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Study of anatomical effects of *Yogasana* in Frozen Shoulder

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ABSTRACT

Frozen shoulder is mainly faulty lifestyle disease which is greatly affecting to people of this era. Beside medicines *Yogasana* is prevention and therapeutic measure on the problem caused by wrong faulty routine life. *Yogasana* are our ancient master processes needful for healthy life which also maintain sound state of body and mind. In Frozen shoulder there is an occurrence of inflammation and adhesion of shoulder capsule which leads to restrict the movements and atrophy of the muscles. It is seen that regular use of *Yogasana* such as *Garudasana*, *Dhanurasana* helps in improvement of motions, initiate healing process, achieve alignment and stability, strengthen the muscle So that frozen shoulder will be avoided and treated.

Key words: *Frozen shoulder, Yogasana.*

INTRODUCTION

In this modern age and times, the physical body tends to take a lot of stress from the hectic, daily urban lifestyle. One of the areas that get most affected from stress and tension is the shoulders. The human body was designed to be a mobile instrument .We merely drives to work, sit in front a computer the whole day consequently, during this time, our shoulders crunch and eventually become frozen. Adhesive capsulate or frozen shoulder syndrome refers to painful stiff shoulder. cause is unclear, but shoulder capsule and connective tissue surrounding the joint of shoulder is affected causing pain. Passive range of motion and movement is disturbed and rheumatoid arthritis are also associated with secondary adhesive capsulitis.

Yogasana is very ancient science mentioned in most *Grandmas* and *Vedas* of Indian culture. *Yogasana* word is made by combination of two words i.e., *Yoga* and *Asana*. *Yogasana* have multimentional roles to play in welfare of mankind namely relaxation, meditation and correction of physical body. These *Yogasana* are perfect for managing the frozen shoulder pain, improving flexibility and healing alignments.

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AIM AND OBJECTIVES

1. Study the Anatomy of shoulder joint
2. Study the concept of frozen shoulder
3. Study the mechanism of *Yoga*

Anatomy of Shoulder joint

The shoulder joint is structurally classified as a synovial, ball and socket joint and functionally as a diarthrosis and multiaxial joint. It involves articulation between the glenoid cavity of the scapula (shoulder blade) and the head of the humerus (upper arm bone). Due to the very loose joint capsule that gives a limited interface of the humerus and scapula, it is the most mobile joint of the human body.

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Capsule

The shoulder joint has a very loose joint capsule known as the articular capsule of the humerus and this can sometimes allow the shoulder to dislocate. The long head of the biceps brachii muscle travels inside the capsule from its attachment to the supraglenoid tubercle of the scapula. Because the tendon of the long head of the biceps brachii is inside the capsule, it requires a tendon sheath to minimize friction.

Bursae

Bursae of shoulder joint: (1) and (6) subacromial subdeltoid bursa, (2) subscapular recess, (3) sub coracoid bursa, (4) supraclavicular bursa, (5) supra acromial bursa. A number of small fluid-filled sacs known as synovial bursae are located around the capsule to aid mobility. Between the joint capsule and the deltoid muscle is the subacromial-subdeltoid bursa. Between the capsule and the acromion is the subacromial bursa.[1]

The subcoracoid bursa is between the capsule and the coracoid process of the scapula. The coracobrachial bursa is between the subscapularis muscle and the tendon of the coracobrachialis muscle. Between the capsule and the tendon of the subscapularis muscle is the subscapular bursa, this is also known as the subtendinous bursa of the scapularis. (The supra acromial bursa does not normally communicate with the shoulder joint).[1]

Muscles

The shoulder joint is a muscle-dependent joint as it lacks strong ligaments. The primary stabilizers of the shoulder include the biceps brachii on the anterior side of the arm, and tendons of the rotator cuff; which are fused to all sides of the capsule except the inferior margin. The tendon of the long head of the biceps brachii passes through the bicipital groove on the humerus and inserts on the superior margin of the glenoid cavity to press the head of the humerus against the glenoid cavity. The tendons of the rotator cuff and their respective muscles (supraspinatus, infraspinatus, teres minor, and subscapularis) stabilize and fix the joint. The supraspinatus, infraspinatus and teres minor muscles aid in abduction and external rotation of the shoulder, while the subscapularis aids in internal rotation of the humerus.[1]

Ligaments

- Superior, middle and inferior glenohumeral ligaments
- Coracohumeral ligament
- Transverse humeral ligament
- Coraco-acromial ligament
- Blood Supply

The shoulder joint is supplied with blood by branches of the anterior and posterior circumflex humeral arteries, the suprascapular artery and the scapular circumflex artery.[1]

Function

The rotator cuff muscles of the shoulder produce a high tensile force, and help to pull the head of the humerus into the glenoid cavity. The glenoid cavity is shallow and contains the glenoid labrum which deepens it and aids in stability. With 120 degrees of unassisted flexion, the shoulder joint is the most mobile joint in the body.

The movement of the scapula across the rib cage in relation to the humerus is known as the scapulohumeral rhythm, and this helps to achieve a further range of movement. This range can be compromised by anything that changes the position of the scapula. This could be an imbalance in parts of the large trapezius muscles that hold the scapula in place. Such an imbalance could cause a forward head carriage which in turn can affect the range of movements of the shoulder.[1]

Movements

Flexion and extension of the shoulder joint in the (sagittal plane). Flexion is carried out by the anterior fibers of the deltoid, pectoralis major and the coracobrachialis. Extension is carried out by the latissimus dorsi and posterior fibers of the deltoid. Abduction and adduction of the shoulder (frontal plane). Abduction is carried out by the deltoid and the supraspinatus in the first 90 degrees. From 90-180

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degrees it is the trapezius and the serratus anterior. Adduction is carried out by the pectoralis major, latissimus dorsi, teres major and the subscapularis.

Medial and lateral rotation of shoulder (also known as internal and external rotation). Medial rotation is carried out by the anterior fibers of the deltoid, teres major, subscapularis, pectoralis major and the latissimus dorsi. Lateral rotation is carried out by the posterior fibres of the deltoid, infraspinatus and the teres minor.[1]

Frozen Shoulder

The term frozen shoulder is use to describe a clinical condition with restricted active and passive range of motions in all directions both flexion, extension abduction and rotation

The exact cause of frozen shoulder is unknown causes

- Shoulder trauma
- Surgery
- Diabetes
- Inflammatory conditions
- Inactivity of shoulder
- Autoimmune disease
- Cervical cancer
- Hyperthyroidism

Pathoanatomically

- There is involvement of the capsule in the glenohumoral joint
- The capsule volume gets reduce and synovial membrane become adherent to each other this is cause for the restrict range of motions.
- The surrounding muscle shows disease atrophy.
- In post traumatic cases there is clear evidence of a trauma and usually also structural changes within or adjacent to the joint such as Fracture, chondral lesion, avascular necrosis, scarring following traumatic tissue injury is another cause.[6]

Asana

- **Improve range of motions -** Yoga maintain existing joint function and prevents further loss of range of movements and following yoga's are helpful in frozen shoulder.

1) *Garudasana*

Anatomy

Move -Bend your knees deeply and sink your tailbone as close to the floor as possible. Work on stacking your shoulder over your hip. Wrap the knee higher over the thigh and slide the wrapped toes closer to the floor. Bring the triceps parallel to the floor Feel the pectoralis a triceps contract and strengthen to help you achieve the arm wrap. Engage through the abdominals and feel the lattissimus activate to lift the chest. The quadriceps and gastrocnemius are activated by siting deeply.[2],[4]

2) *Dhanurasana*

Move -Roll the shoulder down and back towards the tailbone, and feel the chest lift up and forwards. Being to lift the bottom ribs off of the ground. Move the top most part of thigh up off the floor, and move the toes skyward as if your shins are sliding up the wall.

The entire front side of the torso is expanding in length. A deep stretch through the Pectoralis major and minor is achieved by clasping the hands to the feet. The muscle from the abdominals to the tibialis anterior are lengthening in the backbend.[2],[5]

Discussion

In frozen shoulder gentle but dynamic yoga poses warm up the shoulder joint frees up the spaces in the shoulder. Yoga reduces the level of inflammatory compound that are responsible for localized increase in temperature and swollen joint. By limiting inflammation Yoga accelerates the healing process. In *Garudasana* pectoralis major, pectoralis minor and triceps muscle get contract to achieve the arm wrap. Latissimus dorsi muscle in *Dhanurasana* gets activated to lift the chest.

Conclusion

From the above discussion we can conclude that, the mentioned *Dhanurasan* and *Garudasana* plays a major role in reducing the inflammation and strengthen the

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chest muscle so that we can prevent and easily treat the frozen shoulder.

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