

Analysis / discussion points from the research paper

A Novel Tool for Gait analysis : Validation Study of the Smart insole PODOSmart.

The research was carried out against the Vicon motion capture device. The Vicon system is used within gait analysis labs of universities. The system uses reflective markers on key joints that are captured by cameras. It is often referred to within research as the GOLD standard.

Positives from the paper

PODOSmart measurements were valid and accurate compared with the Gold standard system – Vicon.

Insole are light weight with no wires therefore allow natural walking.

Results indicated high matching of most spatiotemporal (Distance and time) gait parameters – step length, stride length, stance and swing phase , step time, cadence.

Where some of the data collected has a difference and is written as poor on the analysis tables – the authors refer to some of these being issues with the noisy data capture from the vicon system, not an error with the PODOSmart insole system.

Limitations of the study - this is what customers will challenge you over if they read the paper.

Small sample size

Small walk way of 6 m used where they then reduced 2m on each end for acceleration and deceleration. They have commented that ideally PODOSmart is used for longer distances however can also be used for shorter distances! Of 4m.

Lack of variability of human gait – which is why we want a patient to walk “normally” for at least 1 minute preferably longer.

Only used male participants

Future research needed

Larger sample size

Specific age groups – this is due to the difference in tissues of the body which can affect gait

Females as this was an all-male sample group – Female hormones protect and affect the gait cycle – laxity and stiffness, hence why they weren't included in the 1st sample group.