

BESS Practice Guidelines: Rehabilitation following Traumatic Anterior Shoulder Dislocation (Post-operative and Non-operative Care)

Keywords: Shoulder instability, Rehabilitation, Shoulder anterior dislocation

Abstract

Background:

Traumatic anterior shoulder dislocation is common and carries a high risk of recurrence. Rehabilitation is central to management following both surgical and non-surgical treatment. However, consistency in rehabilitation practice and continuity of care are lacking. The British Elbow and Shoulder Society (BESS) therefore commissioned the development of guidelines for post-operative and non-operative rehabilitation.

Methods:

This guideline was developed through a multi-staged process that combined a UK national survey, Delphi consensus, evidence synthesis, and a final expert workshop. The post-operative guideline was based on a BESS best practice framework, while the non-operative guideline was informed by the ARTISAN intervention development methodology, with both organised into phase-based protocols.

Results:

The process produced aligned rehabilitation protocols comprising five sequential phases: (1) Acute protection and education (0–3 weeks), (2) Movement and early strengthening (3–6 weeks), (3) Progressive strengthening (6–12 weeks), and (4) Return to sport (>12 weeks) and (5) high-level function. Key guidance following surgical treatment included sling use after surgery, initiation of through-range resisted exercise, and criteria-based progression to contact sport. The non-operative pathway mirrored these phases, with earlier sling weaning.

Conclusion:

Through a rigorous process, BESS has established pragmatic, evidence-informed rehabilitation guidelines for traumatic anterior shoulder dislocation, promoting consistent, safe, and adaptable patient-centred care across both operative and non-operative management.

Background

Traumatic anterior shoulder dislocation is a common injury, particularly among young, active individuals, and carries a high risk of recurrent instability.¹ Both operative and non-operative management rely heavily on effective rehabilitation to restore function and prevent recurrence.² This can take different formats depending on the individual patient, such as advice materials or in-person physiotherapy. However, limited high-quality evidence has led to an inconsistency in rehabilitation practices.

In post-operative rehabilitation, substantial variability exists in duration of sling use, timescale to begin movements and criteria to return to sport.³ Recent evidence synthesis commissioned by the British Elbow & Shoulder Society (BESS) highlighted that high-quality evidence underpinning current practice remains limited.⁴ While the ARTISAN trial established a robust framework for non-operative rehabilitation,⁵ evidence guiding specific components of non-operative rehabilitation in practice is lacking.⁶ Taken together, this practice knowledge gap underscores a need for standardised and evidence-based guidelines to define and align the standard of care in both post-operative and non-operative rehabilitation, to promote greater consistency in the information provided to patients, which may influence patient experience.

Recognising the need to translate emerging evidence and promote best practice, an Allied Health Professional Clinical Guideline Group (AHPCGG) was commissioned by BESS to develop comprehensive rehabilitation guidelines for traumatic shoulder dislocation. For the post-operation guideline development, the AHPCGG commenced a program of work in 2021 and published four separate articles in subsequent years.^{3, 4, 7, 8} In parallel, recent research on non-operative rehabilitation (ARTISAN trial and its intervention development) created a foundation for the development of evidence-informed non-operative guidelines.^{5, 6}

The convergence of these efforts set the stage for a stakeholder workshop to produce standardised rehabilitation guidelines for both operative and non-operative management of traumatic anterior shoulder instability. Given the shared goal of restoring shoulder function, the developed guidelines aim to offer rehabilitation frameworks with consistent principles whilst recognising the different constraints for operative and non-operative populations.

Methods

Design and scope

This guideline was developed using a methodology that combined systematic evidence synthesis with multi-round expert input to produce pragmatic and service-ready rehabilitation protocols. It covers physiotherapy-led rehabilitation for adults with traumatic anterior shoulder instability managed either surgically (arthroscopic Bankart repair) or non-operatively after closed reduction, spanning from initial injury or surgery through return to full activity, including sport.

The guideline is designed to be accessible to clinicians without specialist knowledge, thereby enhancing its uptake in practice. The components included in the protocols represent the minimal standard of care in rehabilitation. While the protocols provide a detailed illustration of the recommended rehabilitation principles, examples of exercises using a structured framework, they are not intended to be prescriptive. Additional factors, such as clinician and patient preference and functional demand, should be considered when appropriate. The work was undertaken under BESS oversight with contributions from orthopaedic surgeons, shoulder specialist physiotherapists, and patient representatives at each stage.

Guideline development process

The post-operative guideline was developed through a structured program of work.

1. **Evidence review:** A structured literature review⁸ was conducted to catalogue existing studies of rehabilitation after shoulder dislocation surgery. This highlighted limited comparative trial data and heterogeneity in current protocols.
2. **Survey of current practice:** A national practice survey³ was conducted to capture prevailing UK practices, revealing wide variation in sling use, exercise initiation, and return-to-work/sport timing. Key insights included inconsistent criteria for progression and a reliance on time-based milestones over functional readiness. The survey confirmed areas of common practice (such as routine immobilisation) and identified areas of discrepancies (such as the timeframe to begin movement and strengthening exercises). These findings formed the basis and informed the expert consensus on rehabilitation.
3. **Delphi consensus:** A three-round Delphi study was conducted.⁷ A panel of 37 stakeholders (11 shoulder surgeons, 22 physiotherapists, 4 patients) rated and refined proposed rehabilitation elements over successive rounds. The consensus threshold was predefined as $\geq 70\%$ agreement.⁹ The panel reached consensus on a progressive timeframe to introduce movement and on functional milestones for return to activity, emphasising the use of patient-specific factors, such as confidence, the absence of apprehension and psychological readiness, to guide return to sport decisions. The consensus process established an evidence-based framework for post-operative rehabilitation.⁴

The development of the non-operative guideline was informed by the intervention within the ARTISAN trial.⁵ The intervention development process has been previously published⁶, which included guidelines and literature search, national survey of practice, public and patient involvement, and internal pilot testing.

Guided by the evidence-based framework and the previous work by the ARTISAN team, a working subgroup formulated and proposed a phase-based protocol for post-operative rehabilitation and an adapted non-operative protocol.

The proposed post-operative and non-operative guideline was refined and ratified by 20 experts (including physiotherapists and surgeons) through an in-person structured workshop in September 2025. The participants of the workshop included specialist shoulder physiotherapists and consultant surgeons. The participants of the workshop

were acknowledged at the end this guideline. The objective of the workshop was to refine the proposed phase-based rehabilitation protocols for both post-operative and non-operative rehabilitation. At the workshop, each phase of the proposed protocols was discussed and reviewed thoroughly. The rehabilitation protocols were finalised by the end of the workshop. The expert panel, with full agreement, confirmed the applicability of using both rehabilitation protocols to guide rehabilitation following traumatic shoulder dislocation. The resultant guidelines were submitted to, and endorsed by, the BESS board of trustees for publication and dissemination on behalf of BESS.

Results

Overview of practice guideline

In this evidence-based guideline, we provide a framework for rehabilitation following traumatic anterior shoulder dislocation, covering both post-operative rehabilitation after arthroscopic stabilisation and non-operative rehabilitation. The protocols comprise five sequential phases, each with defined goals, milestones, and progression criteria (Supplementary File 1):

- **Phase 1 – Acute Protection & Education:** Optimise healing and early protected movement.
- **Phase 2 – Movement & Early Strengthening:** Begin controlled rotator cuff activation and regain motor control.
- **Phase 3 – Progressive Strengthening:** Advance rotator cuff and scapular conditioning and introduce plyometric exercise.
- **Phase 4 – Return to Sport -** Focus on sport- and occupation-specific rehabilitation.
- **Phase 5 - High-Level Function:** Guidance on return to contact sports/manual work.

Although there is limited evidence to support time-based criteria for progression, the stakeholder workshop acknowledged the need to provide an indicative timeframe to support clinical decision-making, particularly for clinicians who may have less familiarity with early-phase rehabilitation. As rehabilitation progresses, progress should be guided by patients' functional status and confidence rather than by fixed timeframes. The protocols are not prescriptive and offer flexibility for clinical discretion on some components of the protocols (such as exercise prescription and progression criteria) to support personalised care and shared decision-making in rehabilitation.

Rehabilitation protocols and example exercises can be found in Supplementary Files 1 and 2. The example exercises are provided to illustrate the underlying rehabilitation principles and are not intended to represent an exhaustive list.

Discussion

Significance and strengths

This project represents the first national guideline on shoulder dislocation rehabilitation in the UK to explicitly standardise both post-operative and non-operative rehabilitation within a single cohesive framework. By aligning the rehabilitation protocols across both care pathways, the guideline promotes continuity of care, ensuring that patients who transition between operative and nonoperative management encounter a consistent rehabilitation structure, minimising confusion among clinicians and patients.

In addition, this guideline establishes the key milestones in rehabilitation based on best available evidence and expert opinion, such as immobilisation duration, timeframe to begin movement, and return-to-sports criteria. This allows benchmarking and promotes consistency of practice across rehabilitation services nationally. Clinicians and patients now have explicit guidance on appropriate expectations regarding functional restriction and criteria for progression. Importantly, the guidelines highlighted the need to consider the assessment of psychological readiness and patient confidence to inform rehabilitation progression, which has been historically overlooked in practice.

Limitations

Despite the rigorous development process, several limitations should be acknowledged. First, the evidence base, particularly for post-operative rehabilitation, remains limited. Most of the recommendations in this guideline rely on expert opinion rather than high-level clinical trial data. For instance, the optimal duration of sling immobilisation or the timeframe for introducing strengthening exercises after surgery are not definitively established by current research. The adopted parameters (a three-week sling use period and through-range strengthening at six weeks) reflect prevailing expert opinion and surgical convention. Future studies may demonstrate that shorter or longer durations are equally or more beneficial. Consequently, while the guideline represents the current best-practice consensus, it should be revised as new evidence emerges.

Second, the consensus panel was UK-based, which may limit the generalisability of the recommendations to other healthcare systems or patient populations. International variation exists in practice patterns and patient demographics. While the guideline was aligned where possible with international frameworks (OMERACT consensus thresholds⁹ and the American Shoulder and Elbow Therapists' Bankart repair guideline¹⁰), it remains primarily tailored to UK clinical practice. In addition, the guidance assumes access to physiotherapy services and does not specifically address contexts with limited rehabilitation resources.

Finally, while patient perspectives were incorporated through representative input and previous qualitative research, their inclusion could be expanded further. For example, there is a need to co-design patient-facing materials such as educational resources, which will enhance accessibility and engagement.

Implications for practice

In practice, the guideline is expected to reduce unwarranted variation, enhance patient confidence through a clear and consistent rehabilitation structure, and improve patient outcomes. The alignment between post-operative and non-operative rehabilitation offers a major advantage - patients can be educated using a unified framework, ensuring continuity even if management transitions from non-operative to operative care.

Clinicians should familiarise themselves with the phase-based rehabilitation framework and understand the rationale behind each phase.

- Surgeons should incorporate the rehabilitation plan into shared decision-making discussions, as expectations around recovery may influence treatment choices.
- Physiotherapists should apply the guideline flexibly, using it to structure treatment and education while adapting to individual patient needs.
- Patients can use the phase summaries to take an active role in recovery, set realistic goals, and understand that milestones such as return to contact sport depend on meeting functional criteria rather than fixed timelines.

Implication for research

This consensus process has also highlighted several areas of uncertainty that warrant future investigation:

- Optimal immobilisation period:
The ideal duration of sling use following operative repair remains unclear. Although consensus favoured two-to-three weeks, empirical evidence is limited.
- Early movement versus protection:
In non-operative management, the value of immediate movement compared with brief immobilisation remains uncertain.
- Timeframe to begin strengthening:
Our guideline allows early protected strengthening with caution of delaying through range strengthening to 6 weeks after surgery. Research could explore if early protected strengthening exercises offer additional benefits in optimising outcomes, without harming the surgical repair.
- Psychological interventions:
Although we suggest psychological readiness as an important criterion for return

to sport, research examining the efficacy of specific interventions to enhance psychological readiness within the rehabilitation process remains limited.

Conclusion

By integrating the best available evidence with multidisciplinary expert consensus, the development of this national consensus rehabilitation guidelines document addresses a longstanding gap in the management of traumatic anterior shoulder dislocation, resulting in a structured rehabilitation framework that is both practical for implementation and adaptable to individual patient needs. It represents a significant milestone in the management of traumatic shoulder instability and establishes a solid foundation for continued advancement in patient care and outcomes.

Conflicting interests:

The Authors declare that there is no conflict of interest.

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Carl Wong is the guarantor.

Contributorship:

Carl Wong – Conceptualisation, Methodology, Resources, Writing - Original Draft, Writing - Review & Editing. Anju Jaggi – Conceptualisation, Methodology, Writing - Review & Editing, Supervision. Rebecca Kearney - Conceptualisation, Methodology, Resources, Writing - Review & Editing. Steve Gwilym - Conceptualisation, Methodology, Resources, Writing - Original Draft, Writing - Review & Editing, Supervision.

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References

1. Duethman NC, Bernard CD, Leland D, et al. Multiple Instability Events at Initial Presentation Are the Major Predictor of Failure of Nonoperative Treatment for Anterior Shoulder Instability. *Arthroscopy* 2021; 37: 2432-2439. 20210331. DOI: 10.1016/j.arthro.2021.03.047.
2. Lloyd G, Day J, Lu J, et al. Postoperative Rehabilitation of Anterior Glenohumeral Joint Instability Surgery: A Systematic Review. *Sports Med Arthrosc Rev* 2021; 29: 54-62. DOI: 10.1097/jsa.0000000000000305.
3. Maher N, Willmore E, Bateman M, et al. Rehabilitation following shoulder arthroscopic stabilisation surgery: A survey of UK practice. *Shoulder Elbow* 2024; 16: 85-97. 20230210. DOI: 10.1177/17585732231154889.
4. Wong C, Jaggi A, Willmore E, et al. Critical evidence synthesis on rehabilitation following arthroscopic shoulder stabilisation surgery for traumatic anterior instability: consensus recommendations for clinical practice and research - commissioned by the British Elbow & Shoulder Society. *Br J Sports Med* 2025 20251023. DOI: 10.1136/bjsports-2025-109674.
5. Kearney RS, Ellard DR, Parsons H, et al. Acute rehabilitation following traumatic anterior shoulder dislocation (ARTISAN): pragmatic, multicentre, randomised controlled trial. *Bmj* 2024; 384: e076925. 20240117. DOI: 10.1136/bmj-2023-076925.
6. Liew Z, Mazuquin B, Ellard DR, et al. Development of a single-session physiotherapy and self-management intervention for the treatment of primary traumatic anterior shoulder dislocation for the 'Acute Rehabilitation following Traumatic anterior shoulder dislocation (ARTISAN)' multi centre RCT. *Physiotherapy* 2021; 113: 80-87. 20210617. DOI: 10.1016/j.physio.2021.06.002.
7. Willmore E, Bateman M, Maher N, et al. Rehabilitation guidelines following arthroscopic shoulder stabilisation surgery for traumatic instability - a Delphi consensus. *Physiotherapy* 2024; 124: 154-163. 20240516. DOI: 10.1016/j.physio.2024.05.001.

8. Coyle M, Jaggi A, Weatherburn L, et al. Post-operative rehabilitation following traumatic anterior shoulder dislocation: A systematic scoping review. *Shoulder Elbow* 2023; 15: 554-565. 20220331. DOI: 10.1177/17585732221089636.
9. Boers M, Beaton DE, Shea BJ, et al. OMERACT Filter 2.1: Elaboration of the Conceptual Framework for Outcome Measurement in Health Intervention Studies. *J Rheumatol* 2019; 46: 1021-1027. 20190215. DOI: 10.3899/jrheum.181096.
10. Gaunt BW, Shaffer MA, Sauers EL, et al. The American Society of Shoulder and Elbow Therapists' consensus rehabilitation guideline for arthroscopic anterior capsulolabral repair of the shoulder. *J Orthop Sports Phys Ther* 2010; 40: 155-168. DOI: 10.2519/jospt.2010.3186.