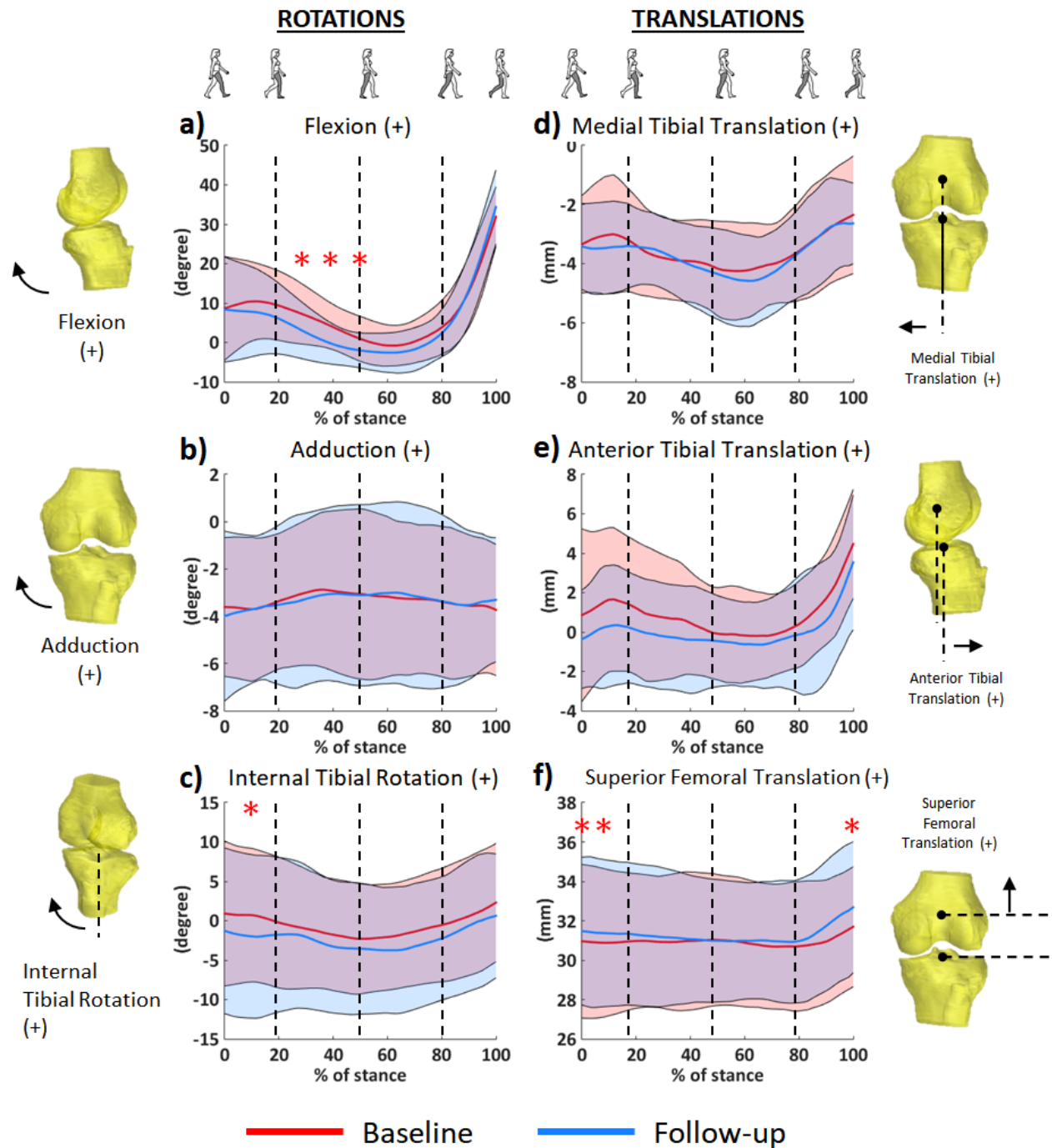


## Appendix

### Six degree-of-freedom kinematics before and after weight loss

We used paired t-tests to test for differences between the baseline and follow-up visits during the stance phase of the gait cycle. The dependent variables included flexion-extension, adduction-abduction, internal-external rotation, anterior-posterior, medial-lateral, and superior-inferior translations at every 10% of the stance phase. The level of significance was set at 0.05 two tailed. The individuals with obesity and knee pain at baseline and follow-up showed a similar pattern in all 6 degree-of-freedom kinematics (**Figure 1**). The knees at the follow-up visit was in a more extended position during 30-50% of the stance phase, which corresponded to the mid-to-late midstance phase, when compared with the baseline visit (**Figure 1a**). The knees at follow-up was in an externally rotated position throughout the stance phase when compared with the baseline; however, no statistical difference was found, except at 10% of the stance phase (mid loading response) (**Figure 1c**). The knees at the follow-up visit had a less anterior translation throughout the stance phase; however, no statistical difference was found (**Figure 1e**). The knees at follow-up had slightly increased superior femoral translation at 0% (initial contact), 10% (mid loading response), and 100% (toe off) of the stance phase (**Figure 1f**).



**Figure 1.** Six degree-of-freedom kinematics during stance phase of treadmill gait in individuals with obesity and knee pain before (red) and after (blue) weight loss. Solid line indicates the mean and shade area for  $\pm 1$  SD.