ANATOMY TEAM

LECTURE (10)

ARM, CUBITAL FOSSA &

ELBOW JOINT

Arm, Cubital Fossa & Elbow Joint

Objectives:

- ***At the end of this session, students should be able to:***
- DESCRIBE the attachments, actions & innervations of: biceps brachii, coracobrachialis, brachialis, triceps brachii
- DEMONSTRATE the articulating bones, capsule, lateral & medial collateral ligaments and synovial membrane of the elbow joint
- DEMONSTRATE the movements (flexion and extension) of the elbow. LIST the main muscles producing the above movements
- DEFINE the boundaries of the cubital fossa and enumerate its contents.

تنويه / هذا العمل لا يعتبر مصدر أساسي للمذاكره وإنما هو للمراجعه فقط والمصدر الاساسي هو السلايدز ، وقد تم التأكد بأنه لا يوجد أي اختلاف بين سلايدز الأولاد والبنات

+ يوجد خطأ بسيط في هذه المعلومه في السلايد :

- **Short Head** from the tip of **coronoid** process of scapula

الصحيح :

Coracoid Process

IMPORTANT NOTES:

- ✓ REMEMBER : Brachium is the region of the arm
- ✓ The deep fascia that surrounded the muscles is running through the muscle in medial and lateral sides and cross the muscle toward the bone and then get attachment to the bone, so the *fascial septa* will be formed.
- ✓ The most important Action Biceps Brachii: Supination during Screwing.
- ✓ Most of the fibers of the Biceps are joining in a tendon which inserted at the radial tuberosity and the rest of these muscle fibers forming a sheath "APONEUROSIS"
- ✓ We can see the Coracobrachialis and the Brachialis by removing the BICEPS BRACHII
- ✓ Musculocutaneus nerve is a mixed nerve "sensory and motor"
- ✓ Powerful flexor of elbow → Biceps Brachii
- ✓ **We need to remove the Roof "**skin, superficial & deep fascia and bicipital aponeurosis" to see the Cubital fossa
- ✓ **there is a Clinical importance of the cubital fossa:
- ✓ **Brachial artery is superficial in the cubital region so it is the site for taking the blood pressure.
- ✓ **In the cubital fossa we have also a superficial vein for giving the IV
- ✓ Synovial cavity of the Elbow joint is continues with the Proximal Radio-Ulnar joint, so when one is infected or inflamed the other will be involved.
- ✓ Bursa is fluid filled sac-like structure formed by synovial membrane. → مثل البالونة و يكون داخلها السائل
- ✓ Whenever there is a tendon near the bone or two tendons running over one other Bursa is sitting there so it decrease the friction
- ✓ Helton's law: The nerve supplying a muscle attached to a joint is also supplying the joint.

Humerus: Bone of the Arm

Cross section of the Arm shows an Anterior and Posterior facial compartment divided by Medial and Lateral Intermuscular septa

الهيوميريس هي بين الميديال و الليترال ، يعني بيكونون "هيوميريس و الميديال والليترال الانترمسكيولار" حاجز يفصل بين الجزء الخلفي عن الأمامي.

Compartments	Anterior Fascia	Posterior Fascia
Muscles	Biceps Brachii , Brachialis and Coracobrachialis	Triceps Brachii
Vessels	Brachial Artery Basilic Vein	Profunda brachii Ulnar collateral arteries
Nerves	Radial , Ulnar , Median and Musculocutaneuos	Radial and Ulnar nerves

What are the Origin and Insertion of the Biceps!

Long Head ⟶ Supraglenoid tubercle of the scapula

Short Head ⟶ Coracoid process of the scapula

Joining at the middle of the arm and inserted in radial tuberosity and the biceptal Apo neurosis

Actions of the Biceps Brachii are Supination and flexor of elbow and weak flexor of shoulder.

What are the Origin and Insertion of the Coracobrachialis !

From the coracoid process to the medial of the middle humeros <> Flexor and weak adductor.

What are the Origin and Insertion of the Brachialis !

From the lower half of the Humerus to the coronoid process of Ulna <> Flexor for the arm

All anterior Muscles have the musculocutaneuos nerve supply.

What is the origin and insertion for each head of the Triceps!

Long head	→	infrglenoid tubercle of the scapula
Medial head	→	below the spiral groove
Lateral head	→	above the spiral groove

Insertion: Joining at tendon and inserted at the upper surface of the Olecranon

Action of the Triceps: Strong Extensor for the elbow joint.

Supplied by the Radial nerve

Radial nerve supply the Brachialis and the Triceps

What are the medial and lateral boundaries of the Cubital Fossa!

Medially by the PRONATOR TERES

Laterally by the BRACHIALORADIALIS

What are the content of the Cubital Fossa "medially to laterally"!

Median nerve, brachial artery (will divided below the elbow to radial and ulnar arteries), Biceps Brachii tendon, Deep branch of radial nerve.

For more information about the CUBITAL FOSSA:

http://www.youtube.com/watch?v=W5jucnxAS6s

http://www.slideshare.net/yapa87/anatomy-of-cubital-fossa

Elbow Joint

What is the type of the Elbow Joint!

Synovial Hinge joint and the articulation surfaces are covered by **Hyaline cartilage**.

Mention the articulating surfaces of the Elbow Joint!

Trochlea of the Humerus with the **trochlear notch** of Ulna

Capitulum of the Humerus with the **head of Radius**

THE CAPSULE

	Anteriorly	Posteriorly
Above	the upper margins of **the coronoid and radial fossae**, And to the **front of the epicondyles** "medial and lateral".	the margins of the **olecranon fossa** of the humerus.
Below	the margin of the **coronoid process** of the ulna and to the **annular ligament**, which surrounds the head of the radius.	the upper margin and sides of the **olecranon process** of the ulna and to the **annular ligament**.

Where are the Apex and base of the Lateral ligament attached ?

Its apex is attached to the *lateral epicondyle* of the Humerus and the base is attached to the *upper margin of the annular ligament*

the medial ligament is composed of three parts (bands) what are they ?

- *Anterior strong cord-like band:* between medial epicondyle and the coronoid process of ulna
- *Posterior weaker fan-like band*: between medial epicondyle and the olecranon process of ulna
- *Transverse band*: passes between the anterior and posterior bands

What does synovial membrane lines and what does it cover ?

This lines the capsule and covers fatty pads in the floors of the coronoid, radial, and olecranon fossae

What are the boundaries of the Elbow Joint?

- **Anterior**: Brachialis, tendon of biceps, median nerve, brachial artery
- **Posterior**: Triceps muscle, small bursa intervening
- **Lateral**: Common extensor tendon & the supinator
- **Medial**: Ulnar nerve

What limit the flexion and extension of the elbow joint?

Flexion >> anterior surfaces of the arm and forearm

Extension >> tension of the anterior ligament and the brachialis muscle

What is The Carrying angle?

It is the angle Between the long axis of the extended forearm and the long axis of the arm

Disappears when the elbow joint is flexed

Why the elbow joint is a stable joint?

- **Wrench-shaped articular surface of the olecranon and the pulley-shaped trochlea of the humerus**
- **Strong medial and lateral ligaments.**

MCQs

1)The muscle which cross both the shoulder and elbow joints?

1. ***Biceps Brachii***
2. ***Coracobrachialis***
3. ***Brachialis***

2)strong supinator of the forearm ?

1. ***Brachialis***
2. ***Biceps Brachii***
3. ***Coracobrachialis***

3)Which one is a Strong flexor of the forearm?

1. ***Brachialis***
2. ***triceps***
3. ***Coracobrachialis***

4)During Screwing, the main muscle working here is?

1. ***Coracobrachialis***
2. ***Biceps Brachii***
3. ***Brachialis***

5)Infrglenoid tubercle of the scapula is the origin of ……. Head of the …… ?

1. ***Medial , triceps***
2. ***Short , biceps***
3. ***Long , triceps***

6)Which of these is wrong about the cubital fossa?

1. ***triangular depression***
2. ***on the anterior aspect of the elbow***
3. ***the roof has no fascia***

7)Elbow joint is?

1. ***Biaxial***
2. ***Uniaxial***
3. ***Multiaxial***

8)The capsule of the elbow Anteriorly attached to …….. below?

1. ***upper margins of the coronoid and radial fossae and to the front of***

epicondyles

2. ***the margin of the coronoid process of the ulna and to the anular ligament***
3. ***Both of them***

9) The strongest part of the ulnar collateral ligament ?

1. ***The anterior band***
2. ***The posterior band***
3. ***The transverse band***

10) Bursae around the elbow joint are ?

1. ***Subcutaneous olecranon bursa***
2. ***Subtendinous olecranon bursa***
3. ***Both of them***

The answers

The Question	The Answer
1	1
2	2
3	1
4	2
5	3
6	3
7	2
8	3
9	1
10	3