

patients, 90 (64%) were evaluated for a mean period of 12 years after being randomized. In line with the results obtained in the short-term assessment, the final long-term follow-up revealed no statistically significant differences in either pain or any functional outcome measures. Therefore, it is important to emphasize that multiple, high-quality randomized controlled trials showed that SAD failed to provide improvements in pain, function, or quality of life compared with a placebo surgical procedure or other conservative treatments for patients with SI. It is time to ask ourselves why and for what we shoulder surgeons keep doing SAD when the benefits of this procedure still need to be proven.

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Author Reply to “Regarding ‘Subacromial Decompression in Patients With Shoulder Impingement With an Intact Rotator Cuff: An Expert Consensus Statement Using the Modified Delphi Technique Comparing North American to European Shoulder Surgeons’”



We thank Drs. Rossi and Ranalletta¹ for their letter to the editor regarding our Delphi Consensus paper debating the merits of arthroscopic subacromial decompression (SAD) for patients with an intact rotator cuff.² As they¹ have highlighted in their letter, SAD in patients with an intact rotator cuff repair remains a hotly debated topic, and we welcome further discussion and letters to the editor from our colleagues. Apparently, strong opinions develop when there is an obvious lack of strong and reliable evidence. We³ have previously responded to the criticism by Drs. Reito and Karjalainen,⁴ who expressed concerns about potential biases and fierce resistance when “accepted treatments that stood the test of time” are challenged.⁵ Similar to Drs. Rossi and Ranalletta, Dorrestijn et al. argued that there are already enough high-quality randomized controlled published trials to conclude that there is no advantage with SAD.^{6,7} Drs. Rossi and Ranalletta¹ now refer to additional studies by Ketola et al.,⁸ Farfaras et al.,⁹ Beard et al.,¹⁰ and Paavola et al.¹¹

Of course, high-quality randomized placebo-controlled studies can change the direction of clinical practice, and we would be ignorant to continue with an outdated and previously accepted treatment when confronted by definitive evidence refuting its efficacy. Unfortunately, the studies referenced by Drs. Rossi and Ranalletta¹ do not fulfill the criteria of high quality when evaluated objectively. The placebo-controlled trial by Beard et al.¹⁰ has been criticized by several German-speaking associations¹² because of its multiple biases, as we have also highlighted in our previous

Level V guideline.⁵ The article by Paavola et al.,¹¹ which was published in 2018, was a position paper, but the authors later reported the 5-year results.¹³ Of the initial 210 patients, 175 (83%) completed the 5-year follow-up, and of those only 55 patients were included for analysis in the diagnostic arthroscopy group and 53 were included in the SAD group.¹³ This sums up to a loss to follow-up of 49% of the original sample size and 39% of patients who completed the final follow-up. According to the Cochrane Handbook, attrition bias due to missing outcome data is associated with a high risk of bias.¹⁴

Paavola et al.¹³ also used an intention-to-treat protocol, which again is associated with high risk of bias. In addition, 15 of the patients who were assigned to the exercise group eventually underwent arthroscopic SAD, resulting in a crossover rate of 21%. These facts all strongly contribute to the conclusion that the study by Paavola et al.¹³ is of low quality. According to Cochrane, high risk of bias and low-quality sufficiently affect interpretation of results, reduce the confidence in the effect estimate, and it is likely that the true treatment effect is different.¹⁴ We therefore would argue that the study by Paavola et al.^{11,13} does not support Drs. Rossi and Ranalletta's¹ argument. Similarly, the study by Farfaras et al.⁹ also does not support Drs. Rossi and Ranalletta's comments. Farfaras et al.⁹ concluded that, after a minimum 10 years of follow-up, the surgical treatment of subacromial impingement syndrome rendered better clinical results than physical therapy alone. Finally, Ketola et al.⁸ performed a randomized controlled trial comparing SAD versus supervised exercise with a minimum follow-up of 10 years. The authors analyzed their data using an intention-to-treat protocol and did not observe significant differences between the groups. Unfortunately, this study suffers from significant bias by having only 64% of the included patients completing follow-up.⁸ As mentioned previously, attrition bias due to missing outcome data is associated with high risk of bias and substantially reduces our confidence in the reported results.¹⁴

In the absence of definitive high-quality evidence, the pooling of the opinions of experts in the field is currently the preferred alternative. Delphi provides such an instrument and is a consensus-based structured process aimed to achieve agreement for a specific topic in a given field in a scientific manner.^{15,16} In general, panel members express their own opinions, which are based on the current scientific evidence and the individual panel-members experience. As expected, consensus was only achieved in 22% of the items. However, the panel agreed that, despite the lack of quality evidence-based data, first-line treatment should always begin with physiotherapy, and a corticosteroid injection can be helpful in reducing symptoms initially. The indication for surgery is considered failure of

nonoperative treatment for a minimum of 6 months.² The panel also agreed that SAD remains a good choice for shoulder impingement if there is evidence of mechanical impingement with pain unresponsive to nonoperative measures.²

Clearly, neither the current evidence nor Delphi is able to provide a widely accepted guideline regarding how best to treat patients with impingement syndrome, and does not yet even define what constitutes optimal treatment. It is, therefore, left to the individual treating surgeon to decide the best approach for this problem, while considering the presenting characteristics of a particular patient and recognizing that their opinion is almost certainly biased.⁷ Cognitive biases are well known to influence decision-making. Recently, Janssen et al.¹⁷ reported that 50% of orthopaedic surgeons are prone to commit confirmation bias. Myside bias is another very common type of cognitive bias, and surgeons tend to prefer to process information that confirms their own previous beliefs, opinions, and attitudes.^{18,19} Rather than asking ourselves why we continue to perform SAD, should we not ask ourselves how to reduce confirmation bias to the best of our abilities, and at least attempt to provide the best-possible treatment for our patients? Admittedly, this is not always possible, and evidence-based medicine is often unable to help us. Unfortunately, at this time there is no clear-cut answer. Until then, in our opinion, surgeons should continue to critically evaluate the current literature, carefully consider the advice of experienced leaders in the field, reduce their own biases as best as possible, and always treat their own patients to the absolute best of their abilities.

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