Subtalar Joint Alignment in Ankle Osteoarthritis

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Our disclosures are in the Final AOFAS Mobile App. We have no potential conflict with this presentation.
The Issue

• 60% of patients with ankle osteoarthritis (OA) present with an asymmetric wear pattern (varus or valgus type)

• Compensation of the subtalar (ST) joint for deformities above the ankle until Takakura stage $\leq 3a$

Can the ST joint protect the ankle from further degeneration in case of OA?
The Idea

- Studies supporting the idea of ST joint compensation used plane weightbearing radiographs.
- Assessment of the subtalar joint alignment using weight-bearing CT scans are more accurate.
- Verification of subtalar joint compensation may influence the treatment algorithm for ankle OA.
The Aim

Quantification of the ST joint configuration in

I. Varus/ valgus ankle deformity

II. Different stages of ankle OA (Takakura classification)

III. Presence/ absence of ST joint OA
Patients and Methods I

- 88 Patients treated for ankle OA (30 valgus and 58 varus type) and 27 controls

- Subgroups according to the extent of ankle OA (Takakura stage) and ST OA (Kellgren-Lawrence stage)
Patients and Methods II

- Two angles used to assess the ST joint alignment in the coronal plane using weightbearing CT scans

- Assessment on the middle plane of the ST joint and 5mm anterior and posterior

\[ SIA = \text{Subtalar inclination angle} \]
\[ ISA = \text{Inftal-subtal angle} \]
Results I

- Subtalar inclination angle (SIA) and inftal-subtal angle (ISA) are significant higher in varus ankles (valgus tilt)
Results II

- No significant differences of SIA and ISA in different stages of ankle OA
Results III

- No influence of SIA and ISA on presence or absence of ST joint OA
Conclusion

• ST joint compensates for deformities above the ankle joint in varus ankles

• Compensation is independent of the stage of ankle OA and do not influence the extent of ST joint OA

Protective influence of the ST joint on the progression of ankle OA in varus ankles is possible
References


• Hayashi K, Tanaka Y, Kumai T, Sugimoto K, Takakura Y. Correlation of compensatory alignment of the subtalar joint to the progression of primary osteoarthritis of the ankle. *Foot Ankle Int.* 2008;29(4):400-406.

