



neuroforma

MANUAL

Neuroforma - a computer system supporting neurological rehabilitation

INSTRUCTIONS FOR USE

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1. Purpose of the product

The NEUROFORMA software package is a computer system for motor and cognitive rehabilitation support for patients suffering from such diseases / problems as:

- nervous system diseases, such as Parkinson's disease, Alzheimer's disease, multiple sclerosis, spinocerebellum ataxia, Huntington's disease
- brain stroke or injury
- spine problems, such as pain in the lower back
- injuries / dysfunctions of upper and lower limbs, feet and ankle joints, hip joints

2. Principle of operation

The Neuroforma software package has been created by practicing neurorehabilitation and neuropsychology specialists, based on 'motion capture' and 'virtual reality' technologies. It is designed for patients with neurological diseases and injuries. The program registers movement with a 2D or 3D Kinect camera and presents it on a computer screen, which enables patients to accurately copy the presented motor exercises. The prescribed cognitive and motor therapy comprises exercises integrated with mini-games, the control and result of which depend directly on the intensity, precision and speed of task performance. A positive motivational effect is achieved thanks to competition and reward mechanisms. The system records and analyses exercise session data, such as correctness of performance or exercise duration. The analysis results are then saved and presented in the form of short- and long-term summaries. Neuroforma enables adjusting exercises to patients' needs and abilities by optimizing the motion path, speed and intensity of the exercise as well as its duration. The current exercise base contains motor exercises (adapted from traditional exercise sets), cognitive exercises, and motor-cognitive exercises, all designed mainly for neurological patients. The content of the exercises is created based on exercises commonly used in rehabilitation centers for improving cognitive and motor skills.

3. Working method and hardware requirements

To function properly the Neuroforma software runs on

a computer with a screen and a camera. The software does not require specialized parameters. The minimum requirements to run Neuroforma:

- operating system: Windows 7, 8 or 10
- CPU power equal to or higher than: Intel Core 2 Duo 2 GHz / AMD Athlon X2, 2,4 GHz
- RAM: 2 GB
- graphics card: of Intel(R) Graphics Mobile 965 Express class with 128 MB memory and support for Direct X 10 or 11
- 1 GB of free disk space
- sound card
- webcam (built-in or external)
- Internet access

Neuroforma software contains a set of exercises that are displayed on a computer screen. The patient observes exercises and tries to copy them accurately. As the camera shows the patient's movements on the screen it is possible to verify the accuracy of exercise performance and efficacy of the therapy process. The details of the installation process and using the exercises are described further.

4. Comments and recommendations

Adequate space for exercises should be provided - the recommended distance from the camera is 1 - 2 m. Within 2 - 3 metres around the patient there should be no objects which could cause harm in case of patient falling down. One should exercise on a flat, level surface. It's recommended to remove any rugs or carpets to prevent tripping over their edge. While exercising one should wear shoes with proper traction.

Exercise can be performed while standing or sitting. If the patient exercises standing safety measures should be especially observed, other person's presence is suggested in particular, in case of a sudden loss of balance.

Neuroforma is a rehabilitation support tool, created by experts: neurorehabilitation and neuropsychology practitioners. However, the type and intensity of exercises should be chosen carefully, taking the patient's fitness into account. Regular consultations with a doctor and a physiotherapist are strongly recommended, as improperly applied rehabilitation endangers the health and life of the patient.

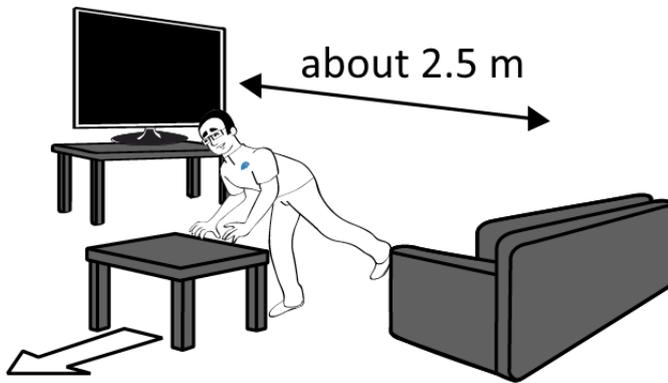
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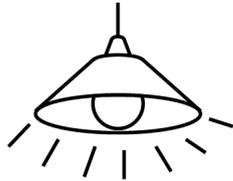
BEFORE YOU START

PREPARE THE AREA FOR EXERCISING

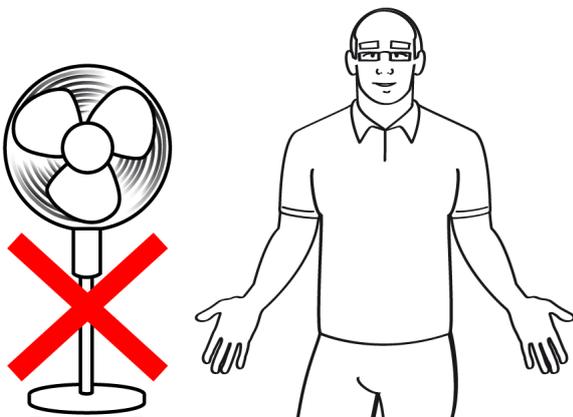
Before you start exercising, make sure that:



- there are no potential obstructions (e.g. furniture) in the exercising area (about 2.5 meters in front of the computer screen)

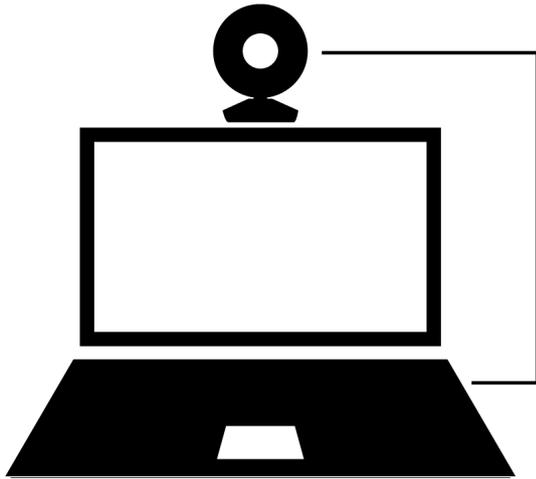


- there is enough light in the room where you're going to exercise - if it's cloudy or dark outside, turn on the light

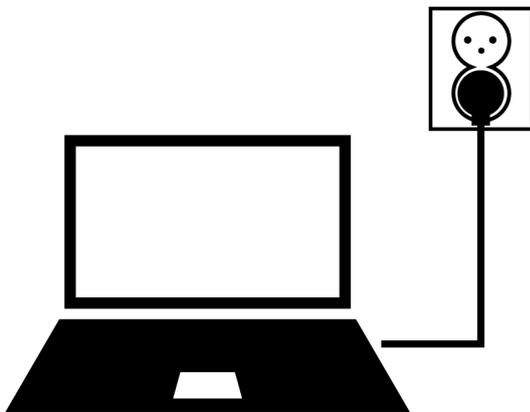


- there are no moving objects in the camera's field of view, e.g. curtains being moved by the wind

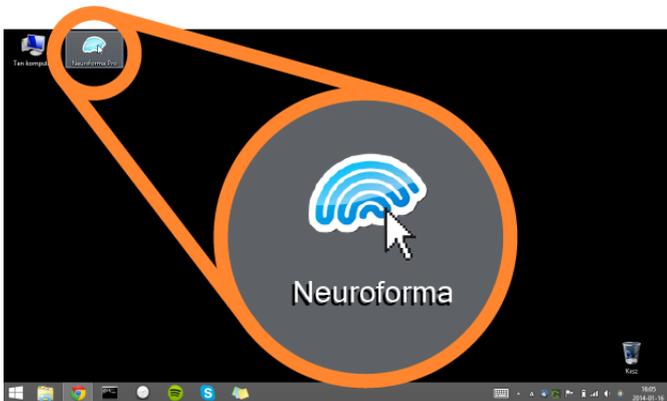
PREPARE YOUR COMPUTER AND THE PROGRAM



- If you are using an external web camera, make sure it's connected to the computer.



- If you are using a laptop, make sure it's connected to the power source.



- Double-click the Neuroforma icon on the desktop in the Windows system.

SIGNING UP

Name *

Your e-mail address *

Phone number

I hereby give my consent for the collection and processing of data on the progress of my exercise in Neuroforma program, which will enable the adjustment of exercises to my achievements and care during training sessions.

I hereby give my consent to TRanis Sp. z o.o. ul. Bruna 2/44 in Warsaw, Poland and their business partners to process my personal information in order to get electronic messages containing information about Neuroforma. I declare I know my right to see, change, or request to cease the processing of my personal information. I give my information voluntarily.

if you encountered a problem with the registration, please call your local distributor or +48 883 662 506 and we will help you run Neuroforma.

X EXIT > SEND

- If this is the first time you start the program on this computer, you will see a registration window. Provide your e-mail address and follow the instructions on the screen. A welcome message and the password to your Neuroforma account will be sent to the provided e-mail address. Keep this message, as the account password might be needed in the future if you want to run Neuroforma on a different computer.

! **WARNING:** Neuroforma can only be active on one computer. If you register using the same e-mail address on another computer, the program will require activation, which will deactivate it on the original computer.

- Next you will see the main menu. The options are described further in this manual.

HOW TO EXERCISE

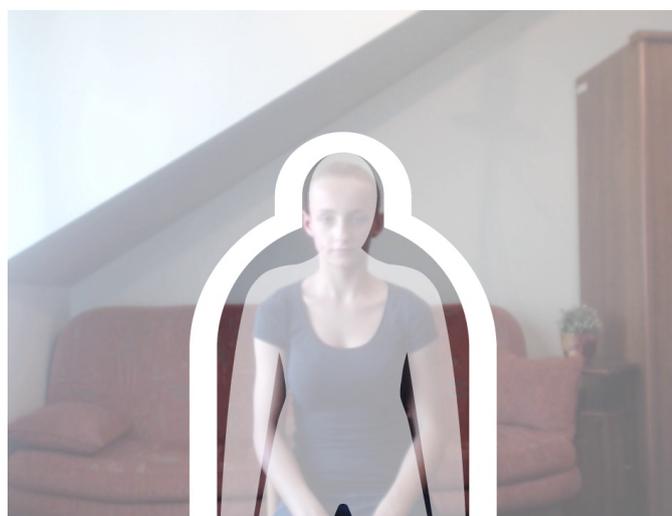
EXERCISING WITH NEUROFORMA



When you exercise with Neuroforma your camera image shown on the screen interacts with other objects on the screen. You need to move your body to interact with the objects on the screen. Depending on the exercise, you need to catch, move, knock off, or avoid them. General tips:

- Being correctly positioned is very important! You should be about 1.5 metres away from the camera and see your image in the centre of the screen and within the positioning outline.
- While exercising move your arms in the frontal plane - i.e. to the sides and not to the front towards the screen. If you can't reach the objects on the edges of the screen, make sure you don't reach towards the screen instead of moving your arms to the sides.
- You shouldn't change your position much during the exercise, but if you still have problems with reaching the far objects, try moving half a step forward towards the screen.

THE INITIAL POSITION



Before starting to exercise you should position yourself about 1.5 m away from the camera (standing or sitting). Your image should be in the centre of the screen and should fit within the outline. When the outline flashes red, you should correct your position. When it turns green, it means your position is correct. Text and voice messages will help you find the correct position:

- 'Position yourself in the centre / 'Move to the left / right'** – you're not standing directly in front of the camera - move to position yourself in the centre of the screen.
- 'Move forward / backwards'** – you're standing too far from / too close to the camera, try

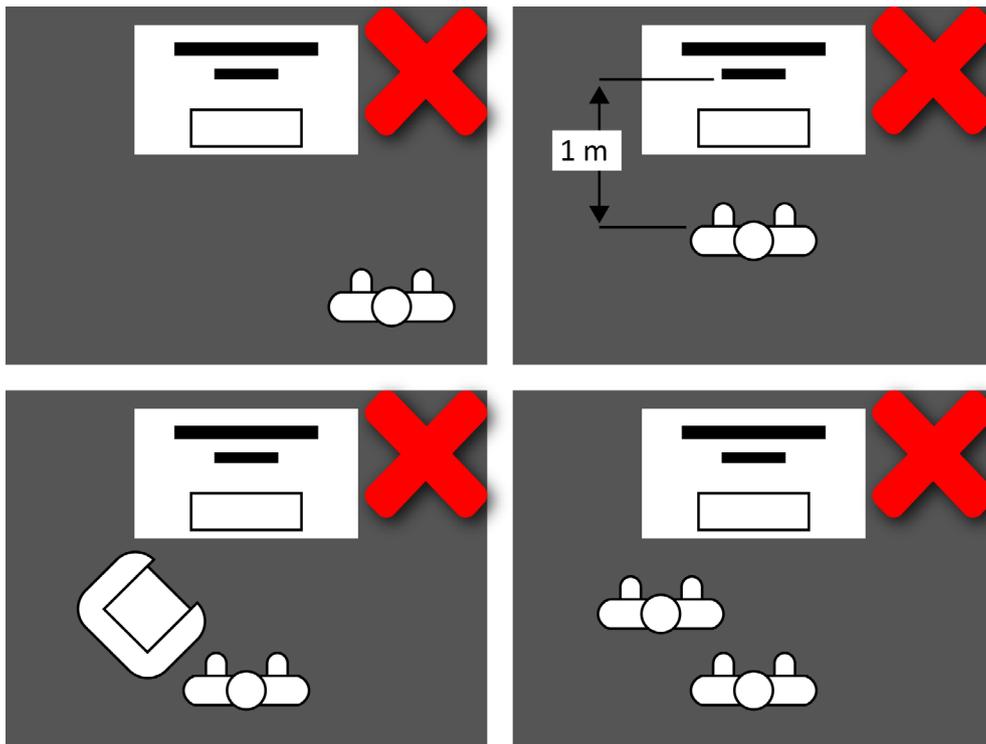
moving half a step closer or further away.

- c. **'Tilt the camera down / up'** – your camera is pointing too high or too low - find the angle at which an image of your head is displayed at about 1/3 of the screen height when you're 1.5 m away from the camera.

PROBLEMS WITH POSITIONING

If there are problems with detecting your correct position, make sure that:

- your image shows in the centre of the screen (you're standing in front of the camera)
- you're about 1.5 metres away from the camera
- there is no other person or any big object (e.g. furniture) within 0.5 metre around
- proper lighting is provided
- the only moving object on the screen is you (nothing is moving in the background)
- you're not completely still (The program reacts to your movement, so if throughout the whole positioning process you stand still, nothing can be detected)



HOW TO USE THE MAIN MENU

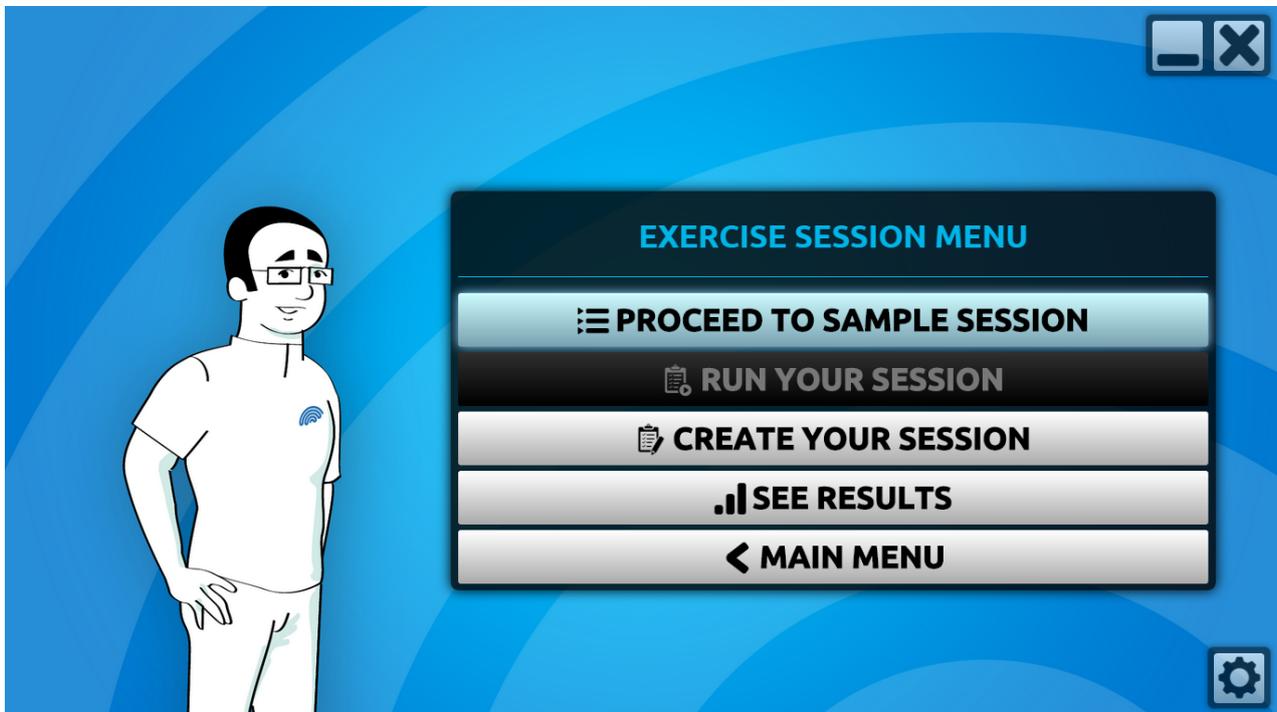


At the beginning you will be greeted by the Neuroassistant. Read the message carefully as it contains many useful tips on using the program. After the Neuroassistant's introduction, the main menu will display the following options:

- **Exercise session menu** – allows you to start a multi exercise session or to easily create your own training sessions.
- **Choose exercises** – displays the wide Neuroforma exercise selection. Before using them you will learn what they are about, how to perform them, and what they improve
- **Check out our offer** – when you decide to buy Neuroforma, click this button to go to the shopping website where you will see the offer and be able to buy the full version of the program. After you buy Neuroforma this option will not be visible.
- **Enter the activation code** – If you have a code which activates the full version, choose this option to use it. After the activation, this option will not be visible.
- **Watch the introduction** – starts the introductory video. If you have any problems working with Neuroforma, watch this video and learn how to use the program correctly.

STARTING THE TRAINING SESSION

EXERCISE SESSION MENU

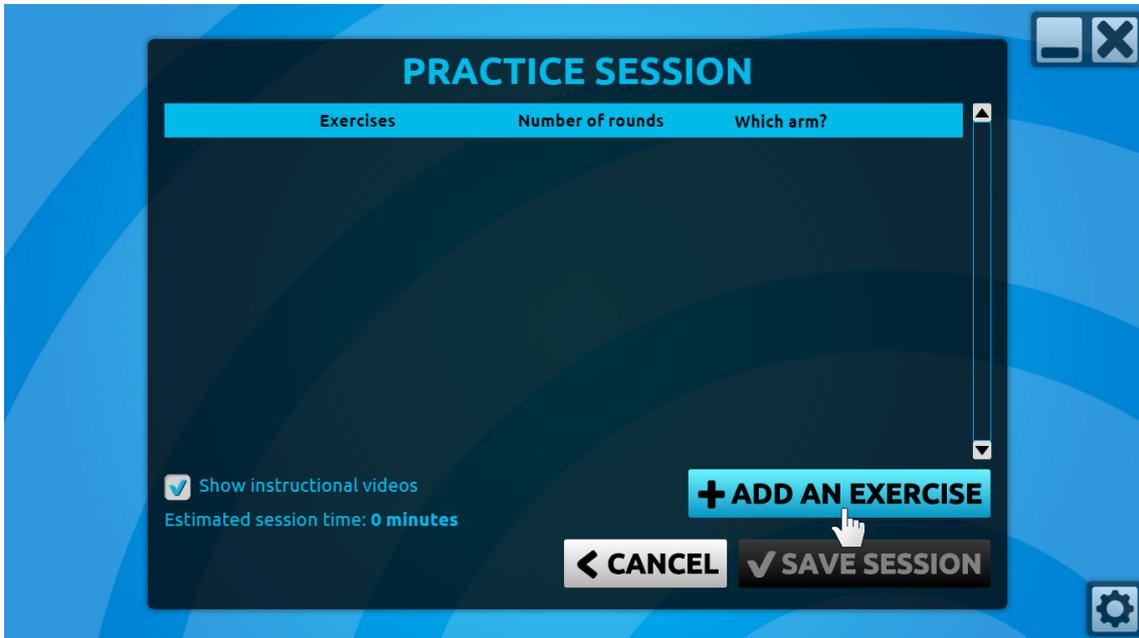


Here you can start a training session - a series of exercises that run one after the other. In this menu you will find the following options:

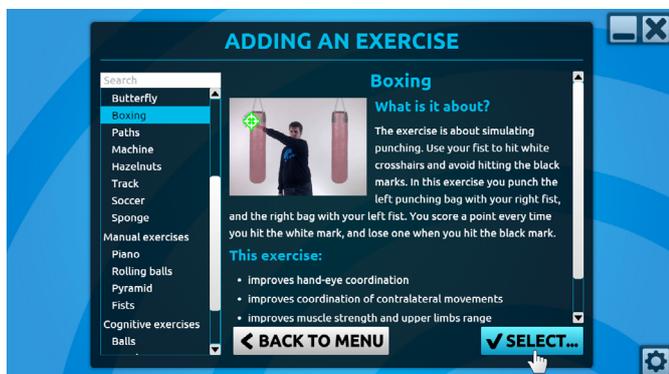
- **Proceed to sample session** – click to use a ready-made sample session. Next, choose the arm you want to exercise with, set the difficulty level and start the session.
- **Run your session** – click to start your session. First you need to create one by using the 'Create my session' button below.
- **Create your session** – click to start an easy-to-use editor where you choose exercises, set their order and parameters. More information on creating your session can be found further in this guide.
- **See results** – click to see your exercise results - information about exercising frequency, difficulty levels achieved and time spent exercising.
- **Main menu** – click to go back to the program's main menu.

CREATE YOUR EXERCISE SESSION

Click the 'Create my session' button in the exercise session menu. The editor window will open in which you can create your exercise session.



ADDING EXERCISES TO THE SESSION



Start with adding the first exercise by clicking 'Add exercise'. After you click the button the exercise list will open along with descriptions.

Select an exercise from the left side list to read its description. It contains information about how to perform the exercise and what the exercise aims to improve. Click the 'Add' button to add the exercise to your session.

In this way you can add any number of exercises. They will appear in the training session window.

REMOVING EXERCISES FROM THE SESSION



If you want to remove an exercise from the current session, click the 'x' button to the right of the exercise name.

SETTING SESSION EXERCISE PARAMETERS

For each exercise you can set two parameters:

- **Number of rounds** – with this parameter you define an approximate duration of the exercise. Each round lasts about 1 minute. The approximate total session time is shown at the bottom of the window. It allows you to plan how long your exercise session should last.
- **Which arm?** – this parameter allows you to choose which arm you want to exercise in the given exercise. Some exercises only offer a single hand or both hands option.



You can also change the order of the exercises with the 'drag and drop' method. Place the mouse cursor on the vertical line to the left of the exercise name. Click and hold the left mouse button while dragging the exercise to the desired place, then release the mouse button to drop the exercise. In this way you can set the order of your exercises. The session will start with the exercise at the top of the list.

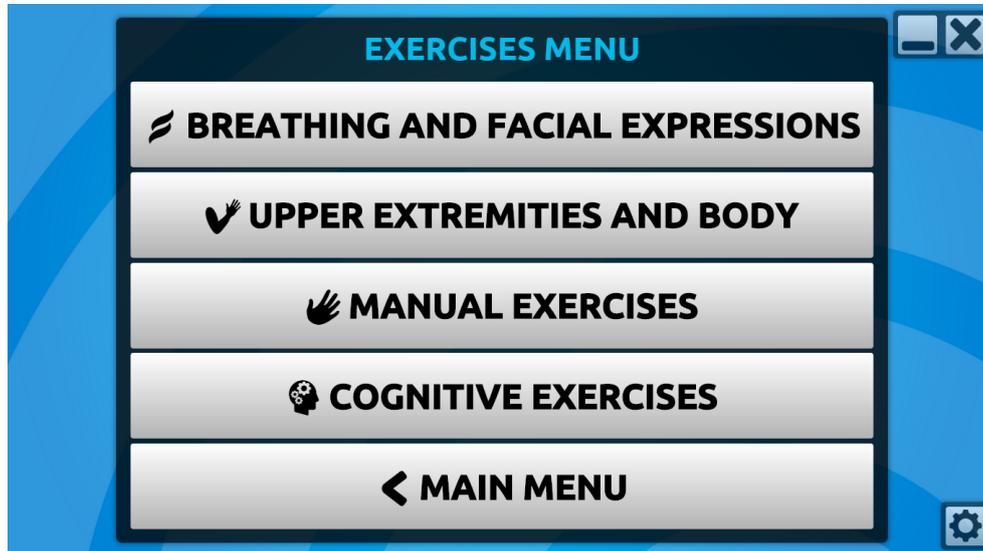
STARTING AN EXERCISE SESSION

Once you have added all the desired exercises, you can save your session by clicking 'Save session'. You will see the session menu again and you can start your session by clicking 'Start your session'.

You can always edit your session content to create interesting, diverse training sessions for yourself.

STARTING A SINGLE EXERCISE

BROWSING EXERCISES



If you want to start a single exercise, click 'Browse exercises' in the main menu. The 'Exercise menu' will be displayed. It contains a large collection of exercises available for you in the program. The exercises are grouped into the following categories:

- **Breathing and facial expressions** – exercises engaging breathing and facial muscles.
- **Upper extremities and body** – exercises engaging mostly the upper arms and torso.
- **Manual exercises** – exercises training fine hand movement.
- **Cognitive exercises** – exercises designed to improve cognitive functions: memory, attention and planning.

Click on the category name to see the full list of exercises. Click an exercise name to start it.

SETTING EXERCISE PARAMETERS



After you select the exercise, you need to choose which arm you want to exercise. You can choose your left arm, your right arm or both.

Next choose the difficulty level. In the demo version you can choose from 3 of the 15 difficulty levels. In the full version of the program you can choose from all 15 difficulty

levels.

Click 'Start with instruction' to watch a video instruction for this exercise, or 'Start without instruction' to skip the video.

EXERCISE INFORMATION



There is an 'i' letter icon in the top right corner of the parameter window. Click it to display information about the exercise.

Here you can read important information about the exercise. Additionally, you can also click the 'Instruction video' button at the bottom of the window to watch an instructional video about this exercise.

OTHER FUNCTIONALITIES

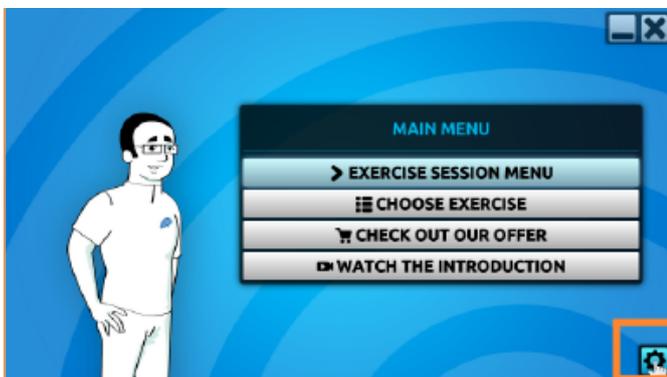
NEUROFORMA UPDATES



Neuroforma is being constantly developed and improved, therefore from time to time it will automatically update during the program startup. If the above window appears during the program startup, you just need to wait without disconnecting your computer from the Internet and the program will start automatically after the update is finished.

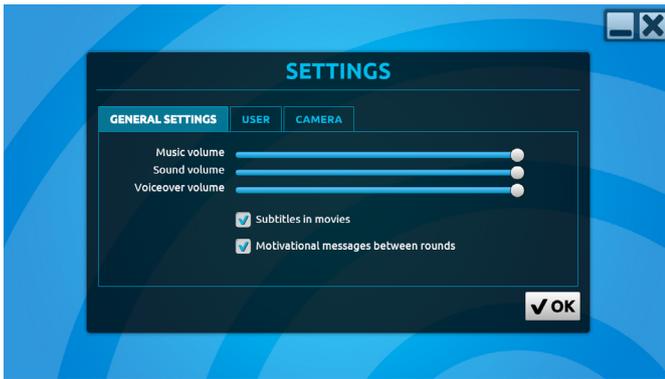
! Neuroforma can only be updated during the start of the program, therefore it is important that you close and restart it regularly (at least once a week).

PROGRAM SETTINGS



Click the cog icon in the bottom right corner of the screen to show the setting window. There are three main setting groups in three tabs at the top of the screen:

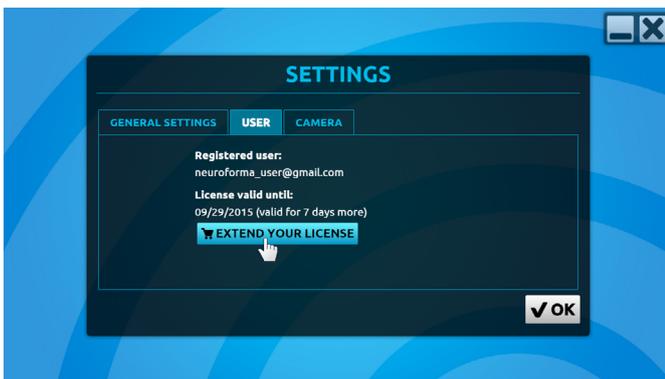
GENERAL SETTINGS



Contains the following settings:

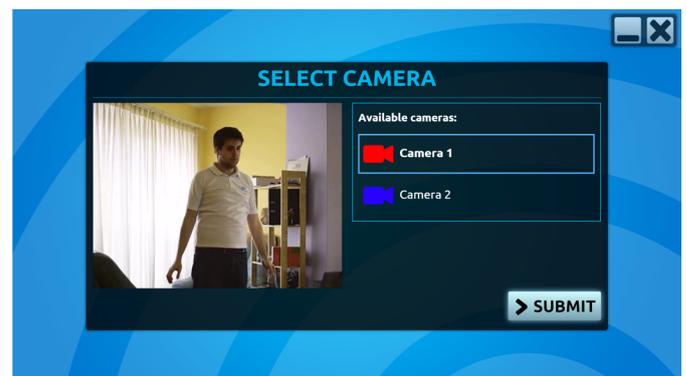
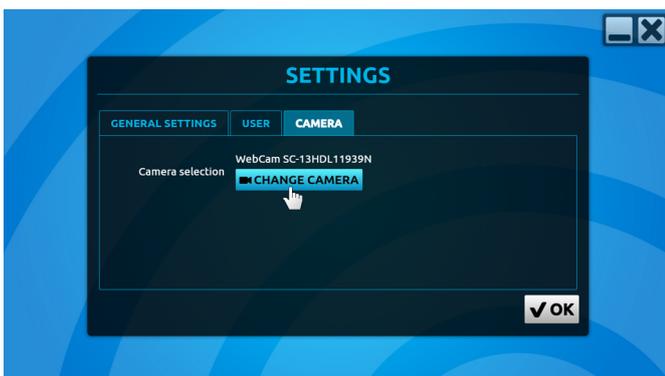
- **music volume** – changes the volume of the background music;
 - **sound volume** – changes the volume of the success / error sounds in the exercises;
 - **voiceover volume** – changes the volume of the voice messages;
 - **subtitles** – enables to turn off the subtitles in all instructional videos in the program;
- **motivational messages** – toggles Neuroassistant's motivational messages between rounds on and off.

USER



In this tab you'll find the information about the user currently logged in the program and the information when your licence is valid until. You can also click the 'Extend the licence' button to go to the Internet shop where you can buy additional features or extend the period when you can use Neuroforma.

CAMERA



In this tab you can see the currently used camera and you can change it by clicking the 'Change the camera' button. It will open a new window, with a current camera image preview on the left and a list of available cameras on the right. You can choose a camera by clicking its name. After choosing the camera, click the 'Submit' button.

ACTIVATION OR RENEWAL OF THE FULL VERSION WITH A CODE



In order to activate or renew the full version of Neuroforma, you need to:

- open the code activation screen (e.g. by clicking the 'Renew the license' button in the 'User' tab on the settings screen),
- put in the 16-digits code in the visible fields,
- click the 'Activate' button.

If the activation fails, read the error message appearing on the screen and make sure you put in the correct code.

SENDING COMMENTS AND SUGGESTIONS

If you have any comments or suggestions about the program, you can send them to us.

1



Hold down the **Ctrl** and press the **F1** button. A window will appear.

2

A screenshot of a dark-themed dialog box titled 'COMMENT' with a yellow warning triangle icon. The dialog box contains four input fields: 'Type' with a dropdown menu showing 'Select...', 'Title' with a text input field, 'Description' with a larger text area, and 'Screenshot' with a small thumbnail image and a plus icon. At the bottom right, there are two buttons: 'CANCEL' with a left-pointing arrow and 'SEND' with a right-pointing arrow.

Fill in the fields:

a. **Type** — choose whether it's a program error or improvement suggestion. If you don't know what to choose, choose 'Improvement suggestion'

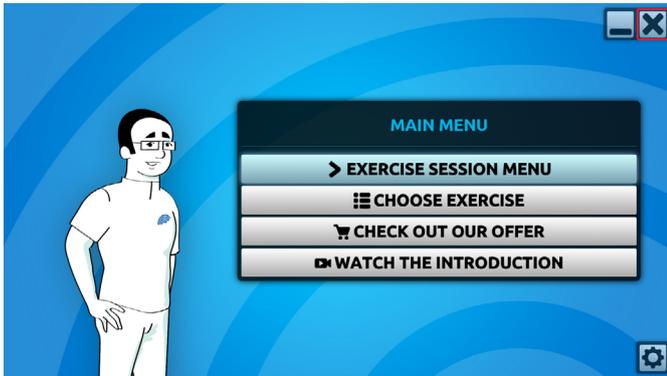
b. **Title** — give a short name to your comment, e.g. 'Settings window improvement'

c. **Description** — briefly describe your suggestion or the observed error

3

Click 'Send'.

CLOSING THE PROGRAM



Click the 'x' button in the top right corner of the screen.

MINIMISING NEUROFORMA WINDOW



If you want to minimise the program (without closing it), in order to do something else on your computer, click the horizontal line button in the top right corner of the screen. The window will minimize and you'll be able to use your computer.

To go back to Neuroforma click the appropriate button on the bar at the bottom of the screen.

SOLVING PROBLEMS

Check if your problem is described in the chart below:

PROBLEM	SOLUTION
Neuroforma shows information that no camera was detected.	<ol style="list-style-type: none"> 1. Make sure your camera is connected to the computer. 2. Restart Neuroforma.
No menu shows after starting Neuroforma.	<ol style="list-style-type: none"> 1. Restart your computer and start Neuroforma again. 2. If the problem persists, contact us (contact information below).
The camera image doesn't show properly (there's some interference).	<ol style="list-style-type: none"> 1. Exit and restart Neuroforma. 2. If the above didn't help, restart the computer and then restart Neuroforma.
There is a message that a program restart is required.	<ol style="list-style-type: none"> 1. In the displayed field describe briefly what happened before the message appeared. 2. Click 'Restart'. 3. If this happens every time you start the program - contact us (contact information below).
I can't close the program. The blue background remains on the screen and the computer doesn't react.	Hold the Alt button and press F4.

If the problem is not described above, close and restart Neuroforma.

If this didn't help, restart your computer and then restart Neuroforma.

If restarting your computer didn't help, contact us:

- phone: +48 883 662 506
- e-mail: contact@neuro-forma.com
- website: www.neuro-forma.com

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01/14	  