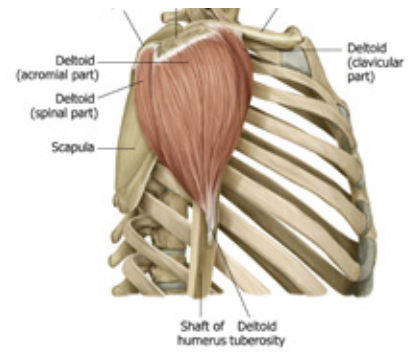


14. Upper Arm

1. DELTOID

- Origin:** Lateral 1/3rd of clavical, acromion,
Lateral spine of scapula
- Insertion:** Deltoid tuberosity on humerus
- Action:** Anterior - flexion of shoulder
Middle - abduction
Posterior- extension of shoulder

Poses:



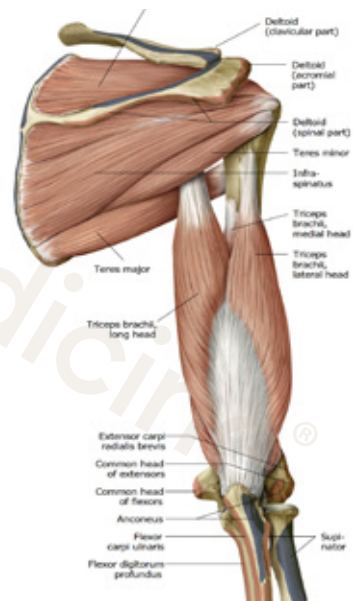
2. BICEPS

- Origin:** Short head - coracoid process,
Long head - supraglenoid tubercle
- Insertion:** Radial tuberosity & bicipital aponeurosis
- Action:** Flex elbow, flex shoulder, supinate forearm
- Poses:**

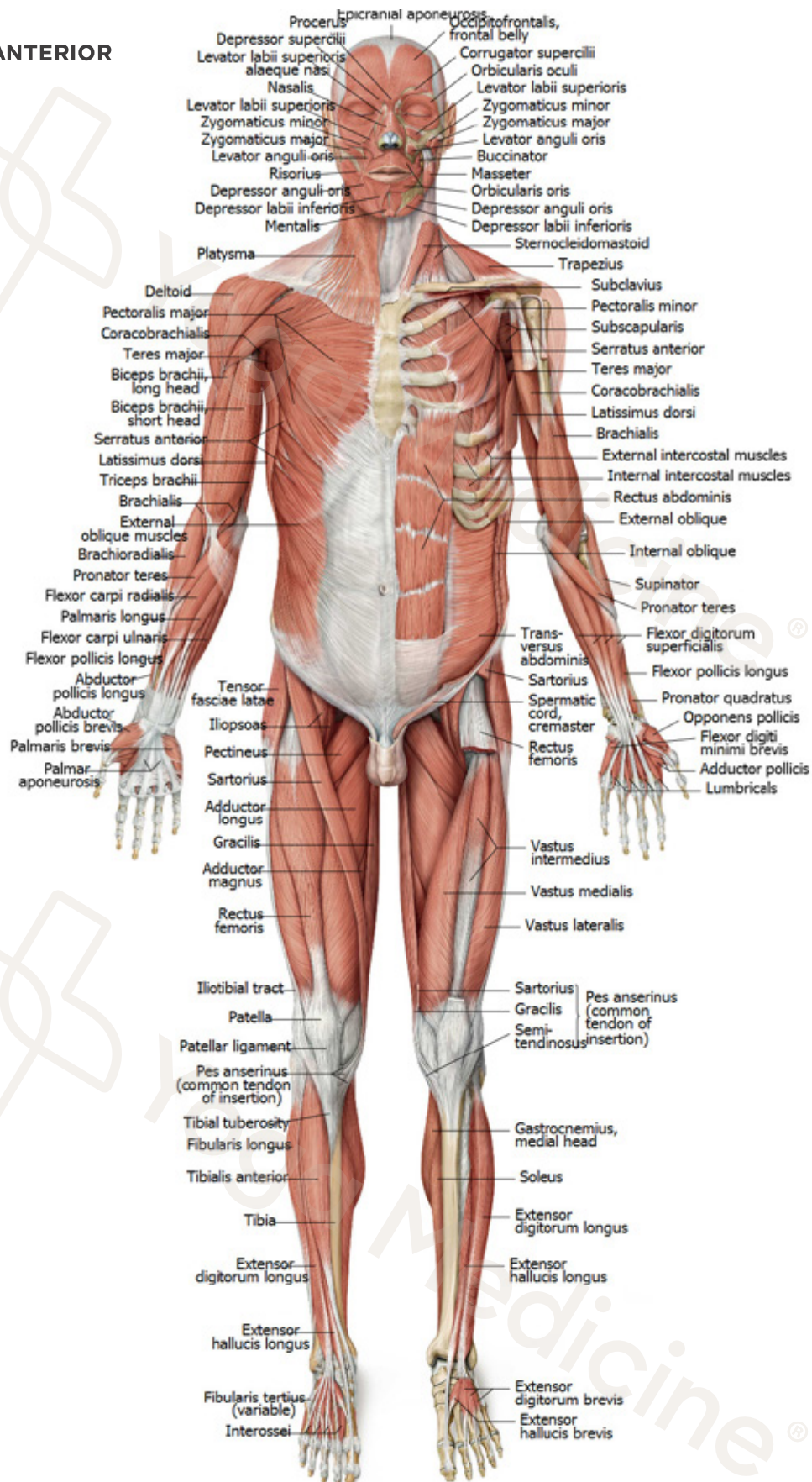
3. TRICEPS

- Origin:** Long head- infraglenoid tubercle
Lateral & medial heads - humerus
- Insertion:** Olecranon process of ulna
- Action:** Extend forearm, Long head- also extends shoulder

Poses:

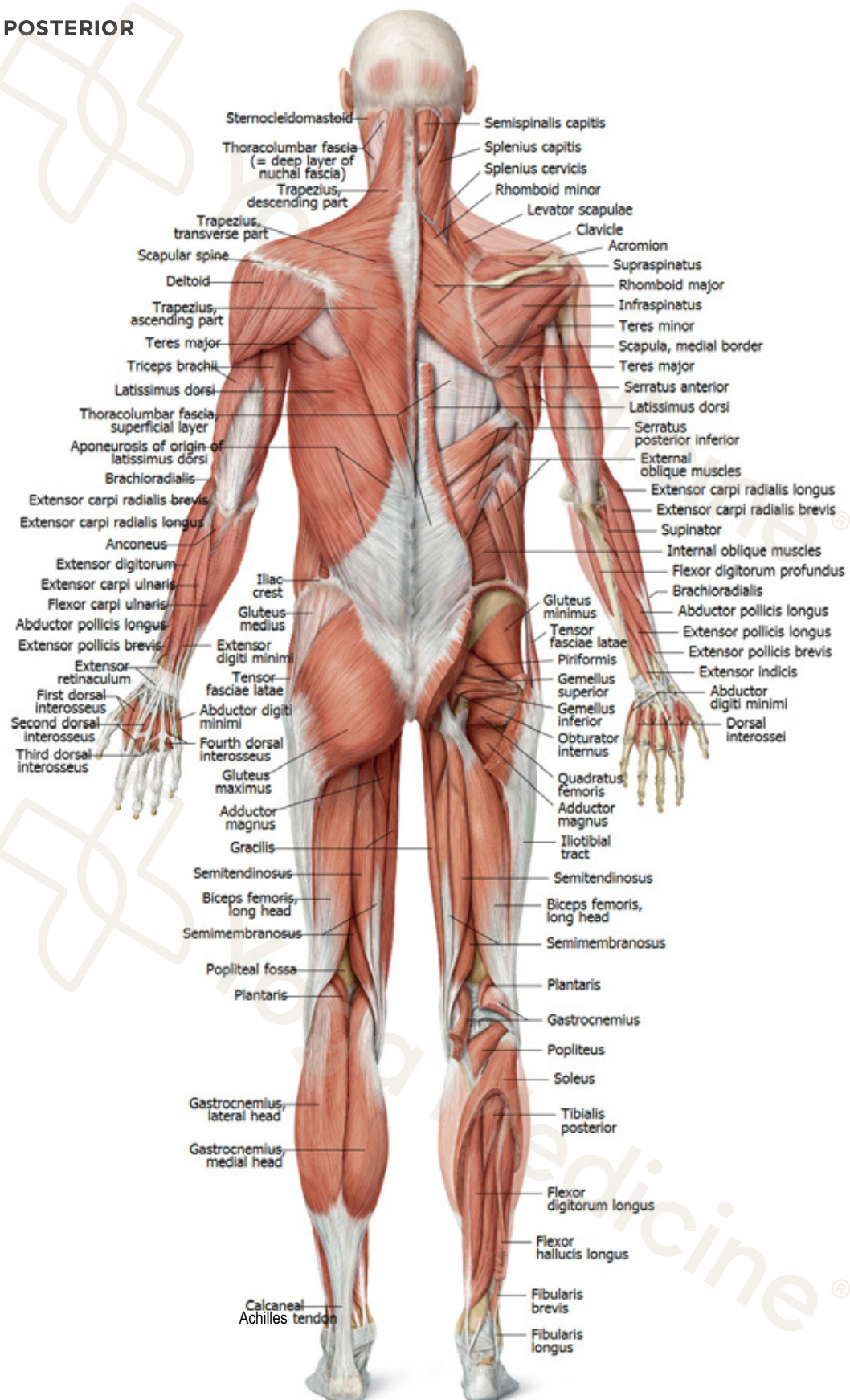


MUSCLES - ANTERIOR



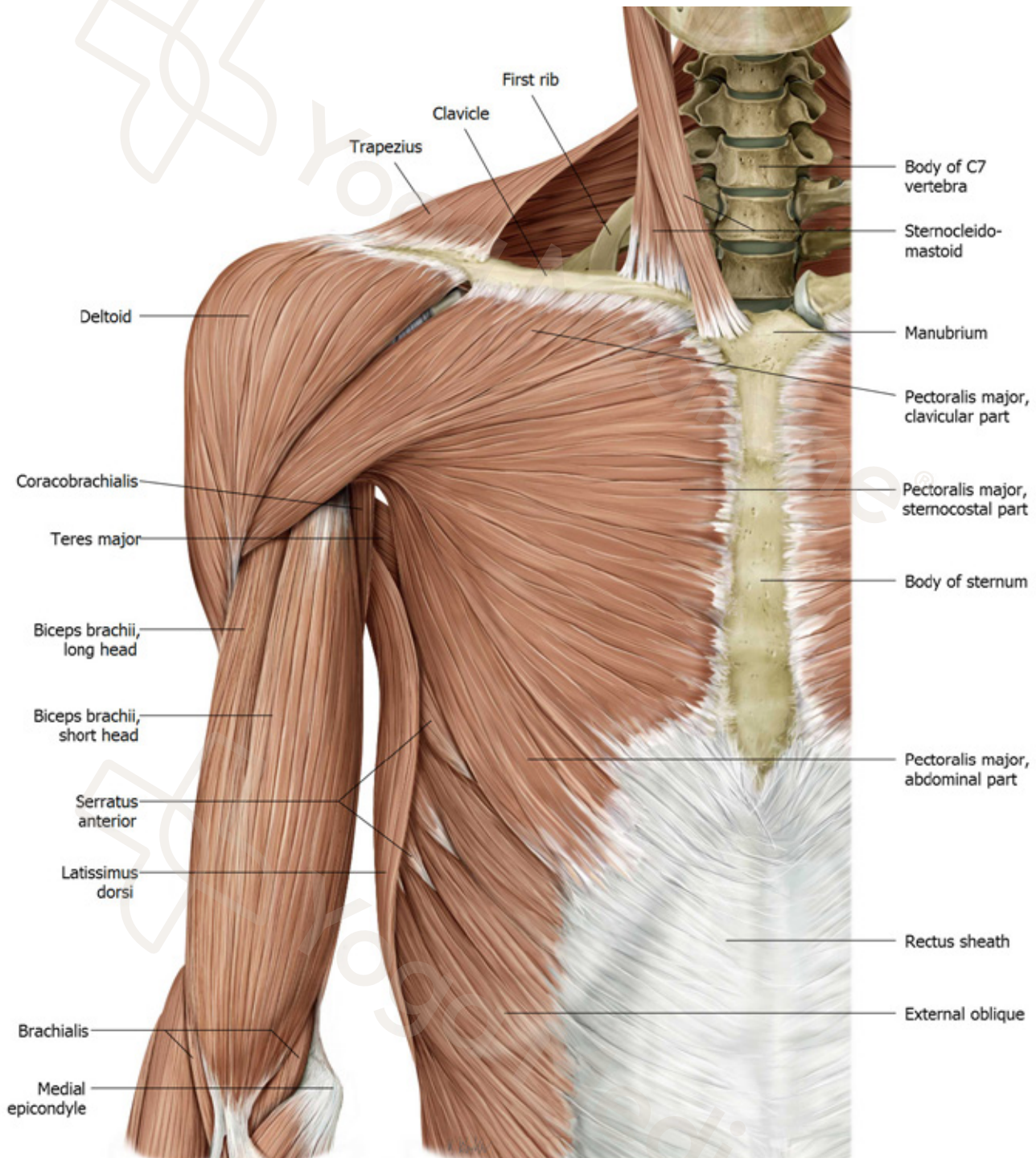
Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 5.54 Aa, Illustrator: Karl Wesker, ©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES - POSTERIOR



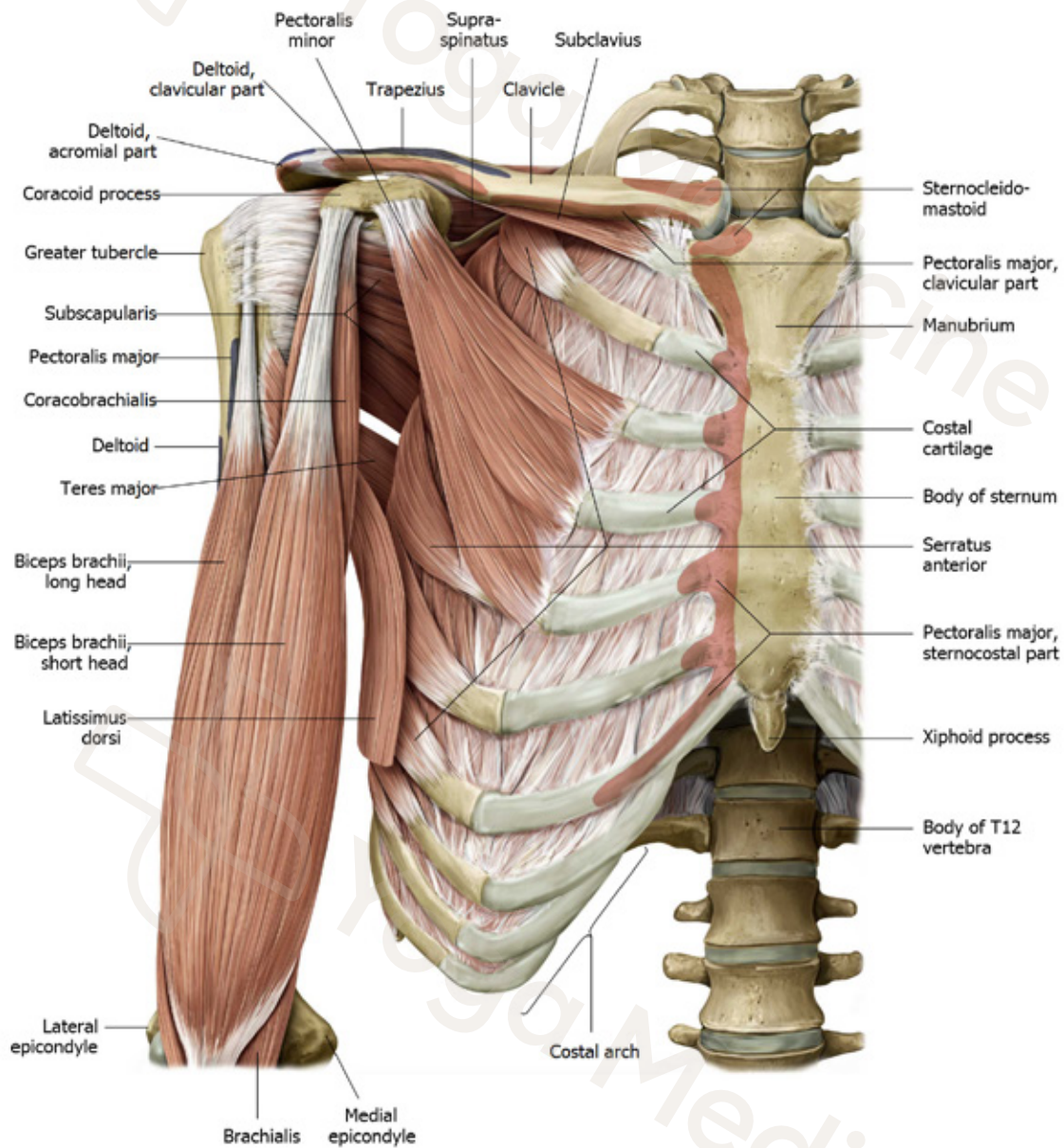
Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 5.55 Ab, Illustrator: Karl Wesker, ©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF TRUNK, SHOULDER & ARM: SUPERFICIAL LAYERS



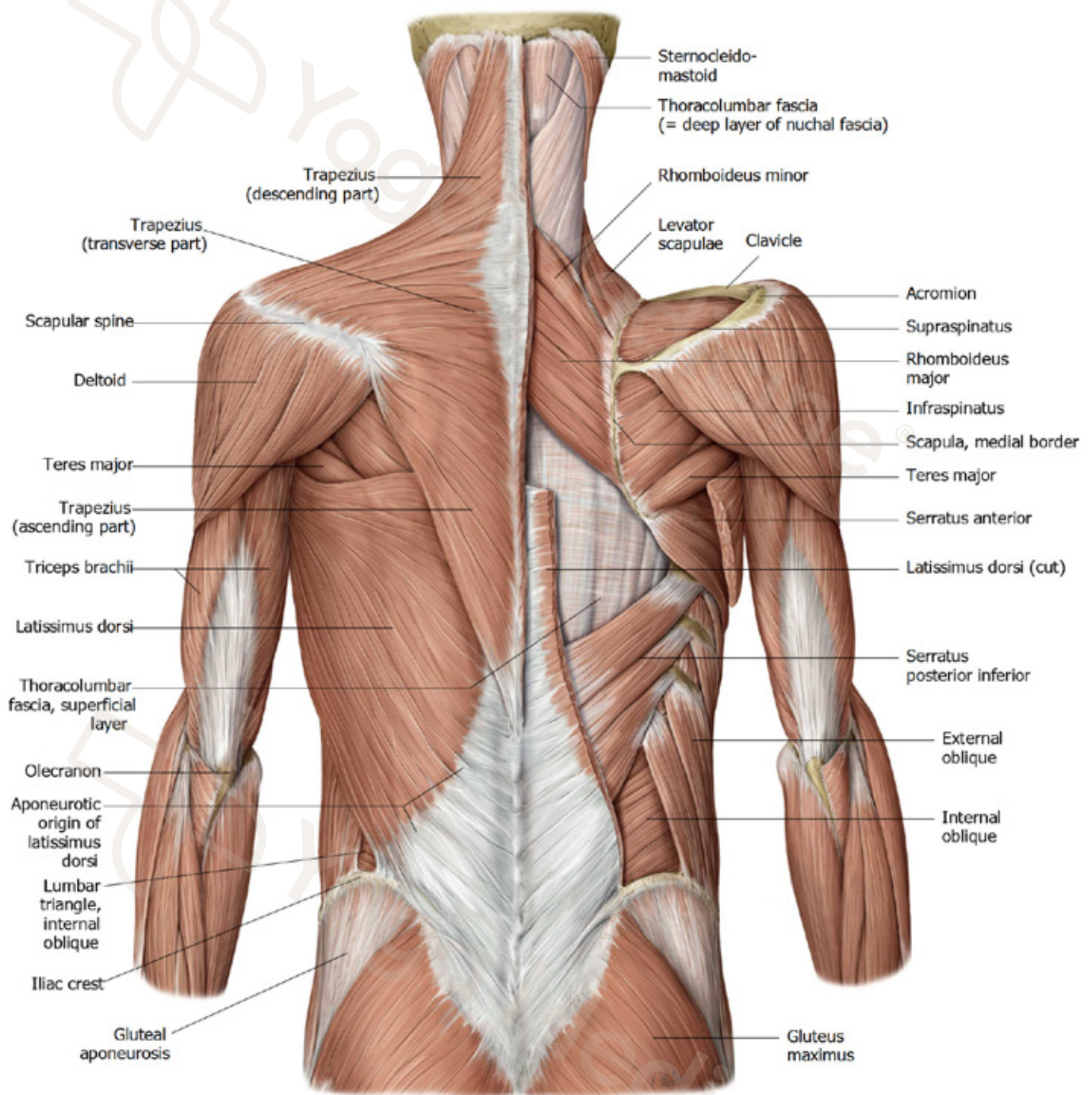
Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 16.334 A, Illustrator: Karl Wesker,
©2018 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF TRUNK, SHOULDER & ARM: INTERMEDIATE & DEEP LAYERS



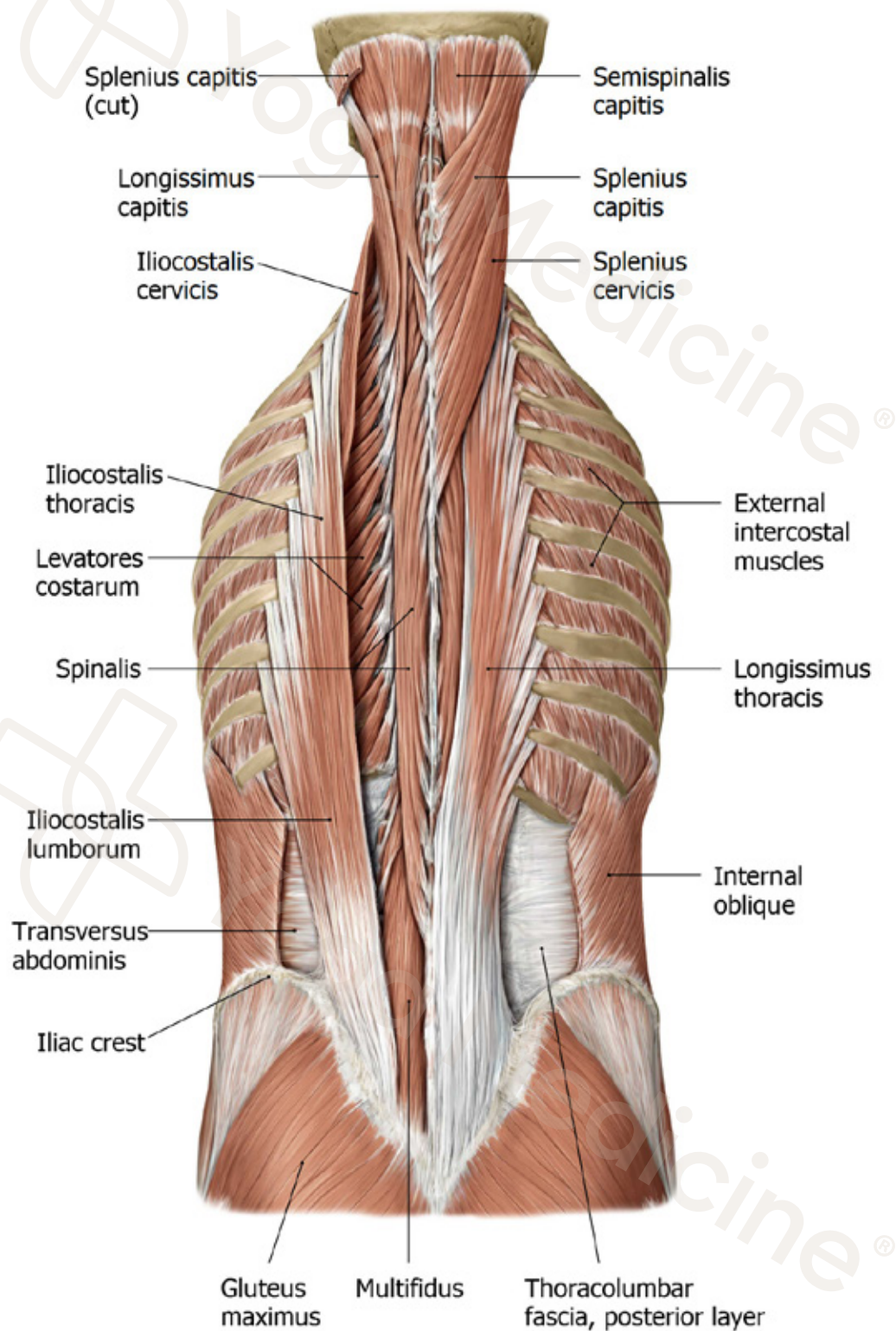
Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 16.335 B, Illustrator: Karl Wesker, ©2018 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF BACK: SUPERFICIAL LAYERS



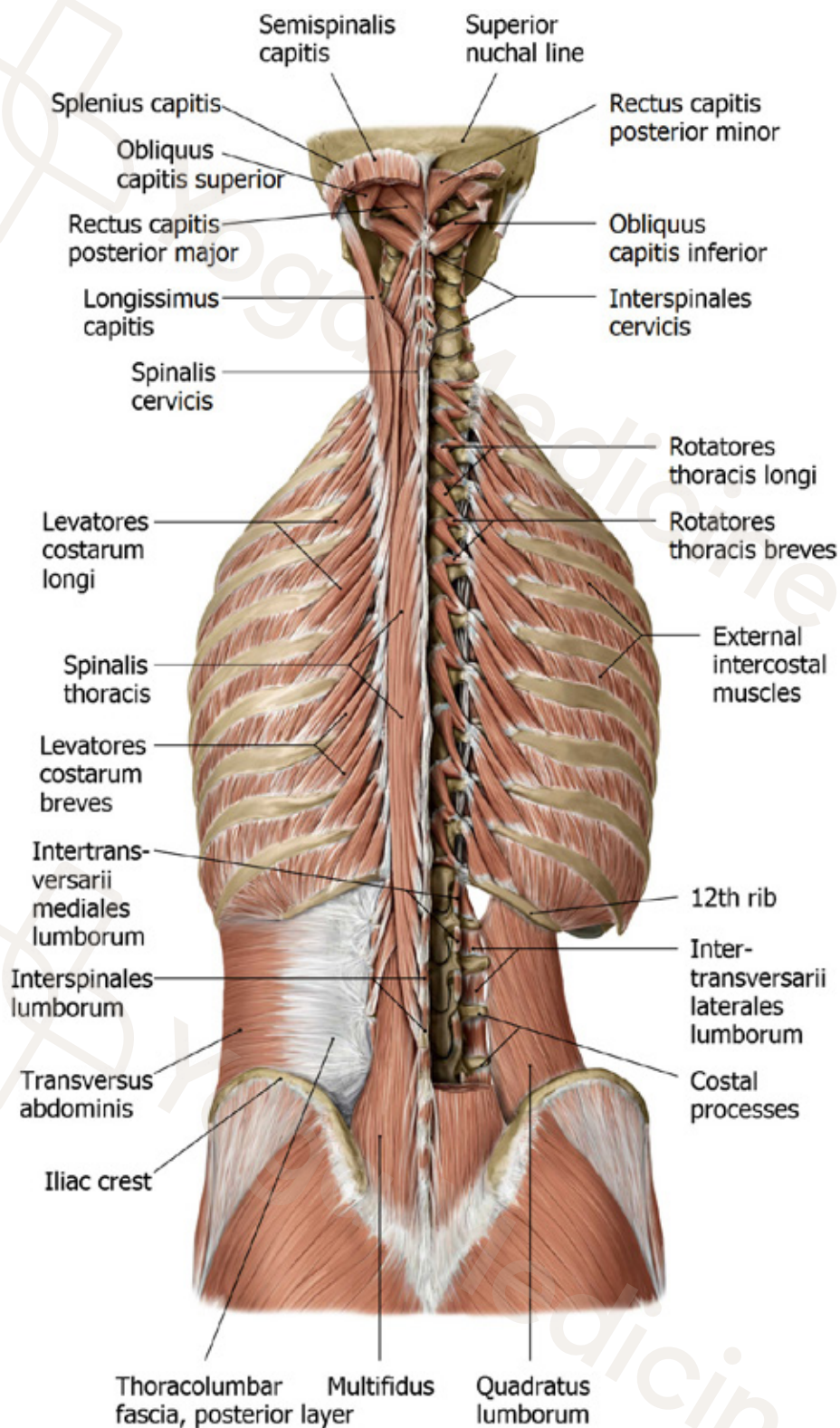
, Fig. 3.1, Illustrator: Wesker/Voll,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF BACK: INTERMEDIATE LAYERS



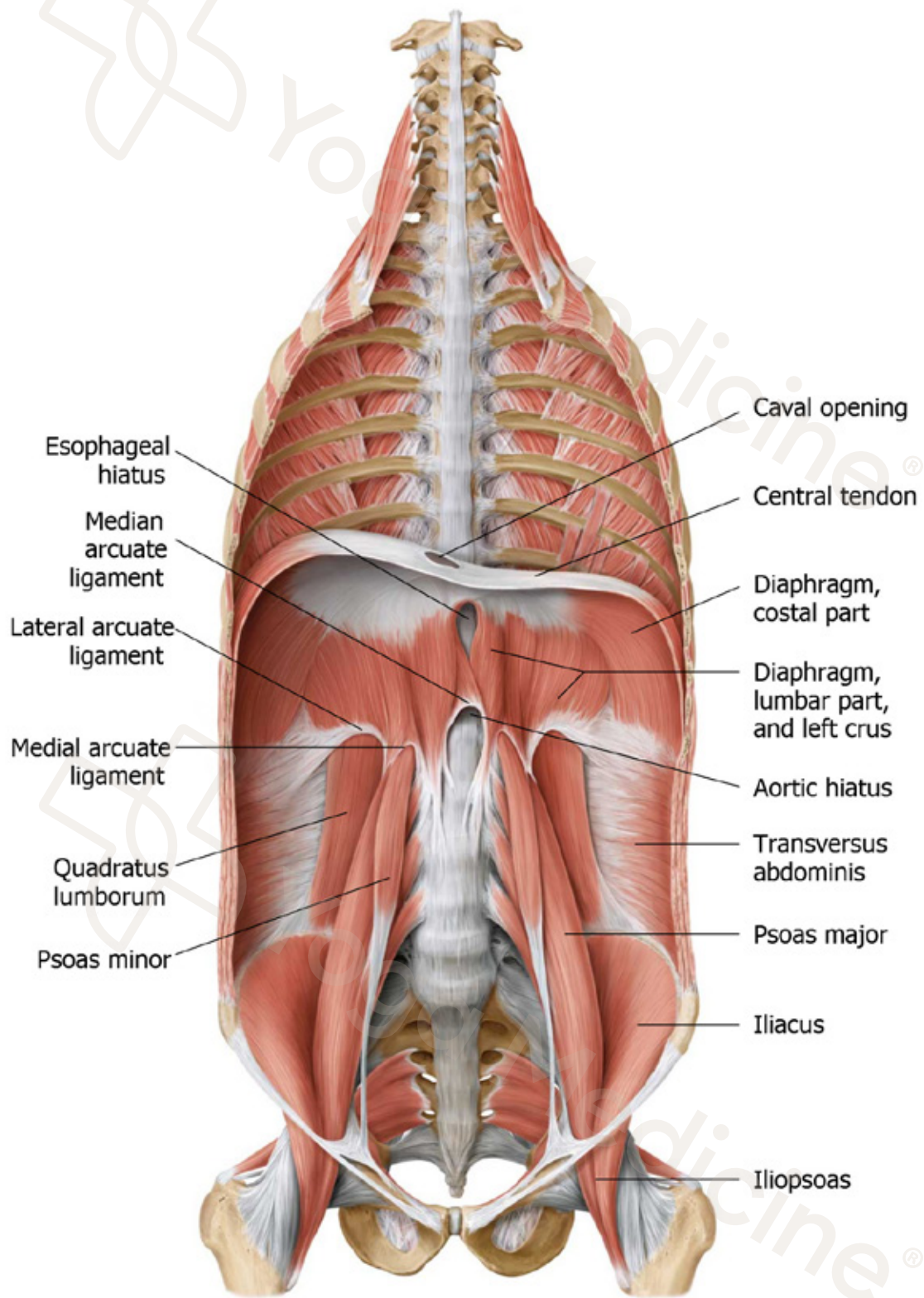
, Fig. 3.5 C, Illustrator: Wesker/Voll,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF BACK: DEEP LAYERS



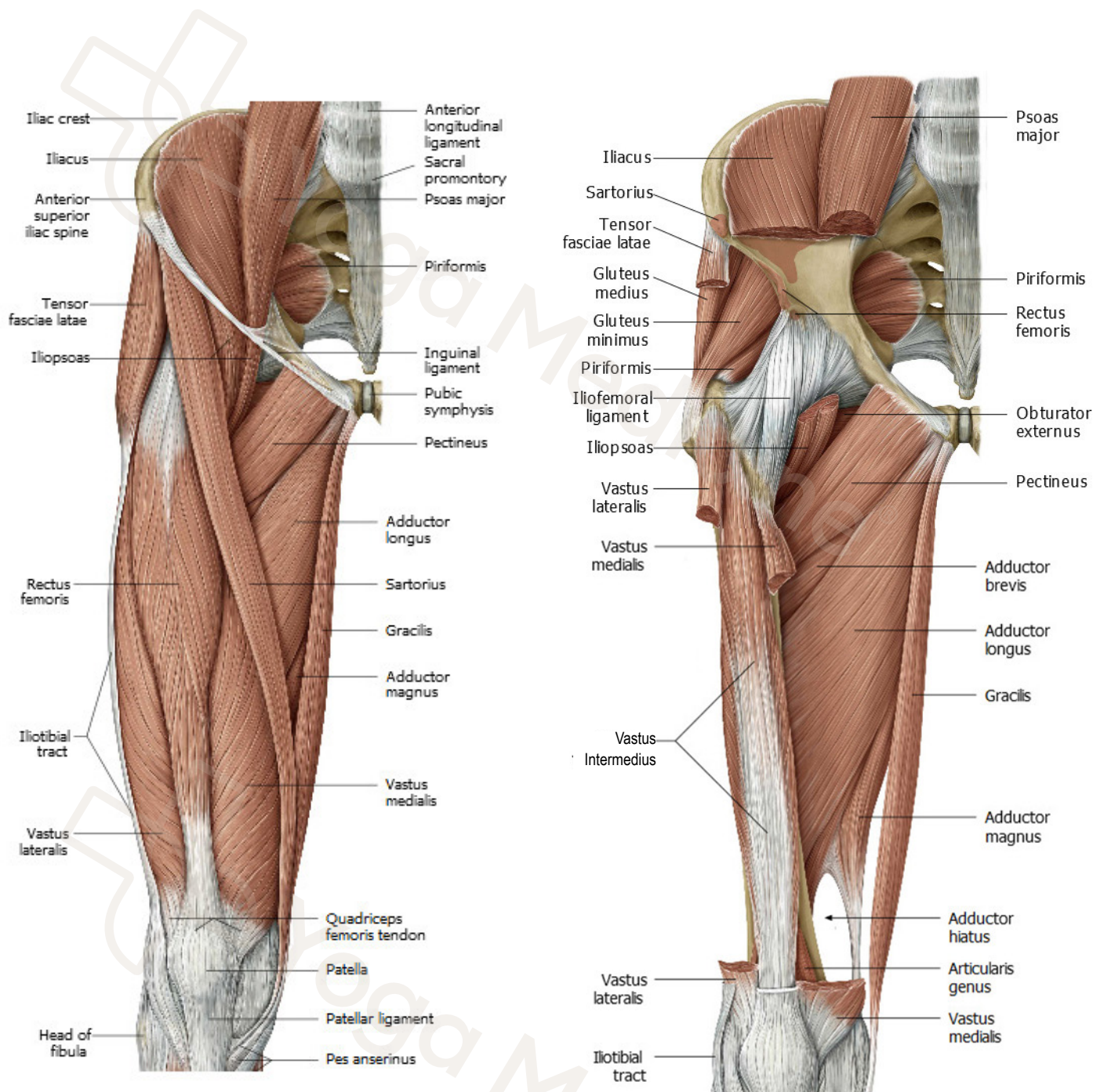
, Fig. 3.5 D, Illustrator: Wesker/Voll,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

POSTERIOR ABDOMINAL WALL: INTERNAL VIEW



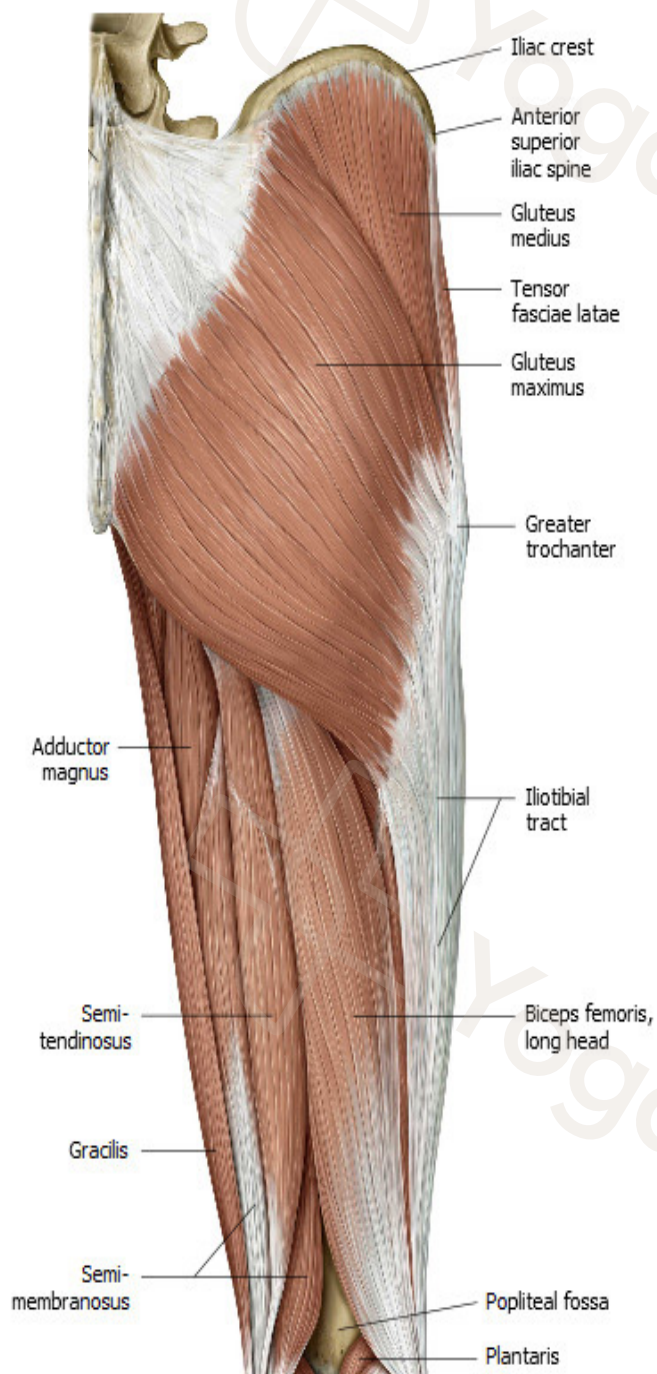
Atlas of Anatomy, 2nd ed., Fig. 11.5 B, Illustrator: Karl Wesker,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF HIP AND THIGH: ANTERIOR VIEW

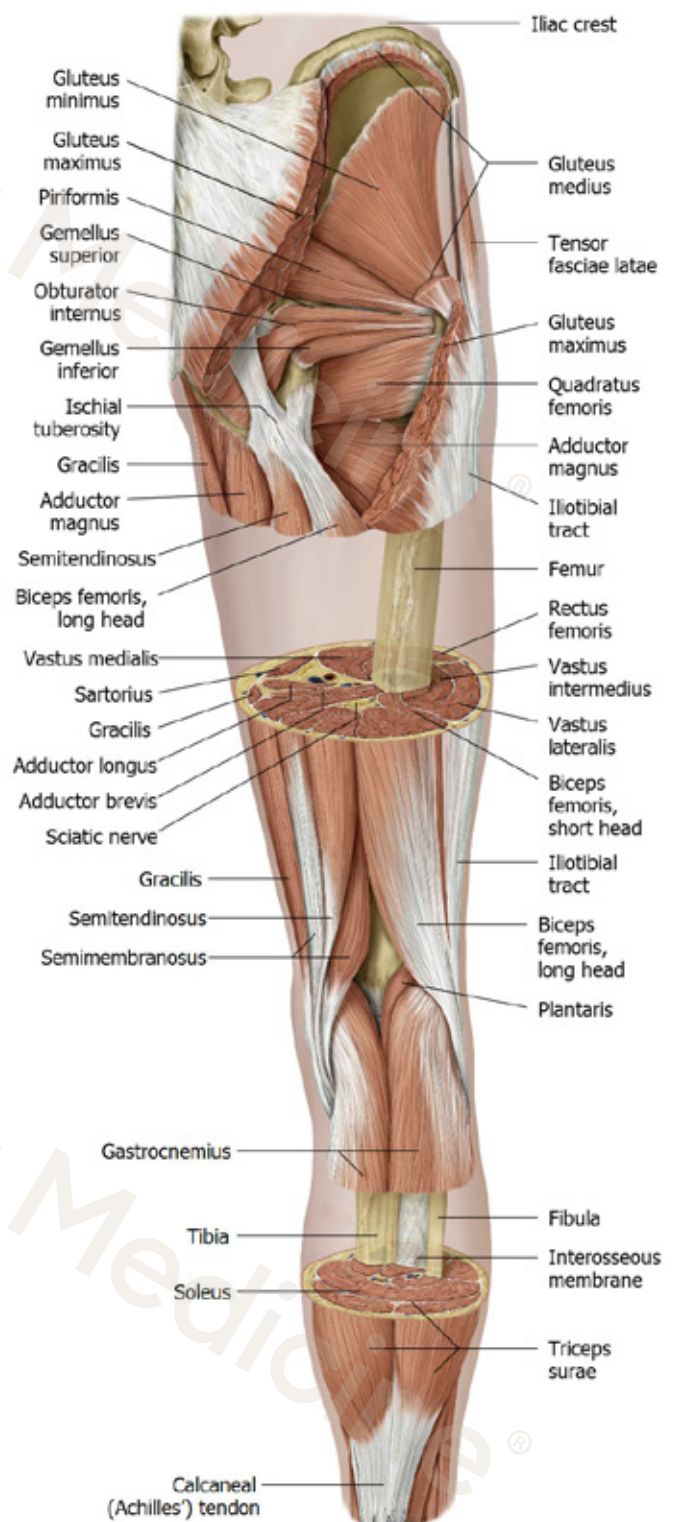


Atlas of Anatomy, 2nd ed., Fig. 26.11 A, Illustrator: Karl Wesker
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF HIP AND THIGH: POSTERIOR VIEW

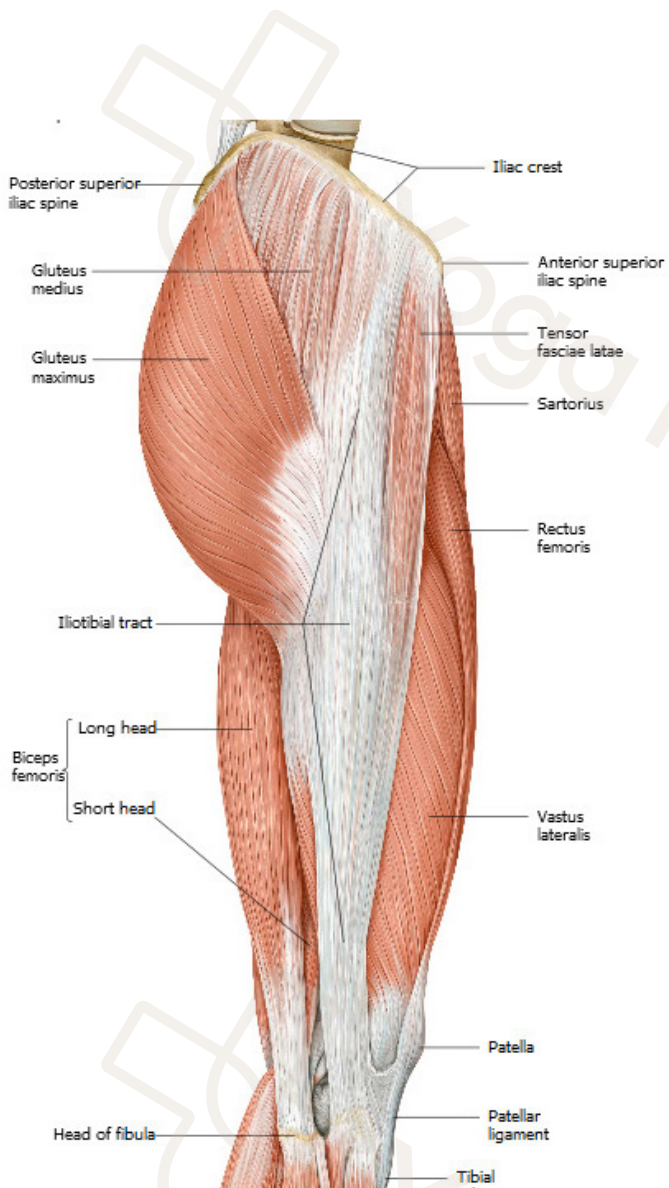


, Fig. 31.14 A, Illustrator: Wesker/Voll,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

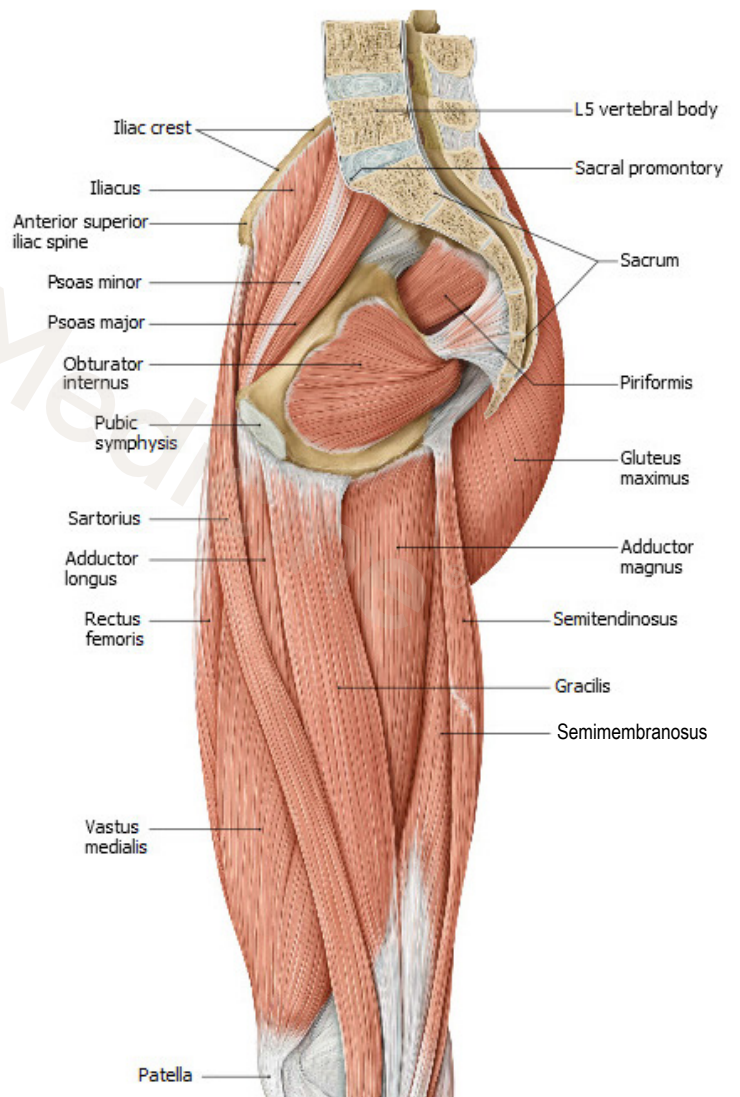


Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 21.522 C, Illustrator: Karl Wesker,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

MUSCLES OF HIP AND THIGH: LATERAL VIEW



, Fig. 16.28, Illustrator: Karl Wesker, Markus Voll,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

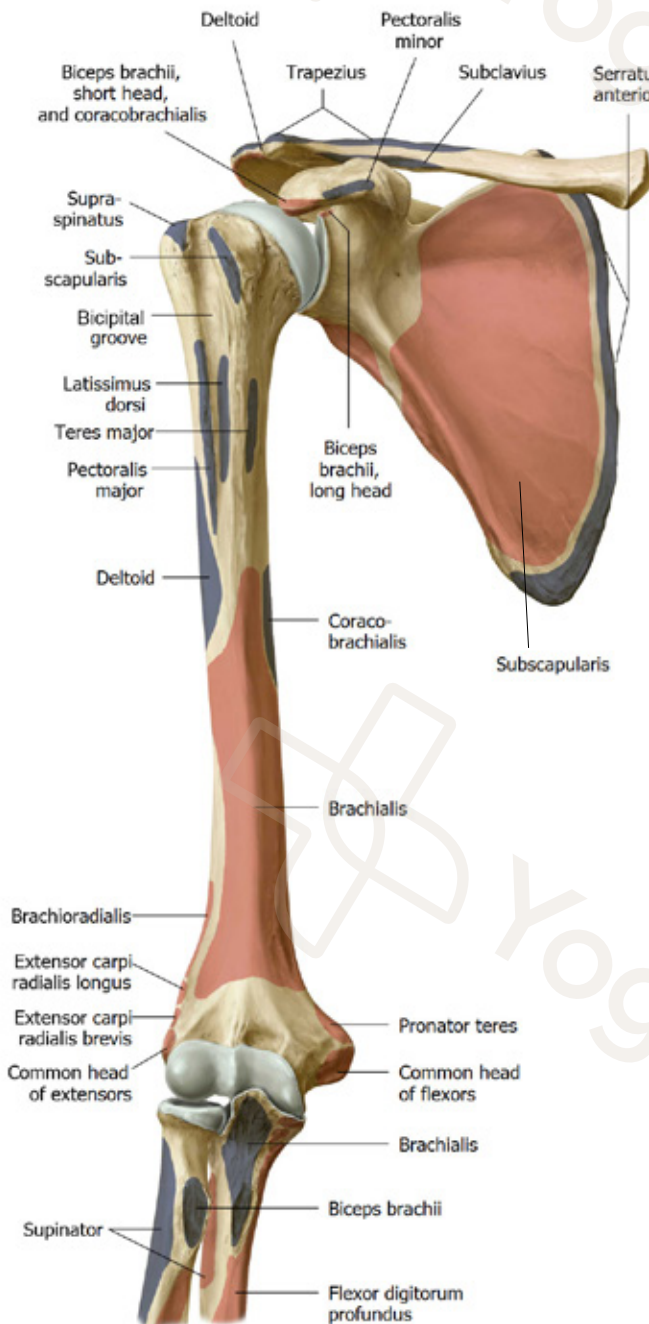


, Fig. 16.26, Illustrator: Karl Wesker, Markus Voll,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

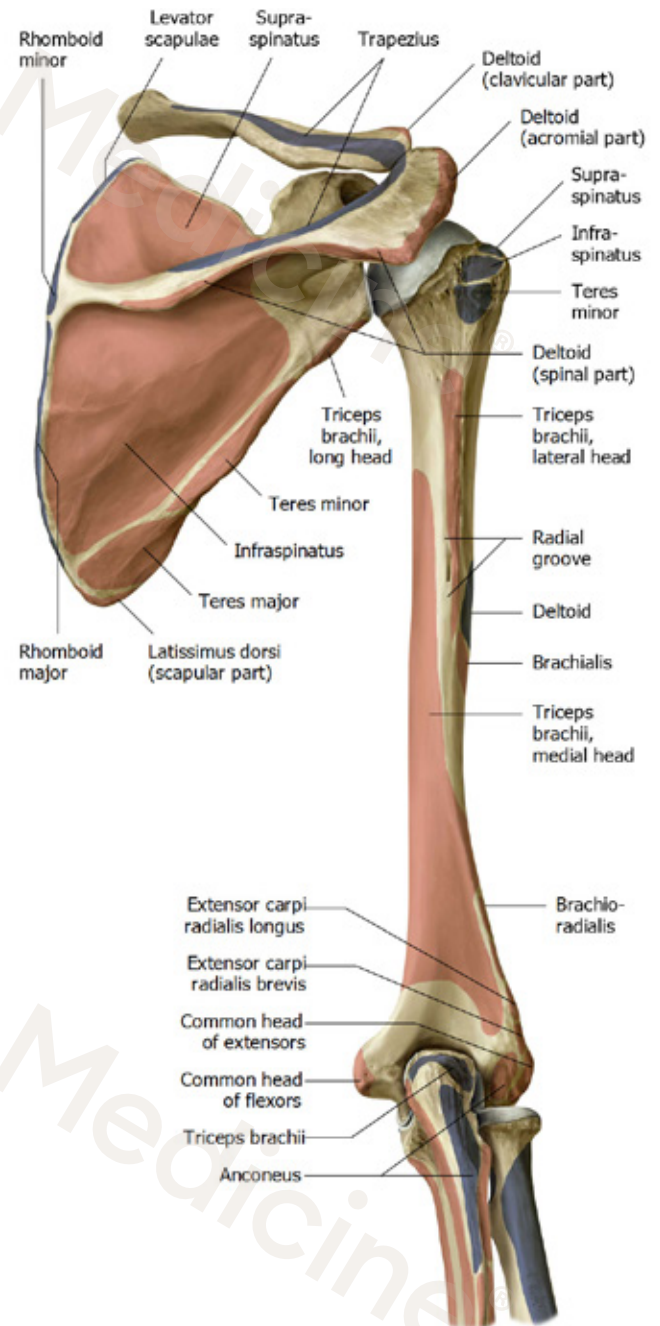
HUMERUS AND SCAPULA: ANTERIOR & POSTERIOR VIEWS

ORIGIN
INSERTION

ANTERIOR VIEW



POSTERIOR VIEW



Atlas of Anatomy, 2nd ed., Fig. 21.20 D, Illustrator: Karl Wesker,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.

Atlas of Anatomy, 2nd ed., Fig. 21.22 D, Illustrator: Karl Wesker,
©2016 Thieme Medical Publishers, Inc. All Rights Reserved.