

Functional  
training

Cognitive  
treatment



Virtual  
reality  
software

Evaluation  
of balance  
and posture



**ACX.Rehab**

Helping through technology

# Rehabilitation & Diagnostics in Virtual Reality

ACX.Rehab is a concept of modern rehabilitation and diagnostics in Virtual Reality combining proven classical methods with the possibilities of modern technology.



## **Evidence Based Medicine:**

- management of rehabilitation process (from test to training)
- automatic tracking of patient progress
- reliable and objective indicators for many areas of training
- reports based on performance and received data
- evaluation and research capabilities

## **Goals / benefits:**

- improved posture, sense of balance, reeducation of proprioception
- increased range of motion, strength, endurance and muscle coordination
- better hand-eye coordination and upper extremities motor control
- reeducation of cognitive functions, memory, problem solving
- possibility to work with many patient at one time with high precision and individually planned training
- heart rate monitoring (with Bluetooth sensors)

## **Medical products:**

- force plates for balance, load distribution and proprioception training
- devices for functional training of extremities with elastic resistance
- upper extremities therapy: hand motor control and cognitive function training

## **Virtual Reality software:**

- real time biofeedback increasing patient's motivation to participate in the rehabilitation process
- daily support for therapist: less time to fill documents, better focus on patient
- integration of all patient records (automatically collected results of tests and rehabilitation exercises) in one database
- therapeutic tasks and programs templates targeted at: functional movements, speed, strength, movement precision, divided attention, memory, cognitive functions and others
- fast and easy adaptation of the exercise difficulty level to the current needs of the patient
- easy to use, intuitive, fully configurable

# X VISIO BASIC

Support for multi-specialized therapy with use of virtual reality



X Visio Basic is a certified system that provides exercises in virtual reality with scientifically proven effectiveness in supporting people with depression, anxiety and chronic stress.

**X Visio BASIC** is a tool **supporting** specialists such as:

- physiotherapists
- occupational therapists
- psychologists and psychotherapists (clinical psychology, cardiology, neurology, psychiatric rehabilitation, orthopedics)
- neuropsychologists

**who provides therapy of:**

- adults with neurological (strokes and brain injuries, Parkinson's diseases)
- adults and children (over 13 years of age) with emotional and motivational disorders
- neurodevelopmental disease such as cerebral palsy.

- offline work - the system does not require an Internet connection;
- possibility of continuation exercises at home

## Benefits:

- support for the treatment of nervous system diseases
- prevention and support for the therapeutic process of people with psychological disorders - depression, anxiety, states of emotional tension and overload, sleep difficulties
- distract from pain, unpleasant or painful medical procedures to distract from the pain or reduce anxiety or reduce emotional tension

## Capabilities:

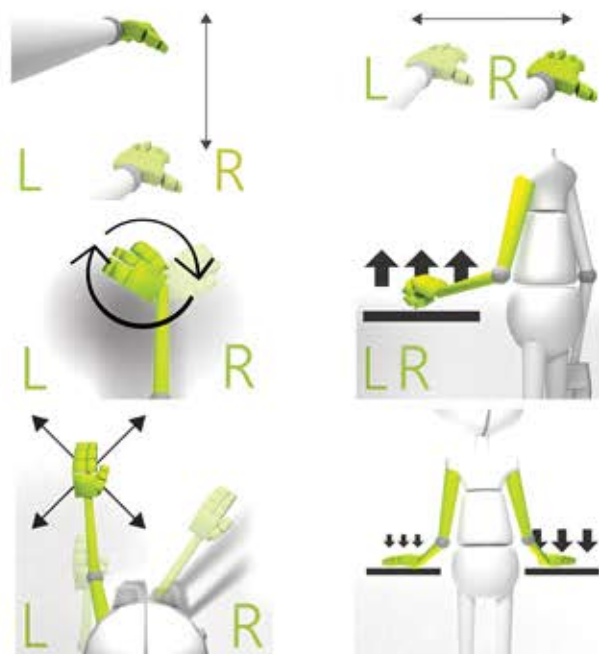
- multi - plane exercises involving the movement of the entire body in an isolated, safe virtual environment;
- combination of motor and cognitive therapy
- exercises of one or more patients at the same time (version PRO - possibility to expand the set with another VR headset) under constant real-time monitoring;





# X-Cogni

## Upper extremity



X-Cogni is a therapeutic device for motor reeducation of upper extremities, eye-hand coordination and cognitive disorders training. Active, repeated exercises help to regain lost functionality, afferent and efferent stimulation support brain reorganization, while bilateral work supports the work of both hemispheres. Device is typically used in occupational therapy and physiotherapy as therapeutic support, enhancement and intensification in addition to conventional forms of therapy.

### Capabilities:

- evaluation of patient's capabilities and prepare individual training: GOnoGo, strength test, precision test, dynamic tests
- possibility to work with active movement in space, rotation and push-pull mode
- tools for different grips (cylindric, pinch), daily activities (cup)
- sensitive but resistant touch screen allows to work with fingers, thenar and many additional tools (eg. pen)
- easy adjustment of height and tilt of the table allows to work children, adults, patients in the wheelchair and in hospital bed
- stable construction and safety (sensor to detect obstacles during changing height)
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback



### Benefits:

- improved cognitive abilities
- improved movement precision and eye-hand precision
- increased muscle strength and coordination

# Capri

## Upper extremity



Capri is small and portable therapeutic device that can be used for the rehabilitation of patients suffering from dysfunctions of hand control and accuracy, motor and movement coordination of hand. Capri system is typically used in occupational therapy and physiotherapy as therapeutic support, enhancement and intensification in addition to conventional forms of hand therapy.

### Capabilities:

- range of motion, strength and proprioception training
- exercises in one or two planes
- different holders to enhance hand function, straps to hand secure position on a device
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback
- possibility to work in telerehabilitation mode (at patient home under supervision of therapist)
- unweighing and support for upper extremity with additional attachment



### Benefits:

- better hand control and accuracy
- improved motor and movement coordination of hand
- proprioceptive reeducation

# VAST.Rehab full body tracking

VAST.Rehab full body tracking is a perfect example modern technology that allows physiotherapists to work with any group of patients. DEPTH CAMERA ALLOWS ACCURATE FULL BODY MOTION CAPTURE IN REAL TIME WITHOUT THE NEED TO ATTACH ANY SENSORS TO THE BODY OF THE PATIENT. Device allows to work with patients in specific movement, engaging selected body segments, in many starting position.



Enhance postural control and stability through targeted virtual reality exercises that challenge and develop dynamic balance.



Strengthen memory and recall abilities with engaging virtual exercises that challenge patients to remember and reproduce sequences, patterns, or locations.



Build muscle strength and endurance with progressive resistance exercises tailored to each patient's ability and exercise goals.



Improve patients' attention span and focus through interactive virtual tasks that require sustained concentration and selective attention.



Increase joint mobility and flexibility through guided stretching and range-of-motion exercises in immersive virtual environments.



Enhance decision-making, planning, and organization skills with virtual exercises that simulate complex, real-life situations.



Improve walking patterns and functional mobility with specialized virtual reality therapy that simulate real-world situations and provide immediate feedback.



Foster critical thinking and problem-solving abilities with virtual tasks that require patients to analyze and evaluate information, make decisions, and overcome obstacles.



Develop and refine fine and gross motor skills through engaging virtual reality exercises that challenge and improve hand-eye coordination and whole-body movement.



Develop spatial orientation and navigation skills through the immersive experience of virtual environments that challenge patients to navigate and interact with their surroundings.





# FORCE PLATES

## BALANCE EVALUATION AND TRAINING DEVICES



### SAFETY AND EFFICIENCY

- reeducation of posture, balance and load distribution
- all therapy phases: from acute phase to sport training
- exercises in different position, on stable or unstable ground

### EVIDENCE BASED MEDICINE - EVALUATION OF THE PATIENT BEFORE AND AFTER THERAPY:

- analysis of static and dynamic parameters related to balance, on stable and unstable ground
- implemented test templates and training protocols with possibility to create and store own programs
- fast and simple information for therapist about trend in therapy of a patient

### TO WHOM?

#### Therapy of various groups:

- neurological problems (eg. stroke, Parkinson disease, cerebellum diseases, peripheral neuropathy, epilepsy)
- orthopaedical disorders (injuries, fractures, traumas, osteoarthritis, spine, lower extremities and pelvis disorders)
- children
- elderly people
- return to sport, athletes
- cardiological patients

### WHY?

- effective evaluation of posture and balance training
- risk of falling prevention
- improved joint stabilization through proprioceptive reeducation
- proper limb load distribution in standing and during dynamic movements to prevent joints damages
- better muscle coordination and trunk stability
- improved cognitive abilities



Alfa is a stabilometric platform that allows both: balance assessment and training of neurological and orthopedic patients. This device helps to increase the performance of the patients after brain injuries, stroke, multiple sclerosis, Parkinson's disease and muscle dysfunction. Additionally, it accelerates recovery after lower extremities fractures, sprains, endoprosthesis surgery or amputations of lower limbs. Training on the platform aims at stimulation of musculoskeletal and nervous systems responsible among others for balance control.

### Capabilities:

- analysis of the center of pressure (COP) during tests and training
- evaluation of static and dynamic parameters involved in maintaining balance on a stable surface
- Romberg and Unterberger test
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback





# Gamma

## Dynamometric platform



Gamma is a modern two-plate dynamographic platform that enables both the testing and training of neurological and orthopedic patients. This platform has also advance data collecting protocols and might be used for researches. Gamma provides professional training for patients and sportsmen with impaired body balance and coordination. Its additional advantage is the possibility of free setting two plates of platform which enables the training of athletes in the particular, related to their sports discipline position.

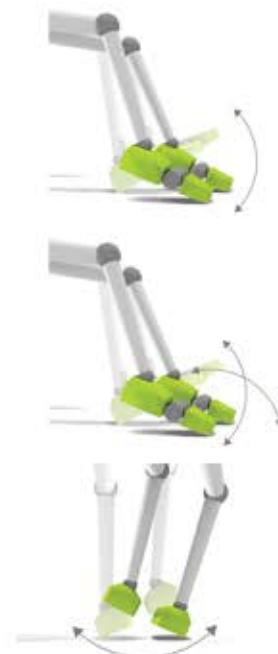
### Capabilities:

- analysis of load distribution in the vertical axis
- static load distribution evaluation and training
- dynamic movement test and training: jumping, stepping, squats, sit to stand
- extensive data analysis capabilities
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback



# Sigma

## Balance platform



Sigma is a device for therapy of balance and proprioception on unstable ground. It is possible to train in standing and sitting position to perform exercises. Sigma is designed for training of different groups of people, from sportsmen to patients on wheelchairs.

### Capabilities:

- classic proprioceptive training
- active balance and stability evaluation
- exercises in one or two planes
- exercises in standing (both or single leg) or sitting (pelvis or feet)
- unilateral and bilateral exercises of the lower or upper limbs
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback

PODIUM WITH HANDRAILS IS ADDITIONAL ACCESSORY



# FUNCTIONAL TRAINING WITH ELASTIC RESISTANCE DEVICES

## NEUROMUSCULAR DYSFUNCTIONS THERAPY



- devices for upper and lower extremities training
- evaluation of range of motion, maximal strength and movement accuracy
- safe type of resistance - increases proportionally to the range of motion (slight resistance in the initial phase of the movement, evenly increasing in subsequent phases of the exercise)
- exercises performed in closed or open kinematic chain
- dynamic and static exercises
- concentric, eccentric, isometric and plyometric training with crucial parameters adjusted by therapist
- all therapy phases: from early rehabilitation to sport training
- implemented test templates and training protocols with possibility to create and store own programs
- fast and simple information for therapist about trend in therapy of a patient

### TO WHOM?

#### Therapy of various groups:

- neurological problems (eg. stroke, Parkinson disease, cerebellum diseases, peripheral neuropathy, epilepsy,)
- orthopaedical disorders (injuries, fractures, traumas, osteoarthritis, spine, lower extremities and pelvis disorders)
- children
- elderly people
- return to sport, athletes
- cardiological patients

### WHY?

- strength, endurance, range of motion, coordination training
- improved joint stabilization through proprioceptive reeducation
- better muscle coordination and joints stability
- improved cognitive abilities



# Jupiter

## Lower extremity



Jupiter is designed for efficient rehabilitation of the knee joint. Device works in open kinematic chain which is focused on specific, isolated exercises of agonist and synergistic muscles (biceps and hamstring muscles) of lower extremities.

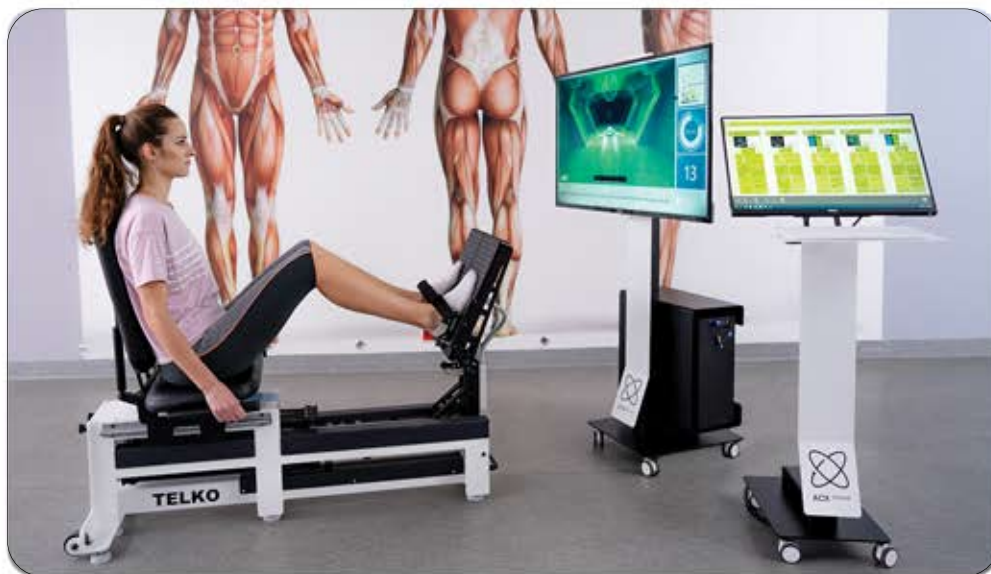
### Capabilities:

- evaluation and training of the range of motion
- evaluation of maximal strength
- dynamic and isometric exercises
- comparison of flexors and extensors muscle's strength and left to right leg parameters
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback

### Benefits:

- increased range of motion through active movements
- increased muscle strength and endurance
- improved stabilization of joints by proprioceptive reeducation
- improved muscle coordination
- balanced ratio between flexors and extensors





Telko is used for the rehabilitation and training of the lower extremities in a closed kinematic chain. In this mode therapy is focused at functional movements, joints stability, coordination, dynamic neuromuscular control. Telko allows to work multi-joint (hip, knee, ankles). Device has integrated in the footrest two-plate dynamographic platform that extends the training with load distribution and coordination exercises.

### Capabilities:

- evaluation and training of the range of motion
- dynamic and isometric exercises
- evaluation and training of load distribution
- possibility to work with one or two legs
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback



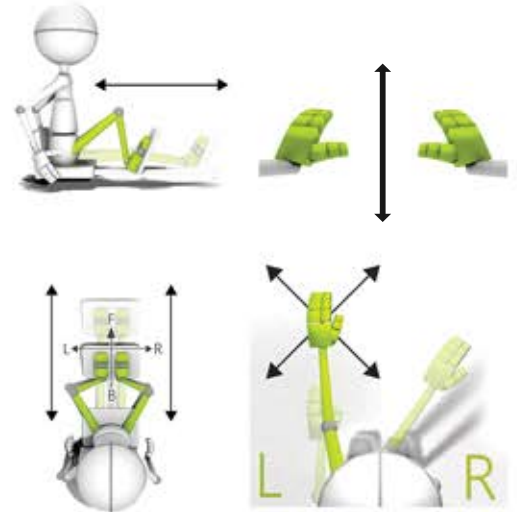
### Benefits:

- increased range of motion through active movements
- greater muscle strength and endurance
- improved stabilization of joints by proprioceptive reeducation
- improved muscle coordination
- load distribution training in sitting position, for acute patients



# Mini Tensor

## Lower and upper extremity



Mini Tensor is small, portable and multifunctional device for therapy of the trunk, lower and upper extremities in closed kinematic chain.

### Capabilities:

- measurement of the range of motion and strength
- dynamic exercises: concentric and eccentric
- possibility to work unilaterally or bilaterally
- ability to exercise in multiple positions

### Benefits:

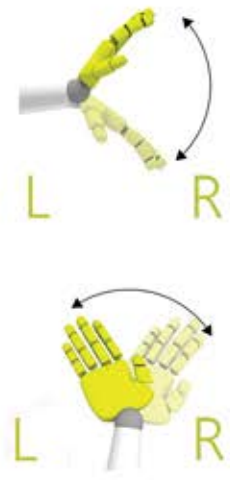
- increased range of motion through active movements
- increased muscle strength and endurance
- improved stabilization of joints by proprioceptive reeducation
- improved muscle coordination





# Cubito

## Upper extremity



Cubito is used for the rehabilitation and training forearm and wrist. The device is designed to work with elastic resistance elements, which most important advantage is to generate a slight resistance in the initial phase of the movement, evenly increasing in subsequent phases of the exercise.

### Capabilities:

- evaluation and training of the range of motion
- dynamic exercises and movement coordination
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback

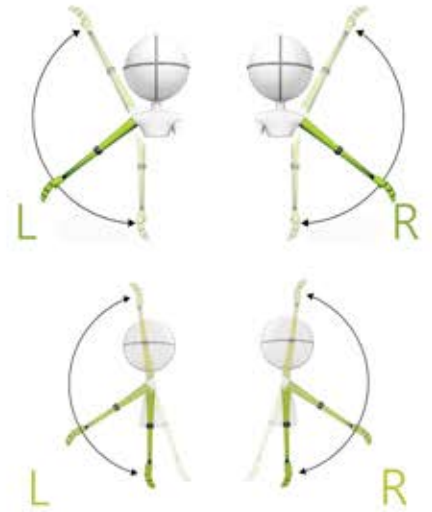
### Benefits:

- increased range of motion through active movements
- increased muscle strength and endurance
- improved stabilization of joints by proprioceptive reeducation
- improved muscle coordination



# Vectis

## Upper extremity



Vectis is designed for efficient rehabilitation of the shoulder joint. Device works in open kinematic chain which is focused on specific, isolated exercises of agonist and synergistic muscles of upper extremities. It is used for therapy of frozen shoulder, osteoarthritis, tendon or ligament inflammations and rotator cuff dysfunctions. Device allows to work with shoulder movement.

### Capabilities:

- evaluation and training of the range of motion
- evaluation of maximal strength
- dynamic and isometric exercises
- comparison of flexors and extensors muscle's strength and left to right arm parameters
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback

### Benefits:

- increased range of motion through active movements
- increased muscle strength and endurance
- improved stabilization of joints by proprioceptive reeducation
- improved muscle coordination



# Vectis Mini

## Upper extremity



Vectis Mini is used for the rehabilitation and training of shoulder joint. It is used for therapy of rotator cuff dysfunctions, frozen shoulder, osteoarthritis and tendon or ligament inflammations.

### Capabilities:

- evaluation and training of the range of motion
- dynamic exercises and movement coordination
- virtual reality supporting patient motivation and faster therapeutic progress
- therapy of cognitive disorders: divided attention, memory, problem solving
- templates for testing and training programs and the ability to create user exercises with integrated real-time biofeedback
- ability to adapt the level of difficulty of exercises to the current needs of the patient

### Benefits:

- increased range of motion through active movements
- increased muscle strength and endurance
- improved stabilization of joints by proprioceptive reeducation
- improved muscle coordination

