The Relationship Between Preinjury Functional Status and 12-Month Functional Outcomes Varies by Fracture Site

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Purpose: It is unclear to what extent preinjury functional status relates to clinical outcomes in patients sustaining traumatic fractures. The purpose of this study is to investigate three common traumatic fractures and evaluate how baseline functional status relates to functional recovery at 1 year.

Methods: Prospectively collected data from 668 patients sustaining either an ankle fracture (n = 281, mean age 44 years), tibial plateau fracture (n = 108, mean age 49 years), or distal radius fracture (n = 279, mean age 54 years) were retrospectively reviewed. In all cases, baseline functional status was obtained and each patient was followed for a minimum of one year with the use of standard functional outcome measures including the Short Musculoskeletal Function Assessment (SMFA), and Disabilities of the Arm, Shoulder and Hand (DASH) score. Linear regression analysis was used to examine the relationship between functional status at baseline and 1 year following injury.

Results: Mean length of follow-up for the ankle fracture cohort was 12 months. Baseline total standardized SMFA scores were found to be significant predictors of total SMFA scores at 1 year (Table 1). Every 10-point increase in baseline total SMFA scores increased expected 1-year SMFA scores by 2.4 points. Considered independently, baseline SMFA scores were able to explain 6.2% of the variability in functional scores at 1 year for patients sustaining ankle fractures. In the cohort of distal radius fracture patients, baseline DASH scores were found to be significant predictors of total DASH scores at 1 year. Every 10-point increase in baseline DASH scores increased expected 1-year DASH scores by 1.5 points. Baseline DASH scores were only able to explain 1.5% of the variability in 1-year functional scores. Baseline SMFA scores for tibial plateau fracture patients were not found to be predictive of total SMFA scores at 1 year.

Table 1.
Relationship Between Baseline Functional Status and 12-Month Outcomes

Fracture Site	β Coefficient	95% Confidence Interval for Odds Ratio		Significance
Ankle	0.241	0.130	0.351	< 0.001
Distal radius	0.147	0.006	0.288	0.041
Tibial plateau	0.448	–0.151	1.047	0.141

Conclusion: The effect of preinjury functional status on 1-year outcomes varies by fracture site. In patients who sustain an ankle fracture, baseline functional status has a statistically

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significant, and likely clinical significant, effect on outcomes at 1 year. The effect of baseline functional status on 12-month functional outcomes for patients sustaining distal radius fractures is statistically significant, but unlikely to be clinically significant. For patients sustaining tibial plateau fractures, the relationship is both clinically and statistically insignificant. Patients with limited functional status at baseline who require fracture repair should be advised accordingly.

See pages 99 - 147 for financial disclosure information.