

Supplementary Information for

Centre of Rotation of the Human Subtalar Joint Using Weight-Bearing Clinical Computed Tomography

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Supplementary Legends

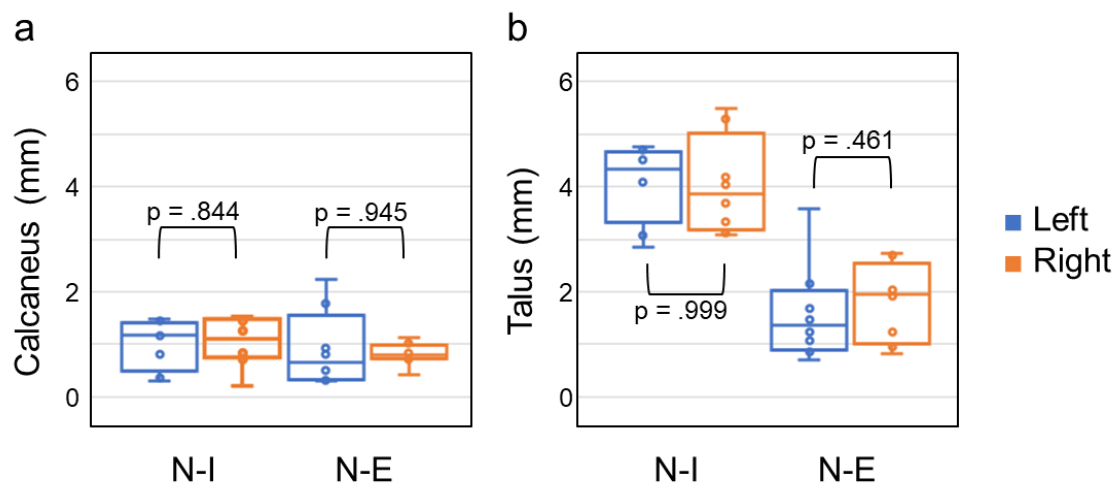
Figure S1. DVC-computed displacements. Boxplot distribution of the mean displacements over the entire bones for both (a) calcaneus and (b) talus from neutral-inversion (N-I) and neutral-eversion (N-E) positions in both feet. Data outliers are marked with \circ . p-values from two-sided Wilcoxon signed-rank test are reported in each plot.

Figure S2. Comparison of helical axis parameters. Boxplot distribution of helical axis parameters, (a) inclination angle and (b) deviation angle, for the subtalar joint motion from inversion to eversion position in the entire cohort computed using different methodologies. The introduced methodology, digital volume correlation (DVC), is compared to previous reported methods such as morphological fitting of the articular surfaces (Montefiori et al., 2019; Parr, Chatterjee, & Soligo, 2012) and rigid registration of the CT data (Beimers et al., 2008). Morphological fitting produced higher variability of the measured angle whereas rigid registration showed similar results to DVC method. p-values from two-sided Wilcoxon signed-rank test are reported in each plot.

Supplementary Video 1. Simulation of talus rotation around the computed centre of rotation for the subject showing lowest shift along the helical axis. The calcaneus is shown fixed while the talus rotates. Both extreme positions, inversion (blue) and eversion (red) are overlay to the neutral (grey) rotated talus.

Supplementary Video 2. Simulation of talus rotation around the computed centre of rotation for the subject showing highest shift along the helical axis. The calcaneus is shown fixed while the talus rotates. Both extreme positions, inversion (blue) and eversion (red) are overlay to the neutral (grey) rotated talus.

Supplementary Figure S1



Supplementary Figure S2

