

# Surgery was more effective than orthosis for hallux valgus

Torkki M, Malmivaara A, Seitsalo S, et al. *Surgery vs orthosis vs watchful waiting for hallux valgus. A randomized control trial.* JAMA 2001 May 16;285:2474–80.

**QUESTION:** In patients with hallux valgus, what are the effectiveness and cost of surgical, orthotic, and no treatment?

*Sources of funding: Finnish Office for Health Technology Assessment; Finnish Medical Foundation; Scientific Foundation of Jorvi Hospital; Scientific Foundation of Mehiläinen Hospital.*

*For correspondence: Dr M. Torkki, Department of Orthopaedic Surgery, Helsinki University Central Hospital, Topeliuksenkatu 5, 00260 Helsinki, Finland. Fax +1 358 947 187551.*

## Design

Randomised (allocation concealed\*), blinded (outcome assessors)\*, controlled trial with 1 year of follow up.

## Setting

4 hospitals in a health district in Finland.

## Patients

211 patients who had a painful bunion with the hallux valgus angle  $\leq 35^\circ$  and the intermetatarsal angle  $\leq 15^\circ$ . Exclusion criteria were previous bunion surgery, hallux rigidus, hallux limitus, rheumatoid arthritis, use of foot orthoses, pregnancy, or age  $> 60$  years. Baseline data were obtained for 209 patients (mean age 48 y, 92% women). Follow up was 98% and 97% at 6 and 12 months, respectively.

## Intervention

Patients were allocated to surgery (chevron procedure) (n = 71), foot orthosis (negative cast technique) (n = 69), or watchful waiting (control) (n = 69).

## Main outcome measures

Duration of foot pain, foot pain intensity (100 mm visual analog scale [VAS]: 0 = no pain, 100 = unbearable pain), ability to work (VAS: 0 = inability to work, 100 = maximum working ability), cosmetic disturbance (7 point scale: 0 = no cosmetic disturbance, 6 = maximum cosmetic disturbance), footwear problems (none to severe), functional status (American Orthopaedic Foot and Ankle Society score: 0 to 100; higher score = better functional ability) (12 mo only), patient global assessment (12 mo only), and footcare costs.

## COMMENTARY

Bunions range in severity from mild to severe anatomic deformity of the hallux valgus angle, intermetatarsal angle, and sesamoids.<sup>1</sup> Shoe modification is the first treatment considered for people with symptomatic bunions. Adults with bunions of mild-to-moderate severity may be candidates for orthotic treatment or surgical correction.

In this carefully done trial, Torkki *et al* have shown that chevron osteotomy resulted in less pain, better function, improved cosmesis, and fewer footwear difficulties during the 12 month study period than did orthosis or watchful waiting. The authors noted 1 infection, 1 fracture, 1 nerve injury, and 1 recurrence after 97 osteotomies (without fixation or lateral release) but no avascular necrosis.

Custom orthotics should be considered for patients with symptomatic mild-to-moderate bunion deformity. Chevron osteotomy provides relief of symptoms in this population but should be avoided in patients with severe bunions or in those with marked pronation of the great toe, joint incongruity, or tight adductors. Kwire fixation may decrease the recurrence rate. Lateral release may cause avascular necrosis.<sup>2</sup> Surgeons must carefully consider all abnormalities. Proximal osteotomy and soft tissue procedures may be required to correct the deformity.

Hans J Kreder, MD, MPH  
University of Toronto  
Toronto, Ontario, Canada

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## Main results

At 6 months, patients who received surgery or orthoses had less foot pain than did patients who received no treatment. Surgery group patients had less cosmetic disturbance and fewer footwear problems than did patients who received either no treatment or orthoses. At 12 months, surgery group patients had fewer days with pain in the previous 6 months, less pain and cosmetic disturbance, better functional status, and fewer footwear problems ( $p < 0.01$ ) than either of the other 2 groups (table). More surgery and orthosis group patients reported better global foot assessment than did patients who received no treatment ( $p < 0.01$ ). Mean costs related to foot care were higher in the surgery group than in the orthosis and control groups (US\$ 930, 221, and 125, respectively, over 12 mo).

## Conclusion

In patients with mild or moderate hallux valgus, surgery had greater long-term effectiveness than did orthotic treatment but was associated with greater costs.

\*See glossary.

*Surgery, foot orthosis, or watchful waiting (control) for hallux valgus at 12 months†*

Outcomes	Difference in adjusted group mean (95% CI)		
	Comparisons	Event rates	RBI (CI)
Pain in past 6 months (d)	Surgery v control	22 (1 to 42)	34 (14 to 55)
Pain intensity (100 mm VAS)	Surgery v control	19 (10 to 28)	14 (5 to 22)
Cosmetic disturbance (7 point scale)	Surgery v control	1.2 (0.6 to 1.8)	1.4 (0.8 to 2.1)
AOFAS score (0 to 100)	Surgery v control	11 (7 to 16)	11 (7 to 15)
No footwear problems	Surgery v control	35% v 7.5%	386% (108 to 1079)
	Surgery v orthosis	35% v 4.5%	710% (179 to 2352)

†AOFAS = American Orthopaedic Foot and Ankle Society; VAS = visual analog scale. Other abbreviations defined in glossary; RBI, NNT, and CI calculated from data in article.