

NAME: MAH RUKH
ROLL NO: 15854
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DEPT DPT 2ND

QUESTION: 1

Enlist functions of the following muscles

Deltoid, Trapezius, Latissimus dorsi, Rhomboids, Levator scapulae, Serratus anterior Pectoralis major minor, Tere major.

ANSWER:

1. DELTOID:

The deltoid is a thick triangular shoulder. The muscles has a wide origin spanning the acromion, clavicle, spine of the scapula.

FUNCTION:

Acromial part: abduction of the arm beyond the initial 15

Clavicular part: flexion and internal rotation of the arm

Spinal part: extension and external rotation of the arm

It all assist with elevation during the process called glenohumeral and its play a large role in stability and movement of the upper arm and shoulder joint.

2. TRAPEZIUS MUSCLES:

The trapezius muscle is a large, paired, triangular shaped muscle located superficially in the back of the neck and thorax.

FUNCTION:

The different fibers act with synergist muscles to produce different motion of the scapula. The action of the trapezius muscles is largely dependent on the direction of the fibers that contracting. The upper fibers of trapezius can raise and upwardly rotate the scapula and can extend the neck. the middle can adduct the scapula. The lower fibers depress and help the upper fibers to rotate the scapula upwardly. These movement allow the scapula to rotate against the levator scapulae and rhomboid muscles.

3. LATISSIMUS DORSI:

The latissimus dorsi muscle belongs to the muscles of the scapular motion. This muscles is able to pull the inferior angle of the scapula in

various directions and producing movements on the shoulder joint. Internal rotation, adduction and extension of arm.

4. RHOMBOIDS:

The rhomboids major muscles is located in the back region and helps keep the scapula or shoulder blade attached to the ribcage. It also rotates the scapula and retracts it towards the spinal column.

5. LEVATOR SCAPULAE:

The levator scapulae muscles is located at the side and back of the neck. It is one component of the muscular system of the shoulder. Its function is to lift the scapula which is the triangle shaped bone located at the back of the shoulder that connects the upper arm bone humerus with the clavicle.

6. SERRATUS ANTERIOR:

THE serratus anterior muscle allows the forwards rotation of the arm and to pull the scapula forward and around the ribcage. The scapula is able to move laterally due to the serratus anterior muscles which is vital for the elevation of the arm. The serratus anterior muscles also allow the upward rotation of the arm

7. PECTORALIS MAJOR:

The pectoralis major helps the shoulder in horizontal flexion, adduction and medial rotation of the shoulder.

8. PECTORALIS MINOR:

The function of this muscles is stabilization, depression, abduction or protraction and downward rotation of the scapula. When the ribs are immobilized, this muscles brings the scapula if fixed. It lifts up the rib cage. There are two parallel pectoralis minor muscles, one on each side of the sternum.

9. TERES MAJOR:

The function of this muscles is the medial rotation of shoulder joint. It also helps in the adduction and extension of the joint.

QUESTION :2

NAME ALL THE LIGAMENTS OF SHOULDER JOINT AND THEIR FUNCTION

ANSWER:

LIGAMENTS OF SHOULDER:

Ligaments are soft tissue structures that connect bones to bones. There are important ligaments in the shoulder.

- GLENOHUMERAL LIGAMENT (GHL)
- CORACO ACROMIAL LIGAMENT (CAL)
- CORACO CLAVICULAR LIGAMENTS (CCL)
- Transverse Humeral Ligament (THL)

1. GLENOHUMERAL LIGAMENT (GHL):

These ligaments are the main source of stability for the main source of stability for the shoulder. They are the superior, middle and inferior glenohumeral ligaments. They help hold the shoulder in place and prevent dislocation.

FUNCTION:

The middle glenohumeral ligament provides anterior stability at 45° and 60° abduction whereas the inferior glenohumeral ligament complex is the most important stabilizer against anteroinferior shoulder dislocation.

2. CORACO ACROMIAL LIGAMENT (CAL) :

Coraco acromial ligament (CAL) this ligament can thicken and cause impingement syndrome.

FUNCTION:

The coracoacromial ligament (CAL) connects the acromion and coracoid process of the scapula, forming an osseoligamentous static restraint to superior humeral head displacement.

CORACO CLAVICULAR LIGAMENTS (CCL):

These two ligaments trapezoid and conoid ligament are attached to the clavicle coracoid process of the scapula. These tiny ligaments with the acromioclavicular joint play an important role in keeping the scapula attached to the clavicle.

A fall on the point of the shoulder can rupture these ligaments with dislocation of the AC Joint .

FUNCTION:

The coracoclavicular ligament serves to connect the clavicle with the coracoid process of the scapula. It does not properly belong to the acromioclavicular (AC) joint articulation

Transverse Humeral Ligament (THL) :

It Holds the tendon of the long head of biceps brachii muscle in the groove between the greater and lesser tubercle on the humerus (intertubercular sulcus).

FUNCTION:

The transverse humeral ligament is a broad band passing from the lesser to the greater tubercle of the humerus, and always limited to that portion of the bone which lies above the epiphysial line. It converts the intertubercular groove into a canal.

QUESTION: 3

Write Individual and combine action of Rotater Cuff muscles

ANSWER:

INDIVIDUAL ACTION OF ROTATOR CUFF MUSCLES:

The rotator cuff muscles is made up of muscles and tendons that keep the head of humerus in the shoulder socket . the rotator cuff is a group of four muscles

- Supraspinatus
- Infraspinatus
- Teres minor
- Subscapularis

SUPRASPINATUS:

Supraspinatus is responsible for movement away from the cenerline of your body abduction. The supraspinatus produces about the 15degrees of the motion. After that your deltoid and trapezius muscles take over.

INFRASPINATUS:

Infraspinatus is the main muscles responsible for lateral rotation of your arm away from the center line of your body. It is a thick triangular muscle. It covers the back of the shoulder blade deep below the skin and close to the bone.

TERES MINOR:

Teres minor is a small, narrow muscles on the back of shoulder blade just below the infraspinatus. It also helps in lateral external rotation of your arm.

SUBSCAPULARIS:

Subscapularis is a large triangular shaped muscles that lies below the other three. It is a strongest ,largest and most used of the four rotator cuff muscles. It participates in most shoulder motions but is especially important for rotation of your arm toward the midline of body known as medial rotation

COMBINE ACTION OF ROTATOR CUFF MUSCLES

STABILITY:

The rotator cuff muscles are responsible for stabilizing the shoulder joint, by providing the "fine tuning" movements of the head of the humerus within the glenoid fossa.

SUPPORT:

Musculotendinous cuff provides support to the capsule of the shoulder joint all around except inferiorly

DYNAMIC STABILIZER:

Dynamic stabilizers include the rotator and scapular stabilizers

DISLOCATION:

Dislocations of the shoulder occur when the head of the humerus is forcibly removed from its socket in the glenoid fossa. As the joint is not protected inferiorly, the head of the humerus is usually dislocated inferiorly.

COMPRESSOR:

The rotator cuff's contributions to concavity compression and stability vary according to their stiffness and the direction of the force they applied.

QUESTION: 4

Define Lateral epicondylitis and explain its physiotherapy treatment

LATERAL EPICONDYLITIS:

Lateral epicondylitis is the swelling or micro damage to the tissues on the lateral side of distal humerus, including the tendinous attachment of the extensor tendon. It is also known as “tennis elbow”

It is the most overuse syndrome in the elbow. It is a tendinopathy injury involving the extensor muscles of the forearm.

CAUSES OF LATERAL EPICONDYLITIS:

Lateral epicondylitis occur related to overuse activities that over stresses the involved tendon, the extensor carpi radialis brevis, can cause the disorder. These activities include repetitive work, gardening, tennis, and golf.

Physiotherapy treatment:

There are different treatments for lateral epicondylitis. To reduce pain and improve the function. general physiotherapy management includes Exercise and Corticosteroid.

The first step in treating the irritated muscles and tendons .Ice and compression may also help reduce inflammation and pain. Once inflammation subsides, the patient can begin gentle exercises to strengthen the muscles of the forearm and prevent recurrence.

QUESTION :5

Differentiate between type 1 and type 2 muscle fibers

ANSWER:

MUSCLE FIBERS:

Single muscle cell surrounded by a membrane called the sarcolemma and containing specialized cytoplasm called sarcoplasm. Some muscle fibers run the entire length of a muscle, others are shorter. Skeletal muscle fibers grow in both length and diameter, and diameter can be increased through resistance training.

DIFFERENCE BETWEEN TYPE 1 AND TYPE 2

TYPE 1 : SLOW TWITCH

TYPE 2 : FAST TWITCH

SLOW TWITCH:

- Slow twitch fibers are called type 1 or red fibers because of their blood supply.
- Slow twitch muscle fibers are fatigue resistant.
- They contain more mitochondria and myoglobin.
- Slow twitch are aerobic in nature compared to fast twitch fibers.

- Its contraction speed is slow and glycolytic enzyme concentration is also low
- Fatigue diameter is also small.
- Type 1 muscle fibers are more efficient over long periods of time.
- They are mainly used for postural maintenance such as holding the head upright or endurance exercise.

FAST TWITCH:

- Fast twitch muscle fibers provide bigger and more powerful forces but for shorter duration and fatigue quickly.
- They are more anaerobic with less blood supply.
- Its contraction speed is fast and fatigue rate diameter is intermediate.
- Mitochondrial concentration is high while glycolytic enzyme concentration is intermediated.
- Type II muscle fibers use anaerobic respiration
- Fast twitch reach peak tension and relax more quickly than slow twitch fibers