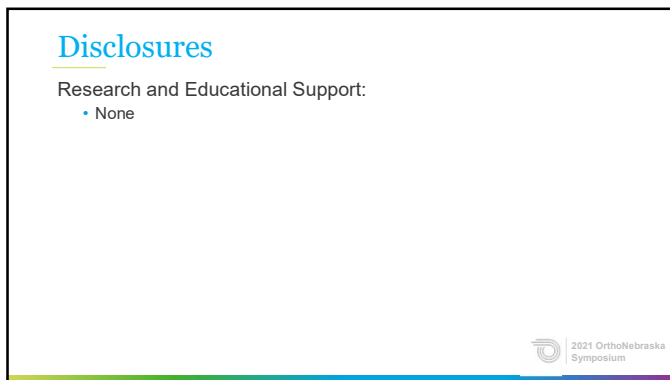
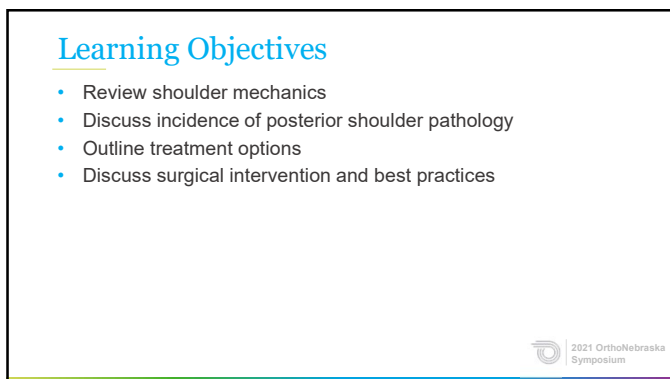




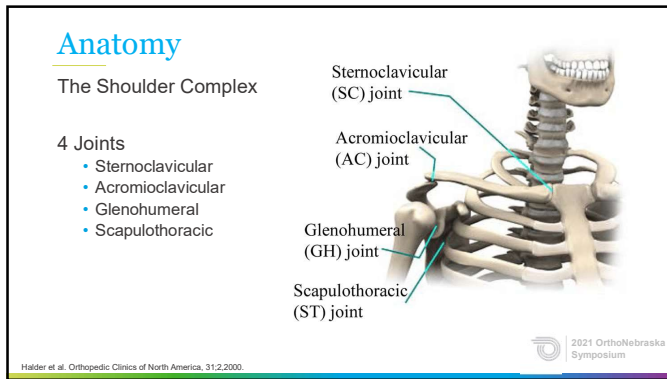
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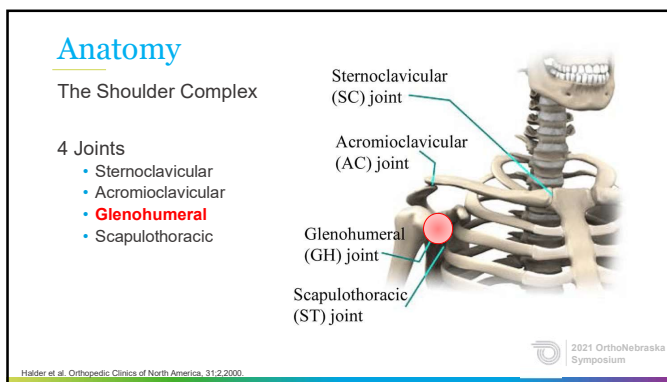
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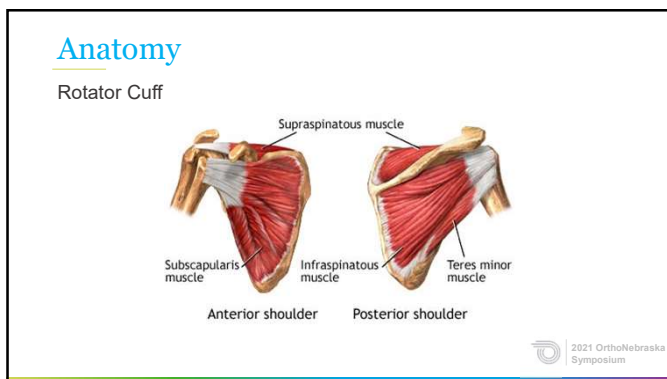
3



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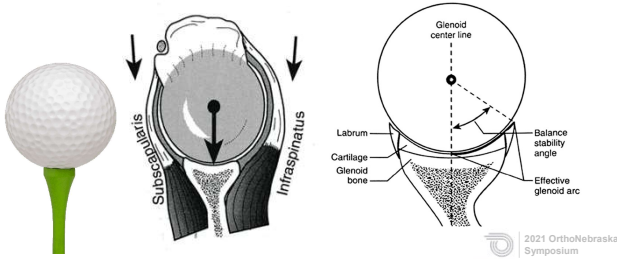
5



6

Force Couples

Sagittal Plane



7

Anatomy

Glenoid

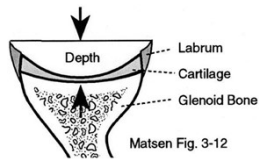
- Ovoid Shape
- Large radius of curvature
- Greater than humeral head

Cartilage

- Thicker at edges

Labrum

- Further deepens socket (50%)



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Biomechanics - Stability

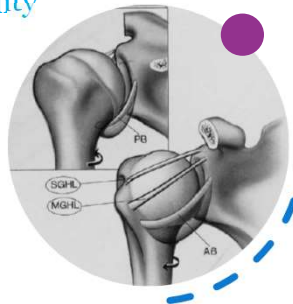
Static – adducted and ER

SGHL/MGHLs

- Taught

A/P bands of IGHL

- Lax



9

Biomechanics - Stability

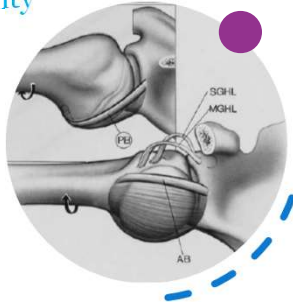
Static – aBducted and ER

SGHL/MGHLs

- Lax

A/P bands of IGHL

- Taught

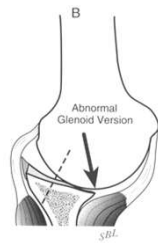


10

Pathology Causing Imbalance/Instability

Result: Abnormal Anatomy

- Abnormal version
- Labral tear
- Bony bankart
- RCT



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Background

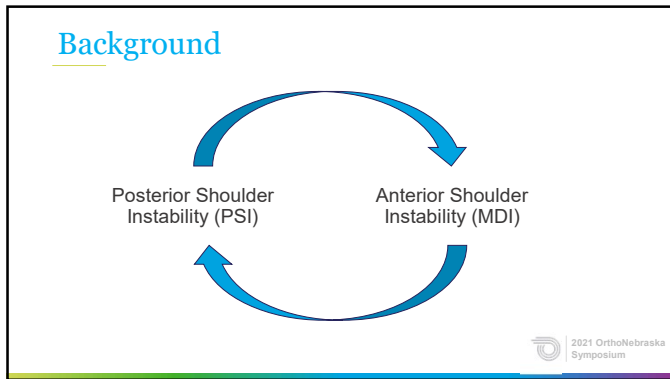
Anterior
Glenohumeral
Instability (AGHI)



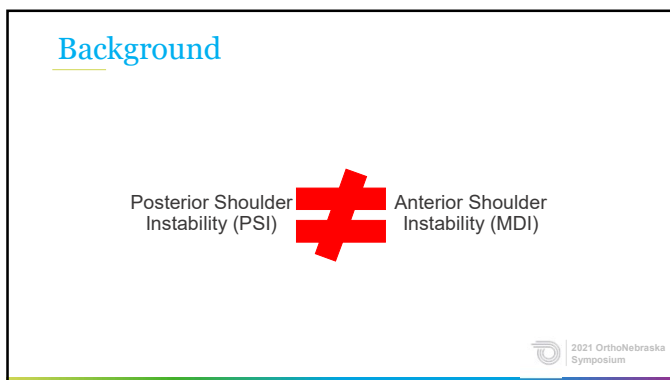
Posterior
Shoulder
Instability (PSI)
Multi-directional
Instability (MDI)

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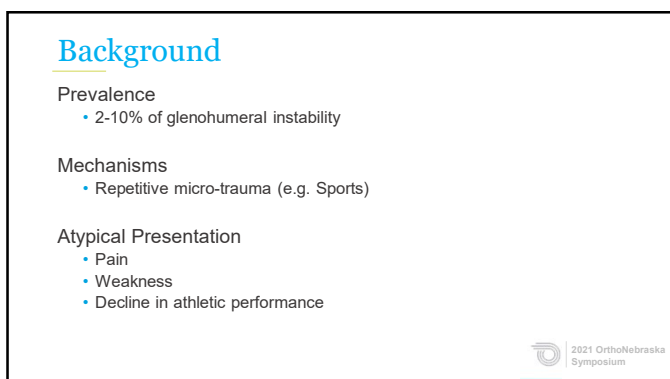
12



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14



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Mechanism of Injury



Dislocation – Rare!!

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Australian School of Advanced Medicine

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Mechanism of Injury



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Mechanism of Injury

Most common is REPETITIVE microtrauma

Sports:

- Weight lifting
- Football
- Hockey
- Male cheerleaders
 - Overhead press

Laborers:

- Military
- Police
- Firefighters



<https://www.musculoskeletalhealth.com/tools/bench-press-mae-chart>

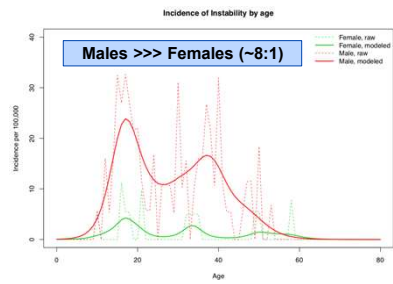
Slide 16

JR4 Link to video is broken.

Do you have a link or copy of the video to reinsert? I could not find on YouTube.

Jessica Roberts, 5/18/2021

Incidence

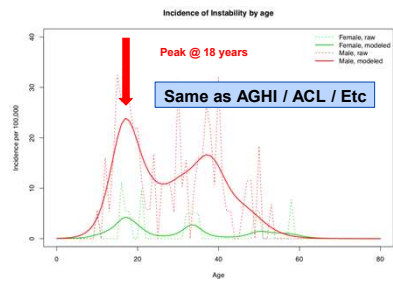


Woodmass et al. J Shoulder Elbow Surg. 2018 Nov 30; S1058-2746

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Incidence

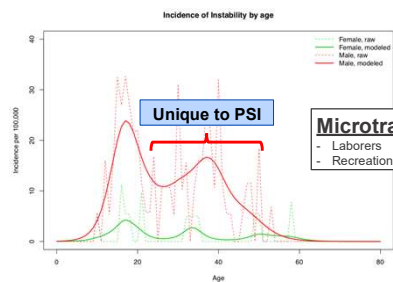


Woodmass et al. J Shoulder Elbow Surg. 2018 Nov 30; S1058-2746

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Incidence

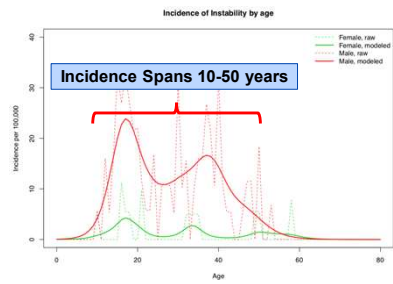


Woodmass et al. J Shoulder Elbow Surg. 2018 Nov 30; S1058-2746

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Incidence



Woodmass et al. J Shoulder Elbow Surg. 2018 Nov 30; 51058-2746

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Background

	Posterior Shoulder Instability (PSI)	Anterior Shoulder Instability (MDI)
Dislocation	10.3%	82.5%
Instability	13.4%	80%
Pain	90.7%	32%

Referrals: Partial RCT / Impingement / SLAP / etc

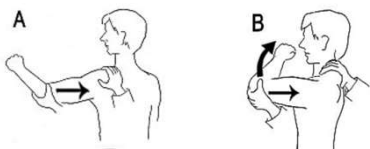
Am J Sports Med. 2019 Mar;47(3):682-687.

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Clinical Examination

Posterior Jerk Test



A - An axial force is applied to the arm in 90 degrees of abduction and internal rotation.
B - the patient's arm is horizontally adducted while axial load is maintained.

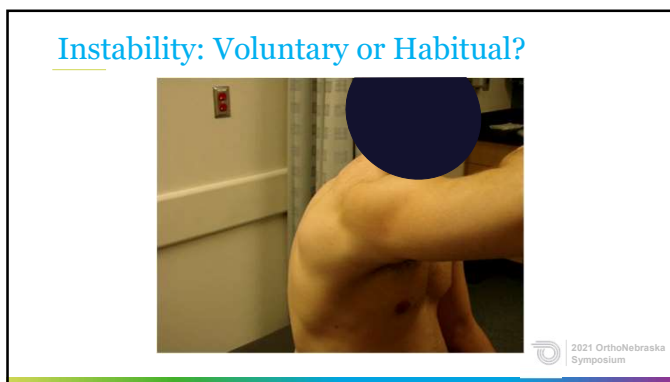
Am J Sports Med. 2004 Dec;32(8):1949-55.

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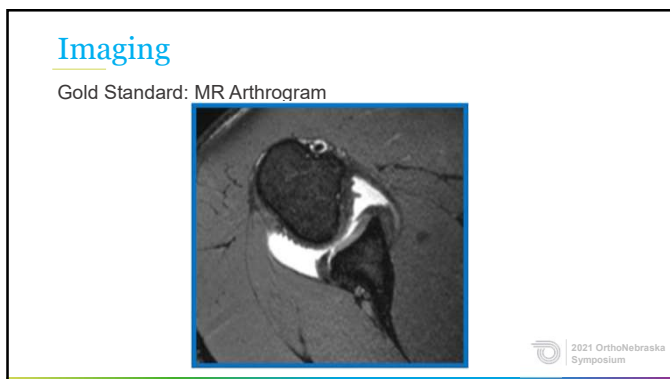
24



25



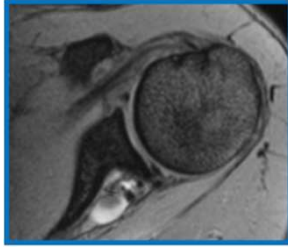
26



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Imaging

Posterior Labrum Irregularity
Paralabral Cyst



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Background

Treatment Options

- Non-op
 - Therapy
 - Activity modification
- Capsulorrhaphy
- Labral repair
- Osseous augmentation



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Am J Sports Med. 2004 Dec;32(8):1849-55.

Painful jerk test: a predictor of success in nonoperative treatment of posteroinferior instability of the shoulder.

Kim SH¹, Park JC, Park JS, Oh I.

Painful Jerk:

- 84% failure with conservative treatment ($p < 0.001$)

Painless Jerk:

- 93% responded to initial conservative treatment

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Nonoperative Management of Posterior Shoulder Instability: An Assessment of Survival and Predictors for Conversion to Surgery at 1 to 10 Years After Diagnosis

Jarret M. Woodmass, M.D., F.R.C.S.C., Julia Lee, M.D., Nick R. Johnson, M.D., Isabella T. Wu, B.A., Christopher L. Camp, M.D., Diane L. Dahm, M.D., and Aaron J. Krych, M.D.

Non-operative treatment

- Minimum 1 year

Conversion to surgery

- 1.3 to 20.7 years f/u

55% (79/143) Non-op @ 1yr

Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol ■, No ■ (Month), 2019; pp 1-7

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Nonoperative Management of Posterior Shoulder Instability: An Assessment of Survival and Predictors for Conversion to Surgery at 1 to 10 Years After Diagnosis

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Non-operative treatment

- Minimum 1 year

Conversion to surgery

- 1.3 to 20.7 years f/u

Additional 46% convert late

>70% of patients eventually require surgery

Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol ■, No ■ (Month), 2019; pp 1-7

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Arthroscopic Capsulolabral Reconstruction for Posterior Instability of the Shoulder

A Prospective Study of 200 Shoulders

James P. Bradley,¹ MD, Michael P. McClincy,¹ MD, Justin W. Amer,² MD, and Samir G. Tejwani,³ MD
Investigation performed at the University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, and Burke and Bradley Orthopedics, Pittsburgh, Pennsylvania

Improved:

- ASES
- Stability
- Pain

Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol ■, No ■ (Month), 2019; pp 1-7

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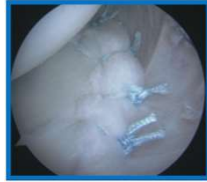
Arthroscopic Capsulolabral Reconstruction for Posterior Instability of the Shoulder

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James P. Bradley,*¹ MD, Michael P. McClincy,¹ MD,
Justin W. Amer,² MD, and Samir G. Tejwani,² MD
Investigation performed at the University of Pittsburgh Medical Center, Pittsburgh,
Pennsylvania, and Burke and Bradley Orthopedics, Pittsburgh, Pennsylvania

Return to Sport

- 90% overall
- 64% previous level



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Similar throughout literature?

Posterior Instability of the Shoulder: A Systematic Review and Meta-analysis of Clinical Outcomes

Jeffrey M DeLong¹, Kevin Jiang², James P Bradley³

27 arthroscopic studies, 26 open studies

- Arthroscopically >> Open
- Reliable pain relief
- Return to high level sports
 - Throwing: medium
 - Contact sports: high

Systematic Review of Posterior Shoulder Instability
DeLong, Jiang and Bradley AJSM, July 2015

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Surgical Treatment

Positioning

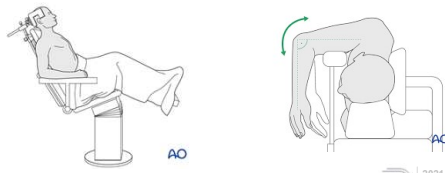
Technique

Outcomes

36

Beach Chair vs Lateral Decubitus??

Outcomes of Arthroscopic Posterior Shoulder Stabilization in the Beach-Chair Versus Lateral Decubitus Position



The Orthopaedic Journal of Sports Medicine, 7(1), 2325967118822452

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Beach Chair vs Lateral Decubitus??

Outcomes of Arthroscopic Posterior Shoulder Stabilization in the Beach-Chair Versus Lateral Decubitus Position



No difference

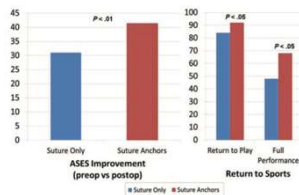
The Orthopaedic Journal of Sports Medicine, 7(1), 2325967118822452

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Technique

Anchors vs. Sutures???

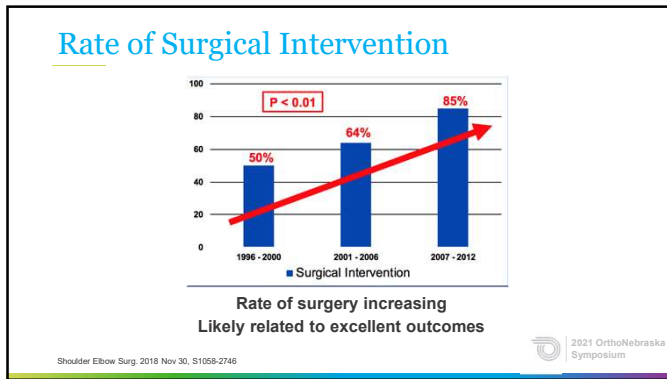


Anchors!!!

Bradley et al. AJSM. 41(9), 2013, 2005-12.

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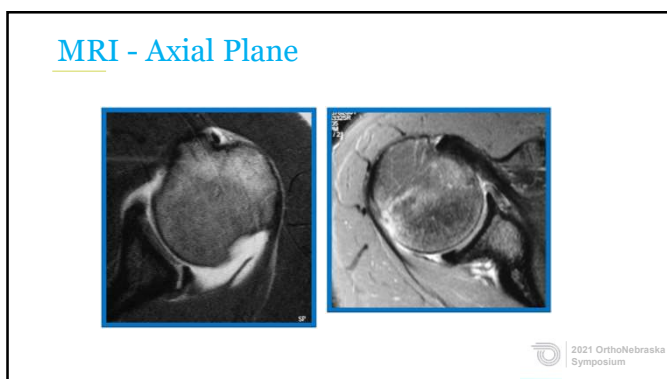
Where can things go wrong?

The Big Three

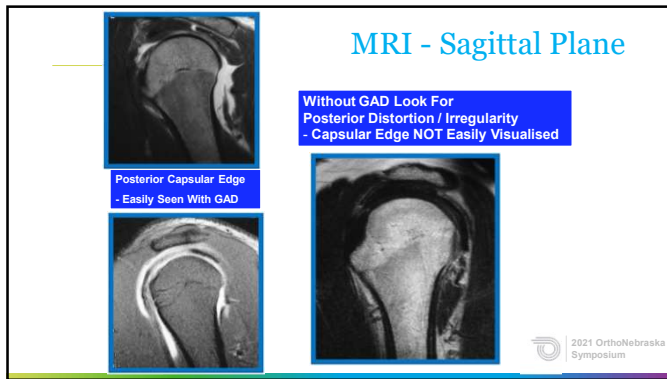
- HAGL
- Retroversion
- Bone Loss

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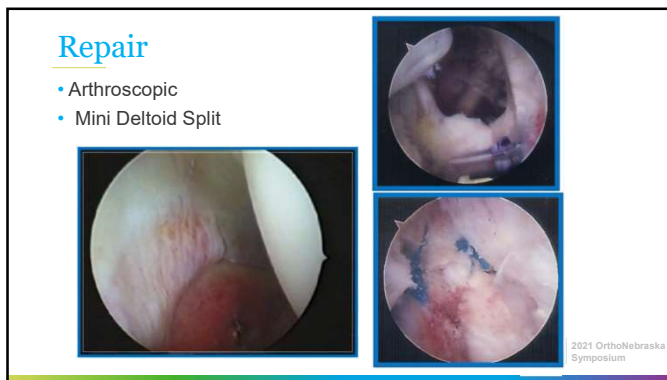
41



42



43

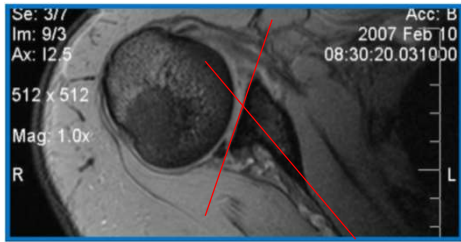


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Retroversion

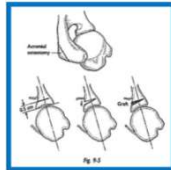


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Posterior Glenoid Osteotomy

- 14 patients from 1974-79
- **High incidence of complications**
- **Specifically degenerative OA of the shoulder**



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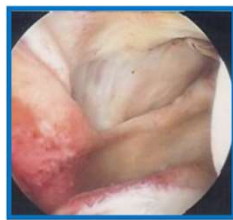
Johnston, Hawkins et al CORR 1983

47

Where can things go wrong?

The Big Three

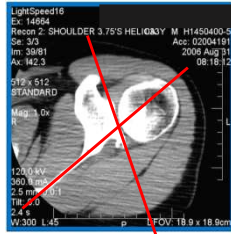
- HAGL
- Retroversion
- **Bone Loss**



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Posterior Bone Loss



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Glenoid Bone Grafting

Ortho Traumatol Surg Res. 2017 Dec;103(8):S193-S197. doi: 10.1016/j.orth.2017.08.006. Epub 2017 Sep 2.

Clinical outcomes of posterior bone block procedures for posterior shoulder instability: Multicenter retrospective study of 66 cases.

Clement E¹, Eustol L², Andrieu H³, Simeaux L⁴, Berdy MB⁵, Nourissat G⁶, Bouli Y⁷, Gernst P⁸, Godelinche A⁹, Mansat B¹⁰, French Arthroscopy Society.

Good outcomes

- Improved Constant, Walch-Duplay, VAS

Increased Complications

No comparison studies to soft-tissue

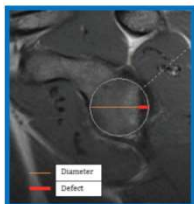
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Glenoid Bone Loss in Posterior Shoulder Instability

Prevalence and Outcomes in Arthroscopic Treatment

Adam Hines,* MD, Jay B. Cook,* MD, James S. Shaha,* MD, Kevin Krul,* MD, Steve H. Shaha,* PhD, John Johnson,* MD, Craig R. Bottoms,* MD, Douglas J. Rowles,* MD, and John M. Tokish,^{1,§} MD
Investigation performed at Tripler Army Medical Center, Honolulu, Hawaii, USA



No difference in outcome based on bone loss

- (+/- 13.5%)

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Post-Op Care

- Post-op protocol
 - Immobilization
 - Rehab protocol
 - Timeline
- Differences among population
 - Young adult/athlete
 - Overhead athlete
 - DME for RTS



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Conclusions

Have a HIGH index of suspicion!!!

- Often missed

Repetitive microtrauma

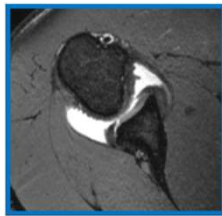
- Most eventually require surgery

Arthroscopic treatment

- Gold standard

The difficult cases

- HAGL – don't miss it!
- Version – ignore it
- Bone loss – critical %age unknown



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