

ePoster #89

Outcomes of Arthroscopic All-Suture Anchor Stabilization for Recurrent Shoulder Instability with Minimum 2-Year Follow-up

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The logo for LSU Health Shreveport is displayed within a dark blue rectangular box. The text "LSU Health" is written in a bold, white, sans-serif font, with "LSU" in a larger size than "Health". A thin yellow horizontal line is positioned below "LSU Health". Below this line, the word "SHREVEPORT" is written in a smaller, yellow, all-caps, sans-serif font. The logo is set against a background of several overlapping, light gray hexagons of varying sizes and opacities, some with white outlines, creating a geometric pattern.

Disclosure of Interest

Neither I nor other listed authors have a financial relationship or a conflict of interest regarding the material in this presentation.



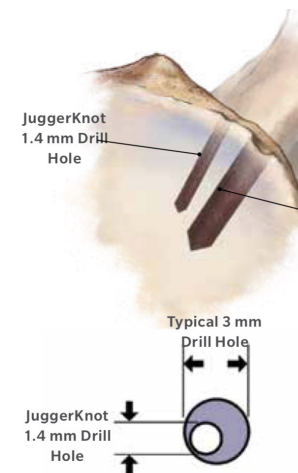
Study objectives

- Primary: To evaluate the success of arthroscopic all-suture anchor stabilization for recurrent shoulder dislocation
- Secondary: To determine if a difference in failure rate exists between Juggerknot (Biomet, Warsaw, IN) and FiberTak (Arthrex, Naples, FL) for arthroscopic anterior stabilization
- Hypothesis: There will be successful outcomes and low recurrence after arthroscopic repair for recurrent shoulder dislocation using either type of suture anchor



Advantages of All-suture vs Screw anchor

- Smaller drill guide is less invasive to surrounding tissue
- Easier to pass through a curved guide to obtain the correct angle into the glenoid
- The volume of bone that is removed with a 3.0 mm drill is equivalent to four 1.4 mm drill holes (1)
 - $V = \pi r^2 h$ confirms statement
- Smaller anchor diameter allows multiple anchors to be placed
- Reduces likelihood of intersecting anchor tunnels when placing multiple anchors
- Soft anchor deployment with no rigid component
- Eliminates the possibility of rigid material loose bodies in joint
- Facilitates revision surgery



Biomechanical differences between screw anchor and all-suture anchor

- Mazzocca et al. compared the conventional screw anchor to the JuggerKnot all-suture anchor biomechanically using human cadaver glenoids simulating tears of the anterior-inferior and posterior-inferior labrum.
- Although similar ultimate failure loads were demonstrated (JuggerKnot 146 N and the conventional anchor 172 N), the solid anchor required significantly higher loads to achieve 2 mm of labral displacement (JuggerKnot 39.2 N and the conventional anchor 84.1 N; $P < .001$). (2)



Methods

- 26 patients (11 female, 15 male)
- 11 patients in Juggerknot group and 15 in Fibertak group
- Average age was 30 yrs old \pm 15
- Average follow up was 26 months \pm 3



Methods

- Inclusion criteria:
 - Must have had recurrent shoulder instability prior to surgery
- Exclusion criteria:
 - Excluded if they had prior shoulder surgery or glenoid bone loss greater than 20%
- Patients were evaluated post-operatively for UCLA shoulder, Rowe instability, and Constant-Murley scores

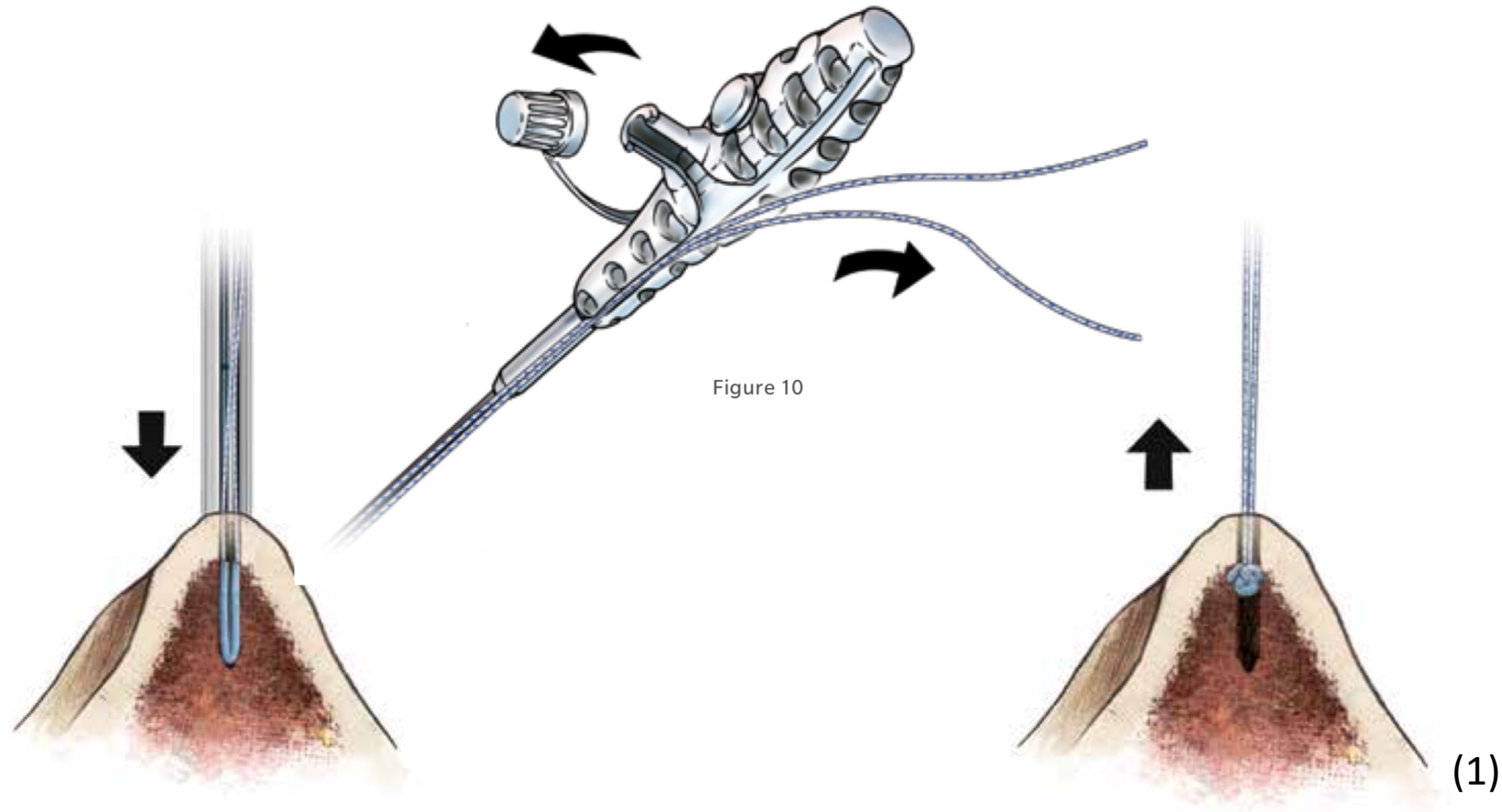


Methods

- Chart review of Bankart repairs performed by single surgeon using CPT code 29806 (arthroscopic shoulder capsulorrhaphy)
- From Sept 2014 to Aug 2015, Juggerknot (Biomet, Warsaw, IN) all-suture anchors were used
- From Oct 2015 to April 2017, Fibertak (Arthrex, Naples, FL) all-suture anchors were used
- All subjects had anterior capsulorrhaphy using a minimum of 3 all-suture anchors
- No literature exists that compares outcomes of these two brands of knotless sutures



Anchor insertion and deployment



Comparison of anchors studied

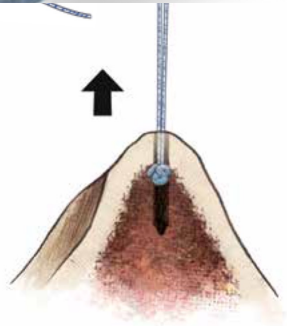
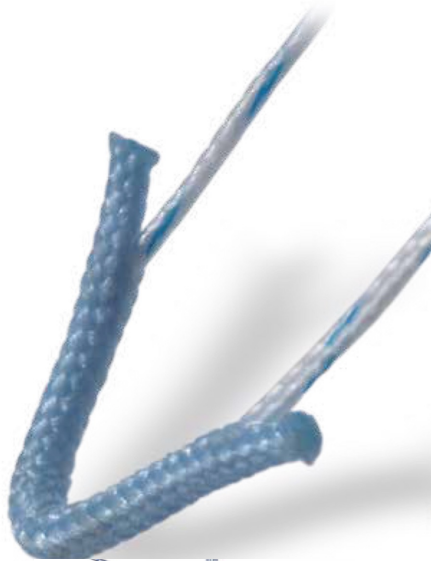
Juggerknot (Biomet)

Material: #5 polyester sleeve, #1 Maxbraid suture

Drill hole size: 1.4 mm

Pullout strength: 54 lbs

Deployed-state shape: cloverleaf



(1)

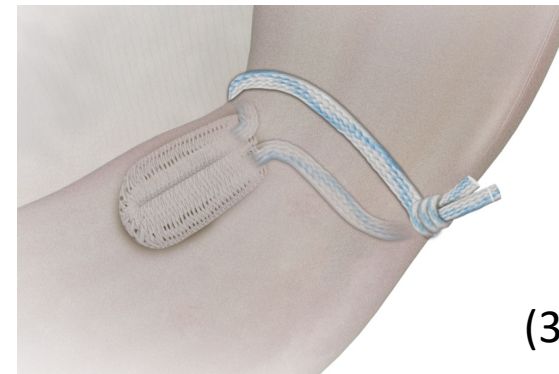
FiberTak (Arthrex)

Material: High strength polyethylene

Drill hole size: 1.6 mm

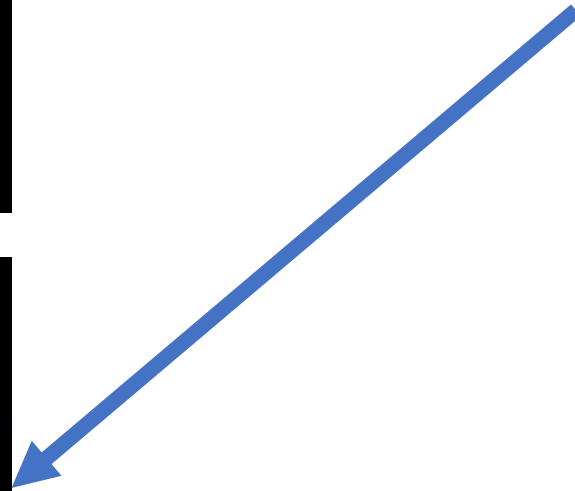
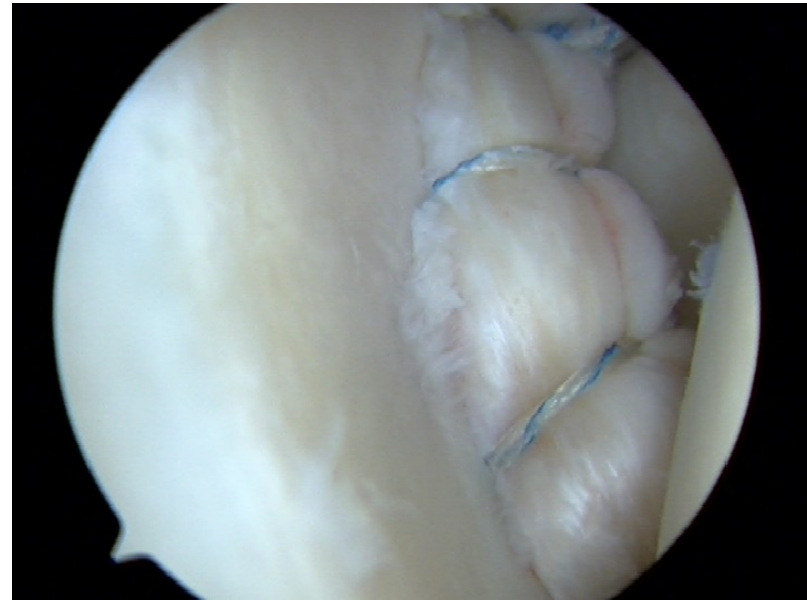
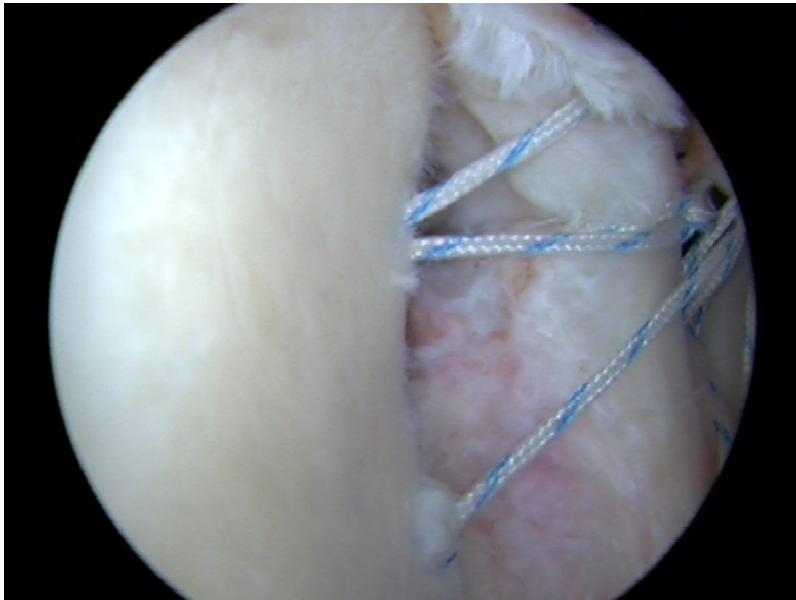
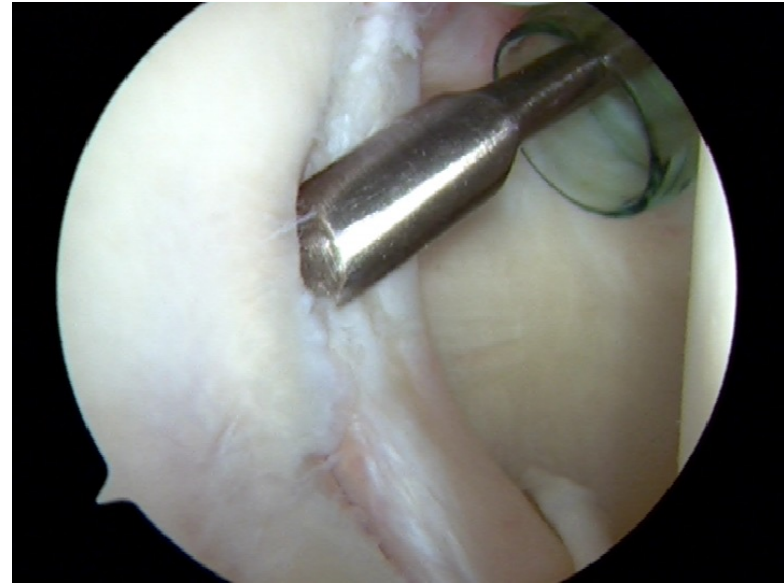
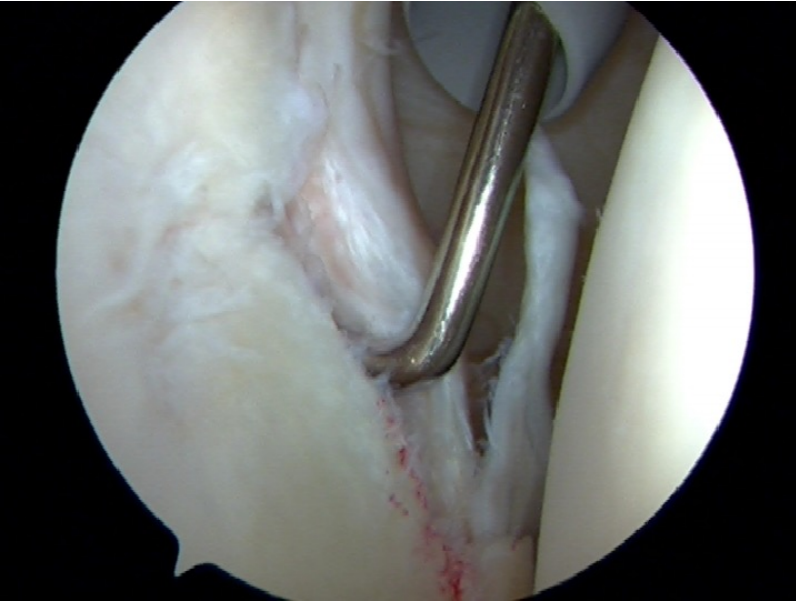
Pullout strength: 48 lbs

Deployed-state shape: oval

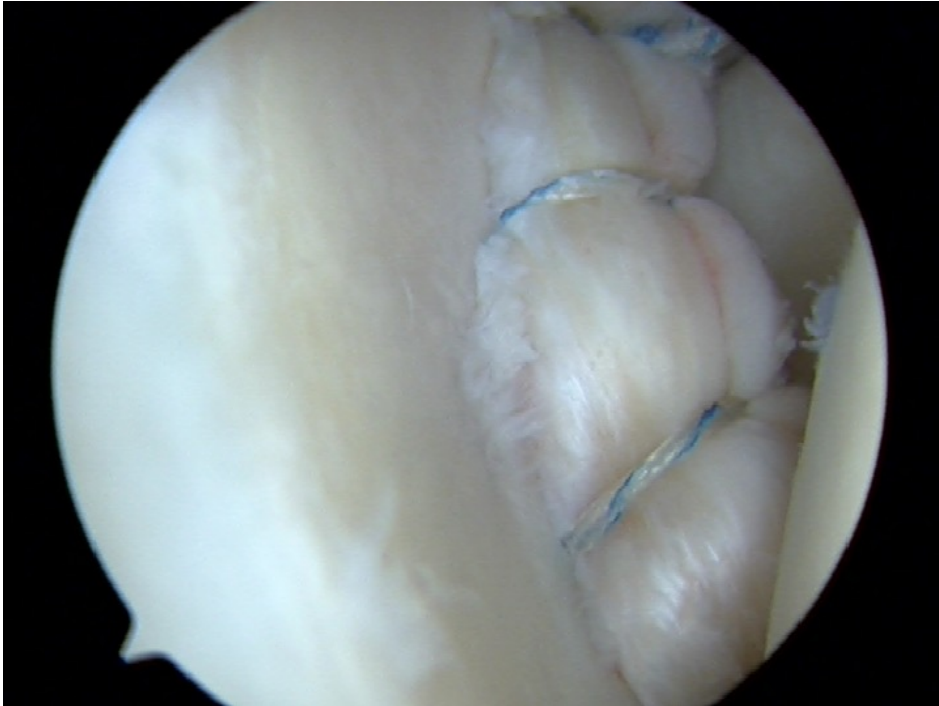


(3)

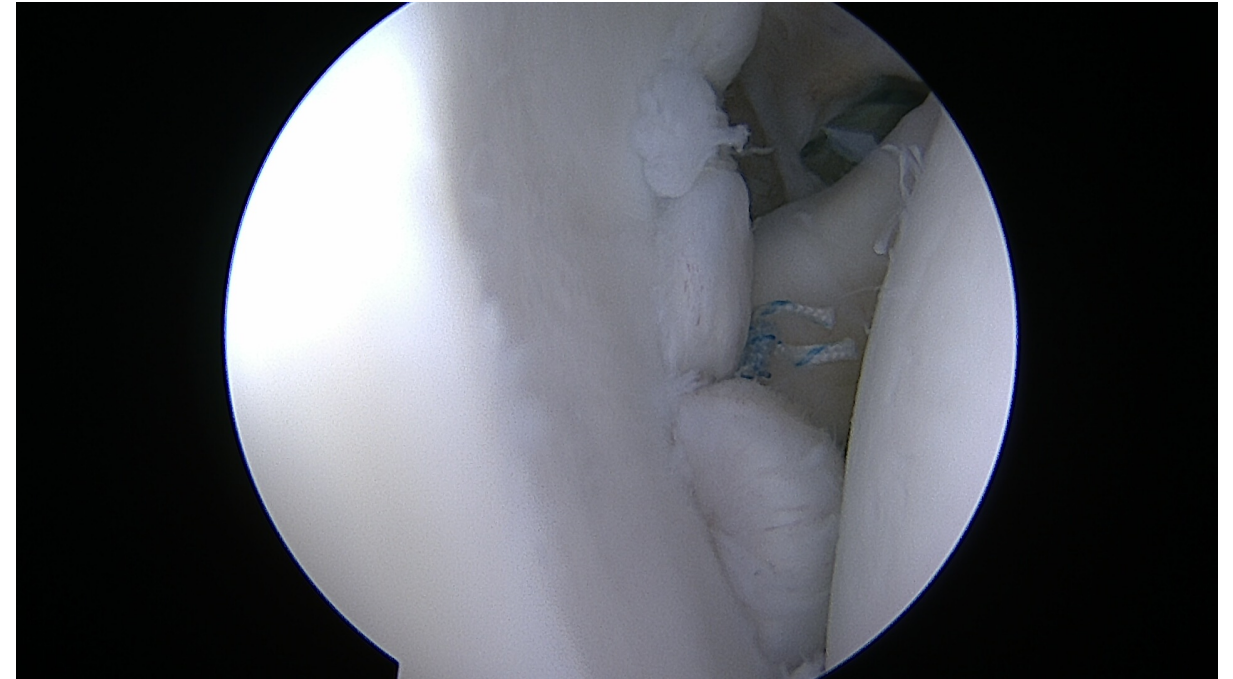
Surgical Technique



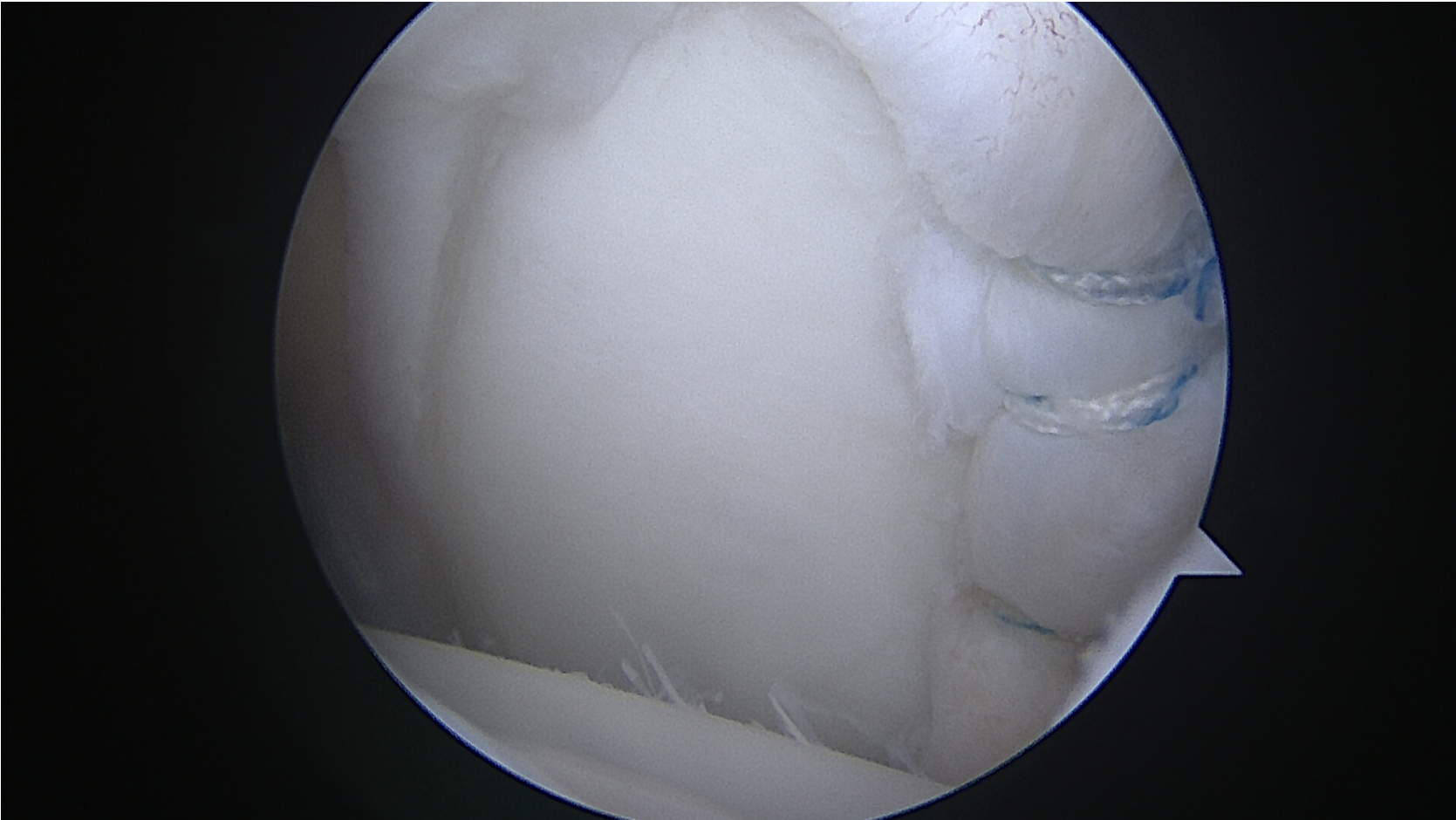
Juggerknot



Fibertak



View from Antero-superior portal



Rehabilitation protocol

- All patients underwent the same rehabilitation protocol which included:
 - Postoperative super sling placement.
 - Passive ROM with PT first 6 weeks
 - 6 weeks – 12 weeks – Active ROM
 - Full clearance for sports by 4 months



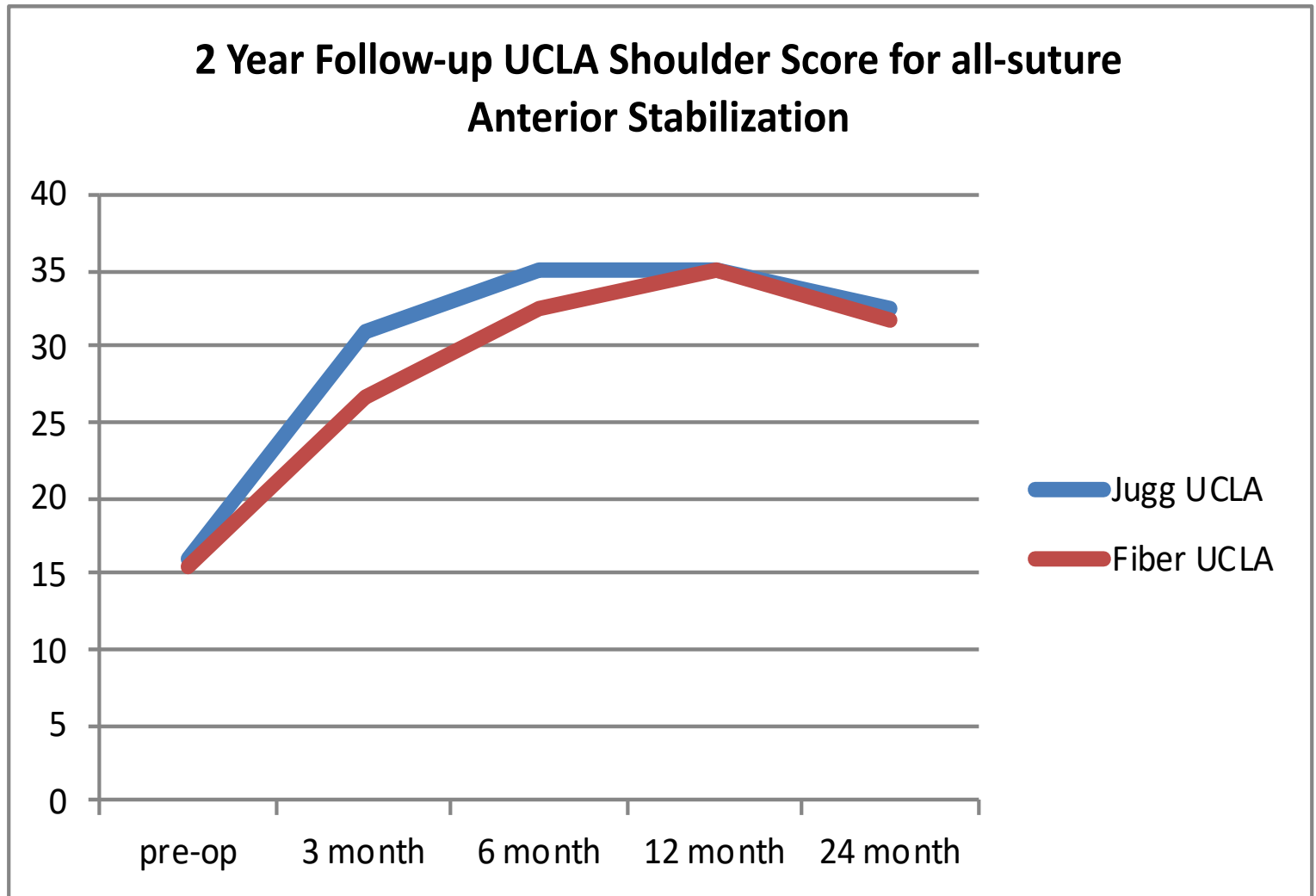
Re-dislocations

- 2 traumatic re-dislocations after stabilization (7.7%)
- No difference in dislocation rate (1 in each group (p=.76))
- 1 Re-dislocation from contact football treated successfully with non-operative management
- 1 Re-dislocation from being ejected from ATV (6 weeks post-op) treated successfully with surgery



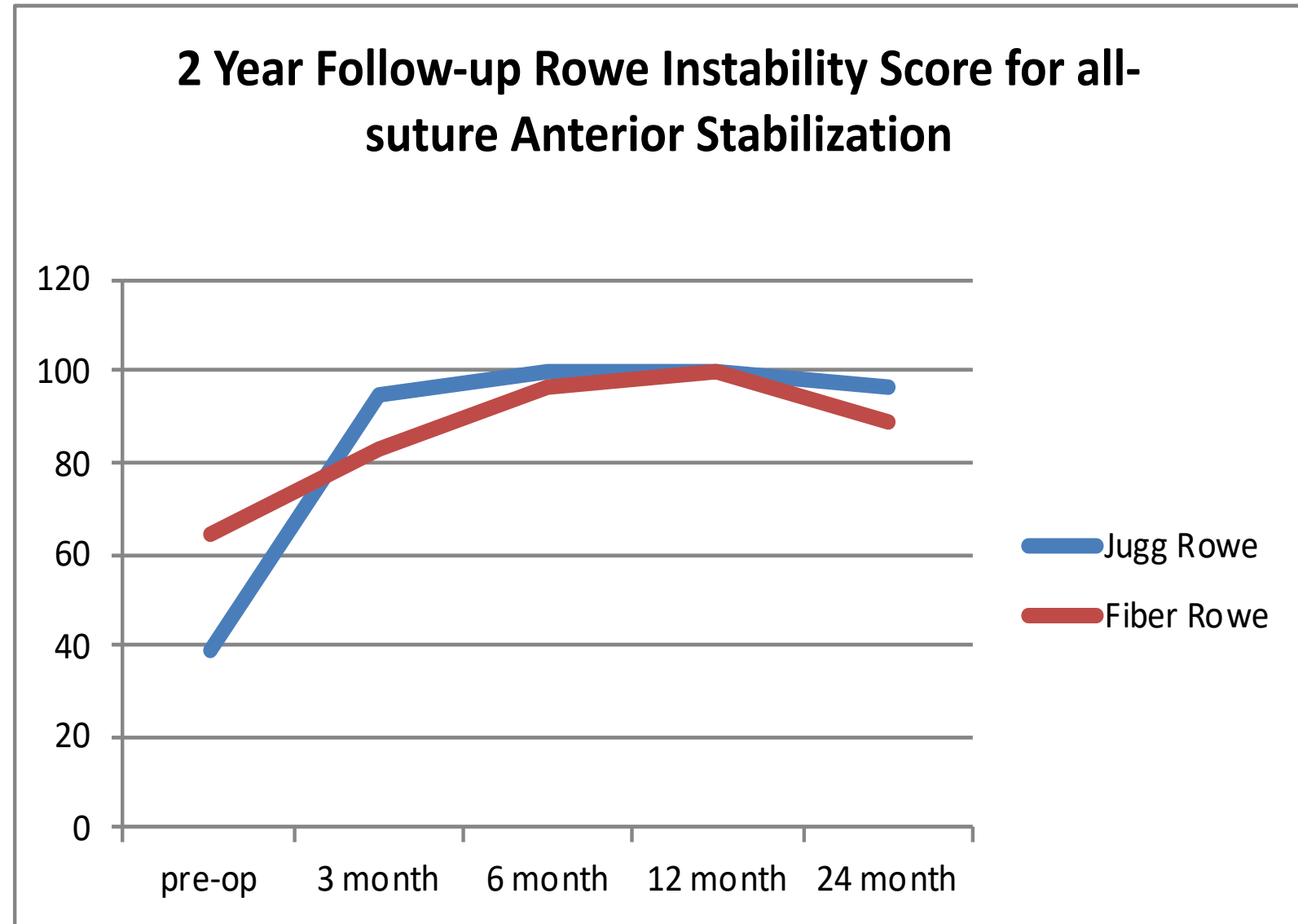
Results

- UCLA Shoulder Score
- improved from 15.9 ± 4.3 to 32.1 ± 5.0 ($p < .01$)
- No statistically significant difference at final follow-up between the Juggerknot and Fibertak group with respect to UCLA score ($p = .22$)



Results

- Rowe Instability Score
 - Rowe instability scores improved from 52.4 ± 27.6 to 92.0 ± 18.43 ($p < .01$)
 - No significant difference at final follow-up between the Juggerknot and Fibertak group with respect to Rowe score ($p = .31$)



Results

- Constant-Murley Score
 - Constant score improved from 52.3 ± 13.5 to 89.2 ± 17.47 ($p < .01$)
 - No statistically significant difference in Constant score between Juggerknot and Fibertak group ($p = .22$)



Conclusion

- Recurrent anterior instability treated with arthroscopic all-suture stabilization has a high success rate at 2-year follow-up with low recurrence.
- Both the Juggerknot and Fibertak all-soft-suture anchor stabilization demonstrate successful outcomes.



References

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2. Mazzocca A.D., Chowaniec D., Cote M.P., et al: Biomechanical evaluation of classic solid and novel all-soft suture anchors for glenoid labral repair. *Arthroscopy* 2012; 28: pp. 642-648
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