

DPT 2nd Semester (section A)

Course Title: Biomechanics-I

Instructor: Dr. Ahmed Hayat

MID Term Assignment Marks: 30

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

Q1: Shoulder joint.

Q2: Elbow joint.

Q3: Wrist joint.



Q1: Shoulder joint.

Ans: Below mentioned is table of all muscles and actions of Shoulder Joint:

Extrinsic Muscles of Shoulder Joint			
Superficial Extrinsic Muscles		Deep Extrinsic Muscles	
Muscle Name	Movement	Muscle Name	Movement
Trapezius	<p>Upper: scapular elevation and upward rotation.</p> <p>Middle: scapular depression.</p> <p>Lower: scapular depression and upward rotation.</p>	Levator scapulae	Elevates the scapula and tilts its glenoid cavity inferiorly by rotating scapula
Latissimus dorsi	It adducts and extends the arm. It help in medial rotation of the arm. it depresses the shoulder girdle through insertion on the humerus.	Rhomboid major	Retracts the scapula and rotates it to depress the glenoid cavity. it also fixes the scapula to the thoracic wall.

		Rhomboid minor	Retracts and rotates the scapula and fixes it to thoracic wall
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Muscle Name	Muscles Actions
Serratus anterior	It help trapezius.it protracts the scapula and upwardly rotates the scapula.
Pectoralis major	Horizantal flexion of shoulder.adduction of shoulder and medial rotation of shoulder.
Pectoralis minor	It protracts the scapula and downwardly rotates the scapula.

INTRINSIC MUSCLES	
Muscle name	Muscles Actions
Deltoid	<p>Anterior fiber: flexion and medial rotation of arm.</p> <p>Middle fiber: abduction of arm from 15 to 90.</p> <p>Posterior fibers: extension and lateral rotation of the arm.</p>
Teres major	Medial rotation, adduction and extension of the shoulder joint.
Rotator cuff muscles	
Supraspinatus	Abduction of the arm and help in stabilization of shoulder joint.
Infraspinatus	It rotates the arm laterally
Subscapularis	It medially rotates the arm
Teres minor	It laterally rotates the arm

Q2: Elbow joint?

Ans: Below mentioned is table of all muscles and actions of elbow Joint:

Muscles Names	Action
<ul style="list-style-type: none">➤ Bicep brachii➤ Brachialis➤ Brachioradialis	Flexion
<ul style="list-style-type: none">➤ Tricep brachii➤ Anconeus	Extension
<ul style="list-style-type: none">➤ Pronator teres➤ Pronator quadratus	Pronation
<ul style="list-style-type: none">➤ Supinator➤ Bicep brachii	Supinatio

Q3: Wrist joint.

Ans: Below mentioned is table of all muscles and actions of wrist Joint:

Flexor group of the wrist:

Muscles	Actions
Flexor carpi radialis	Flexes and radial deviates the hand at wrist
Flexor carpi ulnaris	Flexes and ulnar deviates the hand at wrist
Flexor digitorum superficialis	It flexes middle phalanges at proximal interphalangeal joints, it also flexes proximal phalanges at metacarpophalangeal joints and hand
Palmaris longus	Flexes hand at the wrist
Flexor digitorum profundus	Flexes distal phalanges at distal interphalangeal joints
Flexor digiti minimi brevis	Flexes proximal phalanx of little finger
Flexor pollicis brevis	It flexes thumb
Flexor pollicis longus	Flexes phalanges of thumb

Extensors of the wrist:

Extensor carpi radialis brevis	Extends and radially deviates the wrist
Extensor carpi radialis longus	Extends and radially deviates at the wrist
Extensor carpi ulnaris	Extends and ulnar deviates hand at wrist
Extensor digiti minimi	Extends 5 th digit at metacarpophalangeal and interphalangeal joints
Extensor digitorum	Extends the four digits and the wrist
Extensor indicis	Extends 2 nd digit and helps to extend hand

Extensor pollicis brevis	Extends proximal phalanx of thumb at carpometacarpal joint
Extensor pollicis longus	Extends distal phalanx of thumb at carpometacarpal and interphalangeal joints

Abduction at hand:

Abductor digiti minimi	Abducts little finger
Abductor pollicis brevis	Abducts thumb
Abductor pollicis longus	Abducts thumb

Adduction:

Adductor pollicis	Adducts thumb
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Opposition:

Opponens digiti minimi	Brings little finger into opposition with thumb
Opponens pollicis	Draw 1 st metacarpal laterally to oppose thumb towards center of palm.