



user application manual

FUNCTIONAL TRAINING WITH VAST.REHAB

Alina Kretz | Application specialist for VAST.Rehab system

Adaptation from the original IFU of Brontes with relevant sections for treadmill use | Version: 23. January 2026

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Content

[1]	Purpose and structure of the manual.....	6
[2]	VAST.Rehab – Functional training with virtual reality	6
[3]	Advantages of treadmill functional training with virtual reality	8
[4]	VAST.rehab Software – Precautions: Intended Use, Disclaimers and Information clause for VAST.Rehab.....	9
	[4A] Intended Use	9
	[4B] Disclaimers.....	10
	[4C] Information clause for VAST.Rehab.....	11
[5]	VAST.rehab – Hardware Set Up	12
	[5A] Hardware Set up	12
	[5B] Setup Limitations.....	15
[6]	VAST.Rehab – First Application	16
	[6A] How To: Install VAST.Rehab & Activate License.....	16
	[6B] How-To: First application with VAST.Rehab	16
[7]	VAST.Rehab – Start your Application	17
	[7A] How-To: Start your application with VAST.Rehab	17
	[7B] Therapist Panel	18
	[7B1] Introduction	18
	[7B2] Scenarios: Sign in	19
	[7B3] Scenarios: Patient's account	21
	[7B4] Scenarios: Workout templates	26
	[7B5] Scenarios: Training plans	36
	[7B6] Scenarios: Workouts.....	41
	[7B7] Scenarios: Training room.....	51
	[7B8] Scenarios: Reports	57
	[7B9] Scenarios: Research	63
	[7B10] Tips	80
	[7C] Patient Panel.....	84
	[7C1] Introduction	84
	[7C2] Scenarios for patients	85
	[7C3] Scenarios for therapists	91
	[7C4] Settings	98
[8]	VAST.Rehab – Troubleshooting.....	100
	[8A1] Via Therapist Panel	100
	[8A2] Via Patient Panel	101
[9]	Research / Literature.....	102

Gender Clarification

For reasons of better readability, the simultaneous use of masculine and feminine forms language has been avoided.
All references to people apply equally to both genders.

Multimedia support

This application manual is supported by photo and video examples to improve visualisation.

To get a first glimpse of the h/p/cosmos X VAST.Rehab application, please take a look at the following [YouTube video](#) via the direct link below:



In addition, please take a look at our h/p/cosmos [YouTube channel](#), where you can find more information on using various h/p/cosmos devices, as well as lots of other useful information on applications.

Here is the direct link to the h/p/cosmos [YouTube channel](#):





Caution / Warnings!

Read and follow also all warnings and instructions of use (operation manuals) of the individual involved medical devices (software, treadmill, unweighting device, robowalk®, etc.).

Latest h/p/cosmos operation manuals / IFUs: <https://www.hpcosmos.com/en/contact-support/media-downloads/manuals>

Latest h/p/cosmos safety information: <https://www.hpcosmos.com/en/safety>

Disregard of safety information, intended or forbidden use, as well as unauthorized maintenance or lack of maintenance and regular safety checks may lead to injury or even death and can damage the device. Furthermore, this will result in loss of liability and warranty.

Caution:

- Distraction may cause reduced coordination. It is highly recommended to use a fall prevention system, like the h/p/cosmos safety arch with harness or the h/p/cosmos airwalk® ap with harness.
- Prescribed fall prevention system for any application where falling might cause an unacceptable risk (osteoporosis, highspeed or special applications with subjects not able to jump off the running belt such as children, physically impaired persons, etc.)
- The VAST.Rehab training can be performed on many h/p/cosmos treadmill models and in combination with several options. TV and camera will be positioned in front of the treadmill, where the camera can be placed above or below the TV, depending on further structural features of the treadmill. Items like the crossbar, the centred control panel (pluto® models, adjustable handrails), the safety arch, robowalk expander or arm supports may partially limit the camera's view.

Software Product name: VAST.Rehab

Software Basic UDI-DI: 59044968178VREU

Software Legal Manufacturer: BRONTES PROCESSING Sp. z o.o., Przewozowa 32, 44-100 Gliwice, Poland

Software Country of Origin: Poland

Software Medical Classification: Class I (MDR, Annex VIII Rule 11)

The manufacturer declares that the medical device(s) specified above meet the provision of the Regulation (EU) MDR 2017/745 for medical devices. This declaration is supported by manufacturer's the Quality System approval to ISO 13485:2016.

Legal manufacturer of treadmills:

h/p/cosmos sports & medical gmbh, Am Sportplatz 8, 83365 Nussdorf-Traunstein sales@hpcosmos.com www.hpcosmos.com

EUDAMED Economic Operator [SRN: DE-MF-000006147](https://eudamed.eu/entry/DE-MF-000006147)

Intended Purpose of VAST.Rehab software:

For detailed information, regarding the intended purpose of VAST.Rehab software see [3].

It is important to notice that the decision to use the devices with their potential risks and complications for diagnosis, rehabilitation or therapy of a particular patient is the essential responsibility of the medical operator.

The clinical user's judgment, on the other hand, must be based on current knowledge in medical science and the specific situation of the patient. The indications and target population for treadmill testing and treatment have to be determined by the medical doctor and should primarily be based on international accepted guidelines.

Example:

Peruzzi, A., Cereatti, A., Della Croce, U., & Mirelman, A. (2016). Effects of a virtual reality and treadmill training on gait of subjects with multiple sclerosis: a pilot study. *Multiple sclerosis and related disorders*, 5, 91-96. [Link](#)

h/p/cosmos®, robowalk®, airwalk®, robomove® and various treadmill model names, such as pluto®, mercury®, quasar®, pulsar®, locomotion®, etc. are registered trademarks of h/p/cosmos sports & medical GmbH, h/p/cosmos holding GmbH or Franz Harrer.

[1] Purpose and structure of the manual

This user manual is intended as a reference guide for users of h/p/cosmos treadmill systems for functional training and rehabilitation purposes. The first part introduces the treadmill system and its functional training features with virtual reality using VAST.Rehab.

This includes information on the hardware setup and contents, how to start and use the VAST.Rehab software in combination with your h/p/cosmos treadmill system, and troubleshooting.

The final section contains references showing the current state of research on functional training with virtual reality.

[2] VAST.Rehab – Functional training with virtual reality

VAST.Rehab is a revolutionary training solution for h/p/cosmos treadmills. This innovative technology fuses training, rehabilitation, virtual reality and serious gaming, transforming treadmill workouts into active and diverting dual tasking sessions with engaging experiences. With VAST.Rehab, treadmill training is no longer a tiring routine but a dynamic and exciting journey that stimulates the play instinct.

VAST.Rehab allows virtual reality experiences during standing, walking or running on a treadmill. The subject's body will be tracked by a camera while being on the treadmill. As a dual tasking exercise besides walking, the subject needs to fulfil different tasks, involving the upper limbs, body posture or the position on the treadmill

Therefore, the software also allows you to create specific individualized trainings for every patient in the VAST.rehab software.

Easy games – for young and old

More than 25 interactive games are included, focussing on varying cognitive and motor tasks. The subject is tracked via a special camera and represented live as an avatar to fulfil motion-activated solutions, such as (see figure 1):

- Change the position on the running deck (left – right) in order to race an ambulance car through the busy streets of a town
 - Fold your hands and navigate a spaceship to avoid obstacles
 - Throw a ball and hit the tins
 - Swing your arms like you were holding a sword to hit funny vampires
 - Position your arms like a stick to block balls
- ➔ huge task generator with many variations of games, choices for body regions to address, as well as time and difficulty

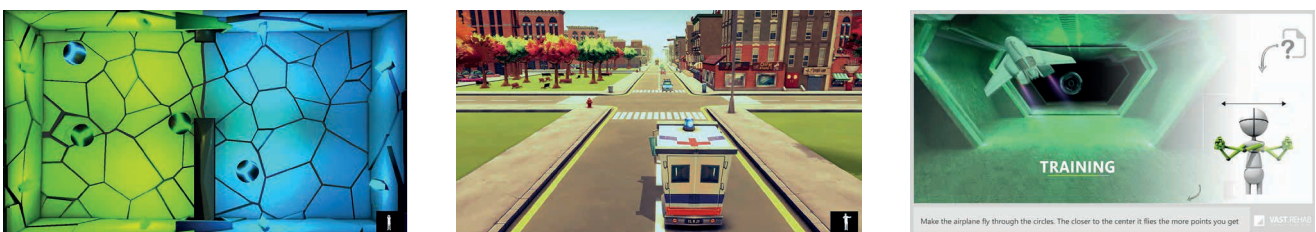


Figure 1. Various interactive games by VAST.Rehab

Playful and motivating games for better therapy success

- Fun factor motivates both young and old patients to try their best earning as many points as possible in every game, as their success becomes visible 1:1 through the direct visual feedback in the game
- whereby the training can be started at any therapy level (whereby both the cognitive and physical performance level can be set individually in the software and can also be updated at any time)
- The use of virtual reality allows patients to move away from monotonous gait therapy towards fun, playful training, naturally distracting them from their physical and mental limitations by playing various games. This makes therapy much more enjoyable, increasing patient motivation and potentially leading them to surpass their fatigue threshold without even realizing it, as they are distracted from the therapy situation itself (Winter et al., 2021). This may lead to an increased number of steps collected per therapy session, and therefore potentially faster and greater therapy success. Another major advantage is that therapists can intervene directly at any time, either indirectly via the software or physically, for example by using the therapist seats on the side of the h/p/cosmos treadmill to make direct corrections to the gait pattern.

Full field of vision – Virtual Reality via TV screen

- The VAST.Rehab software is operated via a TV screen, which we recommend positioning directly in front of the patient alongside the recording camera. The key benefit of virtual reality when used via a screen is that patients' full field of vision is maintained. This helps to prevent motion sickness, which can restrict sensory channels and lead to uncertainties in movement execution.
- By using the application on a screen, patients can always see where they are positioned on the treadmill. Consequently, using VAST.Rehab alongside the application does not restrict the patient's usual range of motion, and reduces the potential inhibition threshold for using this VR option — particularly for older people.
- Another advantage of using a screen is that it is much easier to clean and maintain hygienically, especially in clinical settings, than devices that are attached directly to the patient and come into contact with them.

Possible variations in application use

- Any additional applications on the h/p/cosmos treadmill (e.g. safety arch, airwalk®, robowalk®) can be used to their full extent, as the webcam has no restrictions on recording the limbs. There only may be limitations regarding the camera's field of view (see Setup Limitations).
- Applications can be used both bilaterally and unilaterally

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

[According to the original IFU of Brontes]

- Musculoskeletal
 - Range of motion
 - Strength
 - Endurance
 - Fitness and cardiovascular training
- Neurological
 - Movement quality (gross and fine motor skills)
 - Movement awareness and proprioception
 - Bilateral movements in response to bilateral stimulation
- 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

[3] **Advantages of treadmill functional training with virtual reality**

Effortless, Safe, and Compliant

- VAST.Rehab boasts a vast, diverse, and inclusive exercise library, offering an array of therapy-focused games to keep your patients engaged and challenged. The easy-to-use platform ensures a safe and compliant environment for effective rehabilitation.

Rehabilitation by Fun

- Who said physical therapy has to be monotonous and boring? With the advancements in technology, the world of therapy has transformed, allowing patients to enjoy their journey to recovery. It's no secret that the more we enjoy a process, the more likely we are to commit to it, and rehabilitation is no exception.

Advantages: VAST.rehab vs. other solutions

- The satellite PC including VAST.rehab is very inexpensive compared to other solution systems – like the satellite PC in combination with the zebris system, for example.
- The camera and the software license are also available “only” as an upgrade to the Satellite PC equipment
- Unique selling point: With just one therapist terminal (1 license), several patient terminals can be controlled simultaneously with individual training sessions; at this moment, no alternative medical software system is able to do so
- The augmented Feedback in VAST.Rehab provides real-time functional feedback (knowledge of results and knowledge of performance) in a motivating game like environment
- The speed and elevation are projected with great accuracy due to the coscom v4 connection between the software and the h/p/cosmos treadmill

[According to the original IFU of Brontes]

[4A] **Intended Use**

It has been stated repeatedly that active participation in rehabilitation programs increases the benefit and effectiveness of therapy. The use of repetitive and sometime boring tasks produces a significant reduction in patient motivation. To combine therapy with appealing games, then, is not only a matter of creating entertainment, but a real necessity for recovery.

Features and Functions

VAST.Rehab, an innovative video capture virtual reality system, offers functional therapy using movement and position recognition proprietary technology. The touch-free (without external accessories there is no danger of contamination spreading or sterilization need) motion-activated solutions for virtual reality rehabilitation are used by clinicians in all rehabilitation health professions. The system is suitable to be used to treat a wide variety of patients, with a full library of interactive tasks and activities that can be tailored for children or seniors. VAST.Rehab supports medical professionals in following functionalities: Evaluation, Treatment, Feedback, Documentation.

Evaluation

VAST.Rehab allows patients assessment, using a personally tailored appropriate configuration to the patient's ability, evaluation of results and development of treatment plans (e.g. evaluation tasks: Reach test, Angles evaluation, Stability test, Romberg's test, Unterberg's test, Dynamic test).

Treatment

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
- Neurological
 - Movement quality (gross and fine motor skills)
 - Movement awareness and proprioception
 - Bilateral movements in response to bilateral stimulation
- 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

Feedback

The augmented Feedback in VAST.Rehab provides real-time functional feedback (knowledge of results and knowledge of performance) in a motivating game like environment. By monitoring movements, it guides the patient through exercises specifically designed for therapy. It encourages and motivates the patient to achieve a higher number of repetitions, which helps improving the compliance and the therapy outcome. The exercises are adjustable according to the patient's needs and progress, and therefore provide a challenging and effective therapy.

Documentation

VAST.Rehab software captures the patient's training activity and progress providing relevant documentation about the therapy process and the patient's compliance. Furthermore, the stored documentation offers information such as training accuracy, duration and frequency. Allowing accurate monitoring of the patient's training progress, the VAST.Rehab documentation supports clinical decision making. The Therapist in charge has the sole responsibility for a rehabilitation treatment and decides whether a patient is fit for a specific treatment. In particular, the therapist must weigh in each individual case possible risks and side-effects of the treatment against the expected benefit. In addition, the patient's individual situation plays just as important a role as the basic risk assessment for specific patient groups. The person in charge of using the system is responsible to adapt the training sessions and the course of therapy to the patient's abilities. Being a scientific discipline,

medicine and rehabilitation are subject to constant advances of knowledge and treatment principles. The therapist in charge must continually keep his knowledge up-to-date by reading the latest scientific literature and must monitor changes in use recommendations during the course of treatment.

[4B] **Disclaimers**

VAST.Rehab is a medical device and must be used in strict adherence to this document and software manuals. Failure to do so may result in serious personal injury. It is strongly recommended to regularly check VAST.Rehab website for the latest available information. Please contact if you have any question.

VAST.Rehab is to be used only under the supervision of qualified medical personnel. However, VAST.Rehab can be in certain conditions marketed for home use and must be strictly used according to the recommendations of your medical care provider who is knowledgeable about your specific needs. Read this document and software manuals for appropriate product designation. Failure to obtain and follow the recommendations of your medical care provider may result in serious personal injury.

This document provides details about a medical product which may not be available in all countries and may not have received approval or market clearance by all governmental regulatory bodies throughout the world. Nothing herein should be construed as a solicitation or promotion of the product or of an indication of any specific use for the product which is not authorized by the laws and regulations of the country where the reader of this information resides.

Intended purpose

VAST.Rehab purpose is to support functional therapy for patients who have lost the function of or have restricted function in their body or cognitive functions caused by cerebral, neurogenic, spinal, muscular or bone-related disorders. Considering the contraindications and every patient's individual profile, the device is used in the case of:

- Cerebrovascular Accidents
- Multiple Sclerosis
- Cerebral Palsy
- Parkinson`s Disease and Extrapyrarnidal 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

Just as for any other therapy, the therapist in charge is always responsible for the indication. Functional training with VAST.Rehab is not possible or indicated in every case. In general, the device must not be used in the following cases to avoid causing harm to the patient. The following precautions must therefore be observed in particular:

- Severe osteoporosis
- Contractures affecting the relevant extremity
- Skin lesions in the area of the relevant extremity
- Joint subluxation or severe pain in the target joint
- Severe spasticity
- Severe spontaneous movements, e.g. ataxia, dyskinesia, myoclonic jerks
- Severe postural instability
- Cardiac arrhythmia, hypotension or severe hypertension
- Confused or non-cooperative patients
- Severe cognitive deficits

- Patients requiring isolation due to infections
- Severe visual problems (patient is not able to see displayed elements on the computer screen)

The following contraindications must therefore be observed in particular:

- Not controlled epileptic seizure within the past two years, or photosensitive patients
- Retinal disease which may be exasperated by watching video games
- Bone instability (non-consolidated fractures in vertebrae or extremities)
- Osteomyelitis or other inflammatory/infectious diseases
- Bone Cancer, including spinal tumors or metastases to vertebrae or joints
- Pronounced, fixed contractures affecting the relevant extremity
- Open skin lesions in the area of the relevant extremity
- Non-stable vital functions: Pulmonary or cardio-circulatory contraindications
- Spondylolisthesis (second degree or higher) or with neurological signs

The above list does not claim to be exhaustive. In case of patients with chronic diseases and/or patients with illnesses coexisting with the one in which therapy VAST.Rehab's support is used and/or patients who have been immobile for a long period of time, special attention is required and short training sessions are recommended to begin with. An over-reaction is expected from these patients if training sessions are too long. On the other hand, patients often tend to have a certain euphoric reaction after the initial treatment, and want to have longer and/or more frequent training sessions. This can result, in the case of the patients described above, in excessive strain being exerted on ligaments, tendons and joints.

The decision as to whether a patient is suitable for treatment always comes under the remit of the therapist in charge, who has sole medical responsibility for the treatment. As part of this, he must evaluate in particular, in each individual case, possible risks and side-effects of the treatment against the benefit gained from it. In addition, the patient's individual situation plays just as important a role as the basic risk assessment for specific patient groups.

[4C] **Information clause for VAST.Rehab**

According to art. 13 section 1 and 2 of the General Data Protection Regulation dated on 27 April 2016, we inform you that:

- The administrator of your personal data is BRONTES PROCESSING Sp. z o.o. Ul. Przewozowa 32, 44-100 Gliwice, Poland.
- Your personal data is processed for the purpose of establishing an online account in the VAST.Rehab software platform and for statistical purposes. The processing takes place on the basis of Article 6 (1b) and (1c) and article 9 (1h) of the GDPR.
- The recipient of your personal data will be the entities authorized by the controller of the personal data, entities authorized by law and external entities under signed contracts.
- Your personal data will be kept for a period consistent with applicable law.
- You have the right to access your personal data and the right to rectify, delete, limit processing, the right to data transfer, the right to object, the right to withdraw consent at any time without affecting the legality of processing, which was made on the basis of consent before its withdrawal.
- You have the right to lodge a complaint with the supervisory body when you feel that the processing of personal data concerning you violates the provisions of the General Data Protection Regulation of 27 April 2016.
- Providing personal data is a prerequisite for the purpose of processing. If you do not provide your personal information, it will not be possible to process it.
- Your personal data will not be subject to automated decision making or profiling.

[5] VAST.rehab – Hardware Set Up

[5A] Hardware Set up

What is included in the VAST.Rehab software package:

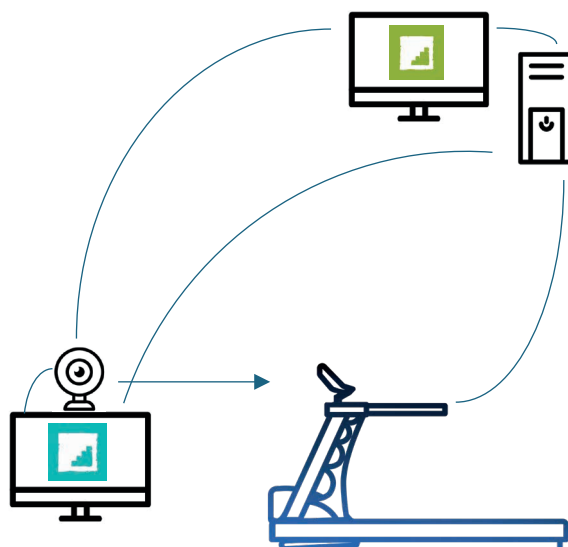
- VAST license for treadmill (cos104823_lic) + camera use
- License dongle (cos104823_dng)

What is needed:

- h/p/cosmos treadmill with Touch Pro user terminal for coscom v4 connection via Ethernet
- h/p/cosmos treadmill with MCU5 user terminal without connection to PC is also possible, without taking speed in games into account
- optionally to measure and transmit step frequency: speed sensor (cos101000_brake_as) and FTMS interface (cos101000_FTMS) to transmit also step frequency
- State of the art PC system e.g. h/p/cosmos satellite PC (cos14970-03)
- TV (e.g. cos102397) and TV stand (e.g. cos101624) or mount
- High-resolution camera incl. mount (cos104823_cam) for body detection

Minimum system requirements (subject to alterations):

- Windows 10
 - Intel i3 CPU or better
 - 8 GB RAM
 - 1 PC monitor minimum, 2 PC monitors recommended
 - Use of Touch screen is possible
 - USB, Ethernet and Bluetooth interface
 - VAST.Rehab camera module (cos104823_cam) consisting of
 - highspeed HD USB camera
 - camera mount, incl. 3x adhesive tape
- ➔ Switch on and connect everything



In case of connection errors, please try to use the coscom communication in the unencrypted version (treadmill settings OP 505)

We generally recommend placing the camera in the middle of the treadmill, at a distance of 30–60 cm from the h/p/cosmos treadmill. For example, you could use the back of the motor cover as a reference point. We also recommend placing the TV in front of the treadmill, in the centre of the running belt. However, it is even more important to position the camera correctly to ensure that its field of view is not limited. We also recommend rotating the UserTerminal (see Figure 2. An example of how to set up and connect everything) to further expand the camera's field of view.

The position of the camera should depend on the type of treadmill and equipment used, so that as few objects as possible restrict its field of vision. With a h/p/cosmos pluto® treadmill featuring a safety arch, for example, the camera can be positioned above the treadmill. Alternatively, filming can be done from a 'middle height' position. In general, the camera position should be selected so that the entire patient can be seen within the camera's field of view, even with their arms outstretched. This should be checked in the camera settings.

If your h/p/cosmos treadmill system includes a robowalk® expander front, we recommend positioning the camera at least 40 cm in front of it to achieve a wider field of view. With the camera positioned in this way, you can move the front expander bars on both sides up to stage 4 without obstructing the camera's view.

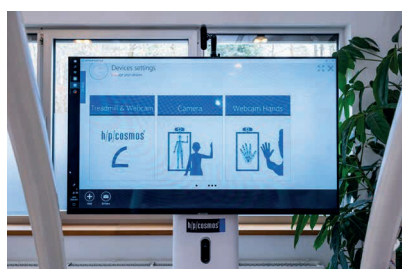
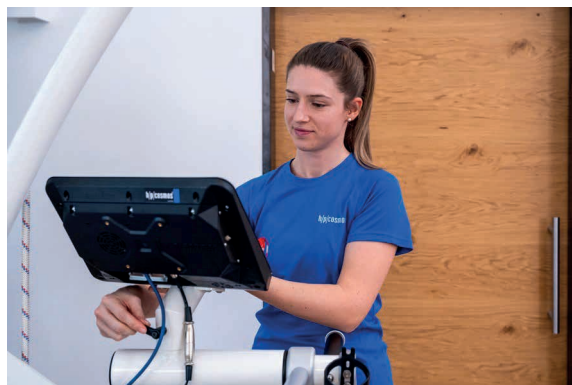
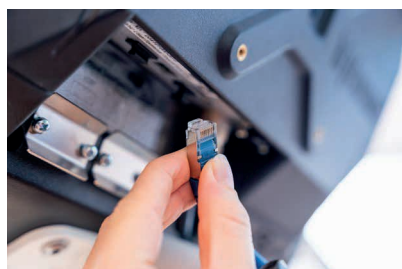
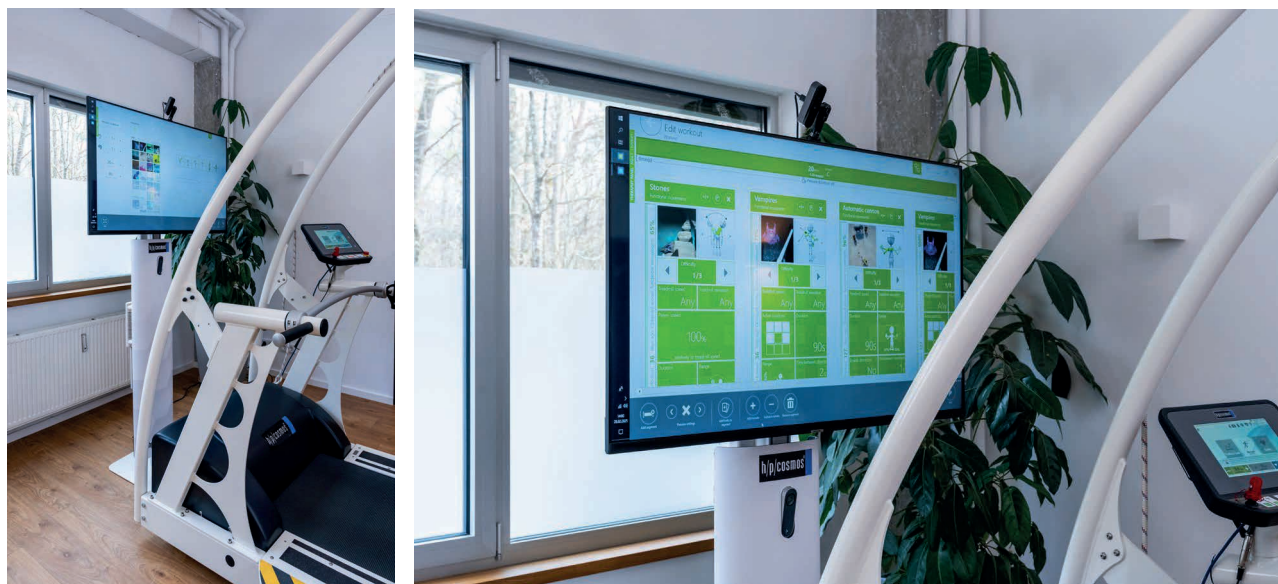


Figure 2. An example of how to set up and connect everything

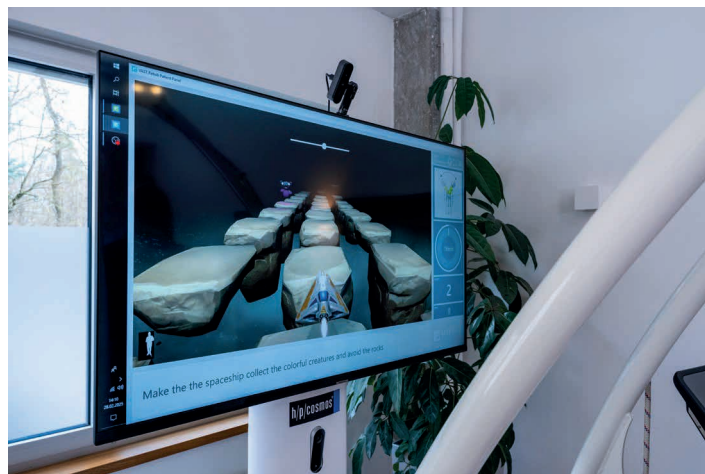


Figure 3. Complete hardware setup recommended by h/p/cosmos
(h/p/cosmos treadmill, VAST.Rehab software displayed by and TV, camera)

Setup limitations – camera's field of view:

h/p/cosmos pluto® (med):

- As the UserTerminal is positioned in the centre, directly in front of the camera, the camera's smaller field of view may result in performance limitations. The same applies to the h/p/cosmos mercury® (med), which has adjustable handrails and also positions the UserTerminal in the centre.

UserTerminal:

- If the User Terminal is positioned on the right, we recommend turning it outwards to increase the camera's field of view and improve performance.

Safety arch:

- If the camera is positioned too far in front of the running surface and safety arch, the camera's smaller field of view may result in performance limitations. We recommend checking the "treadmill webcam" settings to adjust the standing position of the camera or satellite PC to check the camera's field of view.
- robowalk® Expander Front:
The same applies here as for the safety arch. If the camera is positioned too far in front of the running surface and the robowalk® Expander Front, the field of view of the camera may be smaller, which could affect performance. We recommend checking the "treadmill webcam" settings to adjust the standing position of the camera or satellite PC to check the camera's field of view.
- robowalk® Expander Back:
If the robowalk® Expander Back is positioned inwards, the camera may incorrectly identify it as a lower extremity, which could result in performance limitations.

Adjustable handrails:

- The adjustable handrails for mercury® models (cos102010-01va02) will also cause the user terminal to be in the centre. The same limitations like for pluto® applies (see above).
- If the adjustable handrails are positioned very close together, the camera's field of view may be reduced.
We do not recommend using the adjustable arm supports for handrails for this application, as most games require flexibility in your position on the treadmill and often involve arm movements. We also advise against using them too tightly, as this may restrict your movement and reduce the camera's field of view.

Amputations and one-sided paralysis:

- There may be performance limitations if amputations or one-sided paralysis are present.

Clothing:

- Performance may be impaired if patients are wearing items of clothing such as skirts or ponchos. For example, the camera may recognize the position of the legs and arms incorrectly or inaccurately.

Moving people in the background:

- If there are people moving in the background of the camera's view, the camera's performance may be limited as it may incorrectly identify those people as the "main subject".

Apart from the limitations mentioned above, the VAST.Rehab software is compatible with most available options for the h/p/cosmos treadmill systems, such as the adjustable handrails, the airwalk® ap for body weight support, the perturbation module, the Optogait, the Zebris system, etc.

[6] VAST.Rehab – First Application

[6A] How To: Install VAST.Rehab & Activate License

As soon as you switch on your h/p/cosmos satellite PC for the first time, the VAST.Rehab software is already installed, and your license has been activated by h/p/cosmos.

What to do when I get the VAST.Rehab as a retrofitting?

- First, switch on your (h/p/cosmos satellite) PC
- Then go to the Microsoft Store and search for “VAST.Rehab” --> the list of available apps will be displayed.
- install the VAST.Rehab Therapist Panel and the VAST.Rehab Patient Panel

Installation Therapist Panel



Installation Patient Panel



[6B] How-To: First application with VAST.Rehab

If VAST.Rehab is already installed, the patient panel and the therapist panel are already displayed on the screen of your PC. Now go to the Therapist Panel and log in for the first time (see Figure 4. Login via therapist panel).

First login: Use the user data that you got from h/p/cosmos for your first log in.

- Very Important: Please change your access data in the profile settings immediately after logging in for the first time.
 - Go to Therapist Panel
 - ➔ Dashboard
 - ➔ ‘Edit account data’
 - ➔ ‘Change password’ (click on symbol bottom left hand corner)
 - ➔ Type in your new password
 - ➔ Set your new password by clicking on the symbol ‘Change password’ on the bottom right hand corner.

Now you can start your first application with VAST.Rehab!

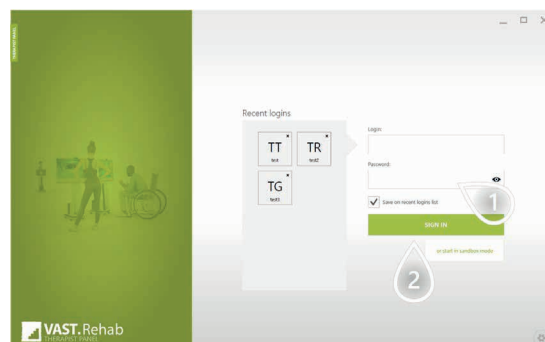


Figure 4. Login via therapist panel

[7] VAST.Rehab – Start your Application

[7A] How-To: Start your application with VAST.Rehab

How To: Start Application

- Switch on the hardware (h/p/cosmos treadmill and PC)
- The VAST.Rehab app/software starts automatically as soon as the PC is switched on

Overall information regarding the VAST.Rehab App

- The app includes separate panels for therapists and patients.
- Both “panels” start automatically as soon as the PC is switched on and the VAST.Rehab app / software opens
- Both the therapist panel and the patient panel can be controlled and edited by the therapist.
- As there are two different panels, you – as a therapist – have to switch between these two visible panels if you only got one screen for application. Therefore, please use the Windows menu/task bar (Windows symbol on the keyboard) to select either the therapist panel (green app logo) or the patient panel (blue app logo)
- h/p/cosmos recommends using an additional screen for the therapist panel, as this eliminates the need for constant switching between panels in front of the patient. It also makes it easier to maintain an overview, particularly when controlling multiple patient terminals from a single therapist panel.

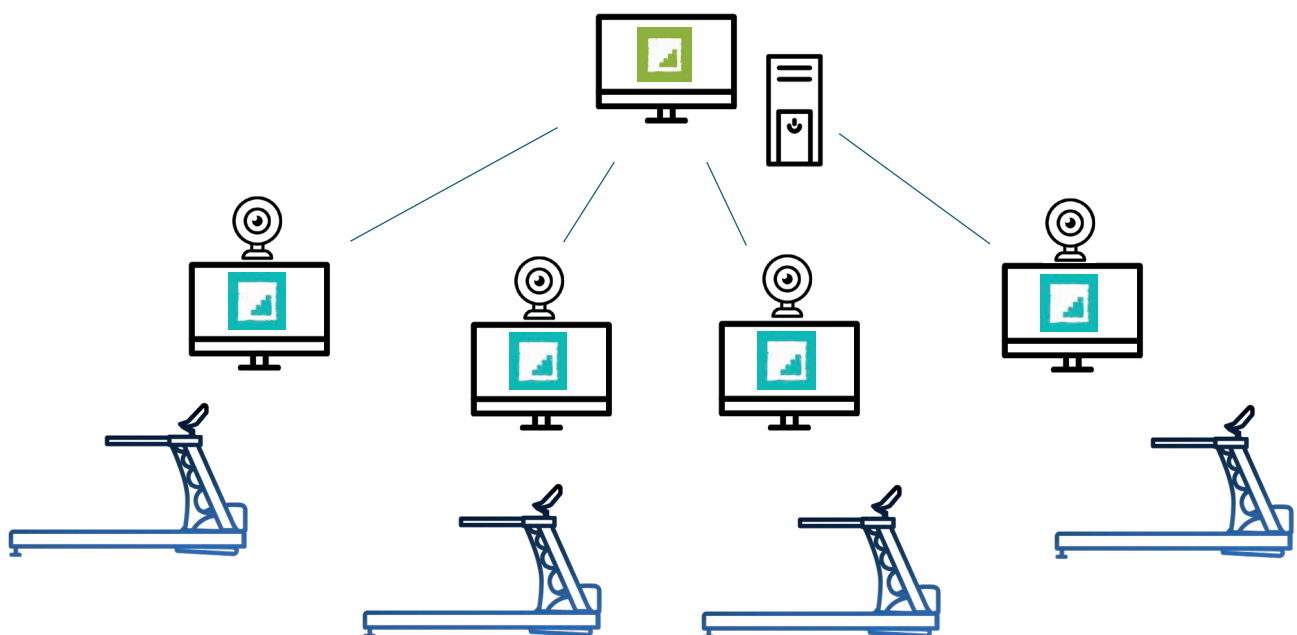
The VAST software platform comprises a therapist panel and a patient panel. Both panels can run on the same PC, or on separate PCs if there are multiple patient stations.

The therapist panel enables users to create and manage patients, as well as assign and define their training targets. It includes the Evaluation, Treatment, Feedback and Documentation functionalities.

The patient panel is the gamified part of the system located in front of the treadmill on a large TV to display the patient's games and results.

Before you begin your first application with VAST.Rehab, we recommend reading the 'Tips' chapter in this VAST.Rehab manual first.

There are lots of interesting tools to help you optimize your workflow, such as adjusting the UI scale for better readability and larger symbol scaling.



General info: new software versions

This user manual is an adaptation of the original IFU of Brontes for the VAST.Rehab software, with relevant sections for treadmill use.

Please note that the graphics and content in this manual are from software version [2022.1], so details regarding colours, graphics and usage may differ in updated software versions.

Here you can find the link to the original IFU of Brontes, which is updated by the newest software versions.

[IFU Brontes english version](#)



[7B] Therapist Panel

The therapist panel allows to create and manage patients. Afterwards the therapist assigns the available selection of trainings as well as personalized training targets. The software also includes features for evaluation, feedback and documentation.



Figure 5. Logo icon software therapist panel

[7B1] Introduction

What is therapist panel used for?

The VAST.Rehab Therapist Panel application is used to create accounts for patients, start and plan workouts, securely access patients' performance metrics, and to analyze reports. It enables therapists to remotely monitor patients' progress, adjust tasks' difficulty, and communicate with their patients.

How to log in to the therapist panel?

Get your login and password from VAST.Rehab administrator in your facility.
The administrator can create your account in VAST.Rehab Administrator Panel.

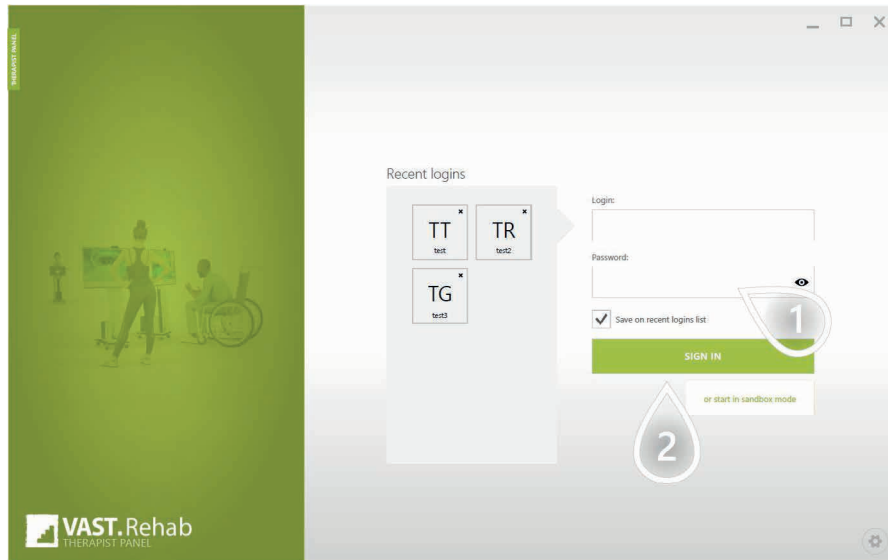


Figure 6. Login via therapist panel

- 1 Check the box to save your login in the recent logins section
- 2 Click to proceed

Edit therapist's account

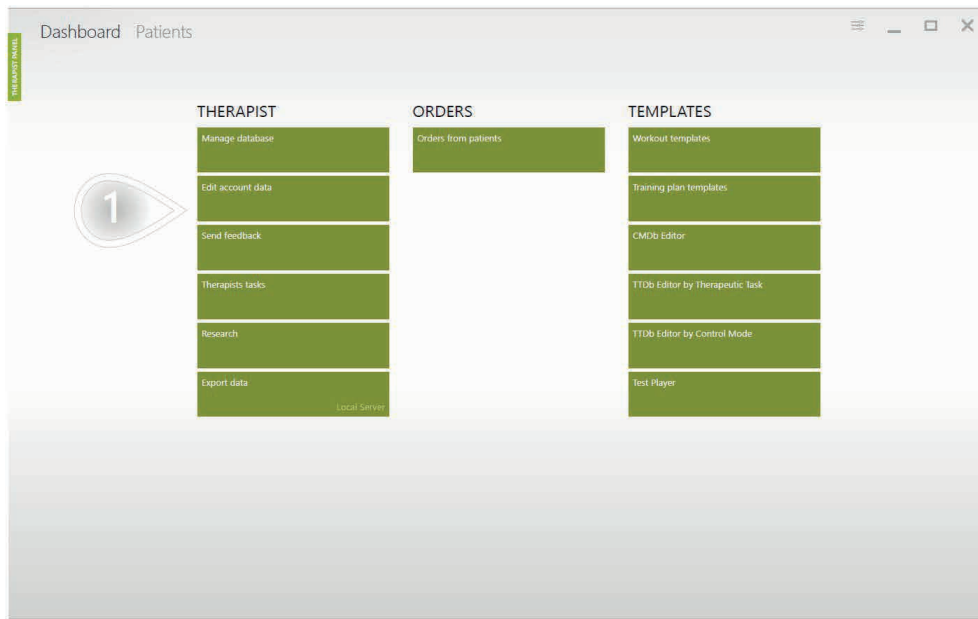


Figure 7. Dashboard overview

1 Click to proceed

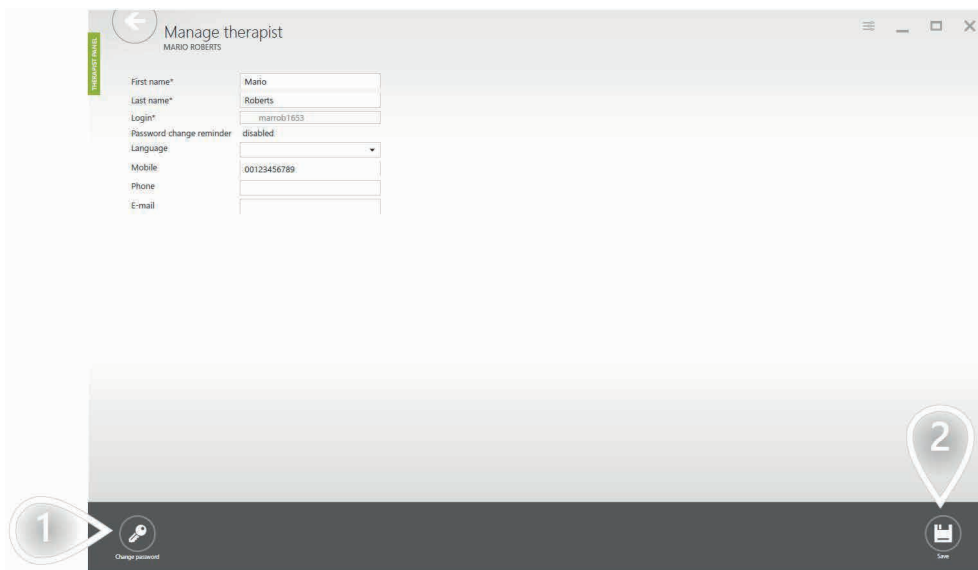


Figure 8. Manage therapist form

- 1 Click the button to change your password
- 2 Click to proceed

Create patient's account

Therapists are expected to create a dedicated account for each patient. The patient's account is used to start and plan the therapy and store all the data gathered by the software: patient's personal data, workout's history, reports and notes about the patient. It lets therapists track progress and automatically document the whole therapy.

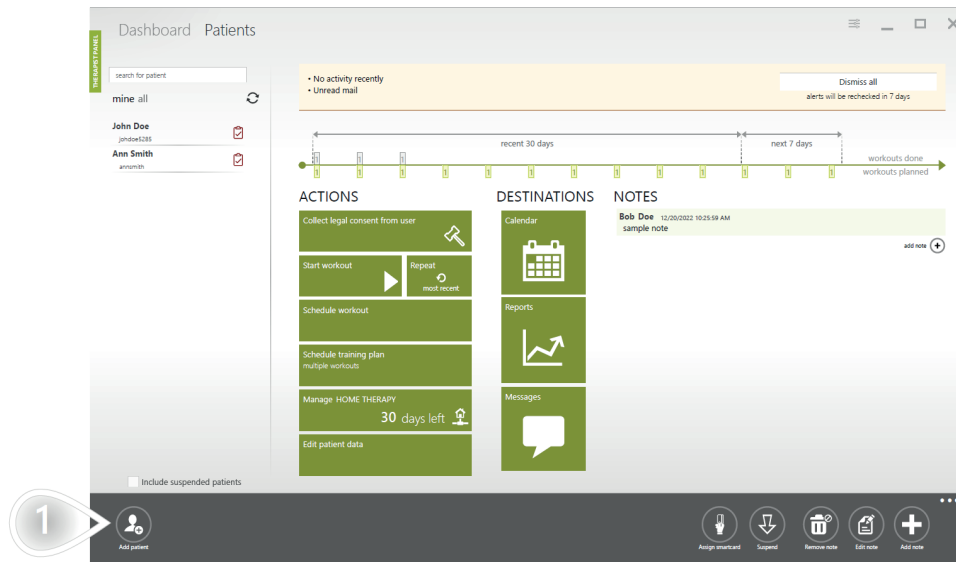


Figure 9. Create patient's account – symbol 'add patient'

1 Click to proceed

Provide details about the patient that will be using this account.

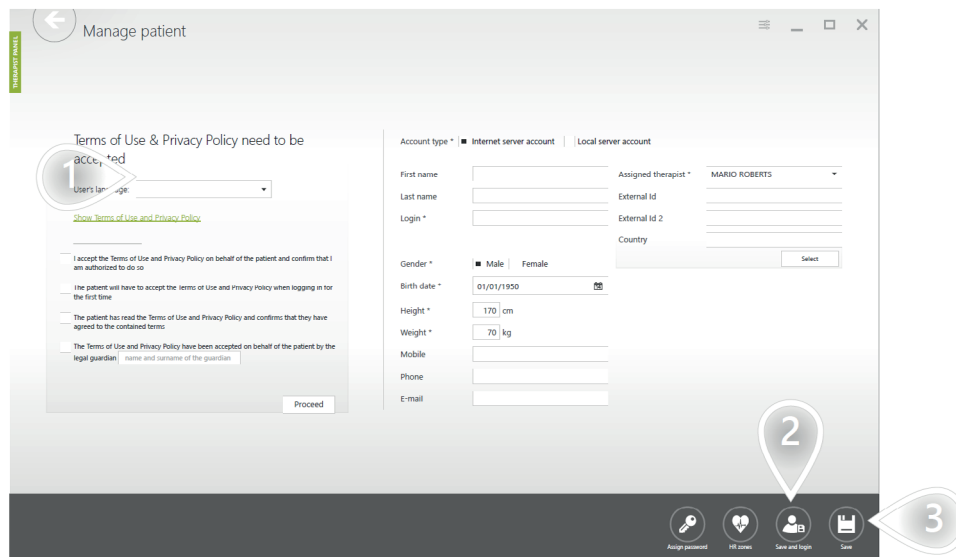


Figure 10. Create patient's account – add & save information

- 1 In case you are using 'Local Server' and at the same time you are connected to the Internet - you need to decide on which server you want the account to be created. The default option is 'Internet Server' because those accounts are anyhow automatically copied to the local server, and at the same time, they can be used for home therapy in the future.
- 2 If you have information about the patient's HR zones, you can add and manage them here.
- 3 Click to proceed

Creating notes

You can use VAST.Rehab Therapist Panel as a simple CRM system.

Use it to note information about patient's preferences or reports you need to talk about.

Use it also to keep in touch with your patient. For example, you can track phone calls.

How? If you call the patient to ask why he or she skipped some home therapy workouts last week, you can hear your patient is on three weeks' holiday.

Just create a note about it, and if software alerts you again that the patient skipped some workouts, you can simply dismiss alert without calling your patient again.

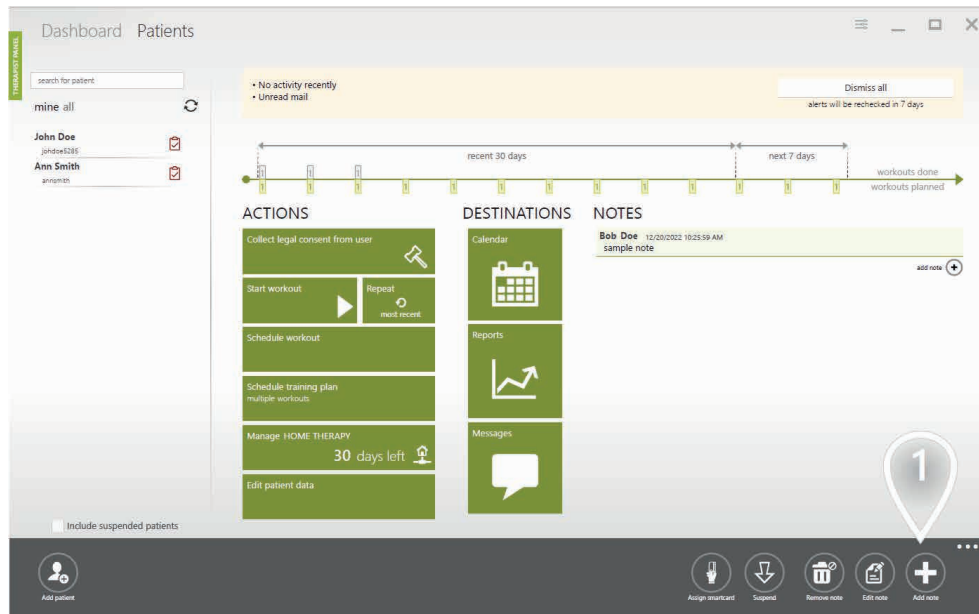


Figure 11. Creating notes about your patient

1 Click to proceed

Here you can enter your note

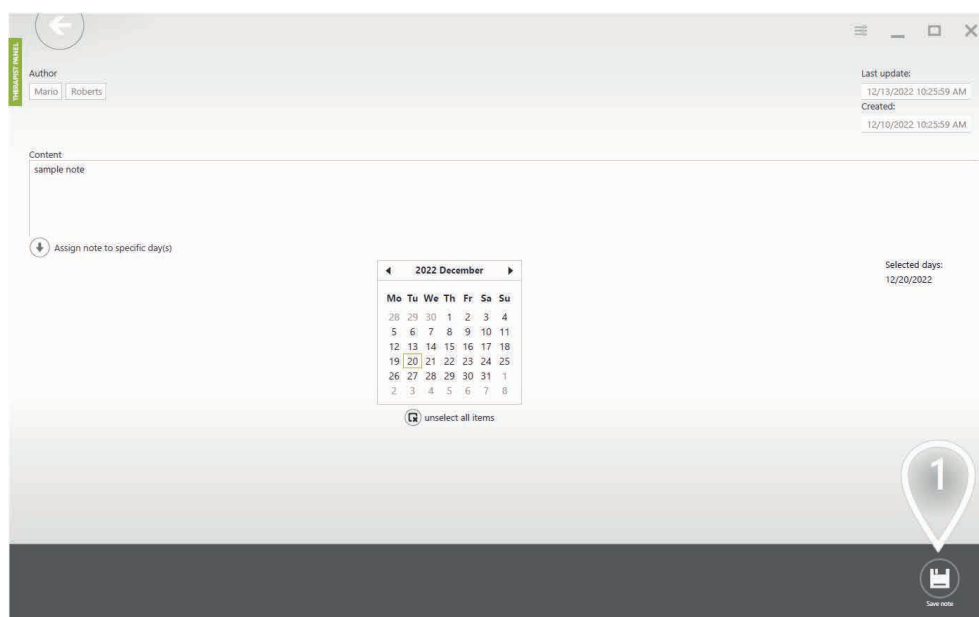


Figure 12. Creating notes – enter note

1 Click to proceed

Find patients who need your attention

Some of the patients on the list can be marked with an exclamation mark. The exclamation mark informs you that the patient needs your attention. It appears when you receive a message from your patient, when home therapy is about to expire or when the patient is not performing his workouts according to the schedule. It's easy to spot patients with an exclamation mark because they are always shown on the top of the list.

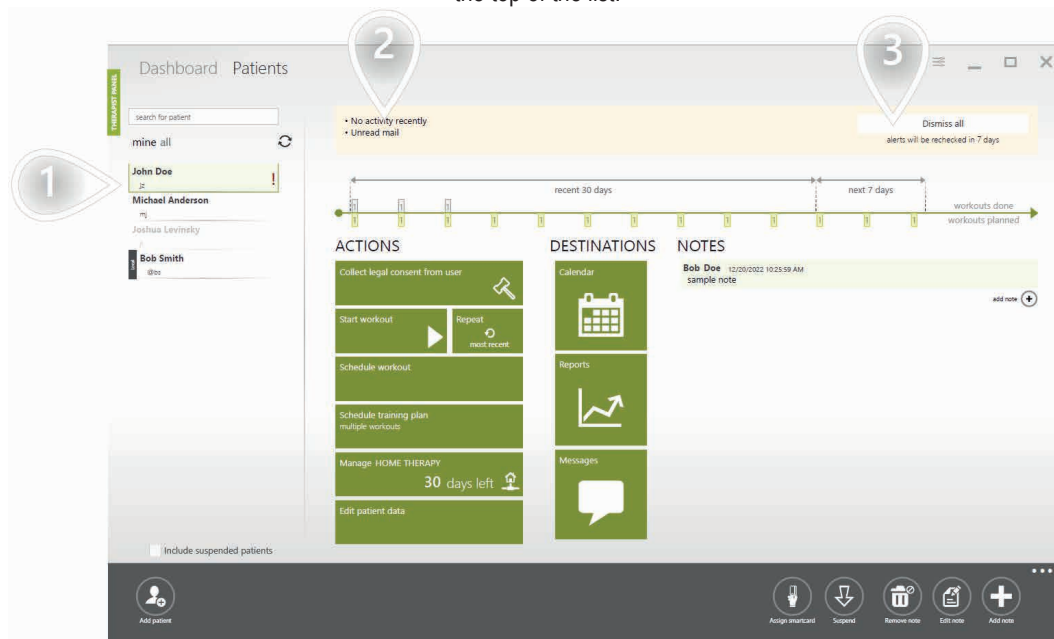


Figure 13. Patient on the list with exclamation mark

- 1 An example of our exclamation mark
- 2 The reason why the patient needs your attention
- 3 When all issues are resolved - please click the 'Dismiss all' button

Check whether patient works according to the schedule

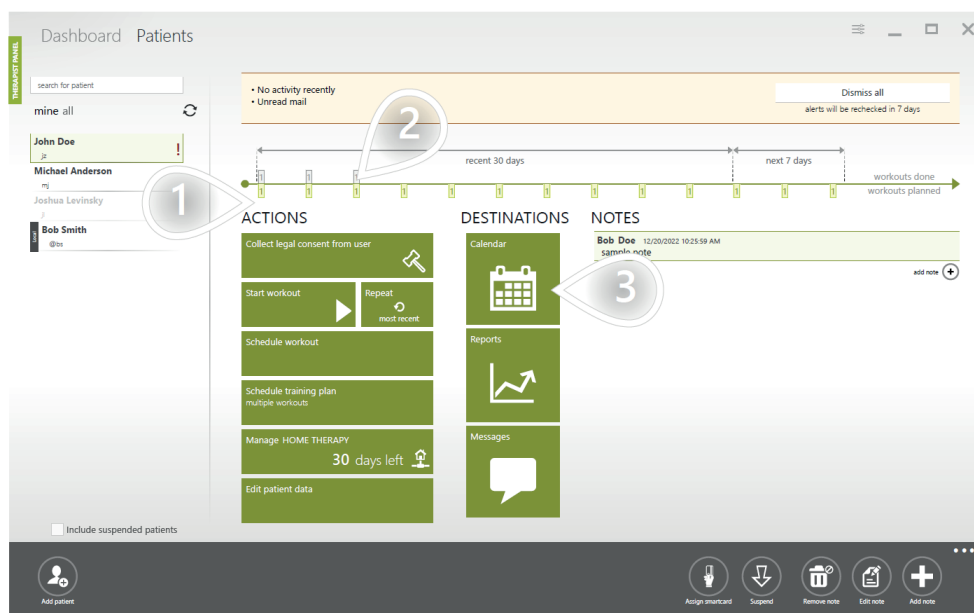


Figure 14. Patients overview

- 1 The green rectangles present the scheduled workouts
- 2 The grey rectangles present the workouts completed by the patient.
We can see that the patient completed his last workout about 20 days ago.
- 3 Open the calendar to see planned vs. completed workouts within wider time frame

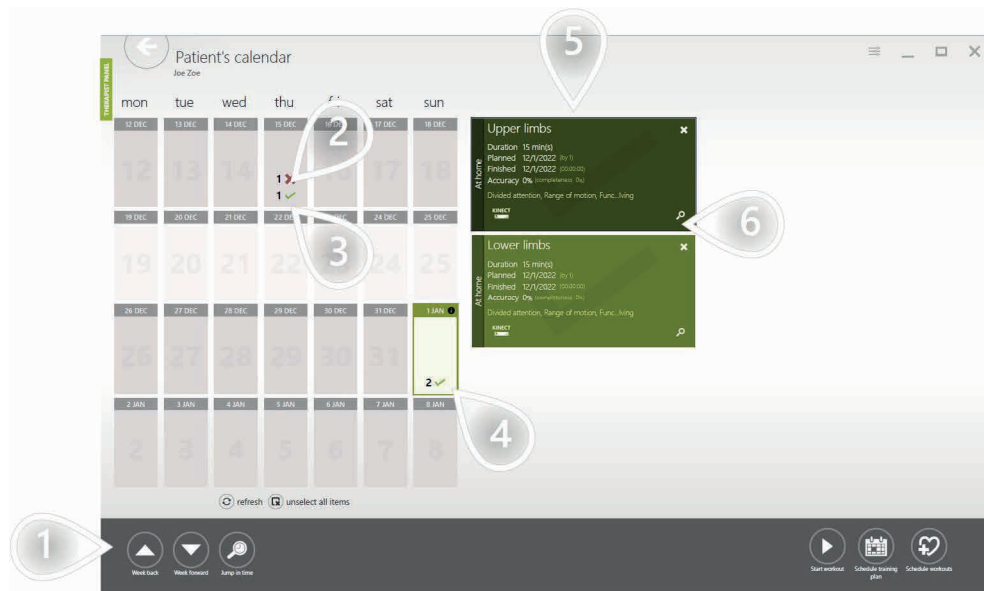


Figure 15. Patient's calendar

- 1 The buttons help you navigate through the calendar
- 2 Skipped workout
- 3 Completed workout
- 4 Select one or more days
- 5 List of workouts scheduled for the selected days
- 6 Show report

Suspend patient's account

Keeping patients list clean helps you work faster and more efficiently.

VAST.Rehab lets you suspend unused patients' accounts.

Suspended accounts don't appear on the list unless you tell the system to do so.

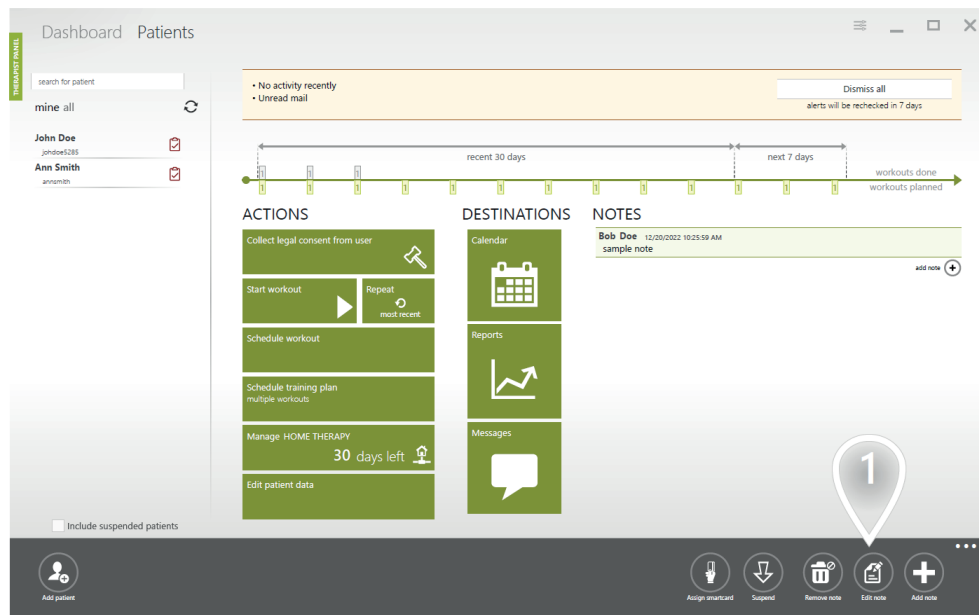


Figure 16. Suspend patient's account

1 Click to proceed

You can load suspended patients back onto the list.

Suspended accounts appear grayed out to distinguish them from active accounts.

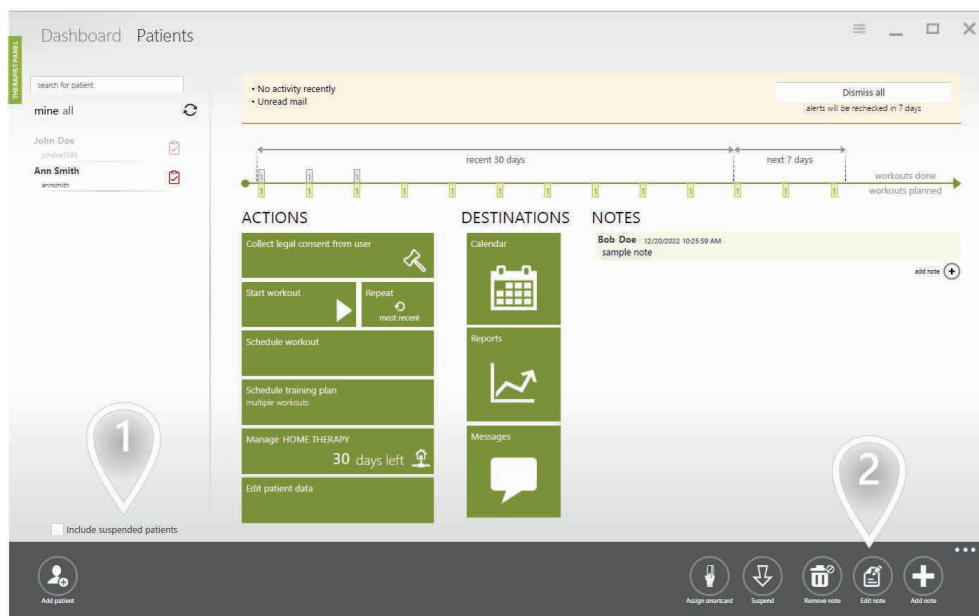


Figure 17. Suspended account appears grayed out

- 1 Load suspended accounts
- 2 Restore a suspended account to be active again

What is a workout template and when to use it?

Workout template is built from segments. It describes the structure of a workout.

It has information about the duration of the therapy session, which is calculated as a sum of durations of the segments it contains. All segments included in the workout template are being executed one after another.

You can create your own workout templates, so you can use them quickly to start or plan workouts for your patients.

Create template using generator

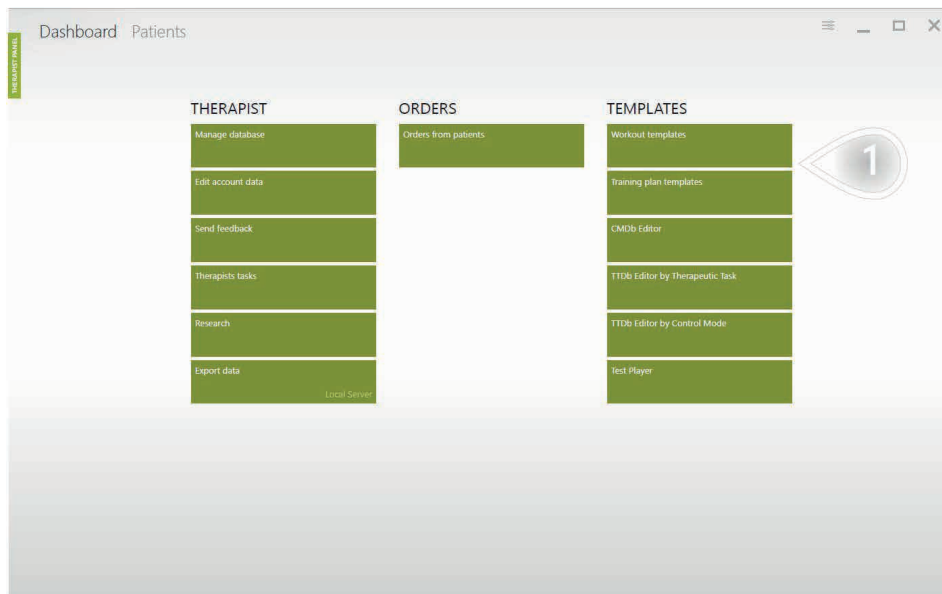


Figure 18. Choose button workout templates on dashboard overview

1 Click to proceed

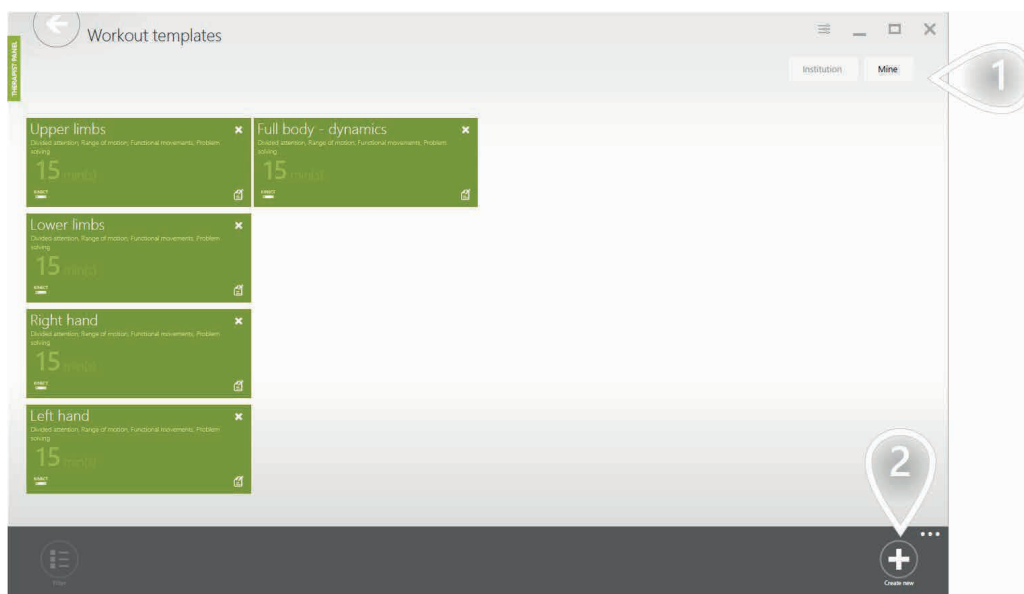


Figure 19. Workout templates overview

- 1 The 'Mine' tab contains your elements that are not shared with other therapists. The other tab contains elements available for each therapist in your facility.
- 2 Click to proceed

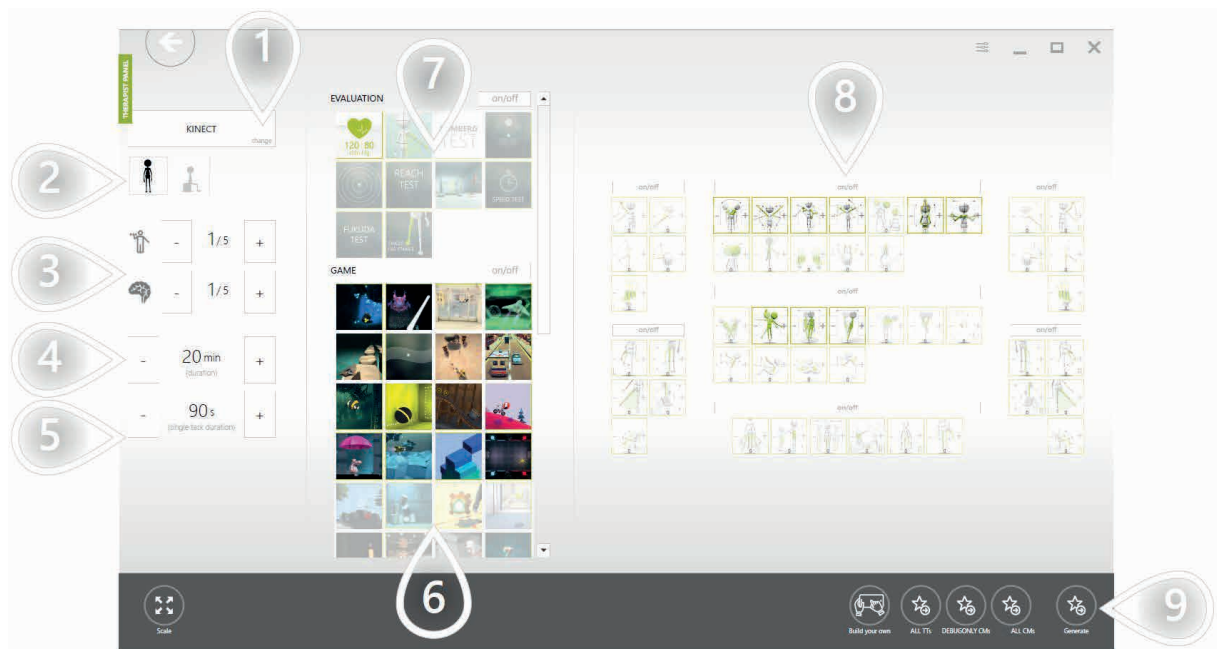


Figure 20. Create workout template by using generator

- 1 Select device
- 2 Filter control modes (standing and/or sitting)
- 3 Set suggested physical and cognitive difficulty.
Based on those settings system suggests adequate therapeutic tasks and control modes.
- 4 Set workout's duration
- 5 Set duration for each therapeutic task
- 6 Based on the chosen physical and cognitive difficulty - there are some therapeutic tasks preselected.
You can modify the list manually.
- 7 Evaluations are not added to the workout automatically.
Please click on the evaluations you'd like to have included in the workout.
- 8 Based on the chosen physical and cognitive difficulty - there are some control modes preselected.
You can modify the list manually. The greater the weight is - the more times it will be used.
- 9 Click to proceed



Figure 21. Edit workout

- 1 Therapeutic tasks in the workout are grouped by their type.
All evaluations are placed in a separate evaluation segment where all tasks are executed only once.
- 2 The normal segment has duration assigned and the tasks it contains are executed one after another till the time is over.
- 3 Move the task to another position
- 4 Clone the task
- 5 Replace the task
- 6 Replace the control mode
- 7 Make task easier
- 8 Make task harder
- 9 Previous parameter preset
- 10 Next parameter preset
- 11 Decide whether fullscreen instruction shall be visible for the patient before each therapeutic task
- 12 Set workout's duration
- 13 Click to proceed

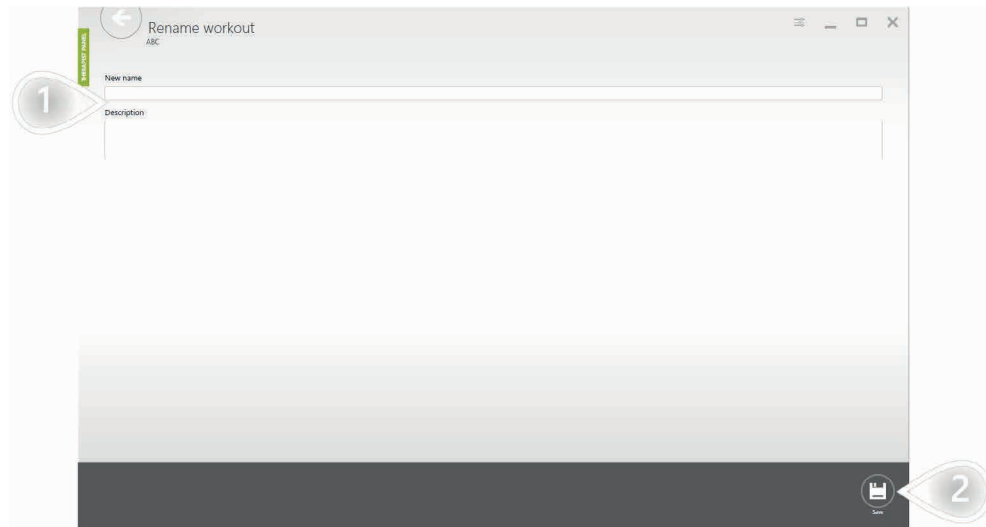


Figure 22. Rename workout

- 1 Assign name and description
- 2 Click to proceed

Create template from scratch

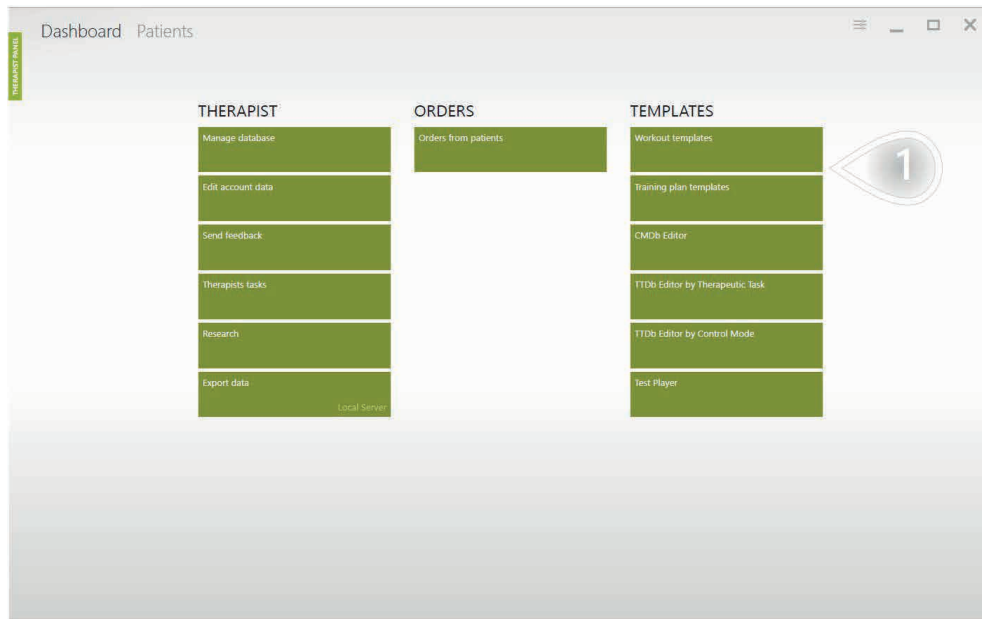


Figure 23. Choose button workout templates on dashboard overview

1 Click to proceed

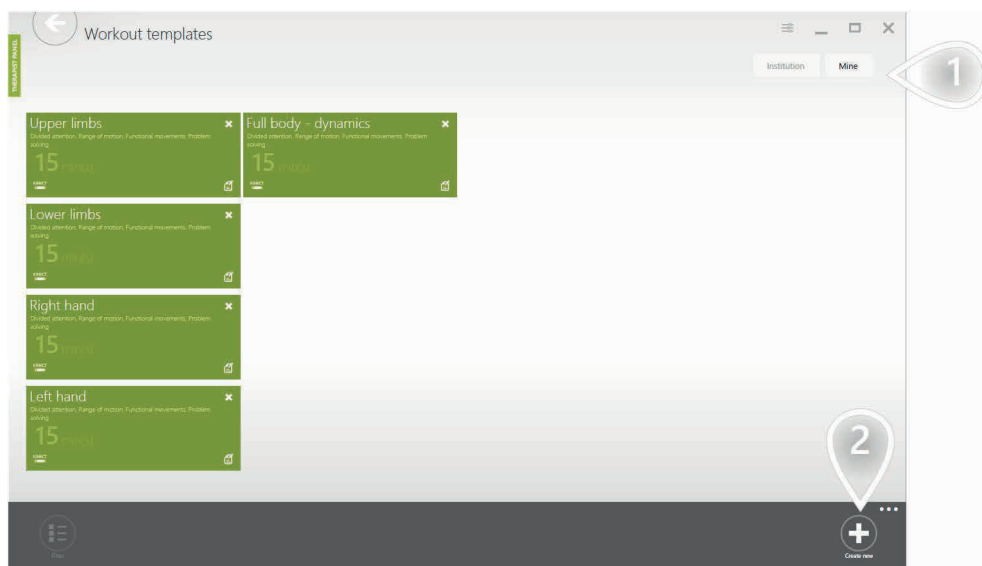


Figure 24. Overview workout templates

- 1 The 'Mine' tab contains your elements that are not shared with other therapists. The other tab contains elements available for each therapist in your facility.
- 2 Click to proceed

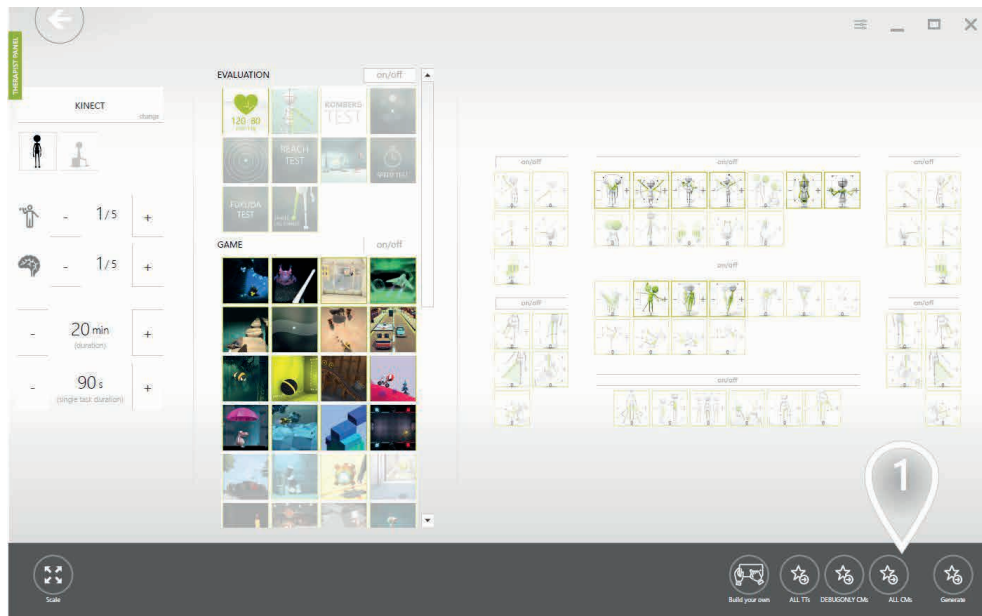


Figure 25. Generate workout template

1 Click to proceed

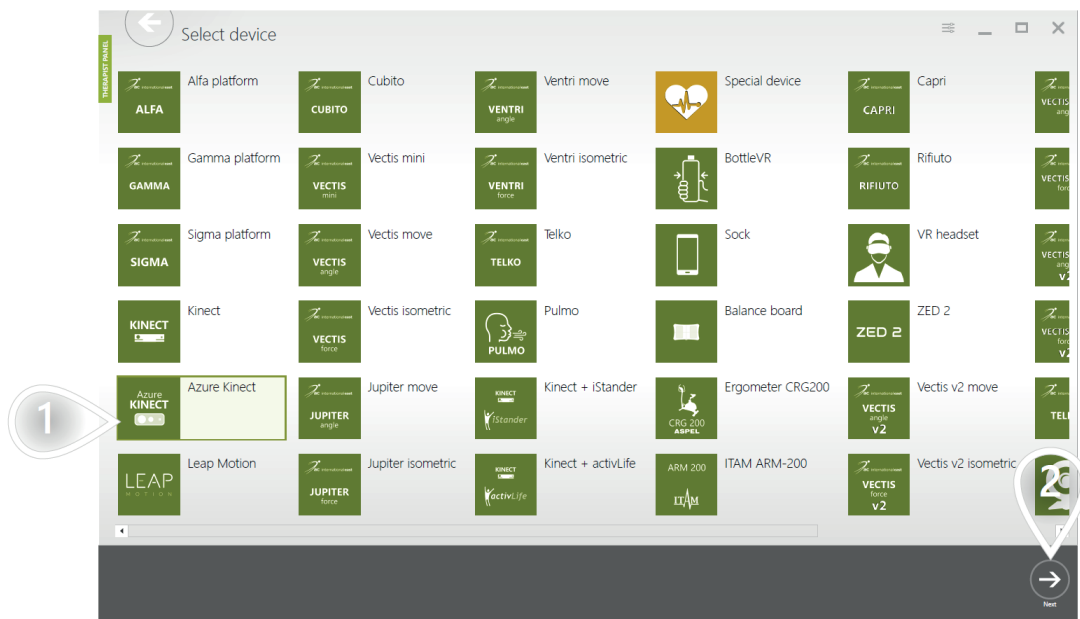


Figure 26. Available devices overview

- 1 Select device
- 2 Click to proceed



Figure 27. Add tasks to segment

- 1 Open filter options to find therapeutic tasks easier
- 2 Select a task
- 3 Adjust settings
- 4 Add the therapeutic task to the segment
- 5 Click to proceed



Figure 28. Edit workout

- 1 Therapeutic tasks in the workout are grouped by their type.
All evaluations are placed in a separate evaluation segment where all tasks are executed only once.
- 2 The normal segment has duration assigned and the tasks it contains are executed one after another till the time is over.
- 3 Move the task to another position
- 4 Clone the task
- 5 Replace the task
- 6 Replace the control mode
- 7 Make task easier
- 8 Make task harder
- 9 Previous parameter preset
- 10 Next parameter preset
- 11 Decide whether fullscreen instruction shall be visible for the patient before each therapeutic task
- 12 Set workout's duration
- 13 Click to proceed

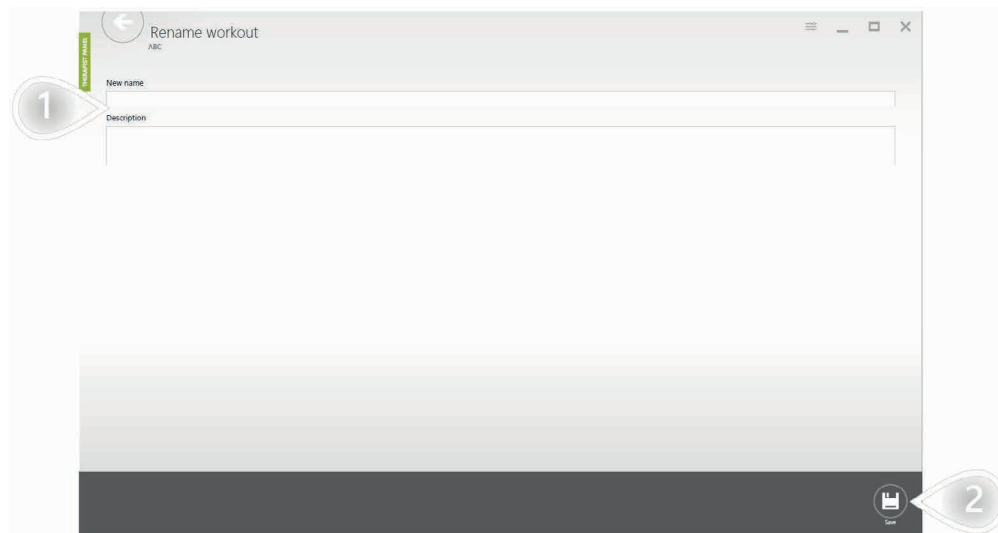


Figure 29. Rename workout

- 1 Assign name and description
- 2 Click to proceed

Edit / remove workout templates

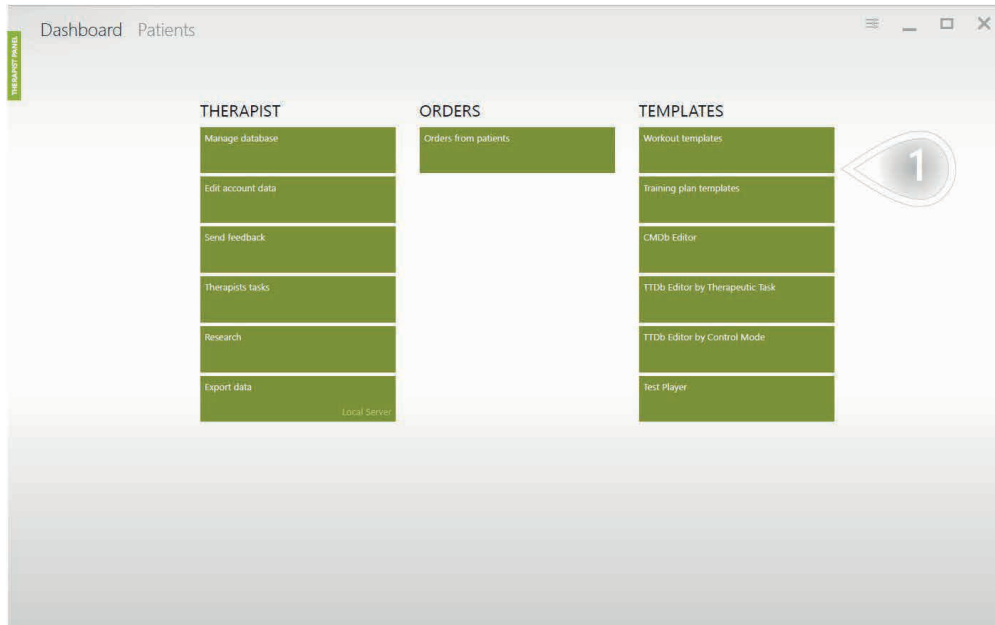


Figure 30. Dashboard overview

1 Click to proceed



Figure 31. Symbols for editing / removing workout templates

- 1 The 'Mine' tab contains your elements that are not shared with other therapists. The other tab contains elements available for each therapist in your facility.
- 2 Remove element
- 3 Edit element

What is a training plan and when to use it?

Training plan is a collection of workout templates.

You can design a structure of therapy for several weeks.

Then you can assign the created training plan to any patient with just a few clicks.

Creating training plan

The picture below presents a training plan template planned for 4 weeks. It has 3 working days per week.

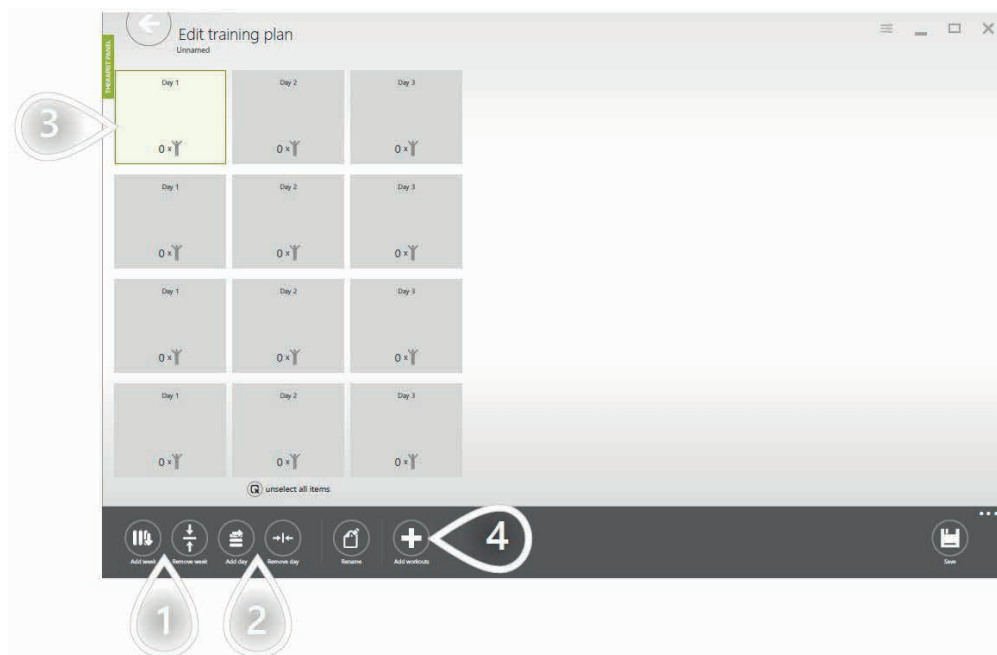


Figure 32. Training plan template planned for 4 weeks

- 1 Set number of weeks
- 2 Set number of working days per week
- 3 A selected working day. You can select many elements simultaneously.
- 4 Add a workout template for selected working days

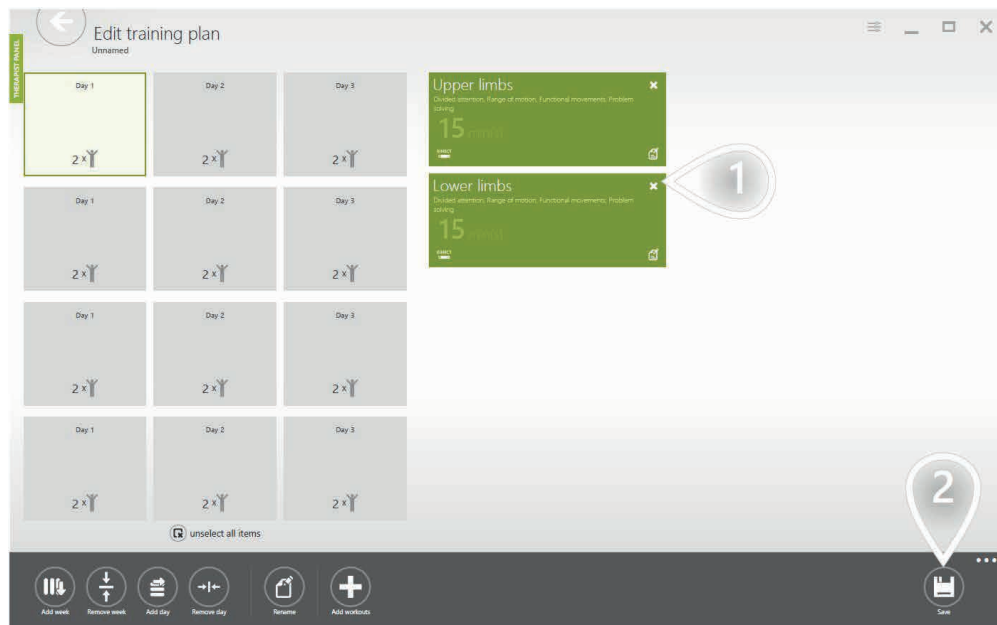


Figure 33. Edit training plan

- 1 Workouts planned for selected working days
- 2 Click to proceed

Assign a training plan to your patient

Assigning a single workout for patients every time they come is not the only option.

You can assign multiple workouts at once and this is what training plans are designed for.

It would be especially beneficial if you prepare a training plan for the groups of patients you most often work with.

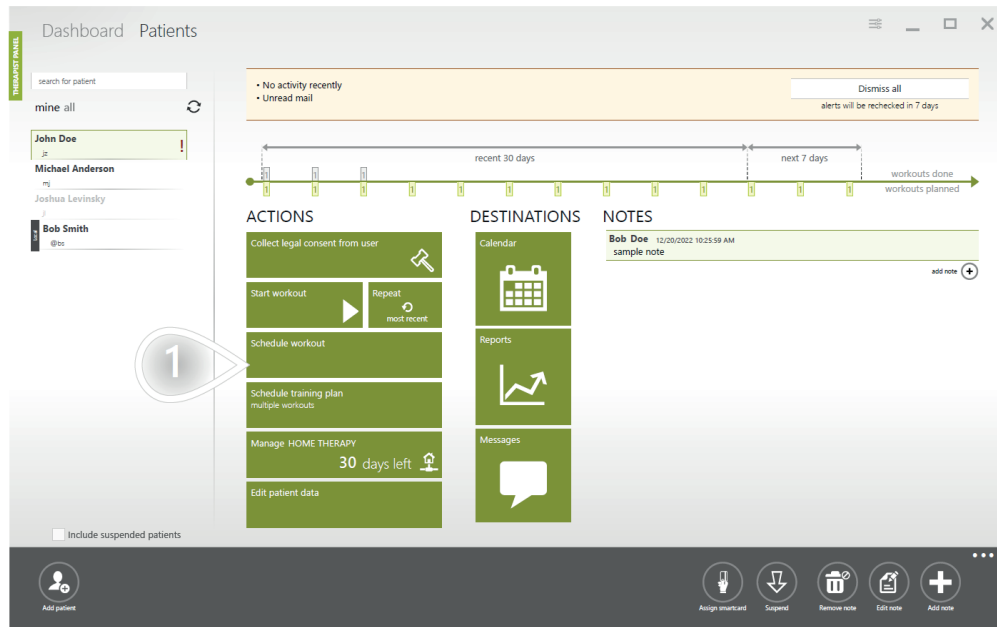


Figure 34. Select 'Schedule workout' at patient overview

1 Click to proceed



Figure 35. Select training plan

- 1 The 'Mine' tab contains your elements that are not shared with other therapists. The other tab contains elements available for each therapist in your facility.
- 2 Select a training plan
- 3 Click to proceed

Here you can customize the training plan.

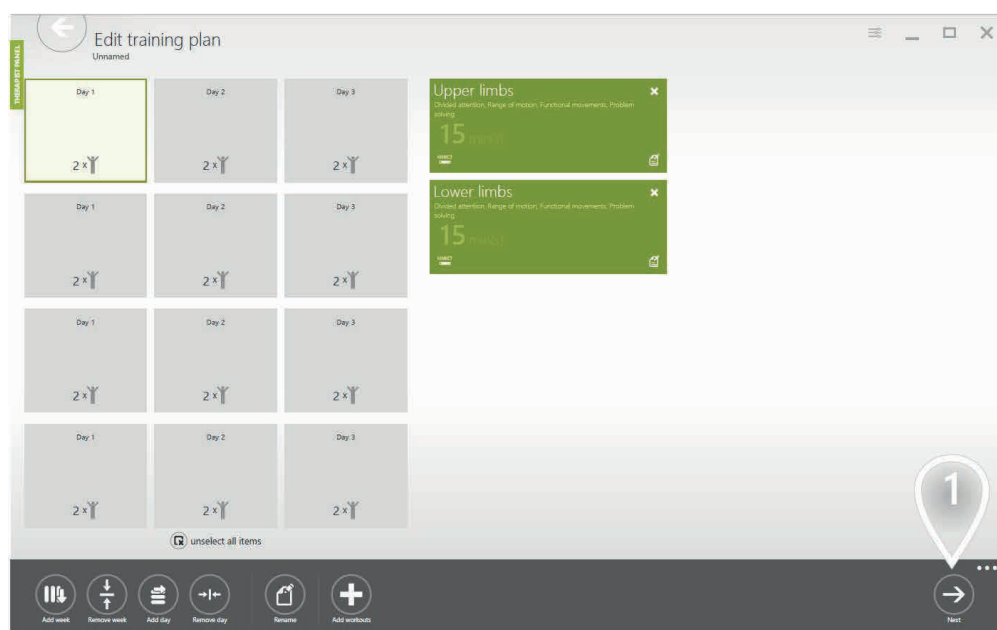


Figure 36. Edit training plan

1 Click to proceed

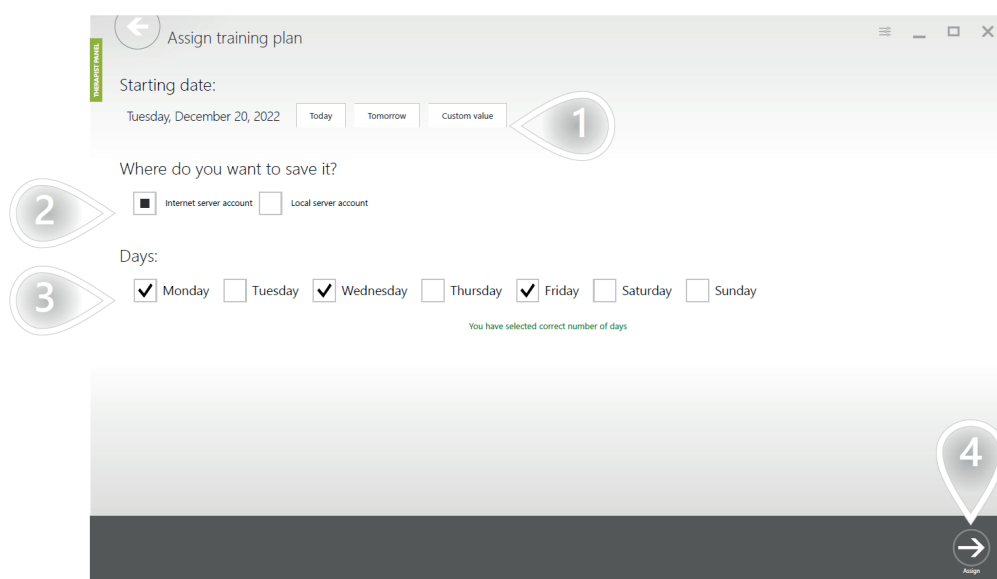


Figure 37. Assign training plan

- 1 Set the start date
- 2 If you want the assigned workouts to be available from other locations (e.g. from home) you need to use the Internet option - it is the default option.
- 3 Check the box near the days you want your patient to exercise on
- 4 Click to proceed

Edit / remove training plans

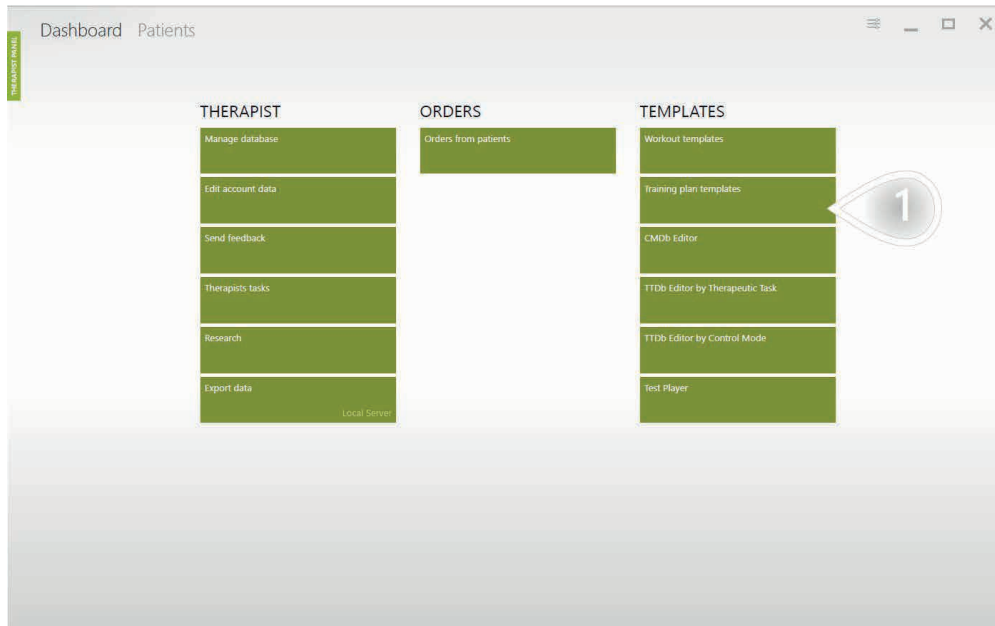


Figure 38. Dashboard overview

1 Click to proceed



Figure 39. Training plan templates overview

- 1 The 'Mine' tab contains your elements that are not shared with other therapists. The other tab contains elements available for each therapist in your facility.
- 2 Remove element
- 3 Edit element

What is a workout?

Workout is a therapy session planned for a given patient.

The workout is always planned for a specific day and it is based on a workout template that describes its structure and duration.

Start workout using generator

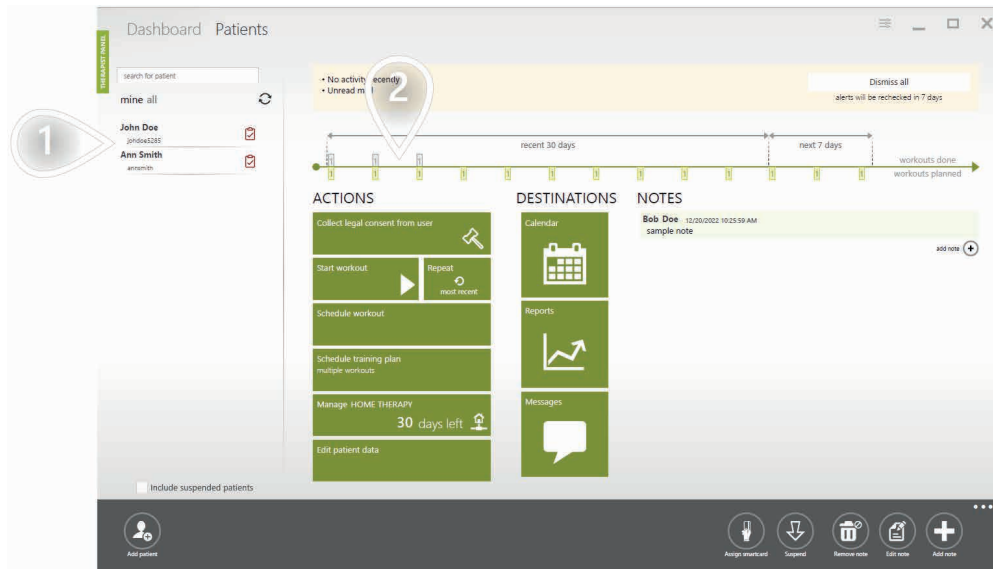


Figure 40. Patients overview

- 1 Select a patient
- 2 Click to proceed

If you have only one patient station this view will not appear.

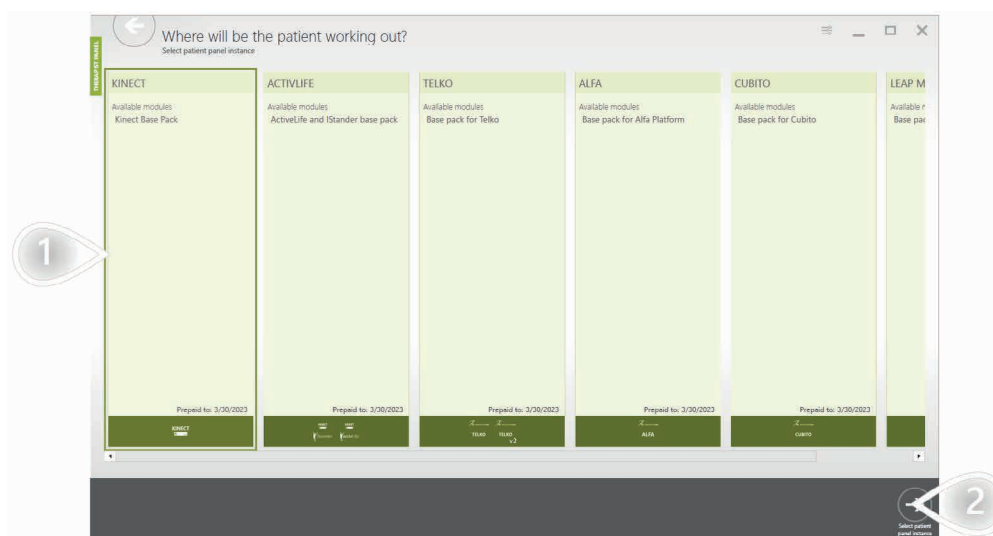


Figure 41. Overview of all available patient stations

- 1 Select a patient station
- 2 Click to proceed

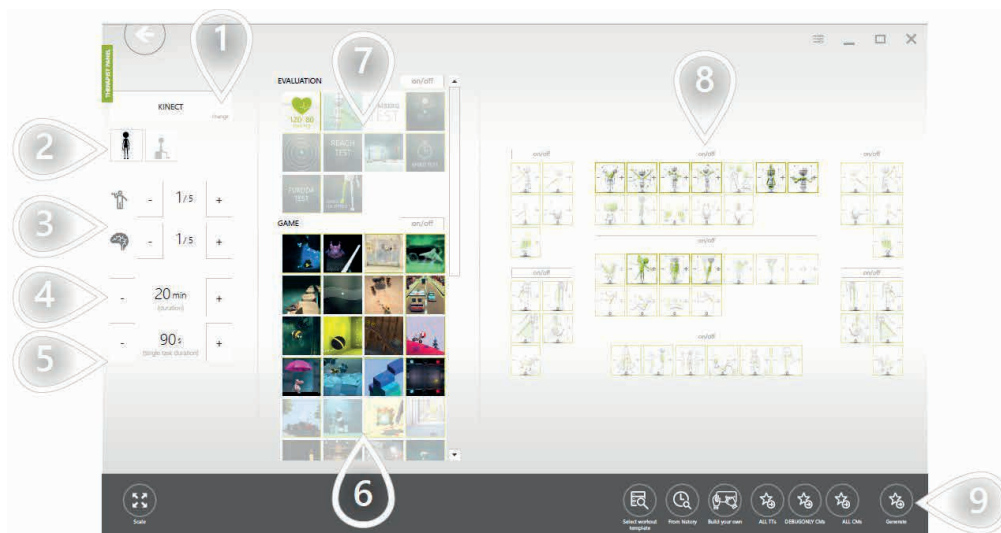


Figure 42. Generate workout

- 1 Select device
- 2 Filter control modes (standing and/or sitting)
- 3 Set suggested physical and cognitive difficulty. Based on those settings system suggests adequate therapeutic tasks and control modes.
- 4 Set workout's duration
- 5 Set duration for each therapeutic task
- 6 Based on the chosen physical and cognitive difficulty - there are some therapeutic tasks preselected. You can modify the list manually.
- 7 Evaluations are not added to the workout automatically. Please click on the evaluations you'd like to have included in the workout.
- 8 Based on the chosen physical and cognitive difficulty - there are some control modes preselected. You can modify the list manually. The greater the weight is - the more times it will be used.
- 9 Click to proceed



Figure 43. Edit workout

- 1 Therapeutic tasks in the workout are grouped by their type. All evaluations are placed in a separate evaluation segment where all tasks are executed only once.
- 2 The normal segment has duration assigned and the tasks it contains are executed one after another till the time is over.
- 3 Move the task to another position
- 4 Clone the task
- 5 Replace the task
- 6 Replace the control mode
- 7 Make task easier
- 8 Make task harder
- 9 Previous parameter preset
- 10 Next parameter preset
- 11 Decide whether fullscreen instruction shall be visible for the patient before each therapeutic task
- 12 Set workout's duration
- 13 Click to proceed

Start copy of the most recent workout

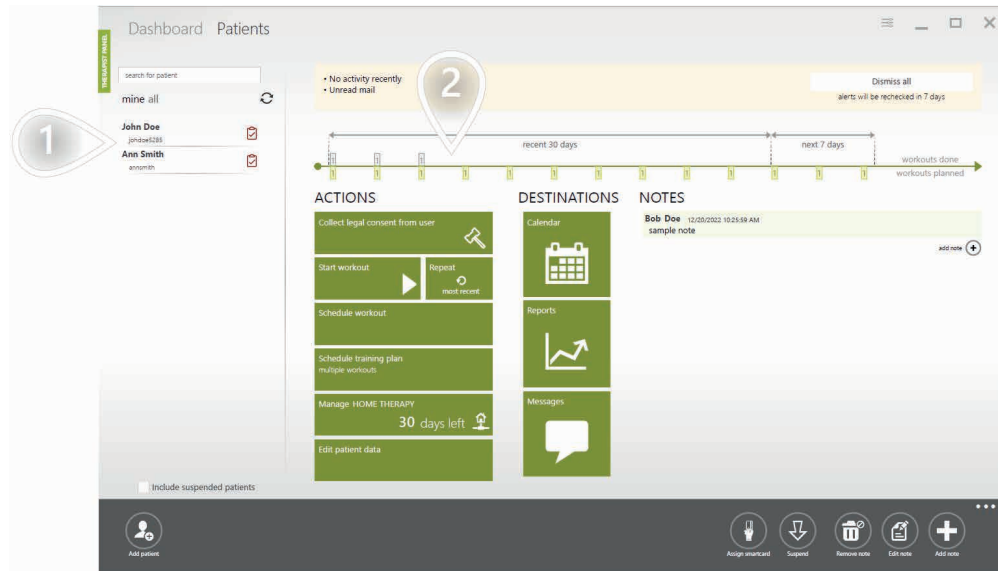


Figure 44. Patients overview

- 1 Select a patient
- 2 Click to proceed

If you have only one patient station this view will not appear.

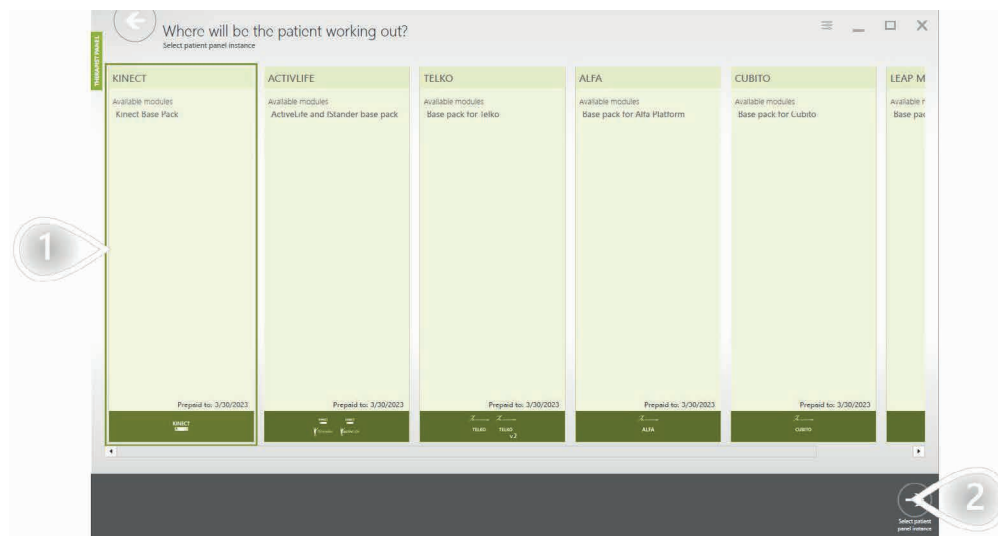


Figure 45. Overview of all available patient stations

- 1 Select a patient station
- 2 Click to proceed

This view shows the workout template that the patient performed on his previous visit.
You can modify it before starting.



Figure 46. Edit workout

- 1 Therapeutic tasks in the workout are grouped by their type. All evaluations are placed in a separate evaluation segment where all tasks are executed only once.
- 2 The normal segment has duration assigned and the tasks it contains are executed one after another till the time is over.
- 3 Move the task to another position
- 4 Clone the task
- 5 Replace the task
- 6 Replace the control mode
- 7 Make task easier
- 8 Make task harder
- 9 Previous parameter preset
- 10 Next parameter preset
- 11 Decide whether fullscreen instruction shall be visible for the patient before each therapeutic task
- 12 Set workout's duration
- 13 Click to proceed

Schedule workout

As it was described before, you can prepare a workout template and then immediately launch it for the patient. Sometimes, however, it would be a good idea to make workouts in advance, and when the patient visits you, you have the therapy already prepared. It can be accomplished by scheduling workouts in the patient's calendar. This approach is also very useful when your patient uses home therapy. The workout can then be started at any time of the day, so it is comfortable for the patient.

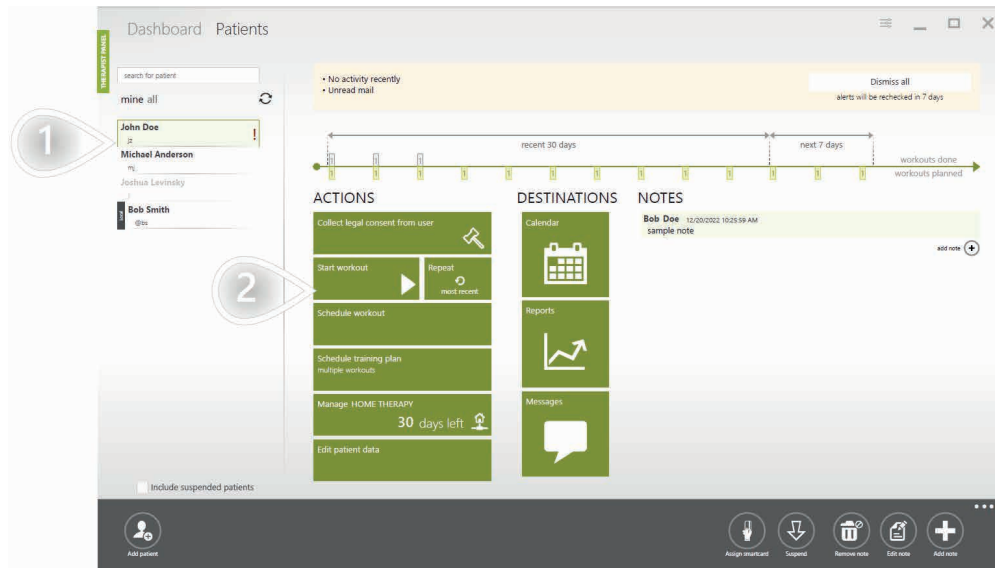


Figure 47. Patients overview

- 1 Select a patient
- 2 Click to proceed

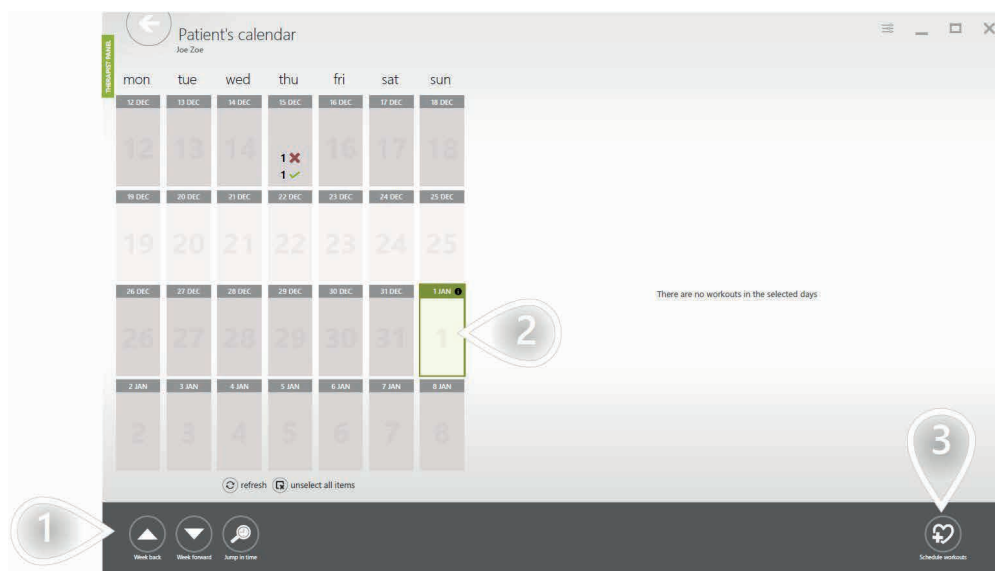


Figure 48. Patient's calendar

- 1 The buttons help you navigate through the calendar
- 2 Select one or more days. Use the [Ctrl] key to select multiple days.
- 3 Click to proceed

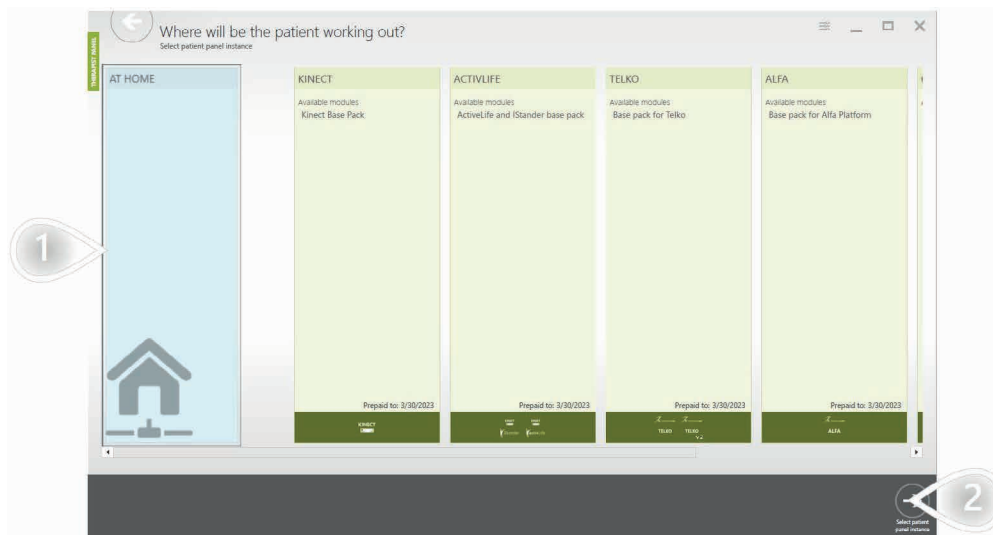


Figure 49. Overview of all available patient stations

- 1 Select a patient station
- 2 Click to proceed

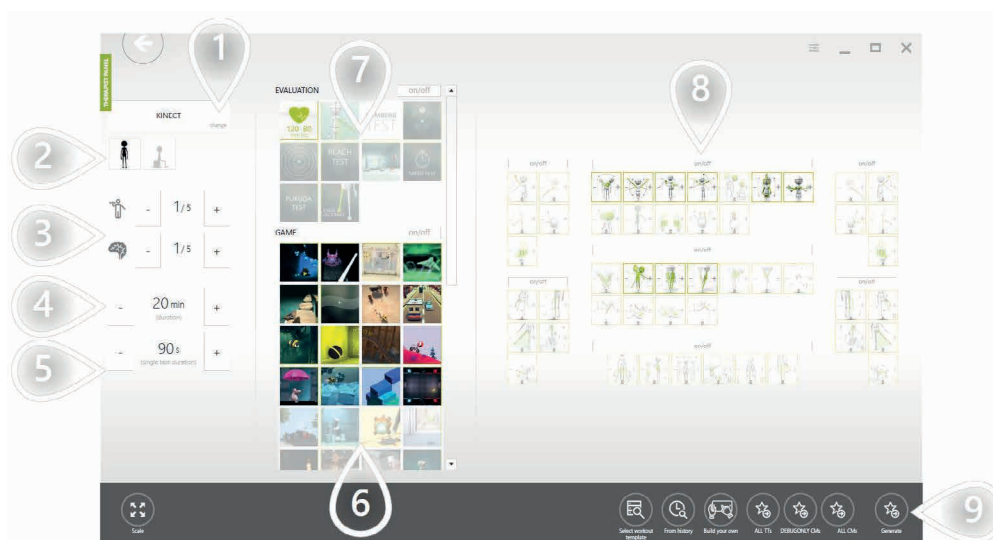


Figure 50. Generate workout

- 1 Select device
- 2 Filter control modes (standing and/or sitting)
- 3 Set suggested physical and cognitive difficulty.
Based on those settings system suggests adequate therapeutic tasks and control modes.
- 4 Set workout's duration
- 5 Set duration for each therapeutic task
- 6 Based on the chosen physical and cognitive difficulty - there are some therapeutic tasks preselected.
You can modify the list manually.
- 7 Evaluations are not added to the workout automatically.
Please click on the evaluations you'd like to have included in the workout.
- 8 Based on the chosen physical and cognitive difficulty - there are some control modes preselected.
You can modify the list manually. The greater the weight is - the more times it will be used.
- 9 Click to proceed



Figure 51. Edit workout

- 1 Therapeutic tasks in the workout are grouped by their type. All evaluations are placed in a separate evaluation segment where all tasks are executed only once.
- 2 The normal segment has duration assigned and the tasks it contains are executed one after another till the time is over.
- 3 Move the task to another position
- 4 Clone the task
- 5 Replace the task
- 6 Replace the control mode
- 7 Make task easier
- 8 Make task harder
- 9 Previous parameter preset
- 10 Next parameter preset
- 11 Decide whether fullscreen instruction shall be visible for the patient before each therapeutic task
- 12 Set workout's duration
- 13 Click to proceed

Start previously scheduled workout

The scheduling function is normally used to prepare workouts that your patient will start manually in the patient panel without having you around. It is, however, possible to start a previously scheduled workout directly from the therapist panel.

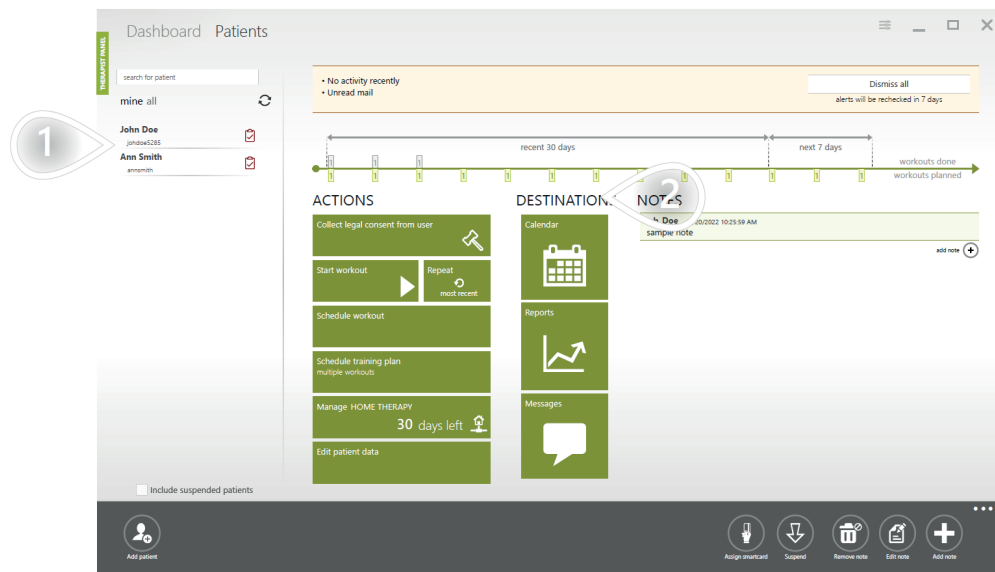


Figure 52. Patients overview

- 1 Select a patient
- 2 Click to proceed

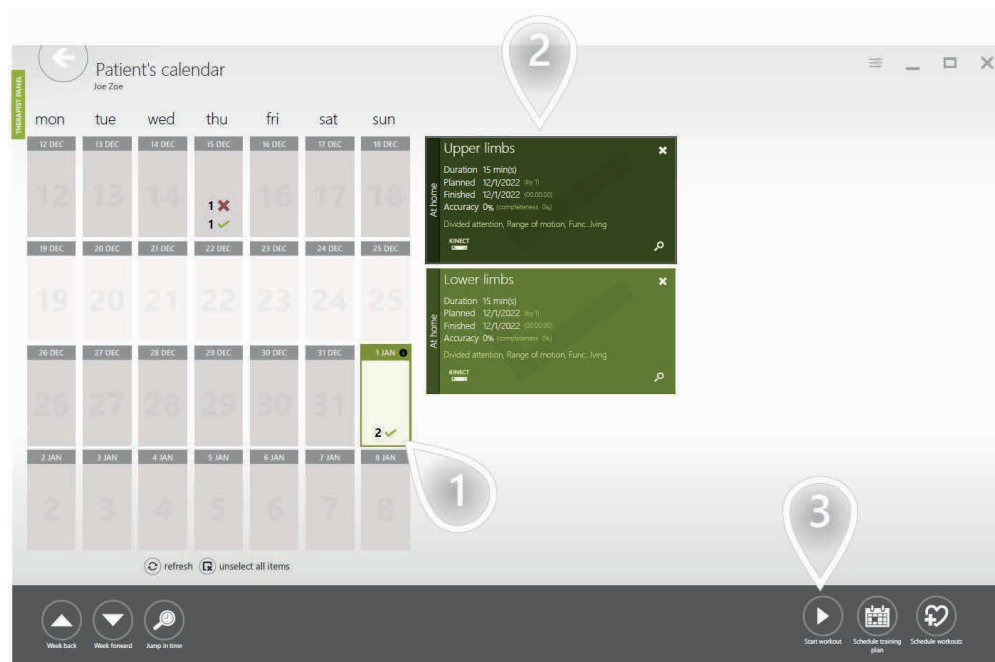


Figure 53. Patient's calendar

- 1 Select a day
- 2 Select a workout
- 3 Click to proceed

If you have only one patient station this view will not appear.



Figure 54. Overview of all available patient stations

- 1 Select a patient station
- 2 Click to proceed

What is the training room?

The training room is used to deliver real-time communication between patient panels and therapist panels working in the same network. It allows you to have real-time insight into the results collected while your patients exercise. It is also used when you need to adjust therapy parameters without stopping the workout.

See patients' performance on all patient stations

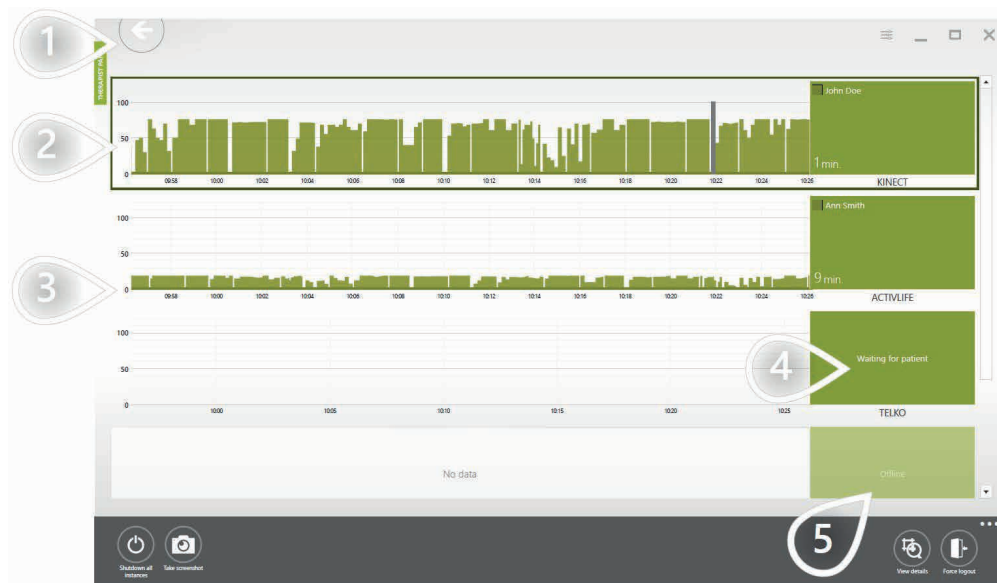


Figure 55. Training room – overview of all patient stations at the same time

- 1 Make sure appropriate tab is selected
- 2 This patient is doing quite well. We see average accuracy around 70% what means that the therapy is well-tailored.
- 3 Here we can see average accuracy less than 25% what means that the parameters are too difficult for the patient
- 4 This patient station is waiting for a patient - nobody is logged in currently
- 5 This patient station is currently offline

Make currently running task easier for the patient

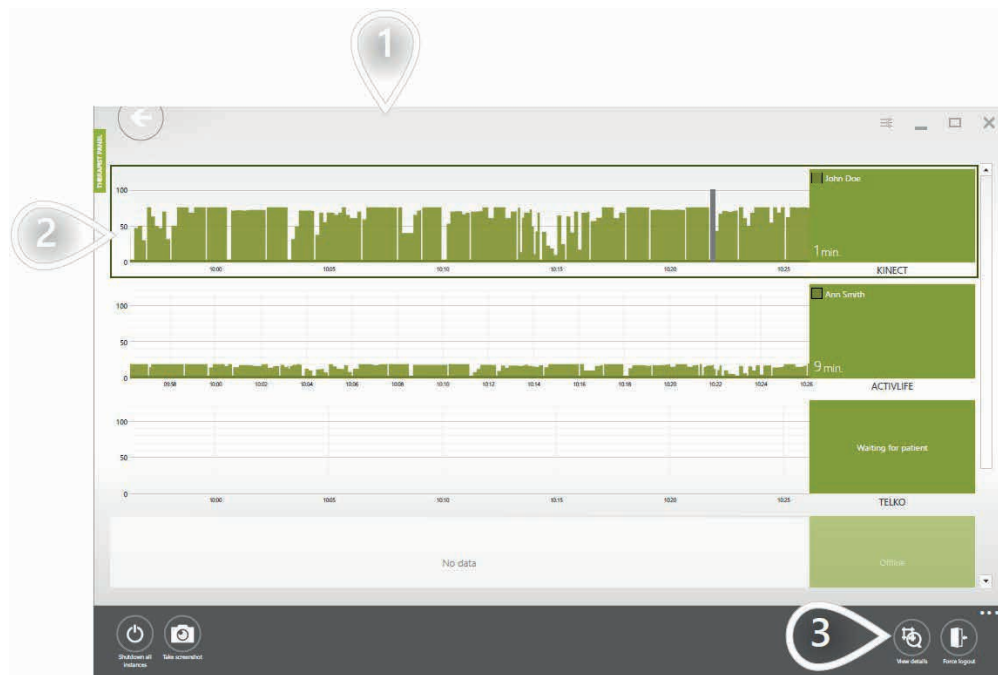


Figure 56. Training room – select a patient's station

- 1 Make sure appropriate tab is selected
- 2 Select the patient station where the patient is exercising
- 3 Click to proceed



Figure 57. Edit the currently running task at the selected patient station

- 1 Make sure the currently running therapeutic task is selected
- 2 Change level or single parameters to adjust the therapeutic task accordingly to the patient's needs. Changes are automatically sent to the patient station.
- 3 Change the control mode
- 4 Change the general structure of the workout, change workout's duration, parameters, etc.

Accept or reject result from currently running evaluation task

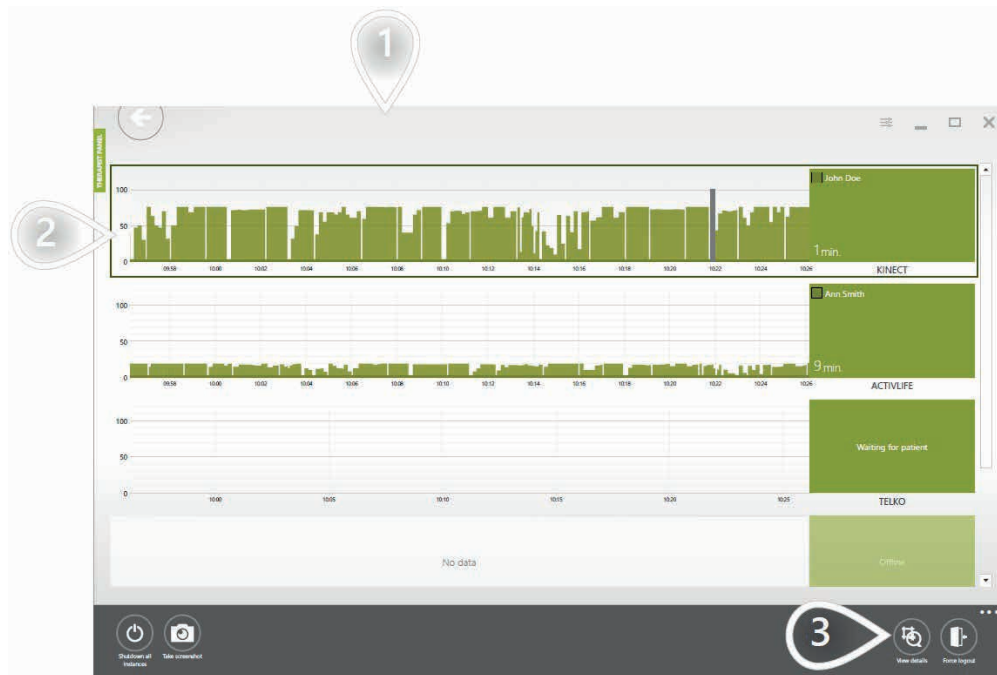


Figure 58. Training room – select a patient's station

- 1 Make sure appropriate tab is selected
- 2 Select the patient station where the patient is exercising
- 3 Click to proceed

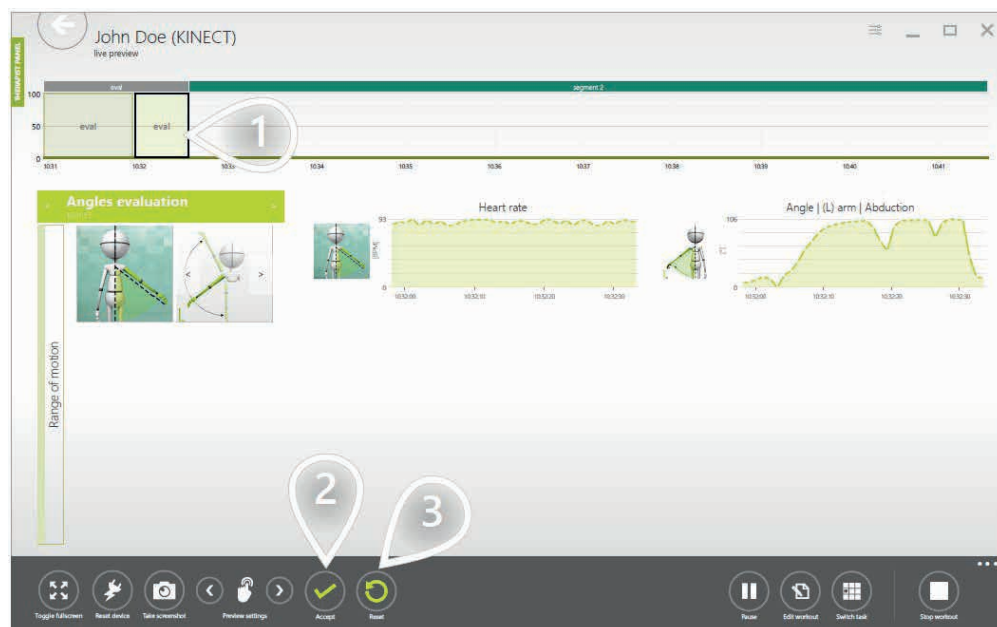


Figure 59. Accept or reject the result from currently running task at the selected patient station

- 1 Make sure the currently running therapeutic task is selected
- 2 If the evaluation has been performed properly - you can accept the result
- 3 In case of any problem while performing the evaluation - you can reset it. The system will discard the result and the test will be started over.

Change currently running therapeutic task on a given patient station

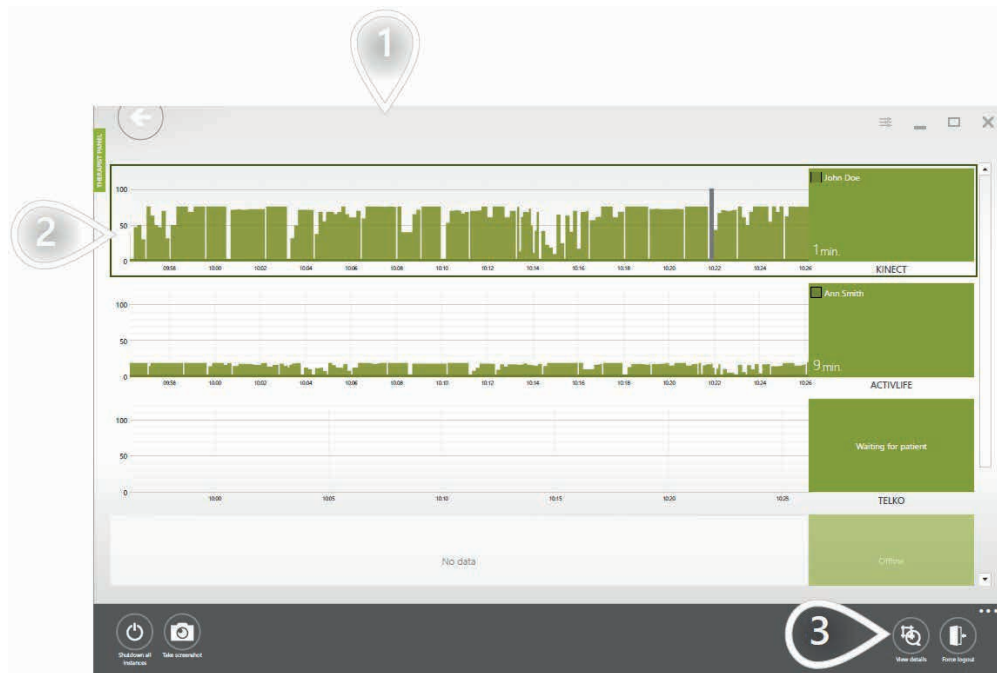


Figure 60. Training room – select a patient's station

- 1 Make sure appropriate tab is selected
- 2 Select the patient station where the patient is exercising
- 3 Click to proceed

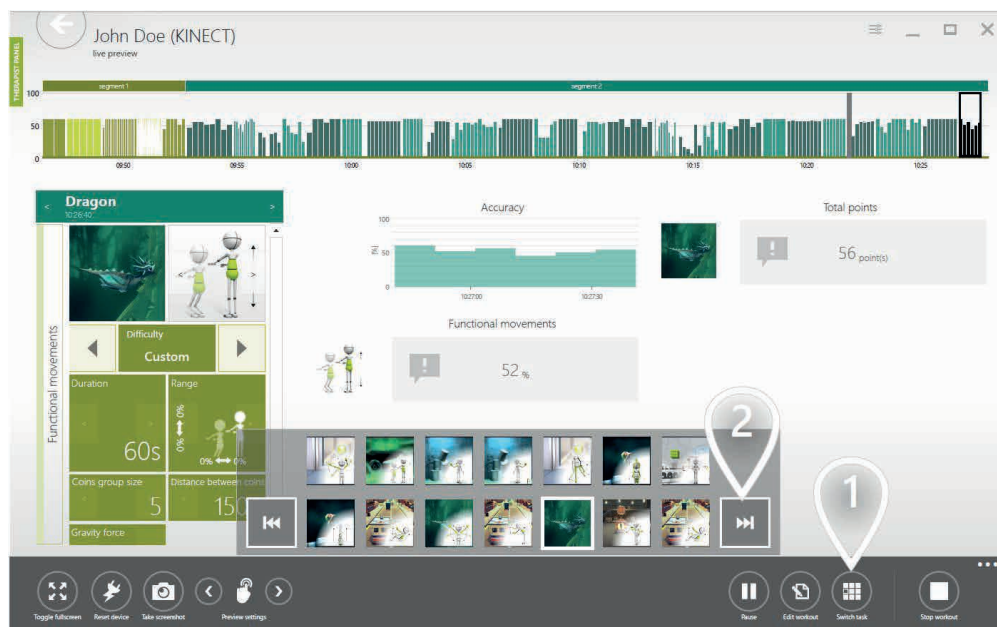


Figure 61. Change currently running task at the selected patient station

- 1 Open list of available therapeutic tasks
- 2 Click to jump to the next therapeutic task in the segment

Extend workout's duration

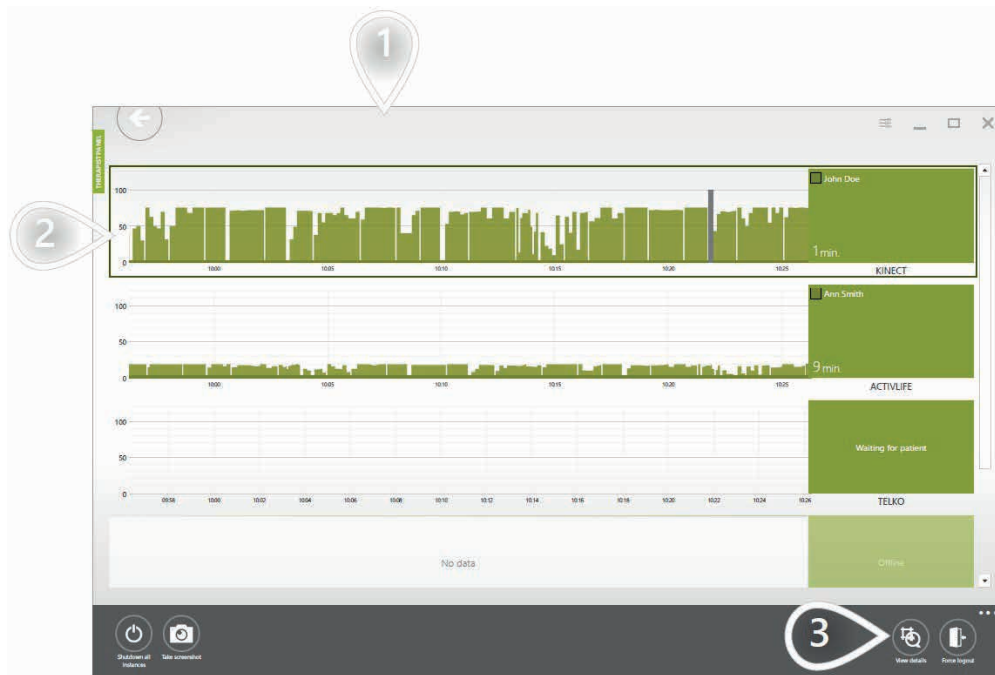


Figure 62. Training room – select a patient's station

- 1 Make sure appropriate tab is selected
- 2 Select the patient station where the patient is exercising
- 3 Click to proceed

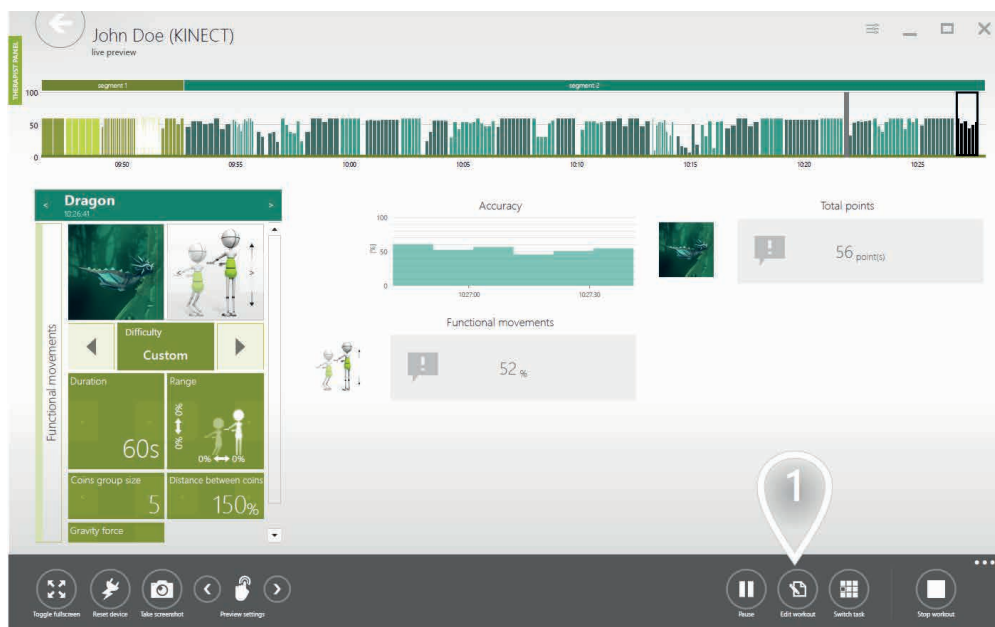


Figure 63. Click on 'Edit workout' to edit currently running workout

- 1 Click to proceed

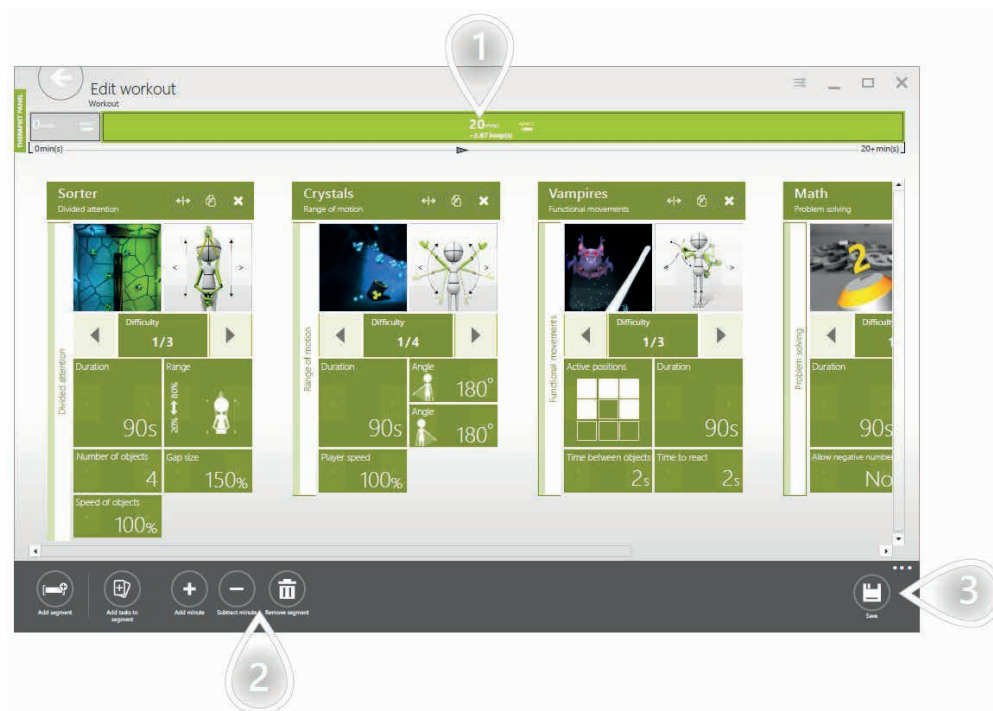


Figure 64. Edit currently running workout's duration

- 1 Actual duration of the workout segment
- 2 Adjust the duration
- 3 Click to proceed

Show report from a single workout session

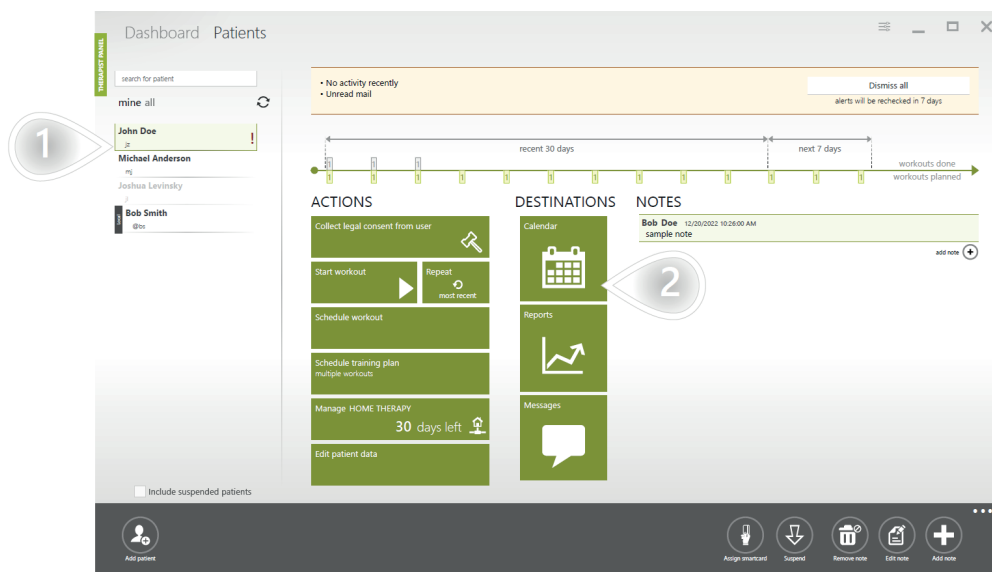


Figure 65. Patients overview

- 1 Select a patient
- 2 Click to proceed

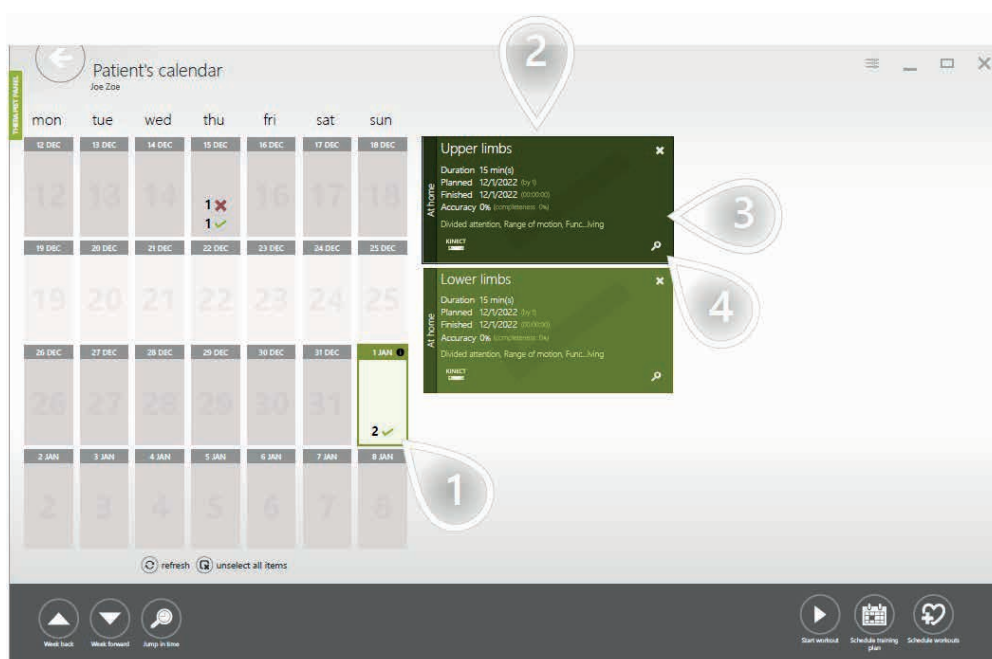


Figure 66. Patient's calendar

- 1 Select a day
- 2 List of workouts
- 3 Select a workout
- 4 Click to proceed

The view below is an interactive report. You can go through all the therapeutic tasks performed in that workout. For each therapeutic task, you can see the collection of parameters used while performing the task as well as the results gathered. You can print a report presenting a single therapeutic task on a single page or the whole workout report on several pages.

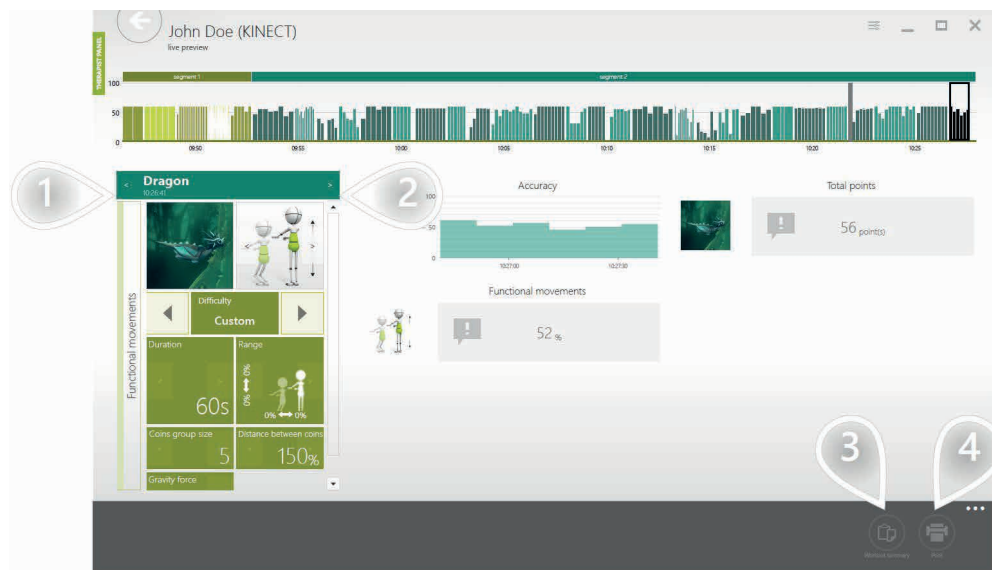


Figure 67. Interactive report for all tasks performed in that workout

- 1 Go to previous task
- 2 Go to next task
- 3 Print report for the whole workout session
- 4 Print report for selected therapeutic task



Figure 68. Preview of generated report

- 1 Click to proceed

Show long-term reports to present patient's progress

To correctly assess your patients' progress it is crucial to compare their results collected in a series of workouts. Such comparisons are prepared automatically in VAST.Rehab

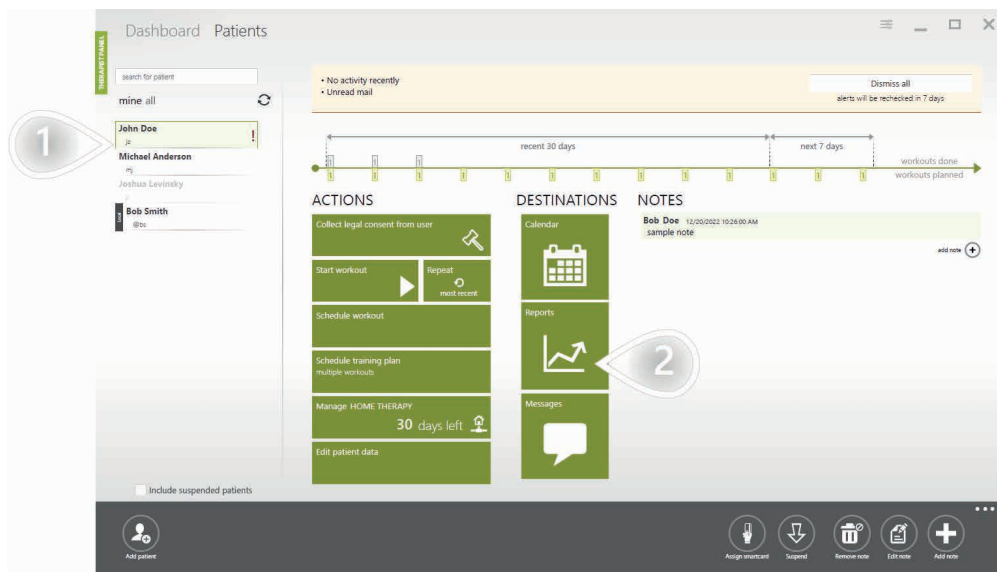


Figure 69. Patients overview

- 1 Select a patient
- 2 Click to proceed

The view below presents the report categories possible to prepare in VAST.Rehab system. Each therapeutic task is assigned to one of those categories. When a workout is performed by your patient the results are automatically assigned to appropriate categories. When a category contains at least 1 result it changes its color to green. You can click a green category to see more details.



Figure 70. Report categories

- 1 Click to proceed



Figure 71. Example for report category 'range of motion'

- 1 Selected category
- 2 List of angles that have been measured for the selected patient
- 3 Series of data possible to plot on the chart. Each series represents the measurements taken in the same conditions (the same device, the same parameters, the same therapeutic task, etc.)
- 4 On the X-axis there are weeks of the therapy. Each point on the chart represents the maximal angle achieved by the patient in the corresponding week of therapy.
- 5 More details about the series of data

The chart below compares the results achieved using the left and the right hand.



Figure 72. Example for more detailed data in report category 'range of motion'

- 1 The parameters that were used while collecting the data
- 2 The dates when the measurements have been taken
- 3 Series of data possible to plot on the chart
- 4 Click to see the result in the context of the whole workout session

Show simple report ready to discuss with your patient

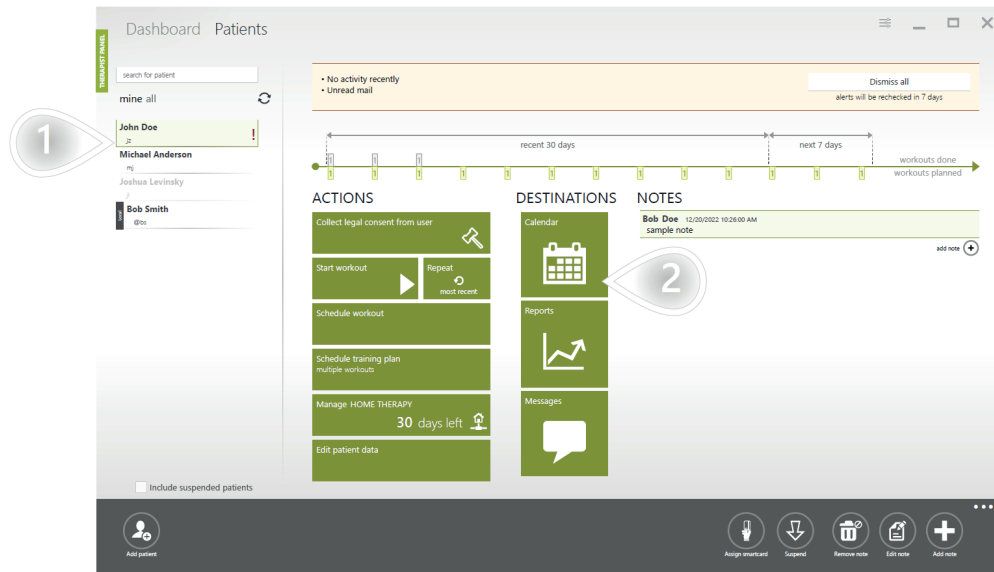


Figure 73. Patients overview

- 1 Select a patient
- 2 Click to proceed

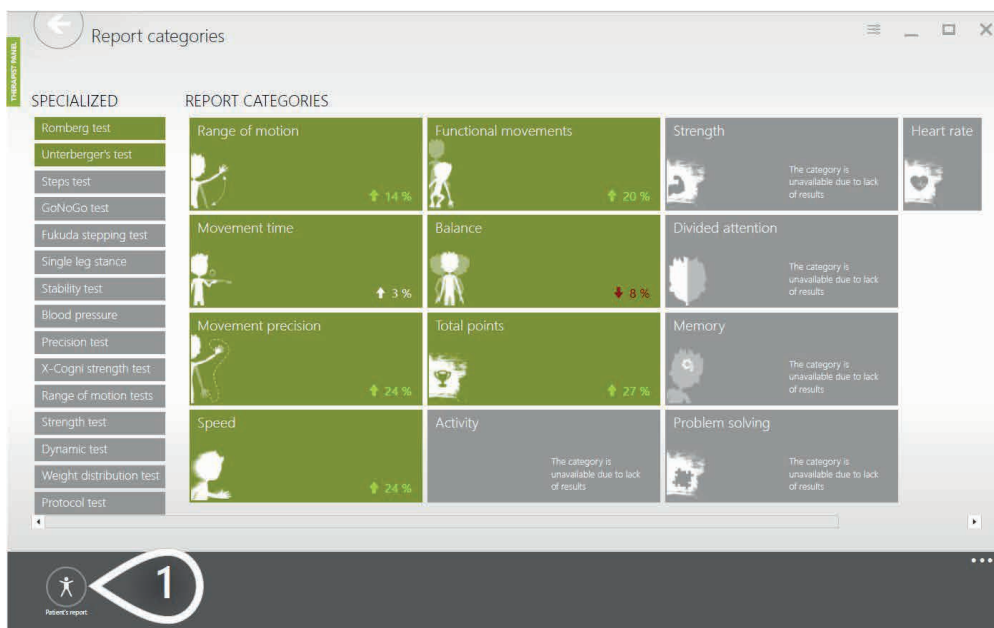


Figure 74. Report categories

- 1 Click to proceed



Figure 75. Patient's report

- 1 Select time frame
- 2 Select progress threshold. Result will be displayed only if it is far enough from 0 (when progress is very small result will be hidden).
- 3 Average progress achieved in all Control Modes in the category
- 4 Progress achieved in the given Control Mode

What is a research and when to use it?

If you plan to do research, VAST.Rehab will make your daily work easier. Use the research feature when you need to:

- Compare progress done by several groups of patients performing the same workout template
- Compare the results and progress of several patients performing the same workout template

Creating research

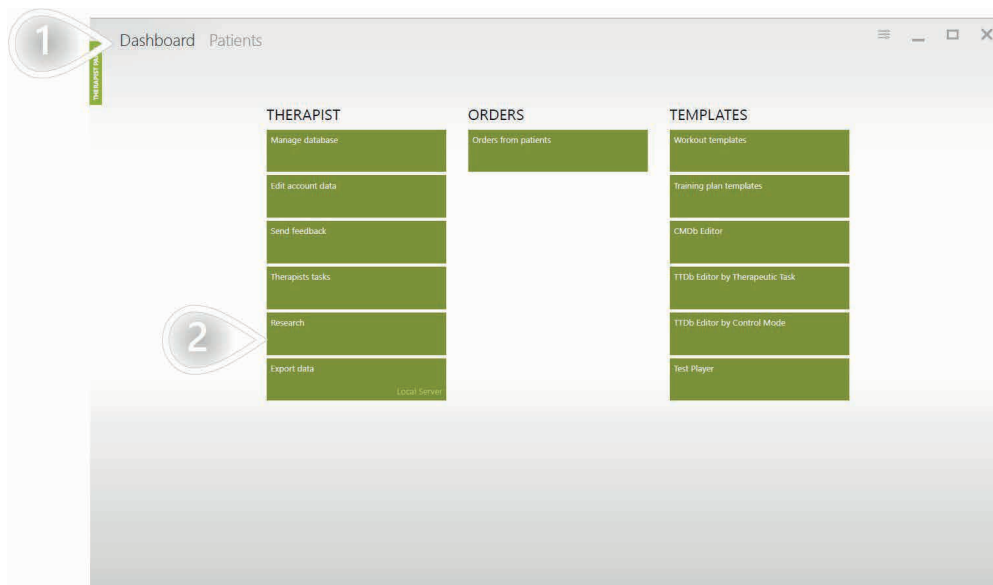


Figure 76. Dashboard overview

- 1 Make sure appropriate tab is selected
- 2 Click to proceed

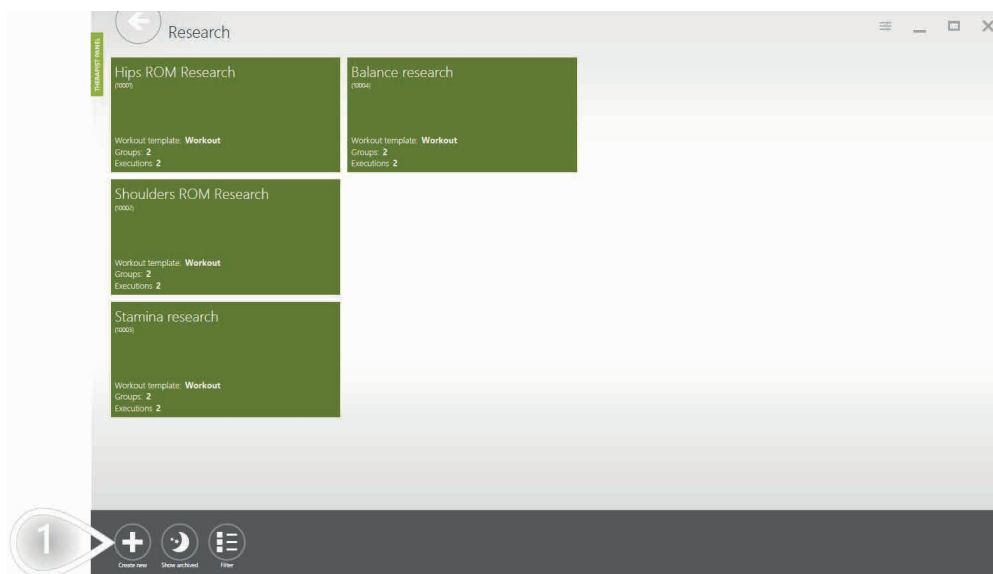


Figure 77. Research overview

- 1 Click to proceed

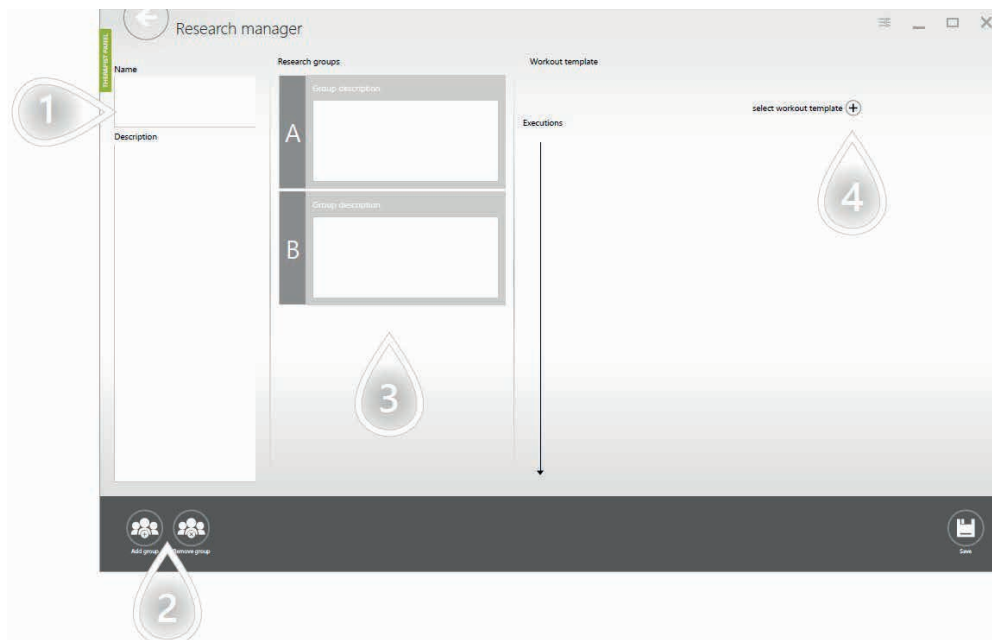


Figure 78. Create research in research manager form

- 1 Fill the 'Name' and 'Description' fields
- 2 Add and remove research groups
- 3 Here are the research groups. You can add some description for each of them. Patients will be added to groups later - when you finish designing and save the research.
- 4 Click to set the workout template that will be used in the research

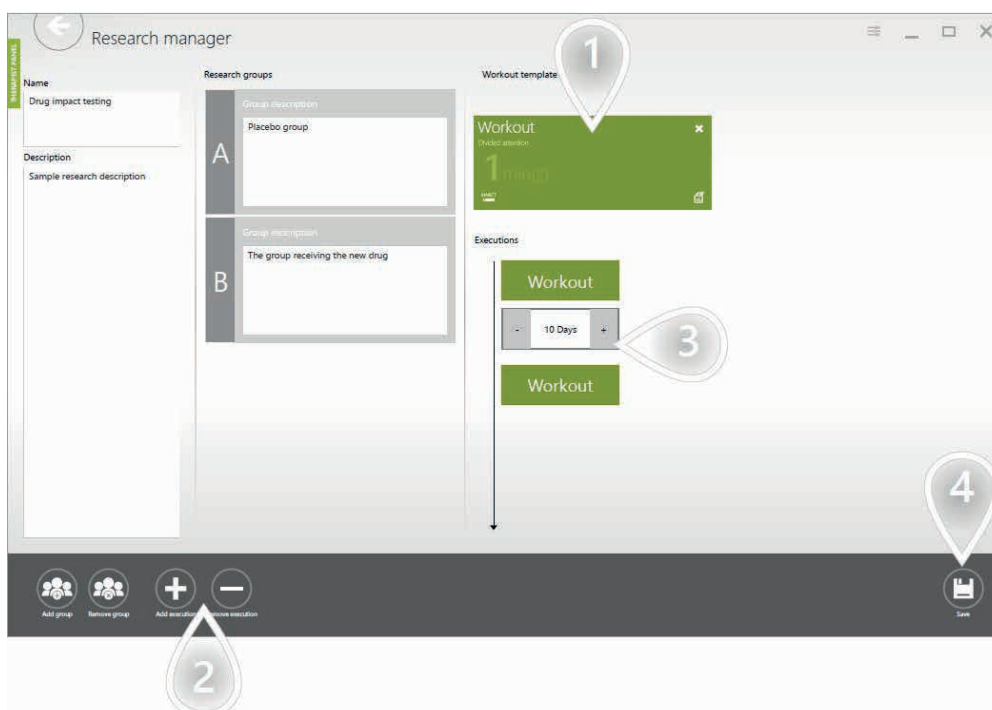


Figure 79. Create research in research manager form

- 1 Selected workout template
- 2 Set how many times the workout template will be performed by each patient
- 3 Set the interval between executions of the workout template
- 4 Click to proceed

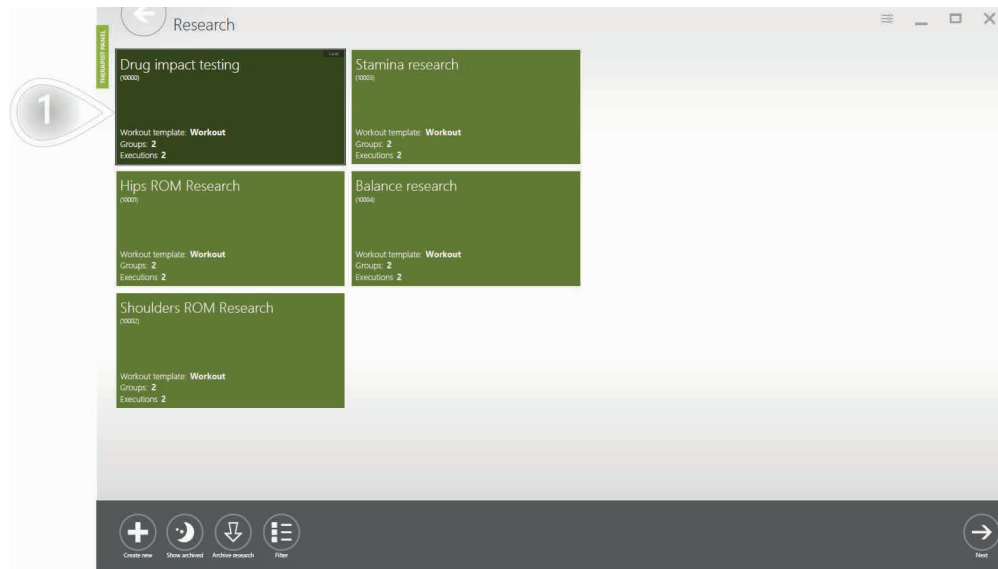


Figure 80. Research overview with new created research

1 The created element

Add a patient to your research's group

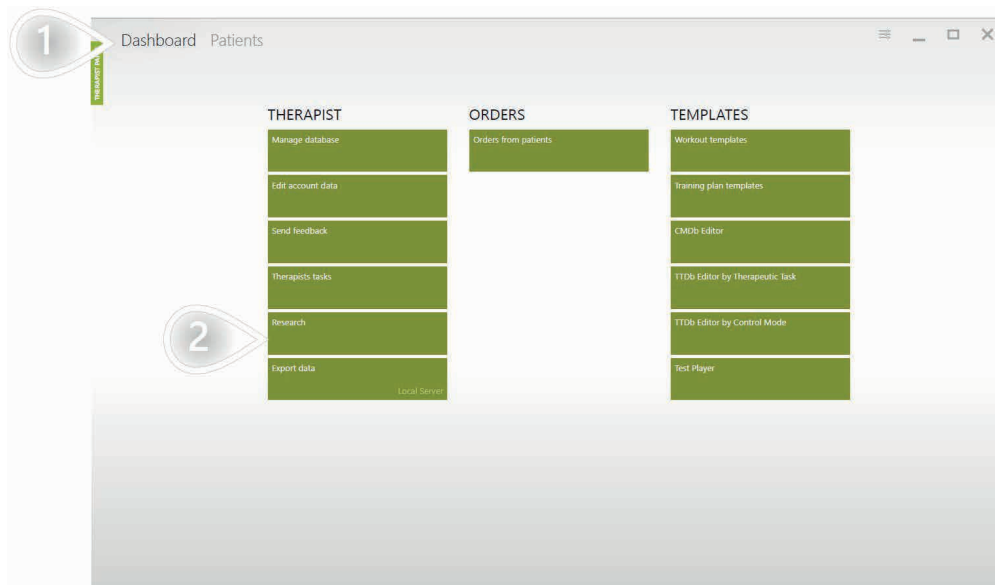


Figure 81. Dashboard overview

- 1 Make sure appropriate tab is selected
- 2 Click to proceed

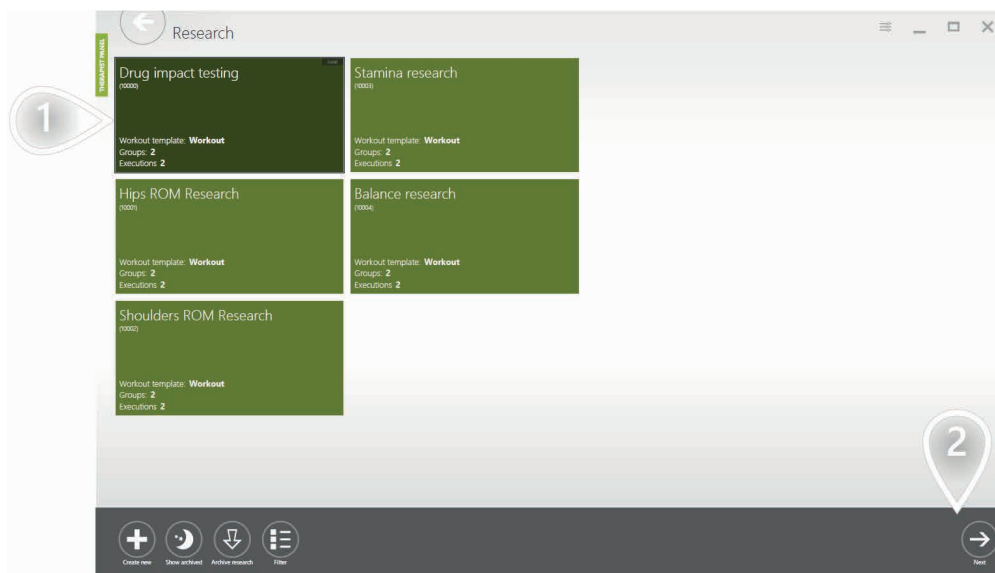


Figure 82. Research overview

- 1 Select an element
- 2 Click to proceed

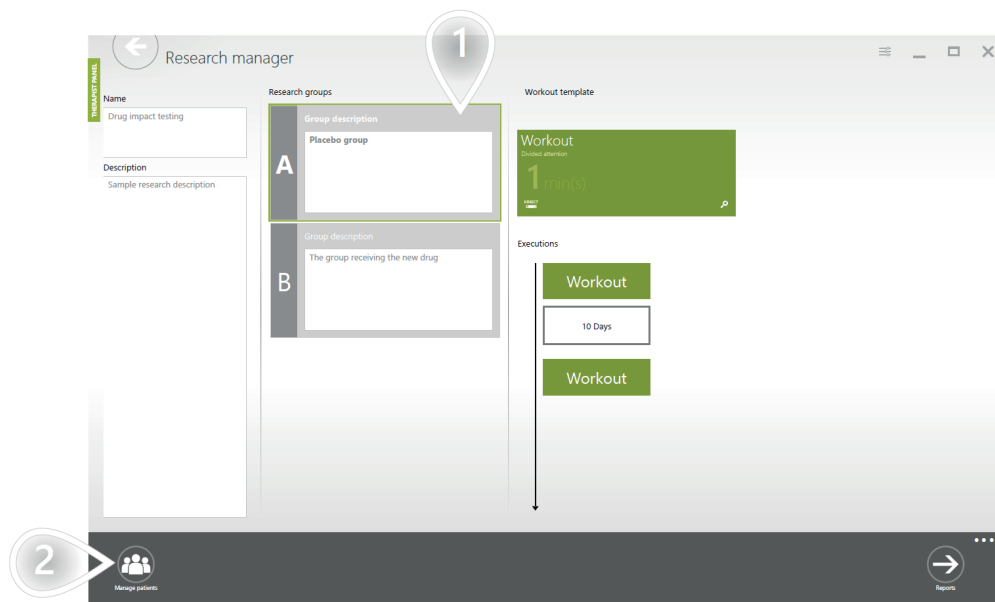


Figure 83. Research manager form

- 1 Select one of the groups
- 2 Click to proceed

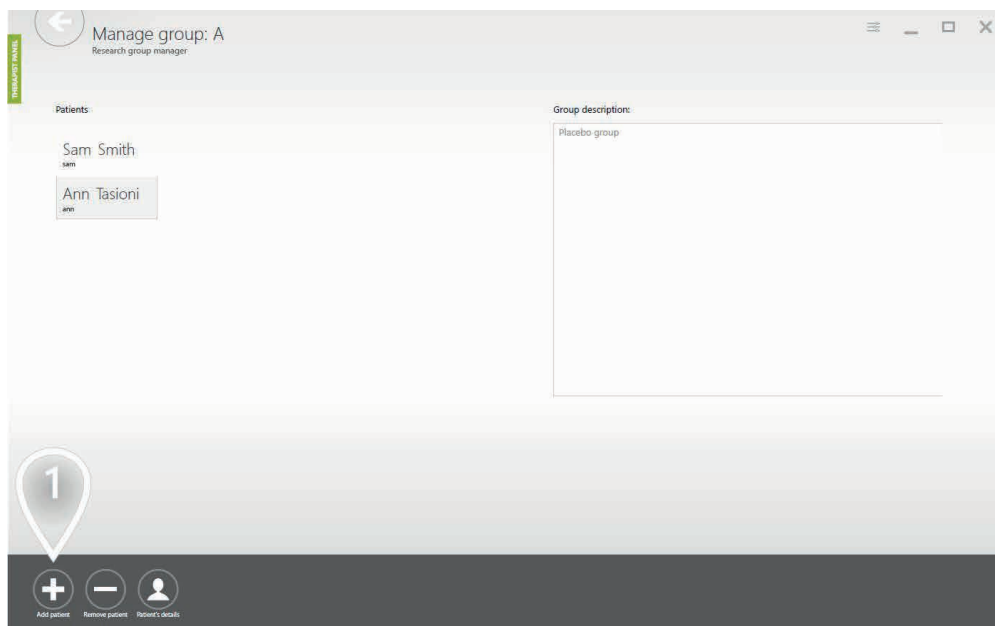


Figure 84. Selected research group

- 1 Click to proceed

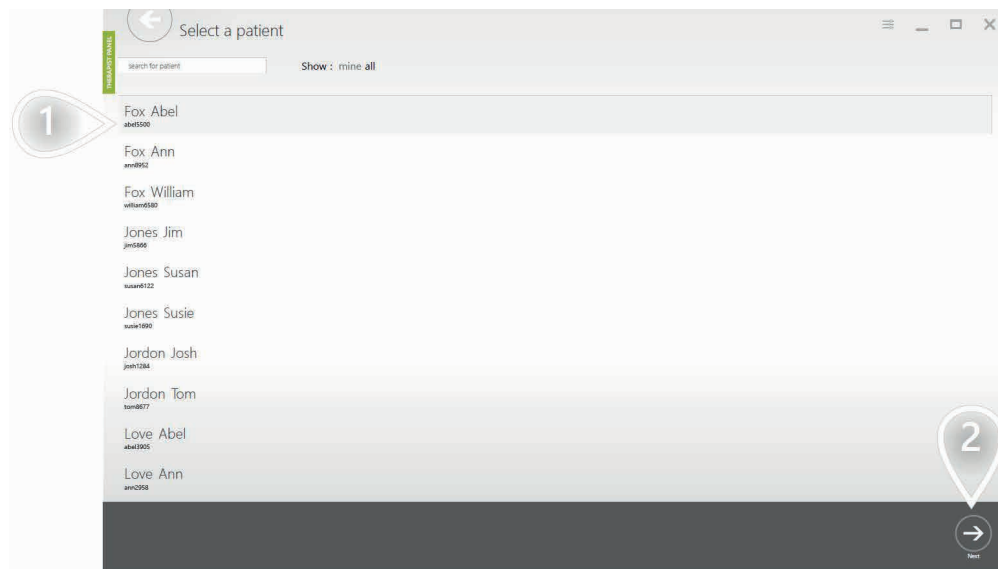


Figure 85. Select / Add a patient to research group

- 1 Select a patient
- 2 Click to proceed

Start first research workout for your patient

When you add a patient to one of the research groups there is an automatically generated task for you to do the first workout with your patient. The first task has no due date - it can be started at any time.

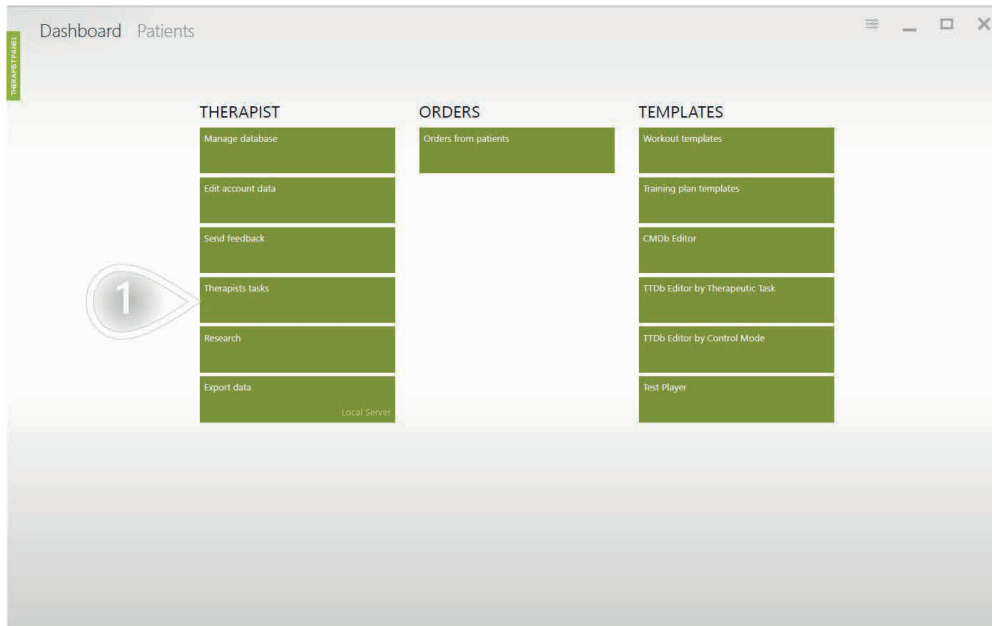


Figure 86. Dashboard overview

1 Click to proceed

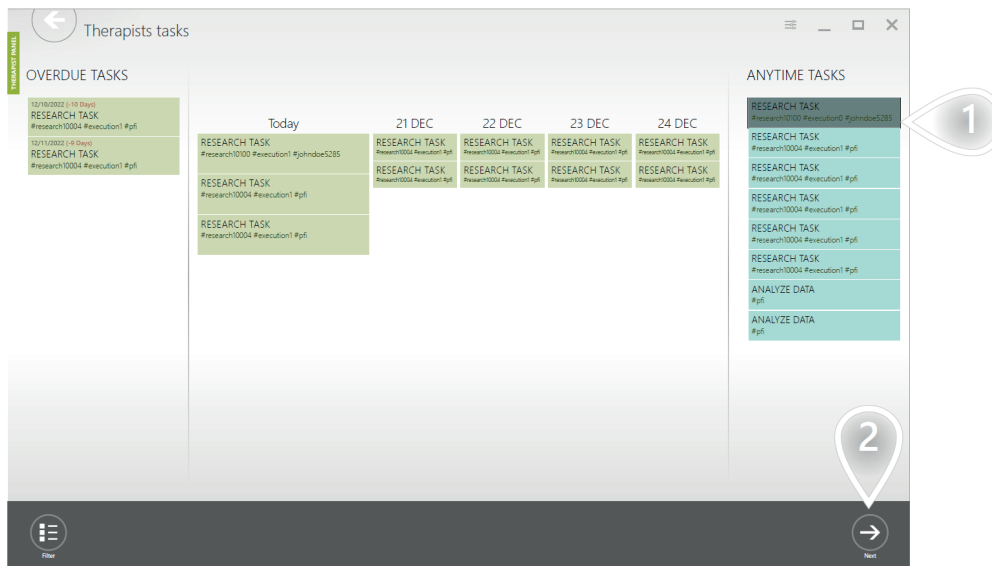


Figure 87. Select research task in therapists task overview

- 1 Select the research task tagged with your patient's login.
- 2 Click to proceed

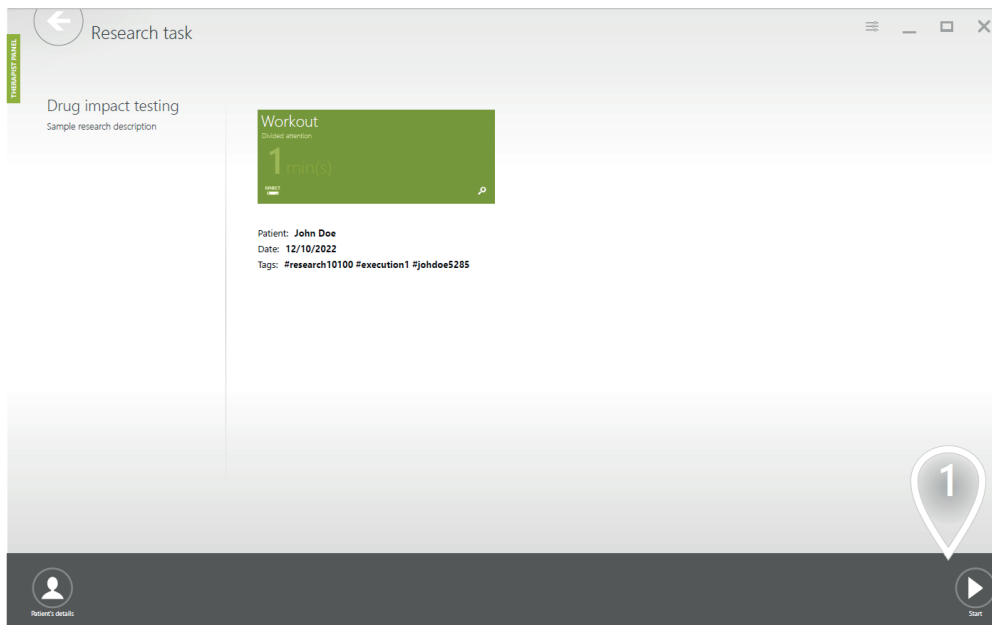


Figure 88. Selected research task in detail

1 Click to proceed

If you have only one patient station this view will not appear.

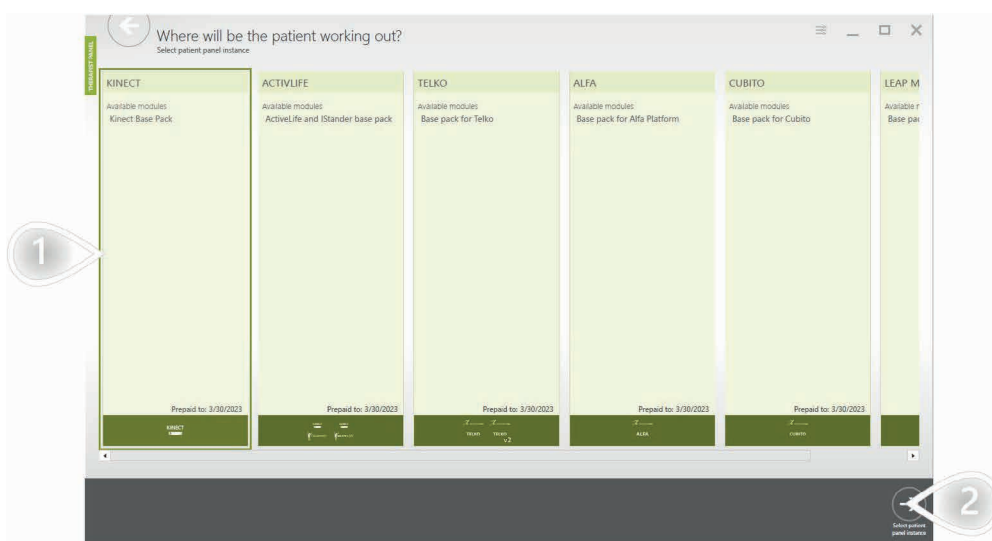


Figure 89. Overview of all available patient stations

- 1 Select a patient station
- 2 Click and do the workout session with your patient as you normally do

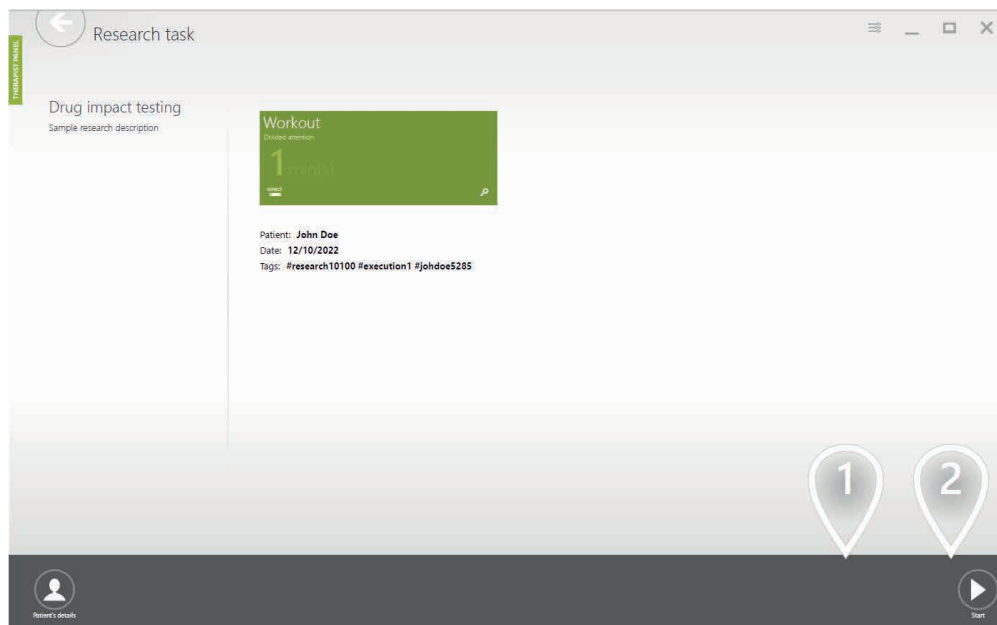


Figure 90. Repeat execution of this workout or mark the task as completed

- 1 If you need you can repeat execution of this workout with your patient
- 2 Mark the task as completed when the workout is finished successfully

Start follow up research workout for your patient

When your research contains more than one execution - you need to decide how many days shall pass between those executions. When the first execution is done – the system automatically schedules a task for you to perform the follow-up execution at the correct date.

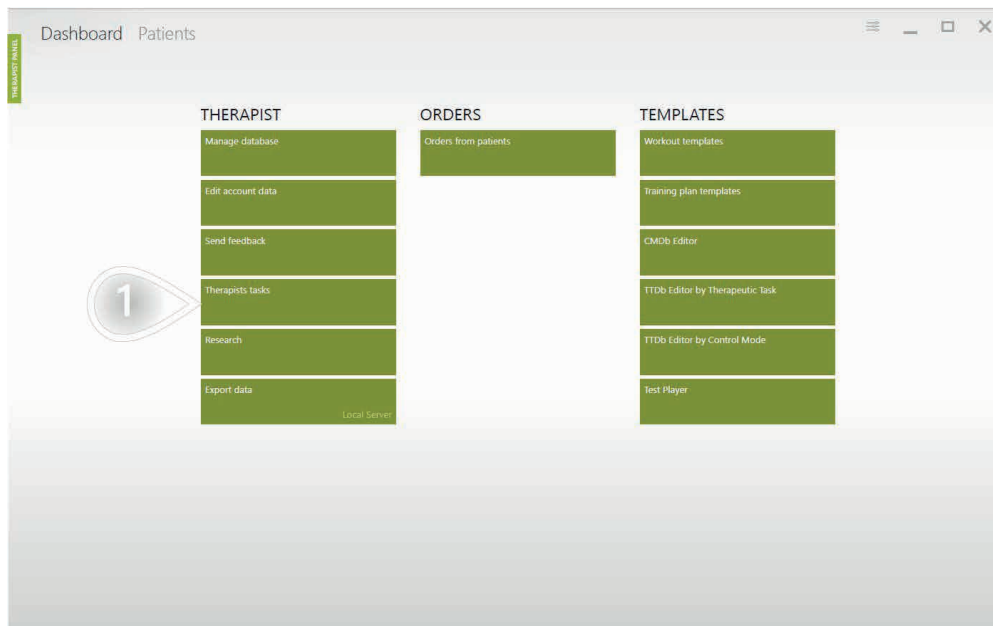


Figure 91. Dashboard overview

1 Click to proceed

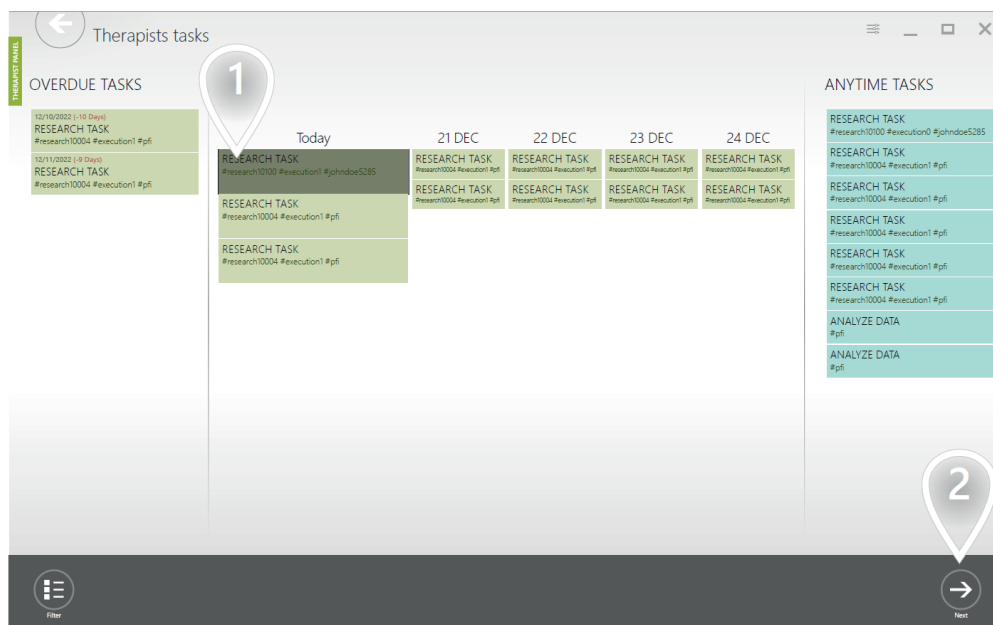


Figure 92. Overview therapists tasks

- 1 Select the scheduled for today research task tagged with your patient's login
- 2 Click to proceed

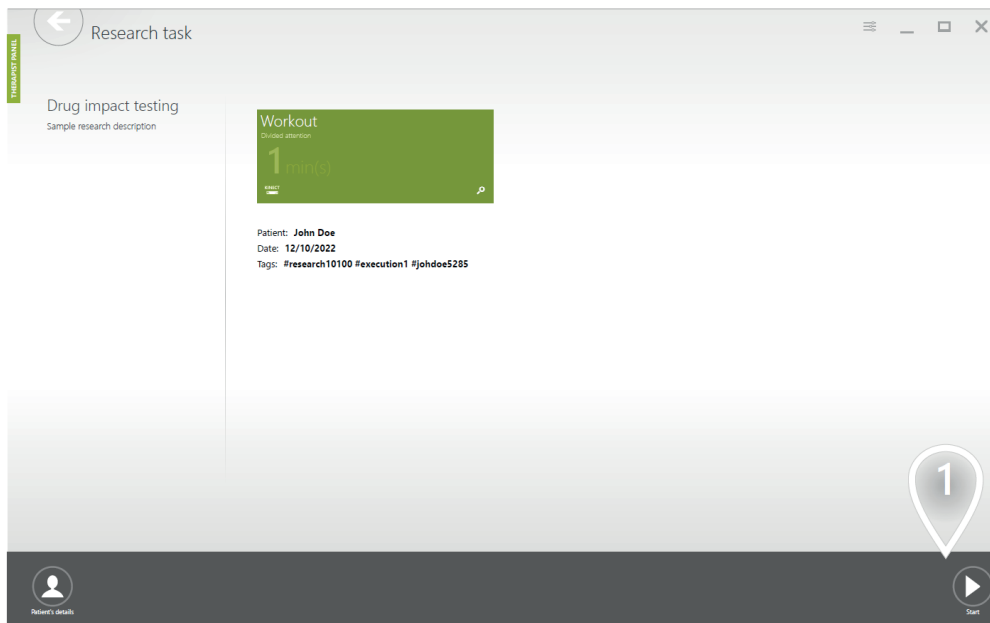


Figure 93. Selected research task in detail

1 Click to proceed

If you have only one patient station this view will not appear

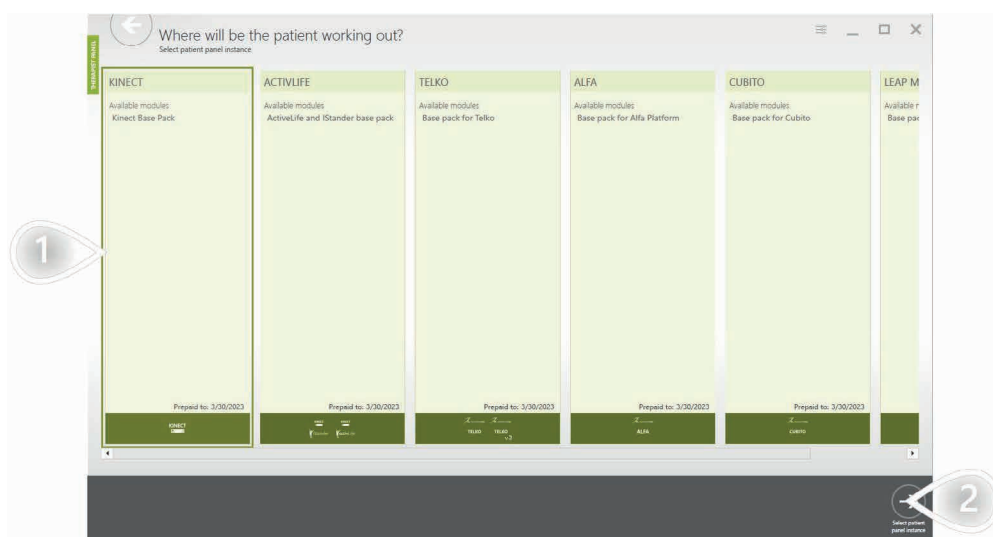


Figure 94. Overview of all available patient stations

- 1 Select a patient station
- 2 Click and do the workout session with your patient as you normally do

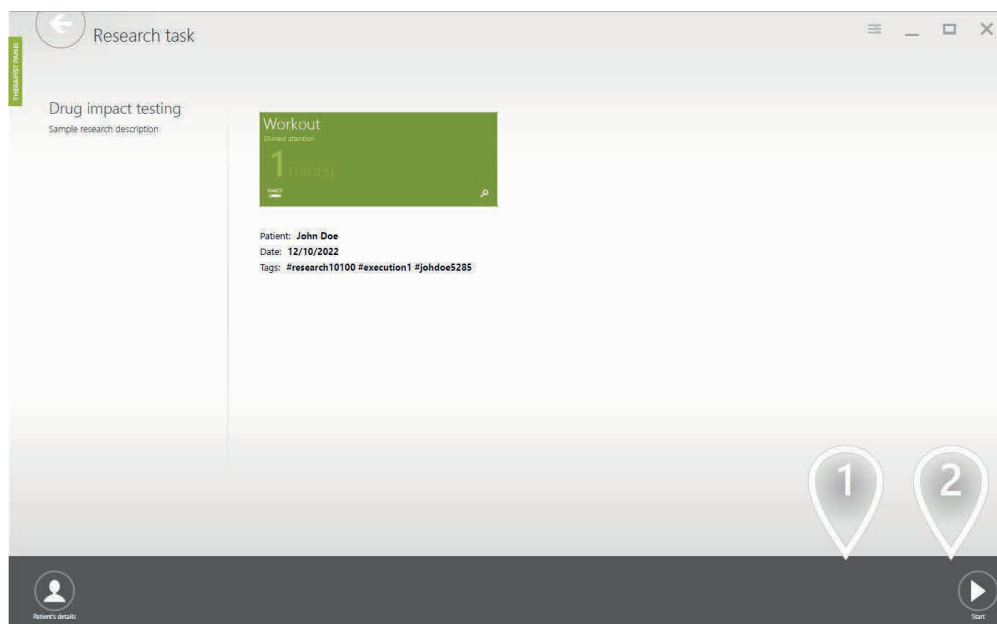


Figure 95. Repeat execution of this workout or mark the task as completed

- 1 If you need you can repeat execution of this workout with your patient
- 2 Mark the task as completed when the workout is finished successfully

Generate research reports

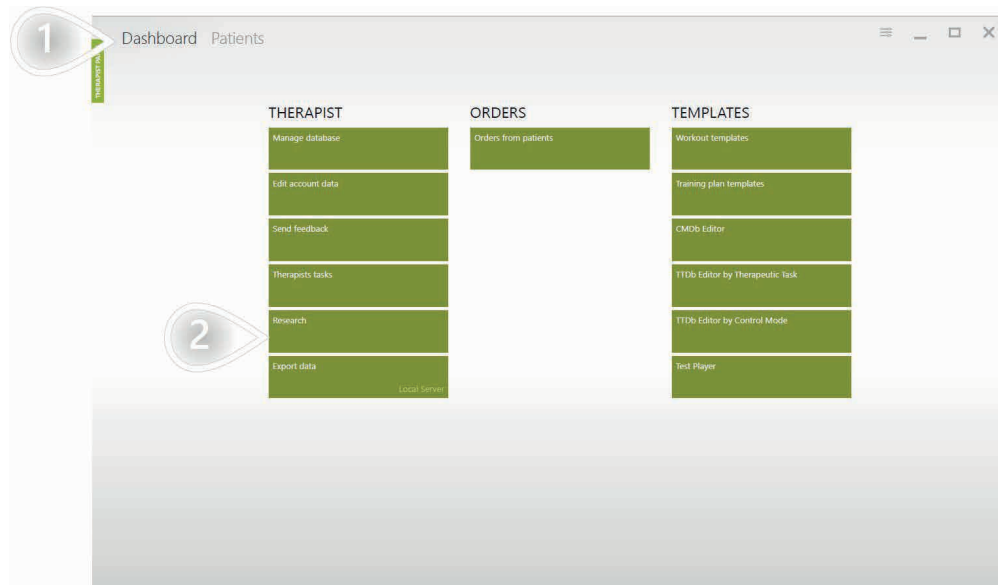


Figure 96. Dashboard overview

- 1 Make sure appropriate tab is selected
- 2 Click to proceed

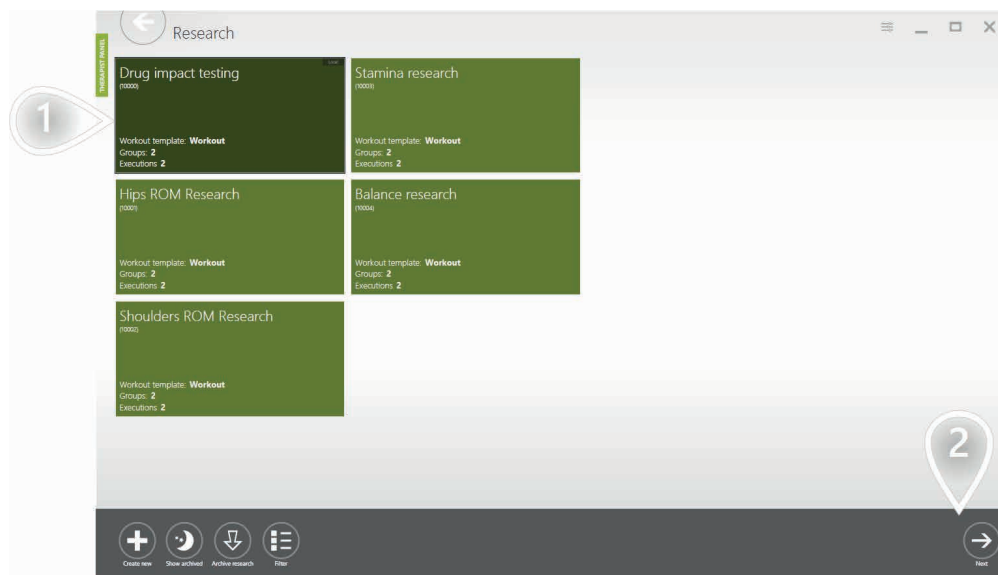


Figure 97. Researches overview

- 1 Select an element
- 2 Click to proceed

The data provided below will help you decide which patients shall be taken under consideration while generating the report. This sample research is designed to have 2 executions. The second execution shall be performed 10 days after the first. The first execution is marked as OK for all patients because it can be performed at any time, so it can't be performed too early nor too late. When it comes to the column describing the second execution you can see the number of days passed between those executions.

	Execution 1	Execution 2
✓ ann (A)	OK	12 (2)
✓ john (A)	OK	7 (-3)
✓ elena (A)	OK	12 (2)
✓ danny (A)	OK	8 (-2)
✓ mark (A)	OK	12 (2)
✓ bilbo (A)	OK	11 (1)
✓ frodo (A)	OK	7 (-3)
✓ sam (B)	OK	10 (0)
✓ boba (B)	OK	12 (2)
✓ anna (B)	OK	10 (0)
✓ bill (B)	OK	10 (0)
✓ stu (B)	OK	11 (1)
✓ poly (B)	OK	10 (0)
✓ olivia (B)	OK	7 (-3)

Figure 98. Research report categories listed per patient

1 Click to proceed

Select a category of data.



Figure 99. Several research report categories

1 Click to proceed

The progress achieved by group "B" (taking the new drug) is much higher than progress achieved by group "A" (taking a placebo).

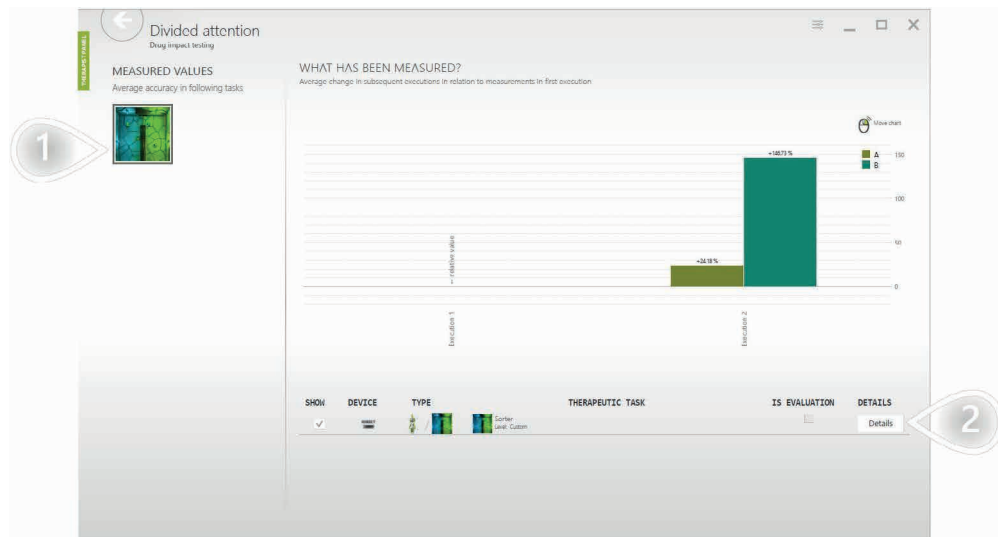


Figure 100. Detailed research report for example for category 'divided attention'

- 1 Therapeutic task used to collect the data.
- 2 Click to go deeper into details

Use the 'relative mode' to see the percentage of improvement in the subsequent executions relatively to the first execution.
It's the average value achieved by patients in the given research group.

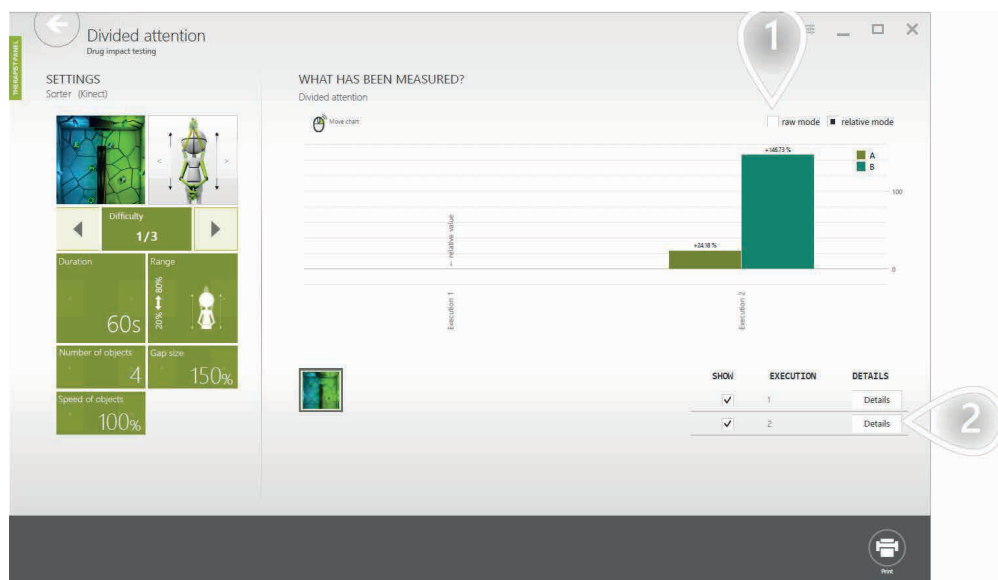


Figure 101. Detailed research report for example for category 'divided attention'

- 1 Click to switch to 'raw mode'
- 2 Click to go deeper into details

Use the 'raw mode' to display real values (with units) achieved in the given research groups in the selected executions.



Figure 102. Detailed research report for example for category 'divided attention'

- 1 Click to switch to 'relative mode'
- 2 Click to go deeper into details

The screen below presents the results achieved by each patient in the second execution of the research workout template relatively to the first execution.

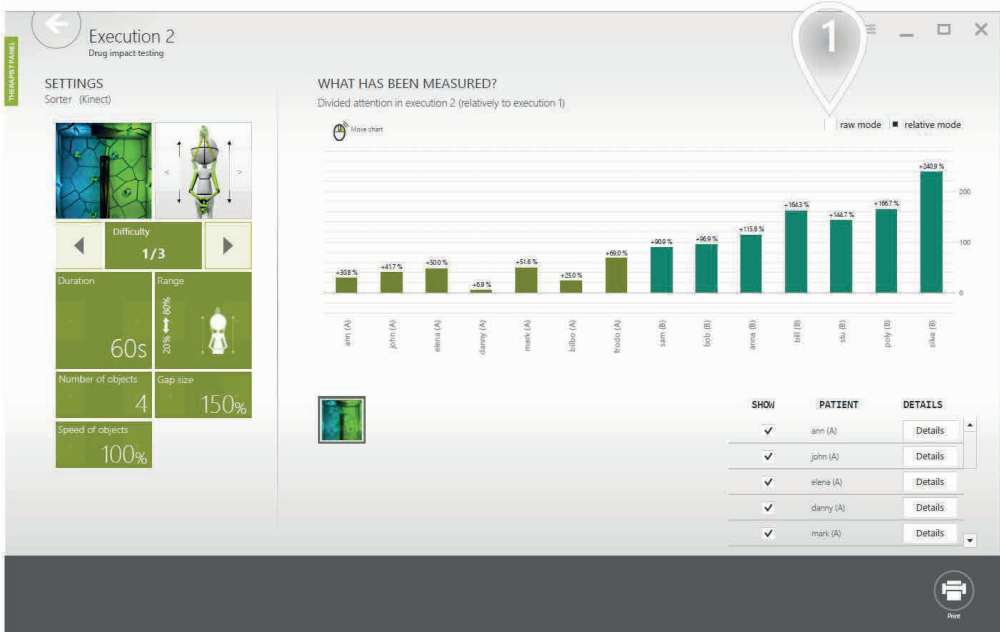


Figure 103. Detailed research report for each patient (comparing first and second execution) 'relative mode'

- 1 Click to switch to 'raw mode'

The screen below presents the results achieved by each patient in the second execution of the research workout template.
It is raw data with the given unit.



Figure 104. Detailed research report for each patient (comparing first and second execution) 'raw mode'

1 Click to switch to 'relative mode'

Adapt user Interface

You can scale UI items to match your personal needs and to take advantage of your screen size.

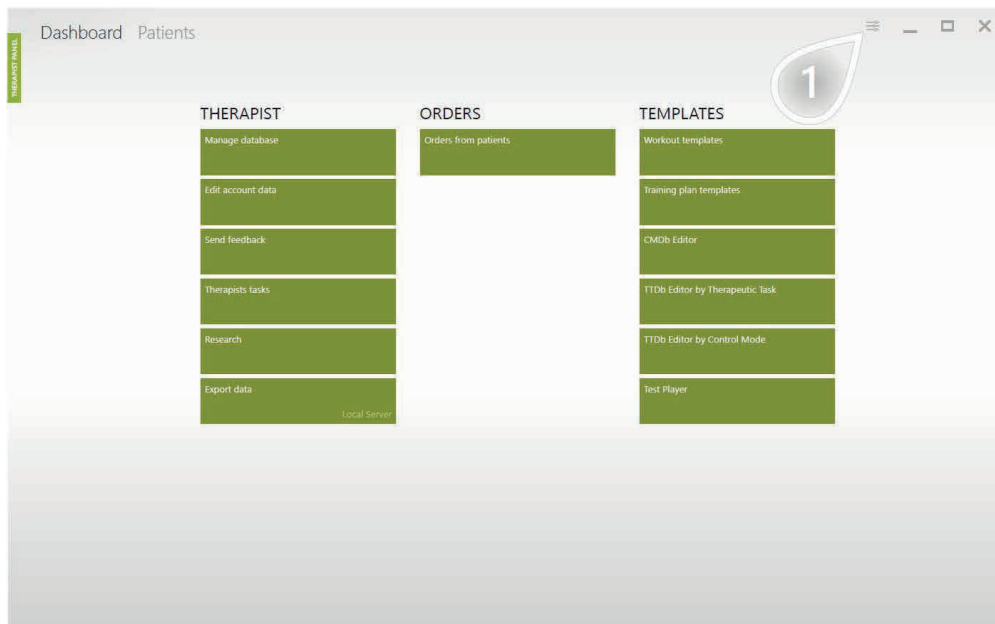


Figure 105. Dashboard overview

1 Click to open settings

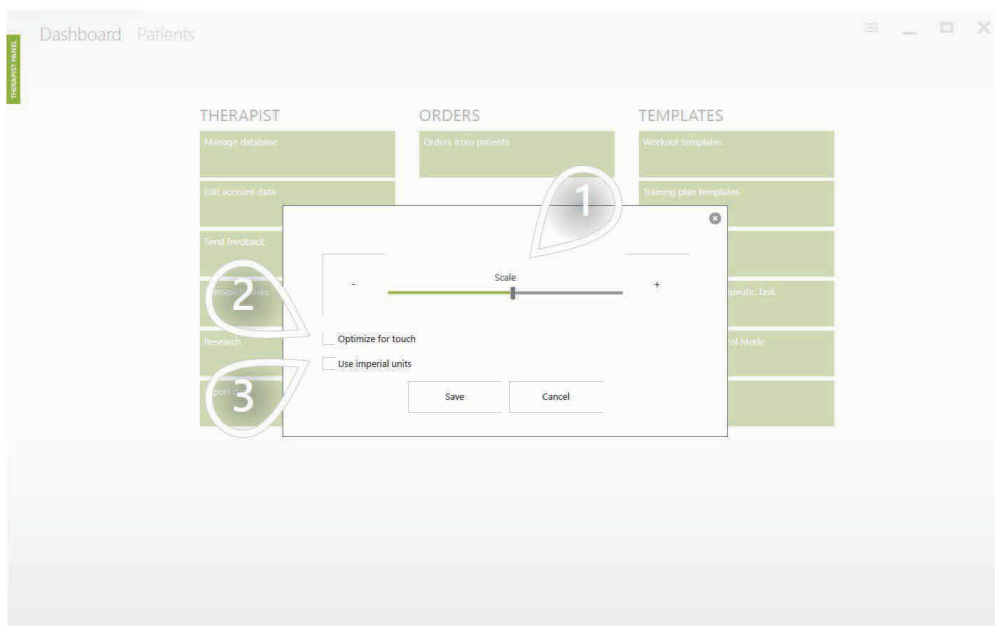


Figure 106. Settings screen

- 1 Adjust UI scale
- 2 If you're using a touch screen, checking this box makes using Therapist Panel more comfortable
- 3 If you want to use imperial units, check this box. If you want to use the metric system, leave it unchecked.

Turn off all available devices

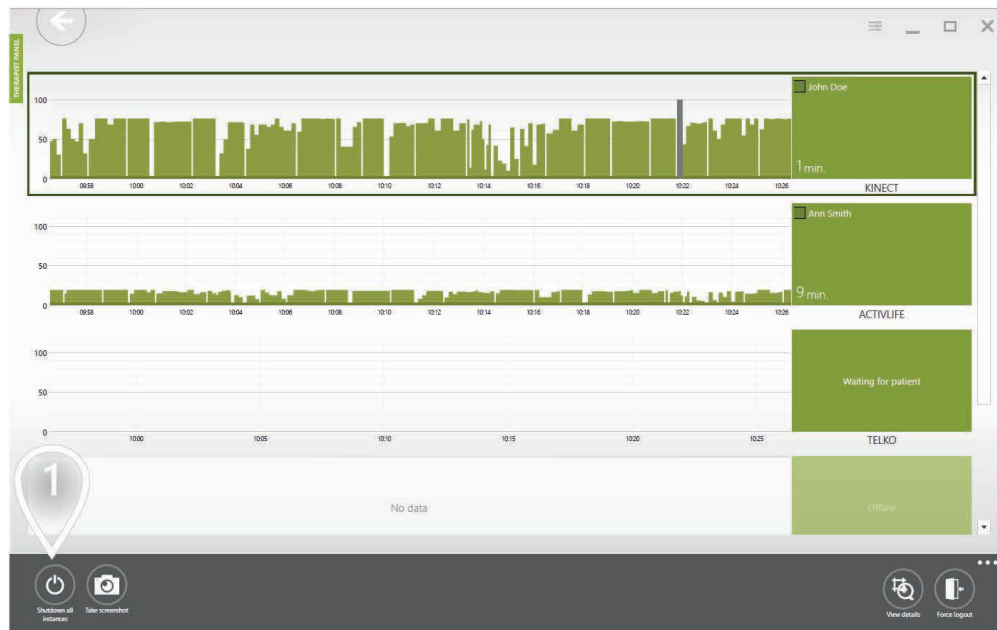


Figure 107. Training room overview

- 1 Click to turn off all computers running VAST.Rehab Patient Panel in your network

Data export

Data export described below is useful when you need to process the VAST.Rehab data in external software. You'll receive an XML file with the results from all the Workout sessions performed within the chosen time frame.

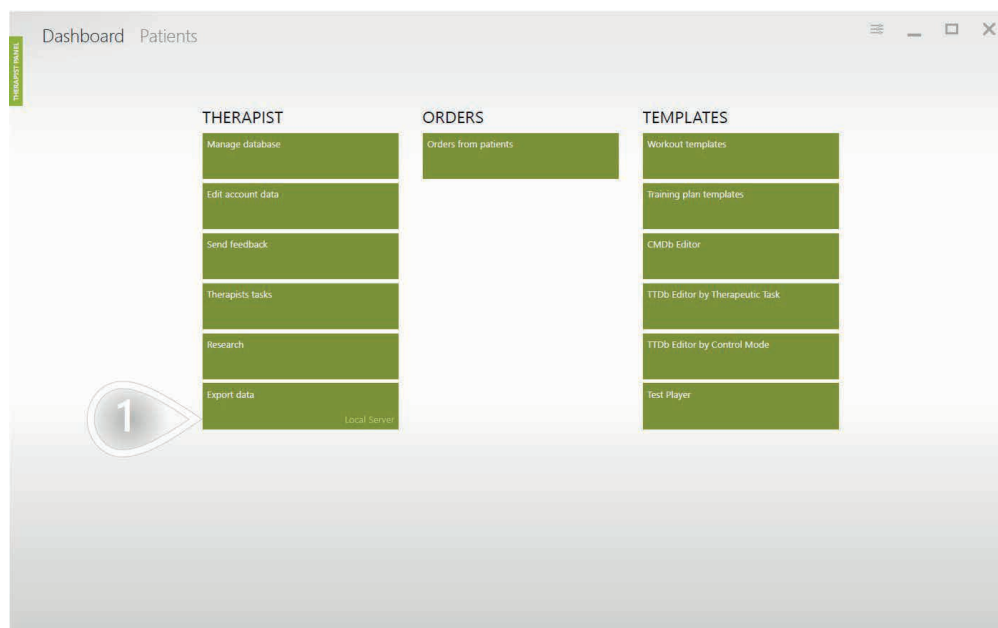


Figure 108. Dashboard overview

1 Click to proceed

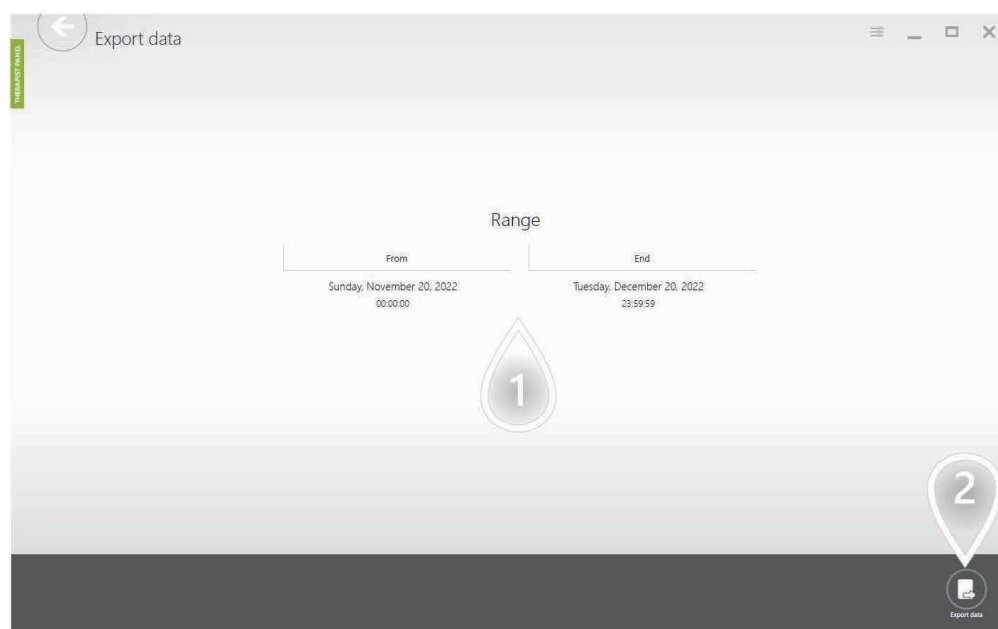


Figure 109. Export data settings

- 1 Select the timeframe
- 2 Click to proceed

Display fullscreen instructions for your patient

The fullscreen instructions are useful when you start working with a new patient. It gives the patient a while to get familiarized with the prescribed movement pattern and to read the instruction carefully.

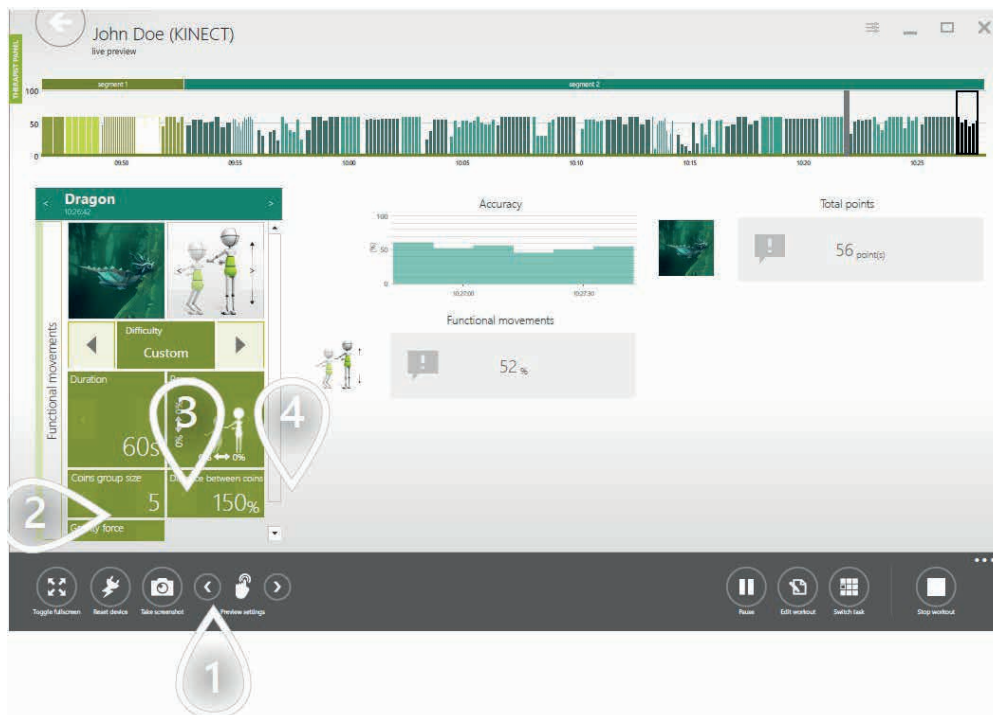


Figure 110. Live preview workout for selected patient

- 1 Open available options
- 2 Choose to have the fullscreen instructions turned off
- 3 Choose to have each Therapeutic Task preceded by 20 seconds of fullscreen instruction
- 4 Choose to have each Therapeutic Task preceded by fullscreen instruction that lasts till it is manually dismissed from Therapist Panel

When fullscreen instruction is turned on - patients will see the following screen.

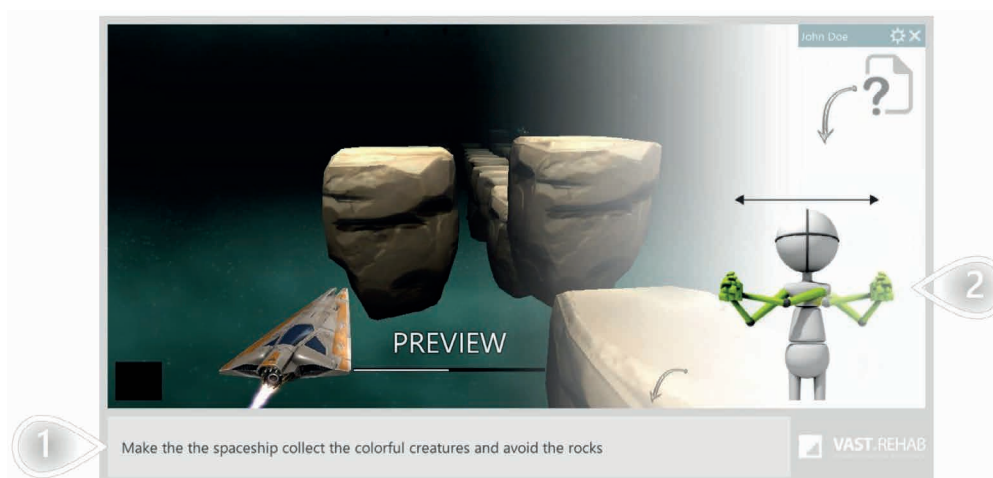


Figure 111. Preview fullscreen instruction for patients

- 1 Text instruction
- 2 Required movement pattern

The patient panel is the gamified part of the system right in front of the treadmill on a big TV screen, displaying the patient's games and results.



Figure 112. Logo icon software patient panel

[7C1] **Introduction**

What is the patient panel used for?

VAST.Rehab Patient Panel is the gamified part of the system. It is designed to keep the patient engaged while performing the exercises. Usually, the patient learns to use VAST.Rehab while working one to one with the therapist, and at the later stage, he will be able to perform preplanned sessions by himself without his therapist's supervision (e.g. at home). Each of the therapeutic tasks offers lots of configuration options. That's why - while exercising - the patient always has a small picture presenting the movement pattern that he is expected to perform in the currently running task.

How do I install the patient panel?

All applications of VAST.Rehab are available in Microsoft Store. You can simply search for "VAST.Rehab" and the list of available apps will be displayed. You can also paste the following URL to your web browser:

- <https://www.microsoft.com/store/apps/9N9MV3R0RMFF>

How to exercise?

Therapy with VAST.Rehab requires physical activity to interact with elements in virtual world presented on your screen.

When Workout is started you will see elements presented below

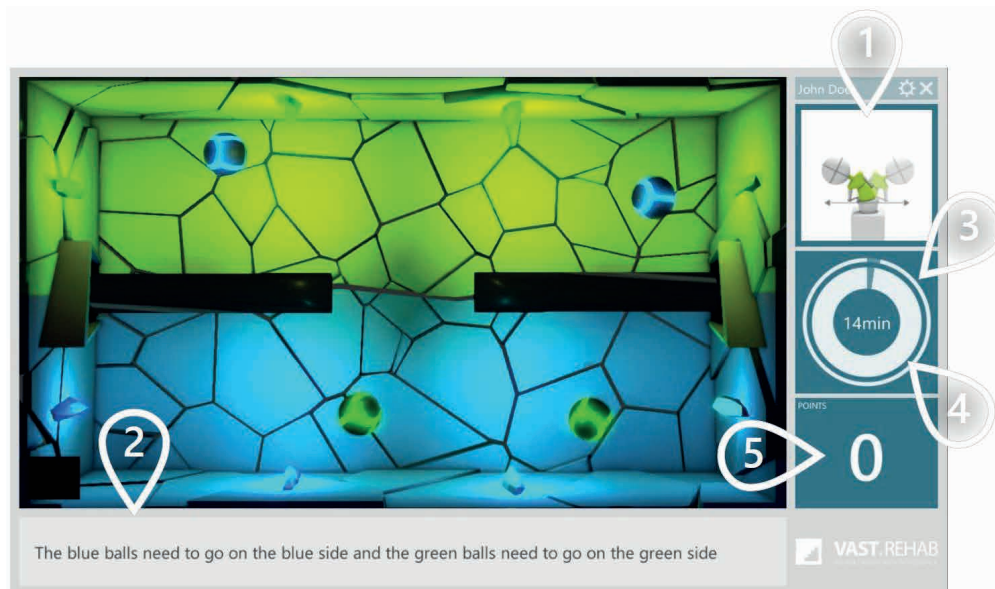


Figure 113. Virtual world presented on screen when workout is started

- 1 Movement pattern you are expected to perform
- 2 Instruction for currently running Therapeutic Task
- 3 Outer circle presents time left in the Workout
- 4 Inner circle presents time left in the current Therapeutic Task
- 5 Number of points collected

Sign in manually

You need to have your login and password in order to use Patient Panel. You shall receive them from your therapist.

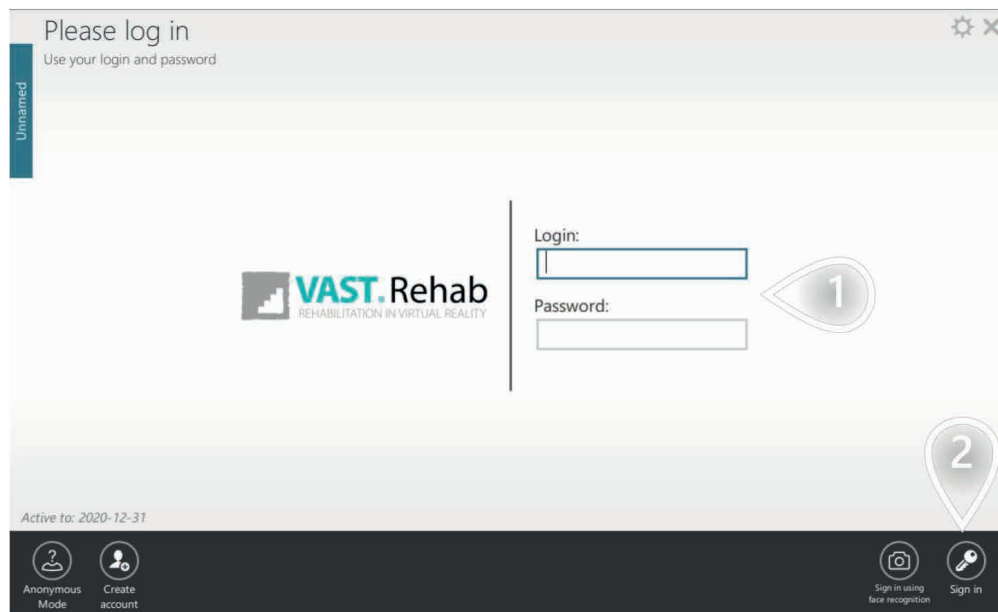


Figure 114. Login screen Patient Panel

- 1 Provide your login and password
- 2 Click to proceed

When authorized you'll see Patient Panel's main menu screen. It is described below.

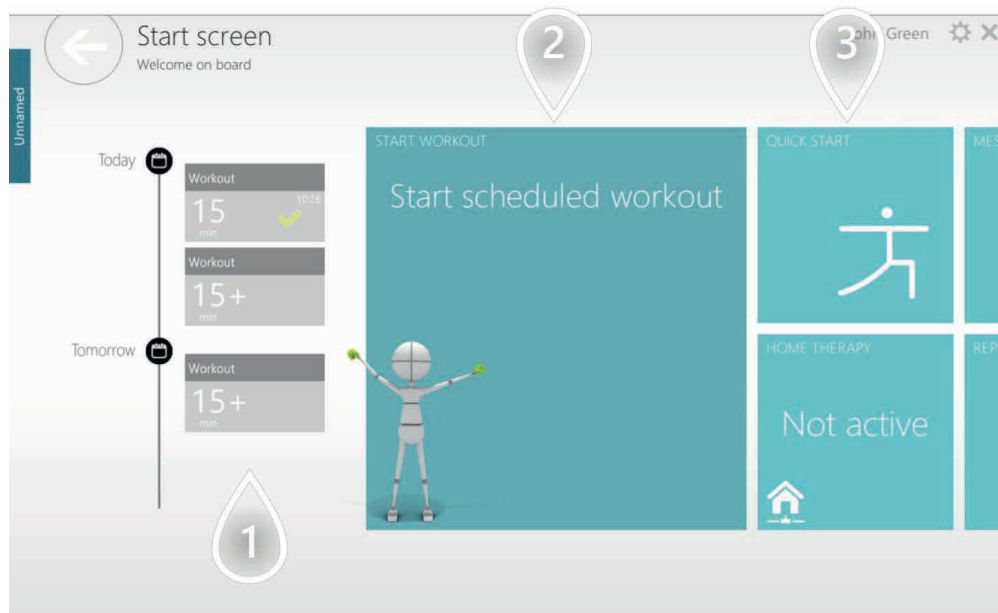


Figure 115. Start screen Patient Panel

- 1 Timeline of Workouts scheduled in your calendar
- 2 Click to start Workout scheduled for today
- 3 Click to generate a Workout without Therapist Panel

Manually start workout prepared by your therapist

When your therapist assigns you a Workout that can be started today – you can start it manually as described below.

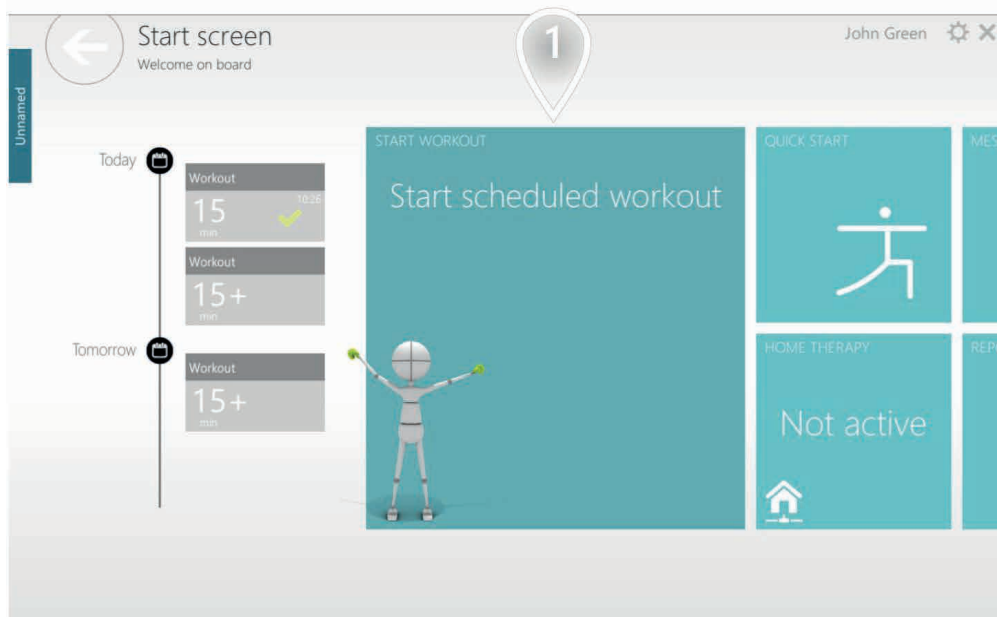


Figure 116. Start screen Patient Panel

1 Click to start Workout scheduled for today

Here you can see a list of Therapeutic Task your Workout contains

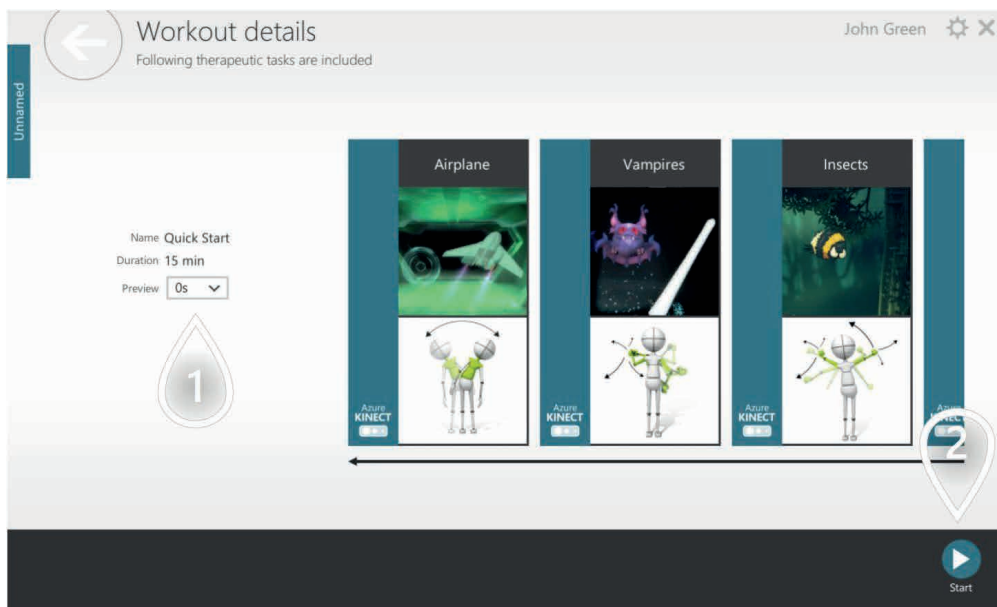


Figure 117. Workout details – list of therapeutic tasks

- 1 Duration of fullscreen instructions before each Therapeutic Task
- 2 Click to proceed

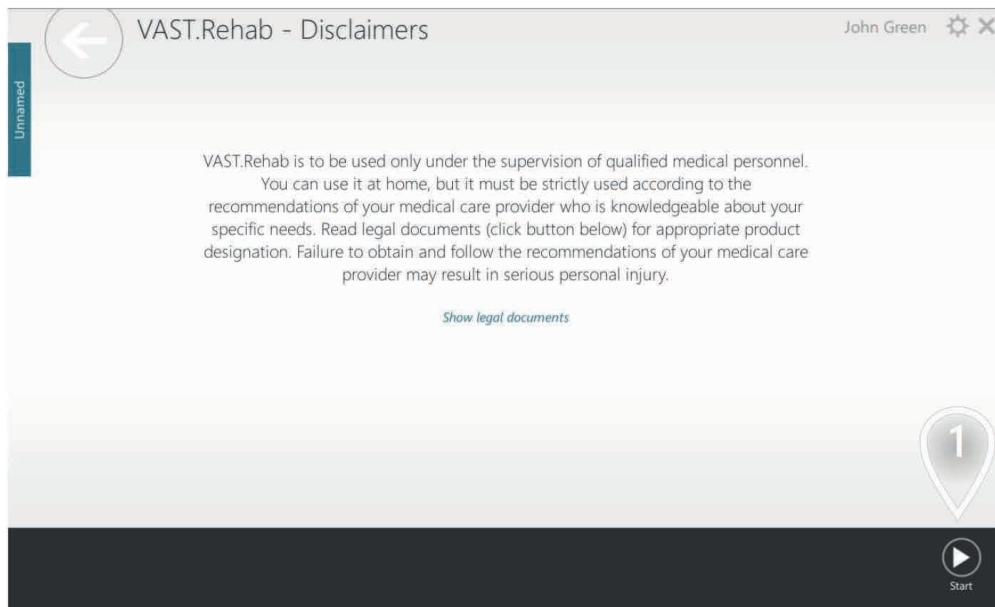


Figure 118. VAST.Rehab disclaimer before starting workout

1 Click to proceed

Edit your personal data

If you need to update your personal data (e.g. your name) you can do it manually as described below.

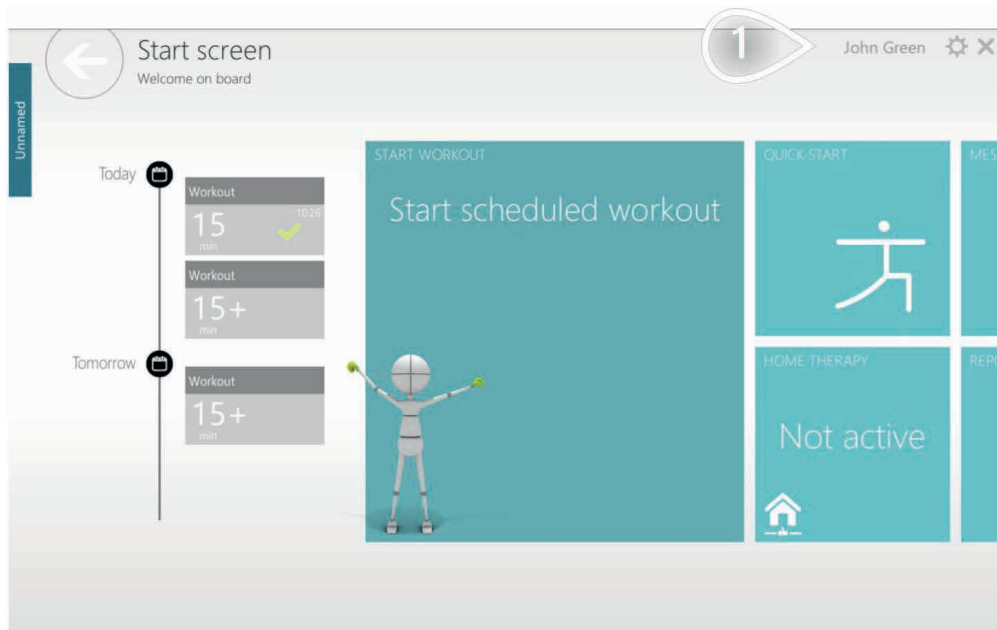


Figure 119. Start screen Patient Panel

1 Click to navigate

Modify data in the form below.

Figure 120. Edit account data

1 Click to proceed

Write message to your therapist

If you need to contact your therapist (e.g. to ask some questions) you can do it as described below.

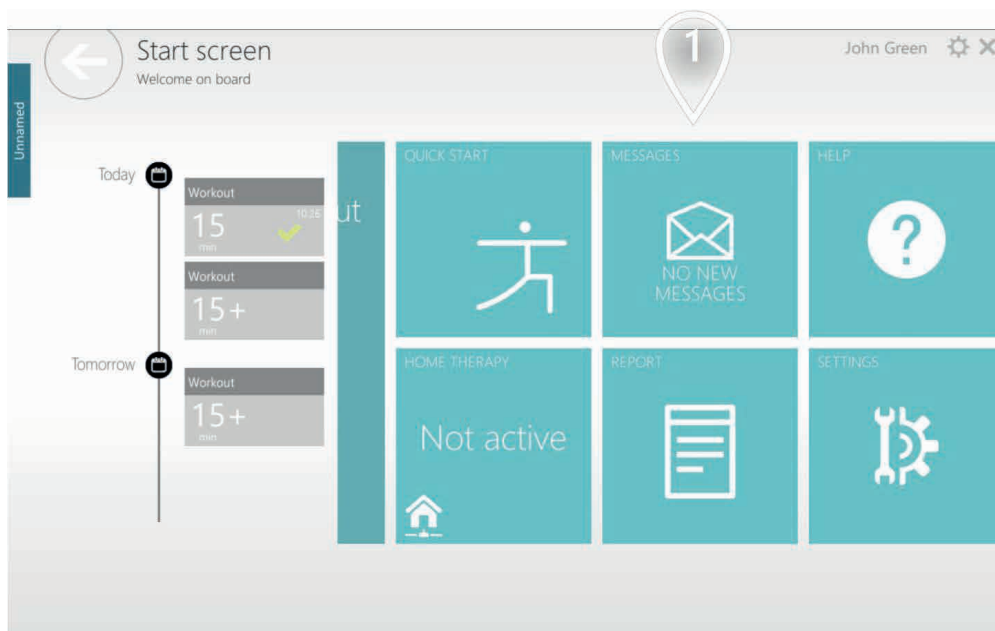


Figure 121. Start screen Patient Panel

1 Click to navigate

Type your message in the form below.

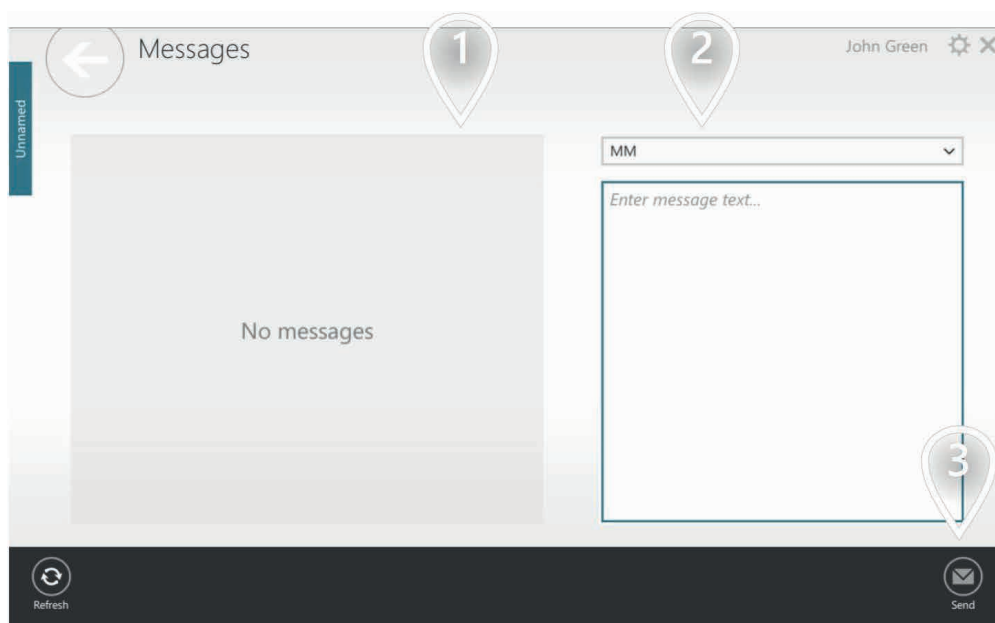


Figure 122. Messages form

- 1 History of your communication
- 2 Select institution you want send the message to
- 3 Click to proceed

Convert your license from home to institutional

When an institution (e.g. hospital) decides to use VAST.Rehab it must decide how many Patient Stations (computers running Patient Panel) they need. Each Patient Station has then unique identifier and can have different modules assigned to it. Activation means assigning a specific Patient Station identifier to the computer.

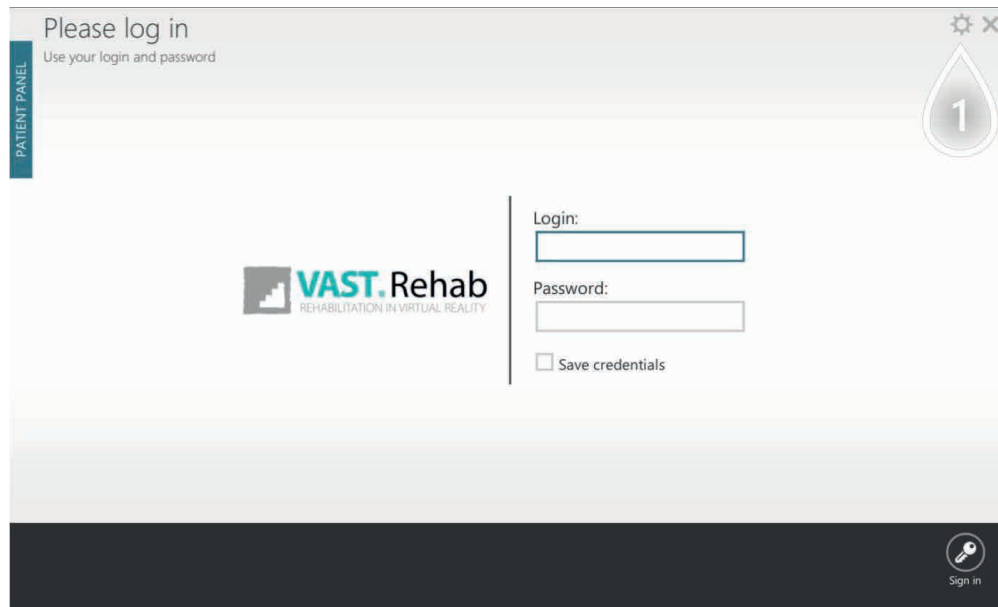


Figure 123. Login screen Patient Panel

1 Click to proceed

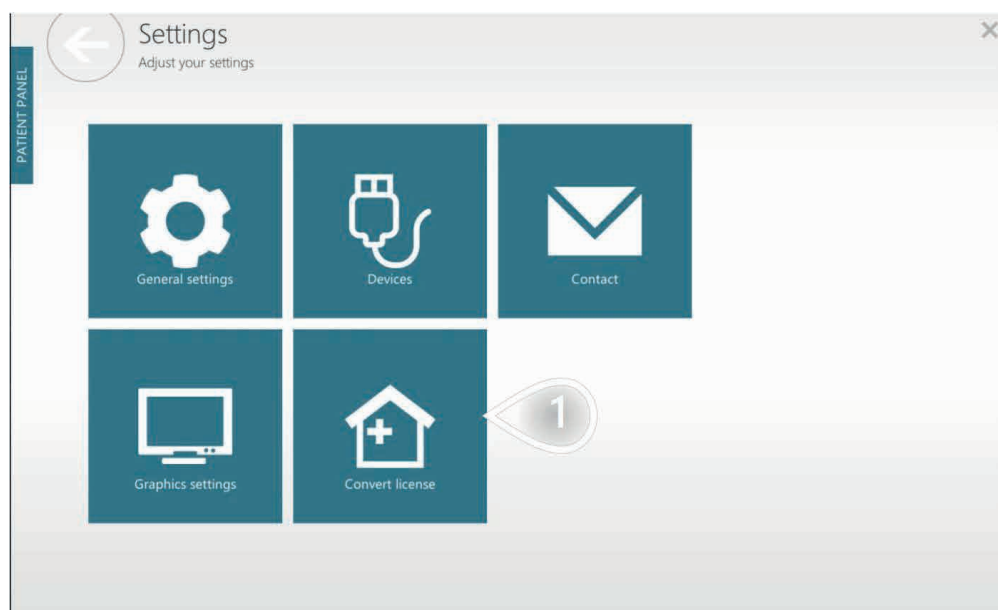


Figure 124. Settings screen

1 Click to proceed

Provide your VAST.Rehab Administrator account credentials to initialize activation.

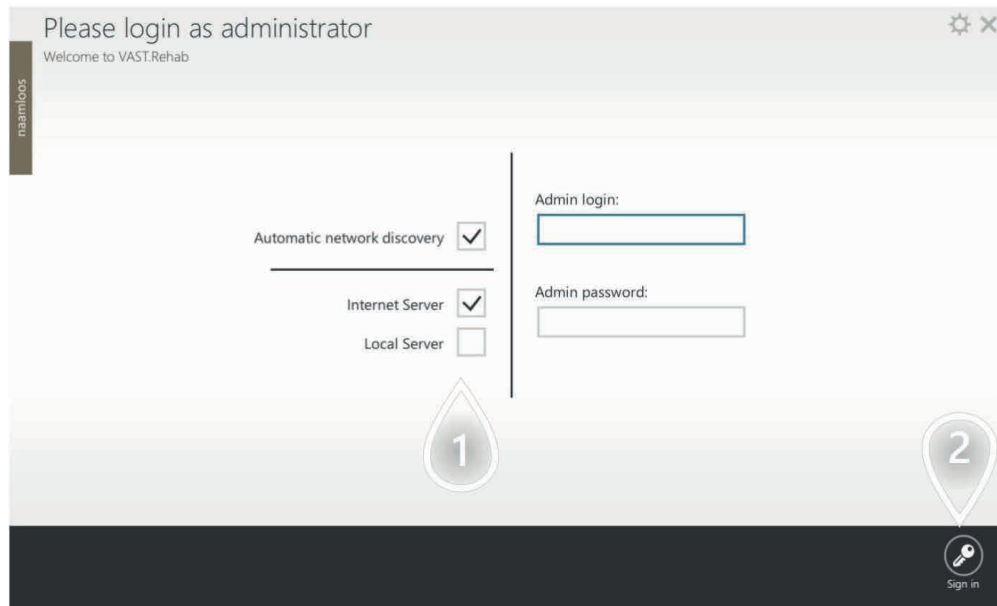


Figure 125. Login screen administrator

- 1 The default option is 'Internet Server'. In case your computers can't be connected to the Internet you will need to choose 'Local Server'.
When 'Local Server' is used you'll need to install additional software called 'VAST.Rehab Local Server' which needs a special USB dongle to work.
- 2 Click to proceed

Below you can see all the Patient Stations that are available on your VAST.Rehab Administrator account.
Each Patient Station displays list of modules that are assigned to it.

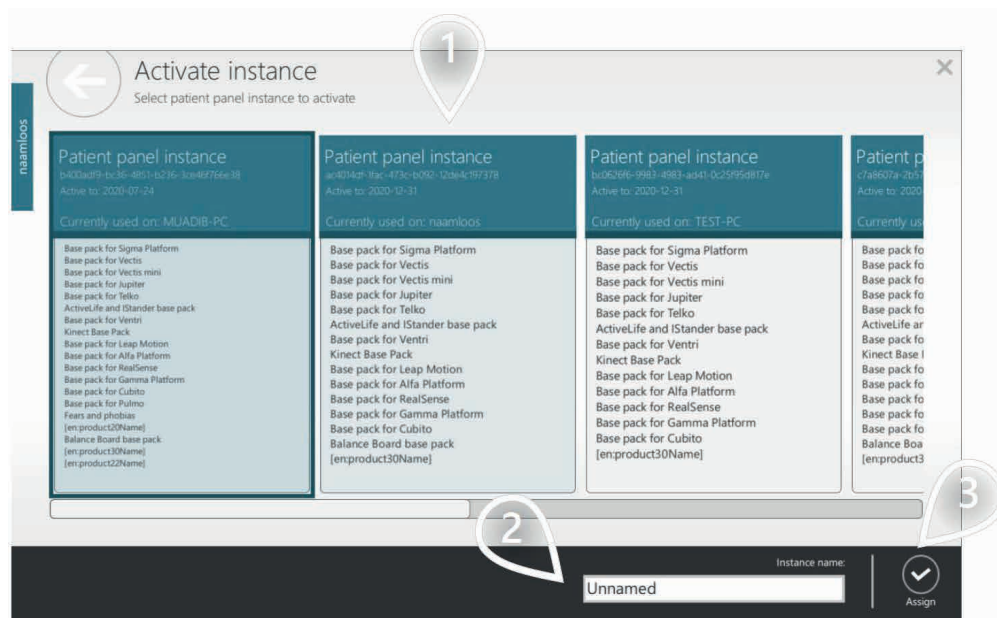


Figure 126. Select available Patient Panel instance to activate

- 1 Select Patient Station you want to activate
- 2 Choose name for this Patient Stations when listed in your Therapist Panel
- 3 Click to proceed

Create new patient

Although you are normally expected to use Therapist Panel for managing patients database – you can create patient's account directly in Patient Panel.

Please log in
Use your login and password

Unnamed

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

Login:
Password:

Active to: 2020-12-31

Anonymous Mode Create account Sign in using face recognition Sign in

1

Figure 127. Login screen Patient Panel

1 Click to navigate

Fill the form

Create account

Unnamed

First name *
Last name *
Login *
Password *
Password confirmation *
Password change reminder
Language * English
Gender * Male
Birth date * 1950-01-01
Height * 170 cm
Weight * 70 kg
Phone
E-mail

External Id
External Id 2
Country Poland
Legal information
User has been familiarized with legal information
Show legal documents
Send in an e-mail

1

Create

Figure 128. Create account form

1 Click to proceed

Generate a quick workout for patient

Although you are normally expected to use Therapist Panel to build Workouts for your patients – you can generate a Workout directly in Patient Panel as described below.

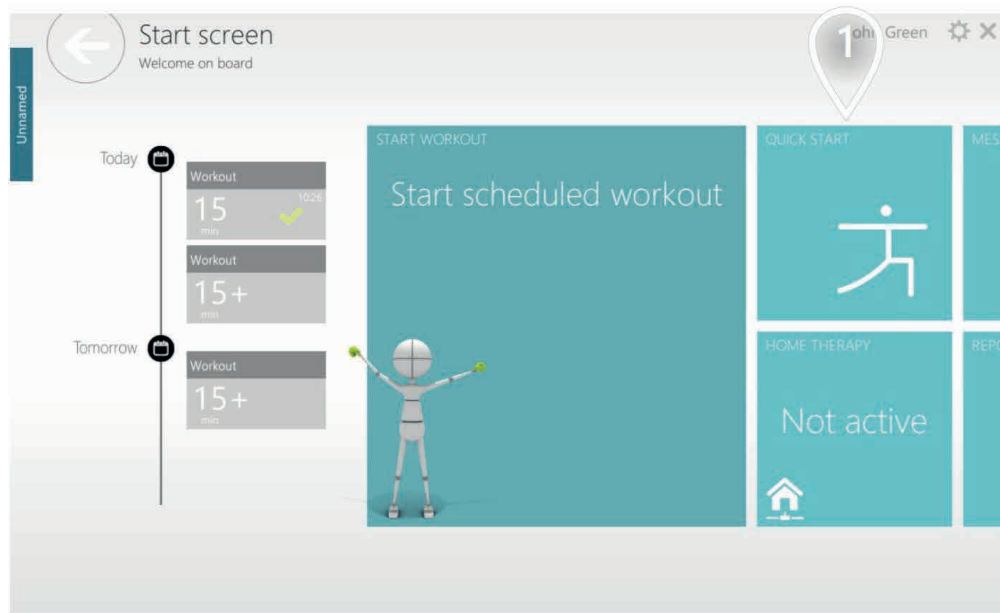


Figure 129. Start screen Patient Panel

1 Click to generate a Workout without Therapist Panel

Adjust settings according to your needs.

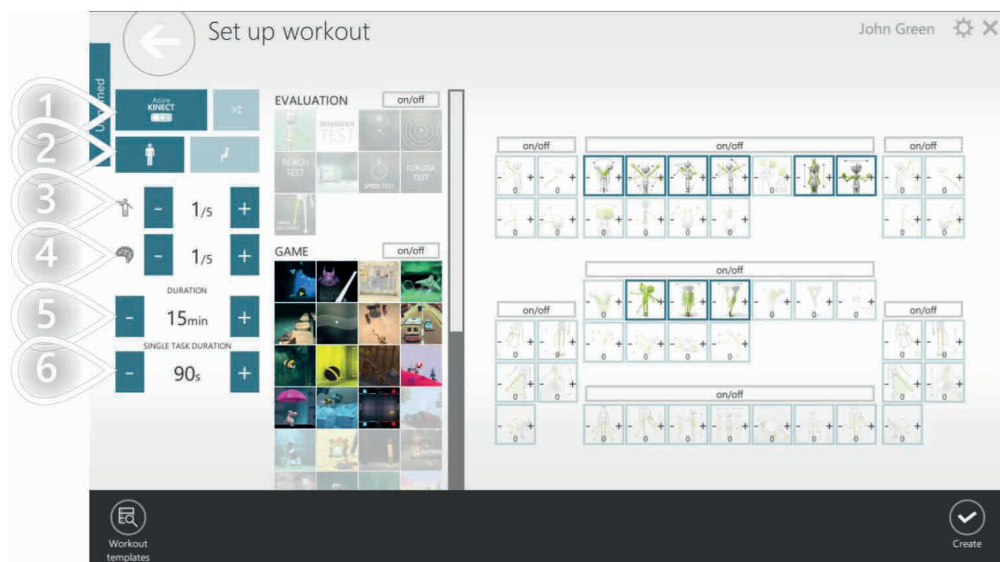


Figure 130. Set up workout

- 1 Select device
- 2 Filter control modes (standing and/or sitting)
- 3 Select physical difficulty
- 4 Select cognitive difficulty
- 5 Set workout's duration
- 6 Set duration for each therapeutic task

Based on your decisions in previous step system suggested some Therapeutic Tasks and Control Modes to be used.
The disabled elements will not be used in the Workout by default, but you can activate them manually.

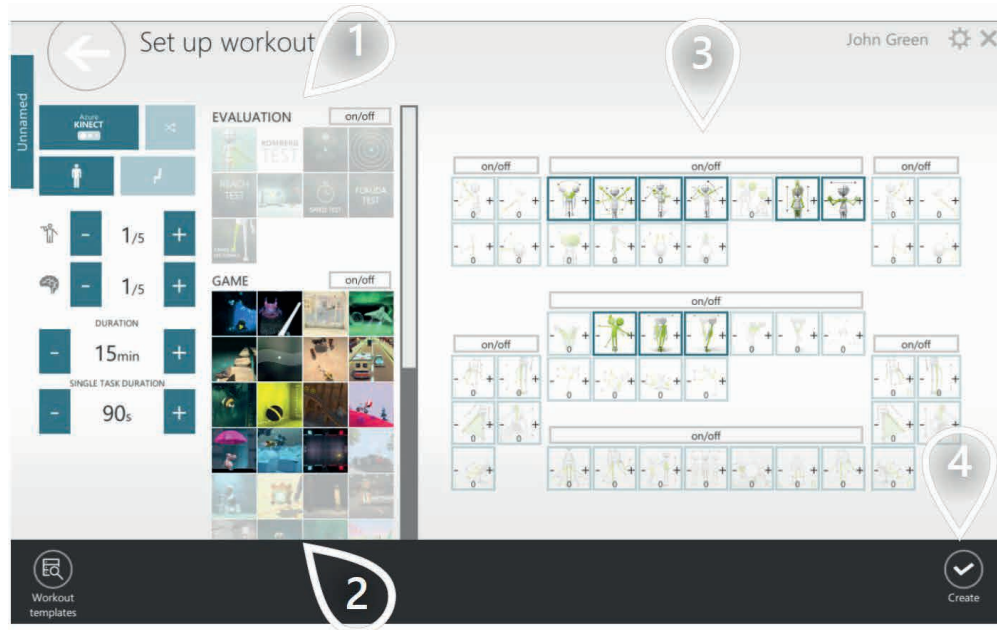


Figure 131. Set up workout

- 1 Select evaluations you want to be performed
- 2 Select gamified Therapeutic Tasks you want to be performed
- 3 Select Control Modes (movement patterns) you want to be performed.
The larger the number you choose, the larger the share of the given Control Mode will be.
- 4 Click when you are happy with your settings

Here you can see list of Therapeutic Task your Workout contains

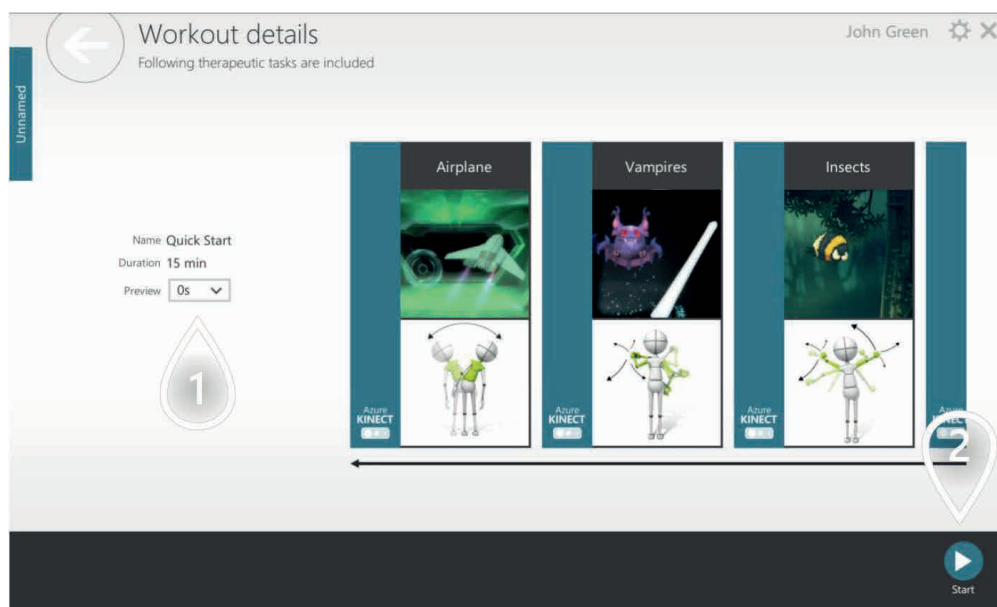


Figure 132. Workout details – list of therapeutic tasks

- 1 Duration of fullscreen instructions before each Therapeutic Task
- 2 Click to proceed

Start multiplayer workout

You can use VAST.Rehab to start Workout for 2 patients on the same Patient Station. Depending on the Therapeutic Task they will then play against each other or in cooperation. Please note that when multiplayer is used no statistics are collected. In order to start it - please follow the process described below.

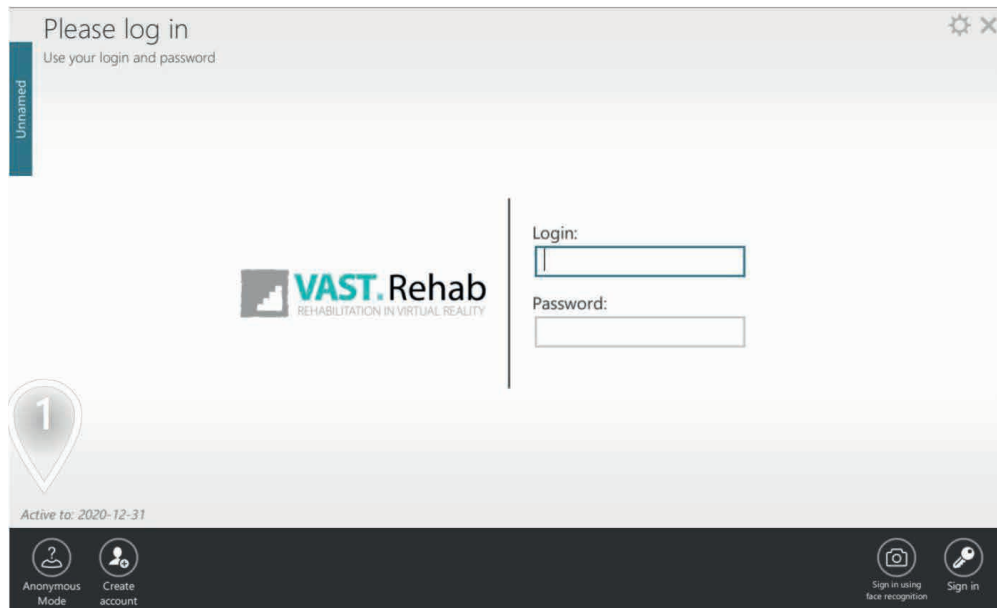


Figure 133. Login screen Patient Panel

- 1 Click to start anonymous Workout (single or multiplayer)

Adjust settings according to your needs.

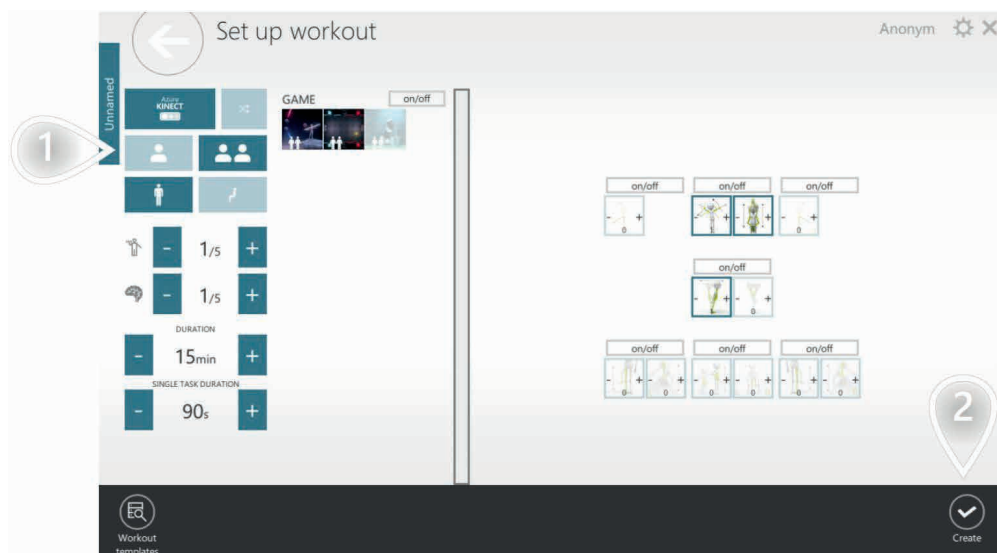


Figure 134. Set up workout

- 1 Select single or multiplayer mode
- 2 Click to proceed

Generate report for patient

Objective data is an important element that helps keep patient motivated. You can generate a simply report to discuss with your patient directly in Patient Panel. You can observe in which categories patient is getting better and in which is getting worse. In order to do it please follow the process described below.

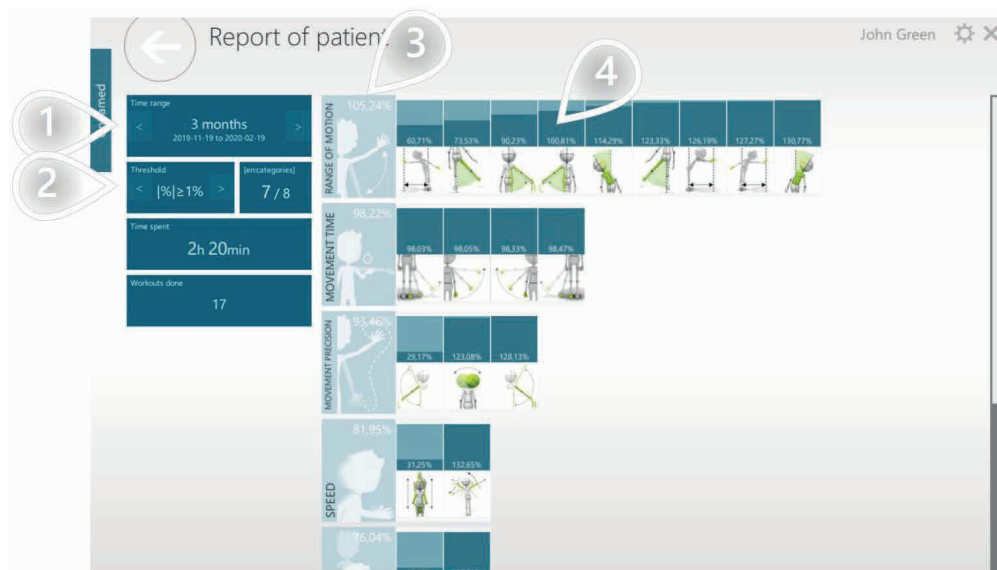


Figure 135. Generate simple report of patient

- 1 Select time frame
- 2 Select progress threshold. Result will be displayed only if it is far enough from 0 (when progress is very small result will be hidden).
- 3 Average progress achieved in all Control Modes in the category
- 4 Progress achieved in the given Control Mode

How to adjust settings?

Patient Panel has a dedicated settings view that lets you tailor the application according to your needs.
In order to change some settings please follow the process described below.

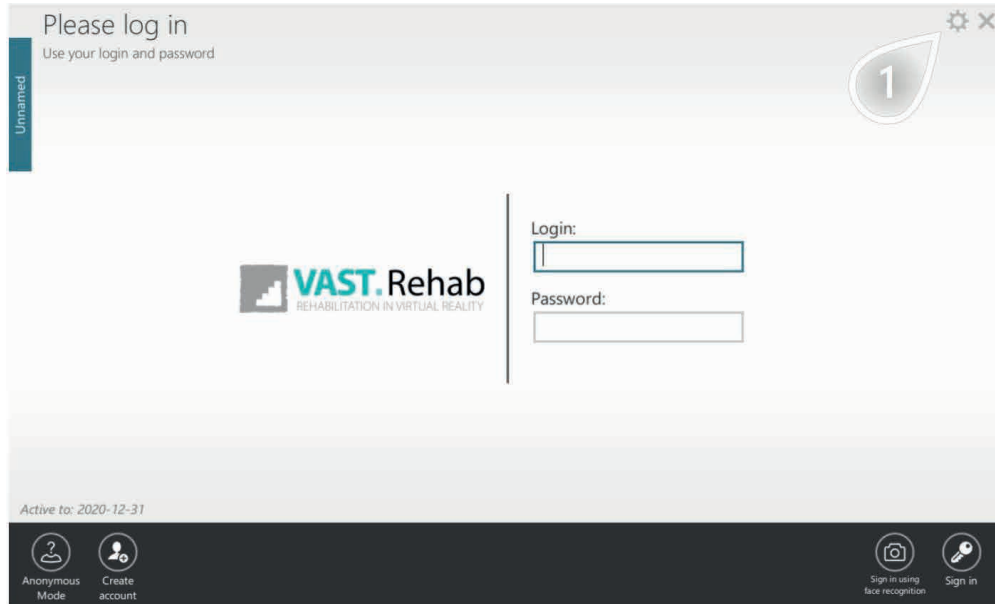


Figure 136. Login screen Patient Panel

1 Click to navigate

Settings are divided into several groups.



Figure 137. Settings screen

- 1 Set language, unit system, active monitor devices, ect.
- 2 Manage devices connected to this Patient Station
- 3 Password protected options available for VAST.Rehab technicians only
- 4 Contact with VAST.Rehab producer
- 5 Set screen where application shall start and screen resolution
- 6 Change license activated on this Patient Station
- 7 Choose which camera shall be used to look for special code that can be used to perform basic actions during Workout

[8A1] **Via Therapist Panel**

Error logs

Sometimes software may encounter a situation in which it can't proceed with its regular flow. Such a situation might happen when there is a problem with WI-FI or internet connection, a connection between devices or some other unexpected conditions occurred.

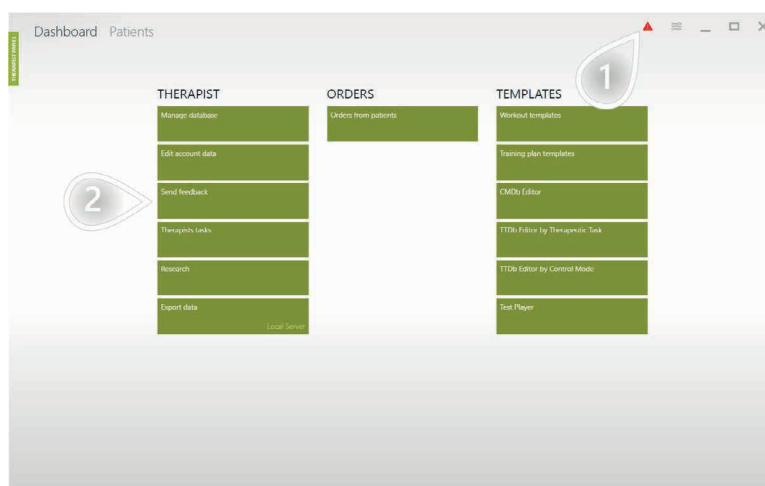


Figure 138. Dashboard overview with error symbol

- 1 If the system encounters an error this red triangle appears. By clicking it you can obtain more information.
- 2 You can also use the 'Send feedback' button to navigate to the page that allows you to send a log file to the technical support.

Here is detailed information about errors that have occurred since the application was launched.

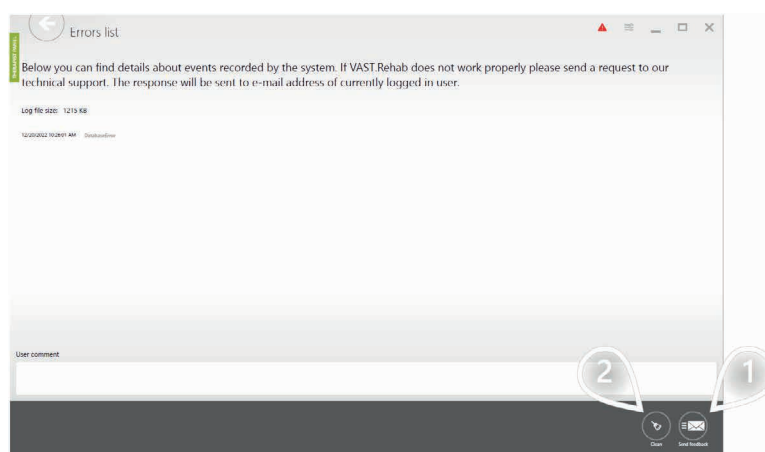


Figure 139. Errors list

- 1 With the 'Send feedback' button you can send a log file to the technical support.
- 2 After you send logs you can remove the red triangle from above using the 'Clean' button.

What to do when a problem occurs?

If for any reason Patient Panel is crashing please follow the process described below to send a description of the problem to us. The system will automatically add to your message additional information collected when application crashed - they will help us solve the problem you are encountering.

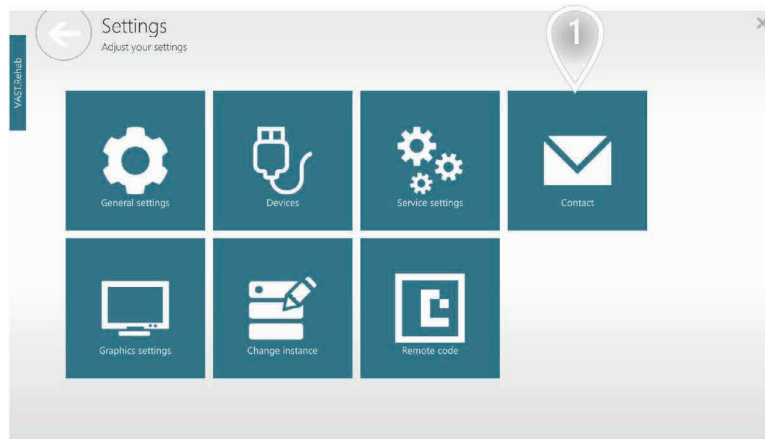


Figure 140. Settings screen

1 Contact with VAST.Rehab producer

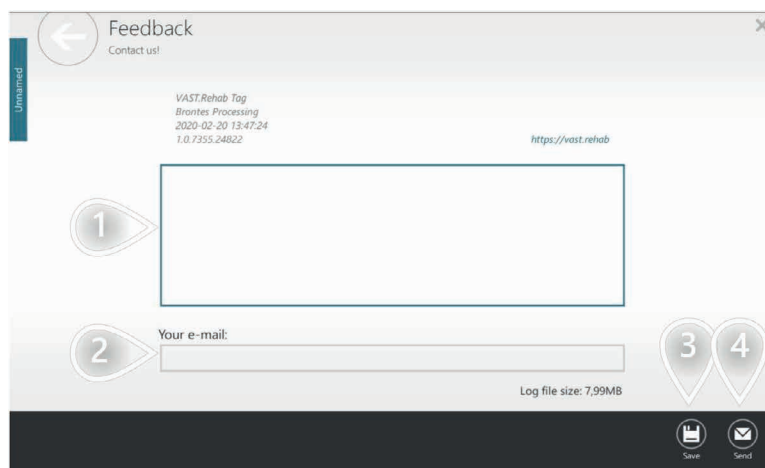


Figure 141. Feedback form

- 1 Describe your problem here
- 2 Type your contact details here
- 3 Click to save the log file on your desktop.
You can send it manually to the producer.
- 4 Click to proceed

Cho, C., Hwang, W., Hwang, S., & Chung, Y. (2016). Treadmill training with virtual reality improves gait, balance, and muscle strength in children with cerebral palsy. *The Tohoku journal of experimental medicine*, 238(3), 213-218. doi: 10.1620/tjem.238.213. [Link](#)

Jung, J., Yu, J., & Kang, H. (2012). Effects of virtual reality treadmill training on balance and balance self-efficacy in stroke patients with a history of falling. *Journal of physical therapy science*, 24(11), 1133-1136. [Link](#)

Mirelman, A., Rochester, L., Reelick, M., Nieuwhof, F., Pelosin, E., Abbruzzese, G., ... & Hausdorff, J. M. (2013). V-TIME: a treadmill training program augmented by virtual reality to decrease fall risk in older adults: study design of a randomized controlled trial. *BMC neurology*, 13, 1-12. doi:10.1186/1471-2377-13-15 [Link](#)

Peruzzi, A., Cereatti, A., Della Croce, U., & Mirelman, A. (2016). Effects of a virtual reality and treadmill training on gait of subjects with multiple sclerosis: a pilot study. *Multiple sclerosis and related disorders*, 5, 91-96. [Link](#)

Sloot, L. H., Van der Krogt, M. M., & Harlaar, J. (2014). Effects of adding a virtual reality environment to different modes of treadmill walking. *Gait & posture*, 39(3), 939-945. [Link](#)

Winter, C., Kern, F., Gall, D., Latoschik, M. E., Pauli, P., & Käthner, I. (2021). Immersive virtual reality during gait rehabilitation increases walking speed and motivation: a usability evaluation with healthy participants and patients with multiple sclerosis and stroke. *Journal of neuroengineering and rehabilitation*, 18(1), 68. [Link](#)

Yang, S., Hwang, W. H., Tsai, Y. C., Liu, F. K., Hsieh, L. F., & Chern, J. S. (2011). Improving balance skills in patients who had stroke through virtual reality treadmill training. *American journal of physical medicine & rehabilitation*, 90(12), 969-978. doi: 10.1097/PHM.0b013e3182389fae [Link](#)

List of Figures

Figure 1. Various interactive games by VAST.Rehab	6
Figure 2. An example of how to set up and connect everything	13
Figure 3. Complete hardware setup recommended by h/p/cosmos	14
Figure 4. Login via therapist panel.....	16
Figure 5. Logo icon software therapist panel.....	18
Figure 6. Login via therapist panel.....	19
Figure 7. Dashboard overview	20
Figure 8. Manage therapist form.....	20
Figure 9. Create patient's account – symbol 'add patient'	21
Figure 10. Create patient's account – add & save information	21
Figure 11. Creating notes about your patient	22
Figure 12. Creating notes – enter note	22
Figure 13. Patient on the list with exclamation mark	23
Figure 14. Patients overview	23
Figure 15. Patient's calendar	24
Figure 16. Suspend patient's account	25
Figure 17. Suspended account appears grayed out.....	25
Figure 18. Choose button workout templates on dashboard overview.....	26
Figure 19. Workout templates overview	26
Figure 20. Create workout template by using generator.....	27
Figure 21. Edit workout.....	28
Figure 22. Rename workout	29
Figure 23. Choose button workout templates on dashboard overview.....	30
Figure 24. Overview workout templates	30
Figure 25. Generate workout template	31
Figure 26. Available devices overview.....	31
Figure 27. Add tasks to segment	32
Figure 28. Edit workout.....	33
Figure 29. Rename workout	34
Figure 30. Dashboard overview	35
Figure 31. Symbols for editing / removing workout templates	35
Figure 32. Training plan template planned for 4 weeks	36
Figure 33. Edit training plan.....	37
Figure 34. Select 'Schedule workout' at patient overview	38
Figure 35. Select training plan	38
Figure 36. Edit training plan	39
Figure 37. Assign training plan	39
Figure 38. Dashboard overview	40
Figure 39. Training plan templates overview	40
Figure 40. Patients overview	41
Figure 41. Overview of all available patient stations.....	41
Figure 42. Generate workout	42
Figure 43. Edit workout.....	43
Figure 44. Patients overview	44
Figure 45. Overview of all available patient stations.....	44
Figure 46. Edit workout.....	45
Figure 47. Patients overview	46
Figure 48. Patient's calendar	46
Figure 49. Overview of all available patient stations.....	47
Figure 50. Generate workout.....	47

Figure 51. Edit workout.....	48
Figure 52. Patients overview	49
Figure 53. Patient's calendar	49
Figure 54. Overview of all available patient stations.....	50
Figure 55. Training room – overview of all patient stations at the same time.....	51
Figure 56. Training room – select a patient's station	52
Figure 57. Edit the currently running task at the selected patient station	52
Figure 58. Training room – select a patient's station	53
Figure 59. Accept or reject the result from currently running task at the selected patient station.....	53
Figure 60. Training room – select a patient's station	54
Figure 61. Change currently running task at the selected patient station.....	54
Figure 62. Training room – select a patient's station	55
Figure 63. Click on 'Edit workout' to edit currently running workout	55
Figure 64. Edit currently running workout's duration	56
Figure 65. Patients overview	57
Figure 66. Patient's calendar	57
Figure 67. Interactive report for all tasks performed in that workout.....	58
Figure 68. Preview of generated report	58
Figure 69. Patients overview	59
Figure 70. Report categories	59
Figure 71. Example for report category 'range of motion'	60
Figure 72. Example for more detailed data in report category 'range of motion'	60
Figure 73. Patients overview	61
Figure 74. Report categories	61
Figure 75. Patient's report	62
Figure 76. Dashboard overview.....	63
Figure 77. Research overview	63
Figure 78. Create research in research manager form.....	64
Figure 79. Create research in research manager form.....	64
Figure 80. Research overview with new created research	65
Figure 81. Dashboard overview	66
Figure 82. Research overview	66
Figure 83. Research manager form.....	67
Figure 84. Selected research group	67
Figure 85. Select / Add a patient to research group	68
Figure 86. Dashboard overview	69
Figure 87. Select research task in therapists task overview	69
Figure 88. Selected research task in detail.....	70
Figure 89. Overview of all available patient stations.....	70
Figure 90. Repeat execution of this workout or mark the task as completed	71
Figure 91. Dashboard overview	72
Figure 92. Overview therapists tasks.....	72
Figure 93. Selected research task in detail.....	73
Figure 94. Overview of all available patient stations.....	73
Figure 95. Repeat execution of this workout or mark the task as completed	74
Figure 96. Dashboard overview	75
Figure 97. Researches overview	75
Figure 98. Research report categories listed per patient.....	76
Figure 99. Several research report categories	76
Figure 100. Detailed research report for example for category 'divided attention'.....	77
Figure 101. Detailed research report for example for category 'divided attention'.....	77

Figure 102. Detailed research report for example for category 'divided attention'	78
Figure 103. Detailed research report for each patient (comparing first and second execution) 'relative mode'	78
Figure 104. Detailed research report for each patient (comparing first and second execution) 'raw mode'	79
Figure 105. Dashboard overview	80
Figure 106. Settings screen	80
Figure 107. Training room overview	81
Figure 108. Dashboard overview	82
Figure 109. Export data settings	82
Figure 110. Live preview workout for selected patient	83
Figure 111. Preview fullscreen instruction for patients	83
Figure 112. Logo icon software patient panel	84
Figure 113. Virtual world presented on screen when workout is started	85
Figure 114. Login screen Patient Panel	86
Figure 115. Start screen Patient Panel	86
Figure 116. Start screen Patient Panel	87
Figure 117. Workout details – list of therapeutic tasks	87
Figure 118. VAST.Rehab disclaimer before starting workout	88
Figure 119. Start screen Patient Panel	89
Figure 120. Edit account data	89
Figure 121. Start screen Patient Panel	90
Figure 122. Messages form	90
Figure 123. Login screen Patient Panel	91
Figure 124. Settings screen	91
Figure 125. Login screen administrator	92
Figure 126. Select available Patient Panel instance to activate	92
Figure 127. Login screen Patient Panel	93
Figure 128. Create account form	93
Figure 129. Start screen Patient Panel	94
Figure 130. Set up workout	94
Figure 131. Set up workout	95
Figure 132. Workout details – list of therapeutic tasks	95
Figure 133. Login screen Patient Panel	96
Figure 134. Set up workout	96
Figure 135. Generate simple report of patient	97
Figure 136. Login screen Patient Panel	98
Figure 137. Settings screen	99
Figure 138. Dashboard overview with error symbol	100
Figure 139. Errors list	100
Figure 140. Settings screen	101
Figure 141. Feedback form	101



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quasar® med



expander training
robomove®



bike ergometer
torqualizer®



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gait parameters**
optogait

rehabilitation



active gait correction
robowalk® expander / mercury® med



senior fitness
mercury®



orthopaedic rehabilitation
mercury® med / arm support / airwalk® ap



cardiac rehabilitation
mercury® med



**body weight supported
treadmill therapy**
airwalk® ap / mercury® med



angiology
mercury® med



gait analysis / biomechanics
gaitway® 3d with force and pressure measurement



**cardiovascular stress
testing / CPET**
mercury® med



locomotion therapy
locomotion® med 150/50



bike ergometer
torqualizer® 1200
medical certification pending

special applications



**environmental & climate
chambers**
quasar® med with external UserTerminal



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