REF **MIRROR & BALL VR**

CE Class I Medical Device

User manual

Distribution mode

Available for direct download at

http://virtualisvr.com/espace-client/

Use under licence

VIRTUALIS

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DESCRIPTION

MIRROR & BALL VR software is an immersive 3D simulation based on virtual reality technology, i.e. it allows a person to be immersed in an artificial digitally created world. **Mirror & Ball VR** is a software handling upper limb and hand disorders and pronation/supination rehabilitation.

INDICATIONS

Rehabilitation of neurological disorders such as hemiplegia, hemineglect, coordination disorders, ataxias, Parkinson's disease, forearm trauma

Orthopedic and rheumatologic pronation/supination rehabilitation.

CONTRAINDICATIONS

Epileptic patients, children under 15 years of age, pregnant women.

FOR USE BY

Healthcare professionals: Physiotherapists; Occupational Therapists; Neuropsychologists; Neurologists; PRM (Physical and Rehabilitation Medicine) Doctors, etc.

Research Centers: CNRS, CHU, INSERM, etc.

WARNINGS AND CAUTIONS

During sessions, stay close to the patient in order to anticipate any loss of balance or discomfort caused by the use of virtual reality.

Define a working area of about 3m² to allow for risk-free movements.

Take a 10 to 15 minute break every 30 minutes of use.

Potential adverse effects are those due to software, i.e. vomiting, malaise, dizziness, syncope

The accessories required to use the software may emit radio waves that can interfere with the operation of nearby electronic devices. If you have a pacemaker or other implanted medical device, do not use the product until you have taken advice from your doctor or the manufacturer of your medical device.

Any serious incident should be notified in writing to qualite@virtualisvr.com

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1. GENERAL

1.1. Advice for use

This type of re-education must be undertaken progressively, especially in Virtual Reality where the stimulation is much more "powerful" than the traditional optokinetic stimulators.

These stimulations have the potential to cause certain disorders: Vasovagal syncope, epileptic seizures, migraines, etc. (Despite a test phase on more than 2000 patients. Similarly to previous generation optokinetics, caution is required)

The contraindications are identical: Mainly epilepsy and migraines.

As postural reactions can be spectacular, it is VERY STRONGLY advised to place patients in a safe environment and to stay close to them throughout the session.

It is also recommended to increase the duration and intensity of the stimulation very gradually, after an initial short session to make sure of patients' tolerance to this type of stimulation.

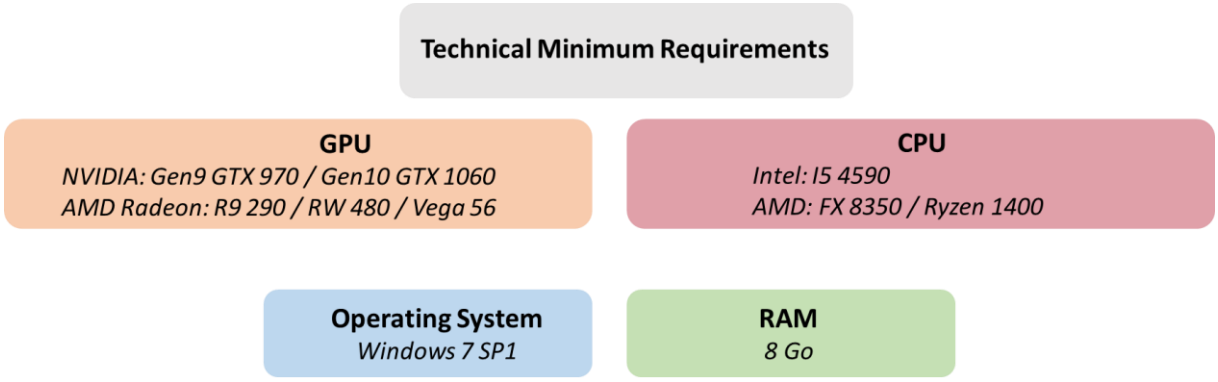
Virtualis declines any liability for any disorders suffered by patients during or after use of its software.

1.2. Hardware and minimum configuration requirements

Hardware required to use the system:

- VR Ready PC
- VR System: HTC VIVE, HTC VIVE Pro or compatible system
- Lighthouse bases (HTC VIVE tracking)
- HTC VIVE Controller
- XBOX 360 Controllers
- Leap Motion
- USB HUB

In order to install and use our virtual reality applications, we recommend a configuration equal to or higher than the system requirements:

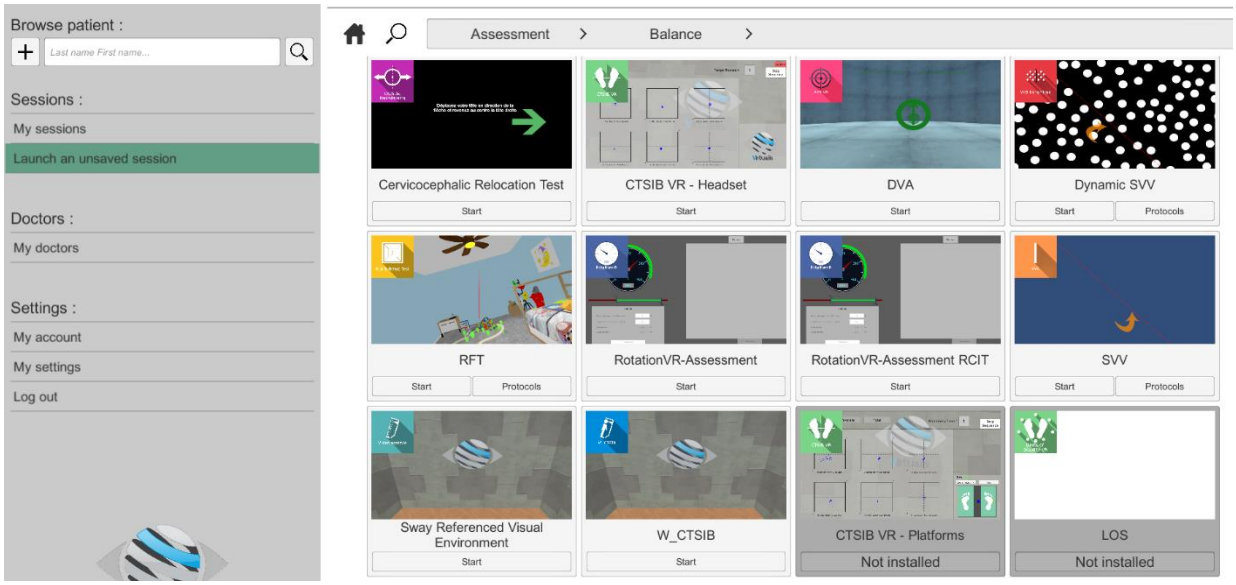


2. USE OF PATIENT MANAGEMENT

Once connected to the Patient Management software, you arrive on the home page. It is from this home page that you will be able to start your VR software as well as the other Patient Management functions.

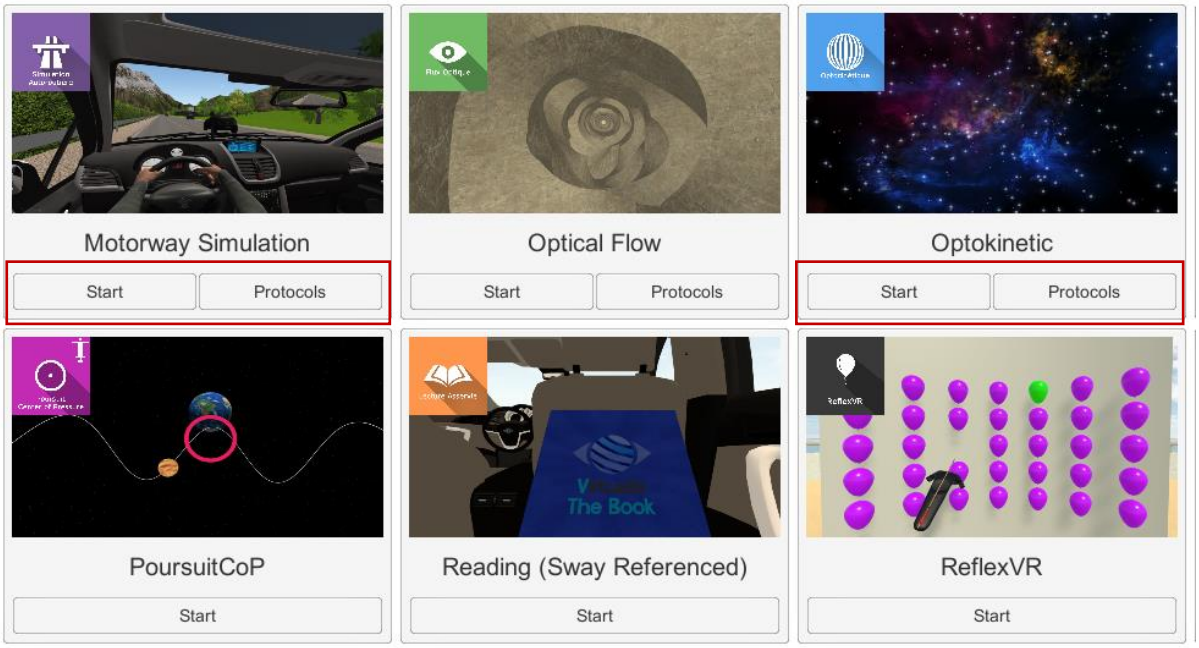
The software can be grouped according to criteria such as "Assessment" or "Re-education" and then by pathology type: Neurology, Balance, Functional or Kinetosis.

You can start or switch from one software to another from the home page by clicking the corresponding "Start" or "Protocols" button.

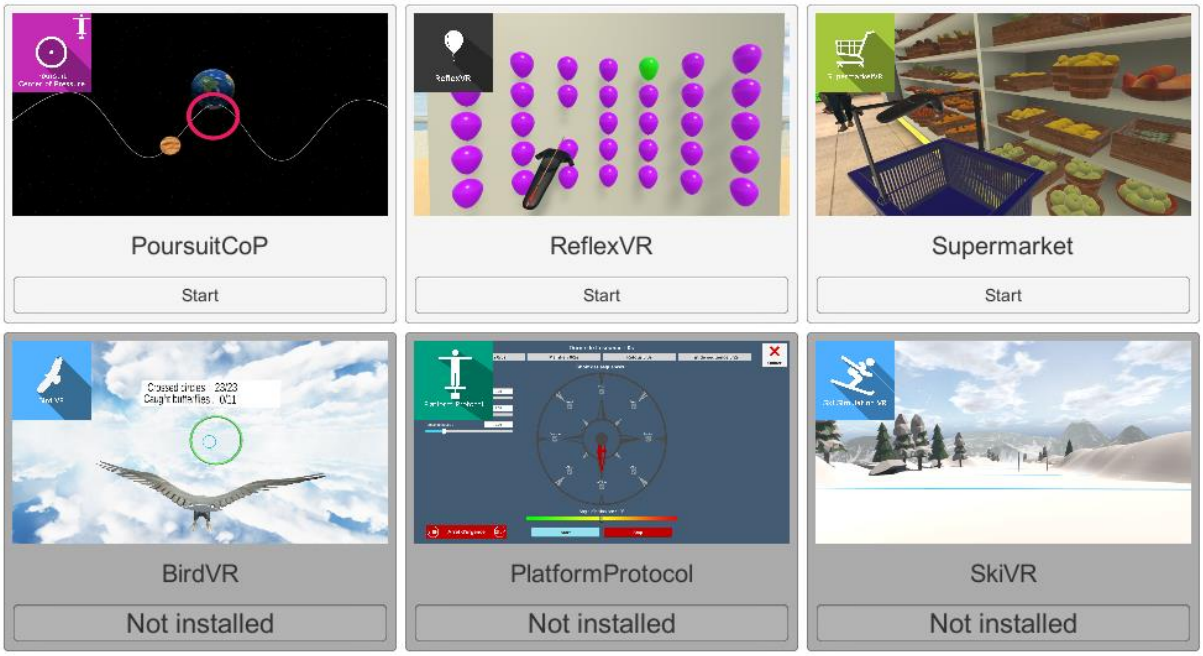


Some software can be started either in ***manual mode***, by directly clicking the "Start" button, or in ***protocol mode*** by clicking the "Protocols" button.

The ***manual mode*** allows users to choose the settings for each environment. The ***protocol mode*** offers several sessions with different difficulty levels to test and gradually accustom patients to the VR environment.

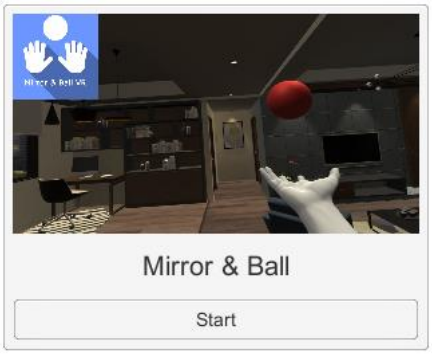


Software that is not part of your subscription package is greyed out. If you want to use it, please contact our sales department.



3. MIRROR & BALL

3.1. Start interface



When starting the software in ***manual mode*** from Patient Management ("Start" button), the software is opened in a start interface consisting of a module selection menu on the left, a set up area on the right, and an action area at the bottom right.

Depending on the module selected in the left menu, the set up area shows the various possible settings/information.

The general Patient Management menu can be accessed from the start interface by simply clicking the "Back" button located in the action area, or by pressing the "escape" key on the keyboard.

The module is launched by simply clicking the "start" button in the action area.

Once this button is pressed, the module starts by taking into account the specified settings. You also have the possibility to modify some settings when the module has been launched, using the mouse.

The Start/Quit buttons allow the environment to be played back or stopped entirely to adapt the experience to the patient's sensations.

3.2. Module field of application

Pronosupination exercises in mirror or live therapy for motor functions, coordination, cognition, inhibition control.
Sequences that can be configured and modified in real time are available.

3.3. Installing the patient

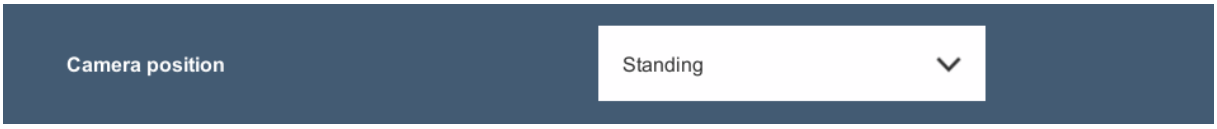
Use in a standing or sitting position, recenter at the start of the session.

3.4. Session settings

The variable settings for this module are as follows:

Choice of patient position

The starting position can be either "standing" or "sitting" on a chair at a table.



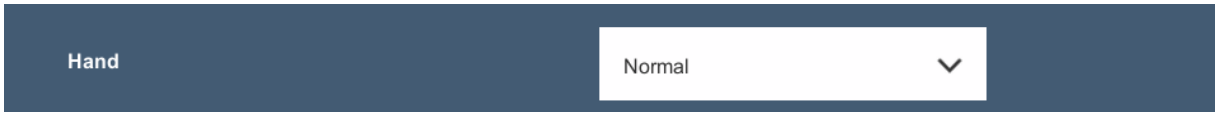
Choice of motor hand

The motor hand can be either the right or the left hand depending on the patient.

Hand

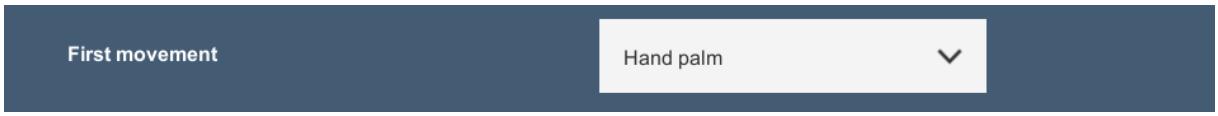
Two possible positions:

- “normal" hand: moving hand
- “open" hand: still hand



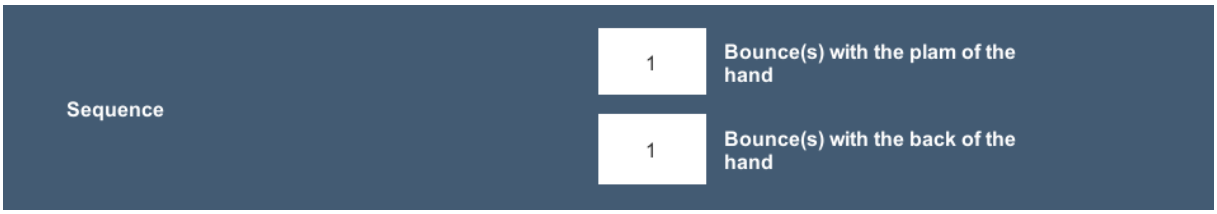
Choice of the first movement

The first movement is either "Hand palm" or "Hand back" and is used to define the hand position to have when launching a ball.



Sequence

Used to choose the number of bounces for each hand position

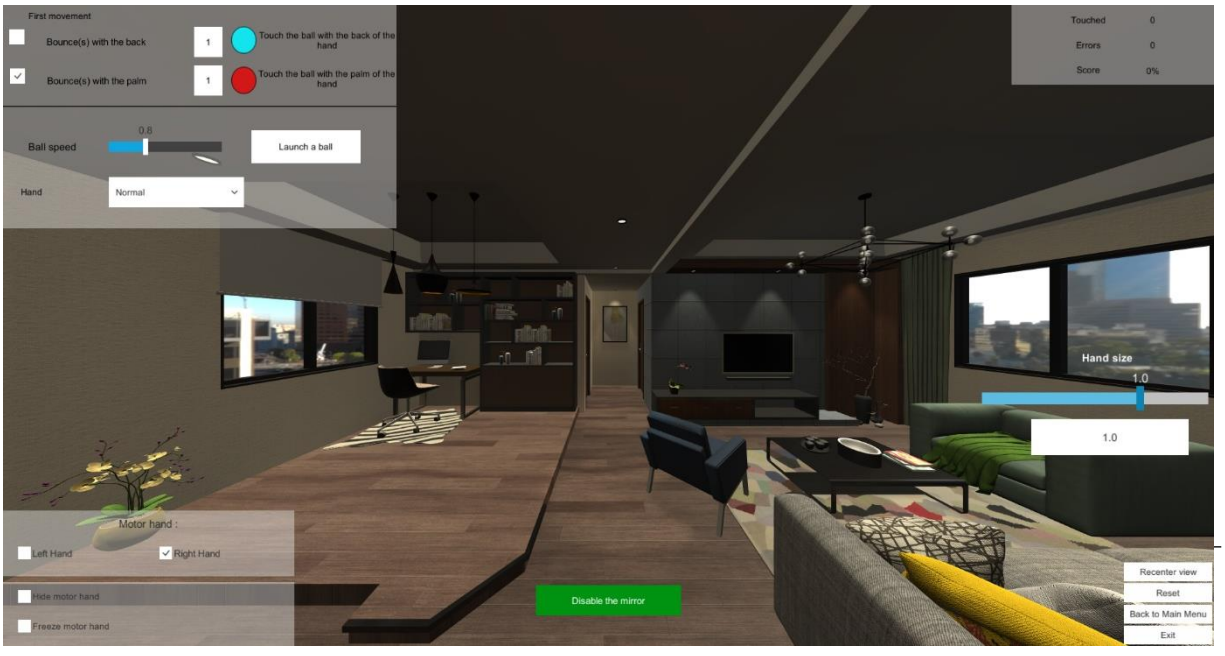


Hand size

Hand size can be adjusted using the cursor or keyboard by directly writing the selected value in the corresponding space.

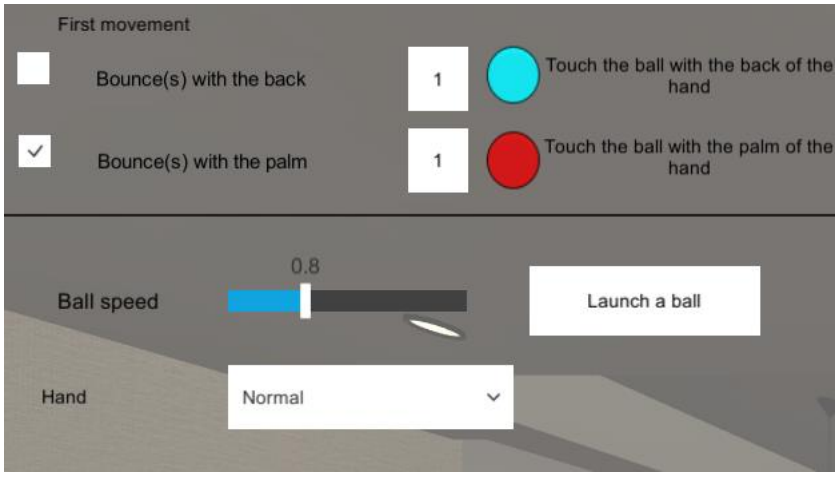
Ball speed

Ball falling speed; it can be adjusted using the cursor



Simulation settings

Several settings are available during simulation:



First movement

Choice of the hand position to have when launching a ball and the number of bounces for each side.

Ball speed

Ball falling speed; it can be adjusted using the cursor.

Launch a ball

Used to show a ball above the hand.

Hand

Used to choose between normal or open hand.

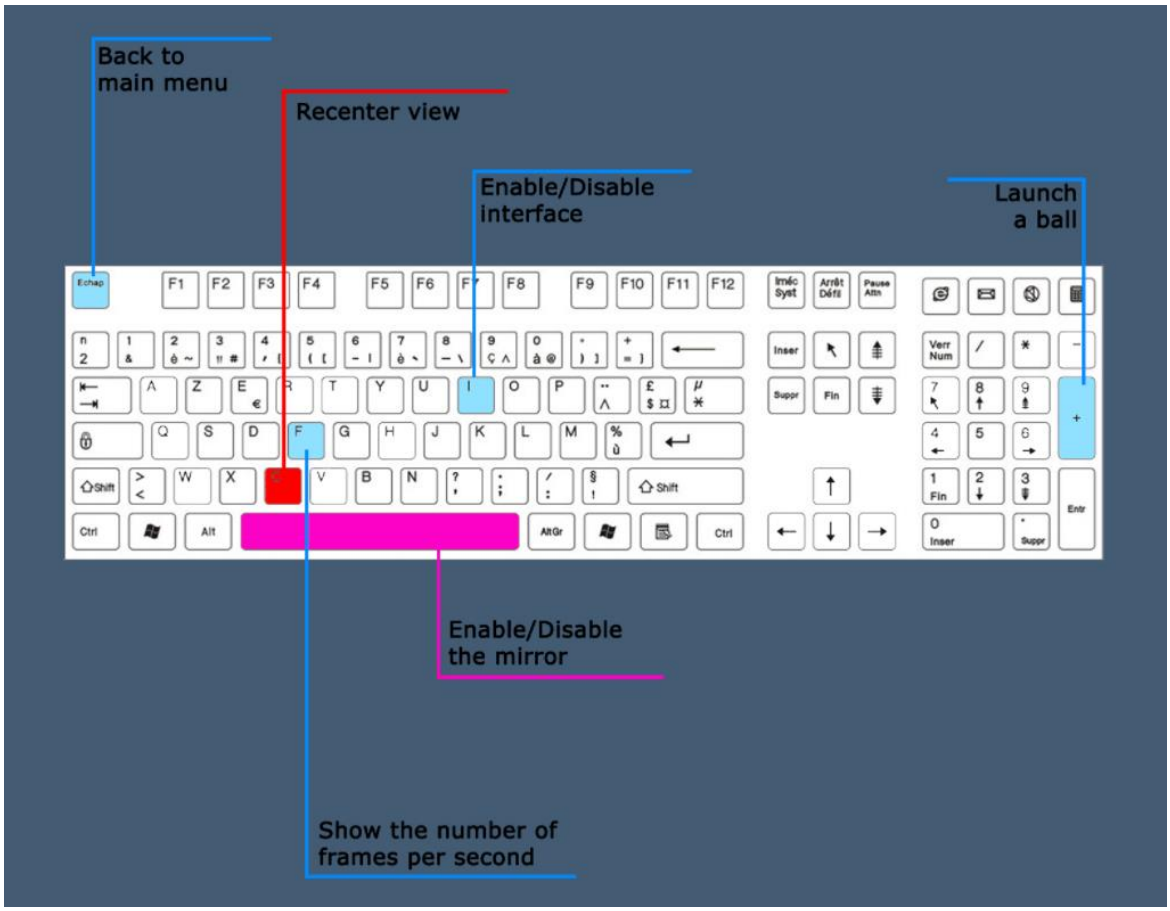
Choice of motor hand: used to choose the motor hand for the exercise.

The results are displayed in real time: the number of balls touched correctly; the number of errors; the success rate as a percentage.

3.5. Shortcuts

Keyboard or joystick shortcuts can be accessed in two ways:

- on the "Shortcuts" tab available at the start interface level
- within the module, by clicking on the joystick icon in the upper right corner of the screen


Back to main menu
Recenter view
Enable/Disable interface
Launch a ball
Enable/Disable the mirror
Show the number of frames per second

Reset the scene
Enable/Disable the mirror
Launch a ball
Back to main menu

3.6. Data processing

Data retrieval and analysis uses the Patient Management software.