

If 2 alternating half-hitches are required to back up the SPK, it is more time-consuming to tie than the SMC and Revo knots and potentially stacks higher, thus eliminating 2 of its most attractive features.

Ultimately, our goal was to test the SPK in a manner that could be safely translated into our clinical practice. In our study we determined that the SPK tied with a single backup half-hitch is a clinically safe, efficient, and low-profile knot that is useful in our practice.<sup>3</sup>

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### How Should We Define Failure After Surgical Shoulder Stabilization?

To the Editor:

With great interest, we read the systematic review by Harris et al.<sup>1</sup> entitled "Long-Term Outcomes After Bankart Shoulder Stabilization," and we compliment the authors on their extensive and well-designed overview. They describe the long-term outcome, including recurrent instability, return to sport, postoperative osteoarthritis, and Rowe and Constant scores, after the most frequently used Bankart repair techniques, both open and arthroscopic.

To keep their pooled data homogeneous, Harris et al.<sup>1</sup> understandably included only those articles in which failures were defined as fully redislocated shoulders. This unfortunately excludes patient-reported sublaxations, which would lead to a much higher failure rate. This raises a very important question: How should we define a failure after surgical treatment for anterior shoulder instability?

In our opinion, sublaxations should be counted as failures too, based on 2 arguments. First, considering the fact that stable shoulder function is the purpose of our treatment, failure is a very important primary outcome after stabilization. The subjective experience of a shoulder

sublaxation is very inconvenient and an adverse surgical outcome for patients. Although only patients can tell their doctors what they experience during daily activities, we postulate that their own patients' experience or opinion should be central. Moreover, this is in line with the international trend of the increasing use of patient-reported outcome measurements to monitor results. Second, recurrent traumatic sublaxation itself can be a reason for surgical treatment initially. Excluding sublaxations postoperatively as failures would be applying a double standard.

Although we agree with Harris et al.<sup>1</sup> that, ideally, both real dislocations and sublaxations or positive apprehensions should be noted separately, we argue that defining only fully dislocated shoulders as failures is an underestimation of the effect of our surgical treatment.

We emphasize that keeping patients' opinion central and being unambiguous in indication and outcome, it is justified to include both redislocations and sublaxations as failures in future studies.

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### Authors' Reply

We thank Drs. van der Linde, van Kampen, and Willems for their interest and kind words regarding our article and appreciate their comments. They recognize a challenging postoperative evaluation of shoulder stability and recommend consideration of sublaxations as failures based on sound argument. Both pre- and postoperatively, the assessment of shoulder stability exhibits a wide spectrum from positional apprehension to frank dislocation requiring manual reduction. In between, there is significant variation in the patient's reporting of "instability." Since the primary purpose of surgery for instability is to gain stability, the subjective feeling of one's "shoulder popping out" after surgery is largely a "failure." In fact, even without dislocation, this may lead a patient to undergo revision stabilization. We agree with Dr. van der Linde et al.

Given the subjective nature of “apprehension” and “subluxation,” the ability to clearly define a patient’s outcome regarding where they fit on the stability spectrum is seldom reported unless it is a frank dislocation or stable status, because these are quantifiable entities. In a systematic review, the quality of the review is only as good as the quality of the articles it analyzes. In our review, there was significant heterogeneity in the reporting of recurrence of instability. Therefore, we used strict criteria that could be assimilated to measure instability, with the recognition and admission that it is an underestimate of the true proportion of patients with unstable shoulders after surgery. Additionally, Van der Linde et al. also emphasize the use of patient-reported outcomes in shoulder instability and recognize that they are increasingly used to guide treatment recommendations. There are unfortunately no questionnaires that make this distinction clear.

The Western Ontario Shoulder Instability (WOSI) score is a 21-item valid, reliable, and responsive questionnaire developed for patients with shoulder instability. Although it contains only one item that queries the patient regarding a “feeling of instability or looseness in the shoulder,” the remaining 20 items characterize the effect that instability may have on pain, motion, strength, endurance, function, and sports. Nonetheless, it does not ask the question, “Does your shoulder fully dislocate and require manual reduction, does your shoulder partially dislocate or subluxate and pop back in spontaneously, or does your shoulder feel like it’s going to dislocate completely or partially?” Similarly, the Walch-Duplay score, which correlates with the WOSI,<sup>1</sup> does ask one specific question regarding stability. However, it is a clinician-measured and reported instrument, not a patient-reported outcome and does not distinguish dislocation from subluxation or apprehension. The American Shoulder and Elbow Surgeons self-reported score does not inquire about instability or apprehension. The Melbourne Instability Shoulder Score (MISS) does, like the WOSI, specifically ask questions regarding shoulder instability. However, the MISS also asks 5 specific questions that discuss a feeling of apprehension versus the shoulder actually coming out of the joint. Still, the MISS does not distinguish manual reduction by a clinician

versus patient-performed or spontaneous reduction. Further, it does not distinguish the patient’s description of subluxation and dislocation.

Thus, we agree with Drs. van der Linde, van Kampen, and Willems and acknowledge the important similarities and differences between apprehension, subluxation, and dislocation and their influence on the success or failure of surgery. We did recognize this limitation in the Discussion section of our manuscript and direct readers to it for further detail. Nevertheless, we re-emphasize that future research in surgery for shoulder instability should clearly state the patient’s subjective feeling of stability, apprehension, partial dislocation, or complete dislocation requiring reduction.

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