Clinical Outcomes Following Open Anterior Shoulder Stabilization For Glenohumeral Instability In The Young Collision Athlete

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Background

• Young <20yrs collision athletes are recognised as having highest re-dislocation rate after surgery

• NZ sports. Large number young athletes presenting with anterior instability whose sole focus is return to collision sport with stable shoulder
Introduction

• In general population, Level 1 studies show Open → Arthroscopic reconstruction when considering re-dislocation, RTS, DASH

• When dealing with collision athletes, particularly when there is glenoid bone loss, a recent trend has been to use Arthroscopic → Latarjet stabilisations.

• Open stabilisation being performed less often.

Treatment Algorithm

A: Arthroscopic Stabilisation

B: Open Stabilisation

C: Latarjet Bone Block

Boileau ISIS score
Alternative Options not without complications!
Aim

Determine the efficacy of open anterior shoulder stabilization in treating anterior glenohumeral instability in young (≤ 20yrs) collision athletes
Method

• **Level 3** Retrospective cohort

• Consecutive patients from the New Zealand Unisports Centre for Sports Medicine

• 7-year period (2007-2015)

• <20yrs with unilateral or bilateral open anterior stabilisations for recurrent anterior glenohumeral instability

• Inclusion criteria - a soft tissue Bankart lesion or bony defect with less than 25% glenoid involvement (MR/CT/arthroscopy)

• Exclusion criteria – Bony glenoid lesions >25% or HAGL (humeral avulsion of the glenohumeral ligaments)
Method

- 4 Surgeons
- 92 procedures
- Collision sports were defined using the American Academy of Pediatrics Sports Medicine classification

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<tr>
<th>Contact/Collision</th>
<th>Limited Contact</th>
<th>Non-contact Strenuous</th>
<th>Non-contact Moderately Strenuous</th>
<th>Non-contact Non-strenuous</th>
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<td>Boxing</td>
<td>Baseball</td>
<td>Aerobic dancing</td>
<td>Badminton</td>
<td>Archery</td>
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<td>Field Hockey</td>
<td>Basketball</td>
<td>Crew</td>
<td>Table Tennis</td>
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<td>Softball</td>
<td>Weight lifting</td>
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<td>Squash, handball</td>
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<td>Volleyball</td>
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Method

- 60 athletes; 55 male and 5 female.
- 7 Yrs Follow-up
- Age 18 Yrs (Range 15-20)
- 34 European descent; 19 Pacific Islanders; 7 Maori
- 9 internationals; 18 competing regionally; 30 at the competitive level; 3 recreational athletes
- Rugby Union; Rugby league most common
Unisports Open Repair Technique

- Modified Bankart
- Arthroscopic and Open technological advances
- Retractors – Hawkins Bell
- Improved suture delivery systems
- Technique allows excellent access for thorough preparation of glenoid bed
Unisports Open Repair Technique

- Ability to reliably deploy anchor at inferior pole of the glenoid rim
- Bone anchors can be placed equidistant apart along repair
- Simple to control passage of non-absorbable suture
- Digital tie allows for sensation of knot firmly apposing soft tissue repair
- Repair of superior half subscapularis tendon critical. We pay particular attention to a robust repair using non-absorbable locking sutures
Outcome Assessments

- Re-dislocation rate
- Return to play (RTP)
- Return to previous level of sport
- Pain score (VAS)
- Patient related satisfaction scores and Western Ontario Shoulder Instability Index

- SPSS 22 - ANOVA test of independent samples
Results

- **92%** (55/60) return to play.

- 62% of athletes returning to their previous level of competition, 1 athlete returning at a higher level.

- Mean time to return to play was 14 months (range 5-48 months).

- There was no difference in the rates of return to play across the competition levels.

- **8/60 (13%)** re-dislocation rate

- 5/8 re-dislocations gave a history of major traumatic re-injury – likely to have caused a dislocation in native shoulder

- At 7 years 4/60 shoulders (7%) had undergone revision surgery.
Discussion

• RCTs show either no difference or favour open but highlight overall population

• <20yrs collision athletes challenging cohort

• RTP (92%) and re-dislocation rates (13%) comparable with optimal series

• Unisports 7 yrs series - robust, reliable open technique
Conclusion

• In this young cohort of collision athletes, the senior authors have moved almost exclusively to an open stabilisation procedure.

• These results support this approach and we encourage our colleagues to re-visit this option.