physio
sensing

PHYSIOSENSING RANGE TECHNOLOGY

Balance | Feet Pressure Map | Posturography
Virtual Reality | Visual Biofeedback

powered by

sensingfu+ure

Contents

We design, develop and implement medical devices in a unique synergy between Engineering and Health.

Specialists in technology for force and pressure platforms with wide applications in physical and vestibular rehabilitation.

Software with powerful balance&pressure analysis tools, oriented to the health professional and the patient.

Over 10 years of experience and certified by the ISO 13485 standard for medical devices and the ISO 9001 standard for the quality management system.

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a greater step

CERTIFIED COMPANY
eiC ISO 9001

CERTIFIED COMPANY
eiC ISO 13485
Medical Devices

CE

version 1.0   revision date: 09.2020

Our numbers

15
Developed projects and technologies

31
Countries with our technology

10
Years of experience in the development of technological medical devices

PhysioSensing Range Technology

3. Posturography

Computerized posturography systems utilize force platforms to measure the sway of a patient by determining the movements of the instantaneous Center of Pressure (CoP). The CoP data collected can be visualized through a statokinesi-gram and stabilogram.
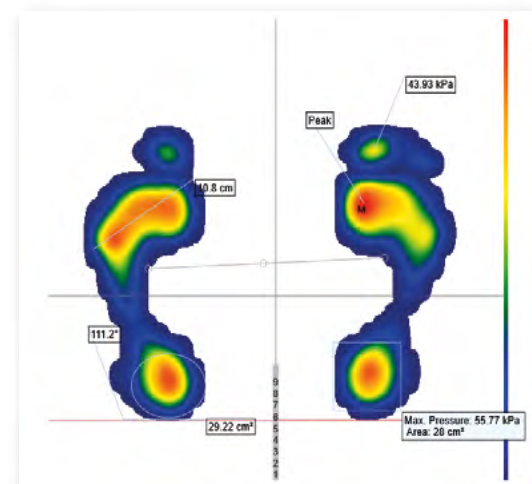

1. Balance

Balance control consists of controlling the body center of mass over its limits of stability. Clinical balance assessment can help assess fall risk and/or determine the underlying reasons for balance disorders. The benefits of using force plates in balance assessment comes from their ability to measure center of pressure (CoP).

4. Virtual Reality

In the recent decade, Virtual Reality (VR) has become generally accepted as a therapeutic tool for neurological patients. VR involves real-time simulation and interactions between sensory, motor and cognitive channels. VR can be set up to be strongly immersive, in that the environment appears real and three-dimensional. VR provides an ideal environment to study the balancing strategies.
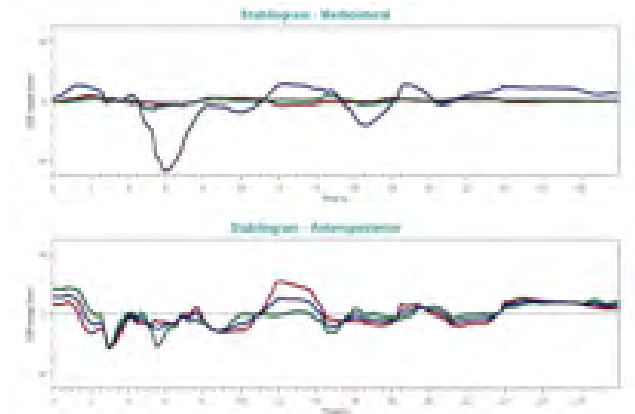
2. Feet Pressure Map

Foot Pressure Mapping is a method of measuring pressures on the surface of the foot during standing or walking. Static and dynamic baropodometricz analysis are performed on a baropodometric platform, through which the pressure exerted by the feet from standstill and during walking is being measured.

5. Visual Biofeedback

Visual Biofeedback (VB) is a rehabilitation method that can be used during static balance training, offering the patient visual information on the position of the center of gravity within the range of stability as the patient stands on a plate. VB stimulates motivation, proprioceptive information to the patient, simulates the body movements and provides valuable information for the health professional.

Pressure Plate

Light and portable device. The most accurate and cost effective way for balance&pressure assessment and training.

PhysioSensing allows you to evaluate your clinical practice and make it objective and quantified in a clinical report.

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Technology
• 1 cm² sensor
• 1600 sensors
• Baropodometric plate

Balance evaluation and training

Technical Specifications

CE Medical Device Class I according to directive 93/42/EEC

Type	Portable
Size	61 x 58 cm
Thickness	1 cm
Weight	4 kg
Active Surface	40 x 40 cm
Sensors number	1600
Sensor size	1 x 1 cm
Sensor type	Resistive
Sensor life time	more than 1 000 000 actuations
Maximum pressure (each sensor)	100 N/cm2
Temperature range	from 0ºC to 60ºC
Connection/power	USB
Frequency	100 Hz ~100 acquisitions/seconds

PC Requirements

CPU Processor	i3, Quad-Core, with 2GHz
RAM	4 GB
USB Ports	2.0 or 3.0
Operating System	Windows 7, 8, 10 (32 or 64-bit)

Compatible Software

Physiosensing Balance Software

Physiosensing Podo Software

Virtual Reality Libra VR Clinic

Accessories

Carry Bag   **Foam**

40 x 40 x 8 cm
18 Kg/m3 density

Force Plate

Normalized stabilometric platform for postural rehabilitation.

Fundamental technology to clinical practice of balance disorders.

Extreme precision of the CoP and high sensitivity level

Technology
• 3 load cells
• Stabilometric plate
• In accordance with French Association of Posturology.

Technical Specifications

CE Medical Device Class I according to directive 93/42/EEC

Size (Length x Width x Height)	53 x 46 x 3,5 cm
Thickness	1,2 cm
Weight	7,8 kg
Material	Aluminium AU4G
Maximal load	128 kg
Non linearity	< 0,2 %
Resolution	900 points/Kg
Hysteresis	< 0,2 %
Sampling rate	Adjustable from 5 Hz to 40 Hz
Analogic / Digital conversion	16 bits
Platform computer interface	USB
Power supply	USB cable

CE

PC Requirements

CPU Processor	i3 with 2GHz
RAM	2 GB
USB Ports	2.0 or 3.0
Operating System	Windows 7, 8, 10 (32 or 64-bit)

Balance evaluation and training

⊘ **Compatible Software**

🖥 **Physiosensing Balance Software**

🖥 **Virtual Reality Libra VR Clinic**

⊕ **Accessories**

Foam

Dynamic Balancing Plate

40 x 40 x 8 cm
18 Kg/m3 density

Used on top of the platform to perform dynamic ML or AP Balance.

Podo Software

Static and dynamic baropodometric analysis

Static & Postural Analysis

Analyze your plantar pressure map distribution in a single (static) image or during a defined time.

Isopressure view

3D view

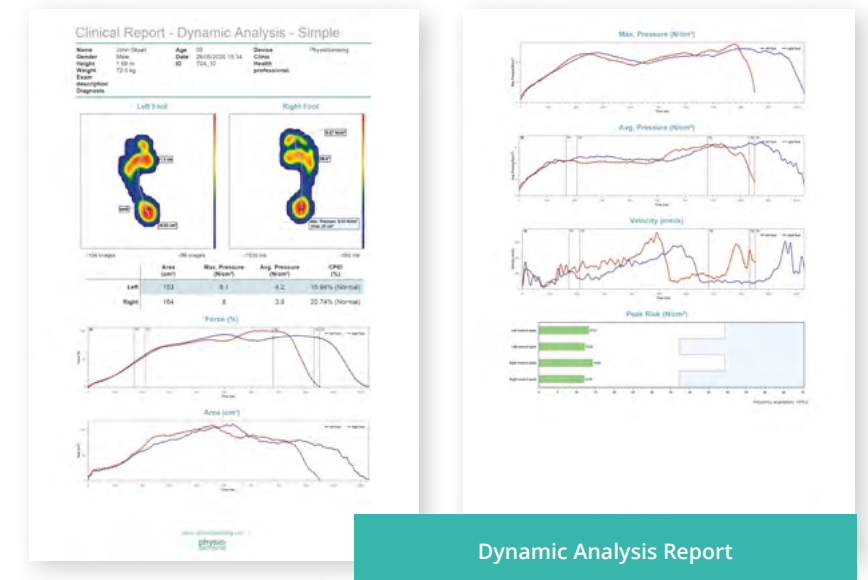Thermographic view

Point sensor view

- Static mapping with center of pressure
- Max, Average pressure calculations
- Weight distribution
- Measuring possibilities (length, angle, pressure, area)
- Exam comparasion
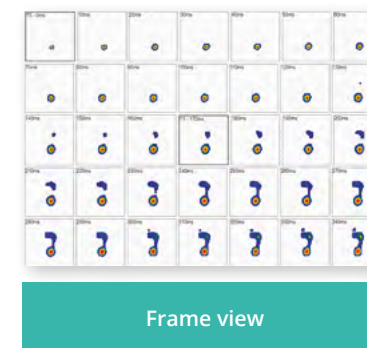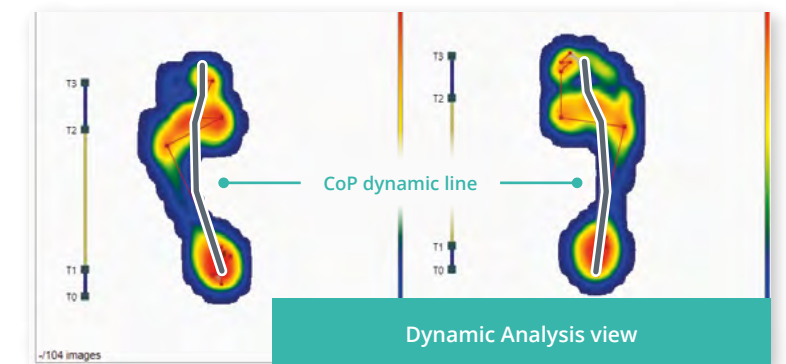- Statokinesigram and Stabilogram
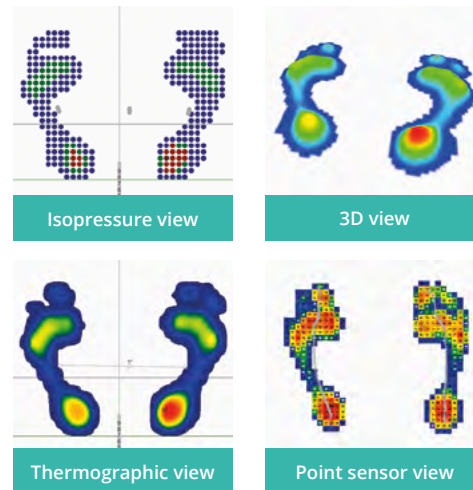
Dynamic Analysis

Analyze your plantar pressure distribution on the platform during a one or four gait cycle
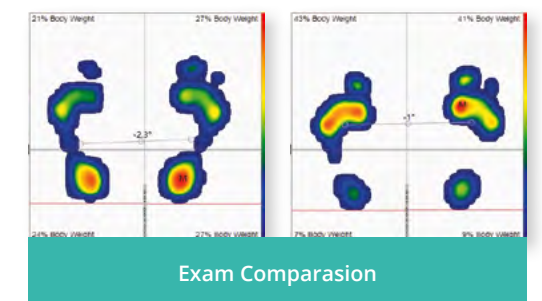
Dynamic Analysis Report

Frame view

CoP dynamic line

Dynamic Analysis view

- **Frame view**
- **CPEI**
- **CoP line**
- **Force, Area, Pressure, velocity Graphs**
- **PEAK risk**
- **Gait Cycle Phases**
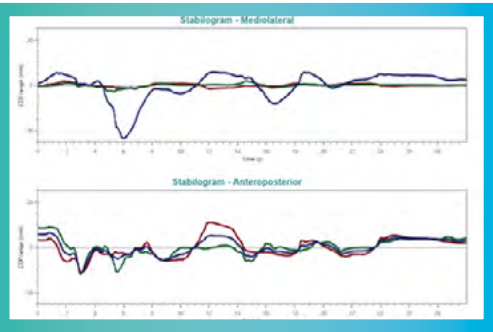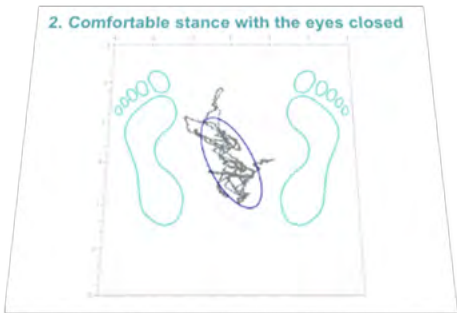
Exam Comparasion

✓ **Compatible Plates**

Pressure Plate

⊕ **General Features**

🖥 Clinical Reports with normative Data

📈 Report

📋 Patient Management

💾 Database Export (Excel, PDF)

Balance Software

Powerful Balance assessement & training tool

Assessment

mCTSIB- Modified Clinical Test of Sensory Interaction on Balance & Romberg Test

This protocol allows the static balance measurement in four sensorial conditions: stable surface and open eyes; stable surface and closed eyes; surface instable and eyes open and surface instable and eyes closed.

Body Sway

Use Body Sway to create a personalized posturography. Define initial conditions and obtain CoP variation, ML and AP variables over time. It also includes more than 30 parameters derived from a posturographic examination including Fourier analyzes.

Limits of Stability LOS

Perhaps the most used protocol for balance assessement. This protocol quantifies the directional control and the maximum distance that the patient can reach with its center of pressure in 8 different directions.

Fall Risk

Use Fall Risk to measure the static balance in four conditions: comfortable stance with eyes open and eyes closed, narrow stance with eyes open and closed. After performing, the value of the sway velocity index appears and provides a fall risk prediction.

Rhythmic Weight Shift

Use the Rhythmic Weight Shift protocol to evaluate the transfer capacity of the center of pressure rhythmically in the sagittal and anteroposterior plane, at three different velocities.

Unilateral Stance

Use this protocol to measure the balance in four conditions: left foot lifted up with eyes open, left foot lifted up with eyes closed, right foot lifted up with eyes open and right foot lifted up with eyes closed.

Balance Error Scoring System

The BESS protocol allows the measurement of postural stability with eyes closed in three different positions on two types of surface (firm and unstable): two feet together, unipodal and tandem position.

Balance improvement training

In the Sagittal and Anteroposterior exercises, the patient must reach the balance position in the sagittal plane or in the anteroposterior plane.

In the Spiderweb, Tunnel, Dots pattern and Bars pattern exercises the goal is to keep a balance position despite the visual stimulus.

In the exercises Route Bars, Route Spiral, Route Square and Route Maze the goal is to go through the routes within its boundaries with the center of pressure, following the red dots.

In the exercises Square, Circle, Eight and Spiral, the patient must reach all the dots disposed in the form indicated in the name.

In the Follow the Point and Moving Route exercises, the goal is to reach the moving red point and follow it within its tolerance margin.

✓ Compatible Plates

Pressure Plate

Force Plate

⊕ General Features

- Clinical Reports with normative Data
- Report
- Patient Management
- Database Export (Excel, PDF)

Virtual Reality Libra VR Clinic

A high-end virtual reality based system, designed for vestibular, balance and oculomotor disorders. Therapy becomes controlled, high customized and trackable.

Immersive stimuli
Exciting and engaging virtual worlds train the patient brain

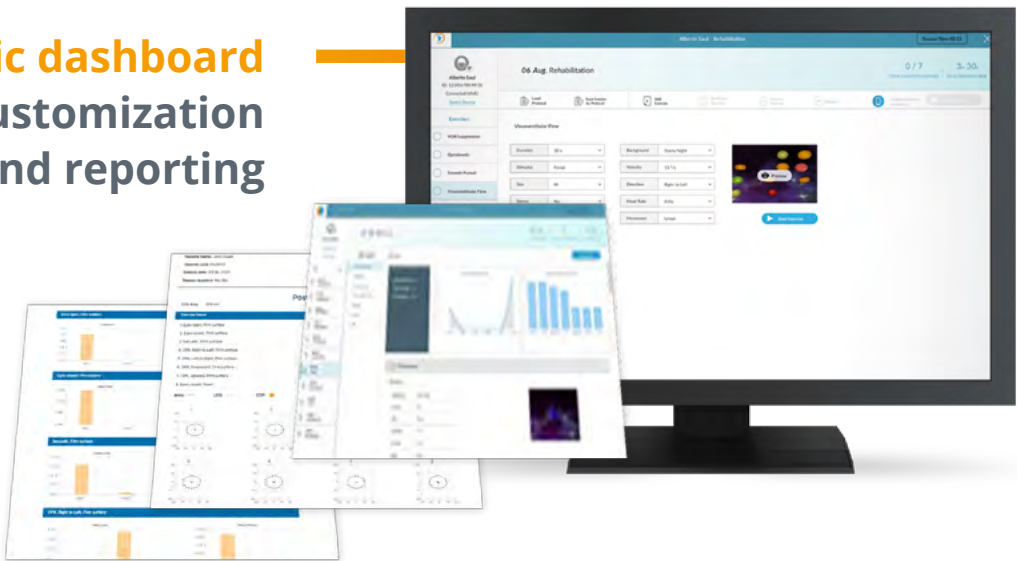### Enhanced therapy
Through digital technology

Monitored tracking
Allows for assessing and adjusting exercises

Evidence-based and approved
Scientifically backed to meet therapists' needs

Clinic dashboard provides customization and reporting

— Virtual Reality —
to deliver immersive virtual reality stimulation and exercises including:

› Smooth Pursuit
› Saccadic
› Optokinetic Nystagmus
› VOR
› VOR suppression
› Supermarket effect and Visual Parallax
› Vergence
› Fixation
› Seek and Find games

Optokinetic Nystagmus Shapes with background City

Elevator environment

Tunnel

Optokinetic Nystagmus Bars

Optional
Platform for posturography and balance games

✓ **Compatible Plates**

Pressure Plate   **Force Plate**

⊕ **Required hardware**

🔲 **Virtual Reality Glasses**

🖥 **Computer**
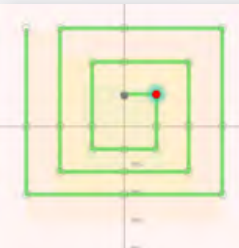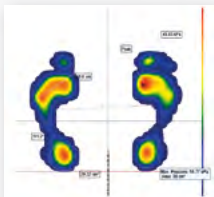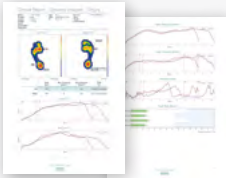
CPU Processor	i5, Quad-Core, with 3.30 GHz
RAM	8 GB
USB Ports	3.0
Operating System	Windows 10 (64-bit)
Display	DisplayPort 1.2 or Mini DiplayPort 1.2
Graphics Card	NVIDIA GTX 1050Ti *or better VR Ready graphics card*

Plate Comparison

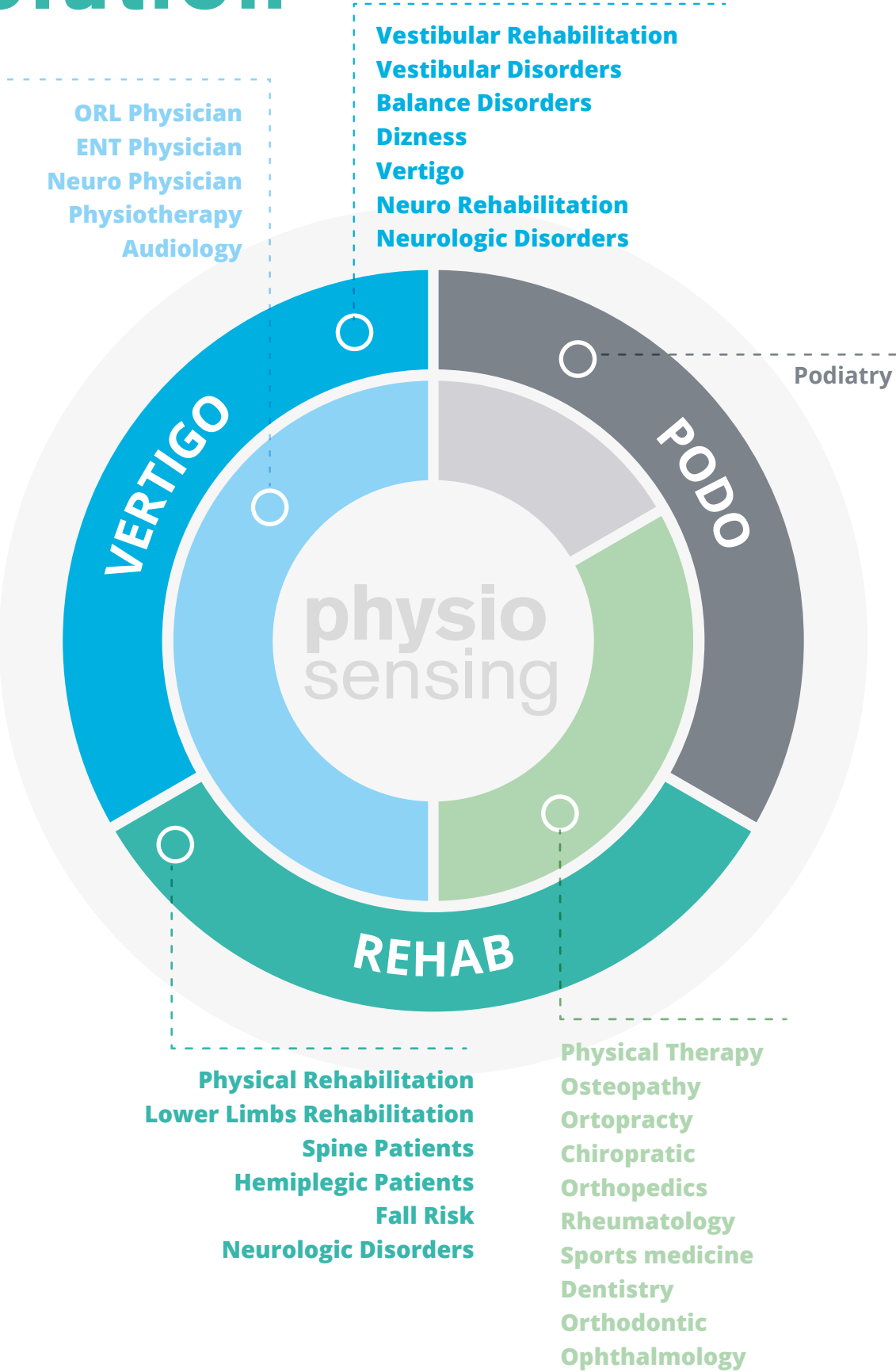|	Pressure Plate	Force Plate
Portability	● ● ● ● ●	● ● ● ● ●
Dimensions Length x Width x Height	61 x 58 mm x 1 cm	53 x 46 x 3,5 cm
Weight	4 Kg	7,8 Kg
Technology	1600 resistive sensors	3 load cells
Type	Baropodometric Plate	Stabilometric Plate
CoP accuracy	● ● ● ● ●	● ● ● ● ●
Feet pressure map	Yes	No
If you valorize more	Feet Pressure Map	CoP Path, velocity, Area; AP&ML components
Software compatibility	🖥 Podo Software 🖥 Balance Software 🖥 Virtual Reality Libra VR Clinic	🖥 Balance Software 🖥 Virtual Reality Libra VR Clinic

Software Comparison

		Podo Software	Balance Software
	Balance Assessment Protocols (mCTSIB, LOS, RWS, WBS, US, FR, BESS, Sit to Stand, RT, Body Sway-Posturography)		✔
	Balance Training Exercises (Sagital & Anteroposterior, Visual Stimulus, Static Figures, Static Paths, Random Static, LOS Training, Moving target, Follow me)		✔
	Static Analysis * This feature only works with **Pressure Plate**	✔	✔ *
	Postural Analysis	✔	
	Dynamic Analysis	✔	
	Balance games		✔

Define your
solution

Vestibular Rehabilitation
Vestibular Disorders
Balance Disorders
Dizness
Vertigo
Neuro Rehabilitation
Neurologic Disorders

ORL Physician
ENT Physician
Neuro Physician
Physiotherapy
Audiology

Podiatry

VERTIGO

PODO

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sensing

REHAB

Physical Rehabilitation
Lower Limbs Rehabilitation
Spine Patients
Hemiplegic Patients
Fall Risk
Neurologic Disorders

Physical Therapy
Osteopathy
Ortopracty
Chiropratic
Orthopedics
Rheumatology
Sports medicine
Dentistry
Orthodontic
Ophthalmology

Devices can be used together or separately.
Choose the best setting.

I	Pressure Plate **+** Podo Software		**PODO**
II	Pressure Plate **+** Balance Software		**REHAB**
III	Pressure Plate **+** Balance Software **+** Podo Software		**REHAB**
IV	Pressure Plate **+** Balance Software **+** Virtual Reality Libra VR Clinic		**VERTIGO**
V	Force Plate **+** Balance Software		**VERTIGO**
VI	Force Plate **+** Balance Software + Virtual Reality Libra VR Clinic		**VERTIGO**
VII	Virtual Reality Libra VR Clinic		**VERTIGO**

⊕ **Additional equipment**

Mobile Solution A
Suitable for
laptop computer.
Adjustable height.

Mobile Solution B
Suitable for laptop or
desktop computer.
Possibility to add
a larger monitor.
Adjustable height.

Static Solution A
Suitable for wall
mounting. You can have
a laptop or desktop
computer and even
adapt a larger monitor.

Need help choosing the right solution?

ask us

quotation
demonstration
redirect to
our distributor

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