

A Diagnostic Subacromial Injection of Local Anesthetic Significantly Improves Efficacy of Arthroscopic Subacromial Decompression

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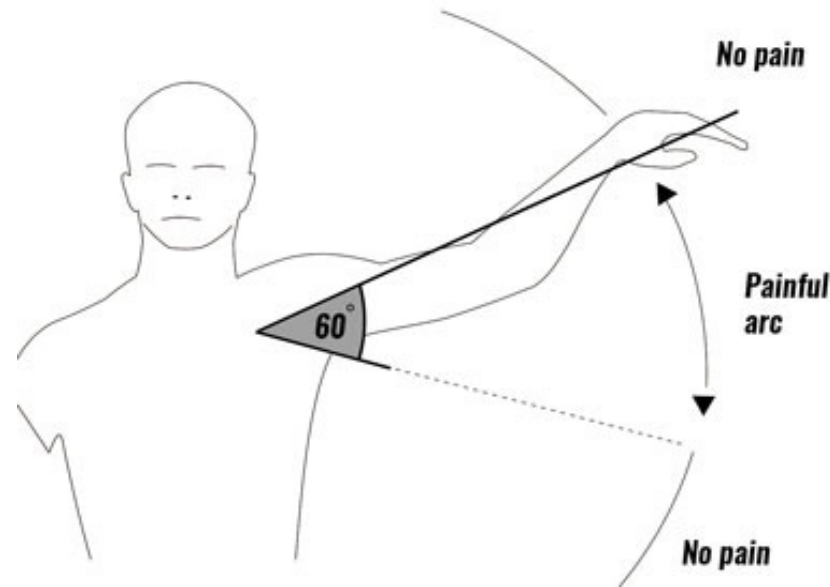
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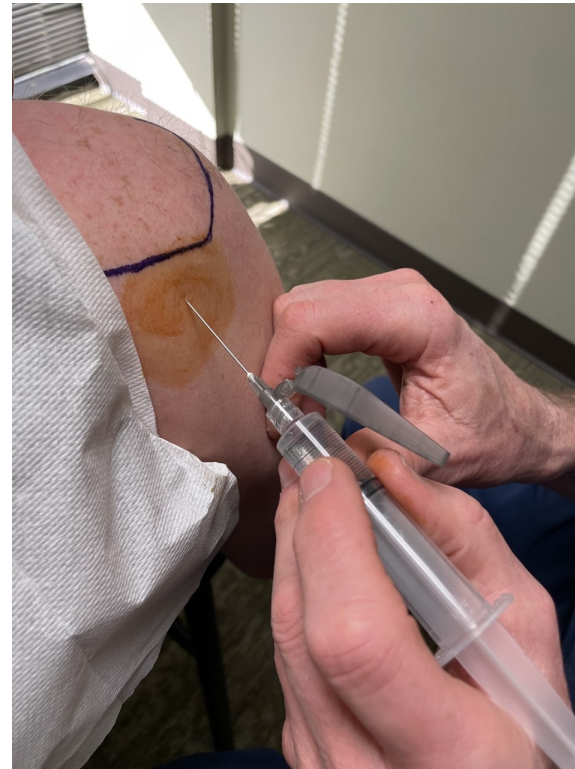
Introduction

- Patients with subacromial impingement have difficulties with activities of daily living, particularly with overhead work and often have difficulty sleeping on their injured shoulder. Prior studies have demonstrated that arthroscopic decompression of patients with shoulder pain does not provide substantial improvement.



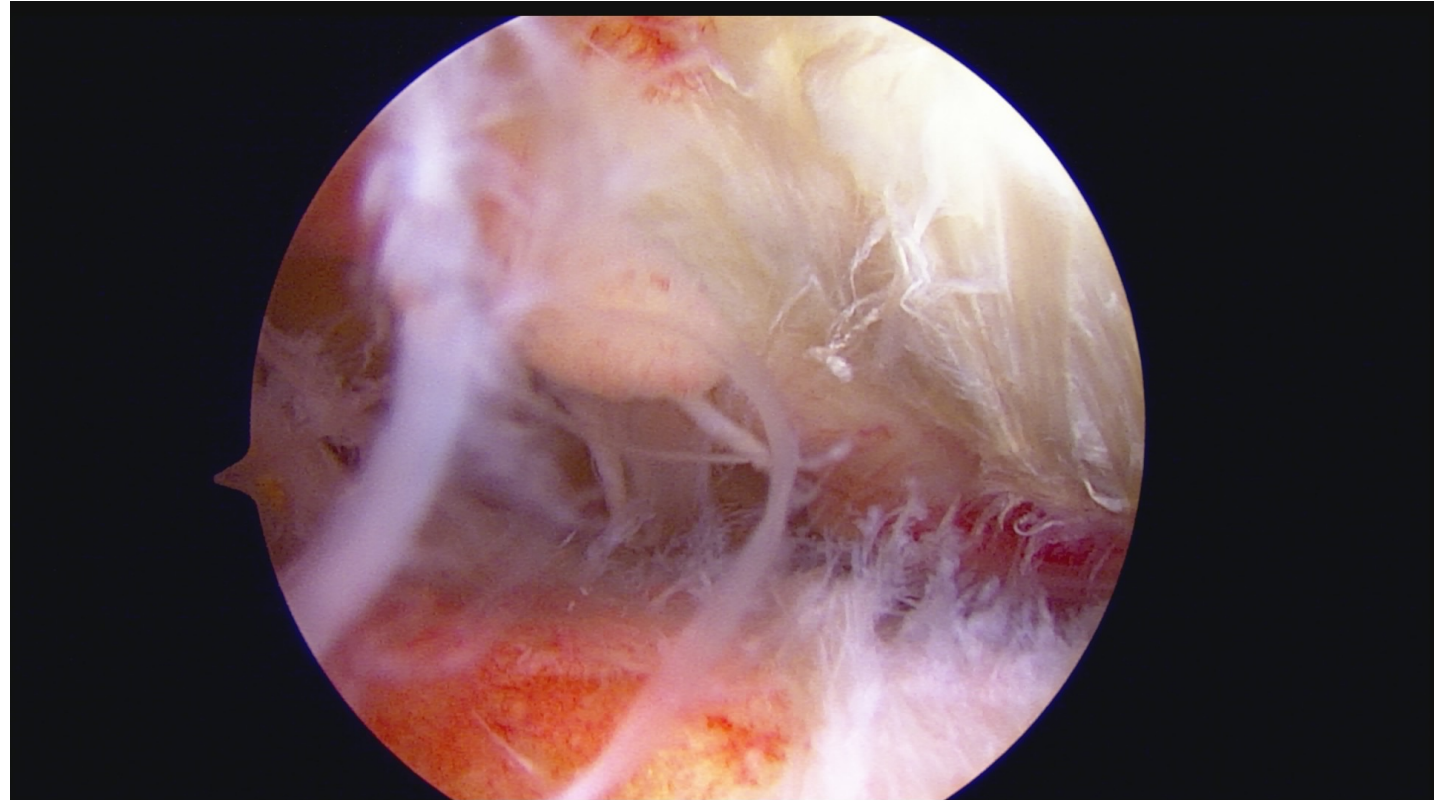
Purpose/Hypothesis:

- To determine if the results of arthroscopic shoulder decompression can be improved by refining patient selection for surgery as those with at least 50% temporary improvement from a diagnostic injection of local anesthetic into the subacromial space.
- Patients with workers compensation injuries with shoulder impingement were selected to undergo surgical care or nonoperative care based upon their response to a subacromial injection of local anesthetic.



Materials and Methods

- Patient population
 - Patients presented with impingement syndrome with intact rotator cuff on MRI.
 - All patients had sustained work related injury and had workers compensation insurance
- All patients that underwent local anesthetic injection into the subacromial space prior to arthroscopic subacromial decompression surgery or to continued nonoperative care
- PROMs were collected by online surveys at 5 times periods (preop, 3 months, 6 months, 1 year and 2 years)



Study Inclusion Criteria

- **Inclusion criteria:**
 - Clinical exam findings of:
 - Downward slope or curved acromion
 - Positive pain with internal rotation and/or impingement sign
 - Anterolateral shoulder pain
 - Subacromial decompression
 - 50% or better improvement from subacromial lidocaine injection
- **Exclusion criteria:**
 - Clinical exam findings of:
 - Flat acromion
 - Cervical symptoms
 - Scapular pain
 - Diffuse pain
 - Upper extremity numbness or more radiating pain distally
 - Any patient with the following concurrent surgery:
 - Distal clavicle resection
 - Rotator cuff repair
 - Labral repair
 - Lysis of adhesion/capsular release
 - Subsequent operation

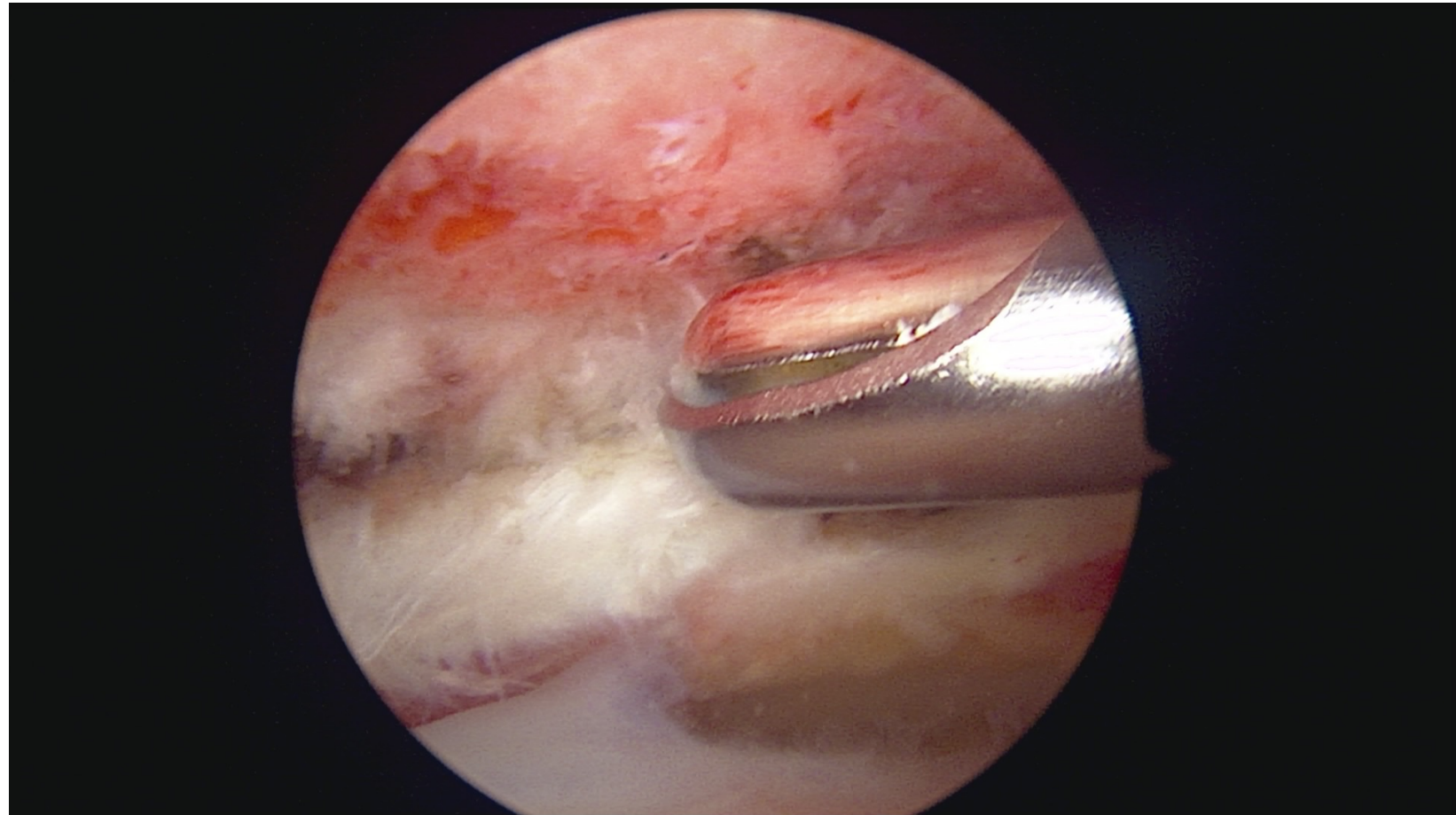
Materials and Methods

- Patients presented with subacromial impingement defined by:
 - Loss of shoulder motion- especially in flexion and internal rotation
 - Rotator cuff weakness
 - Pain sleeping on the affected shoulder
 - MRI findings of tendinosis with no full thickness rotator cuff tear
- Data collected:
 - Demographic information
 - Sex, hand dominance, and age
 - Preoperative and postoperative PROM scores
 - VAS
 - ASES Shoulder Function
 - ASES Shoulder Index
 - SANE



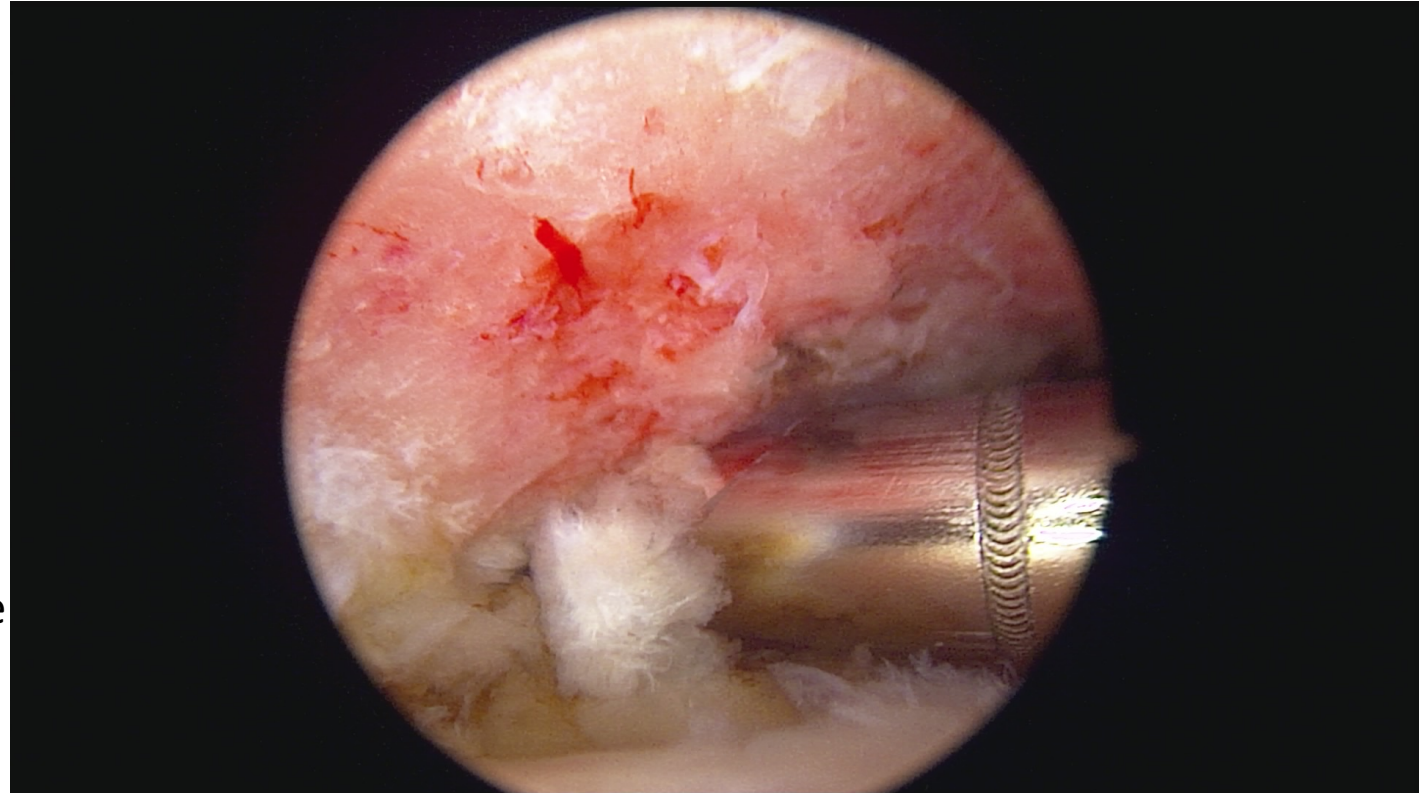
Results

- Study group:
Evaluated with
PROMs preop and
at 1 year followup
- Control group:
Evaluated with
PROMs pre-
injection and at 6
month followup
- Compared results
following each
group at end point
followup



Results

- 38 patients underwent shoulder decompression procedures and 92% were followed for one year or greater. Outcomes scores with one year or greater followup were included.
- In the operative group:
 - VAS scores improved from 6.0 to 3.3.
 - ASES Index score improved from 39.8 to 67.8.
 - ASES Function improved from 12.11 to 20.3.
 - SANE improved from 34.9 to 63.7.
- In the control group:
 - There were no significant improvements in any of the PROMs.
- All measures were noted to have had a statistically significant improvement which exceeded the MCID.



VAS scores

Surgical group improved from 6.0 to 3.3. $p < .05$

NS diff in nonop group

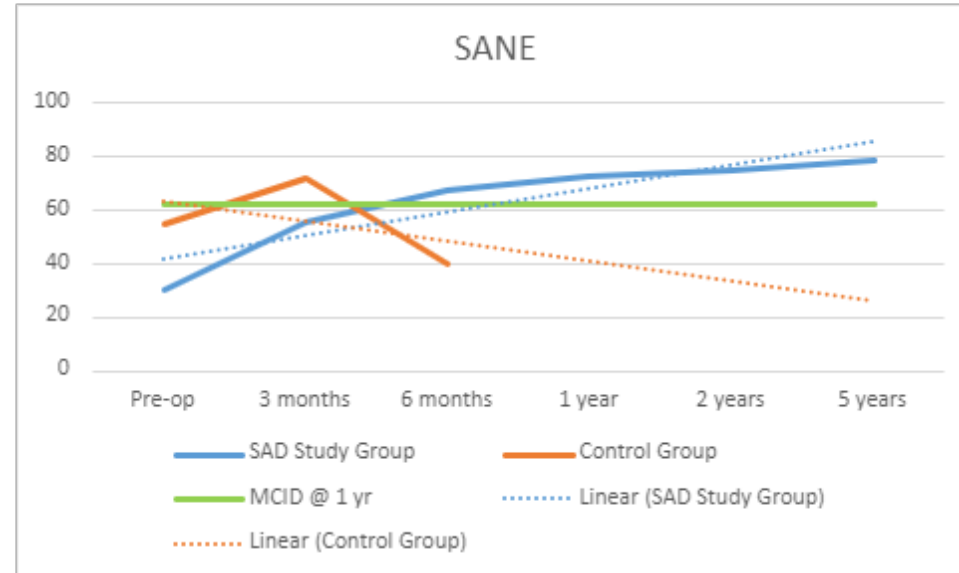
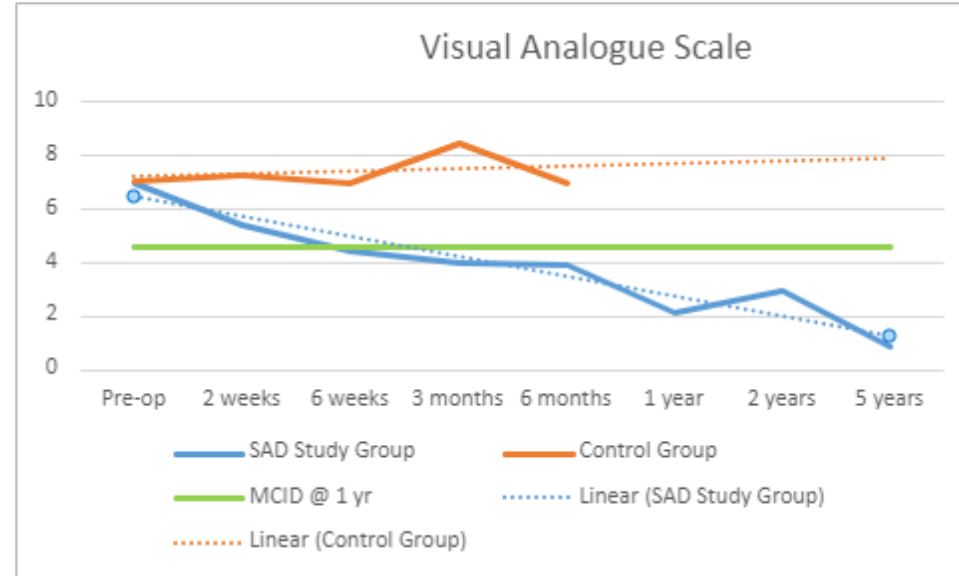
MCID 1.37

SANE

Surgical group improved from 34.9 to 63.7. $p < .05$

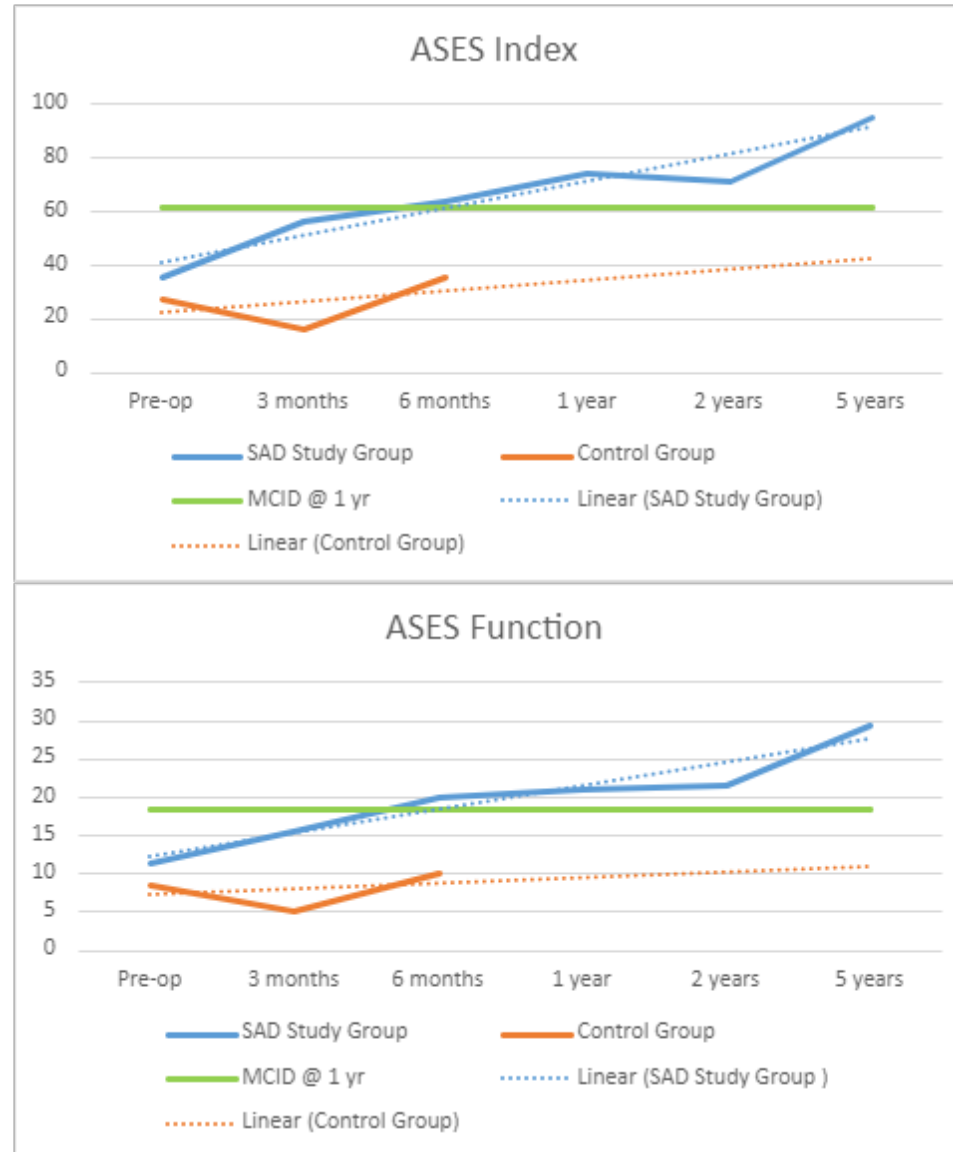
NS diff in nonop group

MCID 15.5



ASES Score

- ASES Index score
- Surgical group improved from 39.8 to 67.8. $p < .05$
- ASES Function
- Surgical group improved from 12.11 to 20.3. $p < .05$
- No significant change for nonoperative group in either
- MCID 6.2-17



Discussion

- Hawkins et al discussed in 2004 ASES Presentation 88% improved efficacy of subacromial decompression with positive anesthetic injection testing relative to 63% at three months and 60% at twelve months with negative anesthetic injection testing.
- Similar study was presented but not published in treating a Worker's Compensation population

Conclusion

Shoulder pain can present with many causes including cervical pain or scapular symptoms with radiation of symptoms from adjacent areas which may be confused with subacromial impingement.

The performance of a diagnostic subacromial injection of local anesthetic significantly improves outcomes following an arthroscopic subacromial decompression in patients with intact rotator cuff tendons by improving patient selection for surgery. With this diagnostic tool helping to assess patients who should undergo operative treatment, patients can achieve a meaningful clinical important improvement following surgery.

These findings suggest that there are a subset of patients that can experience good results following arthroscopic subacromial decompression.

This finding is noted in a workers compensation population.

References

- Hawkins, Richard J et al. Can the impingement test predict outcome after arthroscopic subacromial decompression? *Journal of Shoulder and Elbow Surgery*, Volume 13, Issue 2, 150 – 153.