

**Fig S1.** Representative absolute GRF measurements from Goat 63. Plots show three-component GRFs from a single representative trial (Goat 63) on each surface, as measured by walkway force plates. Trials are plotted in absolute time. Y-axis scales have been adjusted for each plot to show the relevant range of forces.

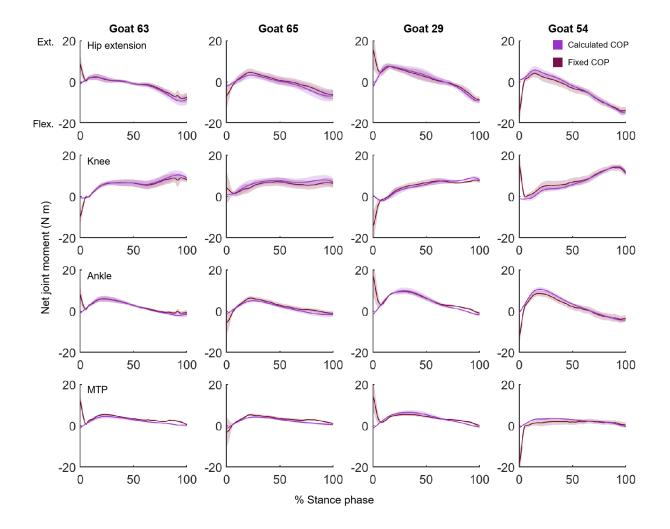


Fig S2. Net joint moments on the rigid surface, estimated using the GRF-calculated and hoof-fixed COPs. Plots represent average net joint moment across all trials from each goat. Shaded regions represent s.e.m. across all trials from each goat.

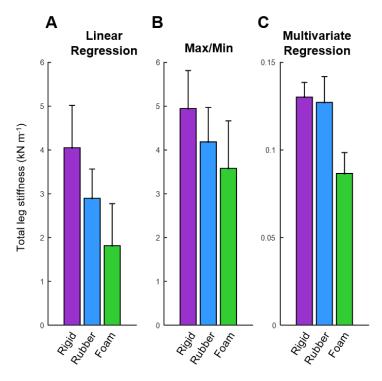


Fig S3. Total leg stiffness of the goat hindlimb during walking on rigid, rubber, and foam surfaces, as estimated three ways. In addition to the linear regression method described in the manuscript (A), we estimated stiffness at the point of maximum force (B), as was done by Farley and Morgenroth (1999) and others. We also estimated stiffness using the nonlinear approach (C) described by Gunther and Blickham (2002).