

Return to Work and Sport After a Humeral Shaft Fracture

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Purpose: The primary aim was to determine the rate of return to work and sport following a humeral diaphyseal fracture. The secondary aim was to identify factors associated with failure to return to work and sport.

Methods: From 2008 to 2017, all patients with a humeral diaphyseal fracture were retrospectively identified from a trauma database. Demographics and injury characteristics were recorded. Details of pre- and postinjury work and sport were obtained via postal survey. The Work Group comprised 177 patients in employment prior to injury (mean age 47.0 years [range, 17.6-78.0], 50.8% female [n = 90]) and the Sport Group comprised 182 patients involved in sport prior to injury (mean age 52.9 years [range, 18.0-85.0], 57.1% female [n = 104]). Receiver operating characteristic curve modeling was used to determine the age cut-off most strongly associated with failure to return to sport.

Results: Mean follow-up for the Work Group was 5.8 years (range, 1.3-11). 85% (n = 151 of 177) returned to work at a mean of 14 weeks postinjury (95% confidence interval [CI] 11.6-16.5; range, 0-104). Of these, 59.9% (n = 106) returned full-time to their previous employment. Female sex (odds ratio [OR] 2.5, $P = 0.042$), alcohol-abstinence (OR 3.0, $P = 0.024$), heavy manual work (OR 5.5, $P = 0.031$), sustaining a right- (OR 2.8, $P = 0.019$) or dominant-sided injury (OR 2.4, $P = 0.044$), and proximal-third fracture (OR 4.6, $P = 0.014$) were associated with failure to return to work. Mean follow-up for the Sport Group was 5.4 years (range, 1.3-11). There was a significant deterioration in the mean University of California, Los Angeles Activity Score, which reduced from 6.9 (95% CI 6.6-7.2; range, 1-10) before injury to 6.1 (95% CI 5.8-6.4; range, 1-10) postinjury ($P < 0.001$). 89% (n = 162 of 182) returned to sport, 7.7% (n = 14) within 3 months of injury, 34.1% (n = 62) within 6 months, and 69.8% (n = 127) within 12 months. Patient age ≥ 60 years ($P = 0.016$), one or more medical comorbidities (OR 4.5, $P = 0.015$), unemployed/retired (OR 4.2, $P = 0.002$), associated radial nerve palsy (OR 4.8, $P = 0.030$), and failing to achieve union (OR 17.9, $P = 0.032$) were associated with failure to return to sport.

Conclusion: The majority of patients successfully return to work and sport following a humeral diaphyseal fracture. Female patients, those in heavy manual jobs, with a dominant- or right-sided injury, or a proximal-third fracture are at increased risk of failure to return to work. Older patients with comorbidities, those not employed at the time of injury, with a concomitant radial nerve palsy, or failing to achieve union are at increased risk of failure to return to sport. These findings may be useful for surgeons counseling patients about expected return to activity after a humeral diaphyseal fracture.