

**Title: Evaluation of a smartphone accelerometer system for measuring nonlinear dynamics during treadmill walking: Concurrent validity and test-retest reliability**

“Smartphones contain sensors that can be used to quantify gait patterns. This study contrasted the efficacy of these sensors with reference lab-based methods, for reporting linear and non-linear gait measures. Seventeen healthy participants conducted three 8-minute treadmill walking trials on different days. Inter-stride interval was the primary independent variable. Bland-Altman and intra-class correlation tests were used to evaluate the precision and consistency of the smartphone sensors. The outcomes demonstrated that the smartphone is a valid and reliable method for estimating linear and nonlinear gait measures during treadmill walking, opening the possibility of using smartphones for community-based gait studies.”