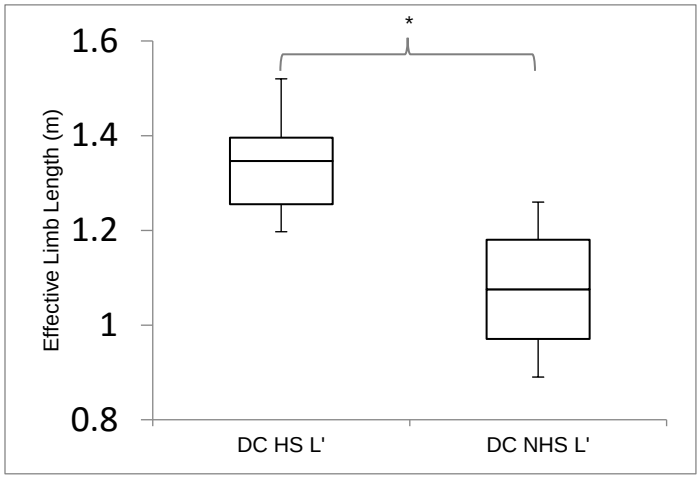
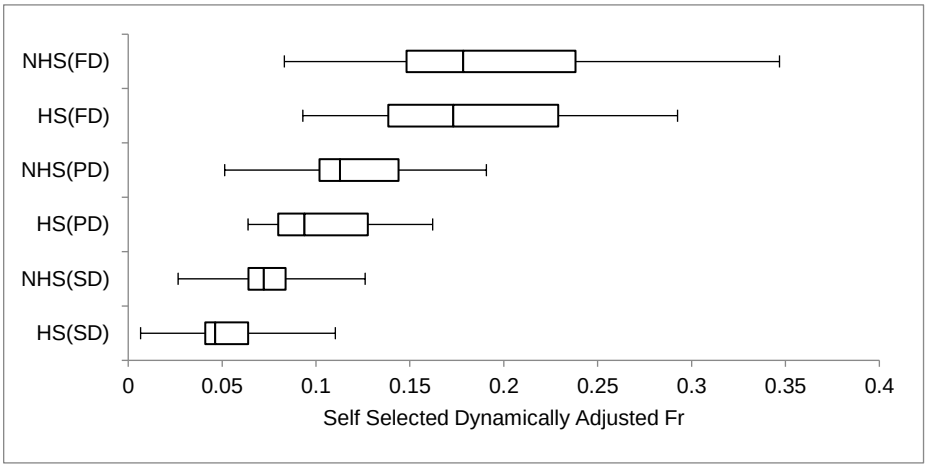
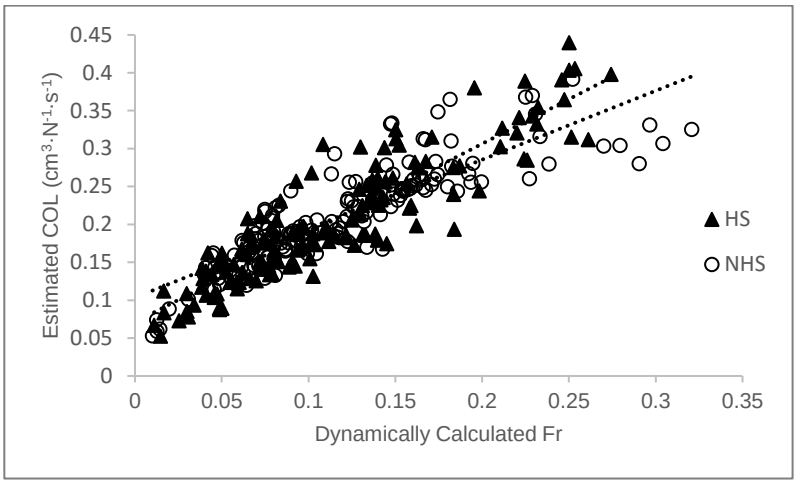
Supplementary information



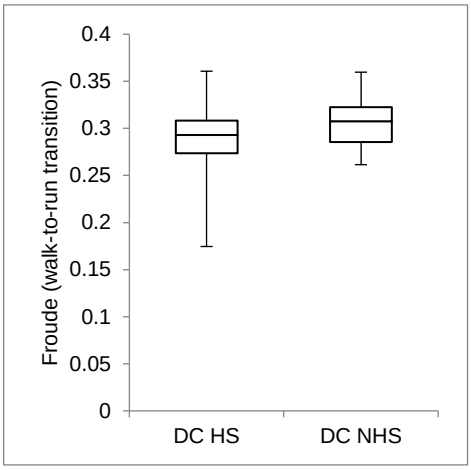
Supplemental Fig. 1. Dynamically calculated limb length. DC *L'* was significantly shorter in NHS trials (Supplemental Fig. 1; -0.247 ± 0.109m, $p < 0.0001$) when compared to HS trials at preferred walking speeds.



Supplemental Fig. 2. DC Froude number and foot strike. There was no significant difference between HS and NHS Fr' when calculated dynamically (Supplemental Fig. 2; slow $p = 0.10$, preferred $p = 0.48$, fast $p = 0.87$).



Supplemental Fig. 3. $\dot{E}_{COL}$ accounting for the effects DC on *L*. The estimated cost of locomotion (COL) was not significantly different between HS and NHS footfalls after calculating limb length dynamically. (Supplemental Fig. 3; $X^2(1) = 0.19$, $p = 0.6660$).



Supplemental Fig. 4. DC WTR speed. The dynamically calculated dimensionless Fr' walk-to-run transition speeds were not statistically different between HS and NHS (Supplemental Fig. 4; $p = 0.34$).