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# MEDIAL ELBOW PAIN SIGNALS NEED FOR TOTAL SHOULDER ROTATION EVALUATION

**Q & A by Jerry Ditz, DPT, Dip. Osteopractic, Cert. SMT, Cert. DN and Karol Young, OTD, OTR/L, CHT**

With baseball season here, we thought an evaluation tip for baseball/softball players experiencing medial elbow pain might be useful. To better understand the relationship between the shoulder and elbow during the throwing motion we recommend the Clinician's Guide to Analysis of the Pitching Motion. (1)

**Q from Karol:** ***What was your biggest challenge when you started treating this patient population?***

**A from Jerry:** I struggled to figure out when I should focus treatment on the elbow, the shoulder, or both, and I did not know how to accurately interpret shoulder rotation range of motion measurements. Consistently, throwers presented with about 40 degrees of internal rotation on their throwing shoulder and 65 degrees of internal rotation on their non-throwing shoulder. I assumed this was capsular tightness and recommended typical internal rotation stretches. Patients would improve their internal rotation, but their overall symptoms and function remained unchanged.

**Q from Karol:** ***How did you learn you were incorrectly evaluating the shoulder?***

**A from Jerry:** I assumed all internal rotation deficits greater than 20 degrees on the throwing arm represented a glenohumeral internal rotation deficit (GIRD) and the patient needed to increase internal rotation. But GIRD is an adaptive process in which the throwing shoulder loses internal rotation (IR) that is more than 20° of the IR of the contralateral shoulder (2).

What I did not understand was how throwing creates a natural adaptation that shifts the shoulder range of motion more toward external rotation, so the loss of internal rotation is to be expected because it accompanied by an increase in external rotation. See Figure 1.

*Figure 1: Extreme external rotation of the shoulder during throwing*

I should have been evaluating total shoulder rotation by combining the totals of external and internal rotation (Figure 2). Total rotation should be almost equal on both the throwing and non-throw-

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## MEDIAL ELBOW PAIN SIGNALS NEED FOR TOTAL SHOULDER ROTATION EVALUATION (continued)

ing shoulder but the excessive external rotation will be accompanied by a loss in internal rotation on the throwing shoulder.

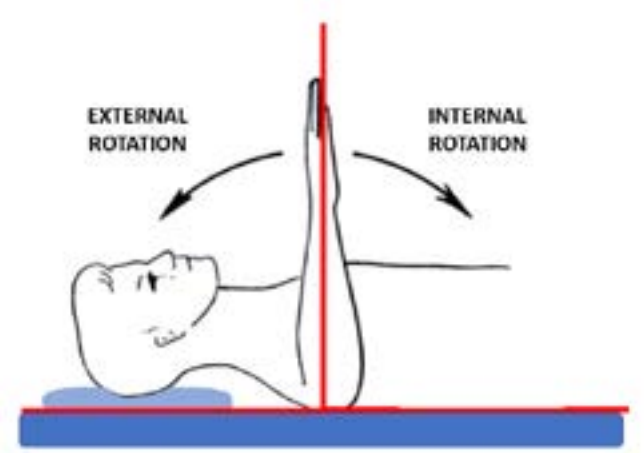


*Figure 2. Measuring internal and external rotation of the shoulder*

**Q from Karol:** ***Is GIRD always pathological?***

**A from Jerry:** Not all GIRD is pathological. Decreased internal rotation as compared to non-throwing shoulder can exist without shoulder or elbow pathology when the rotational motion is the same total range in both shoulders. (3) Throwers simply present the range differently.

**Q from Karol:** ***How do you measure total shoulder rotation?***

**A from Jerry:** Total shoulder rotation is the sum of passive external and passive internal rotation measured at 90 degrees of abduction. The chart below includes normative values for throwers. Total rotational motion in the throwing shoulder greater than five degrees as compared to the contralateral shoulder has been associated with an increased risk of elbow injuries and decreased shoulder strength (4).

If your patient with medial elbow pain presents with more than 5 degrees of difference in total shoulder rotation, it is important to address the shoulder deficits before returning to throwing.

Although understanding the thrower's shoulder is a complex challenge and GIRD is only one evaluation aspect, if total shoulder rotation is not evaluated, therapy can increase shoulder laxity and/or elbow pathology. Total shoulder rotation is a simple but important addition to your evaluation process and helps you know where to focus rehabilitation exercises.

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