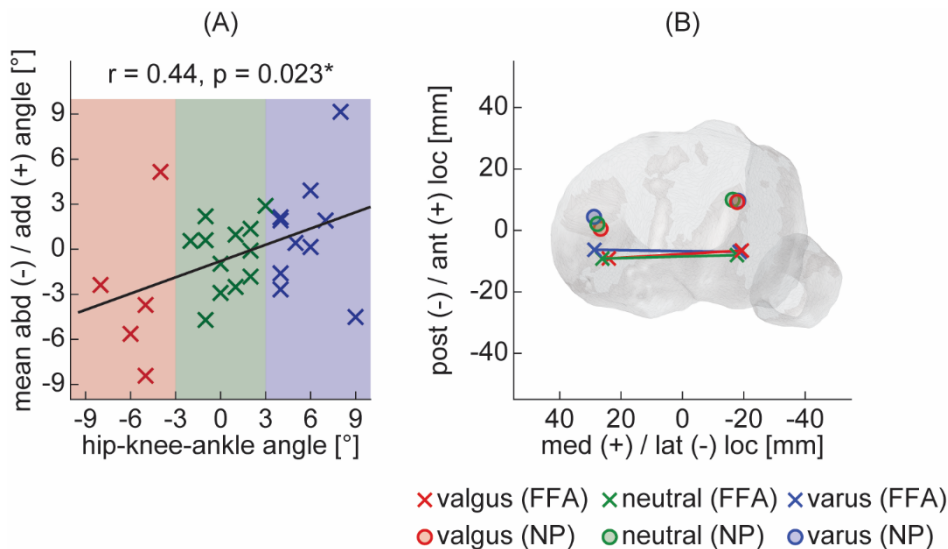


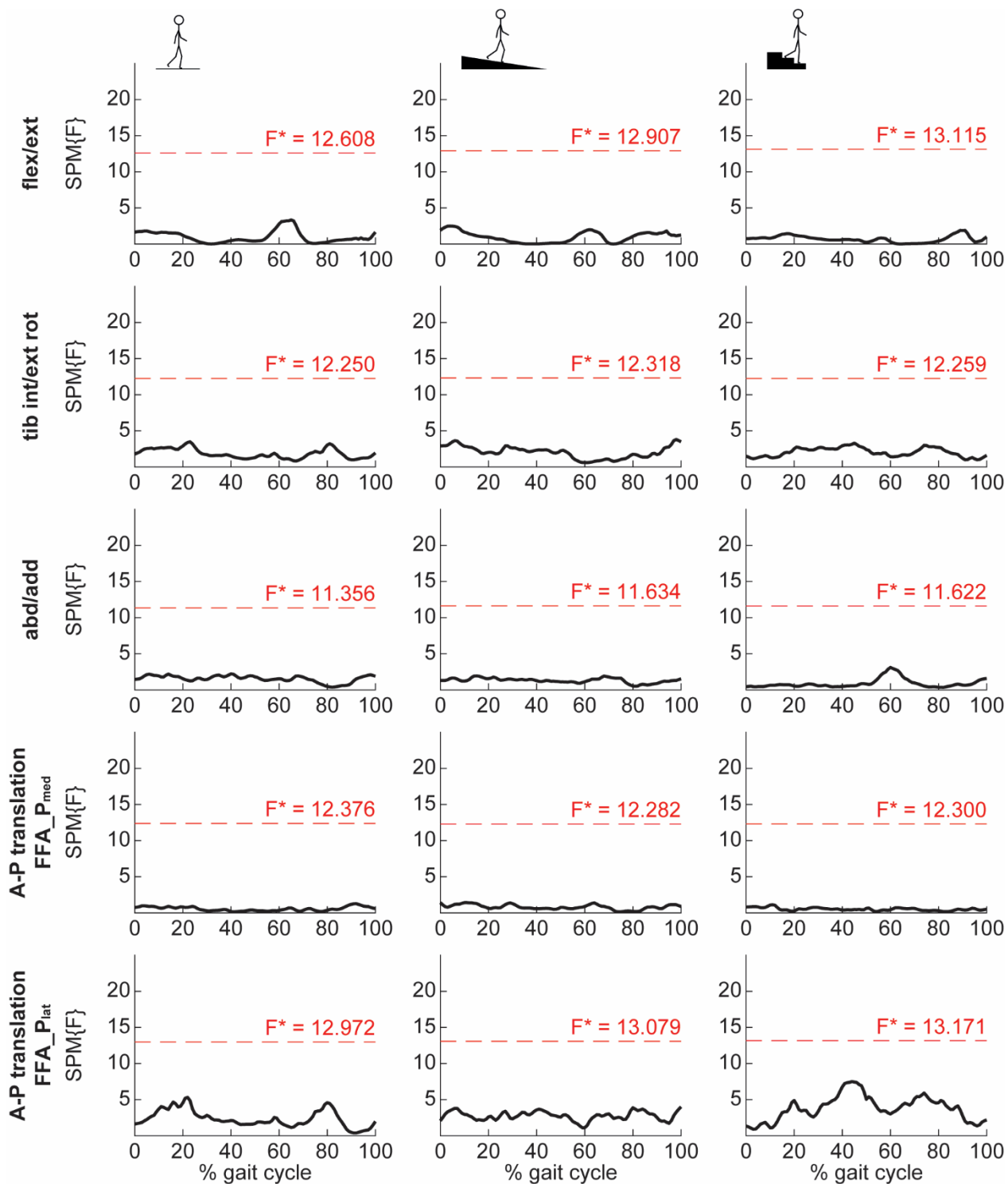
10.1302/2046-3758.139.BJR-2023-0162.R3

**Table i.** 3D gait velocity over the complete gait cycle for level walking, downhill walking, and stair descent. All values are presented as means and SDs.

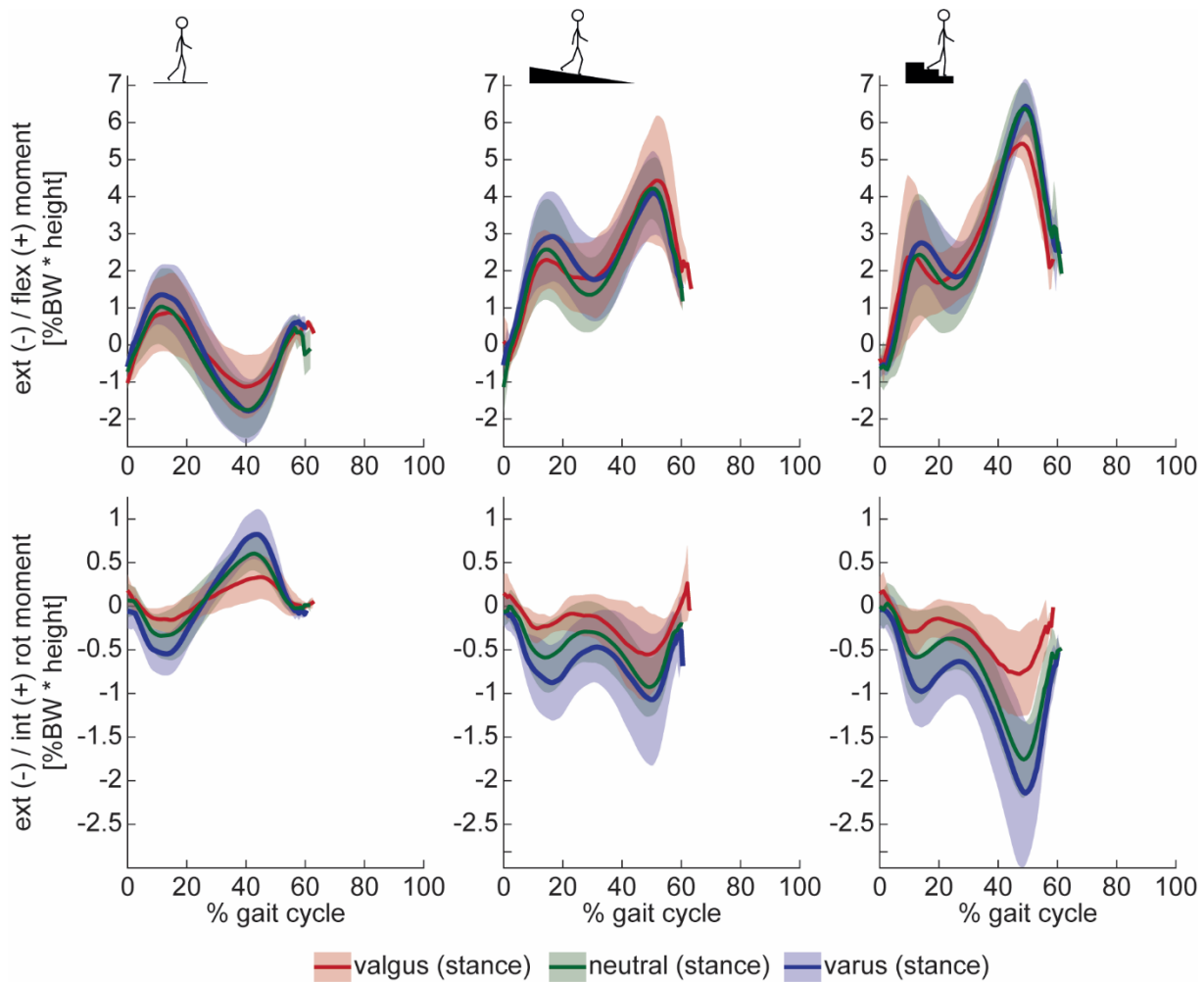
Variable	Valgus	Neutral	Varus
Level walking, m/s	0.77 (0.06)	0.85 (0.08)	0.82 (0.07)
Downhill walking, m/s	0.73 (0.09)	0.82 (0.08)	0.76 (0.06)
Stair descent, m/s	0.55 (0.06)	0.59 (0.06)	0.54 (0.05)



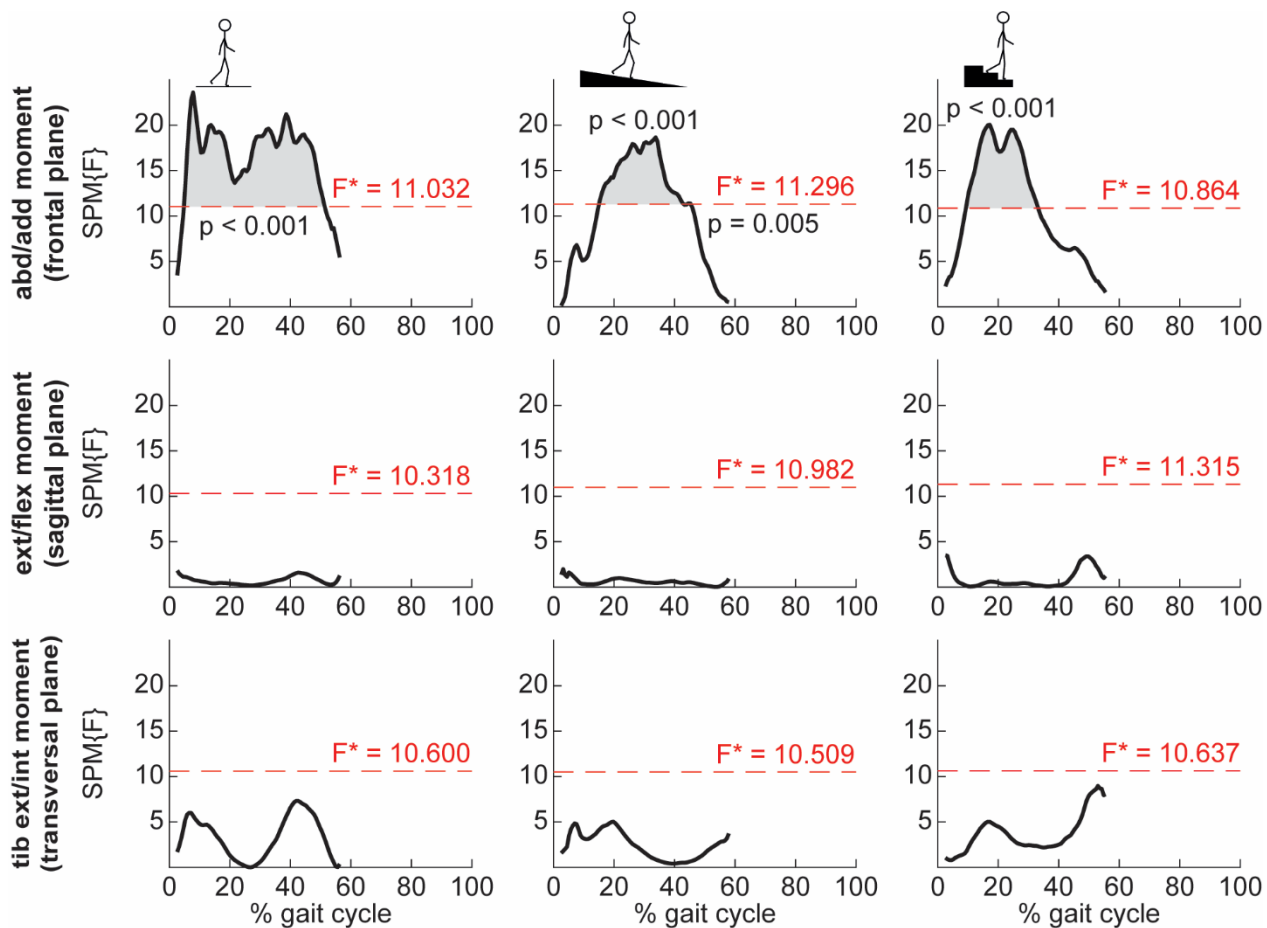
**Fig a.** a) Pearson correlation of the mean abduction/adduction (abd/add) angle measured during the standing trials and the individual hip-knee-ankle angle measured with the EOS (EOS imaging, France). b) Mean location of the medial and lateral functional flexion axis points (x) and nearest points (o) within the tibial anatomical coordinate system for each subgroup, presented in the transverse plane. ant, anterior; FFA, functional flexion axis; NP, nearest point; post, posterior.



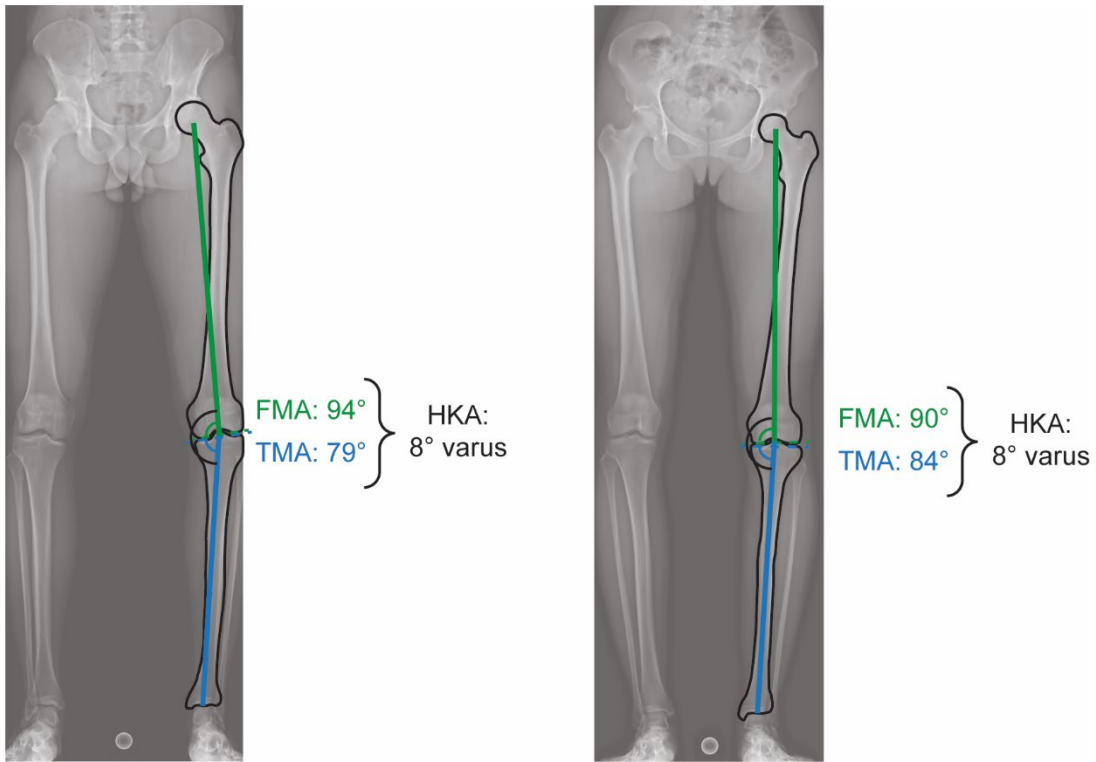
**Fig b.** F-value for the statistical parametric mapping (SPM) analysis of variance throughout complete gait cycles of level walking (left), downhill walking (middle), and stair descent (right), each for flexion/extension (flex/ext), tibial internal/external rotations (tib int/ext rot), abduction/adduction (abd/add), and anteroposterior (A-P) translation of the medial and lateral functional flexion axis points (FFA\_P<sub>med</sub>, FFA\_P<sub>lat</sub>). The adjusted level of significance was set to  $\alpha = 0.0033$ .



**Fig c.** Knee sagittal moment (extension/flexion moment) (top row) and knee transversal moment (external/internal rotation moment) throughout complete gait cycles of level walking (left), downhill walking (middle), and stair descent (right). The mean (thick line) and SDs (shaded area) across each limb alignment group are presented. BW, body weight.



**Fig d.** F-value for the statistical parametric mapping (SPM) analysis of variance throughout complete gait cycles of level walking (left), downhill walking (middle), and stair descent (right), each for the frontal plane (abduction/adduction moment), sagittal plane (extension/flexion moment), and transversal plane (tibial external/internal moment). The adjusted level of significance was set to  $\alpha = 0.0056$ .



**Fig e.** Schematic illustration of clear differences between identical hip-knee-ankle (HKA) angles as calculated using the SterEOS software, plausibly caused by different femoral (FMA) and tibial (TMA) mechanical axis in two subjects.