

MULTITRAINER

Digital System for Cardiac Rehabilitation



cardiac rehabilitation
in up to 16 patients
simultaneously



wireless ECG monitoring



trainings with load/HR
control



comprehensive
rehabilitation programs



support of different
models of ergometers
and treadmills

ECG

CARDIAC REHABILITATION WITH MULTITRAINER

The cardiac rehabilitation is an integral part of the treatment program for the patients after acute coronary event, coronary artery bypass surgery and patients with stable coronary artery disease (CAD), congestive heart failure (CHF) and cardiometabolic diseases.

Multitrainer is a specially developed system with the intuitive interface, well-designed layouts and freedom to customize the settings. It allows you to allocate the patients to groups according to rehabilitation phases and to choose different training protocols.



Acute Phase (Phase I)

The acute-phase cardiac rehabilitation is started during intensive care unit /cardiac care unit (ICU/CCU) treatment. It is intended to manage postoperative ambulation and allow a patient to perform the care safely. The cardiac rehab staff works with patients recovering from heart attack or cardiac surgery using the short walks or stretching activities. They also provide the education regarding to patient's heart disease, risk factors, activity/exercise, nutrition, medication and lifestyle changes. It is followed by phase II rehabilitation consisting of early recovery-phase rehabilitation during hospitalization and late recovery-phase rehabilitation after discharge.

Recovery Phase (Phase II)

During the recovery phase it is important to improve the patient's range of physical activities, conduct the exercise stress tests, evaluate the ECG parameters, tailor the exercise training program and continue educating patients on secondary prevention and lifestyle. The patient is recommended to continue outpatient recovery phase program after discharge.

Maintenance Phase (Phase III)

After discharge the patients should have the follow-up and continue the rehabilitation. The healthcare professionals should instruct the patients on how to perform the ongoing physical activity during the first months after the discharge.

Using the Multitrainer you can perform the cardiac rehabilitation programs, evaluate the cardiovascular function of a patient with CAD and define the type and load for cardiac exercise trainings using:



Aerobic Exercise Intensity Assessment and Prescription in Cardiac Rehabilitation**

- ▶ **resting ECG**
- ▶ **heart rate variability***
- ▶ **exercise testing (stress test on bicycle ergometer or treadmill)**

80

Training sessions per day

After phases II and III it is recommended to perform the exercise stress tests to reissue the exercise prescription and evaluate the efficacy of training and the exercise tolerance. Upon the completion of exercise training programs the cardiac rehabilitation should become a part of patient's ADL.



We have been using the Multitrainer system with four bicycle ergometers in our medical facility for two years. It is applied for patients with acute myocardial infarction undergoing a phase III cardiac rehabilitation programs. The system proved to be a good choice. All the required features are easy-to-use that streamlines the productivity. It should be noted that the advanced algorithms for 12-channel ECG allow obtaining reliable data. All the training protocols can be adjusted on-the-fly. Besides, our own protocols can be created from scratch. The latter is very important for us as we perform the researches related to rehabilitation of cardiac and neurological patients.»



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* is supplied optionally

** A Joint Position Statement of the European Association for Cardiovascular Prevention and Rehabilitation, the American Association of Cardiovascular and Pulmonary Rehabilitation, and the Canadian Association of Cardiac Rehabilitation

MULTITRAINER — SCALABLE SOLUTION FOR CARDIAC REHABILITATION

Up to 16 Training Devices

The versatile software allows managing the training sessions and controlling the individual parameters of up to 16 patients.

Wireless ECG Transfer

The ECG signal is transferred from ECG device to physiotherapist's workstation via Bluetooth. Thus, the patient feels comfortable and is free to move.

Dual-monitor Operation Mode

Using this mode you can simultaneously assess the patient's status at any time during the training. The patients' training parameters are displayed on the screen: ECG traces, training session chart, averaged QRS, ST displacement chart, BP and HR measurements.

12-channel ECG

The exercise training sessions with 12-channel ECG monitoring are important for the therapy outcome evaluation. This is the smartest choice for high-risk patients. All the obtained ECG findings are stored in the PC memory to analyze the short- and long-term changes in patient's ECGs.





Wide Range of Supported Ergometers and Treadmills

The software is compatible with bicycle ergometers and treadmills of world-known manufacturers – Lode, GE Healthcare, Ergoline, Kettler, etc. We can expand this list upon your request*.

Rest and Exercise ECG

During the rehabilitation process the target HR may change, that is why it is important to repeat the exercise testing during the whole rehabilitation course. It can be done easily as Multitrainer is supplied with software modules for ECG measurement and interpretation and exercise testing to record and analyze the full-disclosure ECG data including target HR.

Load/HR-controlled Training

The exercise load is adjusted automatically to keep the target HR.

Comparison of Training Outcomes

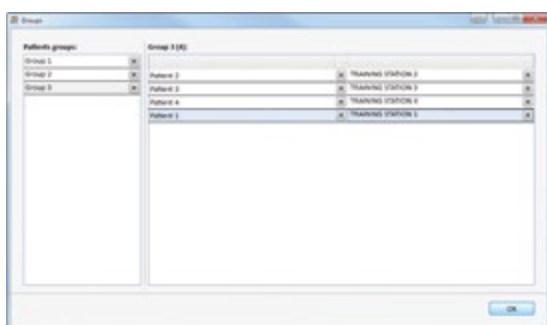
To evaluate the effects of exercise training and the improvement of prognosis, use the dedicated data layouts to compare the obtained parameters shown as graphs or tables.

* If your exercise machine is not supported by our Multitrainer software, we can easily integrate it! After the exercise machine manufacturer approval we can add it using the obtained data exchange protocols.

IT IS EASY TO ADMINISTER TRAININGS OF SEVERAL PATIENTS!

Perform the training using 5 steps regardless of the number of patients in the exercise room:

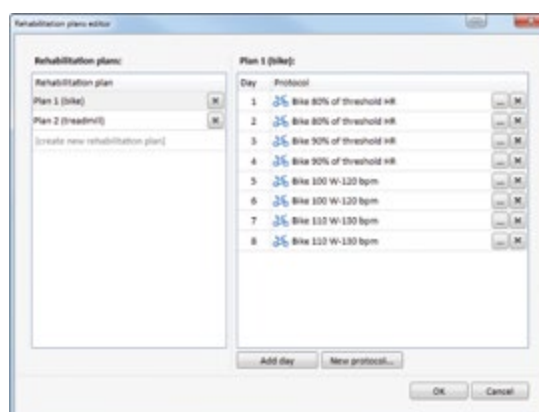
1 Select the group of patients or the patient names from the database



Divide the patients into groups, for example, according to time schedule. Before the session start select the required group and the software shall allocate the patients to their training stations automatically.

2 Check if a patient has the exercise prescription

Choose the **training protocol** or customize the pre-defined one according to individual patient needs and Multitrainer shall adjust the training stations and start the training session according to the specified training profile.



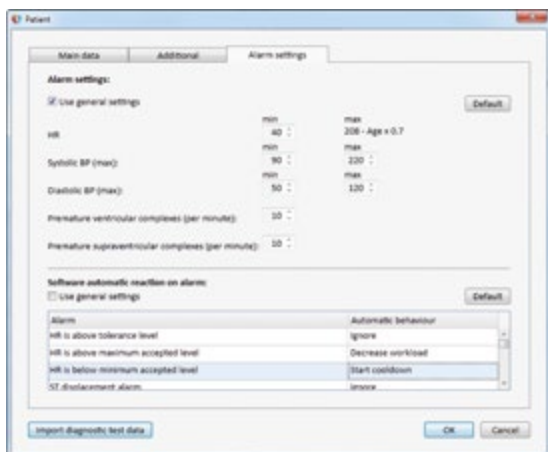
3 Run the training sessions of all patients with one button

Press "Start training sessions" button and start monitoring the ECG acquisition quality.

One physiotherapist can manage the training sessions simultaneously as the software tracks the patient's parameters itself

4

Manage the trainings using different notification and flexible tools to adjust the training



The software controls the communication quality between the digital ECG system and ergometer/treadmill and notifies when the specified parameter is exceeded (HR, BP, ST-segment displacement, number of extrasystoles per minute) using the color-coded warning messages, audio beeps and related icon blinking.

Automatic Response to Notification is a Key to Patient's Safety

Adjust the related parameters to respond automatically to obtained notifications with decrease of load, switch to cool-down phase or training stop and the software shall execute them precisely. Besides, all the deviations from presumed training profile are added to the event list and included to the training report. The normative values for the target parameters can be customized for each patient individually.

We have already integrated the preset training protocols for the bicycle ergometer and treadmill. Each training session consists of four phases: rest ECG, warm-up, training and cool-down. You can easily customize the duration of each phase, set the load using different parameters including target HR, % of HR threshold, select the workload type and measurement units (W or MET). The training parameters can be adjusted and viewed in tabular or chart format according to your preferences.

5

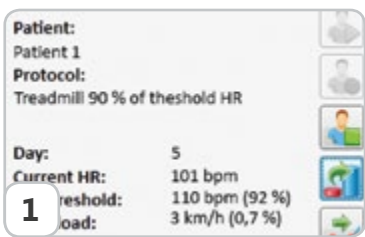
Generate Exercise Training Report

Use the integrated exercise training report templates or create your own ones using the flexible setup tools.

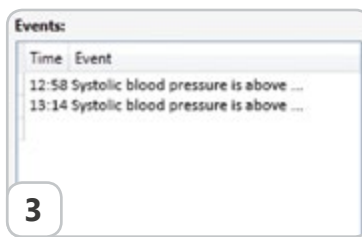
The software provides two customized exercise training reports related to the current training and training sessions. They include the patient data, training phases, rhythm events, events earmarked during the training, reference values and exercise training outcomes.

TWO MONITORS FOR PHYSIOTHERAPIST'S CONVENIENCE AND TRAINING MANAGEMENT

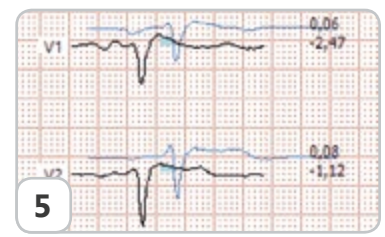
Overall information on one patient upon you choice



Patient data and full list of training parameters



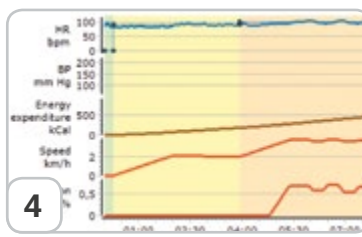
Data on earmarked events during the training



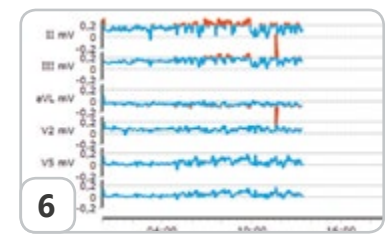
Averaged QRS-complexes calculated during the training record



12-channel ECG



Visual representation of patient's HR, workload, BP and energy expenditure



ST-segment displacement

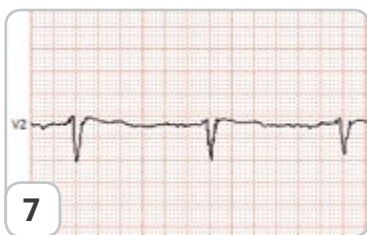
Most important data on all patients
in one window



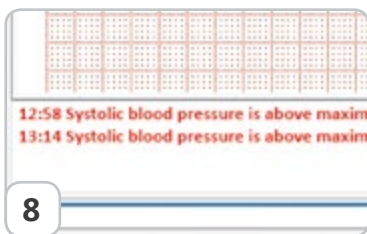
7

8

9



One ECG lead upon your choice



Text notification

TRAINING STATION 1:

100%

101
110 (92%)

3,7 km/h
0,7 %

13:25

- current and target HR
- monitoring start, signal acquisition
- run/stop
- workload adjustment without entering the manual mode
- BP value entering or run of automatic measurement
- switch to next training phase
- entering the manual mode of workload management
- entering text comment
- switch from manual mode to the automatic one
- switch to previous/next phase of training profile
- information on the workload level and time of training start

ACCESSORIES

Belt with embedded ECG electrodes

- ✓ fast-fit
- ✓ standard ECG connector
- ✓ easy to clean and disinfect
- ✓ adjustable size



Disposable ECG electrodes

- ✓ reliable fixation
- ✓ high-quality signal



Rubber belt for ECG electrode fixation on the chest

- ✓ adjustable size
- ✓ no patient's skin irritation

Find the full list of ECG accessories
in our catalogue on site:

www.neurosoft.com



PATIENT'S WORKSTATION = RECORDER + BICYCLE ERGOMETER

Poly-Spectrum-8/EX

- ✓ 12-channel ECG
- ✓ wireless ECG transfer
- ✓ clear ECG traces
- ✓ patient is free to move



Typical bicycle ergometer with precise workload adjustment



Bicycle ergometer for the patients undergoing phase I (warming-up with a zero workload)




The most natural physical workload is the walking



We guarantee the supreme quality of ECG signals obtained from all ECG machines independent on the training room size and number of workstations.

ECG PRODUCT LINE



	ECG leads	Tran- sophageal Leads	Automatic Interpre- tation	Detection of Cardiac Pacemaker Pulses	Interface	Application
 Poly-Spectrum-8	12	-	-	+	Wire: USB	Routine ECG test
 Poly-Spectrum-8/E	12	-	+	+	Wire: USB	Routine ECG test with measurement and interpretation, evaluation of autonomic status (HRV), QT, HR, PWV
 Poly-Spectrum-8/EX	12	-	+	-	Wireless: Bluetooth	Routine ECG test with measurement and interpretation, evaluation of autonomic status (HRV), stress ECG, QT, HR, PWV
 Poly-Spectrum-8/G	12	-	+	-	Wireless: Bluetooth, GSM	Telemedicine
 Poly-Spectrum-12/E	14	2	+	+	Wire: USB	Routine ECG test with measurement and interpretation, transesophageal ECG stress ECG, QT, PWV



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