



SNS COLLEGE OF PHYSIOTHERAPY

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



COURSE : BPT

SUBJECT: BIOMECHANICS

TOPIC :SCAPULOHUMERAL RHYTHM

UNIT : IV

1

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ASSISTANT PROFESSOR**

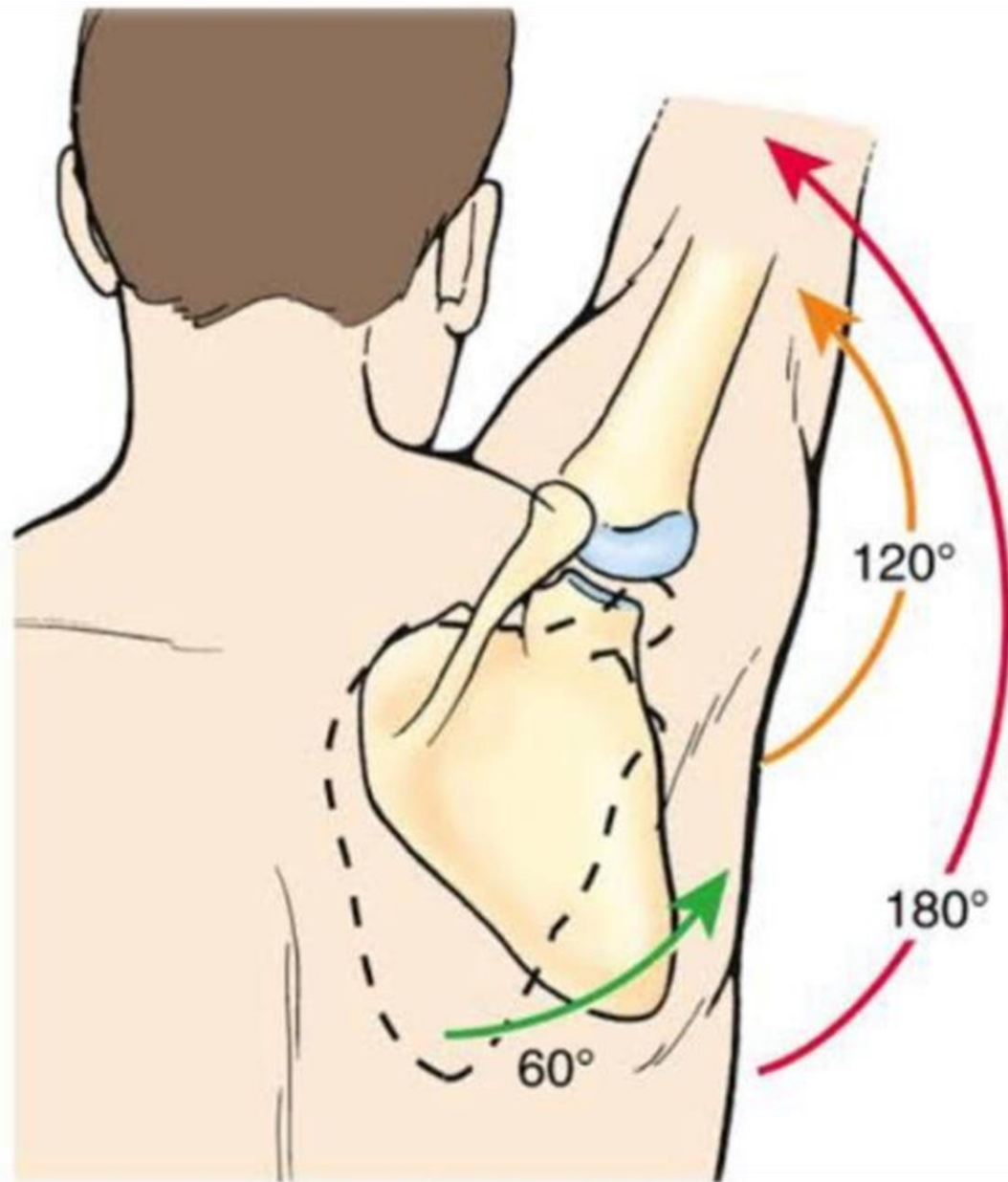
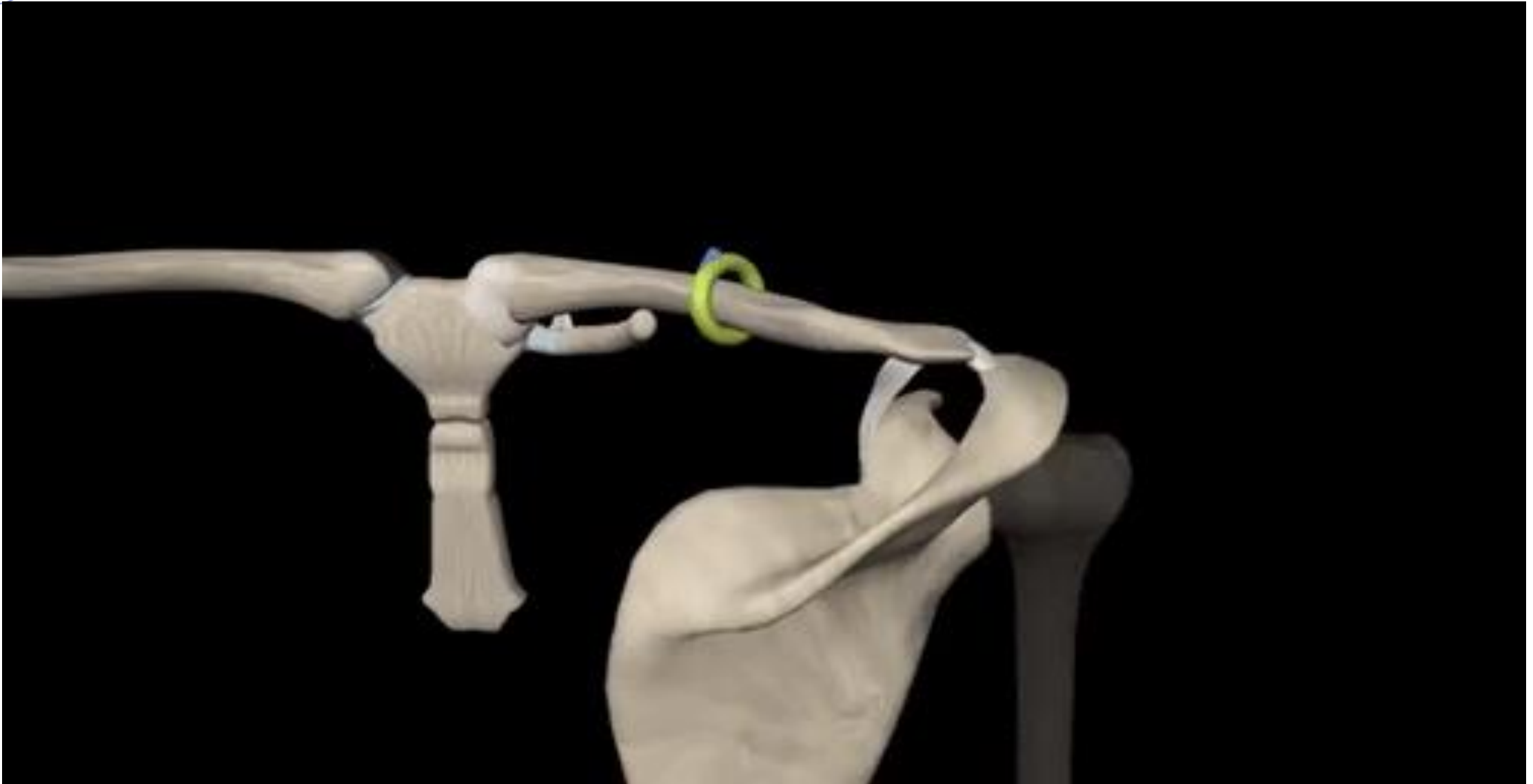


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SCAPULOHUMERAL RHYTHM

- Scapulohumeral rhythm is also called as the Glenohumeral rhythm
- It is the coordinated movements of scapula and the humerus increasing the range of motion at the glenohumeral joint
 - Most noticeable during complete flexion and abduction of the shoulder
- It occurs at a ratio of 2:1 (2 degrees of humeral flexion/ abduction to 1 degree of scapular upward rotation).
- The overall ratio of **2 of GH (120)** to 1 of **ST (60)** motion during arm elevation is commonly used, and the combination of concomitant GH and ST motion most commonly referred to as **scapulohumeral rhythm**.



During 180 degree of abduction, there is a 2:1 ratio of movement of humerus to the scapula with 120 degree of movement occurring at the GH joint and 60 degree at the ST joint.

PHASES OF SCAPULOHUMERAL RHYTHM

- The rhythm can be divided into 3 phases:

1) 30° of Humeral Abduction

- **Humerus- 30 degree abduction**
- **Scapula -shows minimal movement.**
- **Clavicle - 0° – 5 ° elevation at sternoclavicular and acromioclavicular joint.**

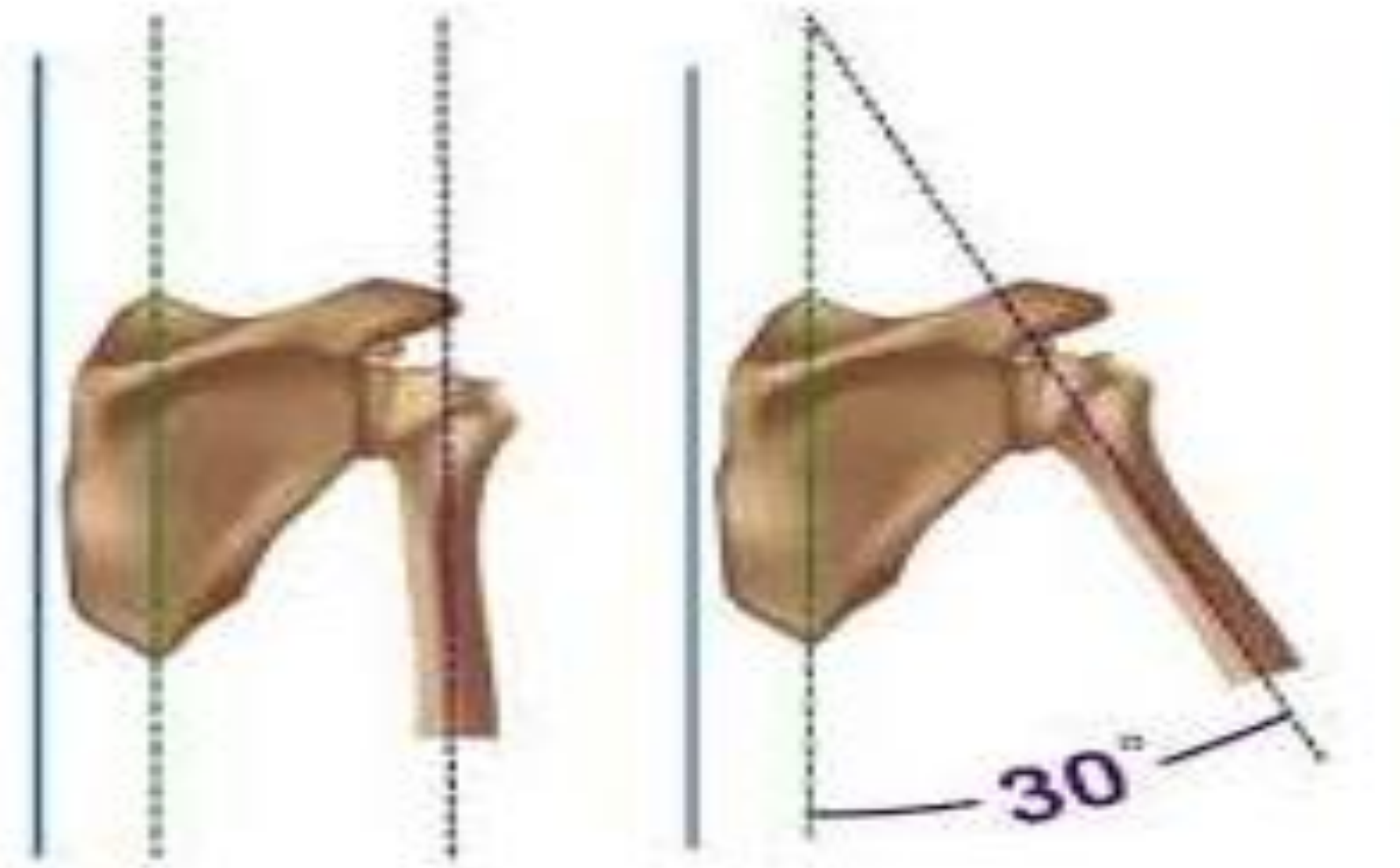
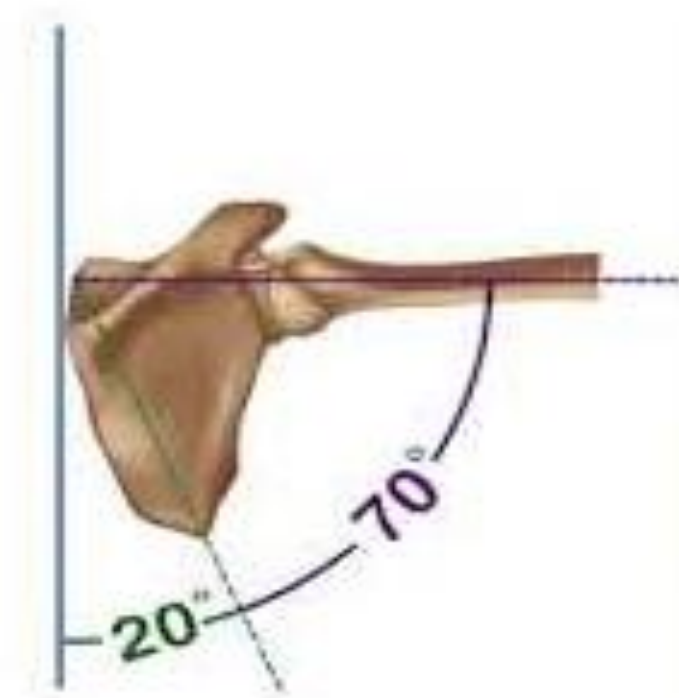


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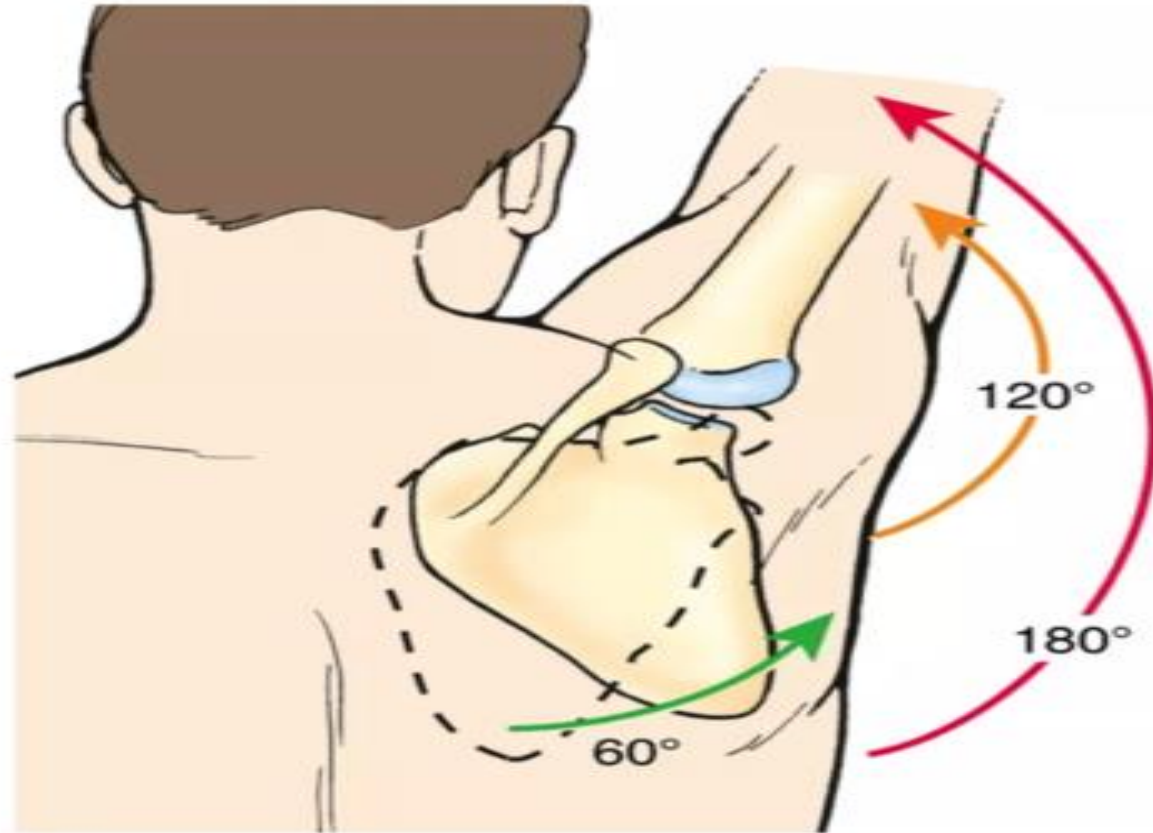
2) After the first 30 ° of Abduction

- The humerus and scapula move in relation to the 2:1 ratio
- **Here the humerus abduct – 40 degree(70°)**
- **scapula- 20°upward rotation**
- The clavicle -elevates 15 ° because of scapular rotation



3) 90° – 180° of Elevation

- Humerus- 50degree abduction**
- Scapula -30° -40 ° lateral rotation and begins to elevate**
- Clavicle 30°- 50° of posterior rotation, 15° of elevation**



(C) Scapulo-humeral rhythm. The scapula and humerus move in 1:2 ratio. When the arm is abducted 180 degrees, 60 degrees occurs by rotation of the scapula, and 120 degrees by rotation of the humerus at the shoulder joint.

Image taken from : <https://images.app.goo.gl/fghyfhDQzcq6PqQwid>

MUSCLES CONTRIBUTING

- **Deltoid Muscle**

- Largest and most important glenohumeral muscle

- when the humerus is in the plane of scapula, anterior and middle deltoid produce elevation of humerus

- Posterior deltoid serves as a joint compressor

- **Supraspinatus muscle**

- The primary function of this muscle is abduction with secondary motion being external rotation

- Exerts maximum effort at 30 degrees of abduction