Title: Return-to-Play Rehabilitation of a Professional Fast Bowler Following Rotator Cuff Tear, SLAP Repair and shoulder Impingement: A Case Study

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Abstract

Background: Shoulder injuries are prevalent among fast bowlers due to repetitive high-velocity overhead movements commonly resulting in rotator cuff tears, superior labrum anterior-posterior (SLAP) lesions and shoulder impingement. These injuries affect both physical function and psychological readiness, posing challenges in return-to-sport outcomes.

Case Presentation: This case study reports the rehabilitation of a 30-year-old male professional fast bowler who presented with a Grade 2C rotator cuff tear, SLAP tear and signs of shoulder impingement confirmed by MRI. The athlete underwent arthroscopic repair followed by a structured 12-week rehabilitation program.

Intervention: The rehabilitation protocol was delivered in three progressive phases focusing on pain management, range of motion restoration, scapular and rotator cuff strengthening and sport-specific drills. Psychological readiness was concurrently addressed using the Injury Psychological Readiness to Return to Sport Scale.

Outcome Measures: Outcomes were measured using the Visual Analogue Scale (VAS), Shoulder Pain and Disability Index (SPADI), I-PRRS, Range of Motion (ROM) and Manual Muscle Testing (MMT). Assessments were conducted at baseline, 6 weeks, and 12 weeks postoperatively.

Results: The athlete demonstrated significant improvements in pain, function (SPADI: 72% to 9%), and psychological readiness (I-PRRS: 38 to 92). ROM improved to near-normal values, and MMT scores increased from Grade 3 to 5. The athlete successfully returned to competitive bowling without complications.

Conclusion: A multidimensional, phased rehabilitation program that integrates physical and psychological recovery strategies can effectively restore shoulder function and performance in elite fast bowlers' post-surgery. This case underscores the importance of individualized, sport specific rehabilitation in overhead athletes.

Keywords: Rotator cuff tear, SLAP lesion, fast bowler, shoulder rehabilitation, I-PRRS, SPADI, return to sport

Highlights:

A 30-year-old fast bowler successfully returned to competitive play after arthroscopic repair and a 12-week rehabilitation program. Pain decreased by 85.7% , SPADI scores improved from 72% to 9% and range of motion returned to near normal. Muscle strength fully recovered from Grade 3 to Grade 5, while psychological readiness to return to sport increased markedly from 38 to 92 on the I-PRRS scale.

Plain Language Summary:

Shoulder injuries are a frequent problem for cricketers especially fast bowlers who repeat powerful overhead movements thousands of times during training and matches. These actions place heavy stress on the shoulder, often leading to damage such as rotator cuff tears or labrum injuries. Such conditions not only cause pain and loss of movement but also affect an athlete's confidence and mental readiness to return to the sport.

This case study reports on a 30-year-old professional fast bowler who developed a rotator cuff tear, a SLAP tear and signs of shoulder impingement. He underwent arthroscopic surgery and then completed a structured 12-week rehabilitation program designed to restore both physical function and psychological confidence.

The program progressed through three phases. Early sessions focused on controlling pain and protecting the joint. The next stage introduced controlled exercises to restore range of motion and begin strengthening the shoulder muscles. Finally, advanced strengthening and cricket-specific bowling drills were added to prepare the athlete for competition.

By the end of rehabilitation, his pain reduced by more than 80%, function scores improved dramatically, muscle strength fully recovered and his readiness to return to competitive sport increased significantly. This demonstrates that combining physical rehabilitation with psychological support enables athletes to return safely and confidently to high-level play.

Introduction

Shoulder injuries are particularly prevalent among fast bowlers in cricket, largely due to the high-velocity and repetitive arm movements involved in bowling. These motions place significant stress on the glenohumeral joint often resulting in pathologies such as rotator cuff tears and SLAP (superior labrum anterior-posterior) lesions [1,2]. This case study examines a 30-year-old male fast bowler who sustained a Grade 2C rotator cuff tear, associated SLAP tear, and shoulder impingement diagnosed via MRI and subsequently underwent arthroscopic surgical repair.

Persistent pain, reduced shoulder stability and performance decline prompted surgical intervention followed by a carefully tailored rehabilitation program focusing on pain management, restoration of range of motion, progressive strengthening and sport-specific reconditioning.

In addition to physical deficits, shoulder injuries significantly impact an athlete's psychological readiness. Fear of re-injury and anxiety about returning to competitive play are well-documented among athletes engaging in overhead sports, highlighting the need for psychological strategies within rehabilitation protocols[2,3.] This case study aims to outline a multidimensional rehabilitation approach that integrates both physical and psychological components to maximize return-to-sport outcomes.

Background

The fast-bowling action involves a kinetic sequence including wind-up, delivery stride, and follow through that place substantial repetitive multi-planar load on the shoulder joint, contributing to microtrauma over time and increasing the risk of injury. Systematic surveillance data suggest that shoulder injuries constitute approximately 10% of injuries in fast bowlers and

up to 16.7% in spin bowler. prevalence varies between about 0.9%–1.1% depending on playing level and match conditions[4].

A cross-sectional analysis of 100 state and district level fast bowlers in India found significant shoulder disability scores on SPADI and Constant-Murley assessments, reinforcing the link between bowling mechanics and shoulder dysfunction[1]. Research conducted in elite cricketers identified altered glenohumeral rotational patterns namely decreased internal rotation and increased external rotation on the dominant side, suggesting adaptive tissue changes such as internal rotation deficits (GIRD) that are implicated in labral pathology and rotator cuff injuries[5].

Biomechanical studies indicate front on bowling actions may predispose bowlers to shoulder pathology through increased shear stresses and rotator cuff muscle imbalance particularly external/internal strength ratios linked to greater injury risk[6]. Scapular kinematic alterations and posterior capsule tightness have also been observed in asymptomatic bowlers and may serve as precursors to SLAP lesions and rotator cuff tears[7].

SLAP lesions are commonly reported in overhead athletes and are frequently caused by chronic overuse or acute traction injuries where symptoms include catching, shoulder instability and decreased throwing velocity[2]. Rotator cuff tears especially partial thickness tears like Grade 2C often emerge from repetitive deceleration forces and compromised tendon integrity, further affecting shoulder function and athletic performance.

When conservative management fails, arthroscopic repair is often required. Surgical outcomes in overhead athletes generally improve when combined with structured rehabilitation incorporating progressive range of motion exercises, rotator cuff and scapular strengthening, proprioception and sports specific drills alongside psychological support to address fear of re-injury and ensure optimal return-to-play readiness [2,3,8].

This case study documents the application of a comprehensive, evidence-informed rehabilitation strategy for a professional fast bowler with complex shoulder injuries, aligning with current best practices in sports medicine and physiotherapy.

The shoulder rehabilitation effects evaluated by a combination of subjective and objective measures provides a comprehensive picture of recovery. The Visual Analogue Scale (VAS) is widely used for quantifying perceived pain levels and monitoring improvements over time[9]. The Shoulder Pain and Disability Index (SPADI) assesses both pain and functional limitations also sensitive to change following rotator cuff repair[10]. The Injury-Psychological Readiness to Return to Sport Scale (I-PRRS) captures athletes' confidence and mental preparedness to resume sport a crucial but often overlooked component of rehabilitation in overhead athletes[11]. Objective functional recovery is measured using Range of Motion (ROM) assessments and Manual Muscle Testing (MMT), which together reflect structural healing, strength gains, and readiness for sport-specific activities [12,13]. These outcome measures enable a multidimensional evaluation of post-operative progress and return to play decision making. Outcomes were measured by the treating therapist prior to initiating rehabilitation and subsequently documented.

Materials and methods

Participant Profile

The subject of this case study is a 30-year-old male professional cricketer who presented with persistent right shoulder pain and functional limitation, particularly affecting his bowling performance. He had an extensive playing history as a fast bowler at the competitive level. Magnetic resonance imaging (MRI) revealed a Grade 2C rotator cuff tear, a superior labrum anterior to posterior (SLAP) tear and signs of shoulder impingement. Given the functional demands of his sport the injury had a significant impact on his ability to perform.

Surgical Intervention

The athlete undergoes arthroscopic surgery. Surgical procedures included rotator cuff repair, SLAP repair and subacromial decompression. Postoperatively he was discharged with specific instructions regarding pain management, activity restrictions and an individualized rehabilitation plan to guide recovery.

Rehabilitation Protocol

Phase	Duration	Goals	Key Interventions
Phase 1	Weeks 1–4	Pain control and passive ROM	• Ice therapy and Relaxation techniques • Pendulum, passive flexion/abduction • Kinesiology taping for support
Phase 2	Weeks 5–8	Active ROM and early strengthening	• Anterior shoulder stabilization (e.g., resistance band ER) • Scapular exercises (e.g., wall slides) • Active assistive ROM exercises
Phase 3	Weeks 9–12	Strength building and return to sport	• Progressive resistance training (weights & bands) • Bowling-specific drills • Weekly progress assessments and adjustments

Results

Over the 12-week rehabilitation program, the athlete demonstrated progressive improvement across all measured outcomes. Pain reduced almost 85.7%. SPADI scores declined significantly from 72% to 9%, indicating marked improvement in shoulder function up to 87.5%. Psychological readiness (I-PRRS) increased by 54%, reflecting enhanced confidence in returning to sport. Range of motion improved substantially in all planes. Muscle strength (MMT) improved from Grade 3 to 5, indicating full recovery of rotator cuff strength. Data represented in table 1.

Table 1 Outcome measures recorded at baseline, 6 weeks and 12 weeks post-rehabilitation

Week	VAS [0-10]	SPADI (%)	I-PRRS [0-100]	Flexion (°)	Abduction (°)	External Rotation (°)	MMT [0-5]
Baseline	7	72	38	95	82	32	3
Week 6	4	21	65	153	140	78	4.5
Week 12	1	9	92	170	167	85	5

Discussion:

This case report highlights the successful rehabilitation of a professional fast bowler who undergoes arthroscopic repair for a Grade 2C rotator cuff tear, SLAP lesion and subacromial decompression. The athlete's structured 12-week rehabilitation program resulted in marked improvements in pain, function, range of motion, muscle strength and psychological readiness key domains necessary for a safe return to high-performance sport.

The patient experienced a significant reduction in pain and functional disability. These findings are consistent with evidence supporting early mobilization and progressive strengthening following rotator cuff and labral repair. Wilk et al. (2002) emphasized that early rehabilitation focusing on controlled motion and stability facilitates faster symptom resolution and functional gains in overhead athletes[14].

Notably, shoulder mobility improved across all planes of motion. This improvement supports established rehabilitation principles that stress gradual range of motion restoration alongside neuromuscular control to ensure safe reintegration into sport-specific tasks[15].

Muscle strength also improved significantly, with manual muscle testing (MMT) increasing from Grade 3 to Grade 5 by the end of the rehabilitation period. This supports the work of De Mey et al. (2013), who emphasized the importance of scapular-focused exercises in overhead athletes, showing improvements in both SPADI scores and shoulder strength.[16].

An important yet often underappreciated component of rehabilitation is psychological readiness. The athlete's I-PRRS score rose from 38 to 92, reflecting restored confidence and mental preparedness. These results align with studies highlighting psychological readiness as a critical predictor of return-to-sport success, especially in upper-limb injuries where fear of reinjury may linger.[11].

The outcomes in this case support a rehabilitation model that integrates physical restoration and psychological readiness. A phased approach emphasizing pain control, joint mobility, muscular strength and mental resilience proved effective in enabling this fast bowler to return safely to competitive sport. While the single-case design limits generalizability, this case adds to the growing body of literature supporting individualized, sport-specific rehabilitation for overhead athletes.

This case illustrates the success of a structured, individualized rehabilitation program in restoring both physical function and psychological readiness in a professional fast bowler following shoulder surgery. The integration of pain control, progressive mobility, strength training and mental conditioning was crucial in facilitating a timely and safe return to sport.

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Author Contribution: GV designed the study and drafted the manuscript; KR contributed to data collection and literature review; KM supervised the rehabilitation protocol; KD handled clinical management and revisions; SN and KK assisted with data analysis and final editing.

Ethical Considerations: Compliance with ethical guidelines

All procedures were performed according to the Helsinki declaration of 1975 and its modifications. Informed consent has been obtained from the patient for the publication of this case report.

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References

1. Dhakate D, Yeole U, Mhatre S, Khatri S. Incidence of shoulder injuries amongst fast bowlers. Int J Phys Educ Sports Health. 2019;6(2):42–5.

2. Sundaram B, Skn B, Karuppannan S. Glenohumeral rotational range of motion differences between fast bowlers and spin bowlers in elite cricketers. Int J Sports Phys Ther. 2012;7(6):576–85.

3. Zaremski JL, Waterman BR, Zaremski E, Pash E. Mechanisms and treatments for shoulder injuries in overhead throwing athletes. Curr Sports Med Rep. 2017;16(3):179–88. doi:10.1249/JSR.0000000000000361

4. Walter S, Petersen C. Cricket pace bowlers' shoulder injuries: a systematic literature review and suggestions for prevention. Res Sports Med. 2015;23(4):419–36. doi:10.1080/15438627.2015.1076414

5. Mansingh A. Shoulder injuries in modern cricket: should an increase be anticipated?. Indian J Orthop. 2023;57(10):1561–4. doi:10.1007/s43465-023-00963-x

6. Aginsky KD. Shoulder injuries in provincial male fast bowlers – predisposing factors. S Afr J Sports Med. 2004;16(2):25–8.

7. Tendulkar SS, Mehta N. Incidence of alteration of scapula position in bowlers. Int J Phys Educ Sports Health. 2020;7(4):81–4.

8. Burkhart SS, Morgan CD, Kibler WB. Shoulder injuries in overhead athletes: the "dead arm" revisited. Clin Sports Med. 2000;19(1):125–58. doi:10.1016/S0278-5919(05)70300-8

9. Hawker GA, Mian S, Kendzerska T, French M. Measures of adult pain: Visual Analog Scale for pain (VAS Pain), Numeric Rating Scale for pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and

Constant Osteoarthritis Pain (ICOAP). Arthritis Care Res (Hoboken). 2011;63(Suppl 11):S240–52. doi:10.1002/acr.20543

10. MacDermid JC, Solomon P, Prkachin K. The Shoulder Pain and Disability Index demonstrates factor, construct and longitudinal validity. BMC Musculoskelet Disord. 2006;7:12. doi:10.1186/1471-2474-7-12

11. Glazer DD. Development and preliminary validation of the Injury-Psychological Readiness to Return to Sport (I-PRRS) scale. J Athl Train. 2009;44(2):185–9. doi:10.4085/1062-6050-44.2.185

12. Wilk KE, Bagwell MS, Davies GJ, Arrigo CA. Return to sport participation criteria following shoulder injury: a clinical commentary. Int J Sports Phys Ther. 2020;15(4):624–42.

13. Ellenbecker TS, Cools A. Rehabilitation of shoulder impingement syndrome and rotator cuff injuries: an evidence-based review. Br J Sports Med. 2010;44(5):319–27. doi:10.1136/bjsm.2009.058875

14. Wilk KE, Meister K, Andrews JR. Current concepts in the rehabilitation of the overhead throwing athlete. Am J Sports Med. 2002;30(1):136–51. PMID:11799012

15. Wilk KE, Macrina LC, Fleisig GS, Porterfield R, Simpson CD, Harker P, et al. Rehabilitation of the overhead throwing athlete: a multiphased approach. PM R. 2016;8(3 Suppl):S78–90. PMID:26972270

16. De Mey K, Danneels LA, Cagnie B, Huyghe L, Seyns E, Cools AM. Scapular muscle rehabilitation exercises in overhead athletes with impingement symptoms: effects on SPADI scores and muscle activation. J Orthop Sports Phys Ther. 2013;43(1):3–10. PMID:23160271