



Your Personal Trainer

The system is made of an *extremely user-friendly* APP, a **smartphone**, and **three small wireless sensors**.

Gait Tutor acts as a *virtual coach*: evaluates in real-time the quality of gait and guides the person with clear vocal messages to walk *safely, effectively* and *smoothly*.

Moreover, Gait Tutor is a clinical research tool able both to show in real time gait events and to *log hours of outdoor walking* providing extremely accurate step-by-step spatio-temporal gait parameters and posture information.



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GAIT TUTOR **GT**

Wearable system to monitor, measure and train the walking performance

Easy

Certified

Mobile



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What does GAIT TUTOR do ?

Gait Tutor is a **Medical Device** developed for **monitoring, measuring and training** walking through a day-by-day workout.

Gait Tutor **guides to the correct execution of each gait cycle** by means of vocal messages aimed at preventing gait alterations. Besides, Gait Tutor has specific algorithms to detect and *avert Freezing of Gait* and *Stooped Posture*.

Where was it conceived?

"Smartphones have become ubiquitous in modern society and can be an incredible convenience (...) that may favourably impact our ability to treat patients with Parkinson's disease (...). Results of their study are both interesting and encouraging (...)." Editor's comment from *Ginis et al., Parkinsonism and Related Disorders* 2016 (22, pp. 28-34).



Gait Tutor concept was originally developed within the **European CuPID project** (cupid-project.eu). After a pilot RCT study in which tens of patients affected by Parkinson's disease used it daily, Gait Tutor resulted feasible, well-accepted and effective in promoting gait training.

How can walking pattern be improved?

Gait Tutor operates using a *closed-loop biofeedback*. From an accurate real-time analysis of gait features such as stride length, cadence, double support duration, asymmetry, back posture, etc., Gait Tutor trigger self-stimulating corrective actions on *speed, coordination, balance, efficacy* and *posture*.

Thanks to its incredible simplicity, Gait Tutor can be used by anyone. Thanks to its automation content, Gait Tutor keeps trainings **challenging and engaging in any condition**.

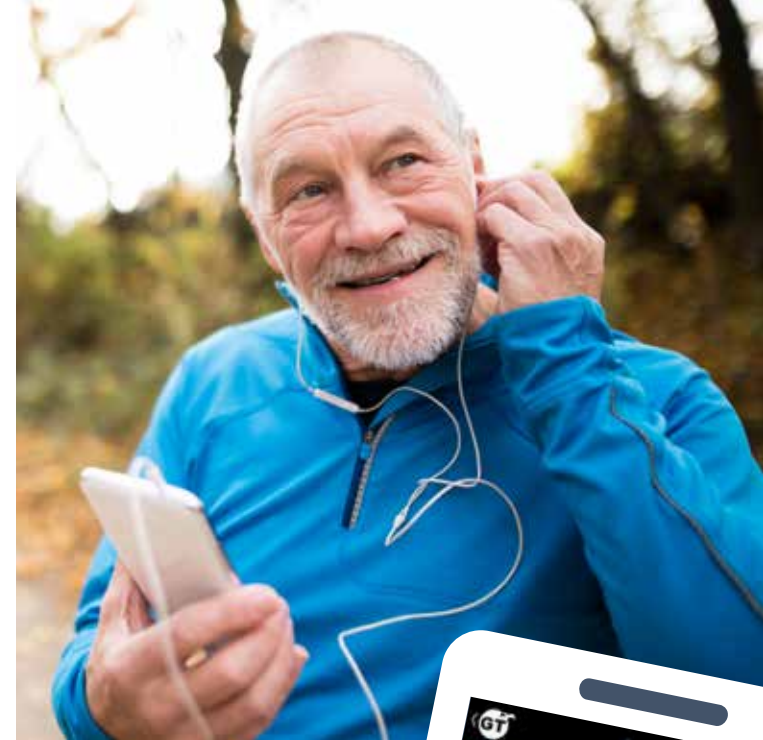
Additionally, Gait Tutor allows researchers to:

- Monitor in real time gait events and spatio-temporal gait parameters
- Log into the smartphone hours of gait analysis data
- Determine the outcome of a rehabilitation program, from the overall performance (distance covered, spontaneous speed, etc.) to gait variability, asymmetry, coordination.

How it works:

The original ZUPT-aided INS Kalman Filter algorithm at the base of Gait Tutor engine guarantees same accuracy and precision as gait analysis laboratories. References: *Ferrari A et al., IEEE Trans. Neural Syst. Rehabil. Eng.* 2016 (24-7, pp. 764-73); *Casamassima et al., Sens. (Basel)* 2014 (14, pp. 6229-46).

Gait Tutor via a **cloud service** synchronizes and transfers app data to any desktop PC, allowing remote performance analysis and pre- vs post-treatments comparisons.



Gait Tutor is a medical device designed to help you regain your motor skills; it can be used anytime and anywhere, without having to reach clinical structures, cutting costs and time of rehabilitation.

