

# Smooth Kirschner (K) Wire Fixation of Distal Metaphyseal Osteotomy Bunionectomies: A 10-Year Retrospective Survey<sup>1</sup>

*The authors reviewed 500 distal metaphyseal osteotomy bunionectomies with smooth Kirschner (K)-wire fixation performed over a 10-year period. Postoperatively, the patients were allowed to ambulate with a forefoot compression bandage and a semirigid surgical shoe. The cases were evaluated radiographically for malunion, delayed union, nonunion, aseptic necrosis, bone callus formation, and final alignment. Soft tissue and bone infection, as well as pin irritation, were also evaluated. Computation of results demonstrated eight malunions, one delayed union, no nonunions, and two cases of aseptic necrosis. There were 52 cases (10.4%) that led to bone callus formation; 54 patients (10.8%) experienced pin irritation. A total of seven infections occurred (1.4%) that could possibly be attributed to the pin, of which four (0.8%) required incision and drainage. It was observed that certain procedures, such as the Laird osteotomy, decreased the effectiveness of the K-wire, while others, such as the Chevron osteotomy, resulted in the fewest complications. Bunionectomies performed bilaterally or with adjunct procedures, in contrast to isolated bunionectomies, were also found to decrease the effectiveness of the K-wire. Due to the minimal number of complications that were encountered and the high success rate that was attained, the authors conclude that utilization of smooth K-wire fixation for distal metaphyseal osteotomy bunionectomies remains a viable and effective treatment alternative.*

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During the early 1970s, podiatric surgeons began using smooth Kirschner wire (K-wire) fixation for first metatarsal distal metaphyseal osteotomies, due to the less than satisfactory results that were obtained when performed without internal fixation. Since that time, this type of fixation has grown in popularity, yet most of the literature on this subject has explored mainly the rationale or technique of this surgical procedure, while surprisingly little has been published evaluating its results or effectiveness.

This study will seek to fill the gap that has existed in the literature by presenting just such an evaluation of the use of smooth K-wire fixation. A 10-year retrospective review of the utilization of smooth K-wire fixation for bunionectomies (distal metaphyseal osteotomies) will be presented herein to accomplish this aim. The research undertaken for this study seeks only to document the consequences and evaluate effectiveness of employing smooth K-wire fixation in bunionectomies. The concept of primary bone healing *versus* secondary bone healing will not be addressed in detail.

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<sup>1</sup> Presented at the Forty-Ninth Annual Scientific Meeting of the American College of Foot Surgeons, 1991.

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0449/2544/92/3103-0276\$03.00/0  
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## Literature Review

In 1981, Knecht and VanPelt (1) performed a study on the use of K-wire fixation for the Austin bunionectomy. They found that the K-wire minimized the danger of capital fragment shifting, but added a new dimension for complications, such as pin tract infections and wire breakage. These authors did not encounter these two complications in the 29 procedures that were performed, perhaps because the pin was removed between 6 and 10 days postoperatively.