



**Supplementary Figure S9: Off-axis forces could correlate with on-axis stiffness.**

Two imaginary muscles exert force on the handle according to the labeled vectors. If the magnitude of the muscle forces are equal, then the sum of the two muscle forces would result in zero force along the track and a non-zero force toward the subject. In addition, increasing the muscle force would increase both the force toward the subject and the stiffness along the track, without changing the force along the track.