

Shoulder region

Musculoskeletal block- Anatomy-lecture 19

Editing file



Objectives

At the end of the lecture, students should:

- ✓ List **the name** of muscles of the shoulder region.
- ✓ Describe the anatomy of muscles of shoulder region regarding: **attachments of each of them to scapula & humerus, nerve supply and actions on shoulder joint.**
- ✓ List the muscles forming **the rotator cuff** and describe **the relation of each of them to the shoulder joint.**
- ✓ Describe the anatomy of shoulder joint regarding: **type, articular surfaces, stability, relations & movements.**

Color guide :

Only in boys slides in **Blue**

Only in girls slides in **Purple**

important in **Red**

Doctor note in **Green**

Extra information in **Grey**

Muscles of shoulder region

These are muscles connecting scapula to humerus (move humerus through shoulder joint):

1. **Deltoid.**

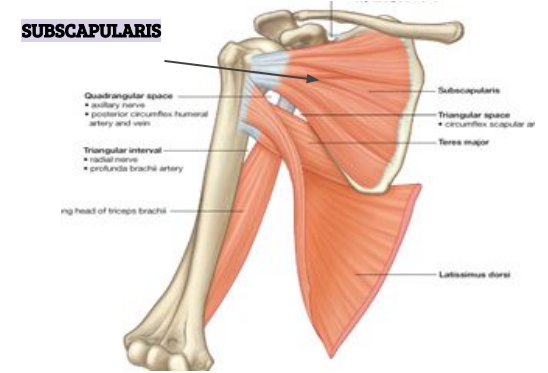
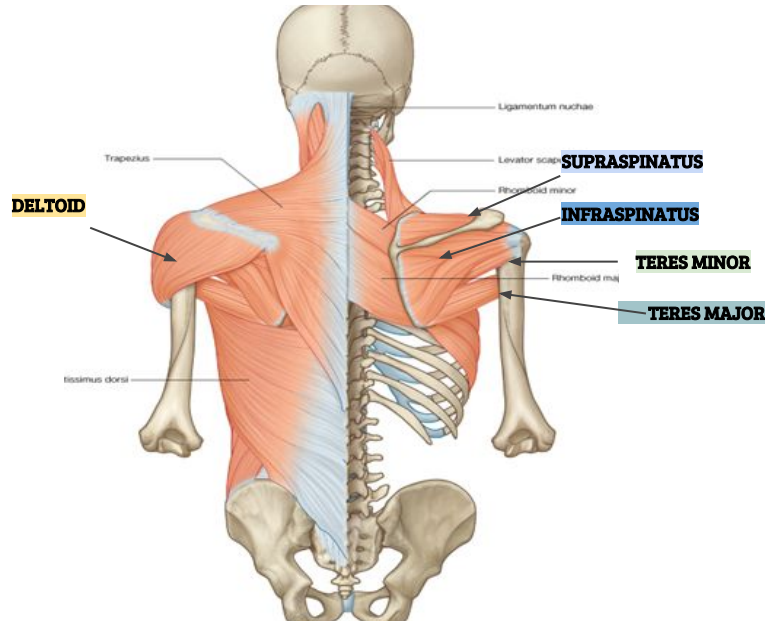
2. **Supraspinatus.**

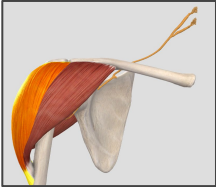
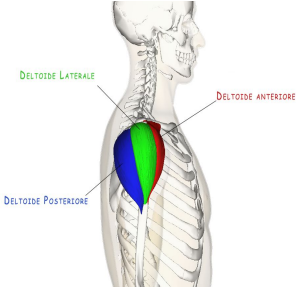
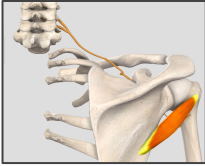

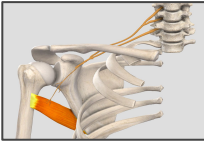
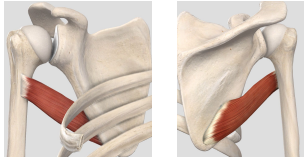
3. **Infraspinatus.**

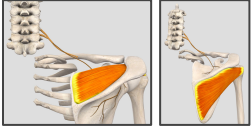
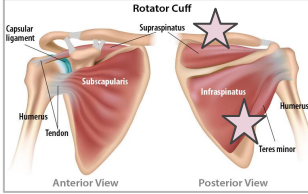
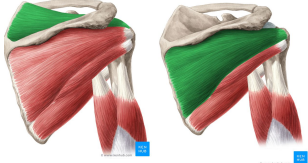
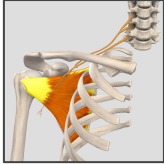
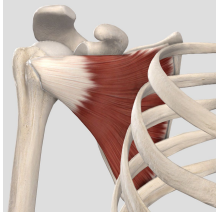
4. **Teres minor.**

5. **Teres major.**

6. **Subscapularis.**



	Origin	Insertion	Nerve	Action/s	Picture
<p>Deltoid</p> <p>A triangular muscle that forms the rounded contour of the shoulder.</p>	<p>lateral 1/3 of clavicle, acromion and spine of scapula (=Insertion of trapezius).</p>	<p>deltoid tuberosity of humerus</p>	 <p>axillary nerve</p>	<ol style="list-style-type: none"> Anterior fibers: flexion & medial rotation of humerus (arm, shoulder joint). Middle fibers: abduction of humerus from 15° - 90°. Posterior fibers: extension & lateral rotation of humerus. 	
<p>Teres minor</p>	<p>lateral (Axillary) border of Scapula.</p>	<p>greater tuberosity of humerus.</p>		<p>lateral rotation of humerus.</p>	
<p>Teres major</p>	<p>lateral border of scapula.</p>	<p>medial lip of bicipital groove of humerus (with <i>latissimus dorsi</i> & <i>pectoralis major</i>).</p>	 <p>lower subscapular nerve.</p>	<p>extension, adduction & medial rotation of humerus (as action of <i>latissimus dorsi</i>).</p>	

Muscle of the shoulder region	Origin	Insertion	Nerve supply	Action/s	Picture
<p>Supraspinatus & Infraspinatus</p>	<p>1. Supraspinatus: supraspinous fossa.</p> <p>2. Infraspinatus: infraspinous fossa.</p>	<p>greater tuberosity of humerus.</p>	 <p>Suprascapular nerve.</p>	<p>1. Supraspinatus: abduction of humerus from 0° - 15°.</p> <p>2. Infraspinatus: lateral rotation of humerus.</p>	 
<p>Subscapularis</p>	<p>subscapular fossa.</p>	<p>lesser tuberosity of humerus.</p>	 <p>upper & lower subscapular nerves.</p>	<p>medial rotation of humerus.</p>	 <p>Anterior</p>

Shoulder joint

Type:

Synovial, multiaxial (ball and socket)

Articular surfaces:

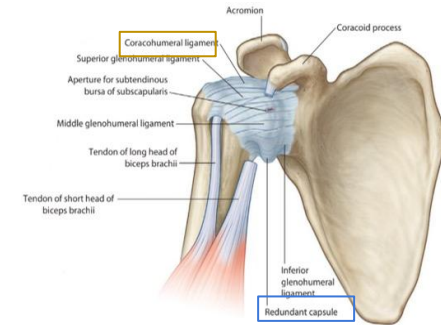
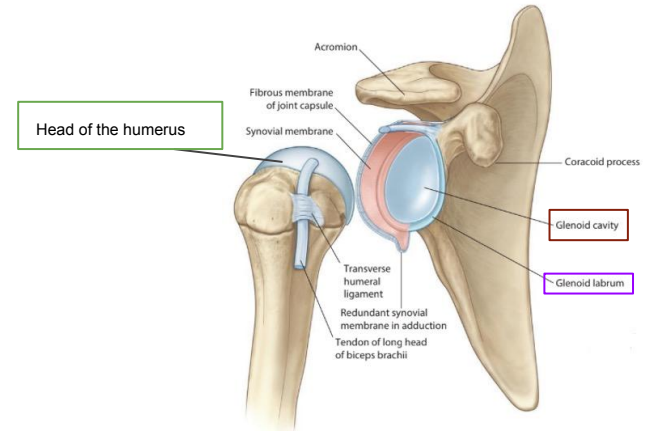
Head of humerus (ball)

Glenoid cavity of scapula (socket)

Stability: (**NOT stable**) easy to dislocate because :

1. Head of humerus is **3 times larger** than glenoid cavity
2. Capsule is **redundant**. (relax and not tight)
3. Few ligamentous support: **glenoid labrum**, **coracohumeral**
4. **Main Support:** muscles around the joint (ROTATOR CUFF)
5. Wide range of movement

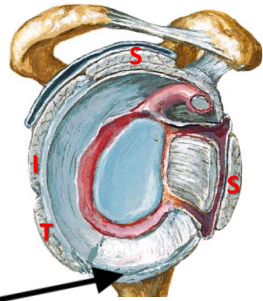
(range of movement and stability have inverse relationship)



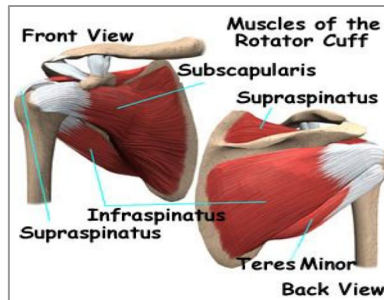
Rotator cuff

Rotator cuff:

- A **tendinous** cuff around the shoulder joint covering its **Anterior**, **Posterior** and **Superior** aspects.
- The cuff is **deficient Inferiorly** and this is the site of potential weakness. (so usually dislocation of the shoulder is downward)
- **It is formed of 4 muscles (SITS)**: **Supraspinatus**, **Infra**spinatus, **Teres minor** & **Sub**scapularis. The **tone** of these muscles help in **stabilizing the shoulder joint**.

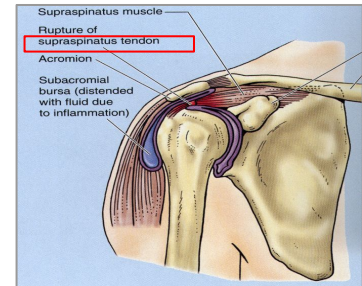
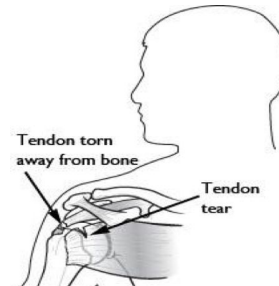


Site of potential weakness inferiorly in the rotator cuff



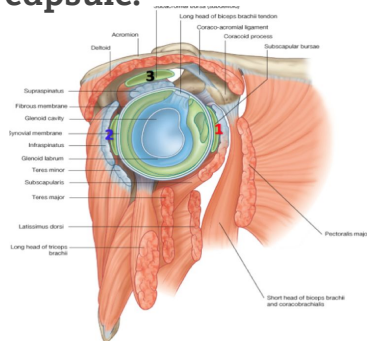
Rotator cuff can be damaged due to:

- **Trauma** (during playing baseball)
- **Disease** (in older individuals).
- **Trauma** can **tear** or **rupture** one or more tendon (s) forming the cuff. Patients with **rotator injury** will present with **pain**, **shoulder instability**, and **limited range of motion**.
- **Supraspinatus tendon** is the most common site of **rotator cuff injury**.



Bursae in relation to shoulder joint

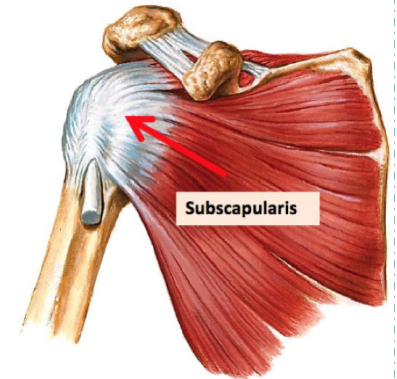
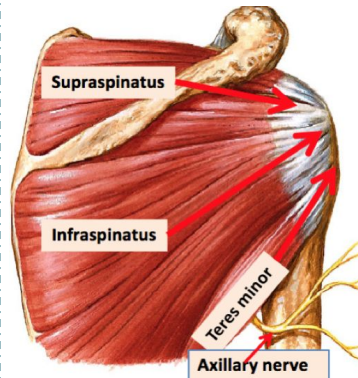
- They **reduce friction** between tendons, joint capsule & bone.
- They are liable to be **inflamed** following injury of rotator cuff muscles.
- **1-Subscapularis bursa:** between subscapularis tendon & capsule.
2-Infraspinatus bursa: between infraspinatus tendon & capsule.
3-Subacromial bursa: between deltoid, supraspinatus and capsule.



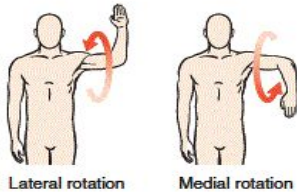
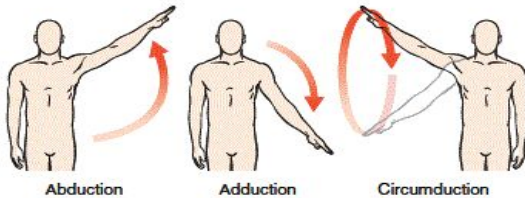
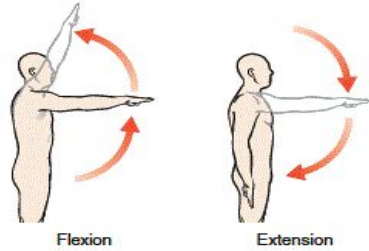
Relation of shoulder joint

- ANTERIOR:** subscapularis
- POSTERIOR:** infraspinatus, teres minor
- SUPERIOR:** supraspinatus
- INFERIOR:** axillary nerve

*If a fracture happen in the surgical neck of the humerus
Which nerve will be affected ? Axillary nerve
Which muscle will be most affected ? Deltoid
Which movement will be most affected ? Abduction

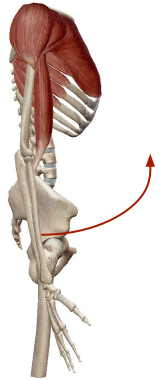


Movement of the shoulder joint



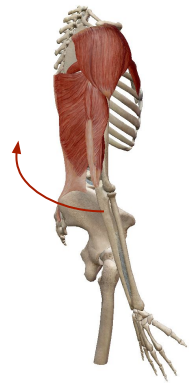
FLEXION:

1. **Anterior** fibers of deltoid
2. Pectoralis **major**
3. Coracobrachialis (muscle of arm)
4. **Short** head of biceps brachii (muscle of arm)



EXTENSION:

1. **Posterior** fibers of deltoid
2. Latissimus dorsi (muscle of the back)
3. Teres **major**

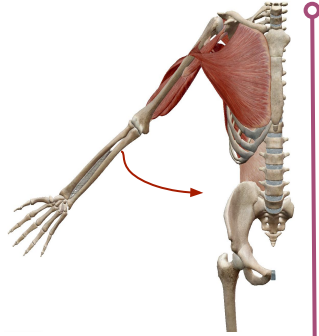


Movement of the shoulder joint

ADDUCTION:

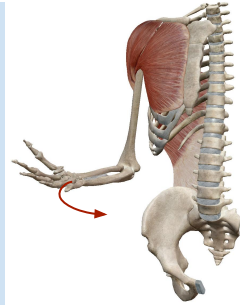
1. Pectoralis **major**
2. Latissimus dorsi
(muscle of the back)
3. Teres **major**

All these muscles are Inserted
in bicipital groove



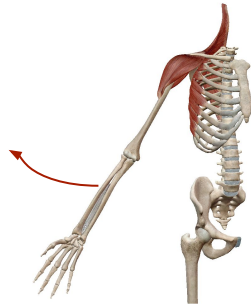
MEDIAL ROTATION:

1. Pectoralis **major**
2. Latissimus dorsi
3. Teres **major**
(All The above muscles are
Inserted in bicipital groove)
4. **Anterior** fibers of deltoid
5. **Subscapularis**



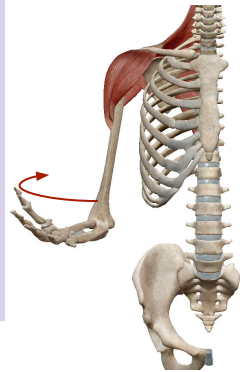
ABDUCTION:

1. From $0^\circ - 15^\circ$: **Supraspinatus**
2. From $15^\circ - 90^\circ$: **Middle** fibers
of deltoid



LATERAL ROTATION:

1. **Posterior** fibers of deltoid
2. **Infraspinatus**
3. Teres **minor**



MCQs

Question 1: Regarding the shoulder joint, which one of the following statements is correct?

- A. It is a stable joint.
- B. It is a synovial joint of hinge variety.
- C. Latissimus dorsi muscle adducts shoulder joint.
- D. Downward dislocation of shoulder joint may cause injury to the radial nerve.

Question 2: Most rotator cuff tears and impingement happen with this muscle.

- A. Subscapularis
- B. Infraspinatus
- C. Teres minor
- D. supraspinatus

Question 3: This muscle is NOT responsible for Lateral Rotation at the Shoulder

- A. supraspinatus
- B. Posterior fibers of deltoid
- C. Teres minor
- D. Infraspinatus

Question 4: Which Muscle is NOT a rotator cuff muscle?

- A. Supraspinatus
- B. Teres major
- C. Teres minor
- D. Infraspinatus

Question 5: Which one of the following muscles is inserted into the lesser tuberosity of the humerus?

- A. Subscapularis
- B. Deltoid
- C. Teres major
- D. Infraspinatus

Question 6: Which one of the following muscles is part of the rotator cuff?

- A. Rhomboid minor
- B. Deltoid
- C. Teres major
- D. subscapularis

SAQ

Question 1: What is the nerve responsible for innervation of Teres minor ?

Answer : axillary nerve

Question 2 : Name the muscle that causes abduction of the shoulder from 15° - 90° .

Answer : middle fibers of deltoid

Team members

Boys team:

- Khalid AL-Dossari
- Naif Al-Dossari
- Faisal Alqifari
- Salman Alagla
- Ziyad Al-jofan
- Suhail Basuhail
- Ali Aldawood
- Khalid Nagshabandi
- Mohammed Al-huqbani
- Jihad Alorainy
- Khalid AlKhani
- Omar Alammari

Team leaders

- Abdulrahman Shadid
- Ateen Almutairi

★ =This lecture done by

Girls team :

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- Taif Alotaibi
- Noura Al Turki
- Amirah Al-Zahrani
- Alhanouf Al-haluli
- Sara Al-Abdulkarem
- Rawan Al Zayed
- Reema Al Masoud
- Renad Al Haqbani
- ★ Nouf Al Humaidhi
- Fay Al Buqami
- ★ Jude Al Khalifah
- Nouf Al Hussaini
- Alwateen Al Balawi
- ★ Rahaf Al Shabri
- Danah Al Halees
- Haifa Al Waily
- ★ Rema Al Mutawa
- ★ Amirah Al Dakhilallah
- Maha Al Nahdi
- Renad Al Mutawa
- Ghaida Al Braithen
- Reham Yousef

Special thank for
Anatomy team 436



Good luck

Give us your feedback:

