

Interrater reliability of measurement of glenohumeral internal rotation, external rotation, and total arc of motion in three different test positions.

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Background: Glenohumeral internal rotation deficit is thought by many to be associated with multiple pathologies, particularly in overhead athletes. Few studies have investigated the interrater reliability of the supine internal rotation measurement technique.

Purpose: The aim of this study was to aide in establishing realistic interrater reliability expectations for supine glenohumeral internal rotation, external rotation, and total arc of motion measures using an inclinometer in division I baseball and softball athletes.

Design and Setting: Division I baseball and softball players were measured on their throwing dominant arm by two physical therapists.

Methods: Test position and tester order were both randomized. Three measurement trials were obtained in each of the three test positions. Testers were blinded by facing the inclinometer away from themselves. Multiple training sessions were attended by both therapists prior to data collection during which the three test positions were reviewed. The supine ROM measures with overpressure were conducted at 90 degrees of shoulder abduction with the elbow at the edge of the treatment table while the therapist applied pressure until he determined that full glenohumeral motion had been achieved with minimal shoulder girdle or postural substitution. The supine ROM measures without overpressure were the same as described above, however the patient was instructed to “relax the arm” into the motion to be tested with tactile cues as needed but without overpressure from therapist. For the sidelying position, the patient was asked to lay squarely on the dominant shoulder. The therapist then sequentially positioned the arm to 90 degrees of flexion, manually positioned the scapula into full retraction, flexed the top hip to 90 degrees to minimize trunk rolling during measurement, and lastly, placed the opposite hand on the treatment table in front of the patient’s stomach. The therapist then applied overpressure into the direction to be measured until a firm end feel was achieved.

Results/Conclusion: Statistical evaluation in progress.

Clinical Relevance: It is important to have accurate and reliable measurement techniques in order to detect changes in shoulder ROM which may identify athletes at risk for shoulder pathology. Additionally, understanding measurement error and measurement variability in healthy subjects will aid our understanding of minimal clinically detectable changes to shoulder ROM. Once the minimal clinically detectable change is established, clinicians will be able to more accurately identify true changes to shoulder ROM which may indicate increased injury risk.