



Andrew Ashbaugh, DO, MPH; Jon O. Neher, MD
University of Washington
at Valley Family Medicine
Residency, Renton

Sarah Safranek, MLIS
University of Washington
Health Sciences Library,
Seattle

DEPUTY EDITOR
Gary Kelsberg, MD
University of Washington
at Valley Family Medicine
Residency, Renton

Q / Is arthroscopic subacromial decompression effective for shoulder impingement?

EVIDENCE-BASED ANSWER

A / IT'S IMPOSSIBLE TO SAY FOR CERTAIN in the absence of randomized controlled trials. However, in patients whose impingement symptoms don't improve after 3 to 6 months, arthroscopic subacromial decompression (ASD) is associated with modest (about 10%) long-

term improvement in pain and function compared with open acromioplasty or baseline (strength of recommendation [SOR]: **B**, cohort studies).

Patients older than 57 years may do better with surgery than physical therapy (SOR: **B**, single cohort study).

Evidence summary

Six cohort studies found that patients who underwent ASD for subacromial impingement had improved pain and function scores at 4.5 to 12 years after surgery (TABLE¹⁻⁷). Weaknesses of the overall data set include use of heterogeneous outcome measures across studies, lack of sham surgical controls, and lack of blinding.

ASD improves pain and function slightly more than other treatments

One prospective and one retrospective cohort trial compared ASD with another intervention. In the prospective trial, ASD was associated with a 10% better combined pain and function score than open acromioplasty at 12 years.¹ In the retrospective trial, ASD was also associated with a 10% better combined pain and function score than prolonged physical therapy in patients older than 57 years (the median age of study participants) but not patients younger than 57 years.²

Two other studies found improvements in pain and function

Two other prospective cohort studies didn't use a comparison group but followed changes in standardized shoulder pain and

function scores for 5 to 6 years after ASD. In one study, pain decreased 6 points on a 10-point visual analog scale by 6 months postop ($P < .001$).³ In both studies, a 9% to 10% improvement in function was seen between 6 months and 5 to 6 years after surgery.^{3,4}

A third cohort study that asked patients about overall pain and satisfaction 8 to 11 years after ASD found that most were "very" or "quite" satisfied and half were pain-free.^{5,6}

Rotator cuff tears found less likely with ASD

An anatomic study obtained ultrasounds of patients 13 to 17 years after ASD and compared the findings to rotator cuff ultrasounds of the general population.⁷ Patients who had ASD were 22% less likely to demonstrate rotator cuff tears at the end of the study (no statistics were reported to measure significance).

Recommendations

Guidelines from the Washington State Department of Labor and Industry state that patients who should undergo isolated subacromial decompression (with or without acromio-

TABLE

Long-term outcomes after arthroscopic subacromial decompression

Study category	Study structure	Inclusion criteria	Follow-up	Findings
Active comparator studies	Prospective cohort, N=50 (ages 33-68 yr); ASD vs open acromioplasty ¹	Subacromial impingement with lack of improvement nonoperatively for >6 mo	12 yr	UCLA scores:* ASD outperforms acromioplasty by 4.3 points ($P=.02$)
	Retrospective cohort, N=307 (ages 42-63 yr); ASD vs 23 physical therapy sessions followed by home exercises ²	Isolated subacromial impingement with pain for 3-6 mo	55 mo	<57 yr MSQ: [†] 83 vs 84 for ASD and PT, respectively ($P=.37$). >57 yr MSQ: 81 vs 89 for ASD and PT, respectively ($P<.05$).
Baseline comparator studies	Prospective cohort, N=50 (ages 27-72 yr); outcome defined as change at 6 mo and 6 yr postop ³	Subacromial pain for >6 mo, no improvement nonoperatively	6 yr	DASH: [‡] 42 preop, 18 at 6 mo, 9 at 6 yr ($P=.02$ for 6 mo vs 6 yr) VAS: [§] 7 preop, 1 at 6 mo and 6 yr postop ($P<.001$ preop vs postop)
	Prospective cohort, N=52 (ages 23-73 yr); outcome defined as change from 6 mo postop baseline ⁴	Stage II subacromial impingement without a full thickness rotator cuff tear (duration not specified)	5 yr	Constant-Murley scores: [¶] 75 at 6 mo and 85 at 5 yr ($P<.001$)
Survey data	Survey, N=95 (ages 26-69 yr); outcome defined as pain and patient satisfaction at follow-up ^{5,6}	Stage II-III subacromial impingement (duration not specified)	8-11 yr	84% of patients "very" or "quite" satisfied with shoulder function; 50% pain-free
Anatomic study/historical control	Prospective cohort, N=70 (ages 23-65 yr); outcome defined as ultrasound evaluation of rotator cuff integrity ⁷	Subacromial impingement with pain for >6 mo	13-17 yr	18% of patients had tears after ASD vs 40% of age-matched general population (no comparison statistic given)

ASD, arthroscopic subacromial decompression; DASH, Disability of the Arm, Shoulder and Hand questionnaire; MSQ, Munich Shoulder Questionnaire; PT, physical therapy; VAS, Visual Analog Scale for pain.

* UCLA Shoulder Scale Score is a combined measure of pain, function, mobility, strength, and patient satisfaction that ranges from 0 (poor) to 35 (excellent).

† MSQ measures a combination of objective and subjective functional outcomes. Score range is 0 to 100. Lower scores indicate higher function.

‡ DASH measures function. Score range is 0 to 100. Lower score indicates better function. Change >10 points is considered "clinically important."

§ VAS score range is 0 to 10.

¶ The Constant-Murley Score is a 0 to 100-point scale of function standardized for age and gender. Higher score indicates higher function.

plasty) need to have documented subacromial impingement syndrome with magnetic resonance imaging evidence of rotator cuff tendinopathy or tear, have undergone 12 weeks of conservative therapy (including at least active assisted range of motion and home-based

exercises), and have had a subacromial injection with a local anesthetic that has provided documented relief of pain.⁸

No current guidelines are available from national or international orthopedic or sports medicine organizations.

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