

Table 12.1 Goniometric Examination of Shoulder and Scapular Motions

Motion	Location of goniometer	Movement	Normal range
Flexion	P: Supine A: Central humeral head S: Midline lateral trunk M: Long axis of humerus	Humerus moves overhead in an anterior and upward direction.	0 to 180°
Flexion with scapula fixed	P: Seated A: Central humeral head S: Midline lateral trunk M: Long axis of humerus	While stabilizing the scapula and clavicle, move the humerus in an anterior and upward direction until no further motion is allowed without scapular elevation.	0 to 120°
Extension	P: Supine or seated A: Central humeral head S: Midline lateral trunk M: Long axis of humerus	While stabilizing the scapula and trunk, move the humerus posteriorly.	0 to 45-60°
Abduction	P: Supine or seated A: Midposterior (seated) or anterior (supine) GH joint S: Parallel to sternum M: Long axis of humerus	Humerus moves in a lateral and an upward direction.	0 to 150-180°
Abduction with scapula fixed	P: Supine or seated A: Midposterior (seated) or anterior (supine) GH joint S: Parallel to sternum M: Long axis of humerus	While stabilizing the scapula and clavicle, move the humerus in a lateral and an upward direction until no further motion is allowed without scapular elevation.	0 to 90-120°
Horizontal abduction	P: Seated A: Superior acromion process S: Perpendicular to trunk M: Long axis of humerus	With arm abducted to 90°, move the arm in a posterior direction.	0 to 30-45°
Horizontal adduction	P: Seated A: Superior acromion process S: Perpendicular to trunk M: Long axis of humerus	With arm abducted to 90°, move the arm in an anterior direction across the chest.	0 to 135°
Medial rotation	P: Supine A: Olecranon process S: Perpendicular to table or floor M: Long axis of ulna	With arm abducted to 90°, move the palm of the hand inferiorly toward the table.	0 to 70-90°
Lateral rotation	P: Supine A: Olecranon process S: Perpendicular to table or floor M: Long axis of ulna	With arm abducted to 90°, move the back of the hand in a superior direction toward the head of the table.	0 to 80-90°

P = athlete position; A = goniometer axis; S = stationary arm; M = movable arm; GH = glenohumeral joint.

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