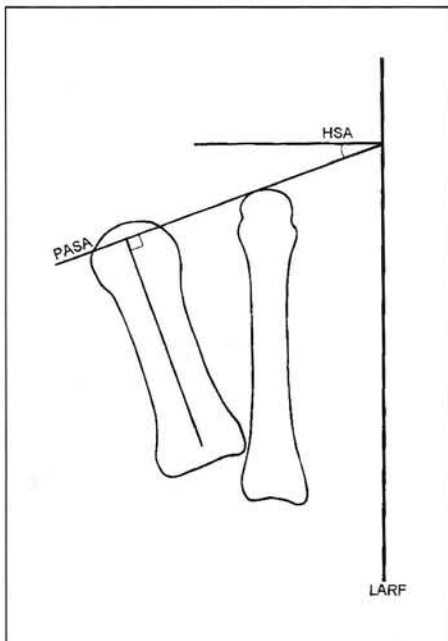


# Austin Bunionectomy: The High Intermetatarsal Angle

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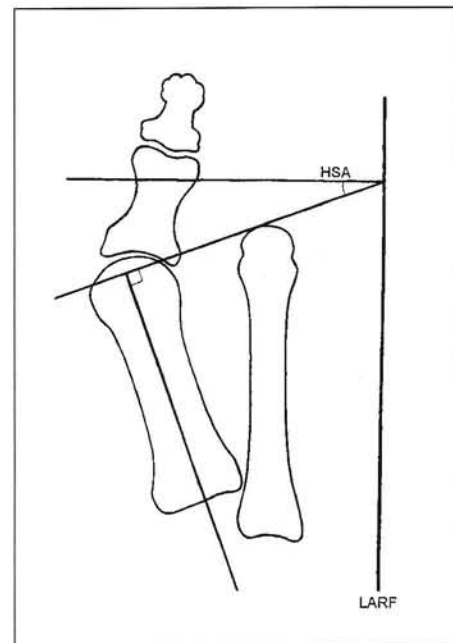
There is a general agreement within the podiatric profession that the Austin bunionectomy provides excellent structural correction for bunions that do not exceed 14 degrees of intermetatarsal angle. Above this limit, results become less predicible and therefore, many surgeons will choose a base osteotomy.

One component not adequately evaluated is the relationship between the proximal articular set angle (PASA) and the intermetatarsal angle (IMA). The PASA is of limited value because it relates the position of the hallux to the first metatarsal. The relationship of the articular surface of the first metatarsal to the Long Axes of the RearFoot (LARF) is, however, more important. The author calls this relationship the hallux set angle (HSA). The long axis of the rearfoot is unaffected by positional or structural changes of the forefoot, is parallel to the axis of the lesser digits, and is parallel to the line of progression. This should, therefore, be the reference line with which we want to align the head of the first metatarsal (Fig. 1).

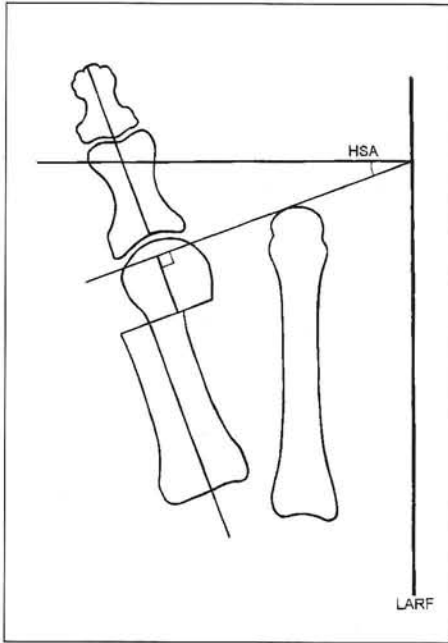


**Figure 1.** The hallux set angle (HSA) is formed by the intersection of the articular surface of the first metatarsal with the longitudinal axis of the rearfoot.

Since the Austin bunionectomy is a transpositional osteotomy, the hallux set angle and the proximal articular set angle are not altered by the procedure. However, as the first intermetatarsal angle increases, so does the hallux set angle. The PASA is unaffected by changes in the IMA. Therefore, correction of large intermetatarsal-angle bunions must also address the hallux set angle. A typical case demonstrating the importance of the hallux set angle is presented in Figures 2 and 3. This patient had a first intermetatarsal angle of 15 degrees, and a proximal articular set angle of 0 degrees. Assuming that the longitudinal axis of the rearfoot is parallel to the second metatarsal, then this leaves a hallux set angle of negative 15 degrees. Once the Austin bunionectomy has been completed, the hallux set angle is still negative 15 degrees and the hallux is now medially deviated 15 degrees from the long axis of the foot. This is biomechanically unstable, cosmetically displeasing, and likely to sublux when shoes are worn.



**Figure 2.** Preoperative patient  
IMA = 15  
PASA = 0  
HSA = -15



**Figure 3.** Following the Austin bunionectomy, the IMA has been reduced, but the PASA and the HSA remain unchanged.



**Figure 4.** Preoperative bunion with a high IMA, low PASA, and a negative HSA.

### CONCLUSION

An important factor for success of the Austin bunionectomy with a high intermetatarsal angle is the alignment of the articular surface of the first metatarsal to the longitudinal axis of the rearfoot. This leaves an ideal functional, structural, and cosmetic result. On occasion, it is necessary to modify the Austin osteotomy (biplane correction), in order to increase the proximal articular set angle, thereby reducing the hallux set angle (Fig. 4, 5).



**Figure 5.** Postoperative Austin-Akin bunionectomy. The PASA was increased with a reverse bi-plane Austin, effectively reducing the HSA to zero.