

Preinjury Aerobic Fitness Predicts Postoperative Outcome After Acetabular Fracture Fixation

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BACKGROUND:

Multiple predictive factors for functional outcome have been identified following open reduction and internal fixation (ORIF) of acetabular fractures including chronologic age, delay to surgery, quality of articular reduction, fracture pattern, amount of displacement, hip dislocation, and associated musculoskeletal injuries. Conflicting reports exist in the literature however on the true impact of chronologic age on functional outcome. Intuitively, chronologic age may poorly correlate with functional capability and physiologic aptitude.

PURPOSE:

To investigate whether **aerobic fitness** as determined by pre-operative metabolic equivalents (METs) better predicts post-operative functional outcomes following open reduction and internal fixation (ORIF) of acetabular fractures than chronologic age.

DESIGN:

Retrospective review.

METHODS:

One hundred fifty-seven patients underwent open surgical treatment for acetabular fracture between January 2005 and December 2013 with age ≥ 18 years and minimum one year follow-up inclusive of imaging, functional outcome scores, and complications.

INTERVENTION:

ORIF of acetabular fracture.

MAIN OUTCOME MEASUREMENTS:

Post-operative functional outcomes at one year as assessed with the University of California Los Angeles (UCLA) activity score and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

RESULTS:

Multivariate logistic regression analysis demonstrated elevated pre-injury METs, female gender, and lower injury severity score (<18) to be significant independent factors predictive of improved functional outcome per the UCLA score. Similarly, pre-injury METs were identified as significant predictors for improved WOMAC scores for both the stiffness and physical function components. Chronologic age was not a significant predictor for any functional outcome score. Furthermore, a Pearson correlation analysis demonstrated a weak relationship between pre-operative metabolic equivalents and chronologic age ($r = -0.346$).

CONCLUSIONS:

Pre-operative **aerobic fitness** as determined by metabolic equivalents may prove to be a superior prognostic factor for predicting post-operative functional outcome following acetabular fracture fixation than chronologic age. Consideration of **aerobic fitness**, in addition to other established prognostic factors, may be useful to patients and surgeons for injury counseling purposes.

Level of Evidence: Therapeutic Level III.

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