

Equimetrix

by tecnalia

BUSINESS OPPORTUNITY

Towards quantitative functional balance
ASSESSMENT AND TRAINING

Proposal

Equimetrix is a technology to:

- **Measure** either:
 - the **relative 3D position of Centre of Mass (CoM) and Base of Support (BoS)**.
 - the **relative 3D position of CoM and Centre of Pressure (COP)** of humans.
- **Compute a Stability Index** based on features extracted from CoM and BoS/CoP relative positions.

Equipment

- **A motion sensing belt** equipped with a camera and an inertial measurement unit and positioned as close as possible to the CoM (lower part trunk).
- **A platform at the level of the feet** that measures the BoS or CoP.
- **A processing unit** for sensor fusion and stability index computation.
- **A Graphical User Interface** providing real-time feedback to both patient and healthcare professionals.



Functionalities

Two main functionalities are available in Equimetrix:

- **Assessment:** The software supports various assessment procedures during which a stability index is recorded (see Figure 1) among other features such as CoM statistics (velocity, acceleration, maximum velocity, maximum acceleration), CoP statistics (similar to stabilogram information) or foot placement (Base of Support dimensions) if available.

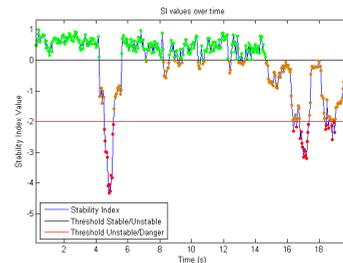


Figure 1. Illustration of a stability index recording

- **Training:** The software offers the possibility to perform various training tasks or games. Figure 2 presents the “follow the spiral” game. The goal of this game, after guiding the user on proper foot placement on the pressure distribution platform, is to virtually drive the representation of the user’s Centre of Mass (CoM) over the spiral drawn on the screen. The execution time as well as the time spent by the CoM outside the spiral are recorded for further analysis.

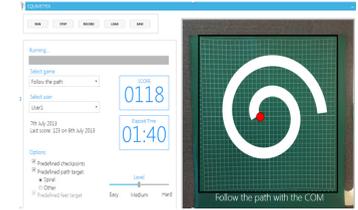


Figure 2. Illustration of the “spiral” training game

Equimetrix might be complementary technology for current equipment:

- Baropodometric devices.
- Sensorized walking pathways.
- Force platforms.
- Sensorized treadmill.

And might be combined with computer for visual feedback, EMG or virtual reality devices.

Our Competitive Advantage

- Portable solution combining two relevant biomechanical parameters.
- Realistic measurements in dynamic conditions.
- Low-cost technology.
- Add-on to existing equipment.
- Compatible with current clinical tests.
- For both assessment and training.
- Fast and easy to put on and take off.
- Wireless.

Potential Markets

- **Neurorehabilitation:** Parkinson’s disease, Multiple sclerosis, Stroke.
- **Physiotherapy:** Knee/hip replacement, Coordination, Osteoarthritis.
- **Podiatry:** Geriatric podiatry, Orthopaedic insoles.
- **Otorhinolaryngology:** Chronic ear infection, Labyrinthitis, Meniere’s disease.

Why Together with TECNALIA

TECNALIA is the **first privately funded applied research centre in Spain** and one of the leading such centres in Europe. With a workforce of more than **1,400 highly qualified people**, a **102 million Euros turnover** and a portfolio with over **4,000 clients**, TECNALIA focuses its activity towards **transforming knowledge into GDP to improve people's quality of life, by creating business opportunities for companies.**

TECNALIA is committed to future greatest challenges as it is, among others, the **improvement of the quality of people's lives**, particularly in terms of **ageing**.

Its **international and multi-disciplinary team** is made up by 130 researchers specialised in the fields of **health-oriented biotechnology, biomaterials, robotics and ICTs**; this allows to provide solutions to many health challenges from different perspectives such as **health-care, food or medical devices.**

IDEAS THAT
CREATE VALUE

Inspiring Business

“TECNALIA transforms knowledge into GDP to improve People's quality of life by generating business opportunities for Companies”

ONE HUNDRED AND TEN



MILLION EUROS INCOME



FIRST SPANISH PRIVATE ORGANISATION IN FINANCIAL RETURN, PROJECTS APPROVED AND LED WITHIN THE EC 7FP

1st



EXPERTS ON STAFF

+1,400



+ 4,000 CLIENTS WITH 7 BUSINESS DIVISIONS AT THEIR SERVICE

+4,000

■ **INFO:** COMMERCIAL: **Iraitz Manterola** · iraitz.manterola@tecnalia.com · T +34 667 119 626
TECHNICAL: **Pierre Barralon** · pierre.barralon@tecnalia.com · T +34 667 119 670

Equimetrix
by tecnalia

tecnalia  Inspiring
Business