

وسهلا



أهلا

يُمنع أخذ السلايدات بدون
إذن المحرر واي اجراء
يخالف ذلك يقع تحت طائلة
المسؤولية القانونية
جميع المعلومات للاستخدام
التعليمي فقط

الأستاذ الدكتور يوسف حسين

رئيس قسم التشريح والأنسجة والأجنة

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

الواتس 00201224904207

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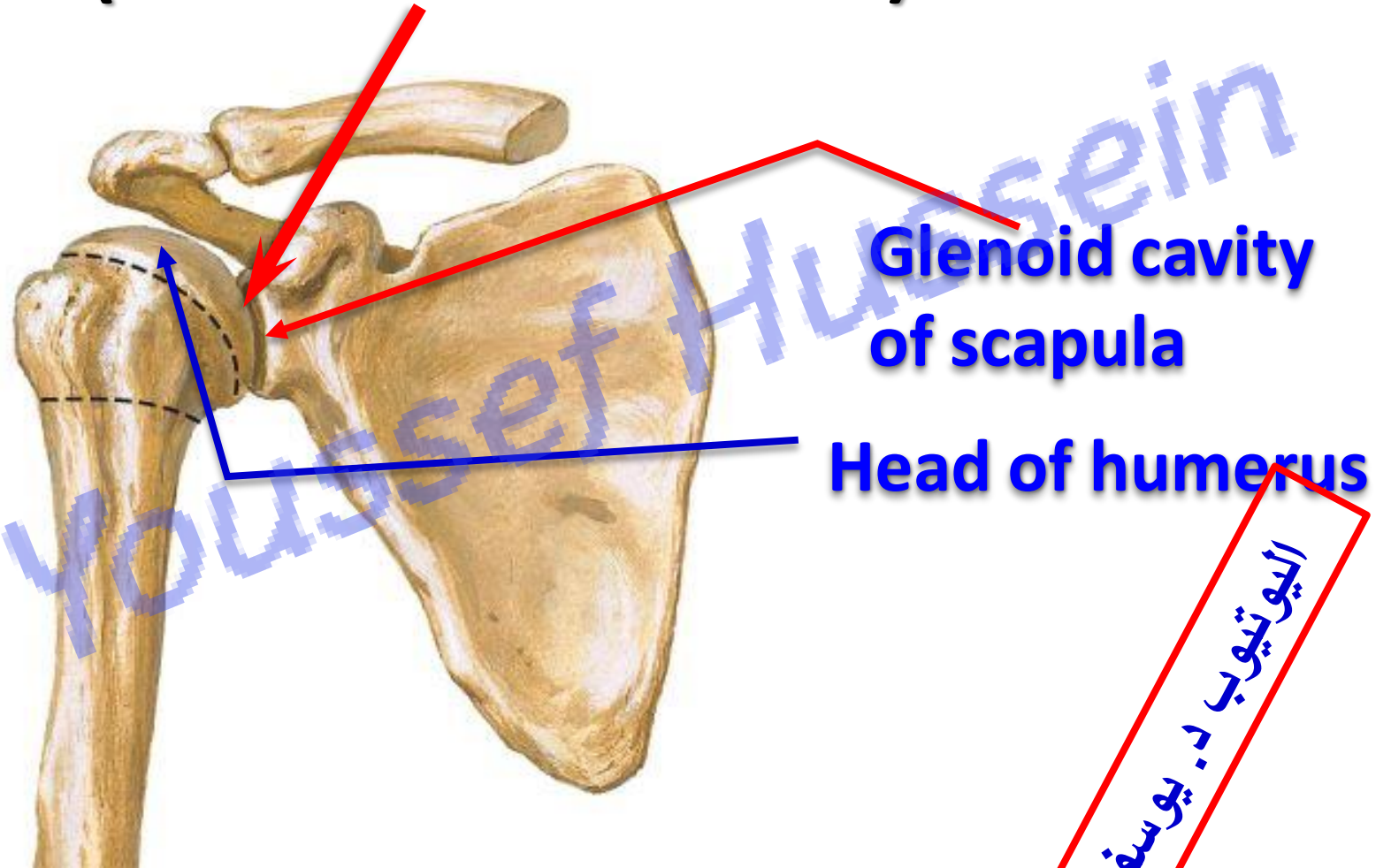
Shoulder joint

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Shoulder (Glenohumeral Joint)

- The shoulder joint is the **most movable joint** of the body
- One of the **least stable joint**
- The **most joint liable to dislocation**



Type: Synovial ball and socket joint

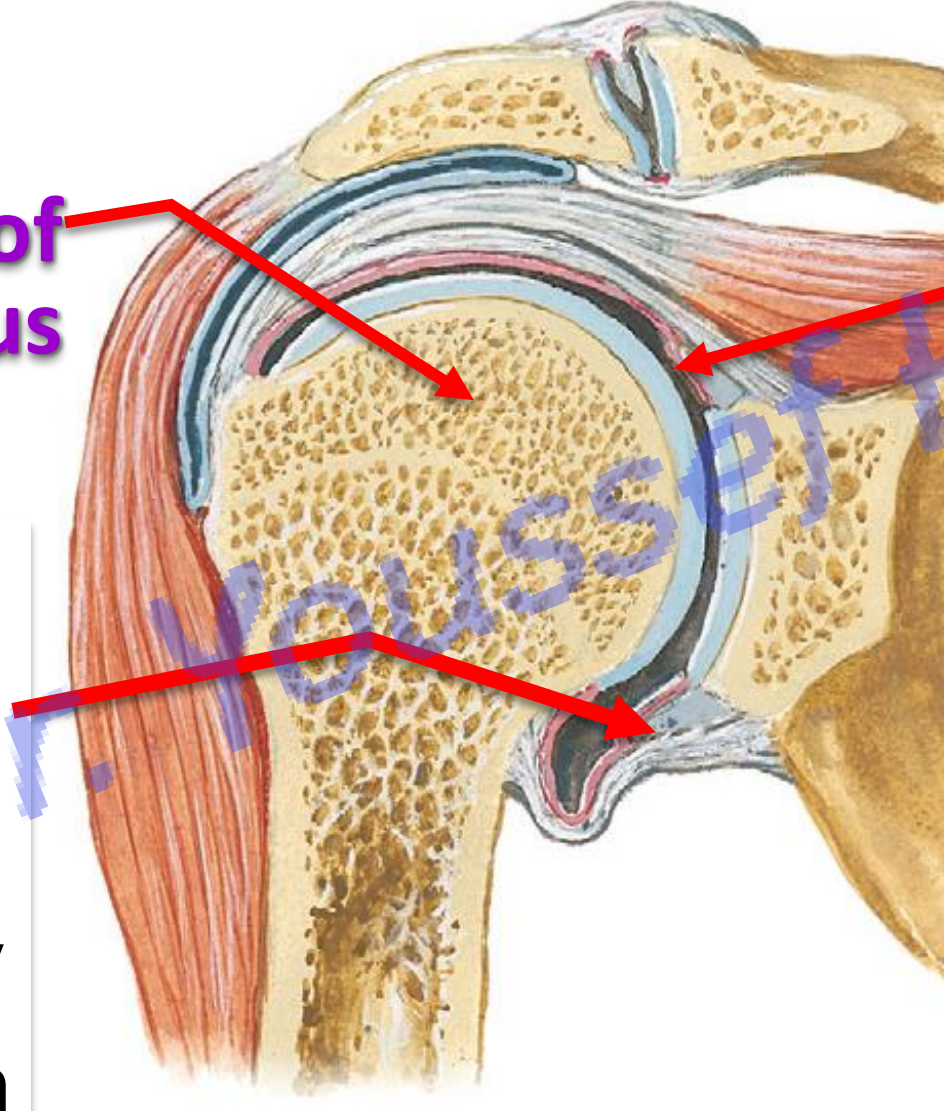
Articulation

Shoulder (Glenohumeral Joint)

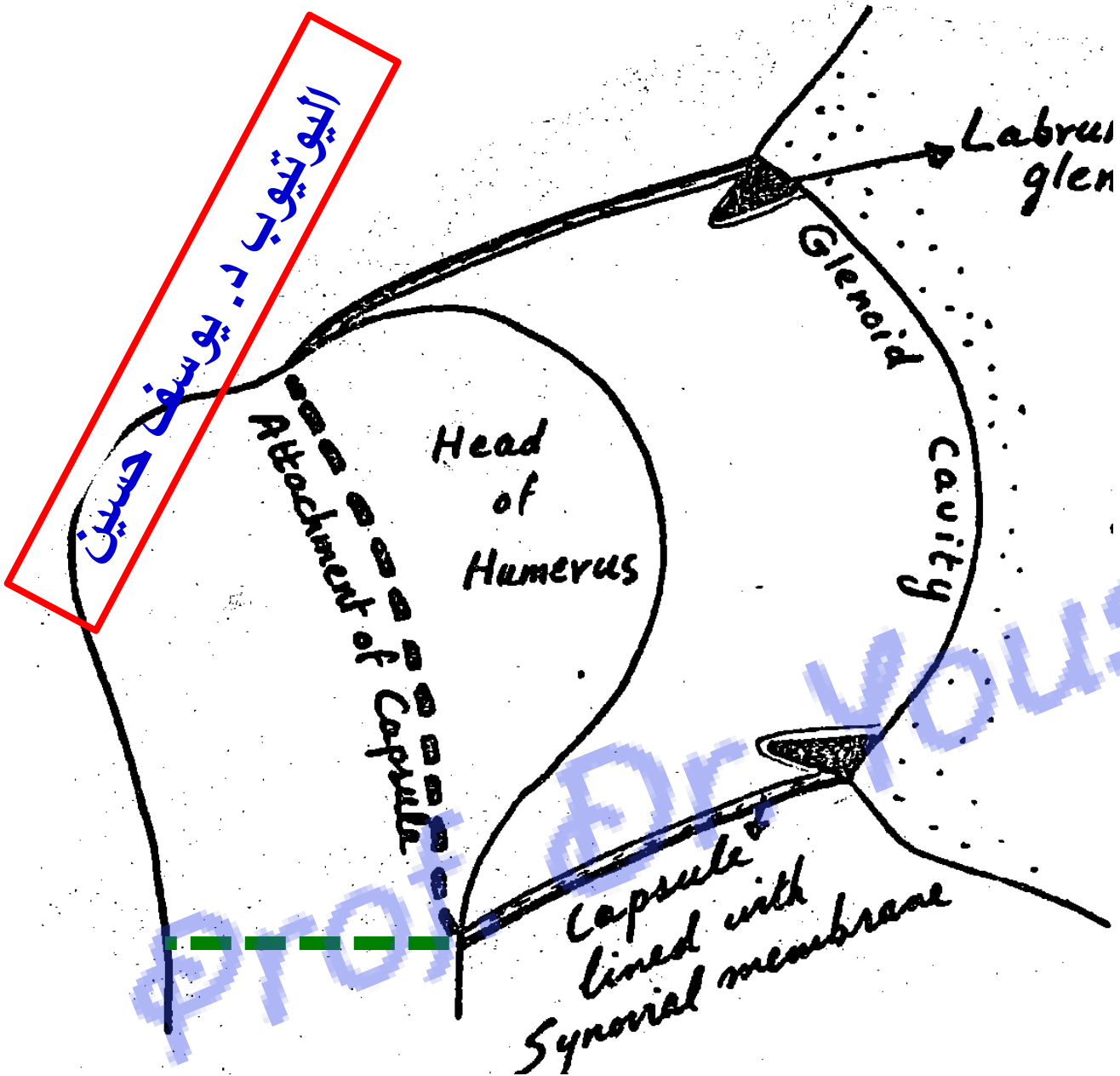
Head of humerus

Glenoid cavity of scapula

Glenoid labrum is a fibrocartilage attached to the rim of the glenoid cavity to increase its depth



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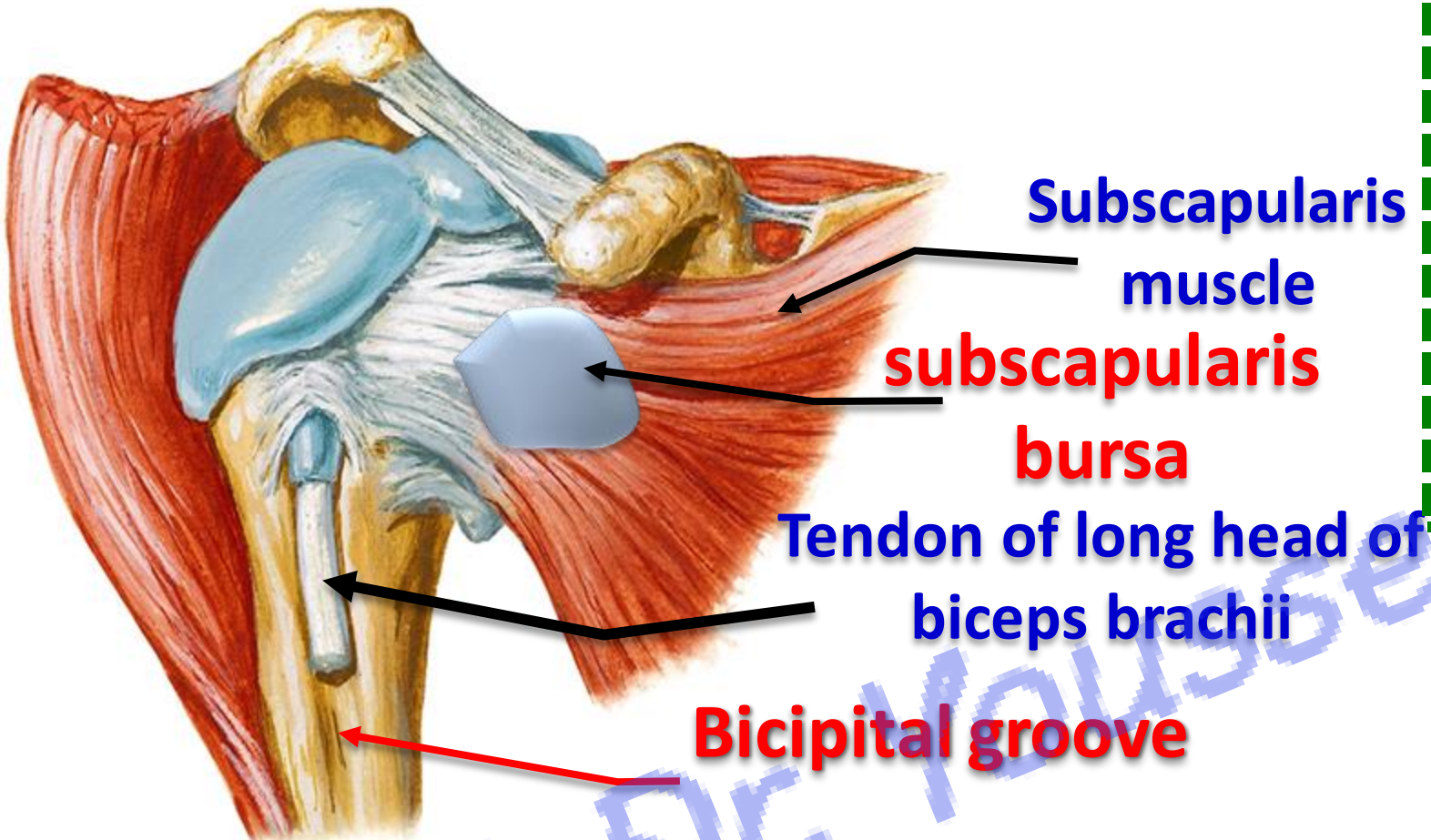


❖ Capsule: is lax

- Attachment;

- **Medially**, to the margins of the glenoid cavity **outside** the glenoid labrum.

- **Laterally**, to the anatomical neck of the humerus **except** inferiorly it is extended till the surgical neck.



**** Synovial membrane**

- It covers inner surface of the capsule.
- It forms synovial sheath around the long head of the biceps in the bicipital groove.

❖ Openings of the joint capsule

1) Anterior opening connecting with **subscapularis bursa**.

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2) Opening for passage of the **long head of biceps**.

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❖ Ligaments of shoulder joint

I- Coracohumeral ligament

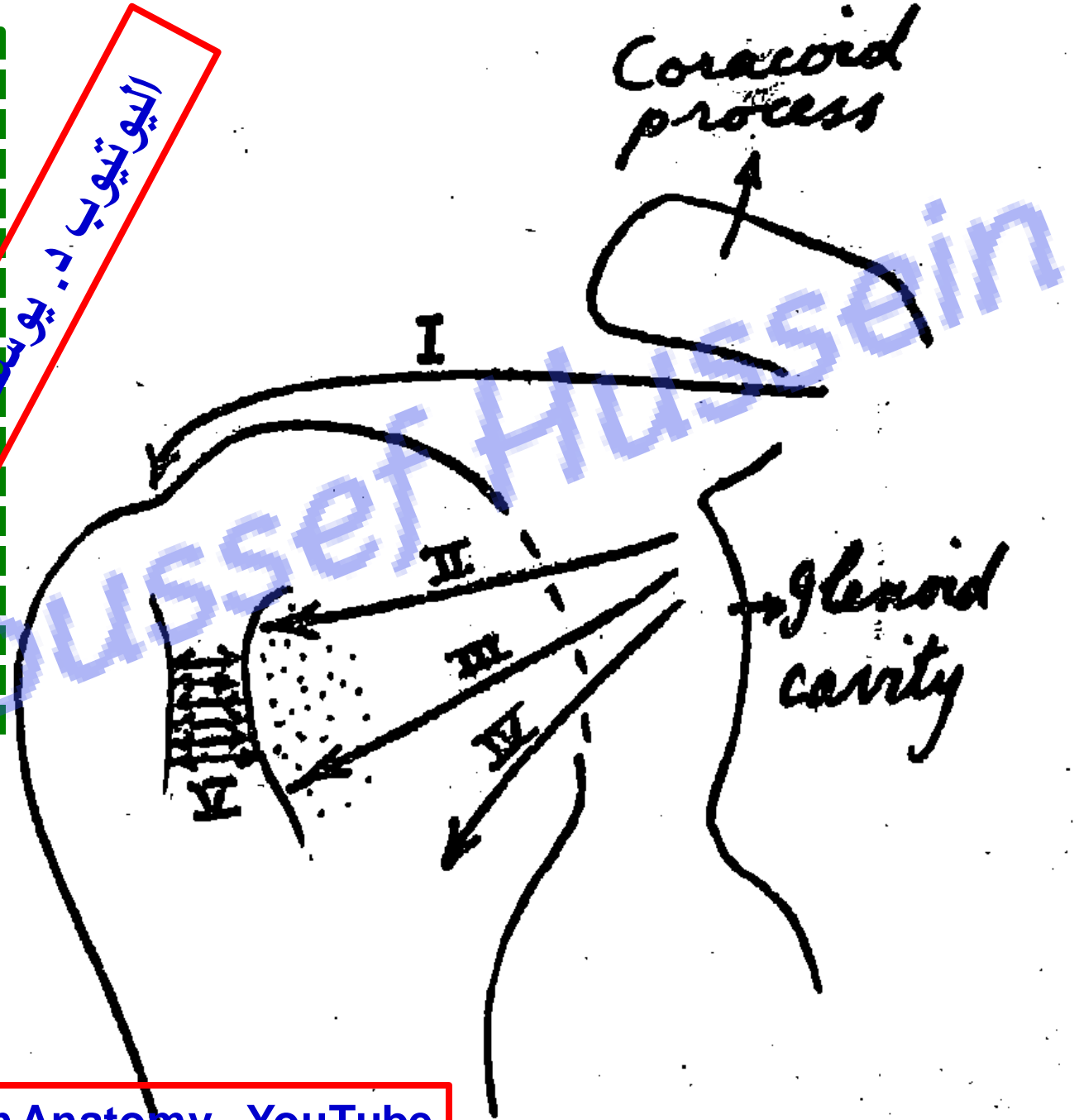
II- Superior glenohumeral ligament

III- Middle glenohumeral ligament

IV- Inferior glenohumeral ligament

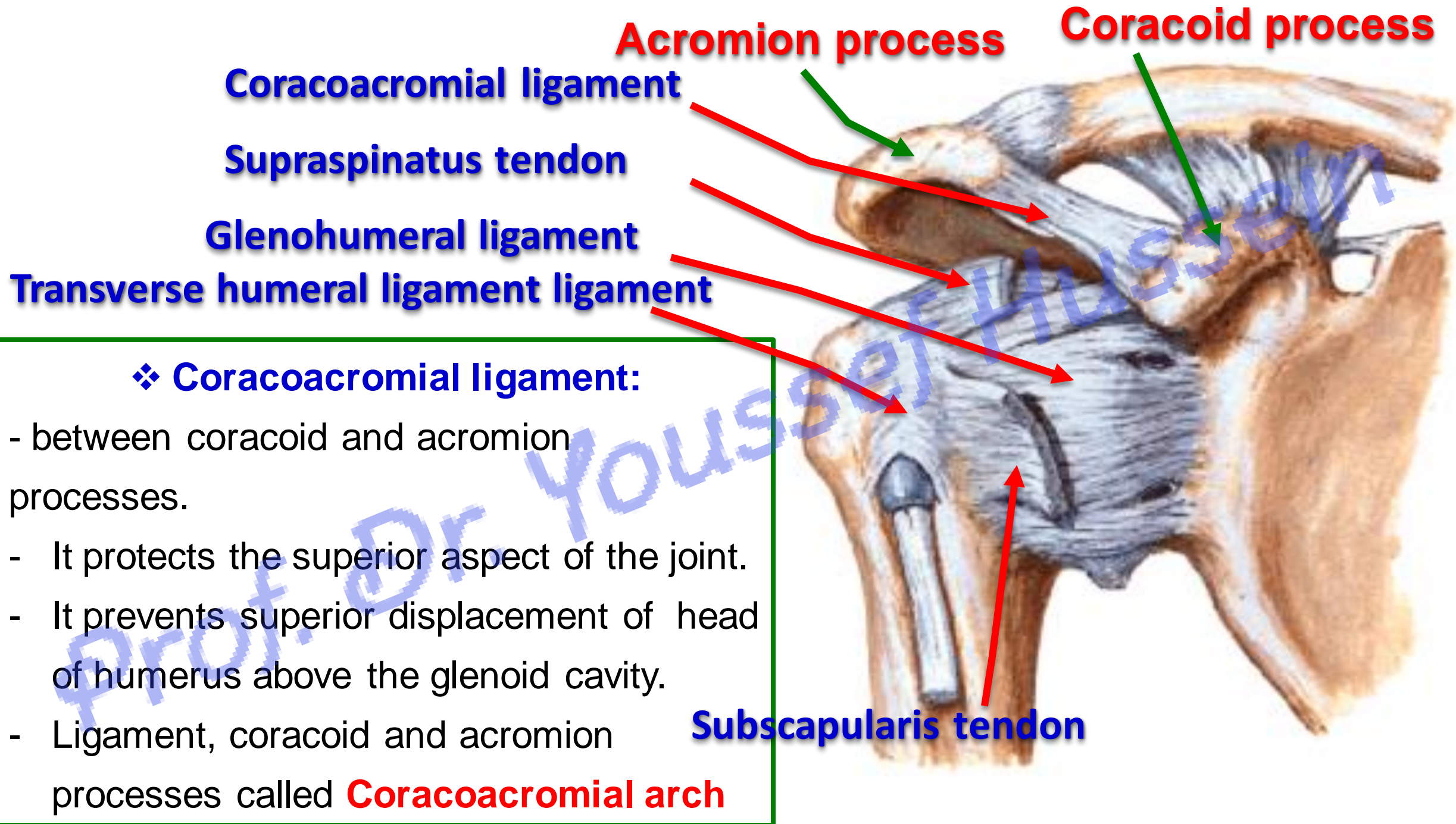
V- Transverse humeral ligament

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❖ Ligaments of the shoulder joints

- **Coraco-humeral ligament:** form **root** of coracoid process to **greater** tuberosity.
- **3 glenohumeral ligaments** From medial margin of glenoid cavity to lesser tuberosity
 - 1- **Superior** extends from the **upper** part of the **medial margin of the glenoid cavity** of scapula to the **lesser** tuberosity of humerus.
 - 2- **Middle** extends from the **middle** part of the **medial margin of the glenoid cavity** to the **lesser** tuberosity of humerus.
 - 3- **Inferior** extends from the **lower** part of the **medial margin of the glenoid cavity** to the **lesser** tuberosity of humerus.
- **Transverse humeral ligament:** attached to margins of upper part of bicipital groove converting it **into tunnel** that contains **1)** Long head of biceps. **2)** Ascending branch of anterior circumflex humeral artery



Acromion process

Coracoid process

Coracoacromial ligament

Supraspinatus tendon

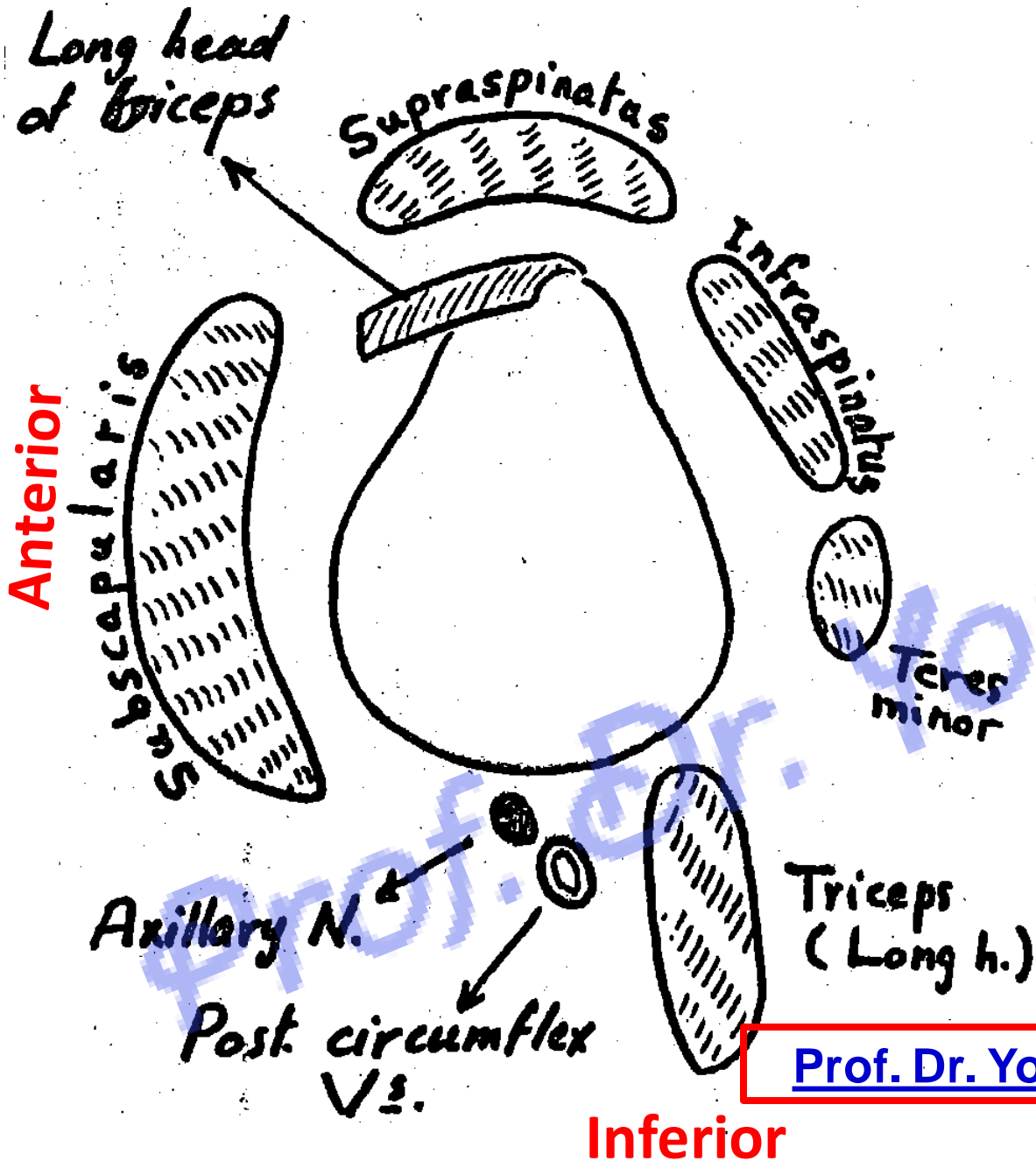
Glenohumeral ligament

Transverse humeral ligament

❖ **Coracoacromial ligament:**

- between coracoid and acromion processes.
- It protects the superior aspect of the joint.
- It prevents superior displacement of head of humerus above the glenoid cavity.
- Ligament, coracoid and acromion processes called **Coracoacromial arch**

Subscapularis tendon



❖ Relations of the shoulder joint

- 1) **Anteriorly**; anterior fibers of the **deltoid** and subscapularis.
- 2) **Superiorly**: middle fibers of the **deltoid**, supraspinatus, and long head of biceps.
- 3) **Posteriorly**: posterior fibers of the **deltoid**, infraspinatus, and teres minor.
- 4) **Inferiorly**: Long head of triceps, axillary nerve and posterior circumflex humeral vessels.

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Bursae related to shoulder joint

Acromion processes

Deltoid muscle

Subdeltoid bursa

Coracoacromial ligament

Subacromial bursa

Coracoid process

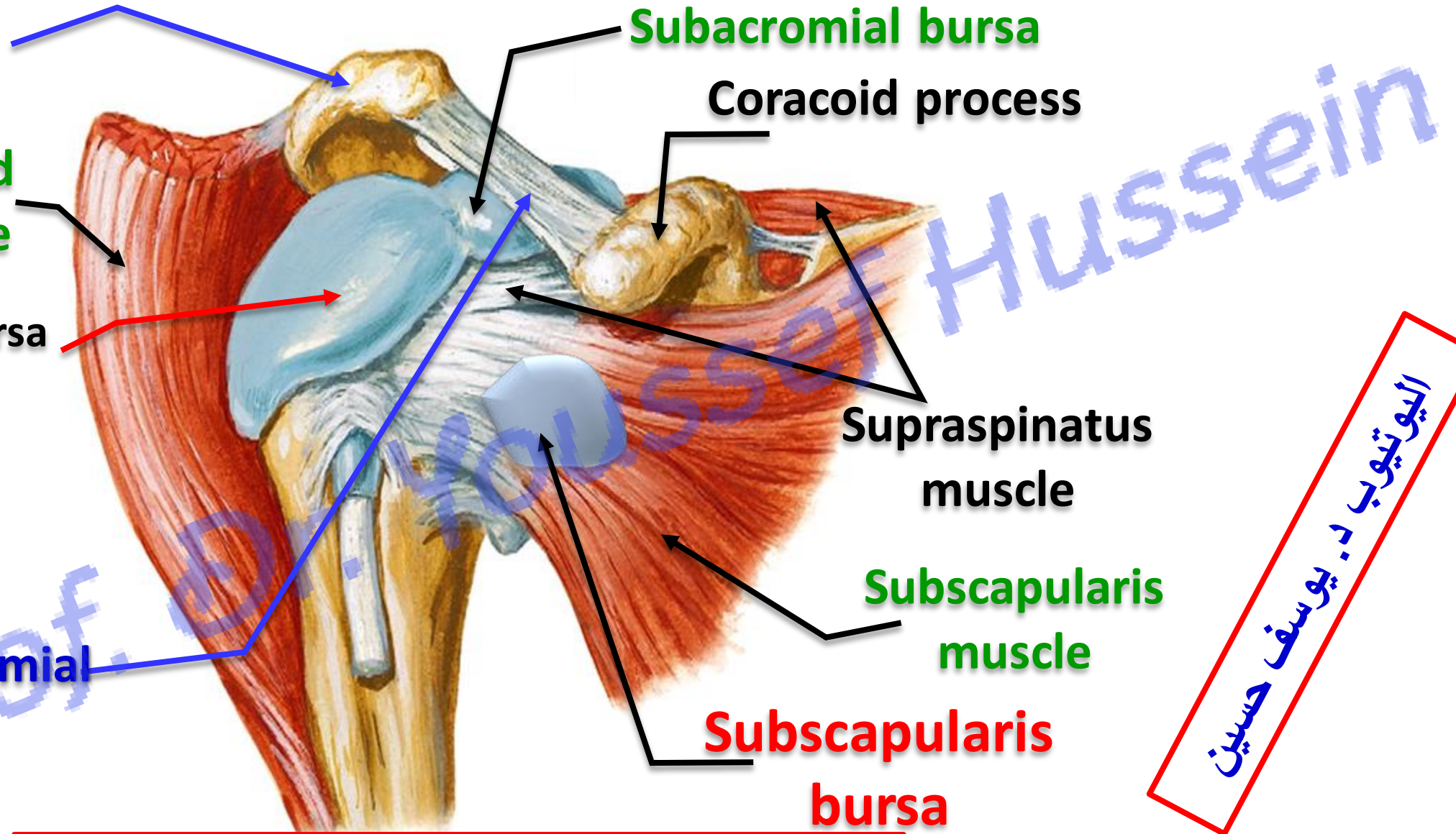
Supraspinatus muscle

Subscapularis muscle

Subscapularis bursa

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**** Bursae related to the joint**

1- Subscapularis bursa; between the tendon of subscapularis and capsule.

It **communicates** with the joint cavity.

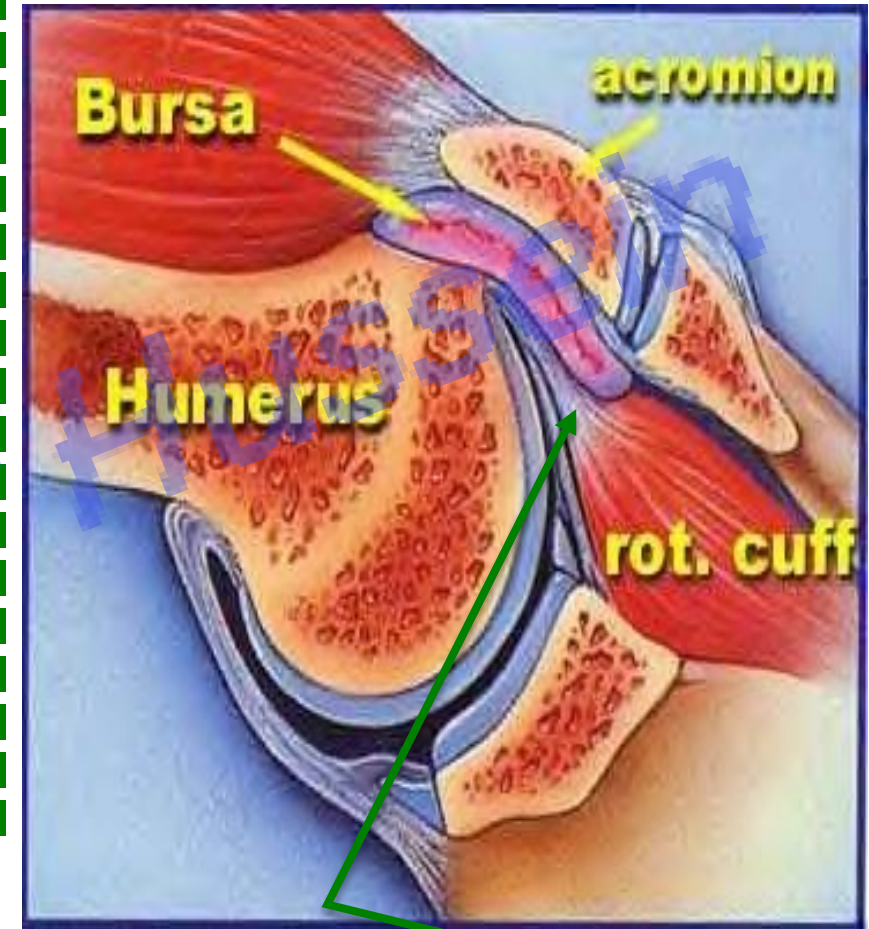
2- Subacromial bursa;

- It lies between the coracoacromial arch **above**, and supraspinatus tendon and capsule **below**.
- It continues downwards beneath the deltoid with **Subdeltoid bursa**.
- It is the **largest synovial bursa in the body** and facilitates the movements of supraspinatus tendon under the coracoacromial arch.
- It does **not communicate** with the joint cavity.

3- Infraspinatus bursa; between the tendon of infraspinatus and capsule.

❖ Dawbarn sign

- In acute subacromial bursitis (inflammation), when the upper limb is adducted, palpation over the bursa causes severe pain (pressure over the deltoid just below acromion)
- Inability to sleep on affected limb.
- When the arm is abducted, NO PAIN of inflamed bursa because the bursa is disappeared under the acromion process



Supraspinatus M

**** Stability of shoulder joint:**

- The shoulder joint is an **unstable** joint for the following factors;

1) **Small shallow** glenoid cavity.

2) The capsule is **lax**.

3) The ligaments are **weak**.

4) The inferior aspect not supported by muscles.

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**** Its stability depends on the following factors:**

1- **Rotator cuff of muscles** adherent to the capsule of the joint.

2- **Glenoid Labrum** increases the depth of the cavity.

3- **Long head of biceps** passes above the head of humerus intracapsular, hence prevents its **upward displacement**.

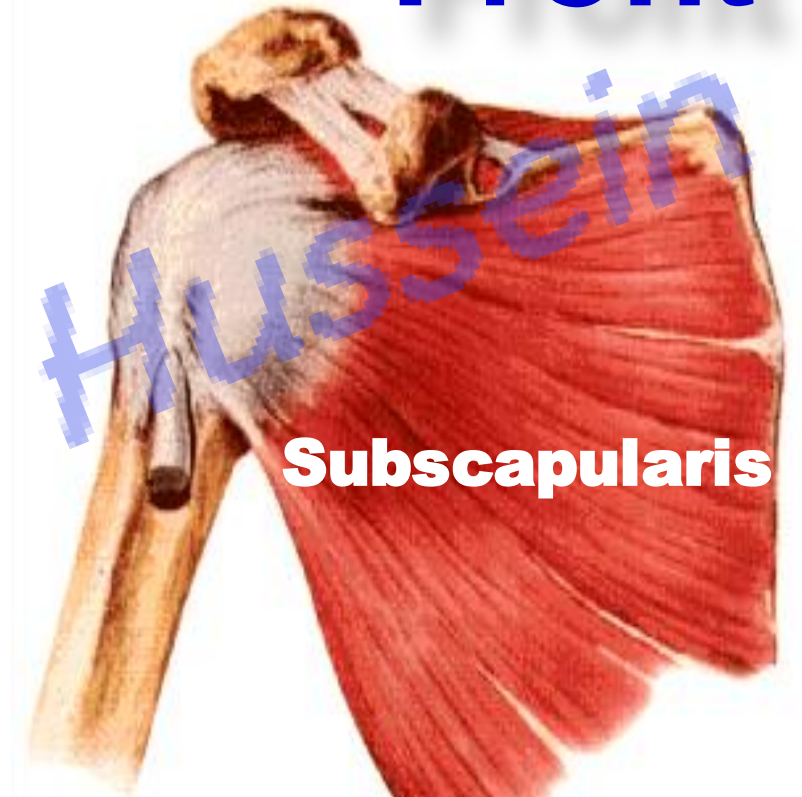
4- **Coracoacromial arch** forms, the secondary socket of the joint and protects the joint from above and prevents the **upward dislocation** of the head of humerus.

5- **Long head of triceps** plays an important role during abduction.

Superior

• Rotator cuff Muscles

Front



Back

- These muscles play an important role in **stability of the shoulder joint** but the inferior aspect not supported by muscles. **So dislocation of the shoulder joint is almost inferiorly .**
- They keep humerus in contact with glenoid cavity during movements of shoulder joint.

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- **Bankart lesion** is a lesion (tear) of the anterior part of the glenoid labrum of the shoulder caused by repeated anterior or inferior shoulder subluxations (dislocation)
- If the tear is accompanied by a fracture in the bone of the shoulder socket (glenoid cavity), this is called a **bony, or osseous, Bankart lesion.**



❖ Movements of shoulder joint

❖ Flexion

❖ (Muscles in front):

- Anterior fibers of the deltoid and Pectoralis major.
- Coracobrachialis and short head of biceps.

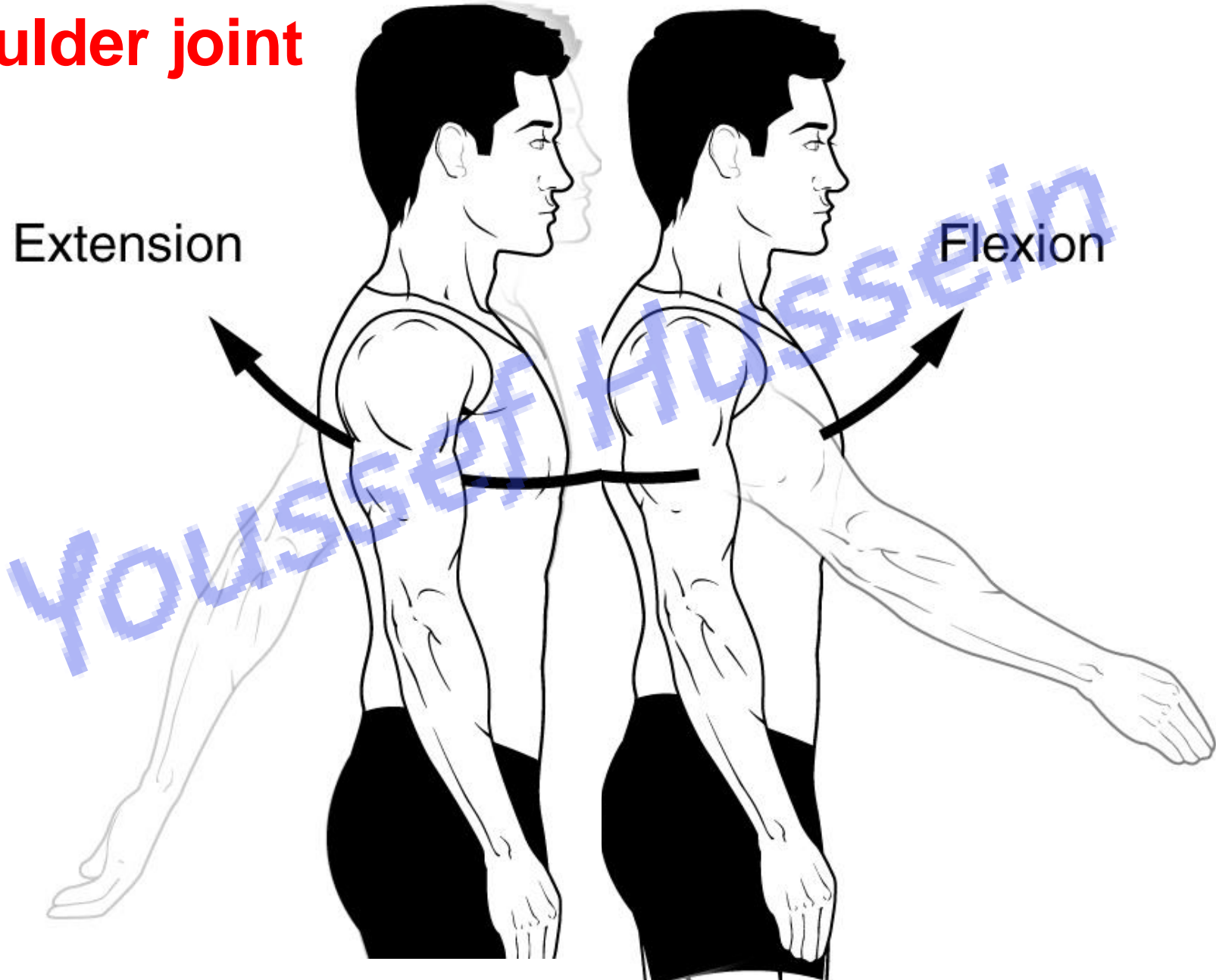
❖ Extension

❖ (Muscles in the back):

Posterior fibers of the deltoid, teres major and latissimus dorsi.

Extension

Flexion

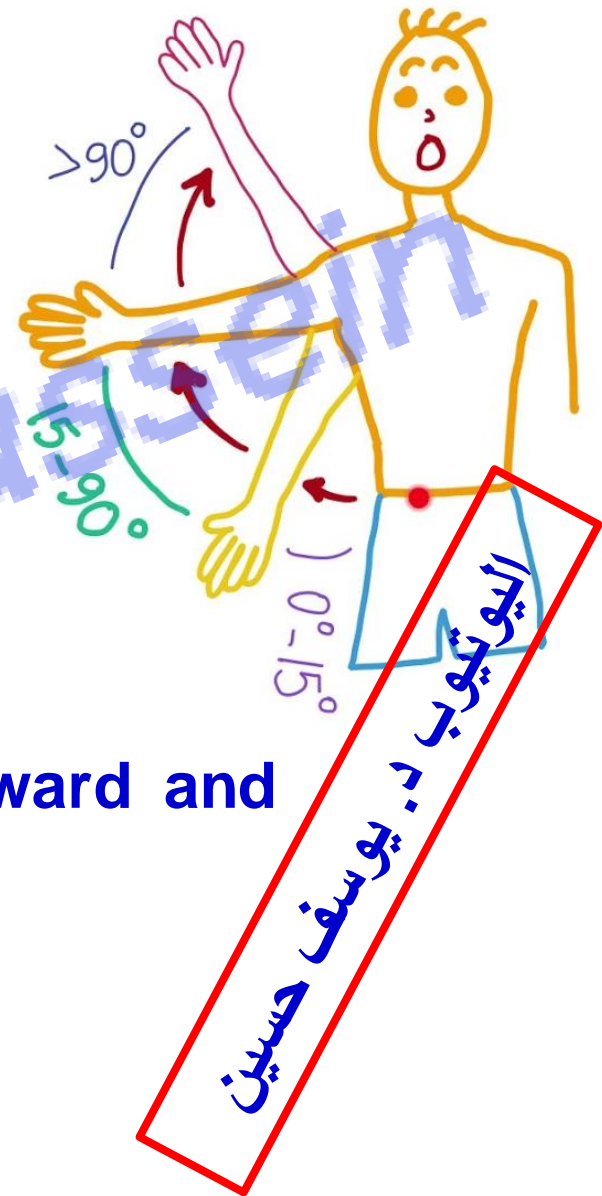


** Movements of shoulder joint:

❖ Abduction:

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- a- From 0 to 15 by **supraspinatus** muscle
- b- From 15 to 90 by the **middle** fibers of the deltoid.
- c- More than 90 to 180 by the combined actions of **lower 5 digitations of serratus anterior** and **trapezius muscle**.
- After 90 degree of abduction, head of humerus is locked by coracoacromial arch. **SO, the scapula rotates upward and lateral to raise the arm above the head.**



❖ Adduction:

- a- by the **3 muscles inserted into the bicipital groove:**
 - 1- Pectoralis major.
 - 2- Latissimus dorsi.
 - 3- Teres major.
- b- **3 Rotator cuff muscles** (Subscapularis, Infraspinatus and teres minor).

** Movements of shoulder joint:

❖ Medial rotation by

- Anterior fibers of the deltoid.
- 3 muscles inserted into bicipital groove (pectoralis major, latissimus dorsi, teres major)

❖ Lateral rotation: by Posterior fibers of deltoid, infraspinatus and teres minor.

❖ Circumduction: includes flexion, abduction, extension and adduction done in succession.

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Shoulder (Glenohumeral Joint)

Head of humerus



Glenoid cavity of scapula

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X ray of shoulder joint

Axillary nerve

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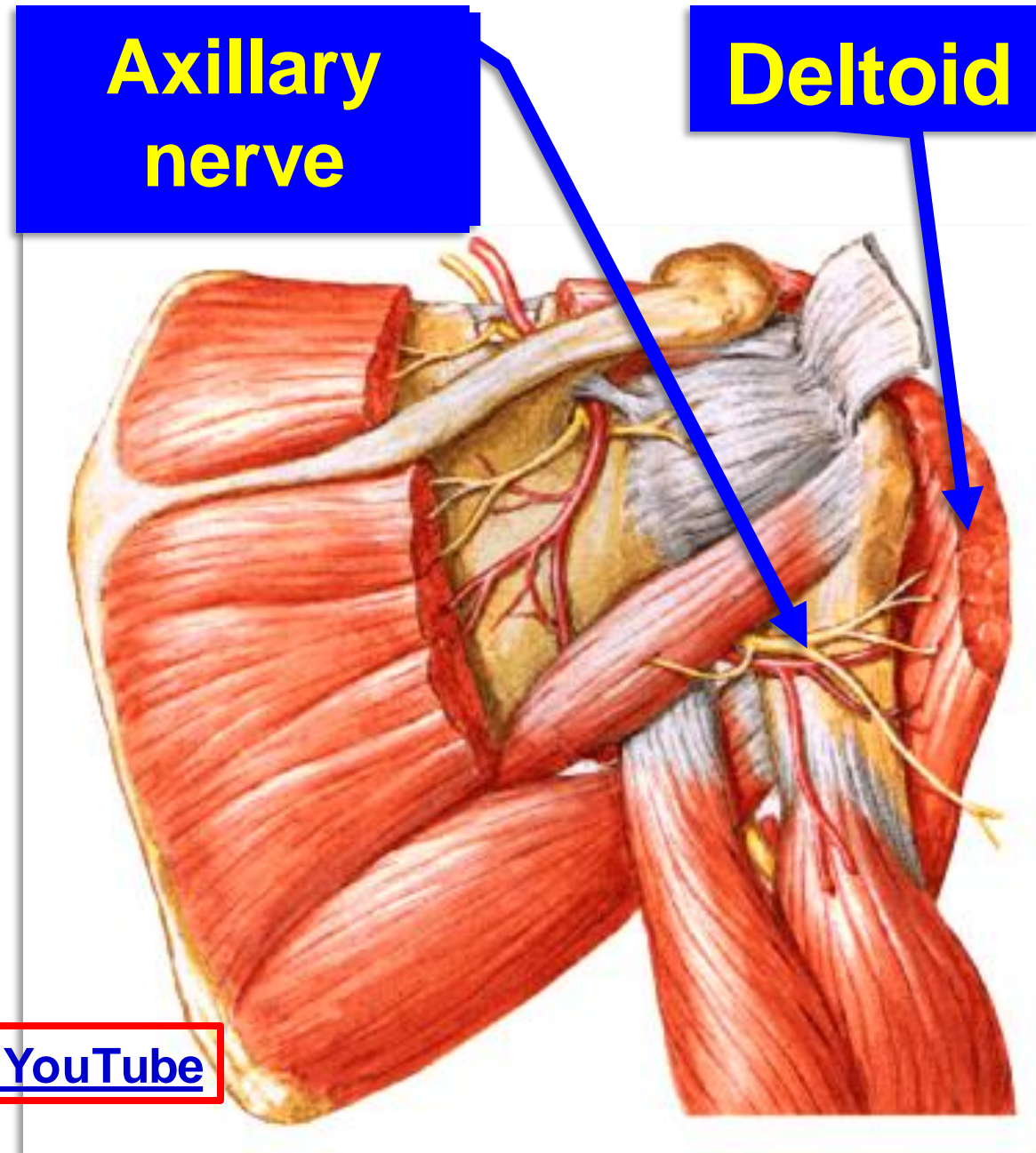
- **Axillary Nerve**

**** Origin (root):** It is a branch of the posterior cord of brachial plexus (C5&6).

**** Course and relations:**

- It descends **behind the 3rd part** of the axillary artery.
- It passes through the **quadrangular space** with the posterior circumflex humeral artery.
- It curves **behind the surgical neck** of the humerus with the posterior circumflex humeral artery (**dangerous position**).
- Then, it passes **deep to the deltoid muscle**.

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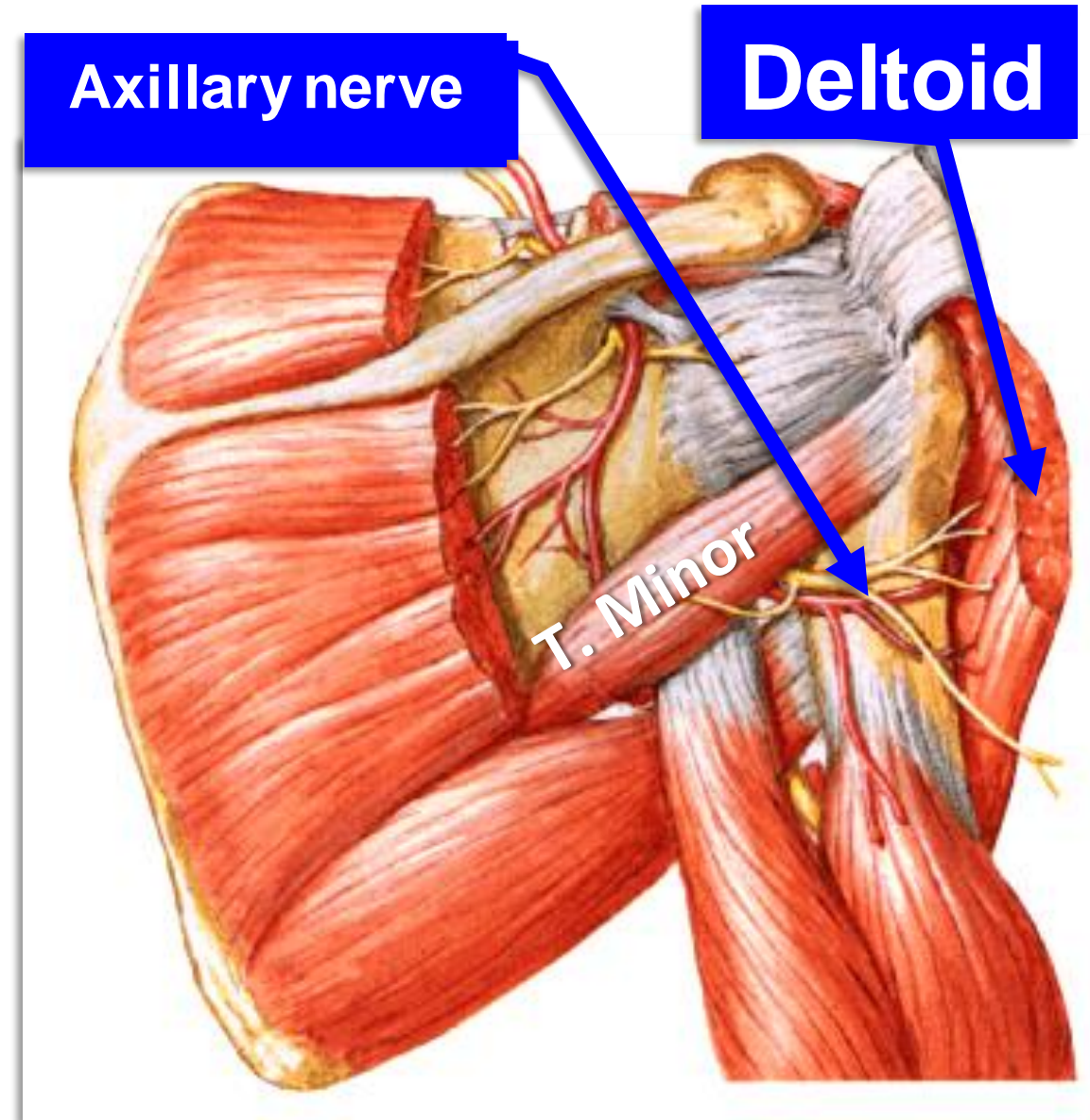


- **Axillary Nerve**

**** Branches**

- 1- Articular branch to the shoulder joint.**
- 2- Muscular to the deltoid and teres minor muscles.**
- 3- Cutaneous; upper lateral cutaneous nerve of the arm.**
 - It supplies the skin covering the lower 1/2 of the deltoid.

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- **Intramuscular injection into deltoid muscle:** on its lateral aspect about 4 - 5 cm below acromion to avoid injury of axillary nerve, it is used for injection of small volume equal or less than 2 ml

**** Injury of the axillary nerve:**

*** Causes;**

- 1) Fracture of the surgical neck of the humerus.
- 2) Dislocation of the shoulder joint.

• Effects:

- 1) Paralysis of deltoid and teres minor.
- 2) Loss of sensations over the lower 1/2 of the deltoid.

• Deformity:

Flat shoulder (loss of rounded shape of the shoulder) **with prominent of acromion.**

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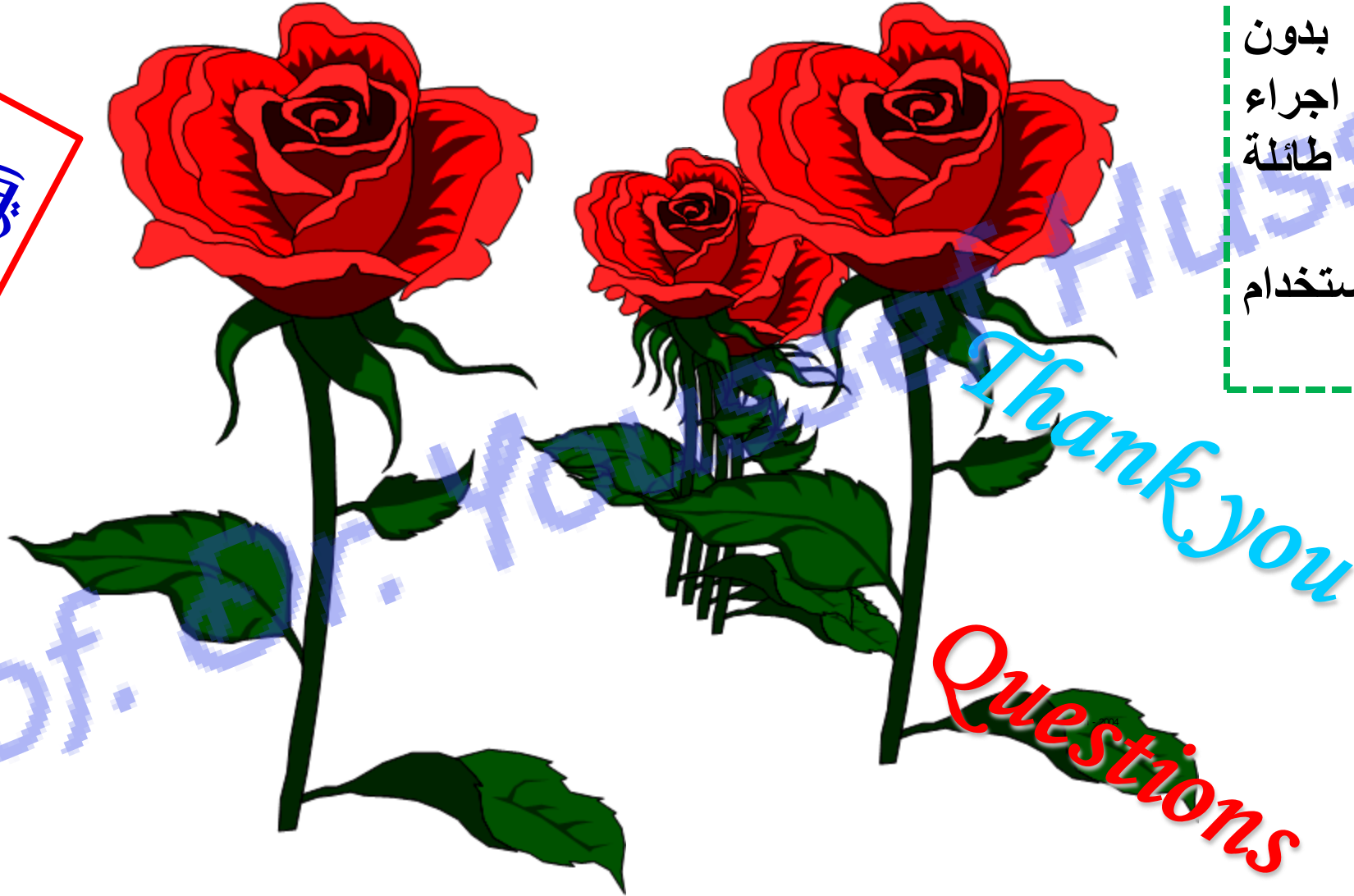


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