Moberg Osteotomy and its effect on joint contact mechanics. Cadaveric Study.

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Conflicts to Disclose

- Moberg Osteotomy and its effect on joint contact mechanics. Cadaveric Study.
  - Paul H. Kim, MD
    - My disclosure is in the Final AOFAS Mobile App.
    - I have no potential conflicts with this presentation.

- Ellis SJ – Integra (paid presenter), Treace Medical Concepts (paid consultant)

- Deland JT – Arthrex (royalties, consultant), Nexa Orthopaedics (royalties), Tornier (paid consultant, stock options), Zimmer (paid consultant)
Does the Moberg osteotomy change the loading mechanics of the 1st MTP joint?

The Moberg osteotomy improves patient outcomes but its effects on joint loading are unclear.
We simulated mid-stance to test effect of the Moberg osteotomy on loading mechanics of the 1st MTP joint

Prepared first ray
N = 8

Plantar fascia
~ 145 N balanced toe loads

Metatarsal head
40 N

Distal phalanx
28 N

Joint pressure

Pre- and post-Moberg osteotomy conditions tested
We found the Moberg osteotomy shifts the center of pressure plantar*

Moberg osteotomy did not change the magnitude or area of contact pressure

* $P = 0.001$
Moberg osteotomy reduces contact pressure dorsal of the planned Cheilectomy location.

Moberg osteotomy may reduced the edge loading caused by Cheilectomy.
We propose that the Moberg osteotomy shifts the joint surface to a safer region during daily activities.

An increase of joint space at the dorsal aspect of the joint results in offloading of the diseased region & can improve clinical outcome (2).
Summary

- Moberg osteotomy shifted center of pressure plantar (p<0.001).

- Plantar cartilage can be preferentially loaded after Moberg osteotomy potentially improving clinical outcome (2).

- Edge loading post-cheilectomy may be avoided with the Moberg Osteotomy.
References
