

## Injury Pattern, Clinical Characteristics And Subjective Outcomes Of A Consecutive Series Of Multi-Ligament Knee Injuries

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### Summary:

The purpose of this study was to firstly report on the subjective outcomes in a large series of patients following multi-ligament knee injury. Secondly, specific clinical characteristics between high and low performing groups will be identified and analysed as potential predictors for outcome

### Abstract:

Summary: The purpose of this study was to report on injury characteristics and subjective outcomes, as well as identify predictors of outcomes scores, in a large series of patients following multi-ligament knee injury.

Introduction: Multi-ligament knee injuries are rare but serious injuries. Patients present with varying patterns of ligamentous disruption and often have significant associated injuries. The purpose of this study was to report on subjective outcomes and identify predictors of outcomes scores in a large series of patients following multi-ligament knee injury.

Methods: All patients treated for multi-ligament knee injuries in one practice group from 1989-2011 were identified. Inclusion criteria for review were age greater than 16, complete rupture of 2 or more major knee ligaments, and > 1 year of follow-up. Patients were excluded if they had any prior known injury or problems with the affected knee. Injury and treatment details were collected retrospectively for cases prior to 2002, and prospectively thereafter. Subjective outcomes scores (KOOS) were obtained at a minimum of one year following definitive treatment. Outcomes were compared between operative vs non-operative treatment, early vs late treatment, and repair vs. reconstruction vs combined treatment for all injured knees. Least squared regression analysis was used to identify factors predictive of KOOS activities of daily living (ADL) sub-scores.

Results: One hundred sixty three patients (169 knees) were eligible for inclusion (mean age 31.9 years; 118 males and 45 females). The most common mechanisms of injury were road accidents (56%) followed by sporting injuries (33%) and falls (11%). 107 knee injuries involved 2 major ligaments, 61 knees involved 3 ligaments, and 1 knees involved all 4 major knee ligaments. The incidence of nerve injury was 17.6% overall. Vascular injury occurred in 4.7% of knees overall. Outcomes scores were available for 60 patients. Median follow-up was 869 days. Higher mean KOOS ADL sub-scores were seen with surgery, early treatment and with reconstruction vs repair/reconstruction combined. Age, bi-cruciate plus medial-sided injury, open wound, nerve injury, and associated tibial plateau fracture were negative predictors of outcomes scores. Length of follow-up, bi-cruciate plus lateral sided injury, single cruciate plus medial sided injury, and vascular injury were positive predictors of outcomes scores.

Conclusions: This study presents mid-term outcomes of one of the largest series of consecutive multi-ligament knee injuries reported to date. In this series, improved KOOS ADL sub-scores were seen with early surgical reconstruction. Negative predictors of ADL sub-scores include age, bi-cruciate plus medial-sided injury, open wound, nerve injury,

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and associated tibial plateau fracture.