

# Treatment of Shortening Following Hallux Valgus Surgery

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## KEYWORDS

• Metatarsal • Osteotomy • Metatarsalgia • Brachymetatarsal • Arthrodesis

## KEY POINTS

- Transfer metatarsalgia is a recognized complication following hallux valgus surgery in which there is iatrogenic shortening of the first metatarsal, especially in a Greek type of foot, which already has a relatively short first metatarsal.
- Management should begin with nonoperative measures such as shoe modification and orthotics. If these fail, then a step cut lengthening may be preferable to shortening osteotomies of the lesser metatarsals, which have risks of nonunion, stiffness of the lesser metatarsophalangeal joints, and floating toes.
- In cases of established arthritis of the first metatarsophalangeal joint, a bone block arthrodesis is recommended.

## INTRODUCTION

Transfer metatarsalgia is a recognized complication following hallux valgus surgery,<sup>1–10</sup> usually as a result of shortening of the first metatarsal (MT), especially in a Greek type of foot, which already has a relatively short first MT.<sup>1,2,10</sup>

## INCIDENCE OF SHORTENING AFTER FIRST MT OSTEOTOMY

The incidence of shortening following modern hallux valgus surgery is unknown, although certain surgical procedures such as the Mitchell osteotomy<sup>11</sup> or Wilson osteotomy,<sup>12</sup> by the very nature of their biomechanical effect, are more prone to give rise to symptomatic shortening (**Figs. 1** and **2**).

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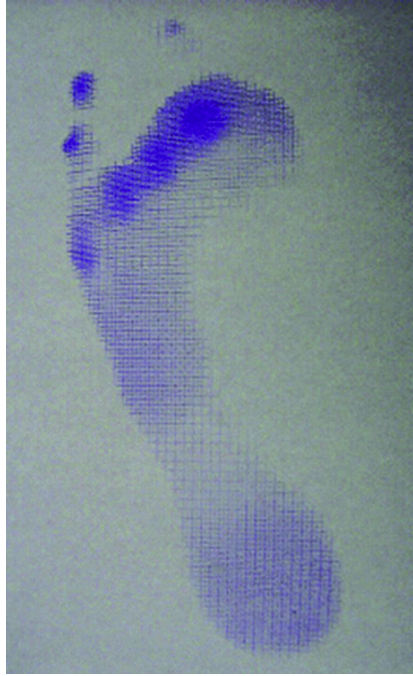
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**Fig. 1.** Footprint of post-Wilson osteotomy for hallux valgus. Note the high pressure over the lesser MT heads, especially the second, compared with the absence of pressure under the first MT head.

#### **WHEN IS FIRST MT SHORTENING SYMPTOMATIC?**

Carr and Boyd stated that up to 4 mm shortening of the first metatarsal was acceptable in correcting hallux valgus.<sup>6</sup> Schemitsch and Horne concluded that a relative ratio of first MT length compared with the second MT length of less than 0.825% may cause



**Fig. 2.** A radiograph of the feet showing a shortened left first MT due to previous Wilson osteotomy for correction of hallux valgus.

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