


Subject: Do older adults with knee osteoarthritis place greater loads on the knee during gait? A preliminary study.

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Do older adults with knee osteoarthritis place greater loads on the knee during gait? A preliminary study.

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OBJECTIVE: To compare the gait of older adults with knee osteoarthritis (OA) to an age-, sex-, and weight-matched healthy cohort that would provide preliminary data to examine the hypothesis that adults with knee OA have abnormal knee joint moments and place greater loads on the knee joint during walking compared with healthy adults. **DESIGN:** Nonrandomized, descriptive study of healthy and osteoarthritic older adults. **SETTING:** University clinical research laboratory. **PARTICIPANTS:** Ten older adults with tibiofemoral and/or patellofemoral radiographic evidence and pain and disability attributed to knee OA and 10 age-, sex-, and weight-matched healthy adults. **INTERVENTIONS:** Not applicable. **MAIN OUTCOME MEASURES:** Three-dimensional gait analysis to calculate knee joint forces and hip, knee, and ankle joint moments; an analysis of covariance adjusted for differences in walking speed between the groups; electromyographic data to verify our interpretation of the knee joint moment data. **RESULTS:** The joint forces and moments did not differ statistically between the OA and healthy groups. Nonsignificant differences in the OA group relative to the healthy group included between 7% and 8% greater knee joint compressive (OA group, 3.67 \pm 0.24 body weight [BW]; healthy group, 3.40 \pm 0.24 BW) and shear (OA group, 0.47 \pm 0.04 BW; healthy group, .44 \pm .04 BW) forces, 33% higher knee extension moments (OA group, .32 \pm .07 Nm/kg; healthy group, .24 \pm .07 Nm/kg), and 24% lower knee internal abduction moments (OA group, .25 \pm .06 Nm/kg; healthy group, .33 \pm .06 Nm/kg). **CONCLUSIONS:** Previous research suggests that mechanical overload may be associated with knee OA. Our results do not provide statistical evidence to support this hypothesis. Nevertheless, the trends in the data, along with previous results, suggest the need to investigate further the possible existence of a biomechanical pathway to knee OA.

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