The operative results of military soldiers with Chronic ankle instability using axial CT scan: another key of correction for hallux valgus.

1st metatarsal pronation angle

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< 1st metatarsal pronation angle using axial CT scan: another key of correction for hallux valgus >

< Jinsu Kim >

My disclosure is in the Final AOFAS Program Book. I have no potential conflicts with this presentation.
1st Metatarsal Pronation in HV

- Control 7.2 (SD 9.7, Max: **16°**: cut point of Normal value)
- IMA severity correlate hallucal rotation (r=0.43)

*Eustace et al, Skeletal Radiol, 1993.*
Material & Methods

Data: HV: 161 cases
- WB AP: HVA, IMA, Congruency, DMAA, sesamoid position
- Sesamoid axial view: axial 4-position (Yildirim)

7-position (Hardy & Clapham)
Coronal CT scan: Metatarsal pronation (α) and sesamoid subluxation (CT 4-position)

Fig. 5. Tibial sesamoid grade. The tibial sesamoid grade is defined as the position of the tibial sesamoid relative to the intersesamoidal ridge on a 4-point scale. (Reprinted from Yıldırım Y, Cabukoğlu C, Erol B, Eşeneli T. Effect of metatarsophalangeal joint position on the reliability of the tangential sesamoid view in determining sesamoid position. Foot Ankle Int 26(3):247–250, 2005; with permission.)
Results: \( p < 0.000 \)

- HVA, IMA \( \uparrow \) → 4 type Sesamoid position \( \uparrow \)
Results: axial-4 VS CT-4 position

- **Equal**
  - 95 cases (62%)

- **Different**
  - 60 cases (38%)
    - + 40 (25%)
    - - 20 (13%)
Results: No Sesamoid Subluxation

HV+  
Even though Hardy grade > 5

Yildirim grade: 0  
: 22 cases (14%)

CT grade: 0  
: 26 cases (17%)
M. Pronation & Subluxation

- **MP(-)**: 22 case (14%)
  - **S(-)**: 5 (3%)
  - **S(+)**: 17 (11%)

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<th>No</th>
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<tr>
<td>1</td>
<td>11  (65%)</td>
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<td>2 (12%)</td>
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<tr>
<td>3</td>
<td>3 (18%)</td>
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M. Pronation & Subluxation

- **MP(+)**: 139 (86%)
  - **S(-)**: 43 (27%)
    - Pronation: $25^\circ \pm 3.0$
  - **S(+)**: 96 (60%)
    - Pronation: $24^\circ \pm 5.1$

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<th>Position</th>
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<tbody>
<tr>
<td>1</td>
<td>62  (65%)</td>
</tr>
<tr>
<td>2</td>
<td>25  (26%)</td>
</tr>
<tr>
<td>3</td>
<td>9   (9%)</td>
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<tr>
<td>total</td>
<td>96</td>
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# 4 - Type HV: Different Plan

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<th>2) P(+), S(-)</th>
<th>No need Lateral release</th>
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<td>27%</td>
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<tr>
<td>TYPE</td>
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<td>4) P(+), S(+)</td>
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<td>60%</td>
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<td>Transverse plane osteotomy</td>
<td>Correct Pronation Supination ostetomy with fix</td>
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**Pseudo-subluxation of sesamoid**
Conclusions

Hallux valgus with 1st MP without sesamoid subluxation is one characteristic of Hallux valgus deformity about 27% in our study.

The correction of HV without a lateral ligament complex release should be consider if the HV has pseudo-subluxated sesamoids.

Reference