

Calcaneal Stress Reaction

Stress reactions and fractures of the calcaneus are a frequently unrecognized source of heel pain. In some cases they can continue to go unrecognized because the symptoms of calcaneal stress fractures sometimes improve with treatments aimed at plantar fasciitis. Calcaneal stress fractures can occur in any population of adults and even children and are common among active people, such as athletes, sports enthusiasts, and military personnel. It is likely that the number of diagnosed calcaneal stress fractures will rise among practitioners with an increased recognition of their possibility. (Weber et al 2005) Calcaneal stress fractures present with localized tenderness over the medial or lateral aspects of the calcaneus. The most common site is the upper posterior margin, just anterior to the apophyseal plate and at a right angle to the normal trabecular pattern. Plain radiographs may show a sclerotic appearance on lateral radiograph parallel to the posterior margin of the calcaneus. Bone scanning and MRI are more sensitive. (Wilder & Sethi 2004) A clinical diagnostic test is to squeeze the body of the calcaneus to elicit tenderness. Trace out the probable fracture line. If this area is not tender, and only the medial calcaneal tuberosity is tender, you more likely are dealing with an injury to the plantar fascia. (Pribut 2012)

Over ninety-six months, magnetic resonance imaging revealed calcaneal stress injuries in thirty recruits in a population with a total exposure time of 117,149 person-years, yielding an incidence of 2.6 (95% confidence interval, 1.6 to 3.4) per 10,000 person-years. The calcaneus alone was affected in twelve cases. In twenty-two cases, stress injury was also present in one or several other tarsal bones. A distinct association emerged between injuries of the different parts of the calcaneus and stress injuries in the surrounding bones. In only 15% of the patients was the stress injury visible on plain radiographs. (Sormaala et al 2006). Marx et al 2001 found that 8 of 9 patients with cancellous stress fractures had DEXA scans indicating osteopenia while only 3 of 11 patients with stress fractures of cortical bone had a scan indicating osteopenia ($p < 0.01$). A cancellous stress fracture in a female may be a warning sign of early onset osteopenia.

Calcaneal stress fractures are considered low risk stress fractures, suggesting conservative treatment is most appropriate and unlikely to lead to prolonged cessation of injury (Kaeding et al 2005).

Recommended treatment is achieved with 6 to 8 weeks of weight-bearing rest with the use of a soft heel cushion. Joint mobilization and improving flexibility of the calf muscles are indicated when appropriate. Orthotics may be prescribed to control excessive pronation. Running is usually resumed after 6 weeks. (Wilder & Sethi 2004). Two types of cushioning insoles (inserts) were compared with standard insoles in regulation US army boots in one study. There were no statistically significant differences in the numbers with tibial, calcaneal or metatarsal stress reactions in those participants wearing cushioned insoles compared with those wearing standard insoles (calcaneal stress reactions: RR 1.15, 95% CI 0.61 to 2.19) (Bensel 1986).

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