

STRONG CHILDREN'S RESEARCH CENTER

Summer 2019 Research Scholar

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ABSTRACT

Title: Patient-reported outcomes and lower extremity injuries of young athletes in a sports medicine clinic: a retrospective cohort study

Background: There are large epidemiological studies on injuries in endurance athletes, but there is little information available in the literature on how patient-reported outcomes may correlate with injury recovery, particularly in the adolescent population. Patients' mood, physical mobility and pain

Objective: To examine Patient-Reported Outcomes Measurement Information System (PROMIS) scores in an adolescent athlete population visiting sports medicine clinic with lower extremity injuries.

Methods: The cohort was composed of patients that completed an in-clinic injury survey between December 2016 and June 2019 in a single sports medicine practice. A data abstraction form was constructed and utilized by the study team for data collection from the survey and from the medical record. Inclusion criteria for the study were age <21 years old and having a lower extremity injury. Diagnosis, injury location, treatment plan and PROMIS scores were obtained from medical records. PROMIS Scores, assessing Depression, Physical Function and Pain Interference were gathered at each visit. (Higher Depression scores indicate lower mood, higher Physical Function scores indicate greater physical function, higher Pain Interference scores indicate greater interference in daily life caused by pain). PROMIS scores available for each patient in records for the first and last consult were selected for the purposes of the study. Meaningful change in PROMIS score was defined as 2.5 for Depression, 2 for Physical Function and 2.5 for Pain Interference. For PROMIS Score statistical analysis, only patients with first and last score were included. Paired t-tests were utilized to examine PROMIS scores by gender and linear regression were utilized to examine PROMIS scores by age. **Outcomes:** PROMIS scores. **Co-factors:** Age, Gender

Results: This cohort included 68 pediatric patients, with a mean age of 16 ± 2.2 years, 73% were female. The vast majority (93%) of the diagnoses were overuse injuries: stress fracture (26%), medial tibial stress syndrome (shin splints) (13%), lower extremity tendinitis (18%) and patellofemoral pain syndrome (18%). The tibia was the most common stress fracture location (58%), followed by the femur (16%). More than 70% reported participation in organized running (e.g. track, cross-country or both).

Mean initial PROMIS scores were Depression 41.5 ± 7.5 , Physical Function 44.7 ± 9.6 and Pain Interference 51.4 ± 7.8 . Follow-up visit mean scores were 39 ± 8.7 , 49 ± 9.8 and 44.9 ± 8.9 respectively for Depression, Physical Function and Pain Interference. Follow-up Depression PROMIS scores were lower for the overall sample ($p=0.03$) and for males ($p=0.03$) as compared to their initial scores but only showed meaningful change in males. Initial and follow-up PROMIS scores showed an increase in Physical Function scores ($p<0.01$) for the overall sample ($p<0.01$) and females ($p=0.01$), at levels that were of meaningful change. Males also had improved scores, but it was not significant ($p=0.25$). Pain Interference scores had a meaningful decrease at follow-up visit for the overall sample ($p<0.01$) and for both females ($p<0.01$) and males ($p=0.04$). Initial Depression scores were higher in males (95% CI 39.9-48.9) compared to females (95% CI 38.3-42.8) but were not statistically significant ($p=0.09$). Initial Physical Function and Pain Interference scores were very similar between the two genders and there was no statistical trend. There was no significant difference in initial PROMIS Depression scores over age, but initial Physical Function scores showed increased scores with age ($p<0.01$), as did Pain Interference scores, showing initial pain was greater in older patients. ($p=0.01$).

Conclusions: There were meaningful differences in Physical Function and Pain Interference PROMIS scores in the overall sample but only in males were meaningful changes observed for Depression PROMIS scores. While this study was limited by a small sample size, PROMIS scores may be a factor in predicting recovery from lower extremity injury in adolescent populations. This work formulated a baseline of work from which a future prospective study to examine predictive risk factors for injury recovery in this population will be designed. Examples of other co-factors that could be explored are: location of injury, stress fracture status, training intensity (miles ran per week) and return to sport.