

**Author Reply to "Consensus Statement for Shoulder Impingement: To Operate or Not?
Who to Ask for the Consensus Panel"**

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We thank Drs. Dorrestijn, Dierks, Heerspink, and Veen for their correspondence regarding our Delphi Consensus debating arthroscopic subacromial decompression (SAD) in patients with an intact rotator cuff. ¹ This is, of course, a controversial topic that has been hotly debated over the past 20 years. In our level V clinical guideline describing the indications for subacromial decompression, ² the arguments supporting or opposing SAD were summarized, and it seems that there is no sitting on the fence here: you are clearly either for or against. Our Delphi study continues with this narrative, and interestingly consensus was only reached for 16 of the 71 Likert items. ¹ With regard to surgical indications, the panel made a clear statement and agreed that operative intervention should only be performed if conservative treatment has been continued for at least 6 months, strongly recommending that decompression be considered only after nonsurgical treatment has failed.

In their letter, Dorrestijn et al. ³ have argued that this statement contradicts many randomized controlled trials (their references 3-6). Unfortunately, most of the trials cited suffer from significant bias, and their conclusions therefore must be viewed with extreme caution. Their reference 4 concluded that surgical intervention resulted in a small, statistically significant improvement in patients undergoing decompression but that further research is required to identify those patients who will benefit most from surgery. ⁴ Of the 14 included studies, all 14 had a high risk of bias for blinding and uncertain risk of being free of selective reporting. ⁴ According to the Cochrane Handbook, ⁵ high risk of bias reduces the confidence in the estimate of the effect, and, because the proportion of studies for this

meta-analysis with high risk is 100%, it substantially weakens the confidence in the results of this meta-analysis. Their reference 3⁶ has been used previously by many authors to support their view that surgical treatment should not be considered. However, this study by Beard et al.⁶ used an intention to treat protocol and 25% of the patients allocated to the placebo group underwent surgery within 12 months.⁷ The study by Beard et al.⁶ has also been criticized by multiple German-speaking associations⁸ because of its multiple biases. Finally, Lähdeoja et al.⁹ conducted a meta-analysis comparing SAD with exercise and diagnostic arthroscopy. Yet this study also does not support their argument, in that Lähdeoja et al.⁹ instead demonstrated a significant advantage of arthroscopy over exercise and diagnostic arthroscopy at all time-intervals. In addition, the authors have not set strict inclusion criteria but accepted studies with homemade criteria.^{7,9} The primary author of this letter to the editor, Dr Dorrestijn,¹⁰ has previously conducted a systematic review in 2009 and concluded that no high-quality studies were available at the time of review, and that the methodological quality of the four included studies was rather poor. To our surprise, he was critical of the intention to treat protocol in his 2009 publication as a potential source of bias, despite the fact this same approach was used by the cited studies that he now uses to support his argument against SAD. Since then, more randomized studies have been published, but unfortunately the biases remain the same.

Consider again the argument that the results contradict most randomized controlled trials while conveniently ignoring the multiple biases of these RCTs. The Delphi technique is a structured process that pools the opinions of nominated experts in the field and aims to achieve consensus if there is insufficient evidence or when uncertainty exists in that field.^{11,12} It is a strictly defined “survey” technique, pooling the knowledge and opinions of experts in the field in a systematic and scientific manner.^{11,12} Panel members come to their own individual conclusions, and although published literature may play a role in their decision making, it is generally not influenced by other external factors. The results of this Delphi process are therefore considered consensus statements, based on the individual conclusions of a large group of experts. The main conclusion reached here was that there is currently insufficient high-quality evidence-based data, and the Delphi process in this instance was unable to clearly define what constitutes the optimal or preferred treatment for shoulder impingement. It is therefore left to the individual treating surgeon how best to approach this problem given the presenting characteristics of a particular patient, recognizing that their opinion is almost certainly biased and reflects on which side of the fence he or she sits.

However, the main criticism of Dorrestijn et al.³ was with regard to panel selection, with concerns that the nomination process was somehow biased. They also suggested personal experience and excellence prevailed over existing evidence. We have commented on the existing evidence and its inherent biases above already. Dorrestijn et al.³ have repeated the literature search and argued that 26 of the 37 panel members have not published on this topic. We note that Dorrestijn et al.³ have limited their search for both abstracts and publications to the 2015 to 2019 interval and note this timeframe has been used to search for the abstracts only. Perhaps we should have clarified this aspect in the article, that the literature search had no timeline. We also notice that the authors have limited their search to PubMed only and did not consider other search engines (Embase, Scopus, and Google Scholar), which may further contribute to their findings.

It is correct that this Delphi Panel consisted of internationally renowned shoulder surgeons, scientists, and teachers, all recognized as leaders in their field. The purpose of Delphi is to pool the experience of leaders in the field,^{11, 12} and our panel selection clearly reflects this approach. The question is, who is normally teaching residents, fellows, and attending surgeons? Leaders in the field. Where do experienced orthopaedic surgeons go for advice or continuing education? They generally ask leaders in the field, and these leaders also provide widely accepted clinical recommendations, such as the AAOS guidelines in the United States and the NICE guidelines in the United Kingdom. We agree that this group of surgeons is a highly select group, but we all rely on their advice for normal day-to-day work. In the particular case of subacromial decompression, treatment of shoulder impingement in patients with intact cuffs, are we to believe they cannot help us? Surely we all have strong biases and are opinionated, and why should our leaders be any different? Bias is therefore unavoidable, but at the same time every effort must be made to recognize it and to reduce it as much as possible. By its very nature, the Delphi process effectively minimizes the influence of any given individual's expert opinion and instead delivers a consensus statement that reflects the collective opinion of the panel.

Orthopaedic decision-making is a very complex process, and many other factors influence us when we discuss treatment options with patients. These include clinical and lifestyle factors but also communication styles.¹³ Surprisingly, evidence and knowledge often only play moderate roles, and a study by Grove et al.¹⁴ has shown that a combination of resources influence decision-making and the implementation of guidelines. Comments such as “we do try as much as possible to follow the basis of evidence,” “there is very little sort of robust evidence to guide practice so you rely on other people's anecdotal experience and normal practice to help guide what works or not,” and “NICE was rarely noted as an influential factor in the day-to-day activities of surgeons” are not uncommon.¹⁴

We are grateful for your interest in our study, which led us to recognize that other readers may also question these results. Despite the outcomes derived from several prior meta-analyses and systematic reviews, inherent bias in the source publications must be quantified and addressed whenever interpreting the pooled results. Management of shoulder impingement for patients with an intact rotator cuff is still highly controversial and will remain so until we have more definitive data from evidence-based sources. Until then, consensus statements from recognized thought leaders, developed through techniques such as Delphi, will continue to play a valuable role and guide an informed clinical decision process. As it stands, we need to suppress the inevitable myside bias to the best of our ability,¹⁵ resort to rational thinking, and focus on providing the best available treatment for our patients.

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