



DVA VR

Module tutorial



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1. GENERAL

1.1. Description

DVA VR software is a comprehensive software for the assessment and rehabilitation of image stabilization during high-speed head movements.

DVA VR assesses the ability to stabilize an image on the retina when the head is moving and evaluates the vestibulo-ocular reflex (VOR).

In **AVD VR**, the patient must perform rapid head movements and announce the optotype that will only be visible at a certain speed.

1.2. Required accessories

Headset or tracker screwed onto the headband (supplied) and tracker screwed onto the screen clamp (supplied).

1.3. Patient setup

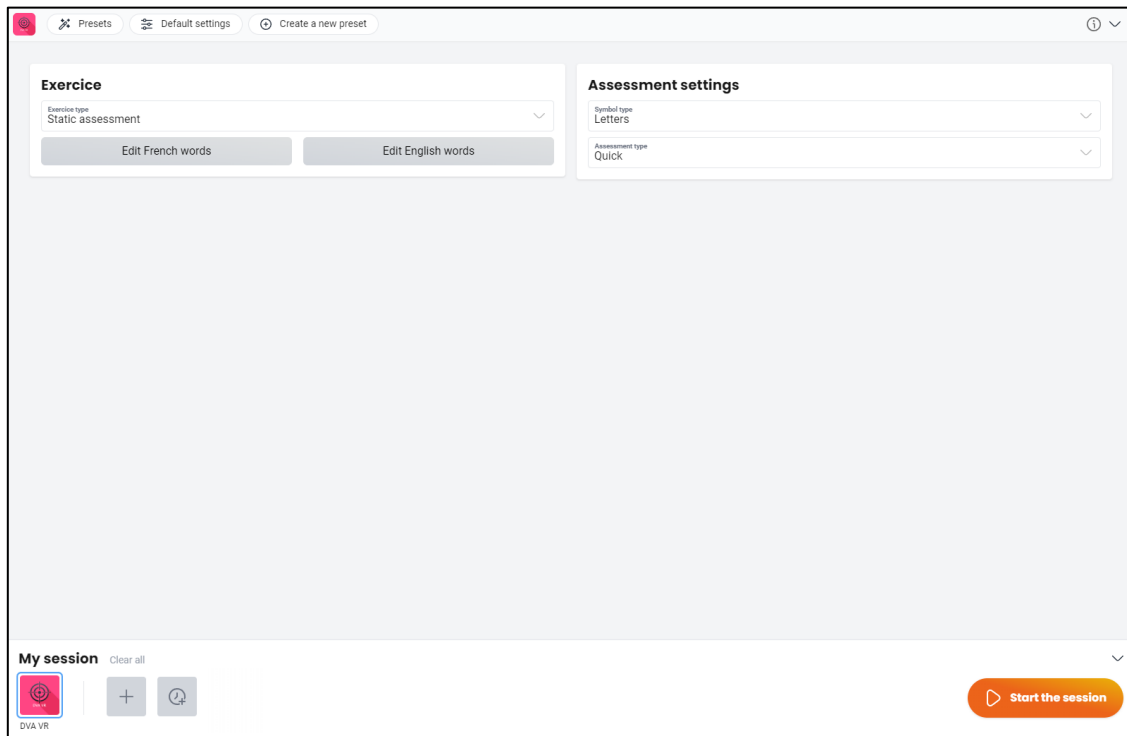
Patients must be seated at least 1 m from the screen during assessments (static or dynamic).

Re-education can be carried out seated or standing (to add the vestibular-spinal reflex component).

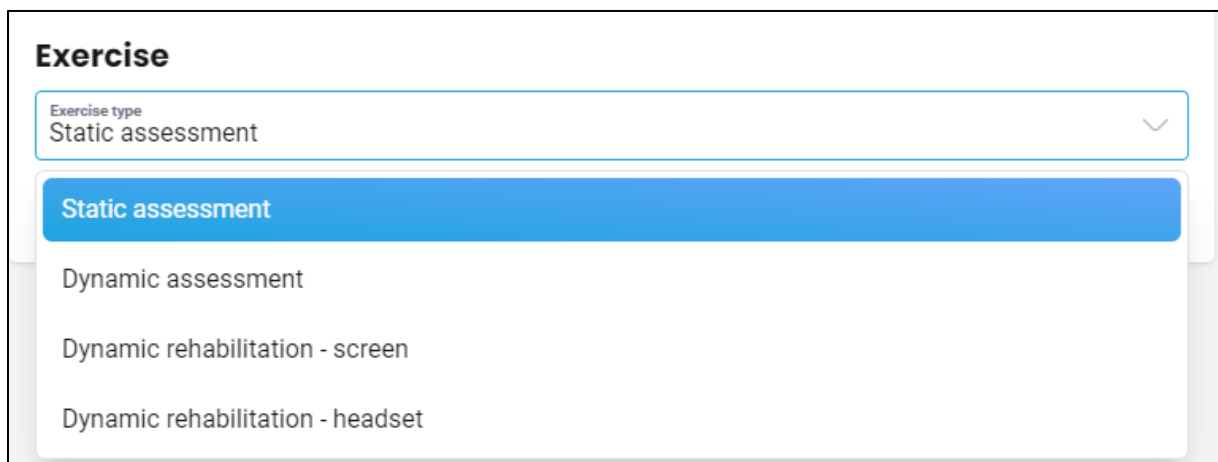
To use the software in “**screen mode**”, screw a tracker onto the screen clamp and place it on the screen. Screw a second tracker onto the “DVA headband” and place it on the patient's head.

2. Settings

2.1. Session settings



2.1.1. Assessment



By starting the software from the Patient Manager, the software will communicate the results of the last known **Static Assessment**.

2.1.1.1. Static assessment

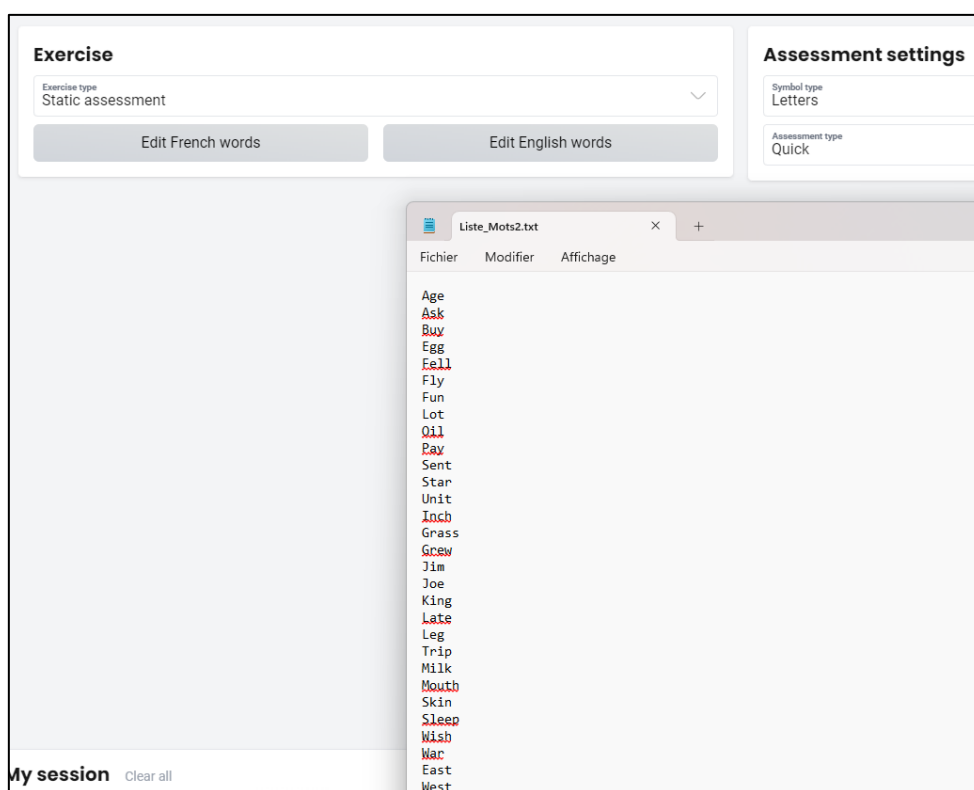


Exercise Exercise type Static assessment Edit French words Edit English words	Assessment settings Symbol type Letters Assessment type Quick
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To carry out a **Static Assessment**, click the corresponding tab.

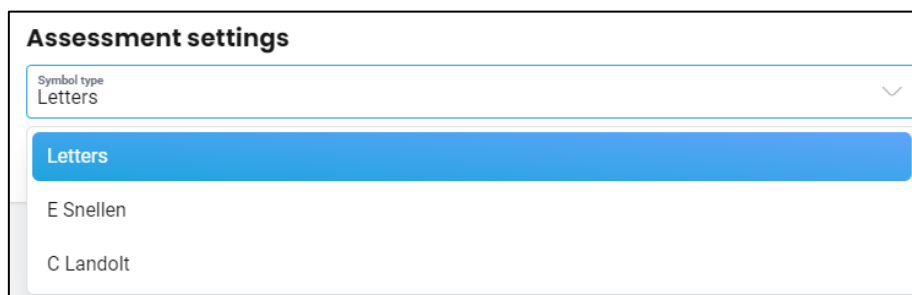
Edit French / English words:

You can modify the list of words that will appear in the assessment.



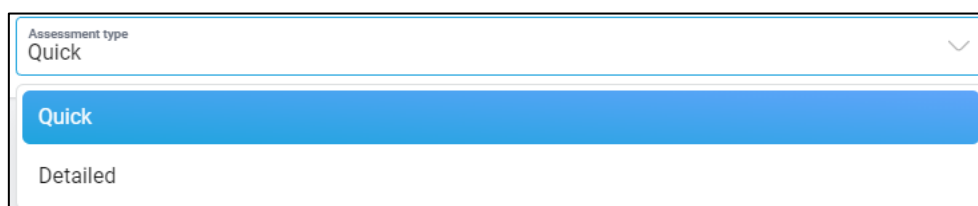
You can also add or remove words by modifying the "Word_List1.txt" and "Word_List2.txt" files located in the directory: "C:\Users\USERNAME\Documents".

You can then choose the **symbol type** of the optotypes to be displayed: letters, E Snellen or C Landolt.



The 'Assessment settings' dialog box contains a dropdown menu for 'Symbol type' with 'Letters' selected. Below the dropdown is a list of three options: 'Letters' (highlighted in blue), 'E Snellen', and 'C Landolt'.

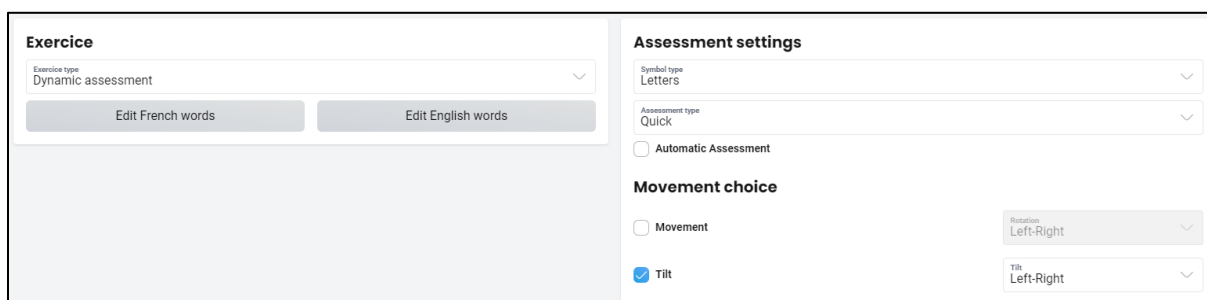
Finally, choose the **assessment type**: quick or detailed.



The 'Assessment type' dialog box contains a dropdown menu with 'Quick' selected. Below the dropdown is a list of two options: 'Quick' (highlighted in blue) and 'Detailed'.

Then, start the assessment.

2.1.1.2. Dynamic assessment



The 'Dynamic assessment' interface is divided into two main sections. The left section, titled 'Exercise', has a dropdown menu for 'Exercise type' set to 'Dynamic assessment'. Below this are two buttons: 'Edit French words' and 'Edit English words'. The right section, titled 'Assessment settings', contains a 'Symbol type' dropdown set to 'Letters', an 'Assessment type' dropdown set to 'Quick', and an unchecked checkbox for 'Automatic Assessment'. Below these is a 'Movement choice' section with two options: 'Movement' (unchecked) and 'Tilt' (checked with a blue circle). To the right of the 'Movement choice' section are two dropdown menus: 'Rotation' set to 'Left-Right' and 'Tilt' set to 'Left-Right'.

As with the static assessment, you can **edit the French and English words lists**.

You can also choose the optotype's **symbol type**: letters, E Snellen or C Landolt.

Finally, select the assessment type: quick or detailed.

Movement choice:

Select the type of movement the patient will have to perform.



Movement choice

☒ Movement

☐ Tilt

Rotation
Left-Right

Tilt
Left-Right

- **Movement:** if this option is checked, the “**Rotation**” drop-down menu is available. The 4 rotation options are: left-right, right-left, down-up and up-down.

Rotation
Left-Right

Left-Right

Right-Left

Down-Up Movement

Up-Down Movement

- **Tilt:** if this option is checked, the “**Tilt**” drop-down menu is available. The two options are: left-right and right-left.

Tilt
Left-Right

Left-Right

Right-Left

If you wish to assess all types of movement, check the “**Automatic Assessment**” box. The assessments will then follow one after the other for the different movements.

☐ **Automatic Assessment**

2.1.2. Rehabilitation

Change the display mode by clicking on the “**Screen**” or “**Headset**” options or choose the exercise type directly from the corresponding drop-down menu.

Display Mode

ScreenHeadset

Or:

Exercise type

Dynamic rehabilitation - screen

Static assessment

Dynamic assessment

Dynamic rehabilitation - screen

Dynamic rehabilitation - headset

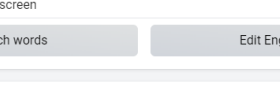
2.1.2.1. Dynamic rehabilitation – screen

Exercise

Exercise type
Dynamic rehabilitation - screen

Edit French words

Edit English words



Rehabilitation settings

Display Mode
Screen

Visual Acuity
5.0

☐ Amplitude Mode

☐ Words

☒ Letters

☐ Pictures

☐ E Snellen

☐ C Landolt

☐ Numbers

Rehabilitation settings:



Rehabilitation settings

Display Mode

Screen Headset

Visual Acuity

5.0

☐ Amplitude Mode

☐ Words ☒ Letters ☐ Pictures ☐ E Snellen ☐ C Landolt

☐ Numbers

Visual acuity: choose the size of the optotypes by specifying the visual acuity to be worked on.

Value: 1.0 to 14.0.

- **Amplitude mode:**

Consists of making a target appear opposite to where the optotype appears. Patients must then position the aiming circle on the target until it disappears. They can then carry out the movement to display the optotype.

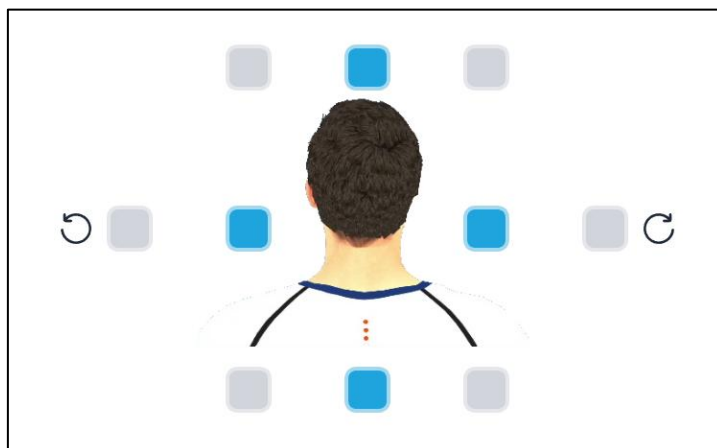
- **Optotypes:**

You can specify one or more categories for the optotypes to be displayed (words, letters, pictures, E Snellen, C Landolt or numbers).

☐ Words ☒ Letters ☐ Pictures ☐ E Snellen ☐ C Landolt

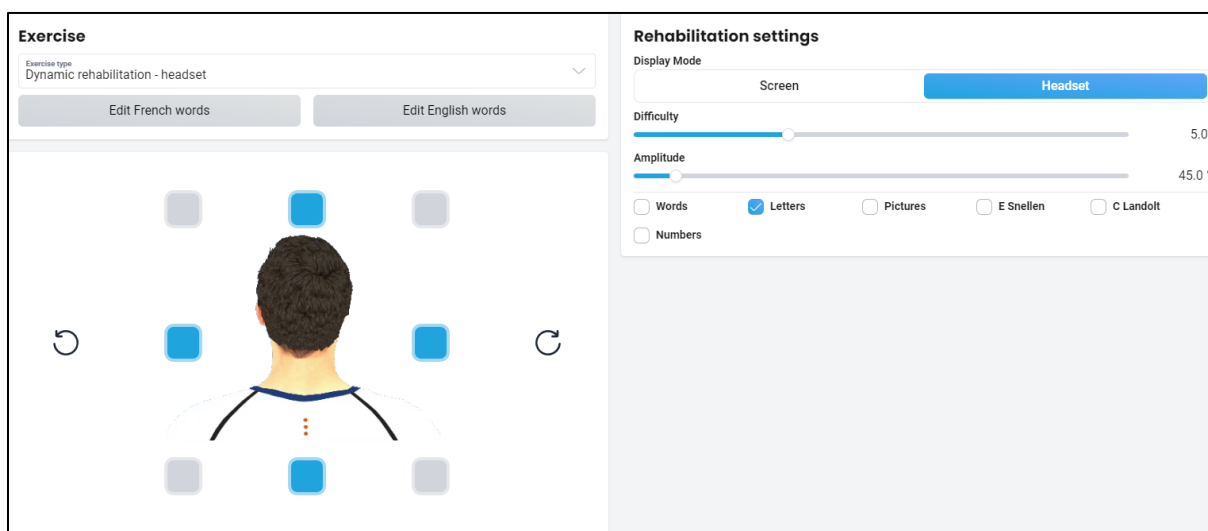
☐ Numbers

Movements:



Similarly, you can select one or more different movements by clicking on the grey squares. Once selected, a square turns blue.

2.1.2.2. Dynamic rehabilitation – headset



Rehabilitation settings:



Rehabilitation settings

Display Mode

Screen Headset

Difficulty 5.0

Amplitude 45.0°

☐ Words ☒ Letters ☐ Pictures ☐ E Snellen ☐ C Landolt

☐ Numbers

- **Difficulty:**

Value: 1.0 to 14.0.

- **Amplitude:**

Value: 20.0 to 360.0°

- **Optotypes:**

You can select one or more optotype categories to display (words, letters, pictures, E Snellen, C Landolt or numbers).

3. Module

3.1. Session

Once the presets have been selected, click on **"Start the session"** in the bottom right of the screen.

Some parameters are accessible **on the left of the screen, by clicking on the cog icon.**

For all exercises, click on the green **"Save"** button at the end of the session.

Principles:



Static visual acuity measures the smallest discrimination (size) of a letter in a static position (head and letter screen).

DVA measures a person's dynamic visual acuity when their head is turned rapidly. The optotype is displayed for a fraction of a second at a set speed.

DSA assesses the ability to stabilise an image on the retina when the head is moving, and therefore evaluates the vestibulo-ocular reflex (VOR).

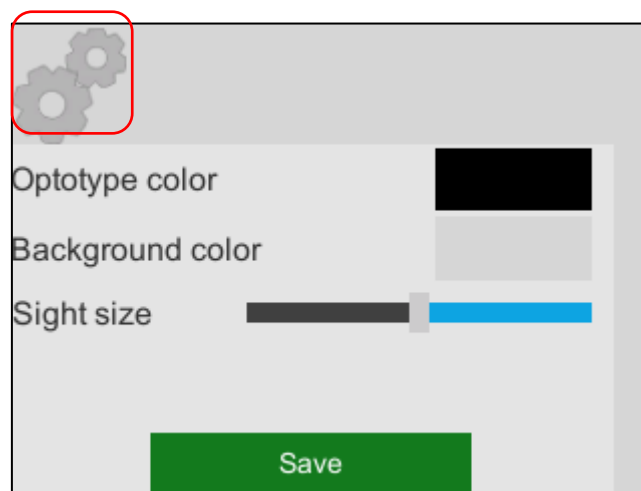
Principle of the test: to measure the acuity to which a patient is able to read an optotype by stopping their movement abruptly on that optotype. They must read it and tell the user (they can also visualise the correct answer). The patient has 3 attempts to read the optotype. If they succeed, the optotype decreases in size (for example, from 5/10ths to 6/10ths). If the patient is unsuccessful, their dynamic visual acuity corresponds to their last success.

Principle of movements: regardless of the mode selected, the patient must make rapid head movements and stabilise his or her gaze at the end of the movement:

- Either by starting from the centre of the screen in the direction indicated. When the speed is sufficient, an optotype briefly appears (letter, number, word or symbol).
- Or by starting from a target (which will be displayed in green) and stopping at the dotted line.

The user must validate the patient's responses or not.

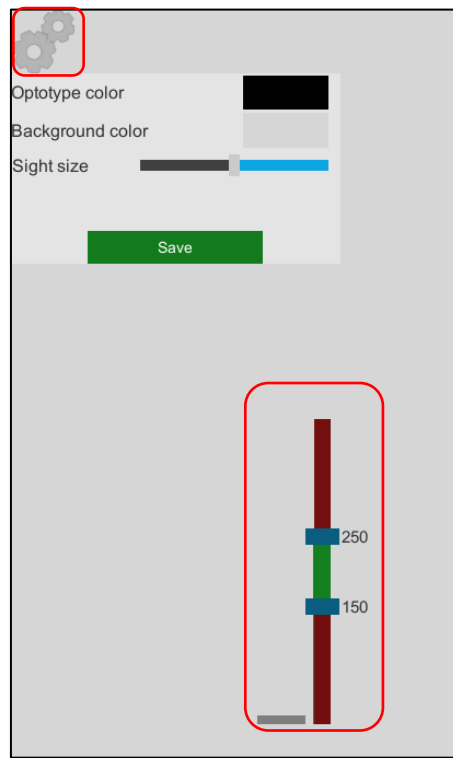
- **Static assessment:**



Click on the cog icon to change the **optotype color**, **background color** and **sight size**.



- **Dynamic assessment:**



Click on the cog icon to change the **optotype color**, **background color** and **sight size**.

The visual cue is there to help the patient perform movements.



- **Dynamic rehabilitation – screen:**



Click on the cog icon to change the **optotype color**, **background color**, **sight size** and **visual acuity**.

The visual cue is there to help the patient perform movements.

- **Dynamic rehabilitation – headset:**



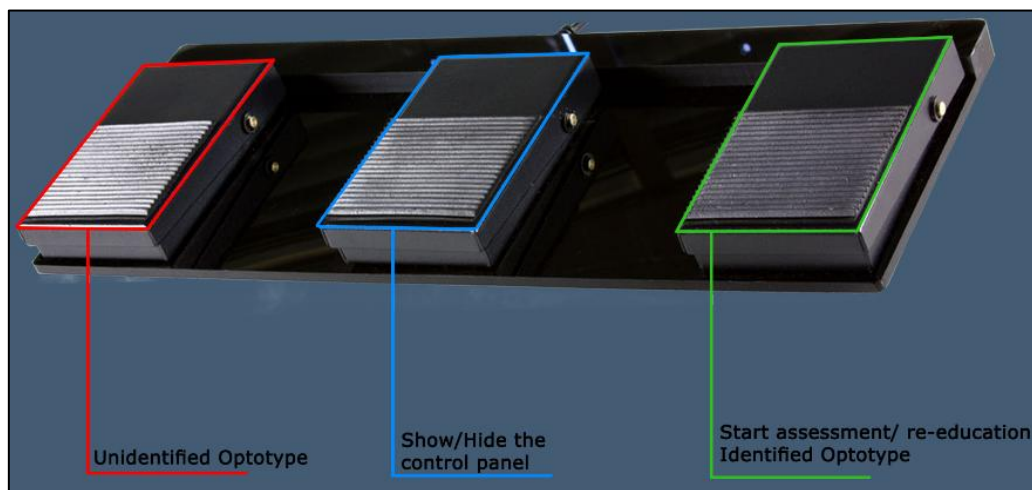
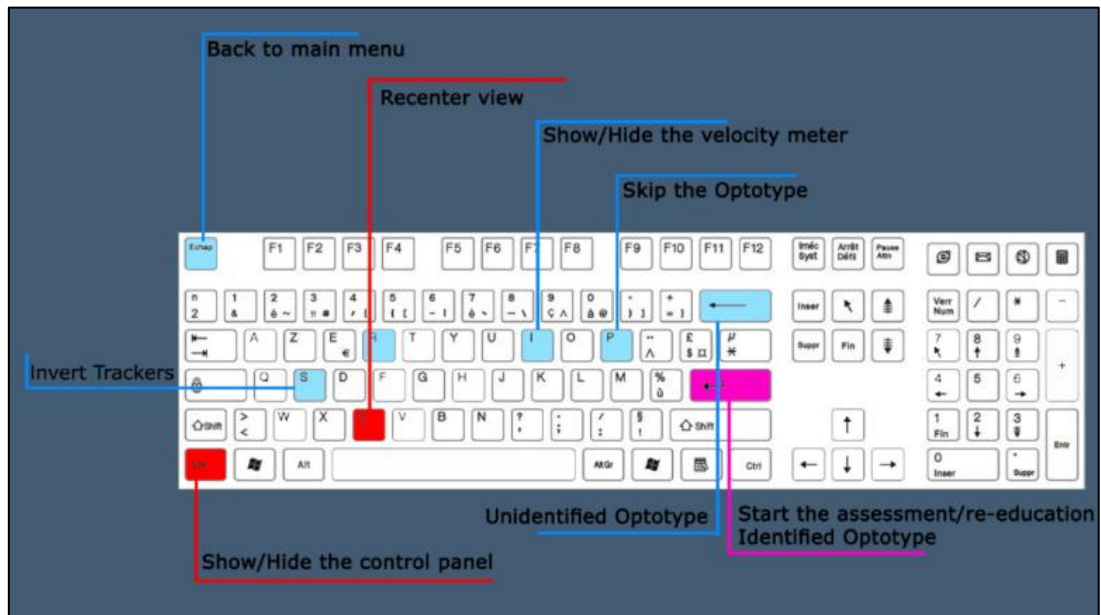
Top left of screen: change the optotype color and view the session's progress.

Top right of screen: change the environment (none, cube, cylinder or floor & sky), the difficulty (1 to 14) and the amplitude (20 to 360°).

The visual cue is there to help the patient perform movements.

3.2. Shortcuts

During the session, the shortcut list is found by clicking on the Xbox controller icon in the upper right corner of the screen.





3.3. Results

Once the session is over, you can view the results.

3.3.1. Summarized results

By default, the results are as follows:

Dynamic rehabilitation:

- Number of validated optotypes.
- Number of displayed optotypes.
- Patient score.

Dynamic assessment:

- Left VA
- Right VA
- Up VA
- Down VA
- Left Tilt VA
- Right Tilt VA
- Left Loss
- Right Loss
- Up Loss
- Down Loss
- Left Tilt Loss
- Right Tilt Loss
- Top Loss
- Bottom Loss

Static assessment:



- Static VA




3.3.2. Report and charts

Click on the histogram icon to access detailed results and the session report.

Session details
20/02/2025 14:40

DVA VR (Dynamic rehabilitation - headset)



Parameters

Results

Notes

Name	Result
Recognized optotypes	2
Displayed optotypes	2
Score	100.0