S2 Appendix. Data correction and event detection

All gaps were reconstructed using a spline interpolation in MATLAB (MathWorks Inc., Natick, USA). The tracks were then filtered using a low pass second order Butterworth filter, with a cut-off frequency at 12 Hz. All gaps, exceeding 3 samples at the start and end, were reconstructed using the filtered tracks.

Gait events were calculated using the treadmill velocity based method of Zeni et al. [1]. Foot marker position data were filtered using a second order Butterworth filter, with a cut-off frequency of 10 Hz, before velocity was calculated. Gait events were determined based on force plate data [2-4], using a 50 Newton threshold. The phase shift between the results of both methods was determined for steps in which the force exceeded the threshold. Outliers were detected and removed using a number of samples threshold and when the phase shift exceeded a value of more than 2 times the standard deviation. All events, calculated with the velocity based method, were then corrected with the calculated phase shift. Then spatiotemporal gait characteristics were determined using a custom Matlab program.