

PHYSILECT

Systems Catalogue

2019

Diagnostic

Doc

Motion Lab

Clinic

Cognitive

VrS

Patient

PHYSILECT
Physiotherapy reinvented

Diagnostic

Motion Lab

Clinic

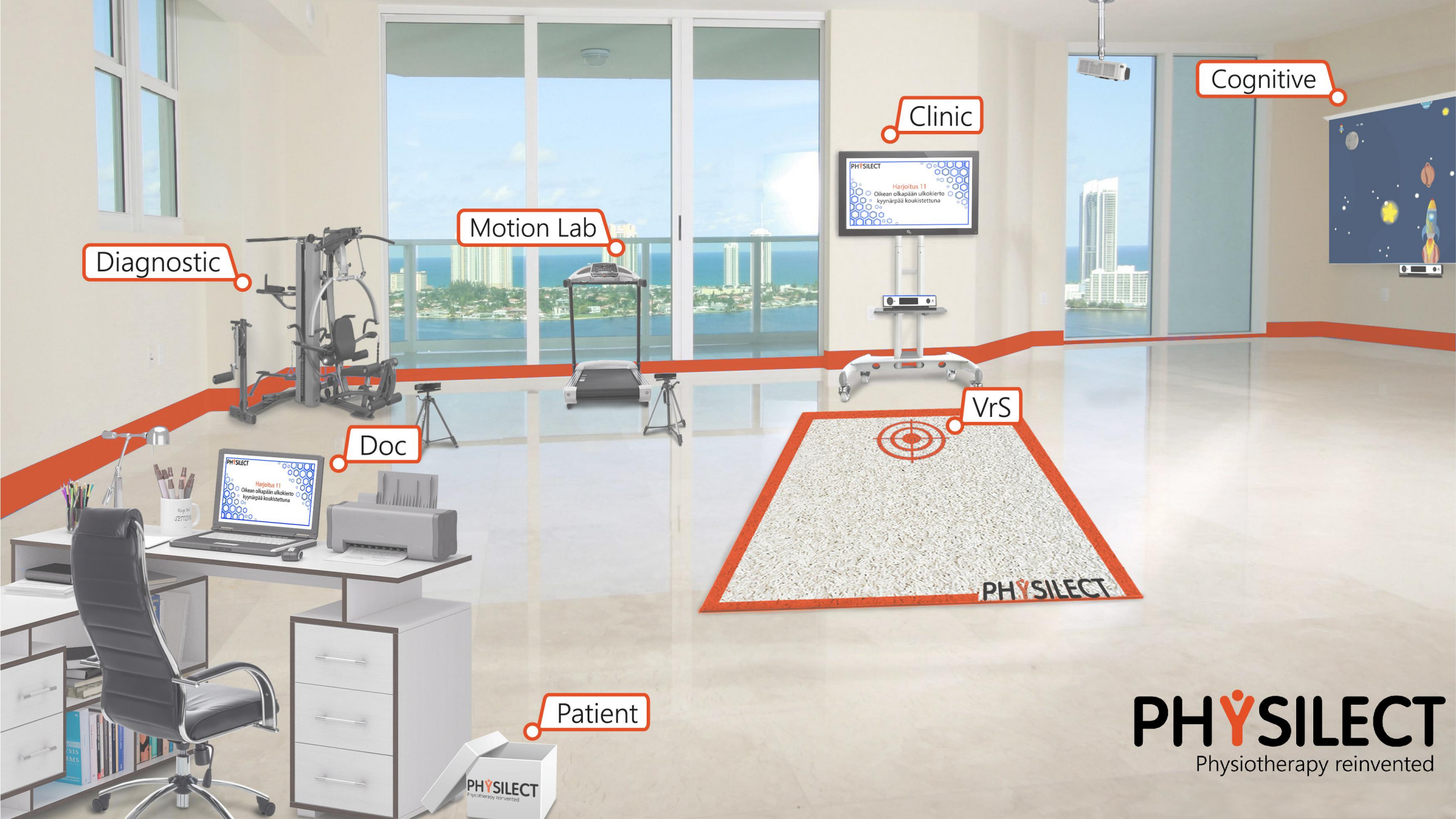
Cognitive

Doc

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Patient

PHYSILECT
Physiotherapy reinvented







Content

PHYSILECT

Physiotherapy reinvented



- 04 By author
- 05 Reliability and quality
- 06 Smart and simple
- 07 Created by engineers, developed by doctors
- 08 Freedom and innovations

- 09  **Clinic**
- 12  **MotionLAB**
- 15  **VrS**
- 17  **Cognitive**
- 20  **Doc**
- 23  **Patient**
- 26 Feedback and studies

By author

We create and promote latest technologies in working with patients based on contactless motion sensors, video analysis and high-precision laser range finders.



Dear colleagues,

Our systems – important step towards to future medicine. At first it might be unusual: unlike systems which you have already worked with, these might seem a bit strange. There are no complicated settings, bulky devices, plenty of descriptions of every detail and hundreds of warnings. Instead of it, we have created a product to which you don't have to get used to and negotiate: our systems are automated a little more than is possible, they do not require wearing special devices, replanning of cabinets and a long setup. Despite its ease of use – it is serious medical equipment. Its development took years, and an international team of engineers and doctors worked on every part. Many of your colleagues helped us in design, shared their experience, knowledge, and what is most important – problems, which we tried to solve with our systems. Our innovative equipment will provide you the highest level of reliability, simplicity, speed of work, as well it will simplify your daily tasks.

I am sure you will properly appreciate our efforts.

Aleksei Kozlov
CEO «Physilect»

Reliability and quality

9001
ISO



Without sensors
attached to body



Automatic
calibration



- *Only the best components, which we use for ourselves: from the latest Intel computers to reliable APC network filters*
- *In any situations, we, as manufacturer, will answer your questions*
- *We provide a guarantee for the replacement of components, as we are confident in them*
- *Systems are assembled under strict regulations in accordance with ISO 9001*
- *Always full set of manufacturer's documentation*
- *Our own test laboratories in St. Petersburg and Helsinki, as well as research centres in Moscow and St. Petersburg*
- *Closed cycle of processing all inquiries received from the support service: both additions and errors*
- *Built-in self-diagnosis and self-repair system for the software*
- *Designs with triple safety grade*
- *Own reliable modification of the operating system and software protection*
- *Data protection in compliance with F3 152*



The professionals of Physilect not only provided a complex for remote rehabilitation and trained our doctors to work with it, but also promptly resolved all issues addressed from the patients and helped them to use all options of the system. As a result of this cooperation, the idea of a highly professional customer service for remote patients was implemented. We can see an excellent dynamics and positive result of the system's work.

Clinic Nikolajevskaya,
St. Petersburg, Russia.

Smart and simple



Instructions
and tips



Ready
exercises



Recording
goals



TELEMEDICINE

- Our systems do not require special training and IT support.
- Most of the doctors appreciated ease of work and attention to details
- Intuitive user interface, common to all systems
- Simple and intelligible documentation
- Instructions and tips for all exercises and description of every parameter
- Automatic synchronization of data between complexes
- Automatic calibration and full anthropometric independence
- No additional sensors attached to the patient's body or platforms
- Patient profile management at the clinic is similar as in telerehabilitation
- Training of patients in clinic is the same as training at home (telerehabilitation)
- Automatic updates of all systems
- Visualized patient training reports
- Biofeedback with augmented reality and virtual marks on the patient's body

Simple installation – complex does not require calibration, attraction to site, special conditions for installation and operation, which is especially valuable in outpatient practice.

Easy handling – complex can be easily controlled by the user with minimum level of understanding in computer use. It has perfectly developed ergonomics of the interface, and does not require time-consuming procedure of installing “markers” on human body.

The accuracy of the movement analysis corresponds to the stated and allows to perform individual trainings, to control correctness of exercises. The statistics provided are informative and allow you to track the dynamics of task performance.

Rehabilitation technologies of the Baltic states,
St.Petersburg, Russia

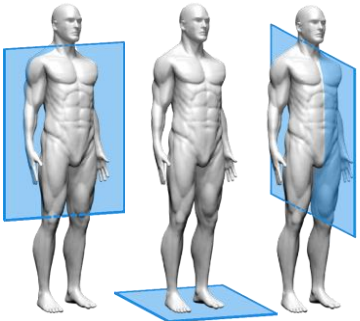




In 2013 our team of engineers started actively work with contactless motion sensors and immediately became winners and were the only team from the Russian Federation in the international Microsoft contest. In that time we were looking for a worthy place where to apply our knowledge and skills, and accordingly we drew attention to the biomedical cluster. There we had a lot of meetings with practitioners, therapists, surgeons, and our ideas found the biggest response in rehabilitation.

- Now, as Physilect, we create and promote the latest technologies in working with patients based on contactless motion sensors, video analysis and high-precision laser range finders.
- Systems Physilect have been created by engineers, graduates of leading universities of the Russian Federation and Finland.
- We are attentive to every detail of our complexes: they must be functional, comfortable, simple and look nice - from protective coatings to packaging.
- All versions of our systems, starting from prototypes to final complexes, are carefully checked and evaluated in the best clinics, including in clinics in Europe.
- All therapy exercises and new features are suggested by doctors and created under their supervision.

Freedom and innovations



- Free to choose the place and time for doctor and for patient to have training
- Remote rehabilitation (telerehabilitation)
- Personal profile of the patient with history of each therapy exercise
- Highly precise systems without any sensors attached to body to assess the quality and quantity of exercises
- Diagnostics of the range of motion
- Virtual balance platform
- Projector to specify the position for particular exercise
- Augmented Reality
- Wireless remote control
- Tests (Romberg, Fukuda, etc.) with objective assessment
- Optical topography
- 3D movement pattern with calculations of loads and amplitudes for each joint
- Detailed Gait Assessment
- Constantly updated base of exercises and tests
- Games for motivation and cognitive rehabilitation

Our mission - together with doctors to create a common system of the most effective clinical and home rehabilitation.



Clinic





Functions

- Evaluation of the range of motion
- Motivational game scenarios and cognitive development
- Remote control for exercises
- BOS with augmented reality
- Monitoring the correctness of the exercise
- Detailed statistics of therapy session and progress report

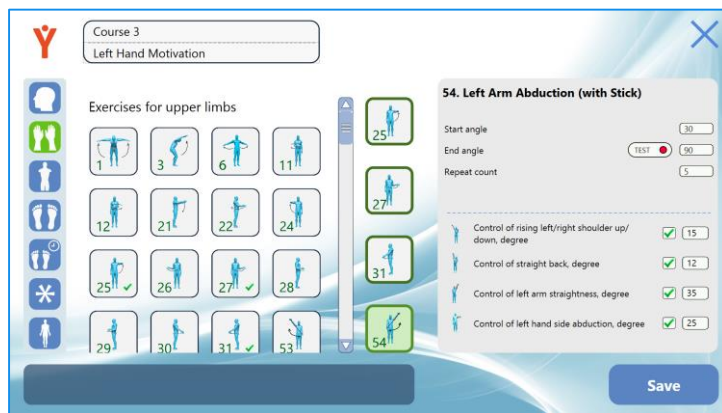
Application

- Rehabilitation (restoration of motor functions, strength, endurance and movement coordination)
- Medical examination (evidence-based medicine)
- Sports medicine
- Professional medicine
- Conducting scientific research

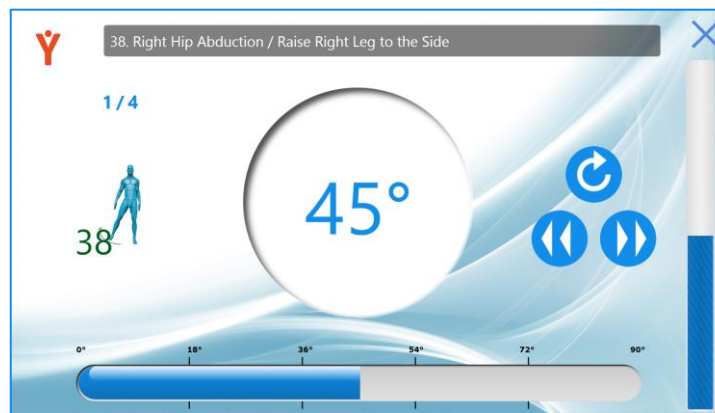
The complex is designed to be installed in clinic. Doctor creates a course of therapy from available ready made exercises (> 3000 options), sets the schedule of the patient's therapy and, if necessary, examines the range of motion. The system works without sensors attached on the patient's body, it is based on a high-precision laser sensor. Patient performs exercises in front of the screen, according to the instructions of the system either independently or under supervision of specialist.

Configuration

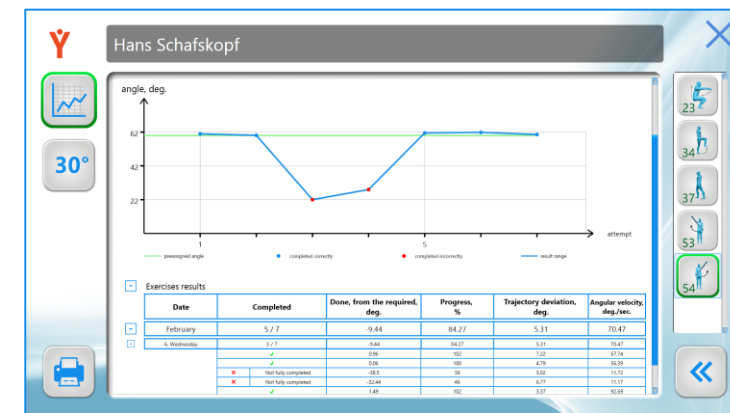
- Computer, 40 inch TV, sensor, stand, wireless control kit, network filter.



QUICK CREATION OF THE COURSE FROM THE LIST OF READY MADE EXERCISES



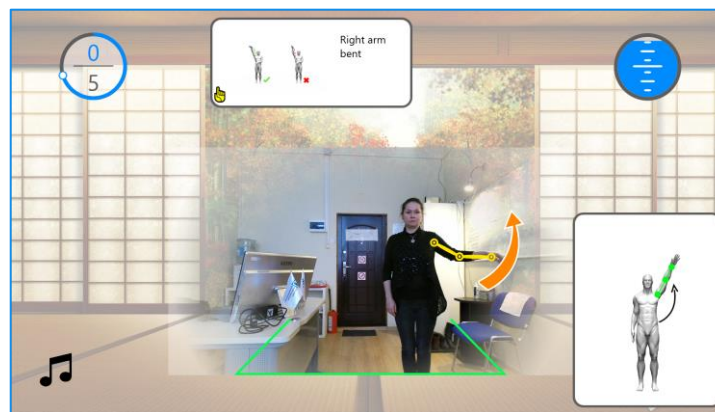
PRECISE DIAGNOSTICS OF THE RANGE OF MOTION



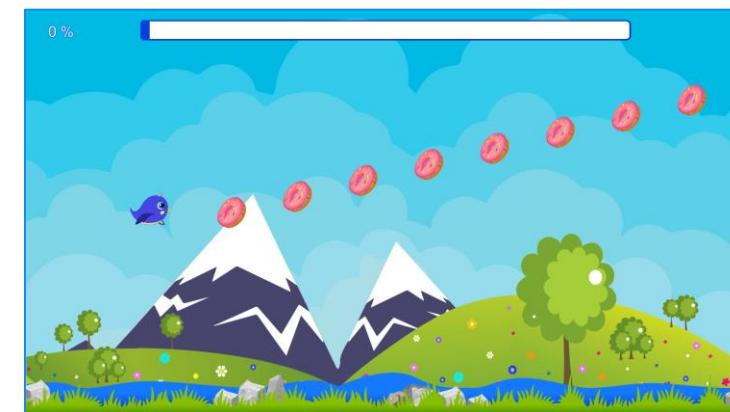
DETAILED STATISTICS OF PERFORMED THERAPY EXERCISES



VARIOUS TRAINING OPTIONS: BIOFEEDBACK, MOTIVATING GAMES

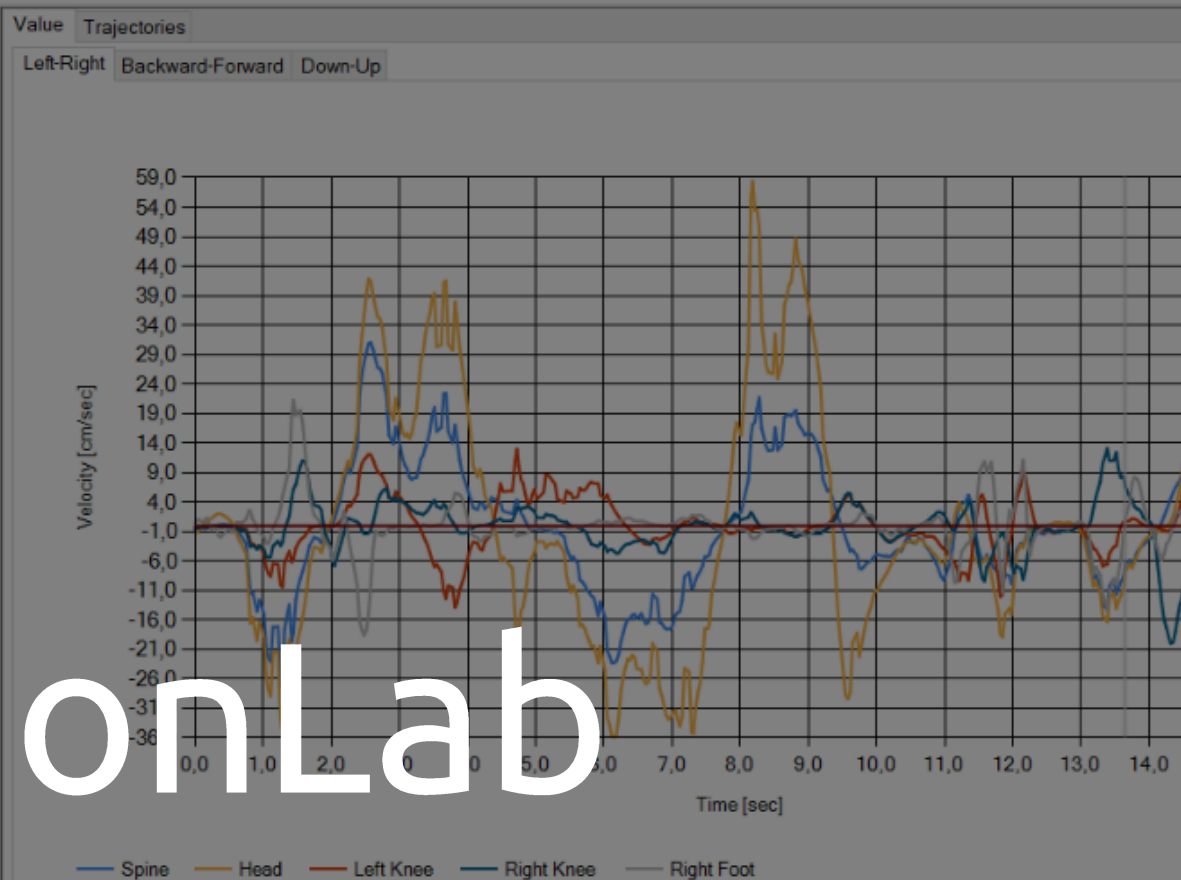


AUGMENTED REALITY, TIPS AND INSTRUCTIONS



PERFORMANCE OF MOVEMENTS, PRESCRIBED BY DOCTOR

MotionLab



Show

- ☒ Velocity
- ☐ Acceleration
- ☒ Trajectories
- ☒ Joints
- ☒ Tensions
- ☒ Rotations
- ☒ Amplitude
- ☒ Direction

Tracking

Joints

- ☐ Hip Center
- ☒ Spine
- ☐ Shoulder Center
- ☒ Head
- ☐ Left Shoulder
- ☐ Left Elbow
- ☐ Left Wrist
- ☐ Left Hand
- ☐ Right Shoulder
- ☐ Right Elbow
- ☐ Right Wrist
- ☐ Right Hand
- ☐ Left Hip
- ☒ Left Knee



The complex for detailed examination of the patient's movements, with recording of three-dimensional model of person, optical topography and video from several angles.

Options

- Detailed Gait Assessment
- Record and deferred analysis of the patient's movements including range of motion in the joints, loads, trajectories
- Recording and playback with different speeds of patient movements
- Comprehensive analytics of movements represented by graphs, tables and comparison of several records
- Assessment of movement parameters separately for each plane: frontal, horizontal, sagittal
- Optical topography
- Assessment of movements relative to the perpendicular grid
- Assessment of the center of gravity change both in statics and dynamics, in standing position and sitting.

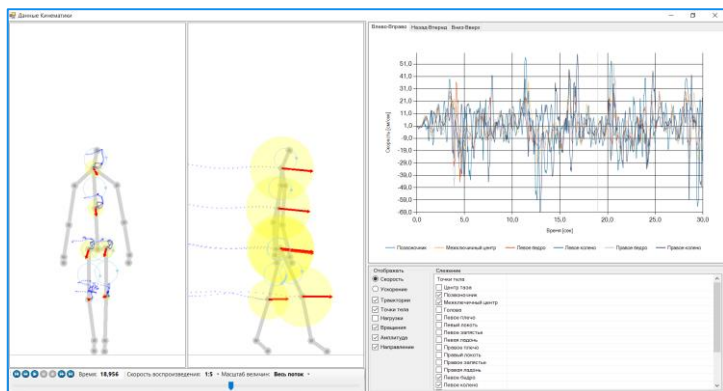
Application

- Rehabilitation (assessment of the recovery of motor functions, strength, endurance and movement coordination)
- Medical examination (evidence-based medicine)
- Sports medicine and professional medicine
- Conducting scientific research

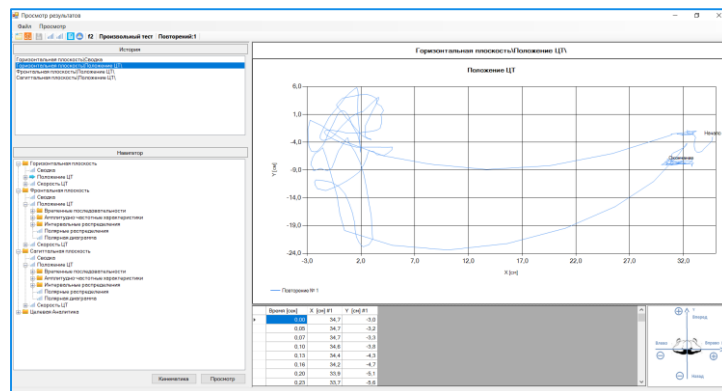
The complex is designed for installation in clinic. Doctor selects duration of the test and runs the assessment. The patient performs the test in front of the screen as directed by the system under supervision of a specialist. After finishing the test, a general report with test results is immediately displayed. Detailed information and movement recordings are available from the application.

Configuration

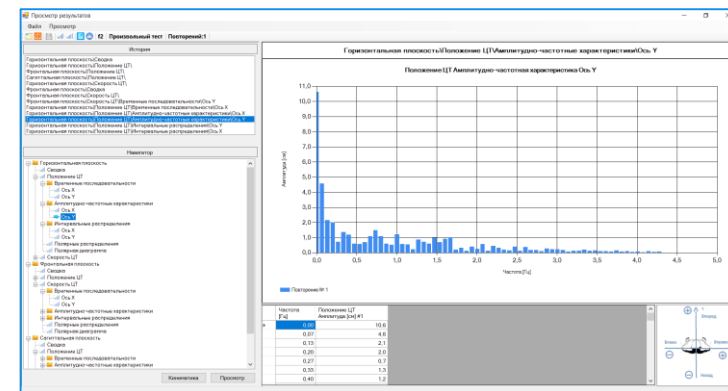
- Computer, 40 inch TV, sensor, stand, wireless control kit, network filter.



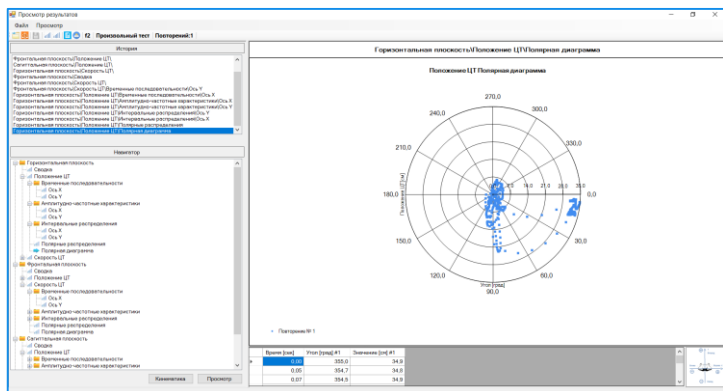
DETAILED ASSESSMENT OF MOVEMENTS
SELECTING POINTS OF ANALYSIS



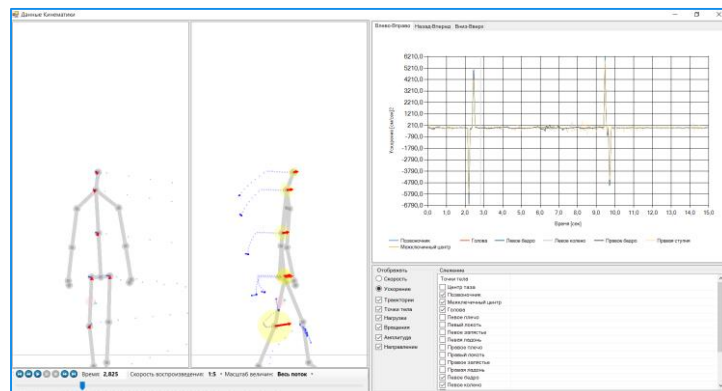
ANALYSIS OF THE CENTER OF
GRAVITY AND SPEED OF ITS CHANGE



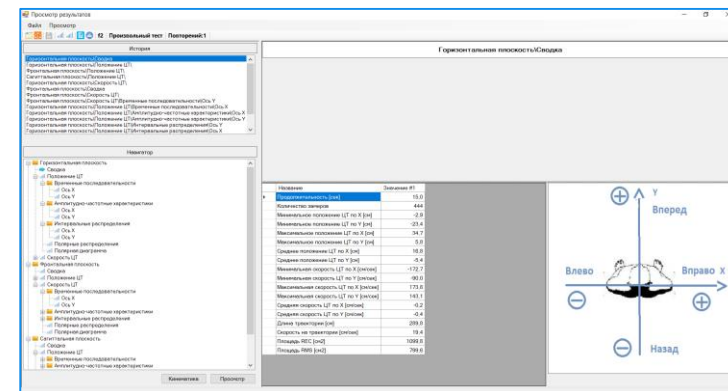
AMPLITUDE-FREQUENCY
CHARACTERISTICS



POLAR DIAGRAM OF MOTION



VOLUNTARY TESTS, INCLUDING
UP&GO



AUTOMATIC CALCULATION OF ALL
PARAMETERS OF THE CENTRE OF GRAVITY

The logo consists of the letters 'VrS' in a white, sans-serif font. A vertical white line is positioned to the left of the 'V'. The background of the slide features a series of concentric gray circles centered on a dark gray circle, with a vertical blue line passing through the center.

VrS



Options

- Training to change the position of the center of gravity along trajectories and points
- Tasks to shift the pressure on the left-right leg
- Different levels of difficulty for exercises
- Biofeedback with augmented reality
- Control of correct performance of exercises
- Detailed statistics of therapy sessions and progress report

Application

- Rehabilitation (restoration of motor functions, strength, endurance and movement coordination)
- Medical examination (evidence-based medicine)
- Sports medicine
- Professional medicine
- Conducting scientific research
- The complex is designed to be installed in clinic. Doctor selects the type of training and settings for the patient. The patient performs therapy exercises in front of the screen as directed by the system independently or under supervision of a specialist. The system works without sensors attached to the patient's body, based on a high-precision laser sensor.

Configuration

- Computer, 40 inch TV, sensor, stand, wireless control kit, network filter.

A person with short brown hair, wearing a blue t-shirt and a watch, stands with their back to the camera, arms extended towards a large monitor. The monitor displays a colorful game interface with a landscape of mountains, trees, and a string of red balloons. The person appears to be interacting with the screen using hand gestures. The word "Cognitive" is overlaid in large white text, with a vertical line extending from the letter 'i' down to the person's arm.

Cognitive



Options

- Game scenarios for cognitive tasks (element selection, grouping by features, logical tasks, tracking by trajectory)
- Self-teaching artificial intellect to set the level of complexity and motivation of the patient (elements of the games are arranged automatically depending on the capabilities of the patient)
- Biofeedback with augmented reality
- Detailed statistics of therapy session and progress report
- Automatic recording of all movements to perform analysis in H.MotionLAB

Application

- Physical rehabilitation (restoration of motor functions, strength, endurance and movement coordination)
- Cognitive rehabilitation
- Telemedicine
- Conducting scientific research

System for installation in clinic. Doctor creates a course of therapy and sets the schedule of therapy exercises for the patient (load). The system works without any sensors attached to the patient's body, based on a high-precision laser sensor. The patient performs therapy exercises in front of the screen as directed by the system independently or under supervision of a specialist.

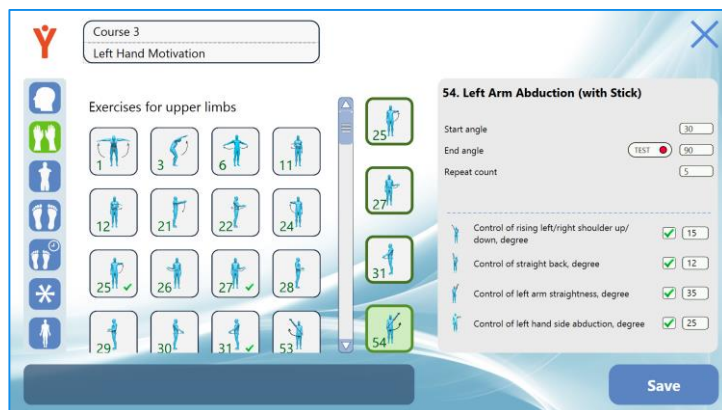
Configuration

- Computer, 40 inch TV, sensor, stand, wireless control kit, network filter.



Cognitive

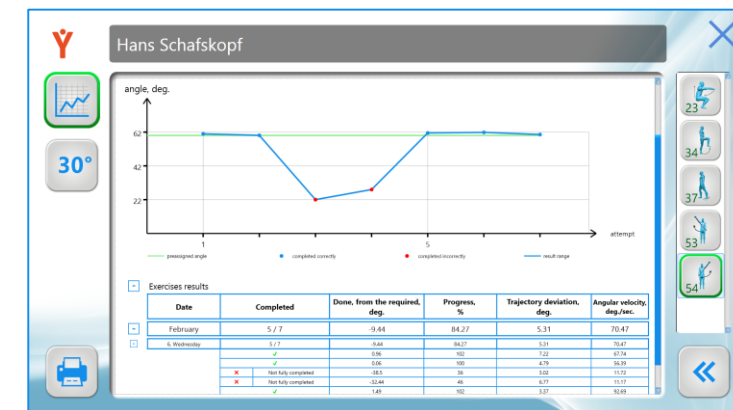
The complex for restoration and development of cognitive functions with assessment of functional abilities by using interactive programs for clinic.



FAST CREATION AND
MODIFICATION OF THE TASKS



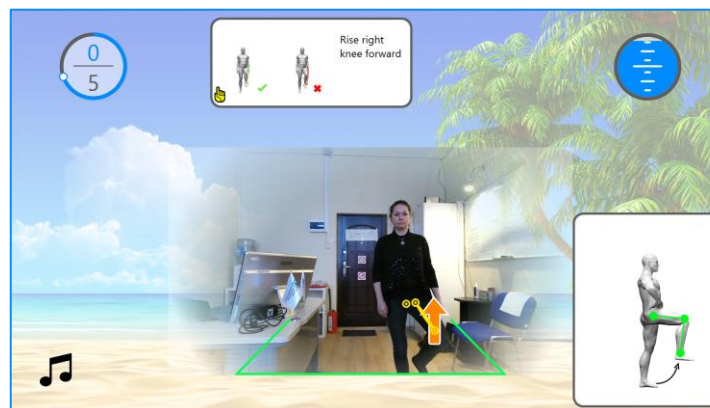
SELF-TEACHING SYSTEM WITH
ARTIFICIAL INTELECT



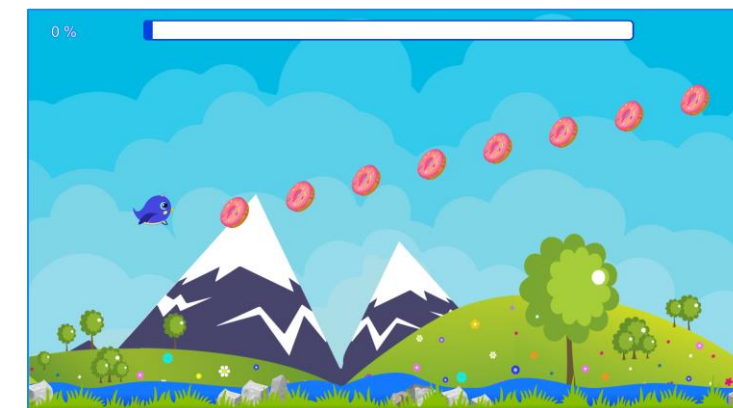
DETAILED STATISTICS OF
PERFORMED TASKS



DIFFERENT TYPES OF THERAPY TASKS:
BIOFEEDBACK, MOTIVATING GAMES



AUGMENTED REALITY, TIPS AND
INSTRUCTIONS



PERFORMANCE OF MOVEMENTS,
PRESCRIBED BY DOCTOR

Doc





The workplace of the doctor, which allows to monitor therapy exercises and data of all patients, both in the clinic and home rehabilitation (telerehabilitation). Has to be installed in the computer of the doctor.



Options

- Preparation of exercise courses
- Detailed statistics of therapy sessions and progress reports
- Control of therapy exercises performed by the patients from own workplace (mobile)
- Installation on any computer (Windows)

Application

- Remote rehabilitation (telerehabilitation, telemedicine)
- Rehabilitation (restoration of motor functions, strength, endurance and movement coordination)
- Medical examination (evidence-based medicine)
- Sports medicine
- Professional medicine
- Conducting scientific research

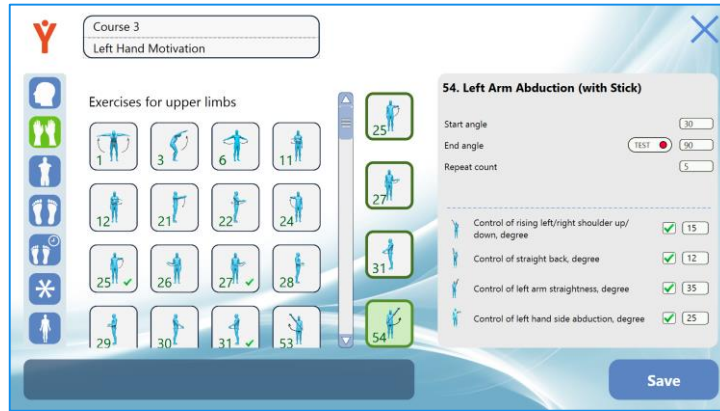
The program is designed to be installed on a doctor's personal or work computer to provide a remote control and management of patient activities. It can be used as a central workplace with the management of patient profiles both in the clinic and home.

Configuration

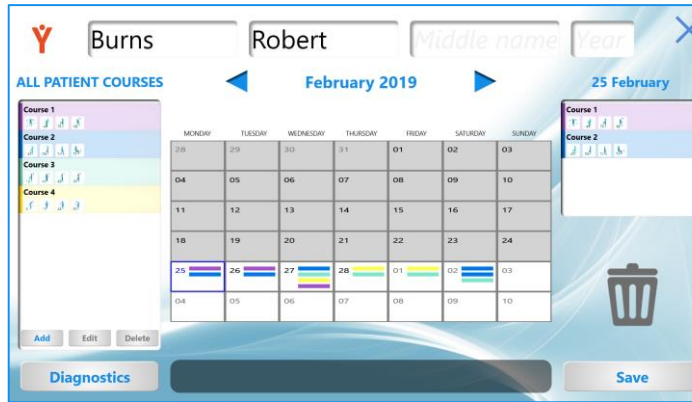
- Flash drive with the installation software package.



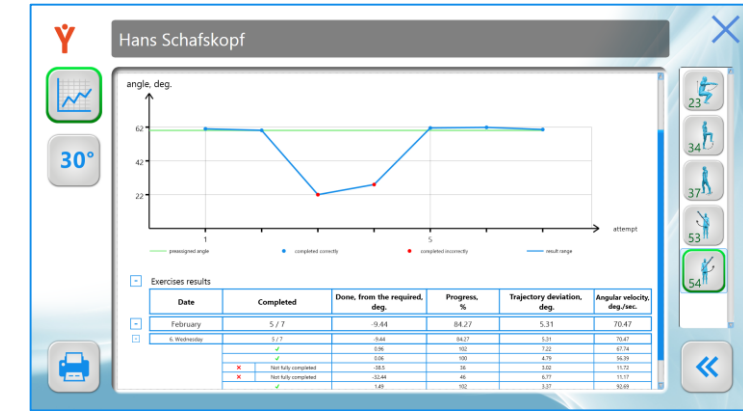
The workplace of the doctor, which allows to monitor therapy exercises and data of all patients, both in the clinic and home rehabilitation (telerehabilitation). Has to be installed in the computer of the doctor.



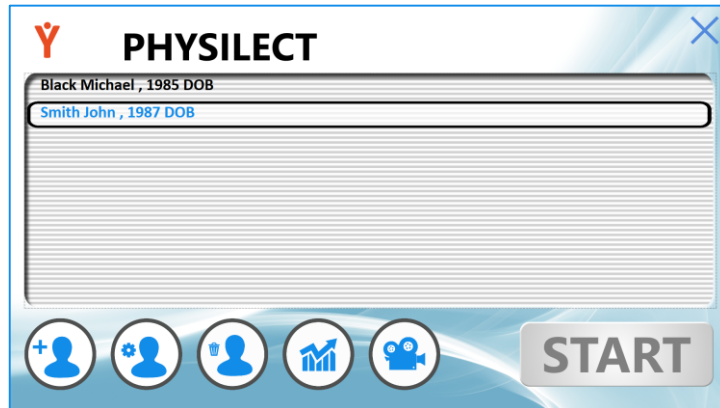
FAST CREATION OF THERAPY COURSE FROM READY MADE LIST OF EXERCISES



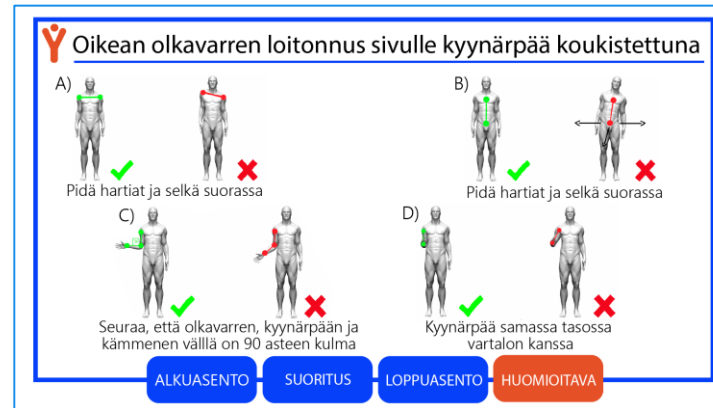
MANAGEMENT OF A TIMETABLE OF THE THERAPY



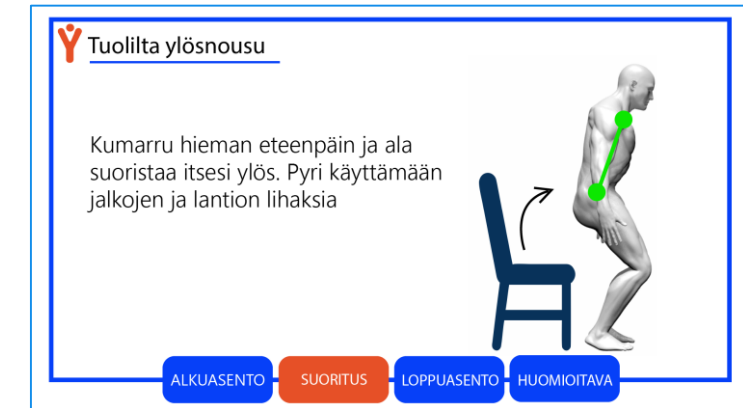
DETAILED STATISTICS OF PERFORMED EXERCISES



MANAGEMENT OF THE PATIENT PROFILES



PERSONALIZATION OF THE EXERCISE CRITERIA



INSTRUCTIONS AND DESCRIPTIONS TO EACH TASK

Patient



Complex of the patient to perform independent training at home. Includes biofeedback system with augmented reality and game scenarios to increase motivation. Telerehabilitation (telemedicine).



Options

- Motivating game scenarios and development of cognitive functions
- Remote control of therapy exercises and synchronization with the complex H.Clinic
- Biofeedback with augmented reality
- Control of the correct performance of exercises
- Work as part of the tele-rehabilitation service
- Connects to a home TV or monitor of the computer

Application

- Rehabilitation (restoration of motor functions, strength, endurance and movement coordination)
- The complex is designed to be installed at patient's home. The course of therapy exercises prescribed by the doctor appears on the complex immediately after simple activation (input of 8 digits of the Personal Key). The system works without any sensors attached to the patient's body, based on a high-precision laser sensor. The patient performs therapy exercises in front of the screen as directed by the system independently or under supervision of a specialist.

Configuration

- Computer, sensor, wireless control kit.

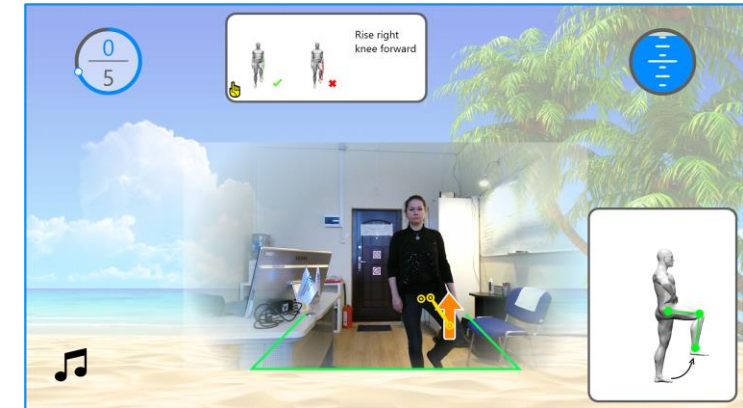




DIFFERENT TYPES OF THERAPY TASKS:
BIOFEEDBACK, MOTIVATING GAMES



AUTOMATIC START OF BIOFEEDBACK
TRAINING WITH TIMER



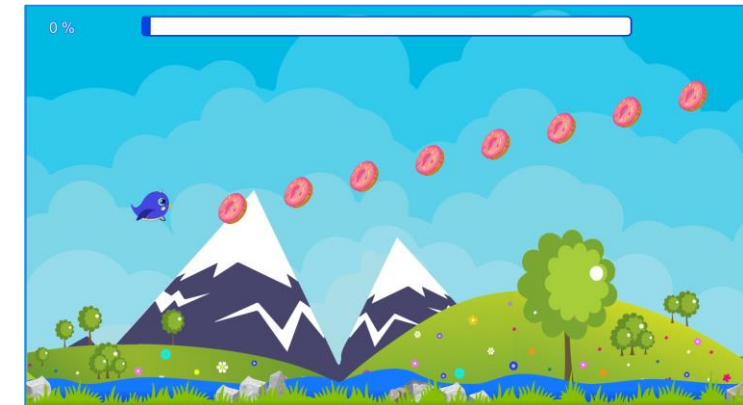
AUGMENTED REALITY, TIPS AND
INSTRUCTIONS



MOTIVATING, POSITIVE
MESSAGES



DIFFERENT LEVELS OF
COMPLEXITY IN EVERY GAME



MANAGEMENT OF MOVEMENTS
PRESCRIBED BY DOCTOR



The effectiveness of the rehabilitation of hand functions after a stroke, using a virtual biofeedback system based on Kinect.

RESEARCH CENTRE OF NEUROLOGY, MOSCOW, RUSSIA. 2017
EDITION: CEREBROVASCULAR DISEASES, SWITZERLAND

The efficiency of the training to support the weight of arms in virtual environment during the rehabilitation of basic motor skills and daily activities.

RESEARCH CENTRE OF NEUROLOGY, MOSCOW, RUSSIA. 2017
EDITION: CEREBROVASCULAR DISEASES, SWITZERLAND

A daughter, 1st group disabled person after a hemorrhagic stroke in the brain and two operations, for 4 months was engaged in the home environment and was training with system Physilect. Technical workers came to us to another city, installed the complex, showed the exercises and basic settings of the system. My daughter performed exercises with the support of her assistant, as she could not stand and walk on her own. A miracle, of course, did not happen, she did not start to walk on her own, but however her movements became more confident. This can be seen in the video recordings made at the beginning of the use of complex and after 4 months of training. Throughout all 4 months, the technical personnel were regularly interested in the process of implementation and informed the doctor. Programs of physical exercises was changing. All this should take place under supervision of a doctor on a regular basis. In the absence of feedback, the effect could not be visible.

Positive aspects:

- *When doing daily exercises, patient is not allowed to relax. Looking at the monitor the patient is obligated to perform the exercise exactly as it is set, otherwise the implementation of the task may not have been counted.*
- *At home you can practice at any time during the day. The complex is not connected with the work schedule of the doctor's offices of the medical institutions.*
- *Time to time the doctor or technician can make adjustments to the training program depending on the results of the therapy.*
- *Attentive attitude of the technical staff to the patient and relatives.*

CLIENT OF THE REMOTE REHABILITATION



PHYSILECT

PHYSILECT

info@physilect.com
www.physilect.com

Physiotherapy reinvented