



Paper 05

Abstract Title: The Non-Operative Instability Severity Score: A Validated Scoring System to Predict Who Needs Operative Management in the Scholastic Athlete

Authors:

John M. Tokish, MD¹, Charles A. Thigpen, PT, PhD, ATC², Michael J. Kissenberth, MD¹, Stefan John Tolan, MD¹, Keith T. Lonergan, MD¹, Richard J. Hawkins, MD, FRCSC¹, Adam Kwapisz³, Ellen Shanley, PhD².

¹Steadman Hawkins Clinic of the Carolinas, Greenville, SC, USA, ²ATI Physical Therapy, Greenville, SC, USA, ³Hawkins Foundation, Greenville, SC; Clinic of Orthopedics and Pediatric Orthopedics, Medical University of Lodz, Greenville, SC, USA.

Objectives: The management of the adolescent athlete who presents for initial treatment after shoulder instability remains controversial. Risk factors such as age, gender, athletic status, and patient goals have all been demonstrated to result in a higher risk of recurrence with nonoperative management, but little work has been done to determine a treatment algorithm that would combine these factors into a decision-making algorithm. The purpose of this study, therefore, was to evaluate patients managed nonoperatively for shoulder instability, and to identify factors that led to failure, defined as an inability to return to sport with no subsequent missed time due to shoulder issues. We sought to integrate these factors into a scoring system that would predict the success or failure of nonoperative management in the treatment of shoulder instability in the adolescent athlete.

Methods: A retrospective study was conducted of 57 patients who were first time presenters for anterior shoulder instability to a single orthopaedic practice. Inclusion criteria were that patients were managed nonoperatively, that they were involved in high school sports with at least one season of eligibility remaining, and that complete information was available on their ultimate return to their previous sport. Success was defined as those patients who returned to their sport at the same level, and who played at least one subsequent season without any time being missed due to the shoulder that had been unstable. Patient specific risk factors were individually evaluated, and those that were predictive of a higher risk of failure were incorporated into a 10-point Nonoperative Injury Severity Index (NISIS). This score was then retrospectively applied with regression analysis as well as a chi-square analysis to determine the overall score that predicted failure of nonoperative management.

Results: Six factors were identified as risk factors and included in the NISIS. Age greater than 15, the presence of bone loss, type of instability (subluxation or dislocation), type of sport (collision vs. non-collision), female gender, and arm dominance, were assigned points based on individual risk. Overall, 79% of patients treated nonoperatively were able to achieve full return to sport without subsequent surgical intervention or missing any time as a result of their shoulder. Patients who had a preoperative NISIS score of >7 returned at over 90% to sport, compared to a success rate of 50% for those who scored <8, revealing an odds ratio of 9.3 times higher risk of failure for those in the high-risk group (p=0.001).

Conclusion: The non-operative instability severity index is simple and effective preoperative method to determine who is likely to be successful at returning to scholastic sports after presenting for anterior shoulder instability. Further study with a larger prospective cohort should be accomplished to



The American Orthopaedic
Society for Sports Medicine®

independently validate this score, but this information may be useful for the treating physician to help guide decision making when presented with the unstable shoulder.