Case Report

Return-to-play Rehabilitation of a Professional Fast Bowler Following Rotator Cuff Tear, Superior Labrum AnteriorPosterior Repair and Shoulder Impingement: A Case Study

Geethapriya Vadamalai[1], Karthika Ramalingam[1, 2*], Kamalakannan M[1], Karthik Tamildasan[3], Suriya N[1], Kavitha K[4]

1. Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences, Chennai, India.
2. Pachamuthu College of Physiotherapy, Dharmapuri,, India.
3. Cricket Association, Pondicherry, India.
4. Meenakshi Academy of Higher Education and Research Centre, Chennai, Chennai, India.

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ABSTRACT

Purpose: 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 for 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 magnetic resonance imaging (MRI). The athlete underwent arthroscopic repair followed by a structured 12-week rehabilitation program. The rehabilitation protocol was delivered in three progressive phases focusing on pain management, range of motion (ROM) 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. Outcomes were measured using the visual analogue scale (VAS), shoulder pain and disability index (SPADI), injury-psychological readiness to return to sport scale (I-PRRS), 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: Reduced from 72% to 9%), and psychological readiness (I-PRRS: Increased from 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.

*** Corresponding Author:**
Karthika Ramalingam, Assistant Professor.
Address: *Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences, Chennai, India.*
E-mail: *karthikabr2111@gmail.com*

Highlights

• A 30-year-old fast bowler successfully returned to competitive play after arthroscopic repair and a 12-week rehabilitation program.

• Pain significantly decreased by 85.7%, SPADI scores improved from 72% to 9% and ROM 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 superior labrum anteriorposterior (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 (ROM) and begin strengthening the shoulder muscles. Finally, advanced strengthening and cricketspecific 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 superior labrum anteriorposterior (SLAP) lesions [1, 2]. This case study examines a 30-year-old male fast bowler who sustained a Grade 2C rotator cuff tear, an associated SLAP tear, and shoulder impingement, diagnosed via magnetic resonance imaging (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 (ROM), 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 (Table 1) [2, 3]. This case study aimed to outline a multidimensional rehabilitation approach that integrates both physical and psychological components to maximize return-to-sport outcomes.

The fast-bowling action involves a kinetic sequence, including wind-up, delivery stride, and follow through, which 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 bowlers. The 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, as measured by shoulder pain and disability index (SPADI) and constant-murley assessments, reinforcing the relationship between bowling mechanics and shoulder dysfunction [1]. Research conducted in elite cricketers identified altered glenohumeral rotational patterns specifically decreased internal rotation and increased external rotation on the dominant side. This suggests adaptive tissue changes, such as internal rotation deficits, which 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 a 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, with symptoms including catching, shoulder instability, and decreased throwing velocity [2]. Rotator cuff tears, especially partial thickness tears, such as 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 improve when combined with structured rehabilitation incorporating progressive ROM 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 provide 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 SPADI assesses both pain and functional limitations and is 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 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.

Case Report

This case study included 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. MRI revealed a Grade 2C rotator cuff tear, a SLAP tear and signs of shoulder impingement. Given the functional

Table 1. Rehabilitation protocol

Phase	Duration (Weeks)	Goals	Key Interventions
1	1–4	Pain control and passive ROM	-Ice therapy and Relaxation techniques -Pendulum, passive flexion/abduction -Kinesiology taping for support
2	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
3	9–12	Strength building and return to sport	-Progressive resistance training (weights and bands) -Bowling-specific drills -Weekly progress assessments and adjustments

ROM: Range of motion.

demands of his sport, the injury had a significant impact on his ability to perform.

Surgical intervention

The athlete underwent 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.

Results

Over the 12-week rehabilitation program, the athlete demonstrated progressive improvement across all measured outcomes. Pain reduced by 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. ROM improved substantially in all planes. Muscle strength (MMT) improved from Grade 3 to 5, indicating full recovery of rotator cuff strength. Table 2 presents the data.

Discussion

This case report highlights the successful rehabilitation of a professional fast bowler who underwent 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, ROM, 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 emphasize gradual ROM restoration alongside neuromuscular control to ensure safe reintegration into sport-specific tasks [15].

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

A crucial 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.

Conclusion

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

Table 2. 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
6	4	21	65	153	140	78	4.5
12	1	9	92	170	167	85	5

PHYSICAL TREATMENTS

Abbreviations: VAS: Visual analogue scale; SPADI: Shoulder pain and disability index; I-PRRS: Injury-psychological readiness to return to sport scale; MMT: Manual muscle testing.

and mental conditioning was crucial in facilitating a timely and safe return to sport.

Ethical Considerations

Compliance with ethical guidelines

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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Authors' contributions

Study design and drafting of the manuscript: Geethapriya Vadamalai; Data collection and literature review: Karthika Ramalingam; Rehabilitation protocol supervision: Kamalakannan M; Clinical management and revisions: Karthik Tamildasan; Data analysis and final editing: Suriya N, and Kavitha K.

Conflict of interest

The authors declared no conflict of interest.

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