

Return to Sport and Clinical Outcomes Among Athletes Following Turf Toe Repair

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INTRODUCTION: Turf toe, a plantar plate injury of the first metatarsophalangeal joint, commonly occurs in athletes participating in outdoor cutting sports. To the knowledge of the authors, this study reports on clinical and return to sport outcomes after surgical repair of turf toe for the largest cohort of patients presenting with a Grade III turf toe injury. The purpose of this study is to identify risk factors for turf toe and analyze foot function after turf toe injury and surgical repair. This study reports on clinical outcomes and return to sport for athletic patients treated for a turf toe injury at our institution. We hypothesize that patients will have significant improvement in pre- to postoperative clinical outcomes and quickly return to sport after surgical repair.

METHODS: This was a single-center retrospective study conducted from the institutional review board-approved Foot and Ankle Registry data, and the protocol was approved by the steering committee at the investigators' institution. Inclusion criteria included athletes of at least high school level competition who underwent plantar plate repair at the first metatarsophalangeal joint between 2016 to 2023 by 3 fellowship-trained foot and ankle orthopedic surgeons. Excluded were patients with histories of ipsilateral forefoot surgeries, rheumatoid arthritis, or gout. Twenty-eight patients were identified. Patient-reported outcomes via PROMIS scores were collected preoperatively and at least one year postoperatively for all patients. Return to sport surveys were distributed to patients at least one year postoperatively.

RESULTS: The average time from surgery to final follow-up was 2.8 (range, 1-5.3) years. PROMIS scores were found to significantly improve for Physical Function, Pain Interference, Pain Intensity, and Global Physical Health domains. 21 return to sport surveys were completed from the patient cohort. 19 out of 21 (90.5%) of patients were able to return to pre-injury levels of physical competition with an average time to return to sport was 20.35 (range, 12-32) weeks.

DISCUSSION AND CONCLUSION: This study compared short- to medium-term patient-reported clinical outcomes and return to sport data for athletes after a Grade III turf toe injury and surgical repair. Patients demonstrated significant improvement in patient-reported outcomes and were able to return to sport approximately five months after surgery.



Figure 1. Examples of acute Grade III turf toe injury. (A) Examples of acute no dislocation lateral view radiograph of a patient presenting with a turf toe injury. (B) Examples of acute no dislocation medial view radiograph of a patient presenting with a turf toe injury. (C) Examples of acute no dislocation medial view radiograph of a patient presenting with a turf toe injury after surgical repair.

Table 1. Baseline Patient Characteristics	
Patients, n	28
Age, mean (range), yrs	21 (14–40)
MVP sex, n	18:10
Time to surgery, mean (range), days	21 (2–105)
Injury to surgery, mean (range), days	36 (3–105)
Clinical FFI, mean (range), yrs	2.8 (0–5.3)
Abbreviations: C, chronic; N, none; BMD, body mass index; FFI, follow-up	

Table 2. Comparison of Preoperative and Postoperative PROMIS Scores with Minimum of 1 Year of Follow-up		
Promis Scores (n=28)	Postoperative Scores (n=20)	P-value
Physical Function	65.2 (s.d. 7.7)	<.001
Pain Interference	60.2 (s.d. 6.5)	<.001
Pain Intensity	54.4 (s.d. 6.5)	<.001
Global Physical Health	62.8 (s.d. 6.6)	<.001
Global Mental Health	61.6 (s.d. 6.8)	0.25
Depression	60.3 (s.d. 7.0)	0.07
Note: n presented in column 1; standard deviation (s.d.) is presented in column 2. P < .05 was considered statistically significant. Abbreviations: PROMIS, Patient-Reported Outcome Measurement Information System.		

Table 3. Return to Sport Characteristics					
Patient No.	Laterality	Sport	Level of Competition	RTP	Time to Return (weeks)
1	R	Soccer	College	Yes	18
2	R	Field Hockey	College	Yes	21
3	L	Baseball	Professional	Yes	24
4	R	Football	Professional	Yes	24
5	R	Baseball	College	No	N/A
6	R	Baseball	Professional	Yes	24
7	R	Baseball	Professional	Yes	24
8	L	Baseball	Professional	Yes	24
9	R	Baseball	College	Yes	18
10	L	Baseball	College	No	N/A
11	L	Baseball	College	No	N/A
12	R	Baseball	College	Yes	24
13	R	Baseball	College	Yes	18
14	R	Baseball	College	Yes	24
15	R	Baseball	College	Yes	24
16	R	Baseball	College	Yes	24
17	R	Baseball	College	Yes	24
18	R	Baseball	College	Yes	24
19	R	Baseball	College	Yes	24
20	R	Baseball	College	Yes	24
21	R	Baseball	College	Yes	24

Notes: n presented in column 1; laterality in column 2; sport in column 3; level of competition in column 4; return to sport (RTP) in column 5; time to return to sport in column 6. N/A, not applicable. Abbreviations: R, right; L, left.