

Criteria-Based Return to Sport Testing after Open Latarjet Reveals Residual Strength and Functional Deficits and can be Utilized for Sports Clearance with Excellent Outcomes at Mean 3.6 Year Follow-up

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Disclosures

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Background

- While there is a growing body of work supporting the efficacy of open Latarjet, there is no clear consensus on postoperative rehabilitation protocols, with substantial heterogeneity in the criteria used for return to play (RTP).



- **Purpose:**

To assess the use of a criteria-based return to sport (CBRTS) test to evaluate readiness for return to play (RTP) in competitive athletes that underwent open Latarjet

- **Hypothesis:**

A majority of patients who undergo CBRTS testing at 5-6 months after open Latarjet will demonstrate residual strength and functional deficits compared to the contralateral side but will ultimately have low recurrent instability and high RTP rates at long-term follow-up

Methods

- **Retrospective case series** of competitive athletes who underwent open Latarjet for recurrent anterior instability followed by CBRTS at 5 months postoperatively for RTP clearance
- **Indications:**
 - Failed Bankart repair
 - Critical glenoid bone loss >20%
- **2-year minimum follow-up**

Methods

- **Postop Rehabilitation**
 - Sling 4 weeks with PROM at 2 weeks
 - AROM 8-12 weeks
 - Strength 12-24 weeks
- **Criteria-based return to sport test at 5-6 months for RTP clearance**
- **Outcomes**
 - Numeric pain scale
 - Subjective shoulder value
 - Recurrent instability
 - Return to play

Test Characteristics

- Testing consisted of four sections: 1. isometric strength testing, 2. isokinetic strength testing, 3. endurance testing, and 4. functional testing.
- A passing score was considered achieving 90% of the nonoperative shoulder.
- Patients who passed all sections of the CBRTS 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.

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 a Biodex isokinetic dynamometer.



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.



Results

- **10 Patients**

Demographic	N (%) or Mean \pm SD (Total = 10)
Age (years)	19.9 \pm 4.9
BMI (kg/m²)	25.0 \pm 3.8
Sex (n, % Male)	8 (80%)
Contact Athlete (n, %)	5 (50%)
Overhead Athlete (n, %)	6 (60%)
Glenoid Bone Loss (%)	21 \pm 6

Results

- 60% failed initial CBRTS test
- 70% failed one component of strength testing, 20% failed endurance testing, 20% failed functional testing
- **10% recurrent instability**
- **90% return to play**

Test Results

Component	Passing, n (%)
<u>Isokinetic Strength (Biodex)</u>	
ER at 60°/s	5 (50%)
ER at 180°/s	4 (40%)
IR at 60°/s	5 (50%)
IR at 180°/s	4 (40%)
<u>Endurance (Repetitions to Failure)</u>	
Repetitions at 0°	8 (80%)
Repetitions at 90°	7 (70%)

Component	Passing, n (%)
<u>Isometric Strength</u>	
ER at 0°	6 (60%)
ER at 90°	5 (50%)
IR at 0°	7 (70%)
IR at 90°	7 (70%)
<u>CKCUEST</u>	9 (90%)
<u>Unilateral Seated Shot-put</u>	9 (90%)

Conclusion

- CBRTS testing may be clinically useful for return to play clearance decisions after open Latarjet procedure, as it can reveal potential strength, endurance, and functional deficits that may not be identified with time-based clearance alone.
- CBRTS revealed residual deficits and was useful for advising rehabilitation with high rates of return to sports and low recurrent instability rates

References

- Baverel L, Colle P-E, Saffarini M, Anthony Odri G, Barth J. Open Latarjet Procedures Produce Better Outcomes in Competitive Athletes Compared With Recreational Athletes A Clinical Comparative Study of 106 Athletes Aged Under 30 Years. doi:10.1177/0363546518759730
2. Beletsky A, Cancienne JM, Manderle BJ, Mehta N, Wilk KE, Verma NN. A Comparison of Physical Therapy Protocols Between Open Latarjet Coracoid Transfer and Arthroscopic Bankart Repair. *Sports Health*. 2020;12(2):124-131. doi:10.1177/1941738119887396
 3. Davey MS, Hurley ET, Kilkenny C, Anakwenze OA, Klifto CS, Mullett H. Long-term outcomes of anterior shoulder instability treated with open latarjet procedure – a systematic review of outcomes at a minimum 15-year follow-up. <https://doi.org/10.1177/17585732221141062>. Published online November 29, 2022. doi:10.1177/17585732221141062

Thank you!

