

CORRECTION

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# Correction: Assessing real-world gait with digital technology? Validation, insights and recommendations from the Mobilise-D consortium

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Following publication of the original article [1], the author noticed the errors in Table 1, and in Discussion section.

In Table 1 under Metric (Gait sequence detection) column, the algorithms  $GSD_B$  was updated with wrong description, input, output, language and citation and  $GSD_C$  with wrong description has been corrected as shown below:

The original article can be found online at <https://doi.org/10.1186/s12984-023-01198-5>.

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In Discussion section, the paragraph should read as "Based on our findings collectively, we recommend using  $GSD_B$  on cohorts with slower gait speeds and substantial gait impairments (e.g., proximal femoral fracture). This may be because this algorithm is based on the acceleration norm (overall accelerometry signal rather than a specific axis/direction (e.g., vertical), hence it is more robust to sensor misalignments that are common in unsupervised real-life settings. Moreover, the use of adaptive threshold, that are derived from the features of a subject's data and applied to step duration for detection of steps belonging to gait sequences, allows increased robustness of the algorithm to irregular and unstable gait patterns" instead of "Based on our findings collectively, we recommend using  $GSD_B$  on cohorts with slower gait speeds and substantial gait impairments (e.g., proximal femoral fracture). This may be because this algorithm is based on the acceleration norm (overall accelerometry signal rather than a specific axis/direction (e.g., vertical), hence it is more robust to sensor misalignments that are common



**Table 1** Description of algorithms for each metric: gait sequence detection (GSD), initial contact event detection (ICD), cadence estimation (CAD) and stride length estimation (SL)

Metric	Name	Description	Input	Output	Language	References
Gait Sequence Detection	GSD <sub>A</sub>	Based on a frequency-based approach, this algorithm is implemented on the vertical and anterior-posterior acceleration signals. First, these are band pass filtered to keep frequencies between 0.5 and 3 Hz. Next, a convolution of a 2 Hz sine wave (representing a template for a gait cycle) is performed, from which local maxima will be detected to define the regions of gait.	<b>acc_v</b> : vertical acceleration <b>acc_ap</b> : anterior-posterior acceleration <b>Wins</b> = 3 s; window size for convolution <b>OL</b> = 1.5 s; overlap of windows <b>Activity_thresh</b> = 0.01; Motion threshold <b>Fs</b> : sampling frequency	<b>Start</b> : beginning of N gait sequences [s] relative to the start of a recording or a test/trial. <b>Format</b> : 1 × N vector <b>End</b> : termination of N gait sequences [s] relative to the start of a recording or a test/trial. <b>Format</b> : 1 × N vector	Matlab®	Iluz, Gazit [40]
	GSD <sub>B</sub>	This algorithm, based on a time domain approach, detects the gait periods based on identified steps. First, the norm of triaxial acceleration signal is low-pass filtered ( $FIR, f_c = 3.2$ Hz), then a peak detection procedure using a threshold of 0.1 [g] is applied to identify steps. Consecutive steps, detected using an adaptive step duration threshold are associated to gait sequences	<b>acc_norm</b> : norm of the 3D-accelerometer signal <b>Fs</b> : sampling frequency <b>th</b> : peak detection threshold: 0.1 (g)	<b>Start</b> : beginning of N gait sequences [s] relative to the start of a recording or a test/trial. <b>Format</b> : 1 × N vector <b>End</b> : termination of N gait sequences [s] relative to the start of a recording or a test/trial. <b>Format</b> : 1 × N vector	Matlab®	Paraschiv-Ionescu, Newman [41]
GSD <sub>C</sub>	This algorithm utilizes the same approach as GSD <sub>B</sub> , the only difference being a different threshold for peak detection of 0.15 [g]		<b>acc_norm</b> : norm of the 3D-accelerometer signal <b>Fs</b> : sampling frequency <b>th</b> : peak detection threshold: 0.15 (g)	<b>Start</b> : beginning of N gait sequences [s] relative to the start of a recording or a test/trial. <b>Format</b> : 1 × N vector <b>End</b> : termination of N gait sequences [s] relative to the start of a recording or a test/trial. <b>Format</b> : 1 × N vector	Matlab®	Paraschiv-Ionescu, Newman [41]

in unsupervised real-life settings [41]. Moreover, the use of adaptive thresholds, that are derived from the features of a subject's data and applied to the amplitude of acceleration norm and to step duration for detection of steps belonging to gait sequences, allows increased robustness of the algorithm to irregular and unstable gait patterns".

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