

Recurrence Rates With Longer-Term Follow-up After Hallux Valgus Surgical Treatment With Distal Metatarsal Osteotomies: A Systematic Review and Meta-analysis, Lavelee M. et al. *Foot & Ankle International*, Volume 44(3), 210-222, 2023

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Level of Evidence: 4

Reviewer:

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A systematic review and meta-analysis was performed to report long term incidences of hallux abductovalgus (HAV) recurrence after a distal metatarsal osteotomy (DMO) bunionectomy. The studies included a minimum follow up of 5 years in HAV deformity patients with non-inflammatory and non-degenerative arthritis. The DMO's that were compared in this study include Chevron, Mitchell, Bosch and others.

The meta-analysis consisted of 17 eligible studies that reported on 18 data sets, presenting on 2,105 feet between 2000 and 2022. Nine studies assessed the Chevron, three assessed the Mitchell, two assessed Bosch and four assessed "other" including 1 Hohmann, 1 percutaneous distal retrocapital osteotomy, 1 MIS and 1 minimally invasive IM nail device. Patient characteristics with indications for surgery and techniques were included. The outcomes reported were pre- and post operative angles (IMA and HVA), clinical scores (AOFAS) and all complications including re-occurrence of HAV.

There was a 64% HAV recurrence rate with the HVA threshold of greater than 15 degrees reported in this study. The results were not statistically significant following the Chevron and the Mitchell osteotomy. The overall recurrence rate with a threshold of a HVA >20 degrees is 10% and a threshold of a HVA > 25 degrees is 5%. The results were not statistically significant following any of the techniques involved.

Regarding post-operative angles, the HVA angle was significantly higher for Mitchell osteotomies compared to the "other" osteotomies. Otherwise there were no statistically significant differences in postoperative HVA and IMA between the different surgical techniques. The lowest post-operative IM and HVA angles were those who underwent "other" osteotomies. The highest IMA were those who underwent the Mitchell osteotomy but there was no statistical significance. The mean postoperative HVA is 15 degrees which is the same angle as the threshold to be considered recurrent HAV. The AOFAS score was not reported in all studies. The Chevron osteotomy indicated the highest AOFAS score, post-operatively. The minimally invasive IM nail indicated the greatest postoperative AOFAS score increase when compared to the pre-operative AOFAS score. The Chevron procedure had the highest revision rates ranging from 0% to 7%, but this technique was included in nine data sets; more than any other in this study.

The limitations of this study is that there is high heterogeneity among surgical techniques. They recommend the field agree to define HAV recurrence with having a HVA > 15 degrees. The authors concluded that there is a need for more research on the pathogenesis and prognosis of HAV, as there is a high rate of recurrence after a DMO.



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