

Intramedullary malleolar screw fixation of Jones fractures in athletes: long-term follow-up and computerized pedobarographic analysis

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Introduction: Although well recognized clinical entity, fractures of the proximal fifth metatarsal at the junction of the diaphysis and metaphysis present a difficult treatment dilemma in the active and recreational athletes. Nonsurgical treatment of Jones fractures has high rates of delayed union, nonunion, and refracture so the internal fixation has become the treatment of choice in athletes. The purpose of this study was (1) to review the long-term clinical results of intramedullary malleolar screw fixation of Jones fractures and (2) to perform evaluation the operated foot by computerized pedobarographic analysis.

Methods: 20 patients (1 female and 19 male) with Jones fractures fixed with intramedullary malleolar screws were evaluated by chart review, review of radiographs, physical examination and interview. Out of 20 athletes, 11 were soccer players, 3 basketball players, 2 handball players, 1 tennis player, 1 from karate, 2 track and field athletes (high jump and hammer throw). The mean age of the patients at the time of operation was 21.3 years (range, 14 to 27 years). Functional outcome was assessed by American Orthopaedic Foot and Ankle Society (AOFAS) Midfoot Score. Static and dynamic maximum vertical force and peak plantar pressures were evaluated using a computerized pedobarograph (mini-EMED; Novel GmbH, Munich, Germany).

Results: Mean follow-up from surgery to interview was 8.1 years (range, 1 – 17 years). Clinical healing was 95%, and there has been one refracture (5%) that healed on conservative treatment. The median time to return to sport was 10 weeks (range, 8 to 12 weeks). 12 athletes (60%) returned to higher level of training, 7 (35%) to the same level, and 1 (5%) to the lower level of training when compared to the level of training before injury. Average AOFAS Midfoot Score was 94,6 (range, 91 to 100) During the computerized pedobaropgraphic evaluations, 17 patients (90%) presented with varus of the metatarsus and the midfoot, in 3 cases only on the injured side and in 14 cases bilaterally (but in 50% of those, varus deformity was greater on the injured side). 1 patient presented with the midfoot varus only, and 2 patients presented with normal plantigrade foot.

Conclusions: The intramedullary malleolar screws can yield reliable and effective healing as evidenced by clinical and functional assessment of fifth metatarsal Jones fractures in athletes. Varus of the metatarsus and the midfoot are predisposing factors for Jones fractures in population of athletes, and all were recommended to wear orthoses until their competitive careers were completed.