

Anatomic Description of the Anterior Body Calcaneal Z-Osteotomy

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Introduction/Purpose: Flexible pes planovalgus is a common condition encountered by foot and ankle physicians. Many treatment options exist to correct this deformity. One such procedure is an Evans osteotomy of the anterior process of the calcaneus. Due to the complications seen with this type of osteotomy, there has been an attempt to reduce these complications and as a result, an anterior body calcaneal z-cut osteotomy was developed. This osteotomy is inherently more stable by design and fewer complications have been reported. In an attempt to further understand this osteotomy and to determine how much bony interface remained following this osteotomy, a cadaveric study was performed.

Methods: A Z-cut osteotomy was performed on 10 cadaveric specimens with the distal arm exiting dorsal and 1 cm proximal to the calcaneocuboid joint, while the proximal arm exited plantar. The central axis lengths of 15mm and 20mm were compared. An 8-mm wedge was placed in both the distal and proximal arms, and fixated with a staple. Digital calipers were used to measure the amount of bony apposition on the central arm between the wedges.

Results: The average amount of bone apposition was 9.13 mm. When comparing the 20mm to 15mm central arm groups, the average bony apposition was 10.66 mm and 7.61 mm, respectively.

Conclusion: Based on these results, the anterior body calcaneal Z-osteotomy provides enough bony apposition between both groups with an 8-mm wedge distraction. Further studies are warranted to evaluate the union rate between the classic lateral column lengthening osteotomy and the anterior body calcaneal Z-osteotomy.

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