

## **ASSIGNMENT FOR BIOMECHANICS**

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### **Question**

**Draw a table including all the muscles and their actions of the following joints.**

**(1)**

### **SHOULDER JOINT**

#### **Shoulder joint Muscles:**

Shoulder joint many muscles which stabilize the joint and make it moveable and also help the scapula in movement.

It has following MUSCLES:

- *Subscapularis*
- *Latismis dorsi*
- *Infraspinatus*
- *Superspinatus*
- *Teres minor*
- *Teres major*
- *Pectoral major*

<b>Muscle</b>	<b>origin</b>	<b>insertion</b>	<b>Action</b>	<b>Innervation</b>	<b>Stretching</b>
<b>(1) Suscapularis</b>	Entire under surface of scapula	Lesser tubercle of Humerus	Internal rotation, adduction, extension, Stabilizing of GH joint	Upper and lower scapula nerve.	Externally rotate the shoulder and rise the arm up at the slide.
<b>(2) Latissimus dorsi</b>	Posterior crest of ilium or posterior sacrum.	Intertubercular groove of the humerus.	Shoulder extension, Internal rotation and adduction	Thoracodorsal nerve	Latissimus dorsi stretch I and latissimus dorsi stretch II
<b>(3) Infraspinatus</b>	Posterior Surface of scapula	Greater tuberosity on the humerus	Rotation, Extension Horizontal abduction	Suprascapular nerve	Internal rotation stretch and posterior shoulder stretch
<b>(4) Teres minor</b>	Midsection of the lateral border of the scapula	Greater tuberosity on the Humerus	External Rotation and shoulder adduction	Axillary nerve	Internal rotation stretch
<b>(5) Teres major</b>	Lower lateral border of scapula	Intertubercular groove of humerus	Shoulder adduction and shoulder extension	Lower scapular nerve.	External rotation stretch
<b>(6) Supraspinatus</b>	Supraspinatus fossa	Greater tuberosity of humerus	Shoulder abduction and shoulder stabilization	Suprascapular nerve	Supraspinatus stretch
<b>(7) Deltoid</b>	Spine of scapula	Tuberosity on Humerus	Shoulder abduction Shoulder extension And external rot,	Axillary nerve	Posterior shoulder stretch
<b>(8) Pectoralis major</b>	Sternum	Intertubercular Groove of Humerus	Flexion Adduction and internal rotation	Lateral and medial pectoral nerve	Chest stretch with a partner

(2)

**ELBOW JOINT**

**Answer**

**Muscle of Elbow Joint:**

\_Elbow joint have many muscles such as :

- Triceps brachia
- Brachioradialis
- Brachialis
- Bicep brachia
- Pronator teres
- Pronator quadratus
- Anconeus
- Supinator

<b>Muscles</b>	<b>Origin</b>	<b>Insertion</b>	<b>Action</b>	<b>innervation</b>	<b>Stretching</b>
<i>Pronator Teres</i>	<i>Medial supracondylar ridge of the humerus and medial side of the coronoid process of the ulna</i>	<i>Middle of the outer surface of the radius</i>	<i>Pronation and elbow flexion</i>	<i>Median nerve</i>	<i>Extension stretch of elbow</i>
<i>Tricep brachii</i>	<i>Long head glenoid cavity of scapula</i>	<i>Olecranon process of ulna</i>	<i>Elbow extension</i>	<i>Radial Nerve</i>	<i>Tricep strrch</i>
<i>Brachioradialis</i>	<i>Lower and lateral supracondilor ridge of humerus</i>	<i>Styloid process of the radius</i>	<i>Elbow flexion Pronation and supination</i>	<i>Radial nerve</i>	<i>Bicep curls using a resistance band</i>
<i>Brachialis</i>	<i>Lower half of the anterior humerus</i>	<i>Coronoid process of the ulna</i>	<i>Ulnar flexion</i>	<i>Musculocutaneous nerve</i>	<i>Bicep curls using a resistance band</i>
<i>Bicep Brachii</i>	<i>Glenoid fossa and coracoid process</i>	<i>Bicipital tuberosity of the radius</i>	<i>Elbow flexion and supination</i>	<i>Musculocutaneous nerve</i>	<i>Bicep curl</i>
<i>Anconeus</i>	<i>Posterior surface of the lateral condyle of the humerus</i>	<i>Posterior surface of the upper ulna</i>	<i>Elbow extension</i>	<i>Radial nerve</i>	<i>Triceps stretch</i>
<i>Supinator</i>	<i>Lateral epicondyle of the humerus</i>	<i>Lateral surface of the radius</i>	<i>Supination of the forearm</i>	<i>Radial nerve</i>	<i>Maximal pronation of the forearm</i>
<i>Pronator quaderatus</i>	<i>Distal quaderator of anterior side of the ulna</i>	<i>Distal quarter of the anterior side of ulna</i>	<i>Pronation of the forearm</i>	<i>Median nerve</i>	<i>Maximum supination of the forearm</i>

(3)

**WRIST JOINT**

**Answer**

**Muscles of the Wrist joint:**

Muscles of wrist include the

- Flexor polices longus
- Flexor digitorum superficialis
- Flexor carpi ulnaris
- Flexor carpi digitorum
- Extensor digitorum communis
- Extensor carpi ulnaris
- Extensor carpi radialis muscles

<b>Muscles</b>	<b>Origin</b>	<b>Insertion</b>	<b>Actions</b>	<b>Innervation</b>	<b>stretching</b>
<i><b>Flexor pollicis longus</b></i>	<i>Middle anterior surface of the radius</i>	<i>Base of the distal phalanx of the thumb</i>	<i>Flexion of the thumb and flexion of the wrist</i>	<i>Anterior interosseous nerve</i>	<i>Wrist flexor stretch</i>
<i><b>Flexor digitorum superficialis</b></i>	<i>Medial epicondyle of the humerus</i>	<i>Splits into four tendons that insert into middle finger</i>	<i>Flexion of the wrist and fingers</i>	<i>Median nerve</i>	<i>Wrist flexor stretch</i>
<i><b>Flexor carpalis</b></i>	<i>Medial epicondyle of the humerus</i>	<i>Base of fifth metacarpals</i>	<i>Flexion of the wrist</i>	<i>Ulnar nerve</i>	<i>Wrist flexion stretch</i>
<i><b>Flexor carpalis radialis</b></i>	<i>Medial epicondyle of the humerus</i>	<i>Base of 2<sup>nd</sup> and 3<sup>rd</sup> metacarpals</i>	<i>Flexion of the wrist</i>	<i>Median nerve</i>	<i>Wrist flexion stretch</i>
<i><b>Extensor pollicis longus</b></i>	<i>Upper posterior surface of the ulna</i>	<i>Base of distal phalanx of thumb</i>	<i>Extension of the wrist</i>	<i>Posterior interosseous nerve</i>	<i>Wrist extensor stretch</i>
<i><b>Extensor digitorum communis</b></i>	<i>Lateral epicondyle of humerus</i>	<i>Splits into four tendons and insert into 2<sup>nd</sup> and 3<sup>rd</sup> phalanx of the forefinger</i>	<i>Extension of wrist and finger</i>	<i>Posterior interosseous nerve</i>	<i>Wrist extensor stretch</i>
<i><b>Extensor Carpalis</b></i>	<i>Lateral epicondyle of humerus</i>	<i>Base of 5<sup>th</sup> metacarpal</i>	<i>Extension of wrist</i>	<i>Radial nerve</i>	<i>Wrist extensor stretch</i>
<i><b>Extensor carpalis radialis longus</b></i>	<i>Lateral supracondylar ridge of humerus</i>	<i>Base of 2<sup>nd</sup> metacarpal</i>	<i>Extension of wrist</i>	<i>Radial nerve</i>	<i>Wrist extensor stretch</i>