

Supplementary Information

Title: Estimation of hike events and temporal parameters with body-attached sensors

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Table S1. Estimated temporal parameters (mean $\pm$ std) for all activities with and without down sampling from 1000 Hz to 100 Hz of force plate data.

All activities		
Temporal parameter	Without down sampling	With down sampling
Left stride time (s)	1.02 $\pm$ 0.18	1.02 $\pm$ 0.18
Right stride time (s)	1.02 $\pm$ 0.18	1.02 $\pm$ 0.18
Left step time (s)	0.51 $\pm$ 0.10	0.51 $\pm$ 0.09
Right step time (s)	0.51 $\pm$ 0.09	0.51 $\pm$ 0.09
Left cadence (strides/min)	60.73 $\pm$ 10.60	60.82 $\pm$ 10.62
Right cadence (strides/min)	60.73 $\pm$ 10.59	60.81 $\pm$ 10.58
Left stance phase (%)	54.2 $\pm$ 13.2	55.0 $\pm$ 13.0
Right stance phase (%)	54.8 $\pm$ 12.6	55.3 $\pm$ 12.7
Left swing phase (%)	45.8 $\pm$ 13.2	45.0 $\pm$ 13.0
Right swing phase (%)	45.2 $\pm$ 12.6	44.7 $\pm$ 12.7

Table S2. Estimated temporal parameters (mean $\pm$ std) for walking with and without down sampling from 1000 Hz to 100 Hz of force plate data.

Walking		
Temporal parameter	Without down sampling	With down sampling
Left stride time (s)	1.28 $\pm$ 0.04	1.15 $\pm$ 0.02
Right stride time (s)	1.28 $\pm$ 0.03	1.15 $\pm$ 0.02
Left step time (s)	0.65 $\pm$ 0.02	0.58 $\pm$ 0.02
Right step time (s)	0.63 $\pm$ 0.02	0.57 $\pm$ 0.02
Left cadence (strides/min)	46.94 $\pm$ 1.30	52.19 $\pm$ 0.94
Right cadence (strides/min)	46.84 $\pm$ 1.20	52.22 $\pm$ 0.99
Left stance phase (%)	67.3 $\pm$ 1.1	64.9 $\pm$ 1.3
Right stance phase (%)	66.1 $\pm$ 1.3	65.0 $\pm$ 3.0
Left swing phase (%)	32.7 $\pm$ 1.1	35.1 $\pm$ 1.3
Right swing phase (%)	33.9 $\pm$ 1.3	35.0 $\pm$ 3.0

Table S3. Estimated temporal parameters (mean $\pm$ std) for Hiking with and without down sampling from 1000 Hz to 100 Hz of force plate data.

Hiking		
Temporal parameter	Without down sampling	With down sampling
Left stride time (s)	1.27 $\pm$ 0.05	1.01 $\pm$ 0.03
Right stride time (s)	1.28 $\pm$ 0.05	1.01 $\pm$ 0.01
Left step time (s)	0.64 $\pm$ 0.03	0.51 $\pm$ 0.02
Right step time (s)	0.64 $\pm$ 0.02	0.51 $\pm$ 0.02
Left cadence (strides/min)	47.12 $\pm$ 1.64	59.20 $\pm$ 1.57
Right cadence (strides/min)	47.02 $\pm$ 1.83	59.19 $\pm$ 0.84
Left stance phase (%)	66.4 $\pm$ 0.8	62.1 $\pm$ 2.8
Right stance phase (%)	67.1 $\pm$ 1.1	62.0 $\pm$ 1.0
Left swing phase (%)	33.6 $\pm$ 0.8	37.9 $\pm$ 2.8
Right swing phase (%)	32.9 $\pm$ 1.1	38.0 $\pm$ 1.0

Table S4. Estimated temporal parameters (mean $\pm$ std) for running with and without down sampling from 1000 Hz to 100 Hz of force plate data.

Running		
Temporal parameter	Without down sampling	With down sampling
Left stride time (s)	1.32 $\pm$ 0.03	0.81 $\pm$ 0.02
Right stride time (s)	1.32 $\pm$ 0.03	0.81 $\pm$ 0.02
Left step time (s)	0.66 $\pm$ 0.01	0.40 $\pm$ 0.02
Right step time (s)	0.66 $\pm$ 0.02	0.41 $\pm$ 0.01
Left cadence (strides/min)	45.48 $\pm$ 0.96	74.14 $\pm$ 1.68
Right cadence (strides/min)	45.50 $\pm$ 0.96	74.15 $\pm$ 1.58
Left stance phase (%)	66.9 $\pm$ 0.6	37.4 $\pm$ 1.9
Right stance phase (%)	66.7 $\pm$ 0.5	38.0 $\pm$ 1.6
Left swing phase (%)	33.1 $\pm$ 0.6	62.6 $\pm$ 1.9
Right swing phase (%)	33.3 $\pm$ 0.5	62.0 $\pm$ 1.6