

Criteria-Based Return to Sport Testing after Open Latarjet Procedure Reveals Residual Strength and Functional Deficits and Can Be Utilized for Sports Clearance with Excellent 2-Year Outcomes

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INTRODUCTION:

Time-based clearance is the most common criteria utilized to dictate return to play after the open Latarjet procedure. However, prior studies on arthroscopic Bankart repair have shown that criteria-based return to sport (RTS) testing reveals strength and functional deficits in a majority of patients at 5 months postoperatively and can be utilized to determine readiness for return to play. Thus, the objective of this study was to evaluate the ability of patients to meet expected strength and functional goals by utilizing a standardized, criteria-based RTS test after open Latarjet procedure and to evaluate their subsequent clinical outcomes with regard to recurrent instability and return to play.

METHODS:

Ten subjects (8 male; mean age 19.9 ± 4.9 years) who underwent open Latarjet procedure with coracoid transfer from 2016 – 2020 at a single institution were referred during their postoperative rehabilitation for functional testing at a minimum of 5 months postoperatively to evaluate their readiness for return to play. The testing consisted of four sections: 1) isometric strength testing, 2) isokinetic strength testing, 3) endurance testing, and 4) functional testing.

Isometric strength testing was performed in external rotation (ER) and internal rotation (IR) using a hand-held dynamometer at 0 and 90 degrees. Isokinetic strength testing of ER and IR was evaluated using an isokinetic dynamometer at angular velocities of 60° and 180° per second. For both isometric and isokinetic testing, a passing score was considered achieving 90% of nonoperative shoulder strength. Functional testing was performed using the Closed Kinetic Chain Upper Extremity Stability test (CKCUES) and Unilateral Seated Shot Put (USS) test. Posterior rotator cuff endurance was evaluated using a repetition to failure technique with 5% body weight at 0° and 90° of abduction with the goal of 90% of nonoperative extremity.

Patients who passed all sections of the RTS test were cleared to return to play. Patients who failed only one section were given 4-6 weeks delayed clearance to return to play after focusing on the specific deficit on testing. Patients who failed multiple components of the test underwent additional deficit-based formal rehabilitation for 4-6 weeks and repeated the test before final clearance. The ten subjects were followed for a minimum of two years to assess for recurrent instability and return to sport.

RESULTS:

All ten subjects were competitive high school or college athletes. Five of the ten subjects (50%) were contact athletes and six of the ten (60%) were overhead athletes. RTS testing occurred at a mean of 5.3 months postoperatively. Of the 10 patients that tested, 3 passed their RTS test without failing any sections (30%), and 1 passed the RTS test while failing one section (10%). The remaining 6 patients failed two or more sections and thus, failed their RTS test requiring repeat testing before full return to play.

Only three patients (30%) met all the expected goals for strength, endurance, and functional testing. Seven patients (70%) failed at least one portion of the strength testing, two patients (30%) failed endurance testing, and two patients (20%) did not pass both functional tests (Table 1). With regard to isometric strength testing specifically, more patients were able to meet their IR goal (7/10) compared to their ER goal (5/10).

At final follow up (mean 3.6 ± 1.2 years), 1 patient had recurrent subluxations (10%) and 9 patients returned to sport (90%). The patient with recurrent subluxations failed two sections of the initial return-to-sport testing but did not return for repeat testing. The patient that did not return to sport also failed multiple sections of the initial return-to-sport test but eventually passed on repeat testing.

DISCUSSION AND CONCLUSION:

A majority of athletes in this cohort did not meet the expected goals for their operative shoulder during return to sport testing at around 5 months postoperatively, with 70% demonstrating residual deficits in strength and over 20% demonstrating deficits in endurance or function. At a minimum of two-years postoperatively, the cohort demonstrated excellent clinical outcomes, with a 90% return to sport and 10% recurrence. Overall, criteria-based return to sport testing could provide more reliable evidence for return to play than time-based clearance after open Latarjet procedure.

Table 1. Criteria-based return to sport testing results

Result	Passing (n,%) (Total n=10)
Pass (0 sections failed)	3 (30%)
Pass (1 section failed)	1 (10%)
Fail (2+ sections failed)	6 (60%)
Component	Passing, n (%)
Isokinetic Strength (Biodex)	
ER at 60°/s	5 (50%)
ER at 180°/s	4 (40%)
IR at 60°/s	5 (50%)
IR at 180°/s	4 (40%)
Endurance (Repetitions to Failure)	
Repetitions at 0°	8 (80%)
Repetitions at 90°	7 (70%)
Isometric Strength	
ER at 0°	6 (60%)
ER at 90°	5 (50%)
IR at 0°	7 (70%)
IR at 90°	7 (70%)
CKCUES	9 (90%)
Unilateral Seated Shot-put	9 (90%)