THE EFFECT OF EXCESSIVE GLENOHUMERAL INTERNAL ROTATION DEFICIT ON SUBACROMIAL JOINT SPACE AND FORWARD SCAPULAR POSTURE AMONG BASEBALL PITCHERS

Kevin Laudner, PhD, ATC*; Regan Wong, PT, DPT†; James Latal, ATC*; Keith Meister, MD†

*School of Kinesiology & Recreation, Illinois State University, Normal, IL; †Texas Metroplex Institute for Sports Medicine & Orthopedics, Arlington, TX

INTRODUCTION

• Baseball pitchers frequently accumulate glenohumeral internal rotation deficits (GIRD) in their throwing arms.1

• GIRD has been associated with various shoulder pathologies, such as subacromial impingement.1,2

• Subacromial impingement patients commonly present with decreased subacromial joint space and increased forward scapular posture.3

PURPOSE

• To determine if a group of baseball pitchers with excessive GIRD have differences in subacromial joint space and forward scapular posture when compared to a control group.

METHODS

Participants

• 25 asymptomatic professional baseball pitchers with excessive GIRD (age=21.6±3.0 yrs; height=187.2±4.7 cm; mass=87.6±10.1 kg).

• 25 asymptomatic professional baseball pitchers with acceptable levels of GIRD (age=22.8±2.7 yrs; height=187.5±5.6 cm; mass=91.4±9.7 kg).

RESULTS

• Excessive GIRD was defined as an amount greater than 10% of the total arc of motion in the dominant shoulder (see Figure 1 for example).7

• The excessive GIRD group presented with significantly less subacromial joint space than the control group (Table 1).

• The excessive GIRD group also had significantly more forward scapular posture of their throwing arm than the control group (Table 1).

DISCUSSION

• Excessive GIRD can be caused by tightness of the posterior capsule,1,2 which has been reported to increase humeral head superior translation3 and may partially explain the decrease in subacromial joint space among this investigations’ participants.5

• Previous research has shown that posterior shoulder tightness, indicated by decreased shoulder horizontal adduction motion, is associated with increased forward scapular posture.3

• The results of our study support this previous research and further suggest that other posterior shoulder motion measurements, such as internal rotation, may also be associated with increased forward scapular posture.

CONCLUSION

• Baseball pitchers with excessive GIRD have less subacromial space and more forward scapular posture in their throwing arms compared to pitchers with acceptable levels of GIRD.

• We suggest that pitchers identified with excessive GIRD perform shoulder strengthening and stretching exercises designed to improve scapular positioning.

REFERENCES


