

Editorial Commentary: Arthroscopic Treatment Should No Longer Be Offered to People With Subacromial Impingement



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Abstract: Arthroscopic treatment should no longer be offered to people with subacromial impingement. In many people, subacromial impingement (or subacromial pain syndrome) is self-limiting and may not require any specific treatment. This is evident by the fact that almost 50% of people with new-onset shoulder pain consult their primary care doctor only once. The best-available evidence from randomized controlled trials indicates that glucocorticoid injection provides rapid, modest, short-term pain relief. Exercise therapy has also been found to provide no added benefit over glucocorticoid injection. Subacromial decompression (bursectomy and acromioplasty) for subacromial pain syndrome provides no important benefit on pain, function, or health-related quality of life. Acromioplasty does not improve the outcomes of rotator cuff repair.

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In many people, subacromial impingement (or subacromial pain syndrome) is self-limiting and may not require any specific treatment beyond reassurance about its favorable prognosis and self-management advice. This is evident by the fact that almost 50% of people with new-onset shoulder pain consult their primary care doctor only once, and for the majority care comprises a wait-and-see policy or a nonsteroidal anti-inflammatory prescription.¹

The best-available evidence from randomized controlled trials indicates that glucocorticoid injection provides rapid, modest, short-term pain relief,² a highly appreciated benefit to patients when their pain is at its worst.³ Despite hundreds of trials, the efficacy of exercise therapies and its optimum components is still highly uncertain.⁴ Most recent trials have found that progressive exercise programs are not superior to a single consultation that provides best practice advice and instruction in self-guided home exercise alone,⁵⁻⁷

whereas an additional trial found benefits at 6 months but not obvious at 6 weeks or a year.⁸ Exercise therapy has also been found to provide no added benefit over glucocorticoid injection alone.⁹

A 2019 *BMJ* clinical practice guideline made a strong recommendation against subacromial decompression (bursectomy and acromioplasty) for subacromial pain syndrome based upon high-certainty evidence that it provides no important benefit on pain, function, or health-related quality of life over either placebo (2 trials, up to 285 participants), as well as low-certainty evidence of no important benefits for these outcomes over exercise therapy.¹⁰ Significantly, the panel, which included patients as well as shoulder surgeons, concluded that almost all well-informed patients would decline surgery. There is also moderate-certainty evidence based on 5 trials that acromioplasty does not improve the outcomes of rotator cuff repair.¹¹ Taken together, these data appear to disprove the mechanistic theoretical framework that postulates that rotator cuff tendons degenerate due to impingement and that this process can be halted by making more room for the tendons.¹²

In their article, “Physical Therapy Combined With Subacromial Cortisone Injection Is a First-Line Treatment Whereas Acromioplasty With Physical Therapy Is Best if Nonoperative Interventions Fail for the Management of Subacromial Impingement: A Systematic

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The authors report no conflicts of interest in the authorship and publication of this article. Full ICMJE author disclosure forms are available for this article online, as [supplementary material](#).

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0749-8063/22373/\$36.00

<https://doi.org/10.1016/j.arthro.2022.03.017>

Review and Network Meta-analysis,”¹³ Lavoie-Gagne, Farah, Lu, Mehta, Parvaresh, and Forsythe report results that are at odds with what is already known on this topic. While we applaud their efforts, there are numerous reporting and methodologic limitations that mean it is not possible to verify the validity of their findings. One trial, included in a Cochrane review of subacromial decompression, was missing from the current review,¹⁴ whereas a further 2 studies were excluded due an unexplained limitation placed upon inclusion by year of publication,^{15,16} and/or not being published in the English language.¹⁵ A 2020 trial that fulfills inclusion criteria and, which tested the precise algorithm that Lavoie-Gagne et al. are suggesting we should follow was also omitted. Cederqvist et al.¹⁷ treated all potential participants with 3 months of physical therapy and only those who didn’t improve were randomized. Even in this select population, there was no identified benefit of subacromial decompression over nonsurgical treatment.

Transparent details about the trials including their design (e.g., randomized, quasi-randomized); number, size, and description of each treatment arm; period of follow-up and time points included in the analysis; judgments about potential risk of bias and their rationale; and outcome data by trial were also not reported. For example, it is unclear how many included trials were truly randomized; at least one study assigned participants according to their treatment preferences.¹⁸ Categories of risk of bias also were not concordant with the Cochrane tool.

Most importantly, however, many included studies did not seem to provide relevant data for this review. For example, one trial assessed the value of physical therapy for people who had difficulty returning to usual activities after decompression,¹⁹ 7 compared one form of exercise therapy with another,²⁰⁻²⁶ 2 compared open with arthroscopic decompression,^{27,28} 2 compared glucocorticoid injection with or without ultrasound guidance,^{29,30} 1 compared 1 to 2 glucocorticoid injections,³¹ and 1 compared glucocorticoid injection with or without lidocaine.³²

Based on the forest plots provided and comparisons within the studies, it appears that only single unidentified arms of these studies were pooled, violating the principle inherent in network meta-analyses of maintaining within study randomization. It is highly likely that the transitivity assumption was violated for numerous reasons, including the differing time points of evaluation across the individual studies. It was also unclear why the multidimensional instruments of function (American Shoulder and Elbow Surgeons Society Shoulder Score, Simple Shoulder Test, Oxford Shoulder Score, Shoulder Pain and Disability Index, and the University of California—Los Angeles Shoulder

Rating Scale) were not pooled. Minimally important differences are known to vary depending on the context, including the populations and treatments being compared. As the review did not include a synthesis of the potential harms of therapy or weigh these against the potential to benefit, it also makes it difficult to contextualize the clinical importance of any observed differences in effects between treatments.

We recommend that systematic reviewers and particularly those planning to perform network meta-analyses follow the guidance recommended by Cochrane.³³ We also would not attempt network meta-analyses without a biostatistician with expertise in these analyses. For a start, the search strategy could be vastly improved by limiting the search with the use of “AND” as well as “OR” terms. We also suggest limiting inclusion to randomized controlled trials using a validated search strategy for identifying them such as the one recommended by Cochrane,³⁴ and validated search strategies for identifying subacromial pain syndrome also exist.^{4,11} At a minimum, there should be a description of the characteristics of included studies and their individual potential for bias, as well as a list of excluded trials with reasons for exclusion. Readers also should be able to understand which studies contribute to each comparison, and an assessment of the certainty of evidence as per the GRADE (Grading of Recommendations Assessment, Development, and Evaluation) approach would inform the reader about how much they can trust in each effect.³⁵

So how should we proceed from here? We owe it to our patients to change our practice when there is compelling evidence that such a change will improve their outcomes. As the weight of the evidence has now shifted toward an understanding that surgery offers no discernible benefits to people with impingement symptoms but may result in harm, it is disheartening that some guidelines continue to recommend surgery.³⁶ The reasons are likely multifactorial, but some important reasons likely include confirmation bias, or the tendency to be more accepting of evidence that confirms our existing beliefs while finding flaws in evidence that is contrary to them; a lack of science literacy that is essential for being able to discern rigorous from untrustworthy evidence; miracle thinking that results in overestimating benefits and underestimate harms; and the perverse incentives that often exist that favor active treatment.³⁷ Rather than resorting to futile surgery as a last resort for people with persistent symptoms, it would be good to remember that “to do nothing is also a good remedy” (quote attributed to Hippocrates). For those who say that surgery is not futile in their subgroup of patients, the onus is on them to establish the truth, although finding these subgroups

has proven elusive for other types of arthroscopic surgery.³⁸

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