

Supplementary Material

Table S.1 – Ankle joint range of motion, peak net moment, and angular velocities over stance. Instantaneous net ankle joint power = (moment*angular velocity) was integrated to obtain ankle positive/negative work reported in the main manuscript. PRE=pre-training, POST=post-training, FU1=1-month follow up, FU5=5-month follow up, AB=Able-bodied runners from Fukuchi, et al (2017)⁸

Visit	Run Speed (m/s)	Ankle Range of Motion (Deg)		Ankle Moment (Nm/kg)		Max Ankle Angular Velocity (Deg/sec)			
						Plantarflexion		Dorsiflexion	
		L	R	L	R	L	R	L	R
PRE	2.0-2.2	10(1)	41(3)	1.8(0.5)	1.7(0.6)	105(23)	301(55)	124(6)	182(8)
POST	1.9-2.2	11(1)	34(3)	2.8(0.4)	2.2(0.4)	139(21)	323(50)	137(24)	172(29)
FU1	2.0-2.2	10(1)	38(5)	2.7(0.4)	2.3(0.3)	113(10)	374(32)	177(24)	209(23)
FU5	2.0-2.1	15(1)	34(5)	3.3(0.3)	2.5(0.1)	183(15)	344(12)	194(4)	172(4)
AB	2.5	33(4)		2.2(0.3)		392(41)		252(53)	

Table S.2 – Representative data illustrating the effect of varied strike index on ankle and foot work. Trial 1 and Trial 2 during PRE had 33% and 7% strike indices respectively, while Trial 3 during POST had a 40% strike index – firmly in the midfoot classification. Substantial variation exists between Trial 1 and Trial 2 in the work ratios for the ankle and foot when calculated separately, while a ratio of the summed ankle+foot work (WR_{AF}) is relatively similar. Trial 3 at POST had even greater WR_{AF} , as the ankle contributed more work to the sum relative to the distal foot. This demonstrates that while rearfoot striking can yield relatively similar net WR_{AF} to midfoot striking, underlying ankle-foot work constituents can differ. Regardless, in a relative comparison, a midfoot strike was more effective as it yielded the greatest WR_{AF} magnitude in addition to low inter-cycle variability (Trial 3). This is likely due to the distal foot + PD-AFO footplate complex being less mechanically efficient than the ankle + PD-AFO strut complex, in terms of storing and returning elastic energy.

	PRE Trial 1 (3 minutes) SI = 33% (rear-midfoot)			PRE Trial 2 (7 minutes) SI = 7% (heel)			POST Trial 3 (7 minutes) SI = 40% (midfoot)		
	Ankle	Foot	A+F Sum	Ankle	Foot	A+F Sum	Ankle	Foot	A+F Sum
+work (J/kg)	0.28	0.01	0.29	0.10	0.11	0.21	0.33	0.01	0.34
-work (J/kg)	-0.19	-0.25	-0.44	-0.23	-0.16	-0.39	-0.25	-0.17	-0.42
work ratio (%)	147%	4%	66%	43%	69%	54%	132%	6%	81%