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Distance between tibial tubercle and trochlear groove correlates with lower limb axial alignment

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Purpose: To correlate the tibial tubercle to trochlear groove distance with axial limb alignment. The hypothesis is that as internal torsion of the distal femur or external torsion of the proximal tibia increase, the tibial tubercle to trochlear groove distance increases.

Methods: We designed a cross-sectional study approved by our institutional ethics review board. We reviewed 32 computed tomography angiographies of asymptomatic patients. Lower limb torsion, femoral torsion, tibial torsion and tibial tubercle to trochlear groove distance were measured. A regression analysis between the tibial tubercle to trochlear groove distance and the articular torsion was performed.

Results: A positive correlation between the tibial tubercle to trochlear groove distance and the articular torsion was found. **Conclusions:** As external torsion between proximal tibia and distal femur increased the tibial tubercle to trochlear groove distance does so. For a correct interpretation of the tibial tubercle to trochlear groove distance, the axial alignment should be included in the regular analysis of patellofemoral disease.