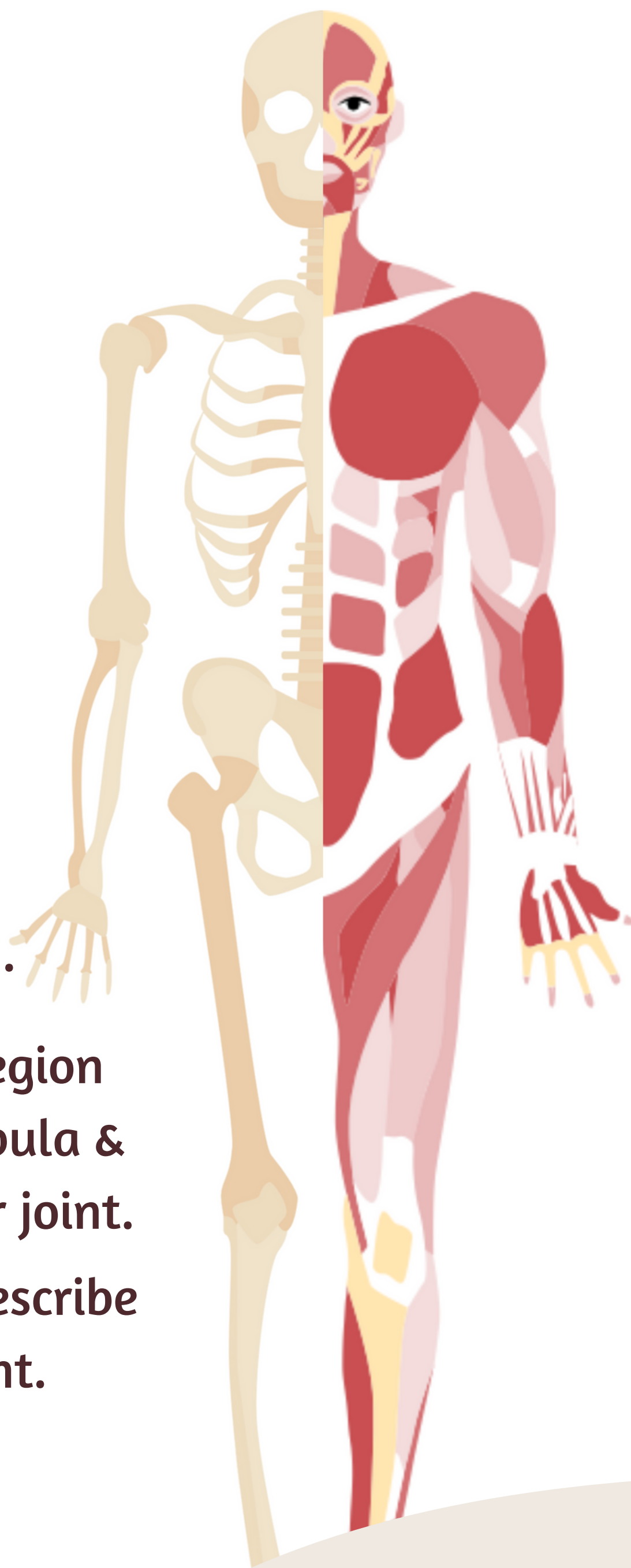


# Lecture 6

# ANATOMY OF THE SHOULDER

## OBJECTIVES

- 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.
- 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 Index:




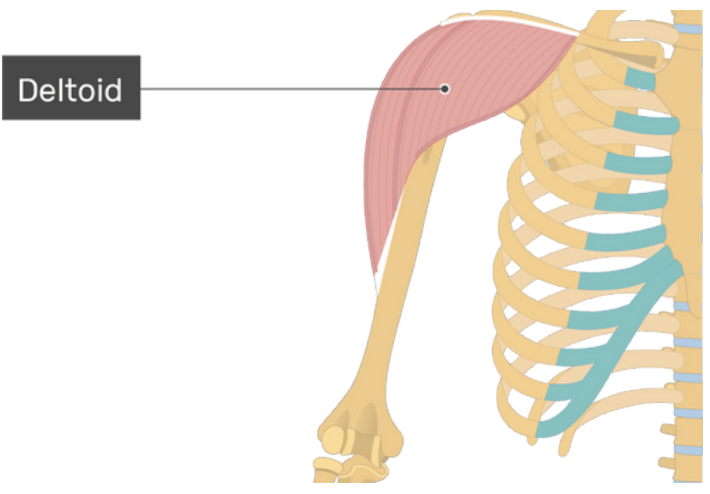
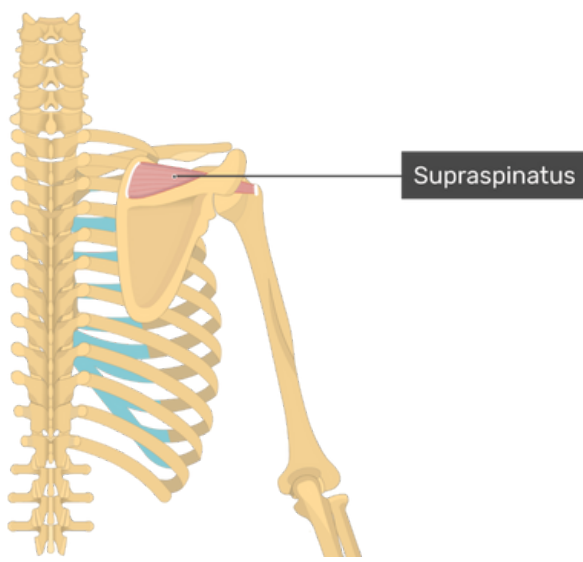
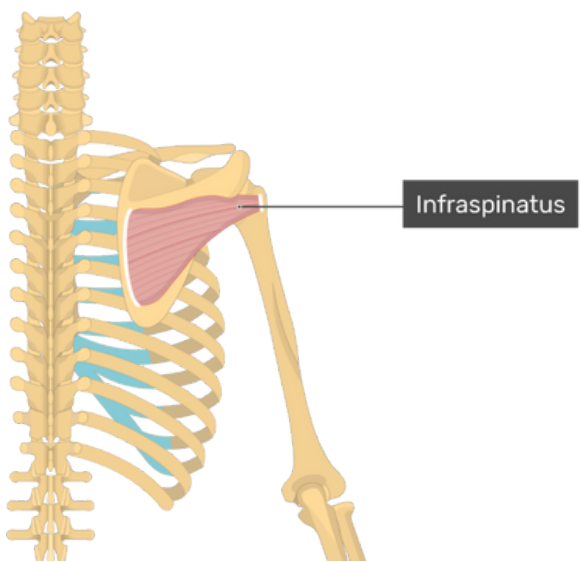
- Main text
- Boys' Slides
- Girls' Slides
- Important
- Dr's Notes
- Extra

 [Editing File](#)

# Muscles of the Shoulder Region






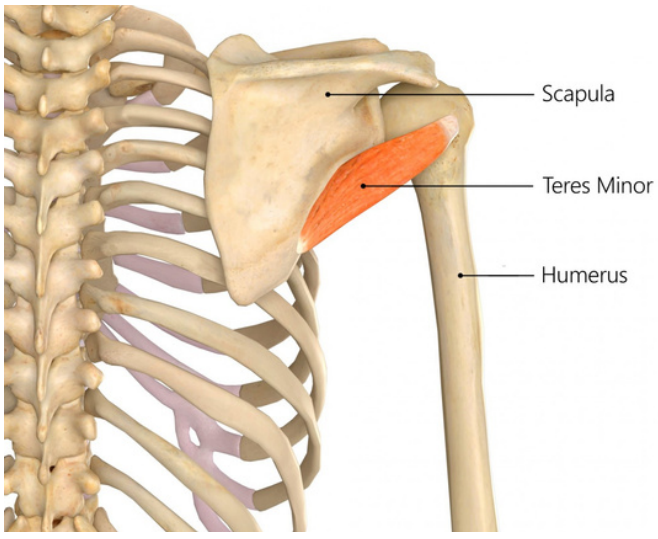
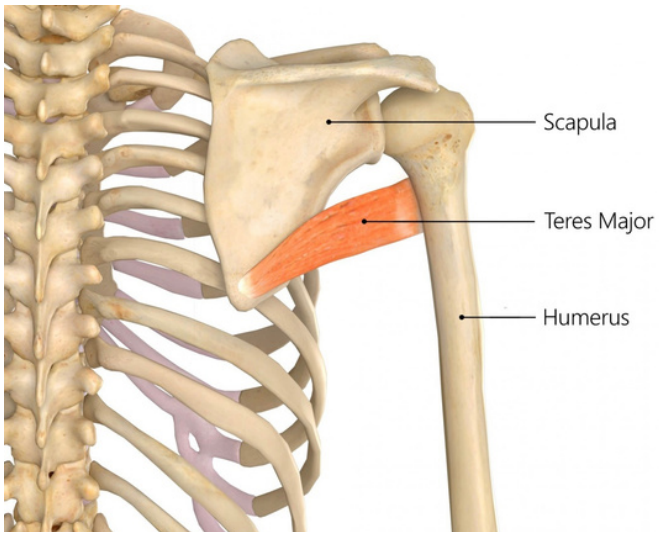
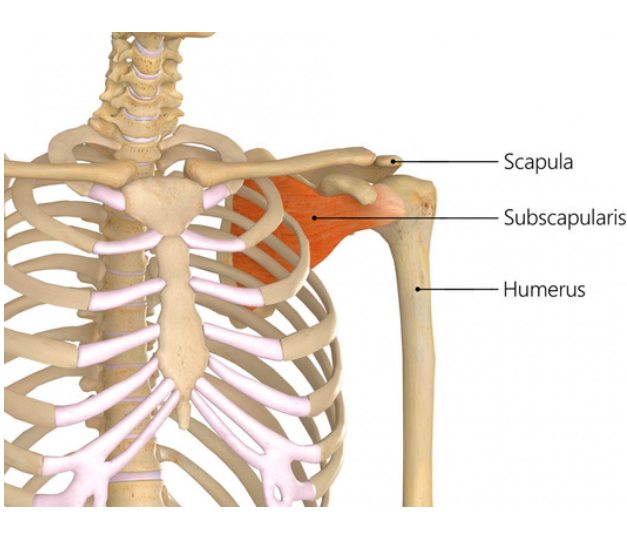
These are muscles connecting scapula to humerus ( move humerus through shoulder joint ) :

Muscles	 <b>Deltoid</b> A triangular muscle that forms the rounded contour of the shoulder.	 <b>Supraspinatus</b>	 <b>Infraspinatus</b>
Origin	1. Lateral $\frac{1}{3}$ of clavicle. (Anterior) 2. Acromion of scapula. (Lateral) 3. Spine of scapula. (lower lip) (same as insertion of trapezius).	Supraspinous fossa	Infraspinous fossa
Insertion	Deltoid tuberosity of humerus	<b>Greater tuberosity of humerus</b> (SIT -> upper middle lower)	
Nerve supply	Axillary nerve	Suprascapular nerve	
Action	<ul style="list-style-type: none"> <li>• <b>Anterior fibers :</b> Flexion &amp; Medial rotation of humerus (arm, shoulder joint).</li> <li>• <b>Middle fibers :</b> Abduction of humerus <math>15^{\circ}</math>-<math>90^{\circ}</math>.</li> <li>• <b>Posterior fibers :</b> Extension &amp; Lateral rotation of humerus.</li> </ul> ( Deltoid mainly abduction, and do every movement except for adduction )	Abduction of humerus from $0^{\circ}$ - $15^{\circ}$	Lateral rotation of humerus
Picture			

CLICK HERE

Mind map for Muscles of the shoulder

Thanks to Reem Alomair ♥

Muscles	 <b>Teres minor</b> Helping in stability of the shoulder	 <b>Teres major</b>	 <b>Subscapularis</b>
Origin	Lateral ( <b>Axillary</b> ) border of Scapula (minor upper $\frac{2}{3}$ - major upper $\frac{1}{3}$ )		Subscapular fossa
Insertion	<b>Greater tuberosity of humerus</b> (SIT)	<b>Medial lip of bicipital groove of humerus</b> (with latissimus dorsi & pectoralis major).	<b>Lesser tuberosity of humerus</b> (the only muscle in the lesser tuberosity)
Nerve supply	Axillary nerve	Lower subscapular nerve	Upper & lower subscapular nerves
Action	<b>Lateral rotation of humerus</b>	<b>Extension &amp; Adduction &amp; Medial rotation of humerus</b> (Same as the action of Latissimus Dorsi)	<b>Medial rotation of humerus</b>
Picture			

# Shoulder Joint

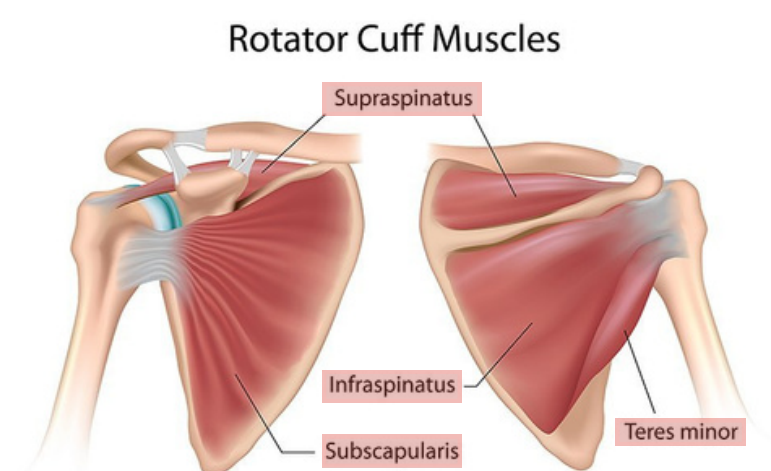
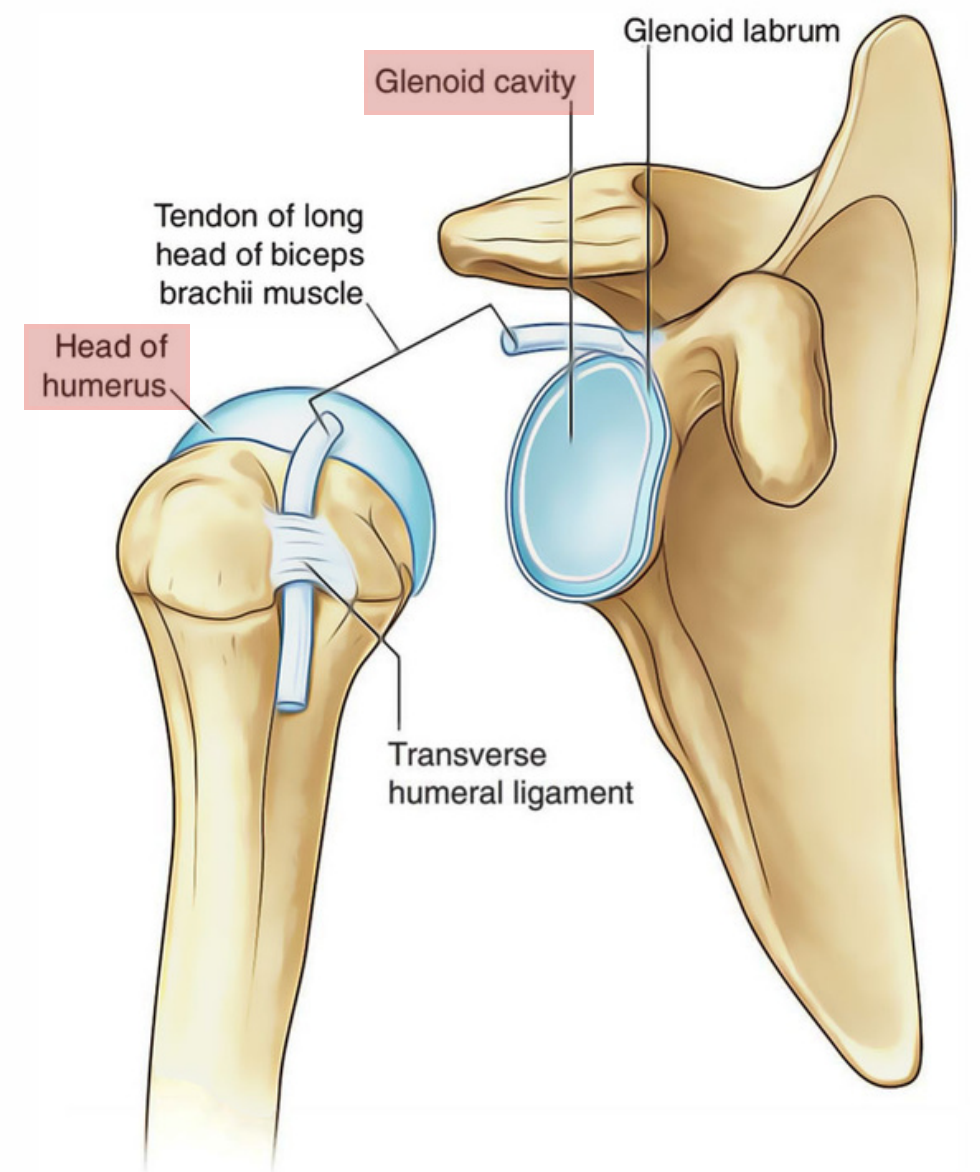
**Type :** Synovial, multiaxial (ball & socket).

**Articular Surfaces :**  
 1-Head of humerus (ball).  
 2-Glenoid cavity of scapula (socket).

**Stability:** Shoulder joint **is not stable**, Why?

**due to:**

- ◆ Head of humerus is **3 times larger** than the glenoid cavity.
- ◆ Capsule is **redundant** .
- ◆ **Few** ligamentous support: glenoid labrum, coracohumeral.
- ◆ Wide range of movements.
- ◆ **Main support** : Muscles around the joint ( **ROTATOR CUFF** ).



## ROTATOR CUFF

- It is formed of **4 muscles ( SITS )** **Supraspinatus, Infraspinatus, Teres minor, Subscapularis.**
- The tone of these muscles **help in stabilizing the shoulder joint.**

- **Muscles from** a tendinous cuff around the shoulder joint covering its Anterior, Posterior & Superior aspects.
- The cuff is **deficient inferiorly** & this is the site of potential weakness.

- Rotator cuff can be **damaged** due to :  
 1. **Trauma** ( during playing baseball ).  
 2. **Disease** ( in older individuals ).
- **Supraspinatus tendon is the most common site of rotator cuff injury.**

- Trauma can **tear or rupture** one or more tendons forming the cuff.
- Patients with rotator injury will present with **pain, shoulder instability & limited range of motion.**

# Bursae in relation to shoulder joint

## BURSAE

Bursae عبارة عن كيس مغلق مملوء بالسوائل يعمل كوسادة وسطح منزلق لتقليل الاحتكاك بين أنسجة الجسم.

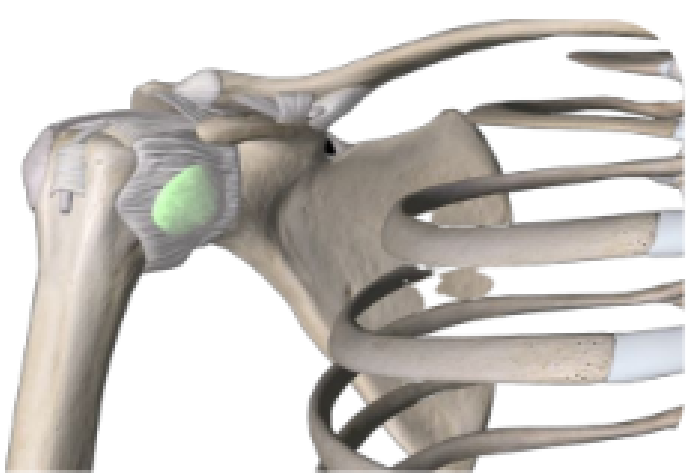


They reduce **friction** between tendons, joints capsule & bone.

They are liable to be inflamed following injury of rotator cuff muscles.

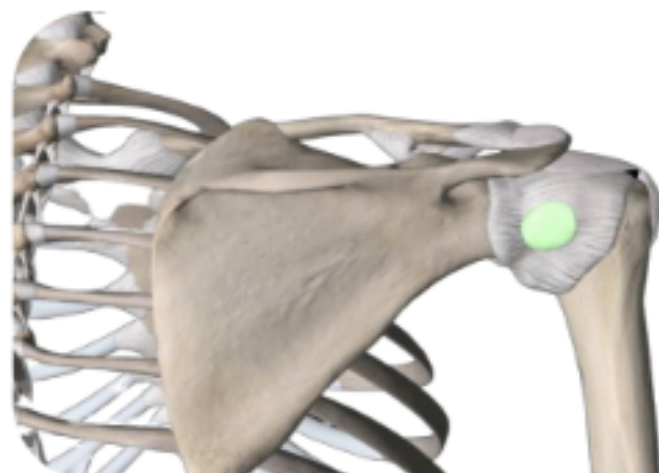
### Subscapularis bursa

Between **subscapularis** tendon & capsule.



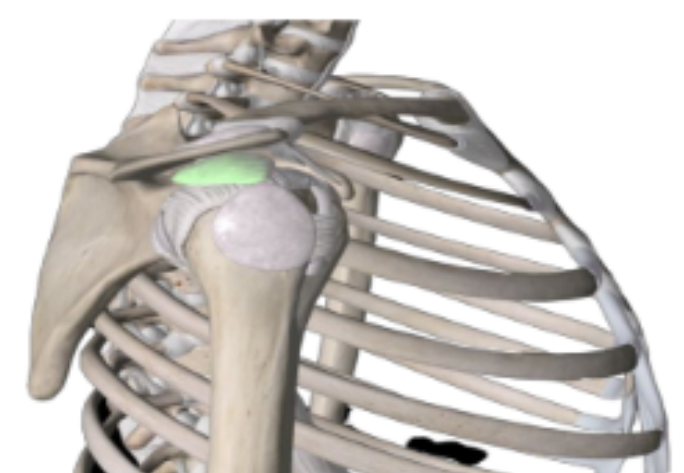
### Infraspinatus bursa

Between **infraspinatus** tendon & capsule.



### Subacromial bursa

Between **deltoid, supraspinatus** & capsule.



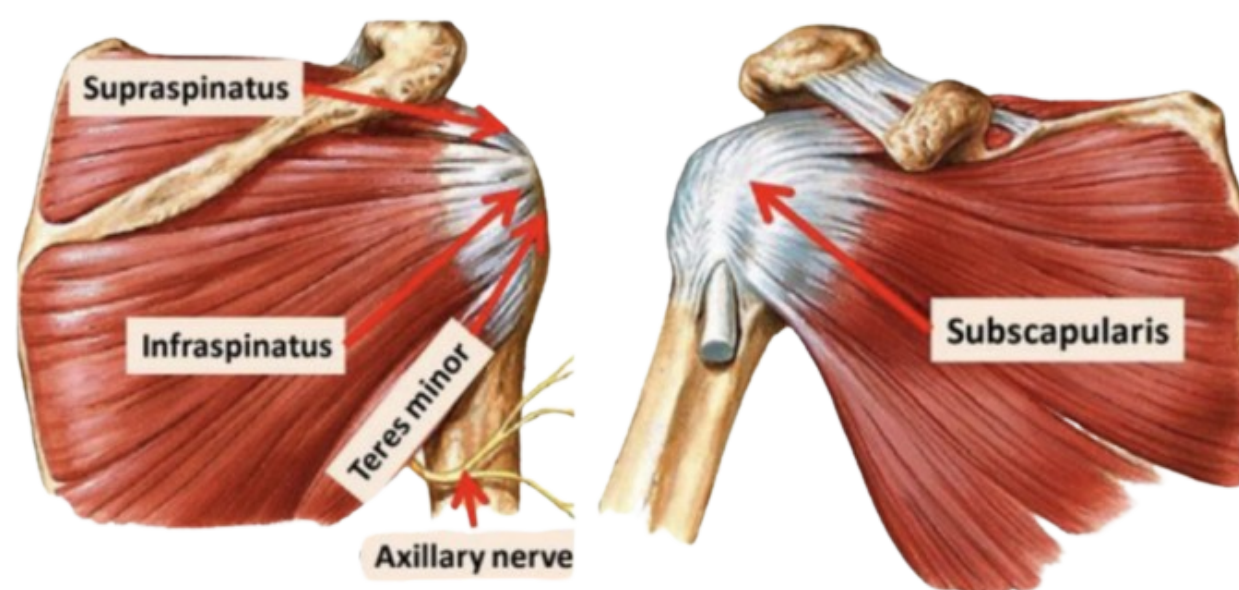
## RELATIONS OF SHOULDER JOINT

**Anterior :**  
Subscapularis

**Posterior :**  
Infraspinatus,  
Teres minor

**Superior :**  
Supraspinatus

**Inferior :**  
Axillary Nerve

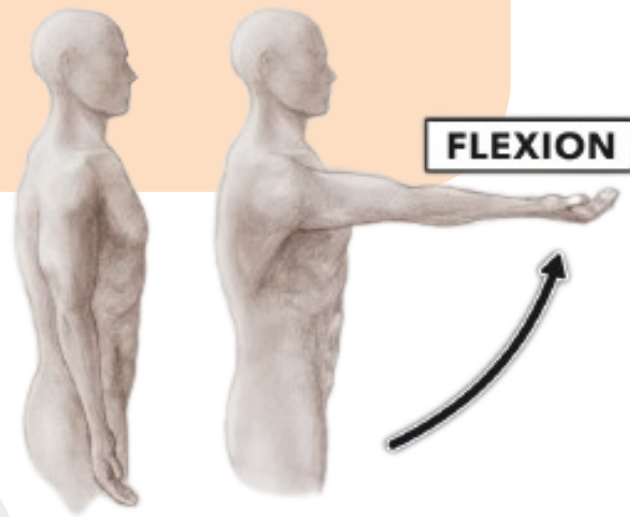




# Movement of Shoulder joint

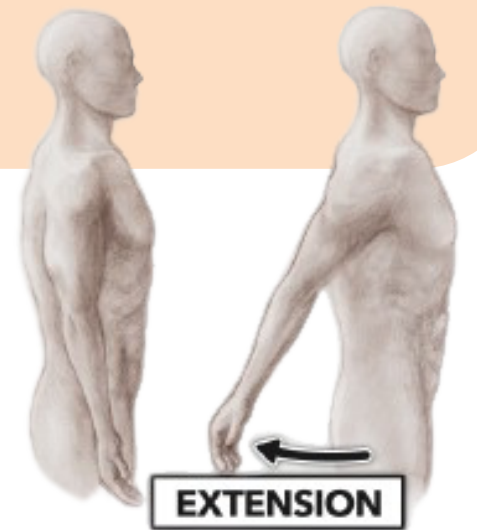
## Flexion:

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



## Extension:

1. Posterior fibers of deltoid.
2. Latissimus dorsi.
3. Teres major.



Fibers of deltoid can do all the movements (For shoulder joint) except the adduction

## Adduction :

1. Pectoralis major. (lateral lip)
2. Latissimus dorsi. (floor)
3. Teres major. (medial lip)

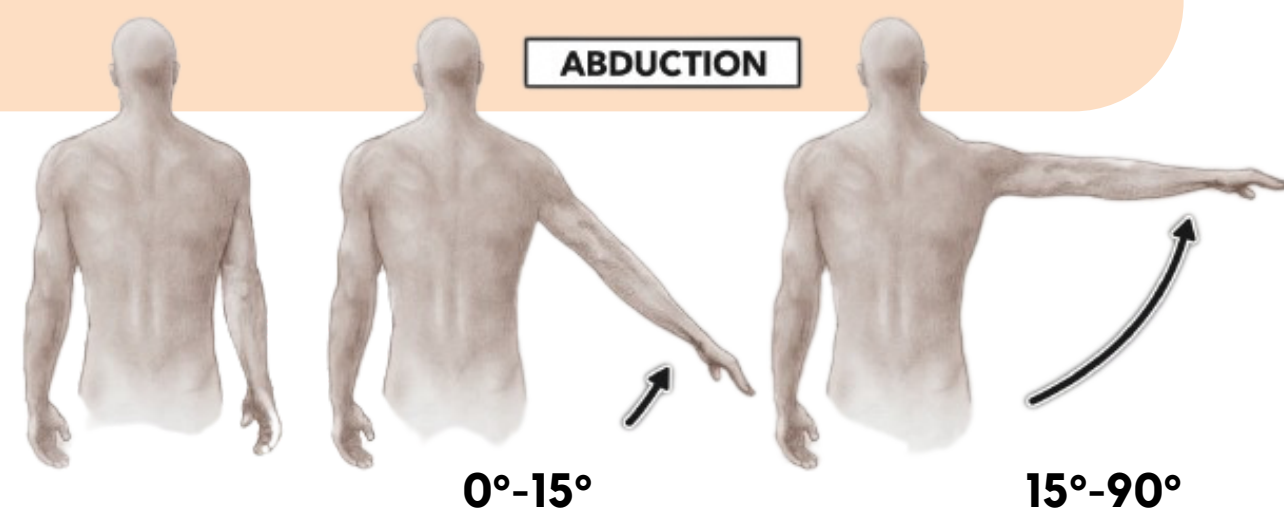
**All 3 above inserted in bicipital groove.**



(Teres maj. and Lats. do adduction like picture on right. But pec. major does horizontal adduction like picture on left)

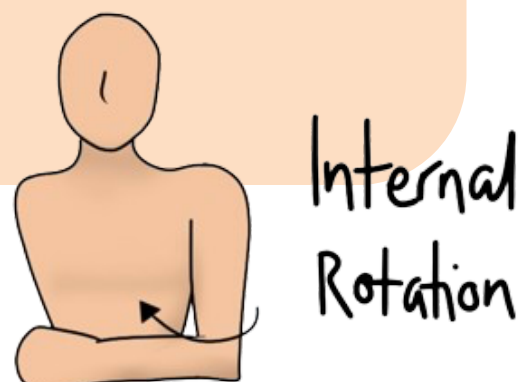
## Abduction :

1. From **0°-15°** Supraspinatus.
2. From **15°-90°** Middle fibers of deltoid.
3. serratus anterior/Trapezius more than 90 degree because they rotate scapula.



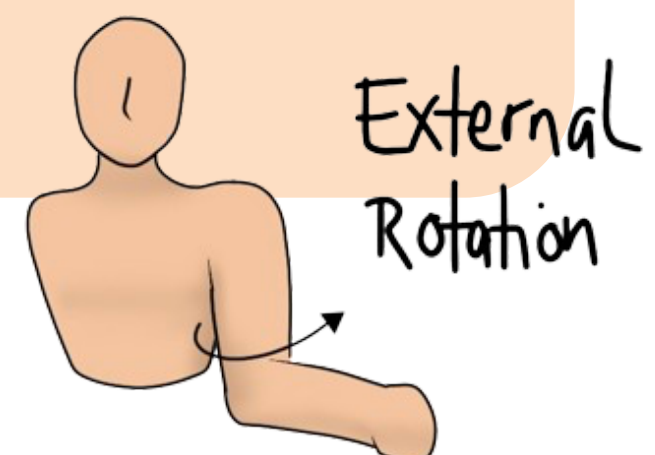
## Medial Rotation :

1. Pectoralis major
  2. Latissimus dorsi
  3. Teres major
- All 3 above inserted in bicipital groove**
4. Anterior fibers of deltoid
  5. Subscapularis



## Lateral Rotation :

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



# Summary

## MUSCLES OF SHOULDER REGION :

<b>Origin</b>	Scapula.
<b>Insertion</b>	<b>Humerus:</b> <ul style="list-style-type: none"><li>• Three in <b>Greater tuberosity</b>: Supraspinatus, Infraspinatus, and Teres minor.(SIT)</li><li>• One in <b>Lesser tuberosity</b>: Subscapularis.</li><li>• One in <b>Deltoid tuberosity</b>: Deltoid.</li><li>• One in <b>Bicipital groove</b>: Teres major.</li></ul>
<b>Nerve supply</b>	<b>Anterior rami of spinal nerves through brachial plexus.</b> <ul style="list-style-type: none"><li>• Two by <b>Axillary nerve</b>: Deltoid and Teres minor.</li><li>• Two by <b>Suprascapular nerve</b>: Supraspinatus and Infraspinatus.</li><li>• Two by Lower <b>Subscapular nerve</b>: Subscapularis (also supplied by upper) and Teres major.</li></ul>
<b>Action</b>	Move the Humerus (SHOULDER JOINT).

## SHOULDER JOINT:

<b>Type</b>	Synovial, ball & socket.
<b>Articular Surfaces</b>	Head of humerus & glenoid cavity of scapula.
<b>Stability</b>	Depends on Rotator Cuff.
<b>Relations</b>	Rotator Cuff and axillary nerve (around surgical neck of humerus -> inferior).
<b>Movement</b>	Flexion, extension, abduction, adduction, medial & lateral rotation.

## ROTATOR CUFF

**4 muscles** in scapular region surrounds the shoulder joint,  
( **Supraspinatus, Infraspinatus, Teres minor, Subscapularis** ).  
**THEY ARE THE MAIN FACTOR FOR STABILITY OF THE SHOULDER JOINT.**

# MCQs

1

Which one of these muscles is innervated by the axillary nerve?

A) Teres major

B) Subscapularis

C) Biceps brachii

D) Teres minor

2

Which muscle is inserted in the greater tuberosity of humerus?

A) Subscapularis

B) Teres major

C) Deltoid

D) Infraspinatus

3

A patient has a torn rotator cuff of the shoulder joint as the result of an automobile accident. Which of the following muscle tendons is intact and has normal function ?

A) Supraspinatus

B) Subscapularis

C) Teres major

D) Teres minor

4

Which bursae is between infraspinatus tendon & capsule.

A) Infraspinatus

B) Subscapularis

C) Subacromial

D) Latissimus Dorsi

5

A 27 years old man fell on his shoulder and injured his lesser tubercle of the humerus. Which one of these muscles will be affected ?

A) Supraspinatus

B) Subscapularis

C) Infraspinatus

D) Teres major



1-D 2-D 3-C 4-A 5-B



# MCQs

6

**Bursae importance is to reduce...?**

A) Inflammation	B) Friction	C) Infection	D) Surface Area
-----------------	-------------	--------------	-----------------

7

**Which of the following is NOT a Rotator cuff muscle?**

A) Subscapularis	B) Teres major	C) Supraspinatus	D) Infraspinatus
------------------	----------------	------------------	------------------

8

**Abduction of Supraspinatus from...?**

A) 15° - 90°	B) 45° - 90°	C) 0° - 15°	D) >90°
--------------	--------------	-------------	---------

9

**Rotator cuff is deficient...?**

A) Anteriorly	B) Posteriorly	C) Superficially	D) Inferiorly
---------------	----------------	------------------	---------------

10

**A patient get damaged during playing basketball, he comes to hospital suffering from pain and shoulder instability. Further investigation believes a tear in one tendon forming the cuff. Which muscle is the most common site for cuff injury?**

A) Supraspinatus	B) Subscapularis	C) Infraspinatus	D) Teres major
------------------	------------------	------------------	----------------



6-B 7-B 8-C 9-D 10-A

# SAQs

1

**Name the muscles that are responsible for lateral rotation of Shoulder joint?**

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

2

**What is the importance of bursae?**

 They reduce friction between tendons, joint capsule & bone.

3

**Origin of deltoid?**

 Lateral 1/3 of clavicle acromion and spine of scapula

4

**What is the rotator cuff ?**

 A tendinous cuff around the shoulder joint covering its Anterior, Posterior and Superior aspects



# LECTURE DONE BY

**Aleen Almutairi**

**Ibrahim Albabtain**

# TEAM LEADERS

**Nisreen Alotaibi**

**Abdulaziz Alanazi**

**Ritaj Alsubaie**

**Saad Aldosari**

**Shaden Alotaibi**



[anatomy.444ksu@gmail.com](mailto:anatomy.444ksu@gmail.com)