

## The Longitudinal Short, Medium, and Long-Term Functional Recovery After Unstable Pelvic Ring Injuries

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**Purpose:** Unstable pelvic injuries are associated with considerable morbidity and prolonged disability. The expected arc of recovery following surgical treatment is valuable information but remains unknown. Several studies have reported on single time-point outcomes and their prediction, but to our knowledge no prospective study has followed a single patient group over multiple time points long term. The aim of this prospective study was to describe the trajectory of recovery for surgically treated unstable pelvic ring injuries from baseline to 5 years from the date of surgery.

**Methods:** Adults with surgically treated pelvic ring injuries (OTA B,C) were prospectively enrolled at a Level I trauma center between 2004 and 2015. Functional recovery was recorded at baseline and prospectively at 6 months, 1 year, and at 5 years postoperatively using the Short Form- 36 Physical Component Summary score (SF-36 PCS). The trajectory of functional recovery was mapped, and means between time points were compared. The proportion of patients that achieved a Minimal Clinically Important Difference (MCID) between time points was calculated. A subgroup analysis stratifying OTA Type B and C injuries was performed.

**Results:** The cohort was composed of 108 patients, 72% B-type (OTA 61 B1-B3) and 28% C-type (OTA 61 C1-C3). The cohort was 78% male with a mean age of 44.9 years and ISS of 16.9. The ISS of Type B and C injuries were similar ( $P = 0.24$ ). The mean SF-36 PCS improved for the entire group between 6 and 12 months ( $P = 0.001$ ) and between 1 and 5 years ( $P = 0.02$ ), but did not return to baseline at 5 years ( $P < 0.0001$ ). The proportion of patients achieving an MCID between 6 and 12 months and 1 and 5 years was 75% and 60%, respectively. Functional level was similar between Type B and C groups at baseline ( $P = 0.5$ ) and 6 months ( $P = 0.2$ ); however, the Type B cohort reported higher functional scores at the 1-year ( $P = 0.01$ ) and 5-year ( $P = 0.01$ ) marks. Neither group regained their baseline function ( $P < 0.0001$ ).

**Conclusion:** The trajectory of functional recovery for patients with surgically treated pelvic ring injuries is characterized by an initial decline in function, followed by sharp improvement between 6 and 12 months, and continued steady improvement between 1 and 5 years. Patients with Type B injuries show better early recovery than Type C injuries, and reach a higher level of function at the end of follow-up. Despite the proportion achieving an MCID improvement up to 5 years, patients do not regain preinjury level of function.