## VAST.REHAB IS DESIGNED FOR PHYSICAL, OCCUPATIONAL AND COGNITIVE THERAPY

We create a fully-featured virtual reality exercise and diagnostic system with the flexibility to work for everyone from small physiotherapy practices to the largest hospitals in the world.

**BRONTES PROCESSING**
(member of EUVIC)
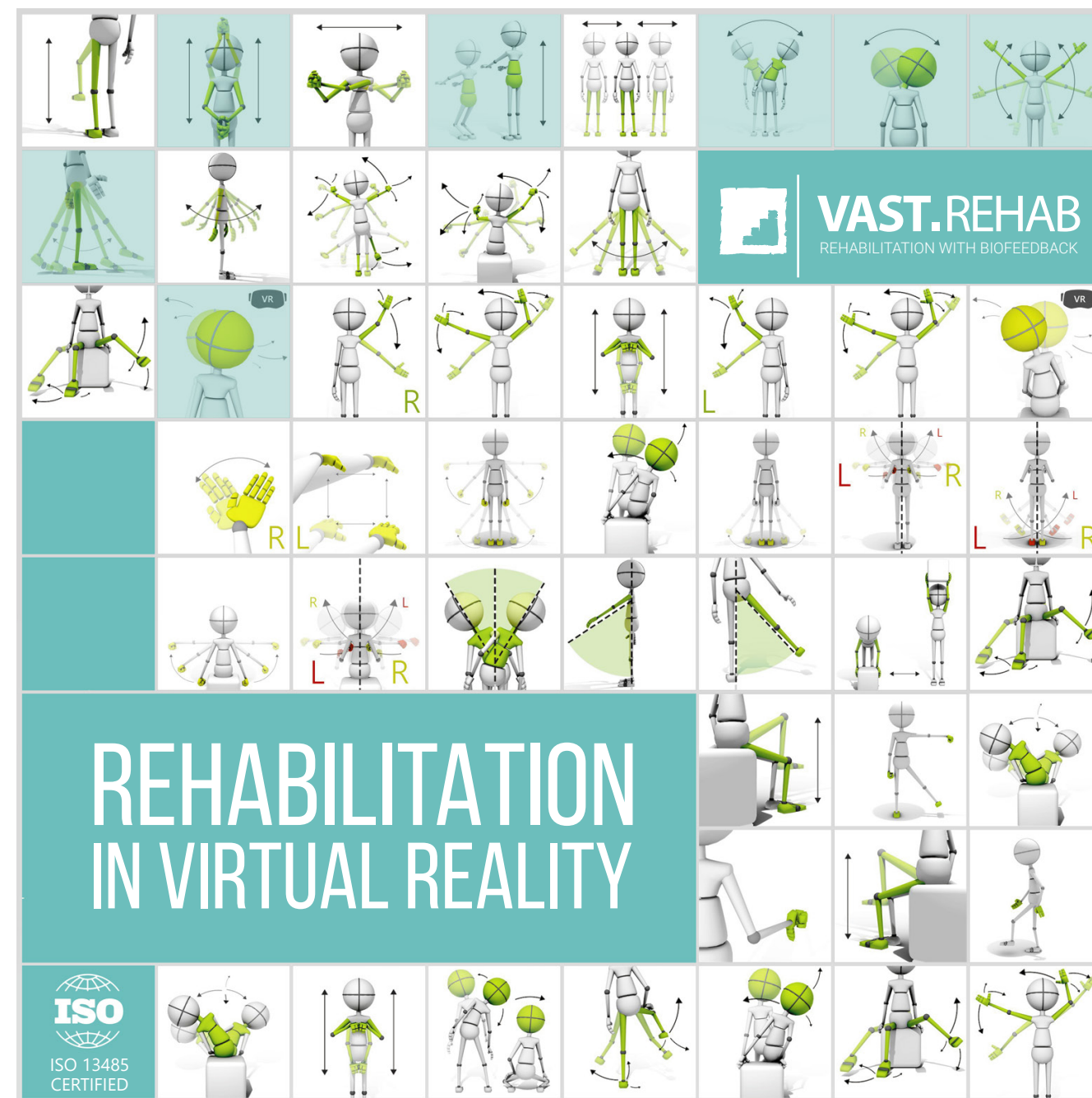
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**VAST.REHAB**
REHABILITATION WITH BIOFEEDBACK

# REHABILITATION
## IN VIRTUAL REALITY

ISO 13485 CERTIFIED

http://vast.rehab

## VAST.REHAB IS DESIGNED FOR PHYSICAL, OCCUPATIONAL AND COGNITIVE THERAPY

We create a fully-featured virtual reality exercise and diagnostic system with the flexibility to work for everyone from small physiotherapy practices to the largest hospitals in the world.

VAST.REHAB CREATES A KIND OF **FEEDBACK LOOP** BETWEEN A PATIENT PERFORMING REHABILITATION EXERCISES AND A PHYSICAL THERAPIST. THE THERAPIST CAN **MONITOR** THE PATIENT'S PERFORMANCE **IN REAL TIME** AND **ADJUST PARAMETERS** OF THE GAMIFIED EXERCISES TO MATCH THE PATIENT'S **INDIVIDUAL RECOVERY NEEDS**. BY USING THE "THERAPIST PANEL" THERAPIST IS ABLE TO **CONTROL ALL** THE COMPUTERS RUNNING VAST.REHAB "PATIENT PANEL" CONNECTED TO THE SAME NETWORK (WIRE OR WIRELESS).

VAST.Rehab integrates wide range of 3rd party hardware products, so by learning to use the system once therapists are able to work with patients using various medical devices. We have over **10 years of experience** implementing software solutions for hospitals and physiotherapy centers of all shapes and sizes. We take the time to understand clinicians' needs so that we can provide them with the best solution on the market, designed exactly to match their requirements.

VAST.Rehab is easy to learn and use, making it perfect for therapists looking for convenient way to make their patients more motivated to participate in their rehabilitation process. VAST.Rehab automatically tracks patient's progress, so therapists spend less time doing the paperwork. And we deliver VAST.Rehab in the **cloud, on-premises, or with a hybrid combination**.

VAST.Rehab uses a wide variety of therapeutic tasks to enable training in all rehabilitation domains:

**MUSCULOSKELETAL** • range of motion • strength • endurance • fitness and cardiovascular training

**BALANCE AND EQUILIBRIUM** • trunk and postural control • anticipatory postural responses • adequate reactions to stimuli and distractors placed in preplanned or random positions • crossing the midline

**NEUROLOGICAL** • movement quality • movement awareness and proprioception • bilateral movemets

**COGNITION** • memory • perception • planning • executive functions

# THERAPIST'S PANEL

VAST.REHAB THERAPIST'S PANEL IS USED TO SECURELY ACCESS PATIENT'S PERFORMANCE METRICS ENABLING CLINICIANS TO REMOTELY MONITOR PATIENT'S PROGRESS, CONFIGURE TASKS, MODIFY REHABILITATION PROGRAMS AND COMMUNICATE WITH PATIENTS.

Therapist's panel can be installed on desktop **and/or** laptop **and/or** tablet. By using VAST.Rehab Therapist's Panel you can control each PATIENT STATION in real time. You can take care of several patients simultaneously. Regardless of the number of PATIENT STATIONS you own - you only need one Therapist's Panel to manage all of them.

**CAPABILITIES:** • Create patient accounts • Start and plan workouts • Manage home therapy • Analyze reports • Verify whether all patients are exercising correctly • Adjust task difficulty while patient is exercising • Find patients who need attention
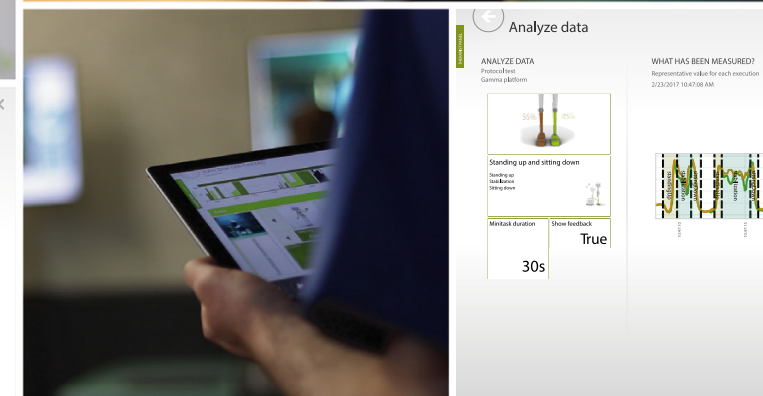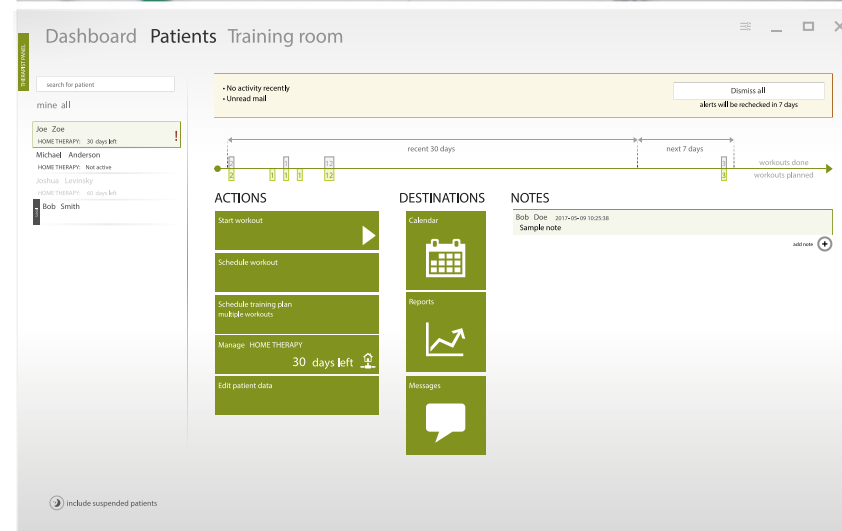
**12**

There are 12 devices currently connected to VAST.Rehab and we are working to connect more

**13485**

We are ISO 13485 certified

**120+**

There are over 120 movement patterns to control the therapeutic tasks. The therapist decides whether the elements in games respond to movement of the head, hand or to something more complicated like squats

**23**

We have our software in 23 countries

**7+**

VAST.Rehab is available in 7 languages

**1**

Less than a minute is the time needed to start working with new patient

**WHY VAST.REHAB ?**

**19**

There are 19 joints in human body depth camera is able to track

**2007**

It was 2007 when we started to work on our first virtual reality rehabilitation system

**3**

There are 3 simple ways for patient to log into the system. Patients can use traditional login and password, they can use smart cards or they can be logged in remotely by their therapist

**32+**

There are 32 therapeutic tasks included in VAST.Rehab and all of them provide plenty of parameters and difficulty levels. By having those options therapists are able to prepare trainings that let patients experience positive emotions, keep motivation and become more self-confident

**9+**

There are 9 diagnostics test included in VAST.Rehab and we are working to create more of them

**10+**

VAST.Rehab collects data in 10 categories: range of motion, movement times, divided attention, functional movements, problem solving, memory, movement precision, speed, balance and a bunch of specialized tests e.g. Romberg Test

VAST.Rehab lets therapists work with many patients simultaneously. There is one panel for the therapist to control all the patient stations in the room.

## OPTIMIZE REVENUES

Predefined sets of therapeutic tasks and the possibility to create your own sets allow you to start working with a new patient immediately.

## SESSIONS TEMPLATES

Tasks and evaluations in many categories. E.g. range of motion, movement times, speed, balance, endurance, movement precision, divided attention, problem solving, activity and more.

## WIDE RANGE OF TASKS

VAST.Rehab will help you keep your patients more motivated to participate in their rehabilitation process. It will change the way patients feel about their daily exercises.

## MOTIVATION

Gamified therapy sessions let patients experience positive emotions, become more self-confident and in the same time heavily involved.

## MAKE PATIENTS FOCUSED

You can comfortably take care of several patients simultaneously. You'll use a single PC to control all the computers currently used by your patients.

## INTUITIVE FOR CLINICIAN

Biofeedback, delivered by the system, enables detailed insight into the course of each training and long-term progress as well. It allows you to collect objective results of treatment progress.

## POWERFUL REPORTS

## HOME REHABILITATION

When you decide it is a good idea for your patient to take the therapy home - it can be easily activated. It will be your additional source of income and VAST.Rehab will help you keep in touch with your patients.

## 3RD PARTY DEVICES

VAST.Rehab has been designed with integration of 3rd party medical devices in mind. By learning to use the system once you're able to work with wide variety of patients.

## INTEGRITY OF RESULTS

All the results describing the progress patient is making are available in one place regardless of the device used to collect them.

## RESEARCH TOOL

VAST.Rehab has dedicated tool designed to help you to do research. The system will guide you through the whole process reminding when the sessions with specific patient should be performed.

## THERAPY TEMPLATES

Training plans for your patients may include multiple sessions with or without intensification of the workload. You can easily schedule it for several weeks in patient's calendar.

## INTERACTION IN VR

Transfering tasks to virtual reality allows you to separate patient's thoughts from the surrounding area of the hospital. Patient receives both visual and acoustic biofeedback.

## ROUTINE ACTIONS

The multitude of routine actions is automated. Despite the full personalization of the therapy for each patient you are able be really effective at work.

## FLEXIBLE FINANCING

The system can be employed in big and small institutions as well as in the patient's home. It is highly scalable and can be adjusted to your needs.

# FULL BODY TRAINING WITH DEPTH CAMERA

DEPTH CAMERA ALLOWS ACCURATE **FULL-BODY** MOTION CAPTURE IN REAL TIME WITHOUT THE NEED TO ATTACH ANY SENSORS TO THE BODY OF THE PATIENT.

Our core "Depth Camera Base pack" module for VAST.Rehab contains therapeutic tasks in almost all rehabilitation domains. It lets therapists support functional, occupational and cognitive therapy for patients struggling with cerebral, neurogenic, spinal, muscular or bone-related disorders. Taking into account the contraindications and every patient's individual profile, VAST.Rehab "Depth Camera Base pack" can be used in the case of:

• Cerebrovascular Accidents • Multiple sclerosis • Cerebral palsy
• Parkinson`s Disease and Extrapyramidal Syndromes
• Brain-tumor operations • Spinal cord injuries
• Traumatic brain injury • Muscular atrophy
• Deconditioning - muscle weakness due to lack of mobility
• Endoprosthesis for hip, knee, elbow and shoulder joints
• Following stable fractures of vertebra and/or extremities
• Limb amputations with or without prosthesis • Balance and Equilibrium disturbances

**STANDARD EQUIPMENT:** • Depth Camera • PC software • cables and power supply necessary for the proper operation • rack with integrated computer and monitor
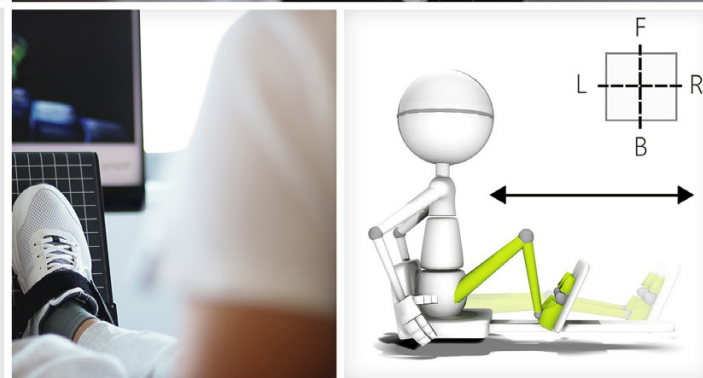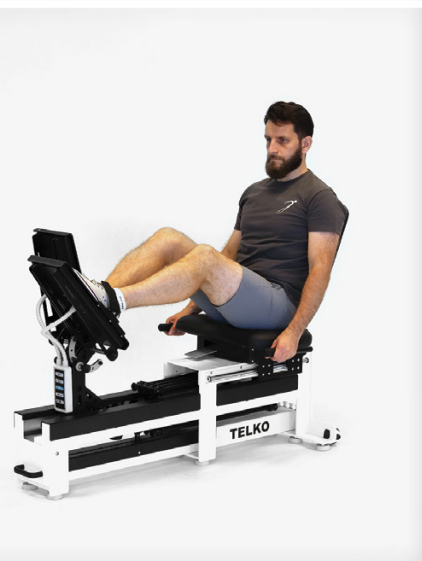
# TELKO

## TELKO USES ELASTIC RESISTANCE IN THE COMPREHENSIVE **REHABILITATION OF THE KNEE** IN A CLOSED KINEMATIC CHAIN.

The device is designed to work with elastic resistance elements, whose the most important advantage is to generate a slight resistance in the initial phase of the movement, increasing evenly in the later stages of the exercise. Due to these properties Telko is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. It is used in sports rehabilitation, rheumatology and geriatrics. The device can perform the following movements:
• flexion/extension

**CAPABILITIES:** • measurement of the range of motion • dynamic exercises

**BENEFITS:** • increased range of motion through active movements • increased muscle strength and endurance • improved stabilization of joints by proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 189 x 58 x 117 cm • weight: 120 kg
• wireless/wired communication to the PC

**STANDARD EQUIPMENT:** • device with a modern sensor measuring the angle • radio receiver module to a PC • PC software • a set of resistance elastics • cables and power supply necessary for the proper operation • rack with integrated computer and monitor

# JUPITER

JUPITER HAS BEEN DESIGNED TO OPERATE USING ELASTIC RESISTANCE ELEMENTS IN THE COMPREHENSIVE REHABILITATION OF THE **KNEE JOINT**.

The device has been designed to operate using elastic resistance elements, whose the most important advantage is to generate a slight resistance in the initial phase of the movement, evenly increasing in subsequent phases of the exercise. Due to these properties Jupiter is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device may be also used in sports rehabilitation, rheumatology and geriatrics. The device can perform the following movements: • flexion / extension

**CAPABILITIES:** • measurement of the range of motion • measurement of the generated power • dynamic exercises • isometric exercises

**BENEFITS:** • increased range of motion through active movements • increased muscle strength and endurance • improved stabilization of joints by proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 140 x 95 x 140 cm • weight 80 kg • wireless/wired communication to the PC

**STANDARD EQUIPMENT:** • device with a modern sensor measuring the angle and strength • radio receiver module to a PC • PC software • a set of resistance elastics • cables and power supply necessary for the proper operation • rack with integrated computer and monitor

# CUBITO

## CUBITO USES ELASTIC RESISTANCE IN THE COMPREHENSIVE REHABILITATION OF THE **FOREARM AND WRIST**.

The device has been designed to operate using elastic resistance elements, whose the most important advantage is to generate a slight resistance in the initial phase of the movement, evenly increasing in subsequent phases of the exercise. Due to these properties Cubito is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device may be also used in sports rehabilitation, rheumatology and geriatrics. It can perform the following movements: • adduction/abduction • internal/external rotation • dorsal/palmar flexion

**CAPABILITIES:** • measurement of the range of motion • dynamic exercises

**BENEFITS:** • increased range of motion through active movements • increased muscle strength and endurance • improved stabilization of joints by proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 62 x 40 x 95 cm • weight: 35 kg • wireless/wired communication to the PC

**STANDARD EQUIPMENT:** • device with a modern sensor measuring the angle • radio receiver module to a PC • PC software • a set of resistance elastics • cables and power supply necessary for the proper operation • rack with integrated computer and monitor

# HAND, FOREARM AND FINGER TRAINING WITH DEPTH CAMERA

DEPTH CAMERA ALLOWS ACCURATE **HAND, FOREARM AND FINGERS** MOTION CAPTURE IN REAL TIME WITHOUT THE NEED TO ATTACH ANY SENSORS TO THE BODY OF THE PATIENT.

Depth camera module works the mobility and strength of the muscles used in finger flexion and extension, finger abduction and adduction, wrist flexion and extension and forearm rotation as well as hand-eye coordination, reaction time and attention span.

**STANDARD EQUIPMENT:** • Depth Camera • PC software • cables and power supply necessary for the proper operation • rack with integrated computer and monitor
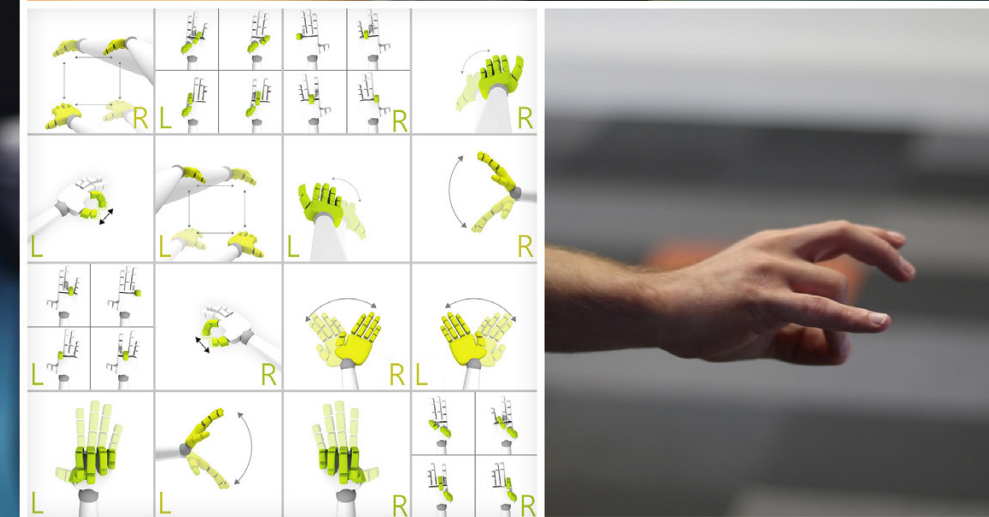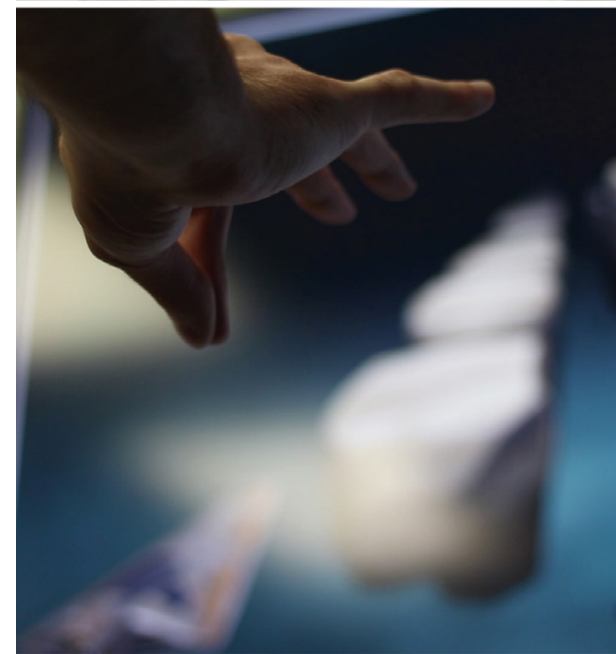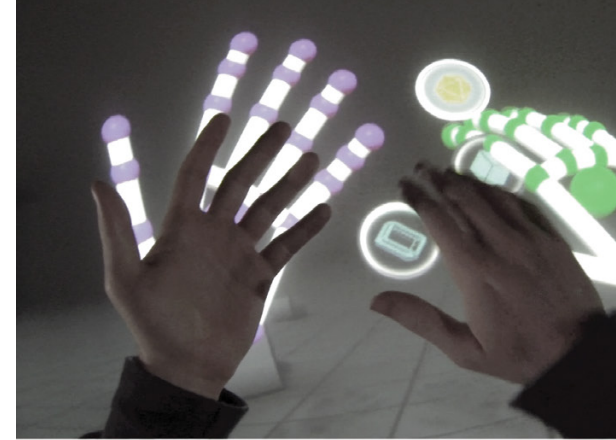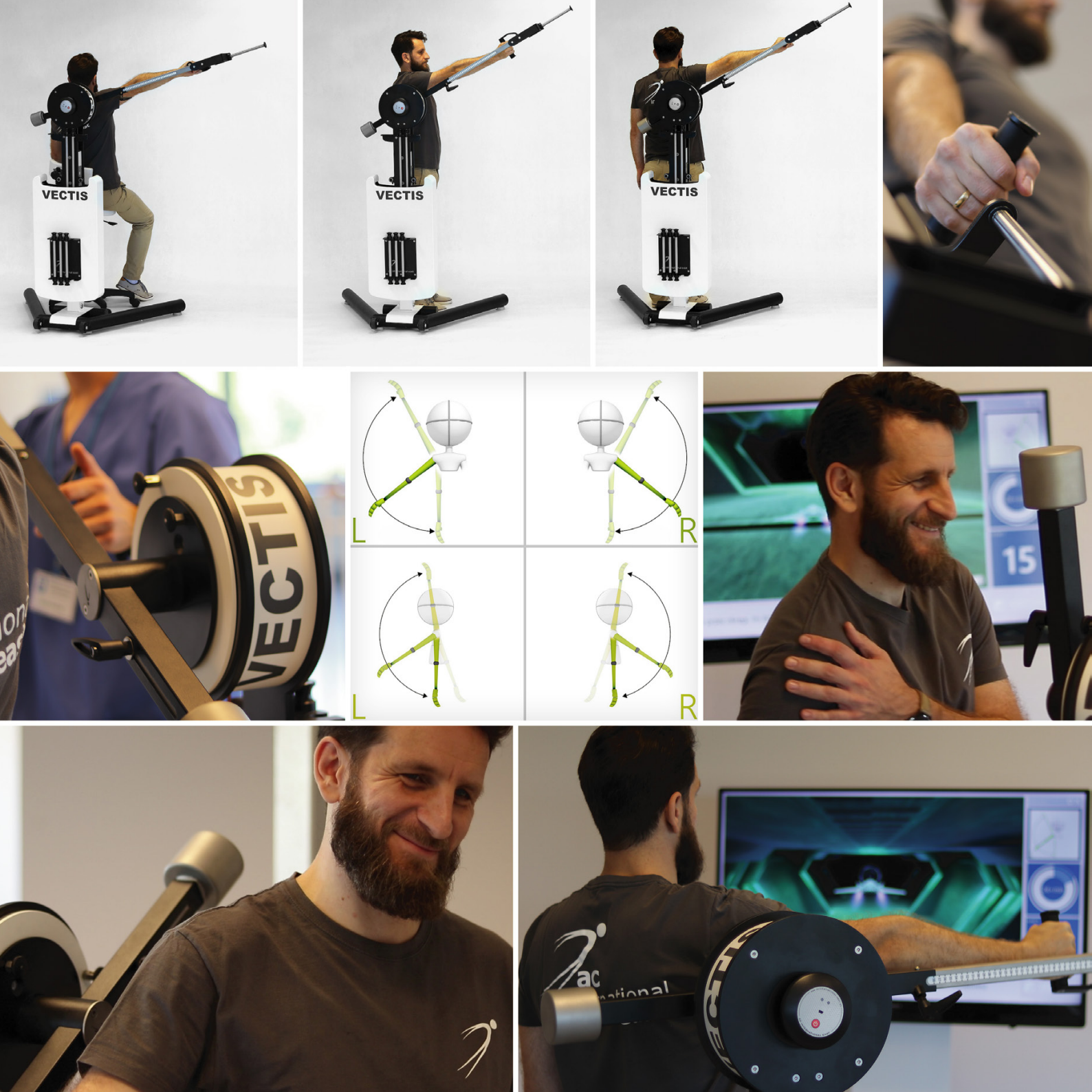
# VECTIS

## VECTIS USES ELASTIC RESISTANCE IN THE COMPREHENSIVE REHABILITATION OF THE SHOULDER JOINT.

The device is designed to work with elastic resistance elements, whose the most important advantage is to generate a slight resistance in the initial phase of the movement, increasing evenly in the later stages of the exercise. Due to these properties Vectis is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device is also used in sports rehabilitation, rheumatology and geriatrics. The device can perform the following movements: • internal/external rotation • abduction/adduction • flexion/extension

**CAPABILITIES:** • measurement of the range of motion • measurement of the generated power • dynamic exercises • isometric exercises

**BENEFITS:** • increased range of motion through active movements • increased muscle strength and endurance • improved stabilization of joints by proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 130 x 80 x 160 cm • weight: 50 kg • wireless/wired communication to the PC

**STANDARD EQUIPMENT:** • device with a modern sensor measuring the angle and strength • radio receiver module to a PC • PC software • a set of resistance elastics • cables and power supply necessary for the proper operation • rack with integrated computer and monitor

# VECTIS MINI

VECTIS MINI USES ELASTIC RESISTANCE IN THE COMPREHENSIVE REHABILITATION OF THE **ELBOW JOINT**.

The device is designed to work with elastic resistance elements, whose the most important advantage is to generate a slight resistance in the initial phase of the movement, increasing evenly in the later stages of the exercise. Due to these properties Vectis Mini is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device is also used  in sports rehabilitation, rheumatology and geriatrics. The device can perform the following movements: • internal/external rotation

**CAPABILITIES:** • measurement of the range of motion • dynamic exercises

**BENEFITS:** • increased range of motion through active movements • increased muscle strength and endurance • improved stabilization of joints by proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 62 x 67 x 81 cm • weight: 27 kg • wireless/wired communication to the PC

**STANDARD EQUIPMENT:** • device with a modern sensor measuring the angle • radio receiver module to a PC • PC software • a set of resistance elastics • cables and power supply necessary for the proper operation • rack with integrated computer and monitor
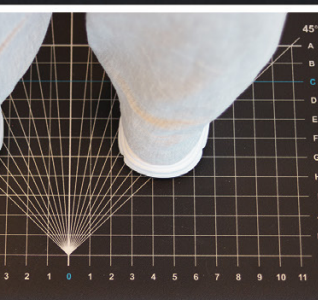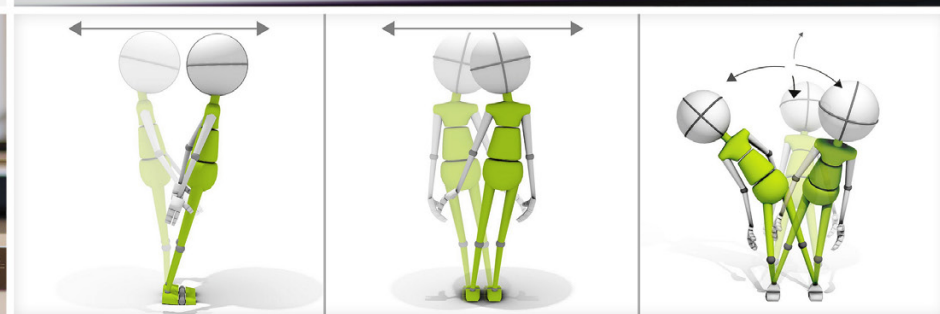
# ALFA STABILOMETRIC PLATFORM

## ALFA IS A MODERN STABILOMETRIC PLATFORM THAT ALLOWS BOTH THE BALANCE ASSESSMENT AND TRAINING IN NEUROLOGICAL AND ORTHOPEDIC PATIENTS.

This device helps to increase the performance of the patients after head injuries, stroke and also suffering from multiple sclerosis, Parkinson's disease and muscle dysfunction. Additionally, it accelerates recovery after fractures and sprains of ankle and knee and hip dislocation. Alfa also allows treatment of patients after amputations of lower limbs. Training on the platform aims at stimulation of musculoskeletal and nervous systems elements responsible among others for controlling balance.

Due to these features, Alfa platform is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device is also applied in sports rehabilitation, rheumatology and geriatrics.

**CAPABILITIES:** • evaluation of static and dynamic parameters involved in maintaining balance on a stable surface • analysis of the COP during testing and training

**BENEFITS:** • improved sense of balance • learning of proper posture • improved joint stabilization through proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 55 x 55 x 8 cm • weight: 27 kg

**STANDARD EQUIPMENT:** • stabilometric platform • platform with a handrail • tripod with a camera • PC software • rack with integrated computer and monitor • cables necessary for the proper operation

# GAMMA DYNAMOGRAPHIC PLATFORM

GAMMA IS A MODERN TWO-PLATE DYNAMOGRAPHIC PLATFORM THAT ENABLES BOTH THE TESTING AND TRAINING OF NEUROLOGICAL AND ORTHOPEDIC PATIENTS.

Gamma provides professional training for athletes and patients with impaired body balance and coordination. Its additional advantage is the possibility of free setting of the two plates to each other which enables the training of athletes in the particular, closely related to their sports discipline position.
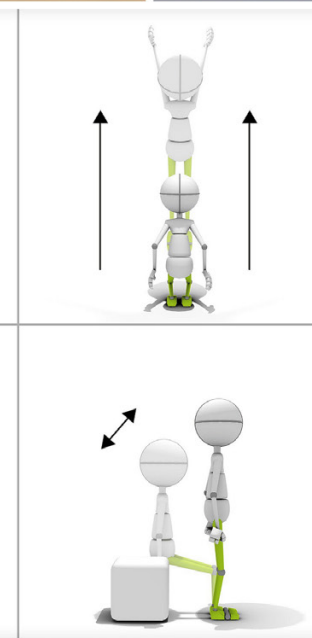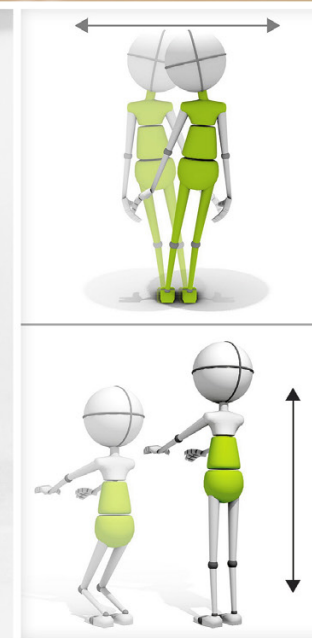
Due to these properties, the Gamma platform is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device is also used in sports rehabilitation, rheumatology and geriatrics.

**CAPABILITIES:** • analysis of loads redistribution in the vertical axis • dynamic and static load measurement • assessment of the patient`s balance • measurement of the force, velocity and acceleration • extensive data analysis capabilities • ready measurement protocols and the ability to create your own exercises with integrated real-time biofeedback

**BENEFITS:** • learning of the proper loading of the limbs • the opportunity to evaluate ground reaction forces during any movement • improved stabilization of joints by proprioceptive reeducation • improved muscle coordination

**TECHNICAL DATA:** • dimensions 63 x 30 x 14 cm (one piece) • weight: 17 kg (one piece)

**STANDARD EQUIPMENT:** • a set of two platforms • platform with a handrail • rack with integrated computer and monitor • PC software • a set of two cameras • cables necessary for the proper operation

# SIGMA BALANCE PLATFORM

## SIGMA IS A DEVICE FOR TRAINING BALANCE AND PROPRIOCEPTION.

SIGMA platform is equipped with an independent system for assessment of the swing angle using a specialized sensor that detects any change in the position of the platform. It processes these changes to the appropriate output signal and transmits data wirelessly in real time to a computer with the software.

Due to these properties, the SIGMA platform is particularly useful in the post-traumatic, post-surgical, orthopedic and neurological rehabilitation. The device is also used in sports rehabilitation, rheumatology and geriatrics.

**CAPABILITIES:** • classic proprioceptive training • exercises in one or two planes • exercises in standing or sitting • unilateral and bilateral exercises of the lower limb • exercises of the upper limbs

**BENEFITS:** • improved sense of balance • improved trunk stability • improved muscle coordination • improved stabilization of joints by proprioceptive reeducation

**TECHNICAL DATA:** • dimensions 68 x 68 x 8 cm • weight: 4.5 kg

**STANDARD EQUIPMENT:** • balance platform • PC software • rack with integrated computer and monitor • battery pack and charger
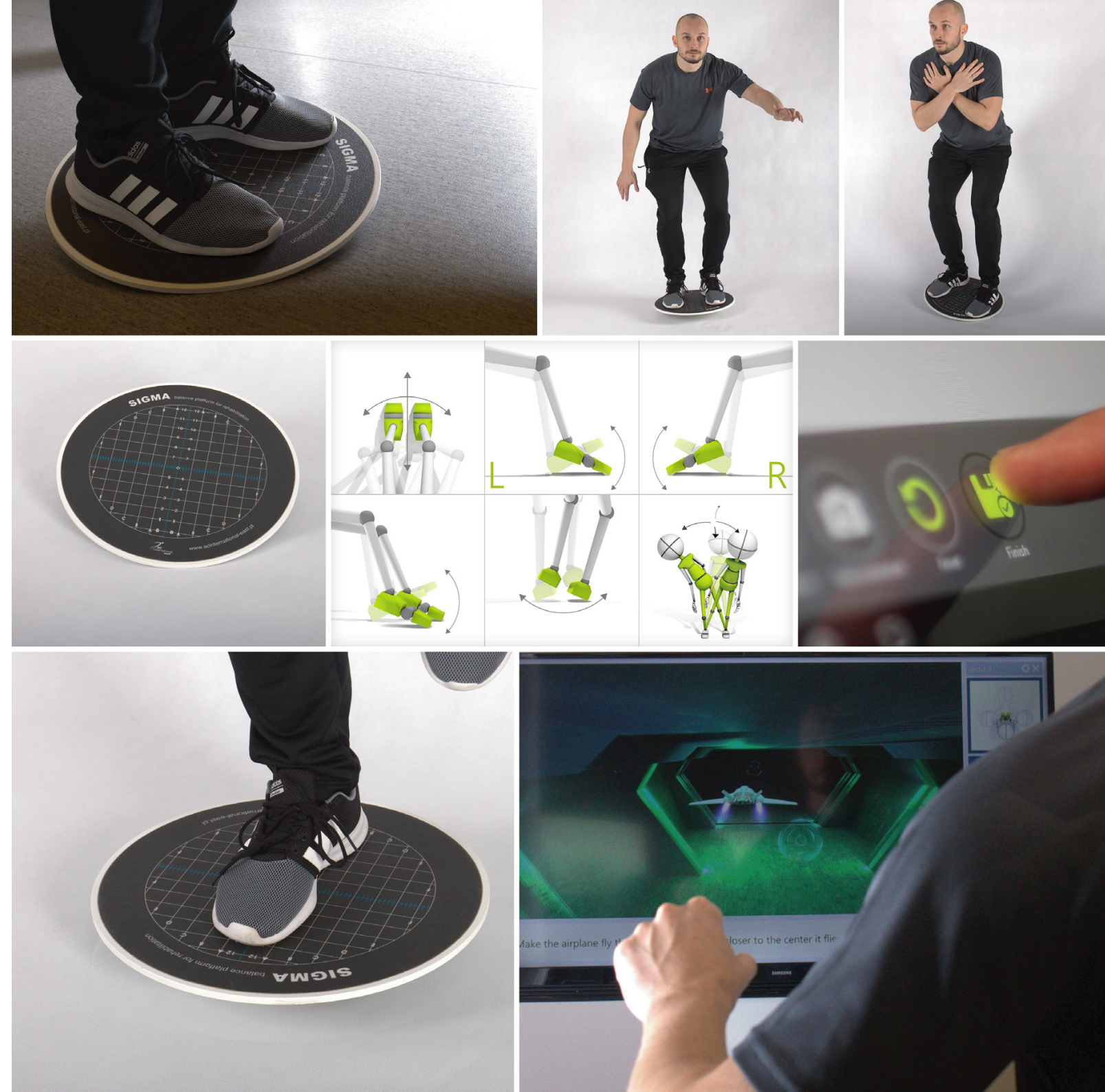
ONCE A PATIENT LEARNS HOW TO USE THE SYSTEM WHILE WORKING ONE TO ONE WITH HIS THERAPIST, HE CAN **TAKE THE THERAPY HOME**. THERAPIST PREPARES CUSTOMIZED SESSIONS AND THEN DAY BY DAY ANALYZES THE RESULTS TO **KEEP THE SESSIONS CHALLENGING**. ALL DATA IS SYNCHRONIZED WITH OUR **CLOUD BASED SERVER**, SO THE THERAPIST KNOWS WHETHER PATIENTS DO THE EXERCISES AS PRESCRIBED. THERAPIST AND PATIENT DON'T NEED TO BE CONNECTED TO THE SYSTEM IN THE SAME TIME. PATIENT CAN PERFORM THE SESSION **AT ANY TIME OF THE DAY**.