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Author Reply: Arthroscopic Subacromial Decompression. What Are the Indications? A Level V Evidence Clinical Guideline

We thank the authors for their interest in our level V evidence clinical guideline discussing the indications for arthroscopic subacromial decompression (SAD) in patients with shoulder impingement without rotator cuff tears.[1] In their letter to the editor, van den Bekerom and Poolman[2] argue strongly against SAD and referenced several published trials in support.[3-6] We agree that there is no current and strong evidence to either support SAD or nonoperative treatment. In the introduction, we have clearly stated that credible, reliable, reproducible, and valid evidence is required. Therefore, surgeons have to rely on clinical judgment and careful patient selection. van den Bekerom and Poolman[2] have based their opinion on a recently published meta-analysis[4] and a randomized trial investigating failures in both surgical and nonoperative treatment.[6]

The meta-analysis of Karjalainen et al.[4] included 8 studies and concluded that SAD does not provide clinically important benefits over placebo; however, due to the imprecision of results, the certainty of evidence was downgraded to moderate. Of the 8 included studies, 6 had a high risk of bias. One included study used an intention-to-treat protocol (per protocol) and of 25% of the patients in the placebo group had surgery within 12 months.[7] Although the risk of bias was considered low, the authors had to contact the senior author, who confirmed verbally that postoperative personnel were unaware of treatment allocation. The study by Beard et al.[7] has been criticized by multiple German-speaking associations[8] because of its multiple biases, as we have highlighted in our guideline.[1] Similarly, the second study included in the meta-analysis that was assessed as low risk of bias used an intention-to-treat protocol.[9] Twelve percent of patients in the placebo group and 21% of patients in the exercise group eventually crossed over and had surgery.[9]

Crossover compromises interpretation of outcomes if the percentage of patients crossing over is one way.[10] In addition, patients who cross over usually have more symptoms and comparing patients with more symptoms with patients who have good results with nonoperative treatment results in systematic error and bias.[10] The second study referenced in support against subacromial decompression was published by Ketola et al.[11] This study suffers from significant bias, as there was missing data at 3, 6, and 12 months in both the surgery and exercise group, 13% in the surgery group also received labral repair, both groups received corticosteroid injections over the 2-year follow-up period, 18% in the surgery group did not receive the planned surgery, and 20% of the exercise group eventually had decompression surgery.[11] High risk of bias, low study quality, and heterogeneity does not allow any meaningful conclusions to be drawn, and the conclusions of systematic reviews and meta-analyses including these studies must be viewed with extreme caution.[12]

In their final statement van den Bekerom and Poolman[2] commented that there are strong recommendations against surgery based on the current clinical practice guideline for adults with shoulder pain recently published in the *British Medical Journal*.[3] We have discussed the value of these recommendations very critically in our Level V clinical guideline already.[1] The recommendations by Vandvik et al.[3] were based on Beard et al.,[7] Paavola et al.,[9] and Lähdeoja et al.[13] We have outlined the concerns for the studies by Beard and Paavola already. Lähdeoja et al.[13] performed a meta-analysis and compared SAD with exercise and diagnostic arthroscopy. Interestingly, their study demonstrated a significant advantage of SAD over exercise and diagnostic arthroscopy at all time intervals.[13] In addition, the authors have not set strict inclusion criteria but accepted studies with homemade criteria.[13] We will leave it to the readers of *Arthroscopy* to judge the value of the recent BMJ guideline.[3]

Critical shoulder angle (CSA) and lateral acromion resection (LAR) is a new concept. Katthagen et al. and Marchetti et al. have shown that an arthroscopic anterolateral acromioplasty and a 5-mm lateral acromion resection each reduced the CSA significantly and did not damage the deltoid origin.[14-16] It appears that there is a relationship between a greater CSA and full-thickness rotator cuff tears supporting the concept of LAR.[17] In addition, re-tear rates are greater in patients with a larger CSAs.[18] The mean CSA in patients who

did not have RC re-tears ranged from 34.3° to 37°, and the mean CSA in those patients who had rotator cuff re-tears ranged from 37° to 40°.[18] Gerber et al.[19] demonstrated that arthroscopic lateral acromioplasty reduces CSA without compromising the deltoid origin or function in patients undergoing arthroscopic rotator cuff repairs. The authors have also reported greater re-tear rates and inferior abduction strength with an abnormally large CSA.[19] As such, the concept of LAR seems to be supported by the current published literature.

As we have outlined in our clinical guideline, SAD is a safe procedure with proven long-term outcomes,[20-23] and we suggest to consider SAD if the following 5 criteria are met: pain including night pain for at least 6 months; persistently positive Hawkins test; persistence of symptoms despite physical therapy for at least 6 weeks including a short course of anti-inflammatory medication; radiologic evidence of mechanical impingent; and consideration of a corticosteroid injection as initial treatment and a diagnostic tool. When performing subacromial decompression the coracoacromial ligament should be kept intact, a high degree partial-thickness tear should be repaired and a CSA above 35° can be considered as an indication for a lateral acromioplasty.

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Regarding "Primary Medial Patellofemoral Ligament Repair Versus Reconstruction: Rates and Risk Factors for Instability Recurrence in a Young, Active Patient Population"

Studies comparing outcomes of different treatments are always intriguing, so I read the article by Puzzitiello et al. with interest.[1] Based on telephonic mean follow-up of approximately 5 years, the authors found greater rate of re-dislocation following medial patellofemoral ligament (MPFL) repair/imbrication in 19 knees as compared with reconstruction using hamstring autograft, hamstring allograft, or tibialis anterior allograft in 32 knees. The authors are to be congratulated for undertaking this retrospective review, but I did not find where follow-up duration was analyzed between the repair and reconstructed groups, so I would like to see that comparison.

Furthermore, although their low percentage of surgical failure following MPFL reconstruction (6.3%) is quite in line with my personal experience with this procedure, their patellar re-dislocation rate of 36.9% following repair/imbrication is much greater than what I've seen in practice (my median surgical age = 18 years), as well as what's reported in 2 articles not referenced by these authors, when treating recurrent patellar dislocations with medial patellar retinacular imbrication. Nam and Karzel[2] in 2005 reported less than 5% re-dislocation at about 4-year average follow-up of 23 knees after medial retinacular imbrication for recurrent patellar dislocations. The average age at surgery in that investigation was 23 years, very similar to the cohorts in the study of Puzzitiello et al.[1] Almost a decade later, Boddula et al.[3] reported similar, very low recurrent instability at mean follow-up of about 12 years in 20 knees following medial retinacular imbrication.

What could account for the difference? First, it seems 37% of the knees undergoing repair/imbrication by Puzzitiello et al. suffered just a single patellar dislocation before surgery and so were not recurrent dislocators. Many knee surgeons take a less aggressive approach, reserving surgical intervention until after a second episode, unless there's compelling reason for surgery following initial dislocation. Indeed, a very recent meta-analysis of randomized controlled trials showed similar