

The Intramedullary Skeletal Kinetic Distractor (ISKD): First Clinical Results of a New Intramedullary Nail for Lengthening of the Femur and Tibia.

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Abstract: In 1986, a programme was initiated by the senior author to develop a reliable, mechanically activated, intramedullary lengthening device with a non-invasive means of measuring the progress of lengthening without X-ray. We report results of design, biomechanical testing, in vivo animal testing and clinical implantation of the first 20 intramedullary skeletal kinetic distractors (ISKDs) in adult patients with limb-length discrepancies.

Twenty ISKD devices were implanted in 18 patients (14 males and four females). Lengthening was required due to infection (ten), trauma (six), polio (one) and burn (one). Six femurs and 14 tibias were lengthened. Mean patient age was 40 years (range, 18-65 years).

No implant related infections, non-unions, malunions or joint contractures were observed. A design change was made following two initial hardware failures, after which there were no further breakages. Average lengthening was 49 mm (range, 29-110 mm). The average lengthening rate was 0.82 mm/day (range, 1.7-0.4 mm/day). Ability to work, walk and drive before, during and after treatment with the ISKD compared favourably with that of similar patients undergoing lengthening using the 'monorail' method in our practice.

The ISKD appears to be a safe and cost-effective alternative to external fixators that reduces lifestyle disruption and complications during adult limb-lengthening procedures. © 2001 Elsevier Science Ltd. All Rights Reserved

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