Management of the 1st Time Dislocation in the Extreme Athlete

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1. **Research**: NIH, MLB, Zimmer, J&J, Medipost, Arthrex, Cytori, Ausculop

2. **Royalties**: Arthrex, DJ Ortho, Elsevier

3. **Consulting**: Arthrex, Regentis, Genzyme

4. **Stock/Options**: Carticept, Regentis

5. **Boards/Committees**: AAOS, Arthroscopy/AANA, JSES/ASES, AJSM/AOSSM, Cartilage/ICRS

6. **Fellowship Support**: Smith and Nephew, Ossur, DJO, Athletico
The Problem a Nutshell

• Athlete in or out of season who dislocates

• Natural History

• Independent variables
  – Time loss
  – Performance
  – Contract/Scholarship
Allowing Recurrence “Benign Neglect”?

1. High recurrence rate
2. Pathology worsens
3. Surgical stabilization less successful w recurrence
4. Progression of arthrosis
5. Operative stabilization is successful
Allowing Recurrence “Benign Neglect”? 

1. High recurrence rate
2. Pathology worsens
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Risk Factors

- Age < 20 at time of surgery (2 pt)
- Competitive or Contact Sports (2 pt)
- Shoulder Hyperlaxity (1 pt)
- Hill-Sachs lesion (2 pt)
- Glenoid Bone Loss (2 pt)

Score of ≥ 6 = 70% Recurrence

Balg, Boileau, JBJS Br. 2007
Natural History

Nonoperative Treatment of Primary Anterior Shoulder Dislocation in Patients Forty Years of Age and Younger
A Prospective Twenty-five-Year Follow-up
By Lennart Hovelius, MD, PhD, Anders Olofsson, MD, Björn Sandström, MD, Bengt-Göran Augustini, MD, Lars Krantz, MD, Hans Fredin, MD, PhD, Bo Tillander, MD, PhD, Ulf Skoglund, MD, Björn Salomonsson, MD, Jan Nowak, MD, PhD, and Ulf Sannerby, MD

Functional Outcome and Risk of Recurrent Instability After Primary Traumatic Anterior Shoulder Dislocation in Young Patients
By C. Michael Robinson, FRCS(Orth), Jonathan Howes, MB ChB, Helen Murdoch, MB ChB, Elizabeth Will, MSc, MCSP, and Catriona Graham, MSc

Ten most recent articles on young athletes
50-100% Recurrence
1. High recurrence rate
2. Pathology worsens
3. Surgical stabilization less successful with recurrence
4. Progression of arthrosis
5. Operative stabilization is successful
Evolution of lesions of the labrum-ligament complex in posttraumatic anterior shoulder instability: A prospective study

Peter Habermeyer, MD, Pascal Gleyze, MD, and Markus Rickert, MD, Heidelberg, Germany, and Colmar, France

Single Dislocation
Acute Pathology
Optimal for Arthroscopic Repair

Multiple Recurrences
Bone Loss
Tissue Inferior
IGHL Deformation
Arthritis
Is it “Benign Neglect”? Allow Recurrence

1. High recurrence rate
2. Pathology worsens
3. Surgical stabilization less successful with recurrence
4. Progression of arthrosis
5. Operative stabilization is successful
Independent risk factors for failure

- 5904 Stabilizations
- Recurrence 6.9%

- 3 or more recurrent dislocations
- Age <20
Allowing Recurrence “Benign Neglect”?  

1. High recurrence rate  
2. Pathology worsens  
3. Surgical stabilization less successful with recurrence  
4. Progression of arthrosis  
5. Operative stabilization is successful
Neer Award 2008: Arthropathy after primary anterior shoulder dislocation—223 shoulders prospectively followed up for twenty-five years

Lennart Hovelius, MD, PhD⁹,¹,², * Modolv Saeboe, MD³

✓ 40% GH arthritis with > 1 recurrence
✓ 18% GH arthritis if no recurrence

Recurrent instability associated with worse post traumatic arthropathy
Allowing Recurrence “Benign Neglect”?

1. High recurrence rate
2. Pathology worsens
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5. Operative stabilization is successful
Arthroscopic Stabilization is Successful

Long-term Follow-up of Acute Arthroscopic Bankart Repair for Initial Anterior Shoulder Dislocations in Young Athletes

MAJ Brett D. Owens, MD, COL Thomas M. DeBerardinis, MD, Bradley J. Nelson, MD, CPT John Thurman, Kenneth L. Cameron, PhD, ATC, COL (Ret) Dean G. Taylor, MD, COL (Ret) John M. Uhhorchak, MD, and COL (Ret) Robert A. Arcebo, MD

AJSM 2009

Arthroscopic Versus Open Shoulder Stabilization for Recurrent Anterior Instability
A Prospective Randomized Clinical Trial

LTC (P) Craig R. Bottoni, MD, MAJ Eric L. Smith, MD, MAJ Mark J. Berkowitz, MD, CDR Robert B. Towle, PT, ATC, and COL Josef H. Moore, PhD, PT, ATC

From the Orthopaedic Surgery Service, Tripler Army Medical Center, Honolulu, Hawaii

Arthrosopy 2012

Systematic Review

Long-Term Outcomes After Bankart Shoulder Stabilization


Arthroscopy 2013

26 studies
Open vs Arthroscopic Suture Anchor
8-8.5% Recurrence
87-89% RTS
Operative vs Nonoperative

Primary Repair Versus Conservative Treatment of First-Time Traumatic Anterior Dislocation of the Shoulder: A Randomized Study With 10-Year Follow-up

Bent Wulff Jakobsen, M.D., Hans Viggo Johannsen, M.D., Peter Suder, M.D., and Jens Ole Søjbørg, M.D.

Nonoperative group

75% unsatisfactory results!!!

Operative group

85% excellent/good results!!!
Evidence supports operative stabilization for primary shoulder dislocations in young active patients participating in high demand physical activities.
Surgery is Cost-Effective

Cost-Effectiveness Analysis of Primary Arthroscopic Stabilization Versus Nonoperative Treatment for First-Time Anterior Glenohumeral Dislocations

Timothy S. Crall, M.D., Julius A. Bishop, M.D., Dan Guttmann, M.D., Mininder Kocher, M.D., M.D.P.H., Kevin Bozic, M.D., M.B.A., and James H. Lubowitz, M.D.

Arthroscopy 2012

Primary Surgery Less Costly in All Scenarios after One Recurrence
Allowing Recurrence

It can be dangerous!
Case Example

• 36M avid mountain climber with 1st time anterior dislocation in left shoulder after falling onto L arm
• Shoulder “self-reduced” within minutes
• Was evaluated in ED and diagnosed with nondisplaced fracture of greater tuberosity
• Was placed in sling
• Now with pain on lateral shoulder and weakness
Case Example
What would you do?
Arthroscopic or Open?
**Long-Term Outcomes After Bankart Shoulder Stabilization**


- Minimum 5 year F/U open or arthroscopic
- 26 studies/1781 subjects
- Open 731
- Arthroscopic (mixed techniques) 584
- Recurrence:
  - Suture Anchor: Scope 8.5% vs Open 8%
- RTS:
  - Suture Anchor: Scope 87% vs Open 89%

*Arthroscopy, 2013*
## Weighing the Options

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<thead>
<tr>
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<th>Open Repair</th>
<th>Arthroscopic Repair</th>
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<tbody>
<tr>
<td>Recurrent Dislocation / Instability</td>
<td><img src="image1" alt="Comparison" /></td>
<td><img src="image2" alt="Comparison" /></td>
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<tr>
<td>Range of Motion</td>
<td><img src="image3" alt="Comparison" /></td>
<td><img src="image4" alt="Comparison" /></td>
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<tr>
<td>Perioperative Morbidity</td>
<td><img src="image5" alt="Comparison" /></td>
<td><img src="image6" alt="Comparison" /></td>
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<tr>
<td>Ability to assess/treat associated pathology</td>
<td><img src="image7" alt="Comparison" /></td>
<td><img src="image8" alt="Comparison" /></td>
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“Contemporary Techniques”

1. Multiple suture anchors and fixation points
2. Posteroinferior anchor
3. Capsule management

7-Oclock Portal L shoulder
What was done...
How he did...
Individualized Treatment
Non-operative tx has its place…

1. Etiology
   - Random vs Sport-Specific
2. Sport Requirements
   - Dominant vs Non-Dominant
   - QB vs Tennis, etc
3. Performance Ability
4. In- vs Out-of-Season
   - 10 D RTS w/o surgery
   - 6-8 mo RTS w surgery
Take Home Message

1. Non-operative treatment- high recurrence rate and poor performance in young athlete
2. Recurrent dislocations lead to worse capsulolabral injury, osteoarthritis, and higher surgical failure rates
3. Arthroscopic stabilization after initial dislocation is highly successful and cost effective
4. In-season instability-individualize treatment