

## Shoulder Exam

The shoulder is a common location that physicians address in an outpatient setting. Typically, patients present after traumatic injuries from sports or various accidents resulting in muscular strains, ligamentous sprains, fractures, dislocations, or even nerve impingements. When a physician wants to examine the shoulder, they begin by bilaterally inspecting the skin from the front, side, and back, looking for any new or old scars, rashes, or lesions. They also look within the armpit to address the axilla as well. Next, they bilaterally inspect the shape of the shoulders, looking for any postural discrepancies, asymmetries, muscular wasting, scoliosis, or even a winged scapula. Next, physicians will palpate different parts of the shoulder to assess for lesions. They may palpate the humeral head in relation to the glenoid fossa, looking for anterior, posterior, or inferior dislocations. They may palpate the rotator cuff muscles, commonly known as the SITS muscles, for any muscular injuries. They may then palpate the acromioclavicular joint to address any internal or external rotation dysfunctions. Sometimes they may even palpate crepitus or visualize a “step-off” deformity indicating an AC separation. Next, they may palpate the clavicle, a neighboring bone that makes up two of the three synovial joints of the shoulder. Somatic dysfunctions can arise from the clavicle including AC joint internal and external rotations as well as SC joint abduction or adduction, and horizontal flexion or extension. Furthermore, by inspecting the posterior side of the patient, they will palpate the spine of the scapula, and test the shoulders range of motion, feeling for smoothness in movements or any crepitus along its path. Don’t forget that the T3 spinous process is in line with the spine of the scapula when trying to localize a spinal segment. Lastly, the physician will test both shoulders in all 6 ranges of motion and compare their findings. They will actively and passively move the patient into flexion, extension, abduction, adduction, internal rotation, and external rotation by immobilizing the shoulder with one hand and manipulating the extremity with the other hand. Once this is complete, then can a physician target the shoulder’s special tests to help solidify the location of a lesion.



PLAY PICMONIC

### Inspect

#### Skin

##### Skin-suit

Always inspect the skin over the shoulder and surrounding structures first. This inspection should include but is not limited to looking for new and old scars, incisions, rashes, skin temperature, areas, erythema, etc. Do not forget to check in the axilla!

#### Shape

##### Shape

Inspect the shape of the shoulders bilaterally for symmetry. Inspect from the front, the side, and the back of the patient and look for head and neck postural discrepancies, symmetry over the shoulders, or even deltoid muscle wasting. In addition, you may notice trapezius or paravertebral muscle wasting, scoliosis, or even a long thoracic nerve injury and winged scapula when inspecting from behind.

### Palpate

#### Humeral Head

##### Funny-bone Head

Palpate the humeral head in relation to the glenoid. Commonly tested on the exams are humeral head dislocations. A posterior dislocation classically occurs secondary to a seizure or shock. Here, patients will have flattening over the anterior shoulder, pain with external rotation, and will internally rotate and adduct their arm. An anterior dislocation commonly occurs from direct trauma. Patients will abduct and externally rotate the shoulder and may present with numbness and loss of contour over the deltoid muscle. Lastly, an inferior shoulder dislocation is the rarest of the three and occurs secondary to hyper-abduction. These patients will have an arm that is held upwards or behind their head for symptomatic relief. <br>

#### Acromioclavicular Joint

##### Acorn-man-clavicle Joint

The acromioclavicular (AC) joint motion can be tested to assess for primary somatic dysfunctions with internal and external rotation. Repetitive overhead arm use resulting in inflammation, sprains, or strains, can limit its inherent motion. On a physical exam, a physician may palpate tenderness or crepitus over the joint and visualize a “step-off” deformity, indicating an AC separation. In addition, the patient may have a positive crossed-arm adduction test.

## Rotator Cuff

### Rotating Shoulders

The rotator cuff is a group of four muscles that protect the shoulder joint and the head of the humerus within the glenoid fossa. Commonly known as the SITS muscles, these muscles include: supraspinatus, infraspinatus, teres minor, and subscapularis. Repetitive stress is the main cause of injury to the rotator cuff.

## Clavicle

### Clavicle

The clavicle is one of the most recognizable bones on the anterior aspect of the shoulder. It is the only bony attachment between the upper limb and the axial skeleton. Also, it is part of two of the three synovial joints, the acromioclavicular and the sternoclavicular joints. Palpate this bone to assess for common somatic dysfunctions, including AC joint internal and external rotation dysfunctions, as well as SC joint abduction, adduction, and horizontal flexion or extension dysfunctions. Each end of the clavicle moves in opposite directions, similar to a seesaw. For example, if the medial clavicle moves inferiorly, then the lateral end will move superiorly. Keep in mind that the SC joint and the AC joint motions are coupled together. SC joint abduction is coupled with AC joint external rotation and SC joint adduction is coupled with AC joint internal rotation. Also, SC joint horizontal flexion is coupled with posterior translatory glide, and SC joint horizontal extension is coupled with anterior translatory glide. <br>

## Spine of Scapula

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The borders of the scapula and the scapular spine can be palpated bilaterally along the upper back. While the patient performs an active range of motion, feel for the degree of smoothness or any crepitus. Don't forget that the spine is typically used to identify the T3 vertebral spinous process and help physicians assess the surrounding spinal segments. <br>

## Range of Motion

### Flexion

#### Flexing

Flexion or forward elevation can be performed using the anterior part of the deltoid and the coracobrachialis with up to 180 degrees of normal range of motion. Of this, 120 degrees of flexion is provided by the glenohumeral joint, and 60 degrees of flexion is provided by the scapulothoracic joint. Don't forget that the scapula begins to move at around 30 degrees elevation. Here, the physician holds down the scapula and shoulder with one hand and holds the forearm with the other hand. Then, they guide the patient to swing the arm forward and compare the motion to the other extremity.

### Extension

#### Extension-cord

Extension or backward elevation can be performed using the latissimus dorsi, teres major, and posterior part of the deltoid with up to 40 degrees of normal range of motion. Here, the physician holds down the scapula and shoulder with one hand and holds the forearm with the other hand. Then, they guide the patient to swing the arm backward and compare the motion to the other extremity.

### Abduction

#### Abs-abducting

Abduction can be performed using the middle portion of the deltoid and supraspinatus with up to 180 degrees of normal range of motion. Of this, 120 degrees of flexion is provided by the glenohumeral joint, and 60 degrees is provided by the scapulothoracic joint. Don't forget that the scapula begins to move at around 30 degrees elevation. Here, the physician holds down the scapula and shoulder with one hand and holds the forearm with the other hand. Then, they guide the patient to swing the arm laterally and upward with the palm facing downward throughout the movement and compare the motion to the other extremity. A painful arc may assess for impingement of the supraspinatus.

### Adduction

#### Add-duct-tape

Adduction can be performed using the pectoralis major and the latissimus dorsi with 30 degrees of normal range of motion. Here, the physician holds down the scapula and shoulder with one hand and holds the forearm with the other hand. Then, they guide the patient to swing their arm across the front of the body to the opposite side and compare the motion to the opposite extremity.

### Internal Rotation

#### Internal Rotation

Internal Rotation can be performed using the subscapularis, pectoralis major, and latissimus dorsi with up to 80 degrees of normal range of motion. Here, the physician will abduct the patient's arm to 90 degrees and flex the elbow to 90 degrees. Then, the physician will hold the shoulder joint with one hand and hold the wrist with the other hand. Afterward, the physician will guide the arm into internal rotation by rotating the hand and forearm forward while preventing movement from the upper arm. They will repeat this on the opposite extremity and compare the motions. Pain in this movement may suggest tendonitis or even a tear in the subscapularis.

### External Rotation

#### External Rotation

External Rotation can be performed using the infraspinatus and the teres minor with up to 90 degrees of normal range of motion. Here, the physician will abduct the patient's arm to 90 degrees and flex the elbow to 90 degrees. Then, the physician will hold the shoulder joint with one hand and hold the wrist

with the other hand. Afterward, the physician will guide the arm into external rotation by rotating the hand and forearm backward while preventing movement from the upper arm. They will repeat this on the opposite extremity and compare the motions. Pain in this movement may suggest tendonitis or even a tear in the infraspinatus. <br>