DVA

Test

Module tutorial

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1. General

1.1. Introduction

1.1.1. Acronyms and definitions

DVA = Dynamic Visual Acuity

SVA = Static Visual Acuity

VPT = Visual Processing Time

GST = Gaze Stabilization Test

logMAR :

- log = logarithm
- MAR = Minimum Resolution Angle
- The LogMAR (or Log MAR) is a unit that quantifies visual acuity in such a way as to be able to perform statistical calculations (e.g., the mean, the standard deviation of visual acuity in a population of eyes, etc.), unlike the expression of visual acuity in decimals (in tenths).

1.1.2. Description

DVA Test is a software for evaluating image stabilization during high-speed head movements. In DVA Test, the patient must make rapid head movements, stop their movement and identify the optotype that appears under various conditions.

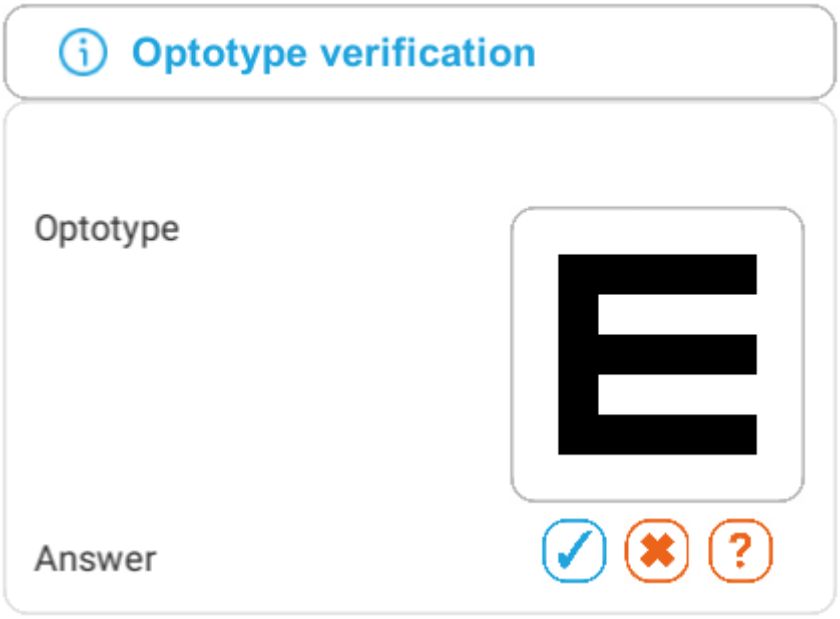
By default, DVA Test runs a series of tests:

- SVA : Static Visual Acuity: *Determines static visual acuity.*
- VPT : Visual Processing Time: *Gives the minimum perception time for a flashed optotype.*
- GST : *Calculates the maximum velocity of the head for the perception of an optotype.*
- DVA : Dynamic Visual Acuity, *measures visual acuity during dynamic head movement.*

The DVA evaluates a person's ability to stabilize an image on the retina when the head is moving, it evaluates the function of the vestibulo-ocular reflex (VOR)

Principle of the test: measure the maximum visual acuity at which a patient can read an optotype by abruptly stopping his head movement on this optotype. He must read it to the practitioner. With each success, the difficulty increases (the size of the optoype decreases and/or the speed required increases). The test stops automatically after 3 incorrect answers for a given acuity.

Patients must indicate the direction of the branches of the E that they will see.



You can validate, invalidate or declare the optotype as unrecognized with the buttons at the bottom of this panel.

Validate the answer

Error or optotype not recognized or not seen

1.2. Required accessories

VRHeadset (turned ON).

1 tracker + DVA Headband.

A ruler graduated in mm to calibrate the module with your screen (see following chapters).

Optional: xBox controller, footswitch pedal.

Optional: a 2nd Tracker screwed on the screen clamp (supplied).

Recommendation: Be sure to turn off trackers after use.

1.3. Patient setup

The patient should preferably be seated or standing in front of the screen at least 1.5 m from the screen during the assessment.

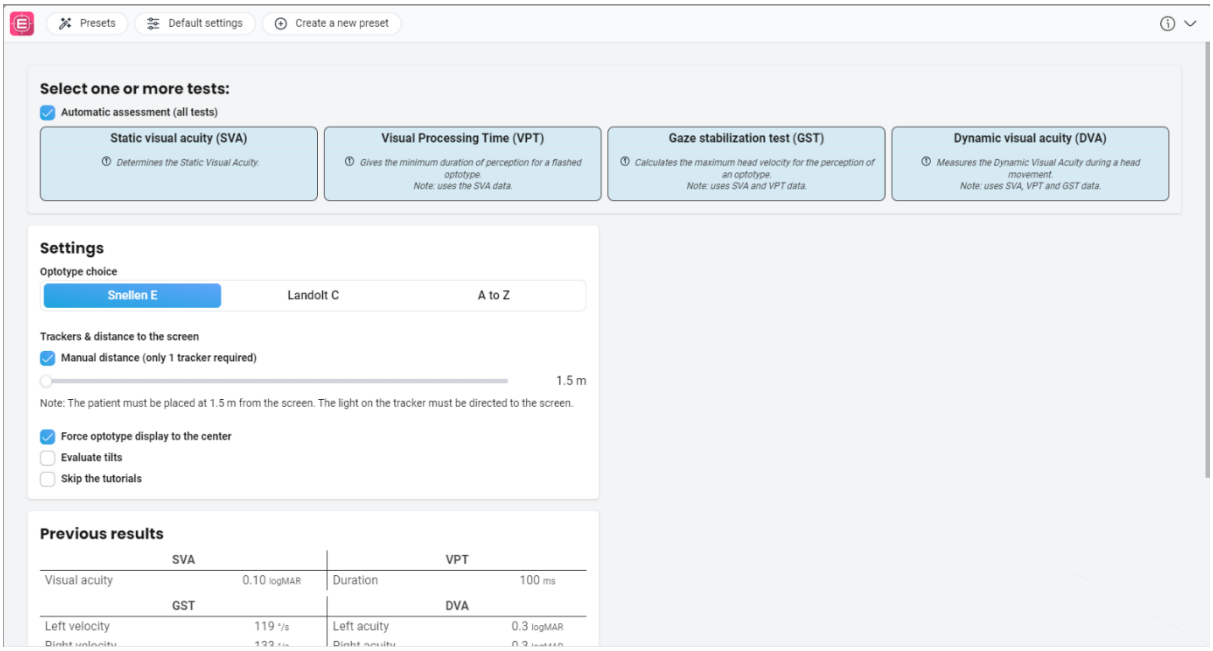
Screw a tracker onto the "DVA headband".

Place the headband with the tracker on the patient's head. Ensure the light of the tracker is directed forwards towards the computer screen.

By default, the "Manual Distance" checkbox is selected. If you clear this box, place a second tracker on the screen clip and install it on the screen.

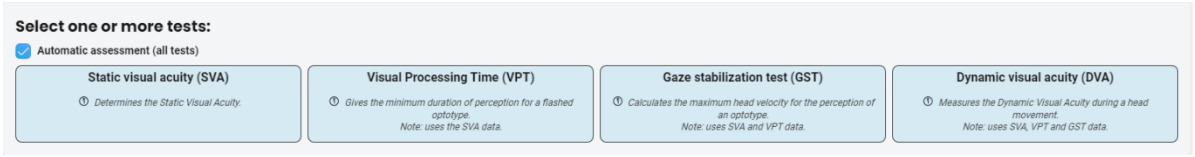
2. Settings

2.1. Session settings



2.1.1. Automatic or manual assessment

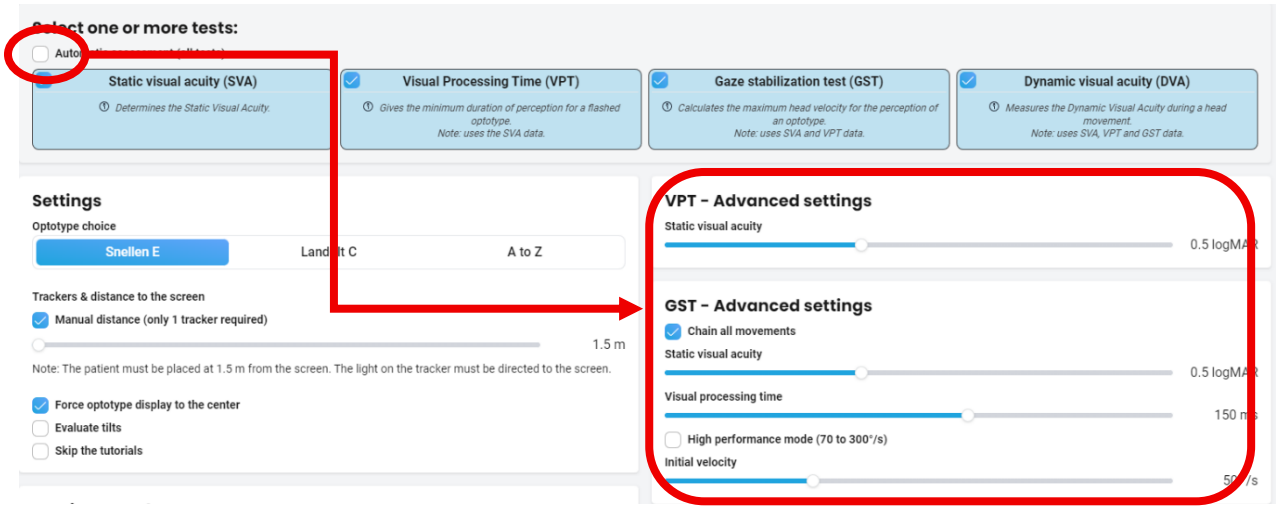
2.1.1.1. Automatic assessment



By default, DVA Test is automatic and chains all the tests.

For specific needs, depending on your objectives, it is possible to launch a sequence with part of the tests.

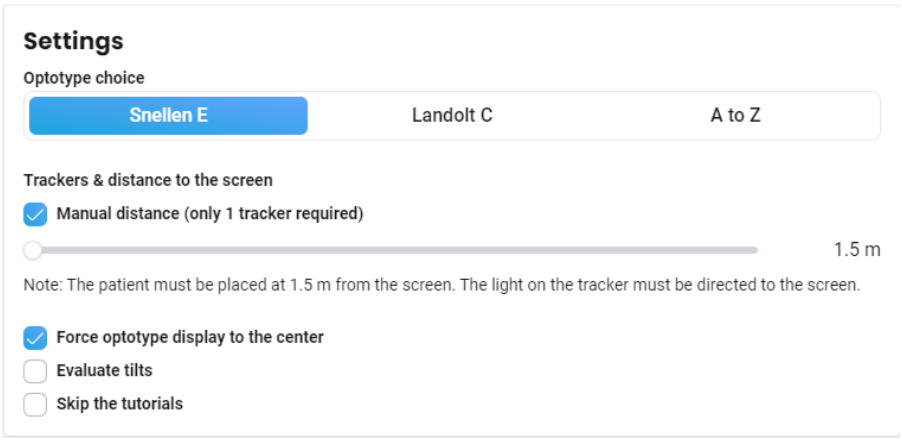
2.1.1.2. Manual assessment



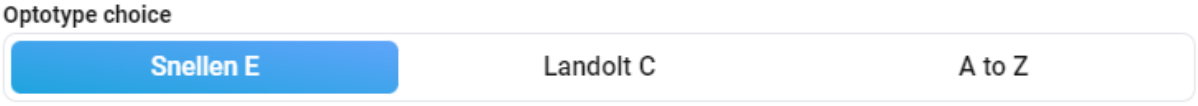
By clearing the Automatic assessment checkbox, you can select which tests to perform based on your goals.

The selected tests display their advanced settings, except for the Static Visual Acuity test which does not need any additional adjustments.

2.1.2. Settings



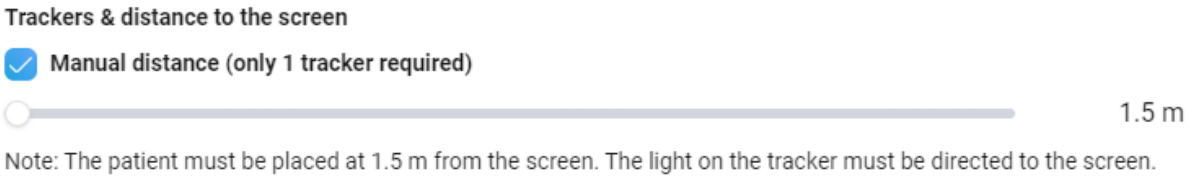
2.1.2.1. Optotype choice



By default, the E Snellen is chosen, the patient will have to say the direction of the branches of the E (example: up, down, left, right)

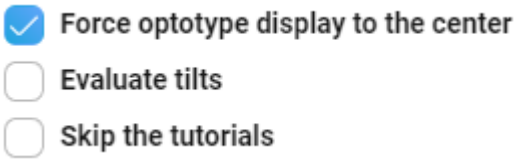
You can choose another shape of optotype to display: C Landolt or letters A to Z.

2.1.2.2. Trackers and distance to the screen



The checkbox is selected by default. Only one tracker is required. The patient must be seated in front of the screen at a minimum distance of 1.5m. The distance between the patient and the screen must then be entered with the slider [1.5, 5m]. When the box is unchecked, the second tracker, placed on the screen, is required.

2.1.2.3. Other settings



- **Force optotype display to the center:**

By default, the optotype display is enabled in the center. This defines the position of the optotype at the end of the head movement in the center of the screen.

Unchecking this box allows the optotype to be displayed on the edges of the screen.

- **Evaluate tilts:**

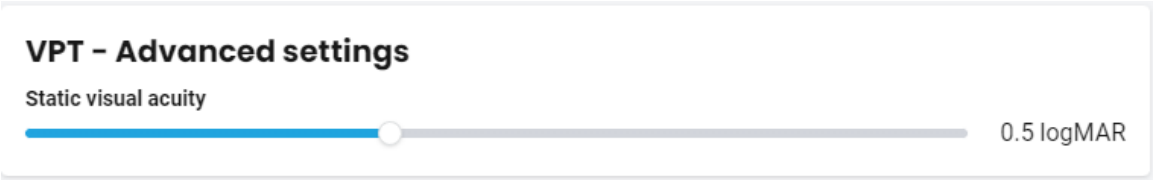
The checkbox is not active by default. It only applies to manual mode for GST and DVA tests if you need to evaluate tilts.

- **Skip the tutorials:**

Inactive box by default.

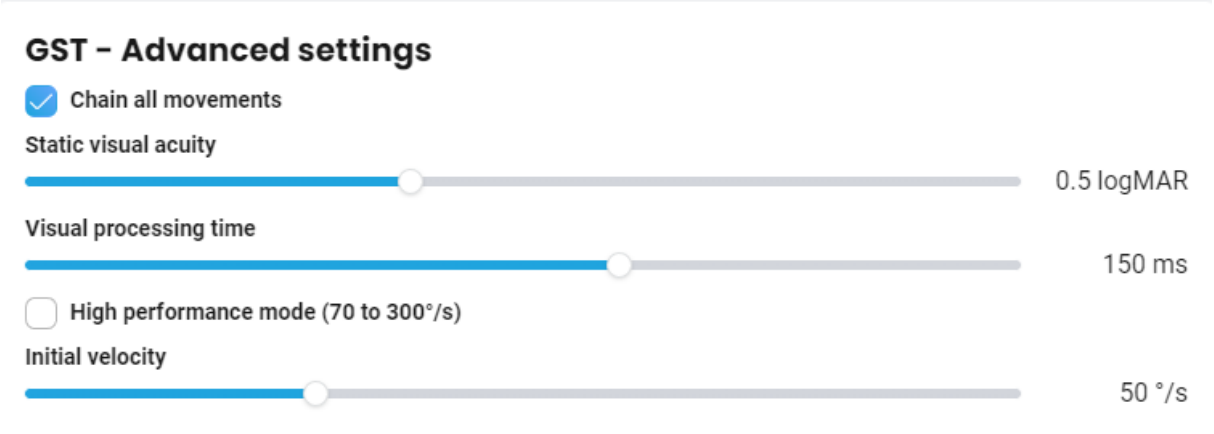
By default, tutorials will be displayed automatically at the start of each new test.

2.1.2.4. VPT - Advanced settings



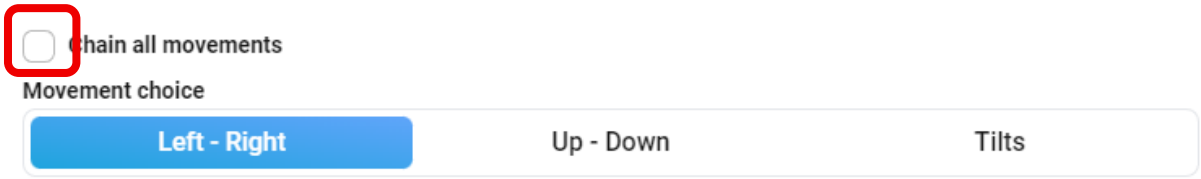
Slider from 1 logMAR to -0.3 logMAR for visual acuity.

2.1.2.5. GST – Advanced - settings



By default, the chosen sequence includes all head movements.

It is possible to choose the movements that suit you by deactivating this box and then selecting the type of movement to be performed:



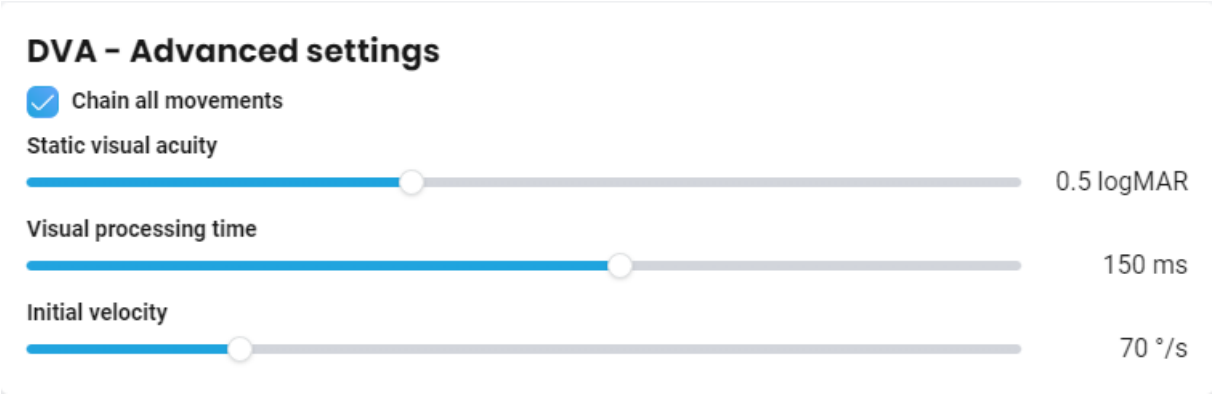
If the selected motion is "Tilts", the "Evaluate Tilts" global setting will be ignored and considered active.

Slider from 1 logMAR to -0.3 logMAR for visual acuity.

Display time (Visual Processing Time): 20ms to 1000ms.

High-performance mode: The initial velocity changes from the interval of [10 to 150°/s] to that of [70 to 300°/s].

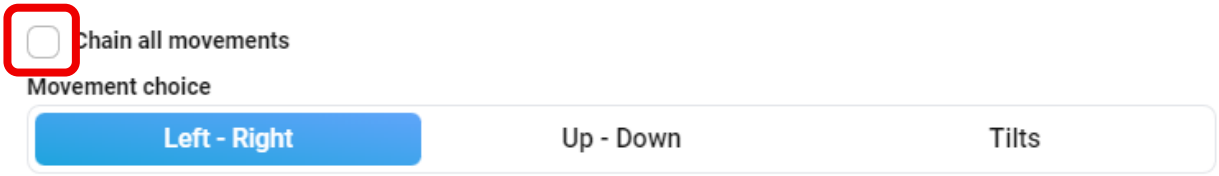
2.1.2.6. DVA – Advanced settings



By default, the sequence you choose includes all head movements.

You can choose the movements that suit you by unchecking this box and then selecting the type of movement you want to make:

When the checkbox is off, select the type of movement you want to make:



If the selected motion is "Tilts", the "Evaluate Tilts" global setting will be ignored and considered active.

Slider from 1 logMAR to -0.3 logMAR for visual acuity.

Display time (Visual Processing Time): 20ms to 1000ms.

2.2. Additional information

2.2.1. Results of previous sessions

Previous results

SVA		VPT	
Visual acuity	-0.20 logMAR	Duration	20 ms
GST		**DVA**	
Left velocity	389 °/s	Left acuity	-0.3 logMAR
Right velocity	332 °/s	Right acuity	-0.3 logMAR
Up velocity	336 °/s	Up acuity	-0.3 logMAR
Down velocity	439 °/s	Down acuity	-0.3 logMAR
Left tilt velocity	--- °/s	Left tilt acuity	--- logMAR
Right tilt velocity	--- °/s	Right tilt acuity	--- logMAR

Last session used: 02-17-2026, 02:12 PM +2 more.

This table is created from the results of the previous sessions.

If the results have been carried out partially, the unmeasured values are searched in the history of past sessions. For each unmeasured value, the most recent result is used.

The "Last session used" indication shows the date and time of the most recent session. Then the indication "+ X more" tells you about the number of sessions used to complete this table of results.

2.2.2. logMAR to decimal values conversion table

Conversion logMAR to decimals

Conversion table

logMAR	Decimals *
1	1 /10
0.9	*1.3 /10*
0.8	*1.6 /10*
0.7	2 /10
0.6	*2.5 /10*
0.5	*3.2 /10*
0.4	4 /10
0.3	5 /10
0.2	*6.3 /10*
0.1	8 /10
0	10 /10
-0.1	*12 /10*
-0.2	*16 /10*
-0.3	20 /10

** Approximations*

3. Module

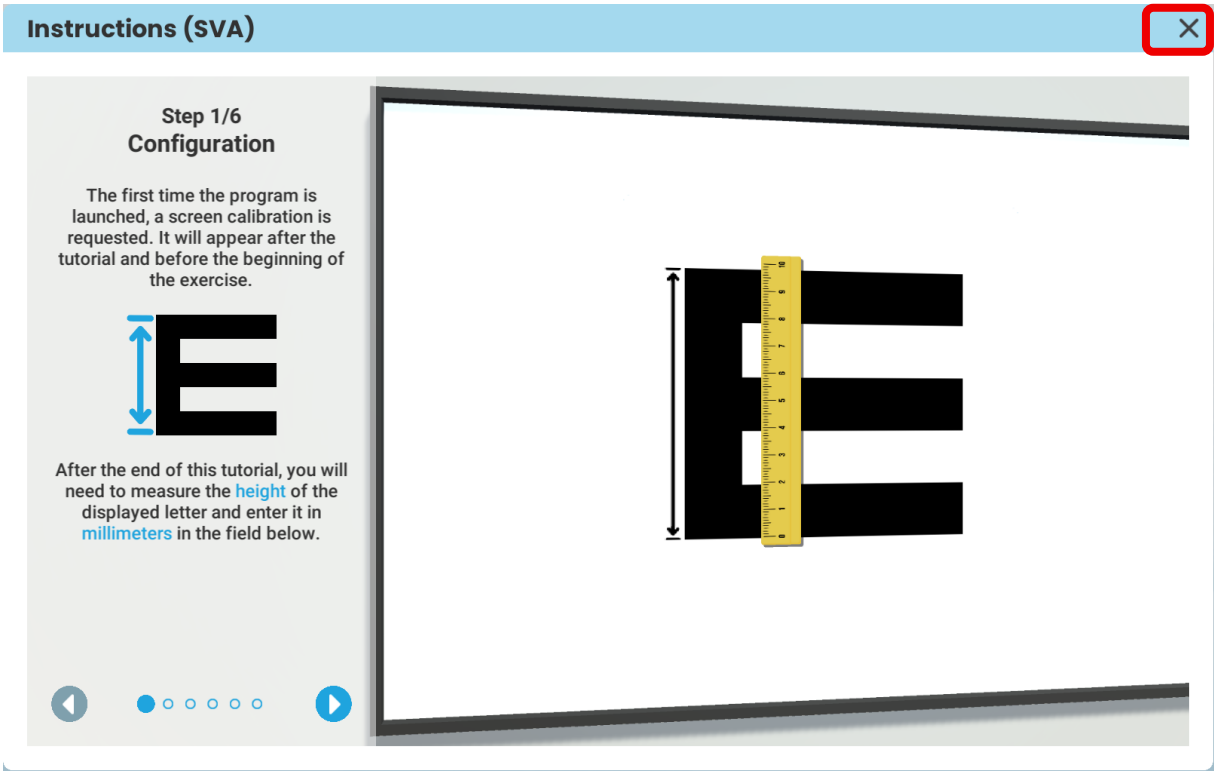
3.1. Session

Once the settings have been set, click on "**Start session**" at the bottom right of the screen.

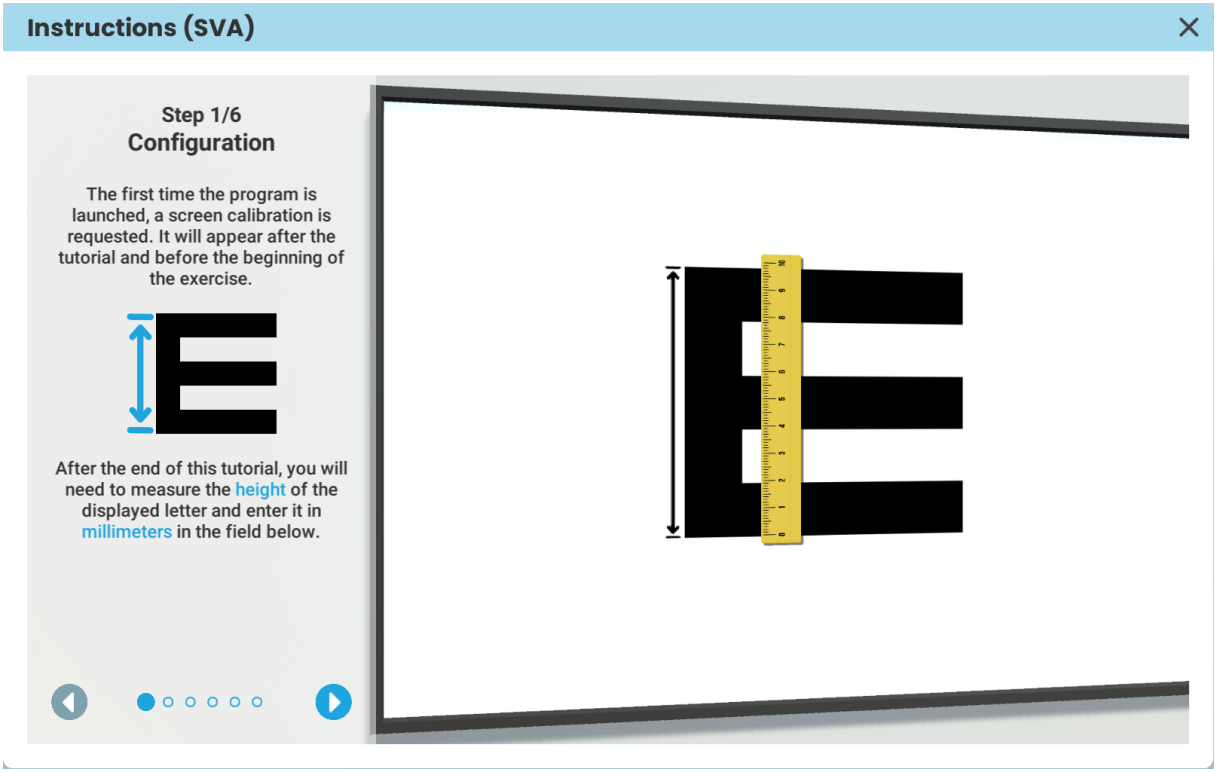
The tutorials guide you through the DVA Test.

3.1.1. Structure of tutorials

At the beginning of each test, a tutorial is displayed. It is possible to turn the pages by clicking on the arrows with the mouse, or by using the left and right directional arrows on the keyboard. It is also possible to close the tutorials by clicking on the cross at the top right.

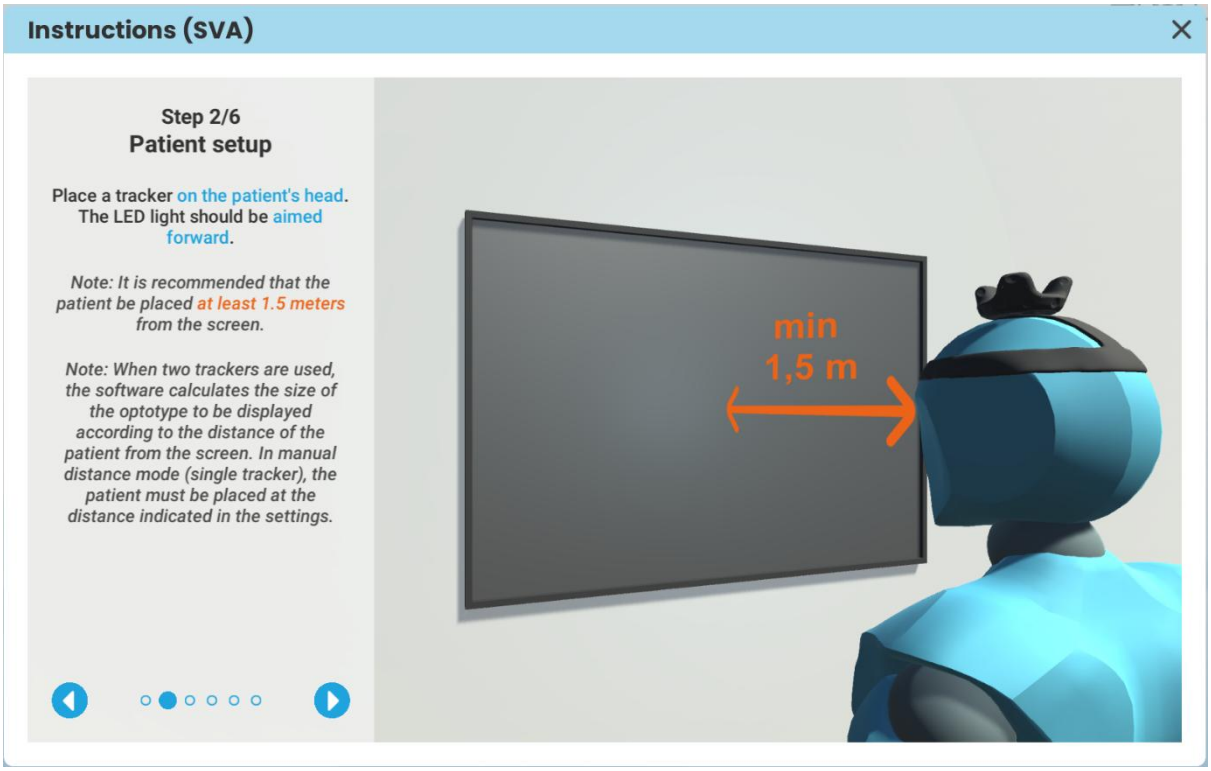


3.1.1.1. Configuration

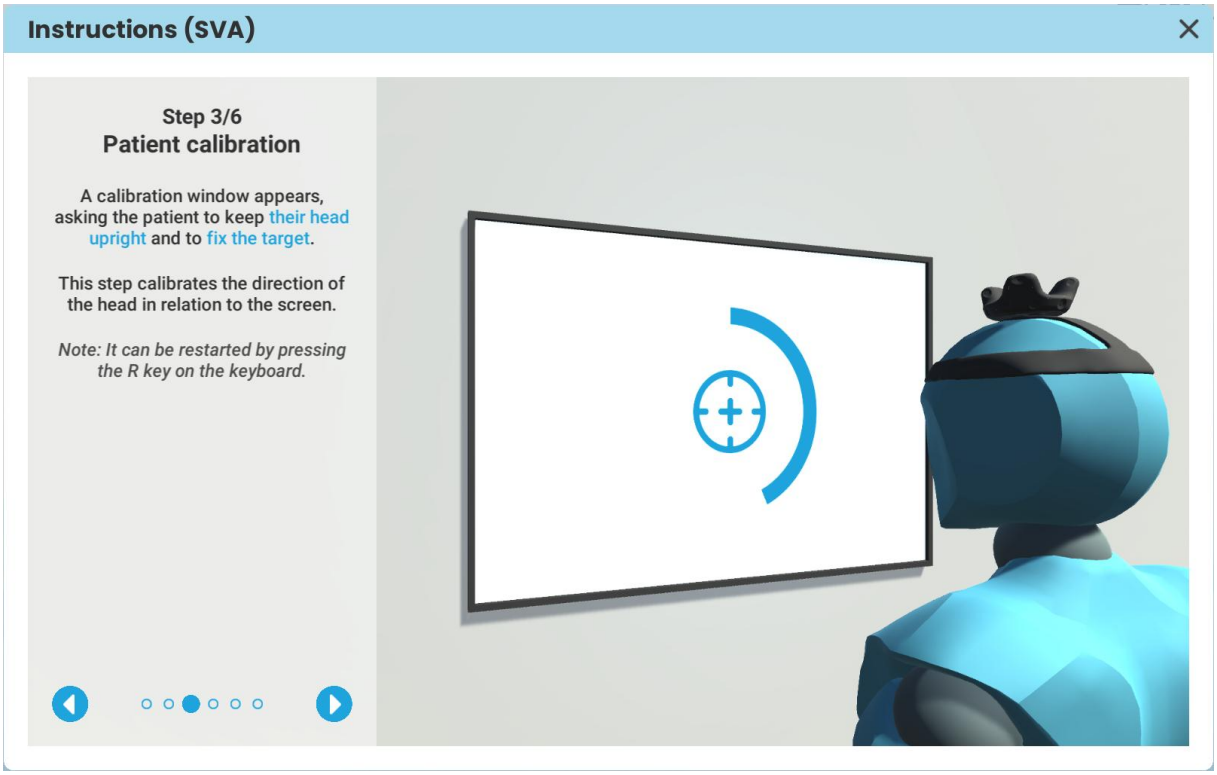


This tutorial appears when you first use DVA Test or when you want to make a new configuration.

3.1.1.2. Patient setup



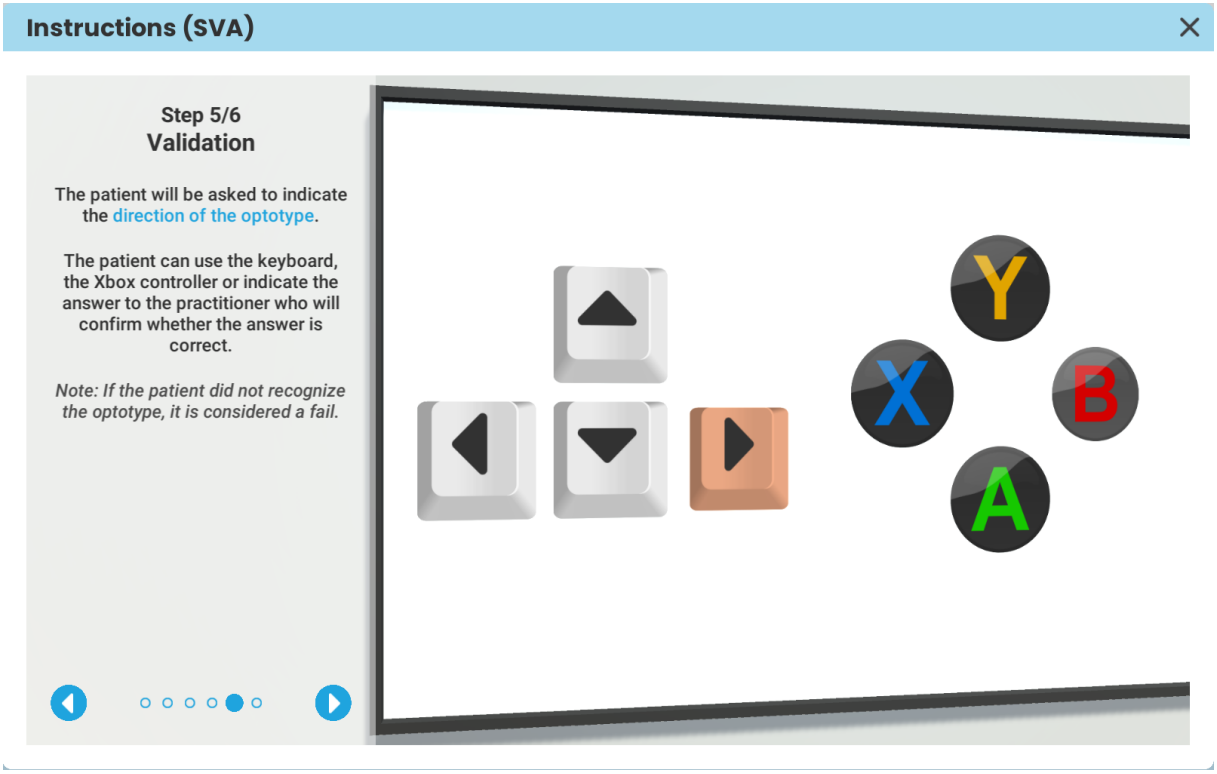
3.1.1.3. Calibration



3.1.1.4. Explanation of the exercise

Each exercise has its own explanation. This explanation depends on the current exercise and the parameters of the session. These explanations are presented below.

3.1.1.5. Validation



By default, the patient must indicate the direction of the branches of the E that he or she will see.

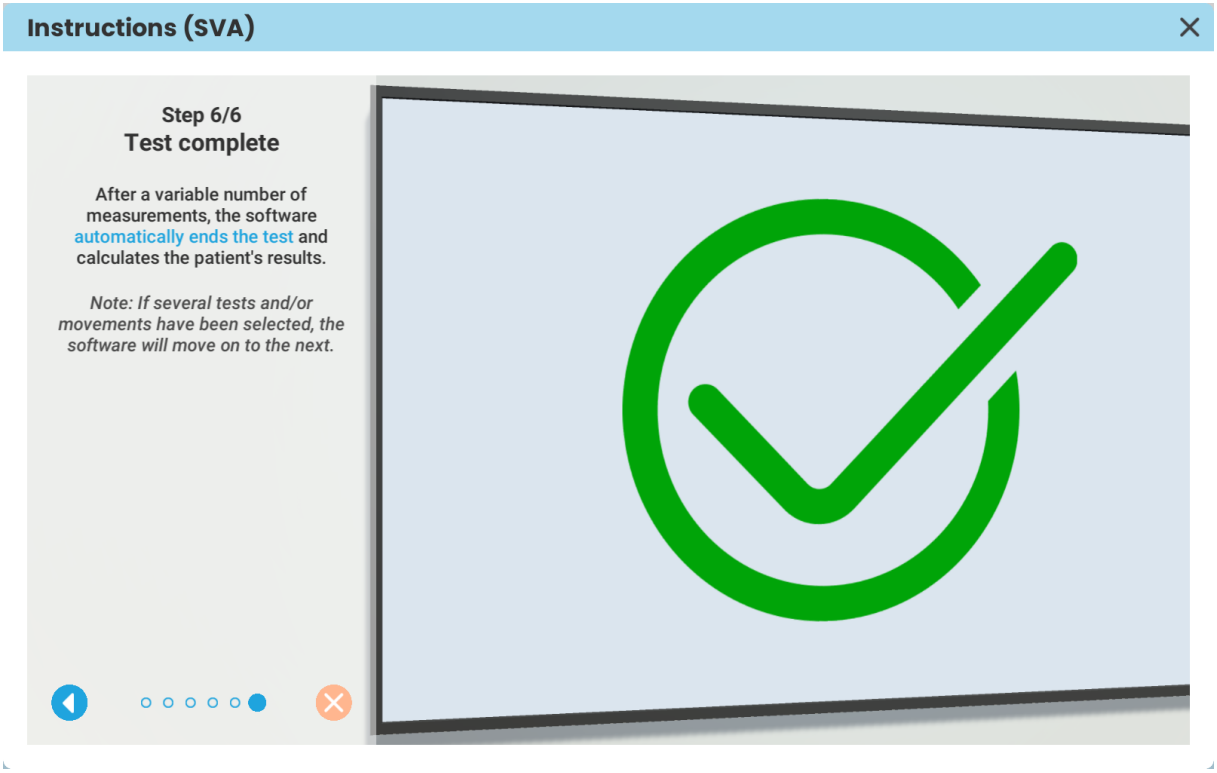
The "directional arrows on the keyboard" represent the direction of the E's temples:

Up arrow = up
Down arrow = down
Right arrow = right
Left arrow = left

The Y, X, B, A buttons are those of the Xbox controller.

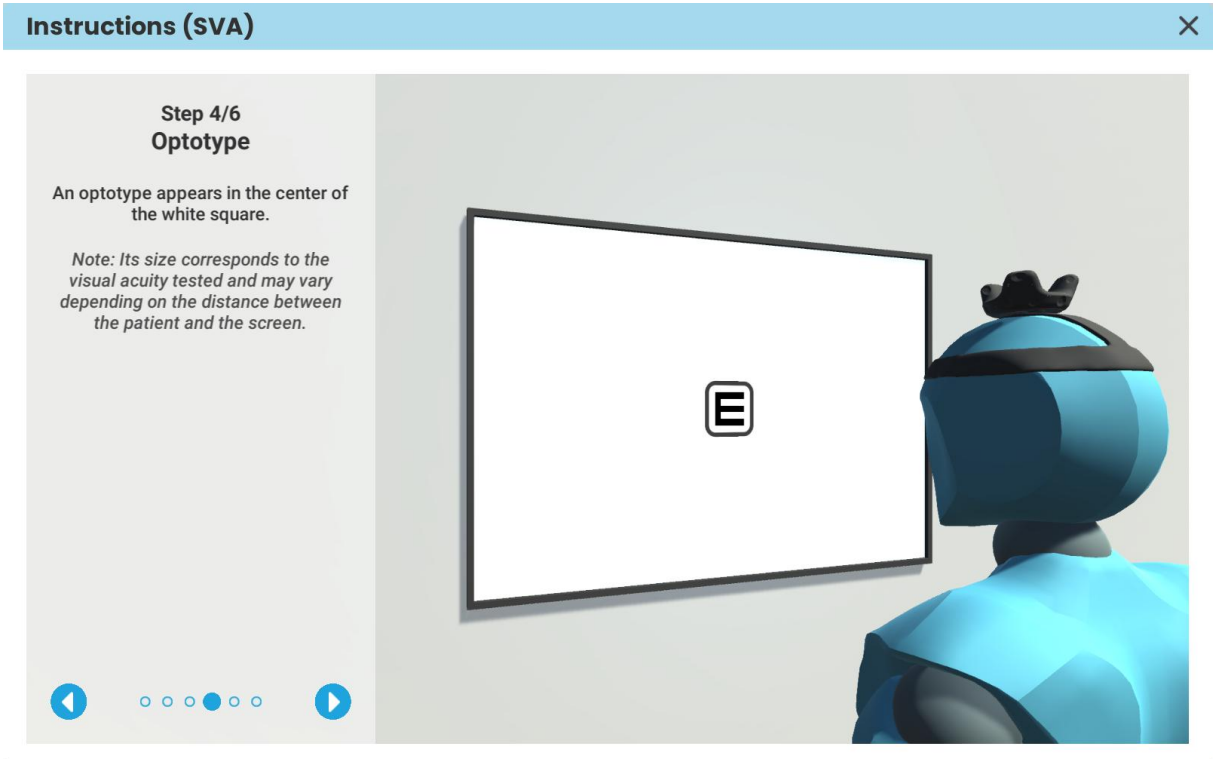
Y= up
A= Down
B= to the right
X= to the left

3.1.1.6. Test complete

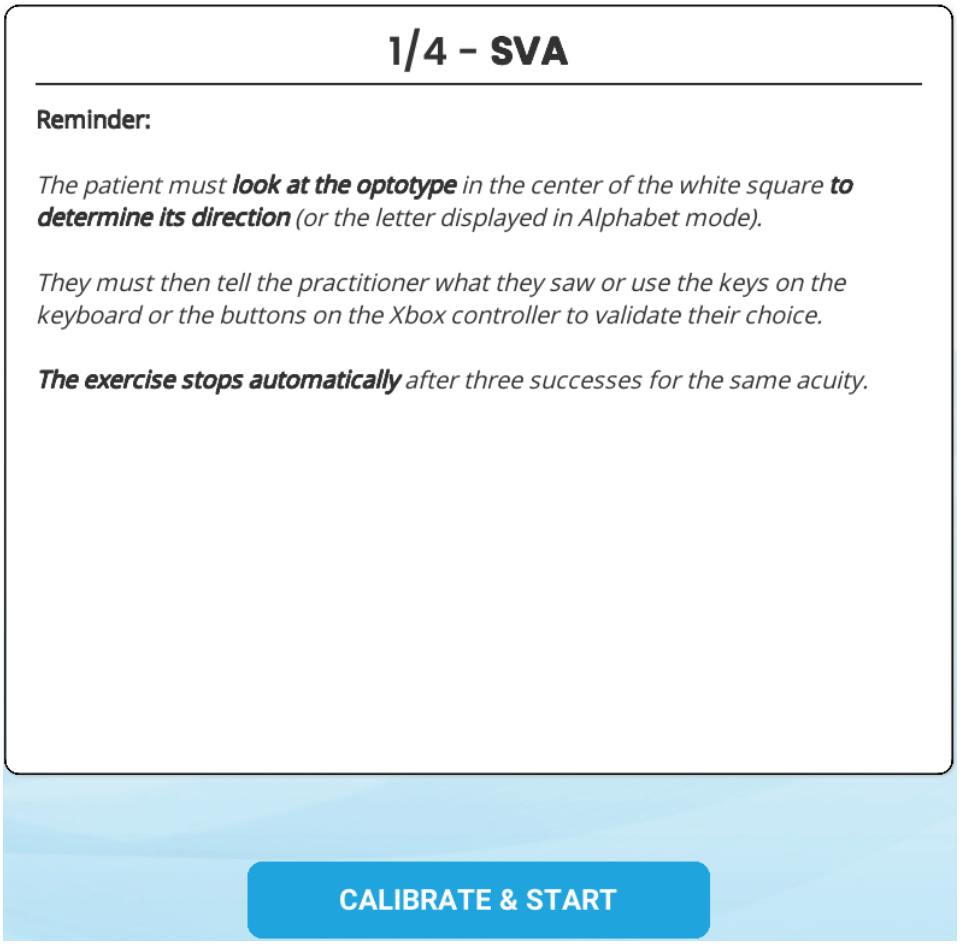


3.1.2. Static Visual Acuity

3.1.2.1. Tutorial: Explanation of the exercise

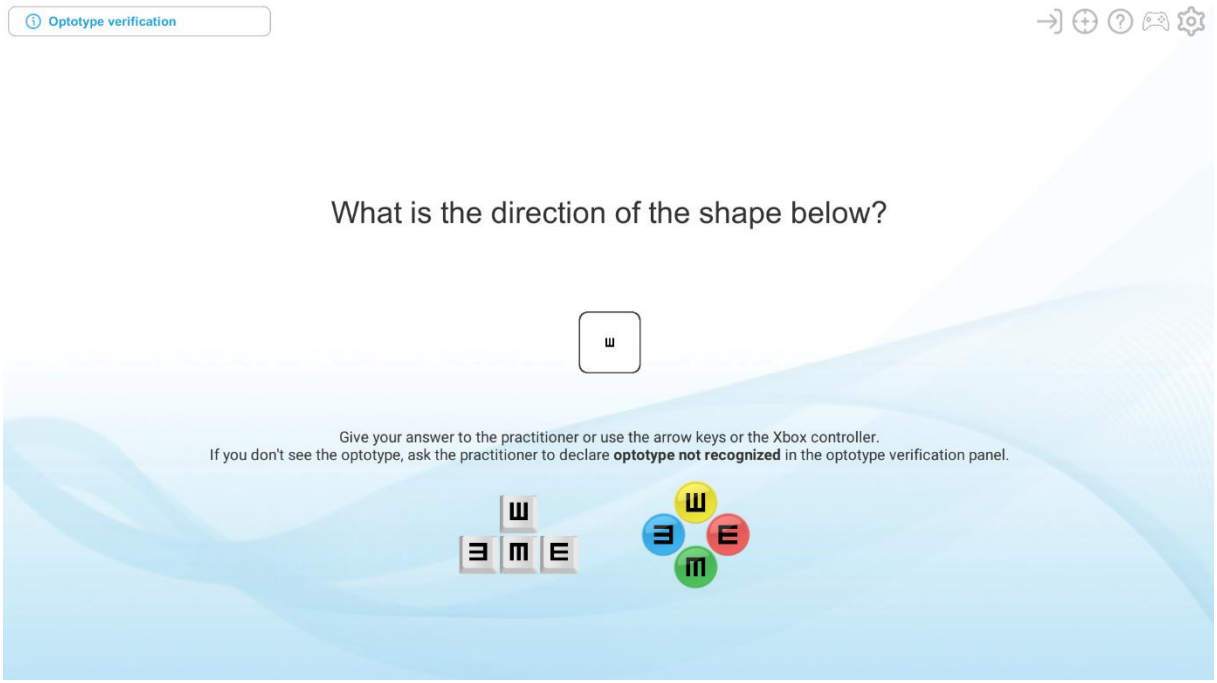


3.1.2.2. Reminder of procedure



By clicking on the button, the exercise begins.

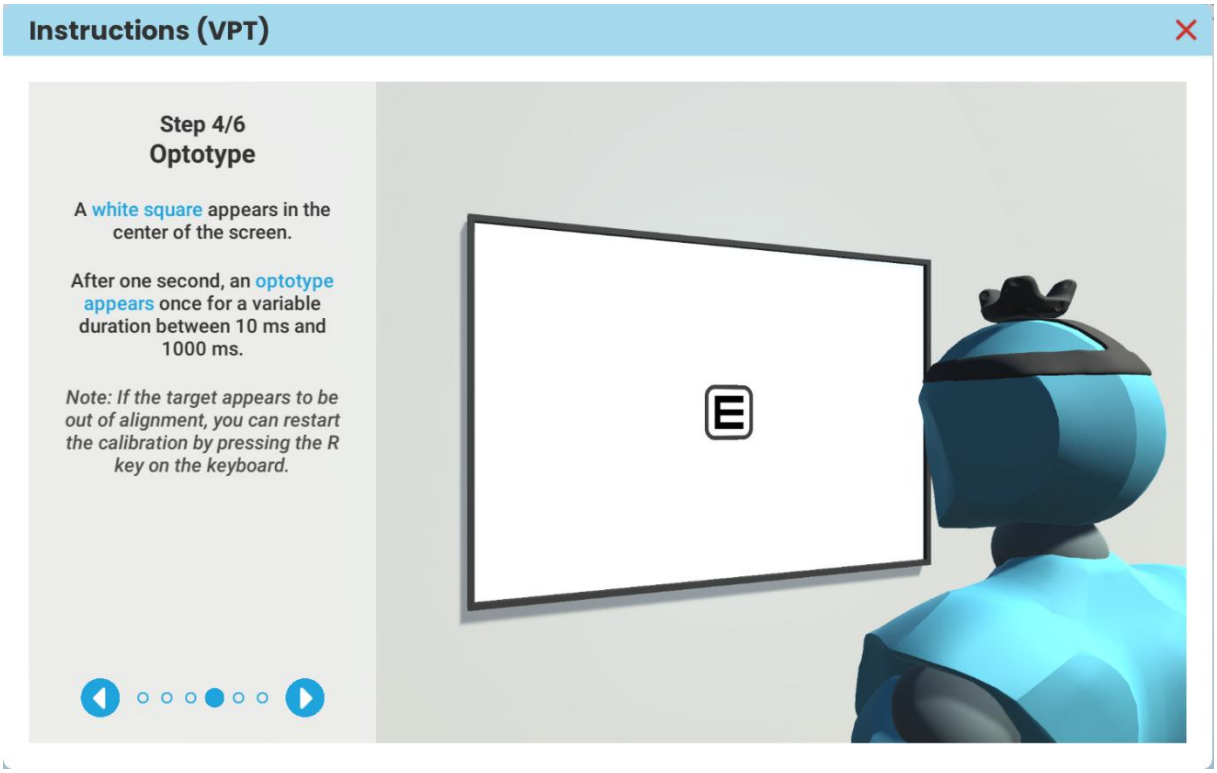
3.1.2.3. Procedure



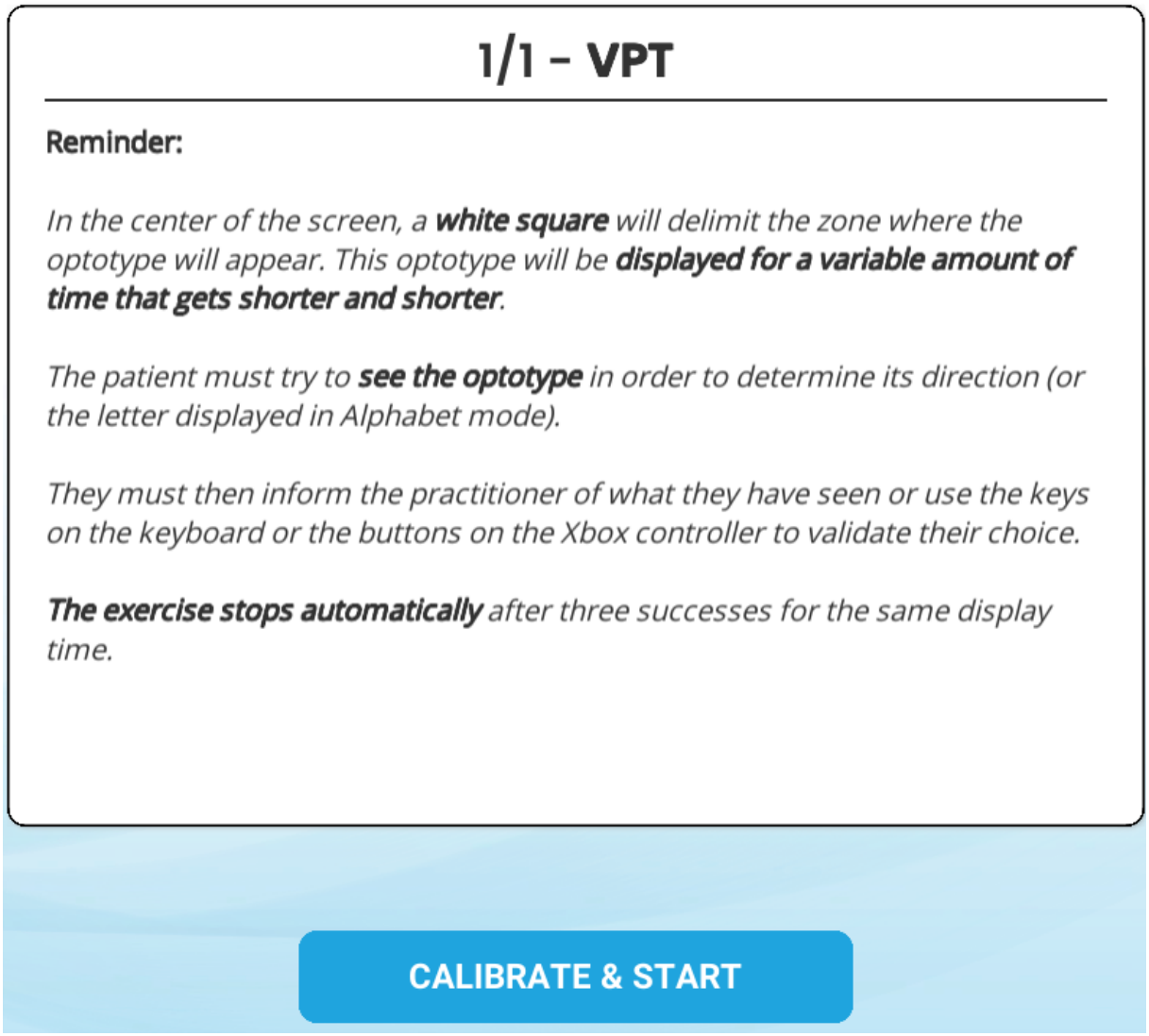
The module displays the selected optotype at a variable size. Once the patient has recognized the optotype, the difficulty increases until the patient can no longer recognize the optotype (the optotype decreases in size with each try).

3.1.3. Visual Processing Time

3.1.3.1. Tutorial: Explanation of the exercise

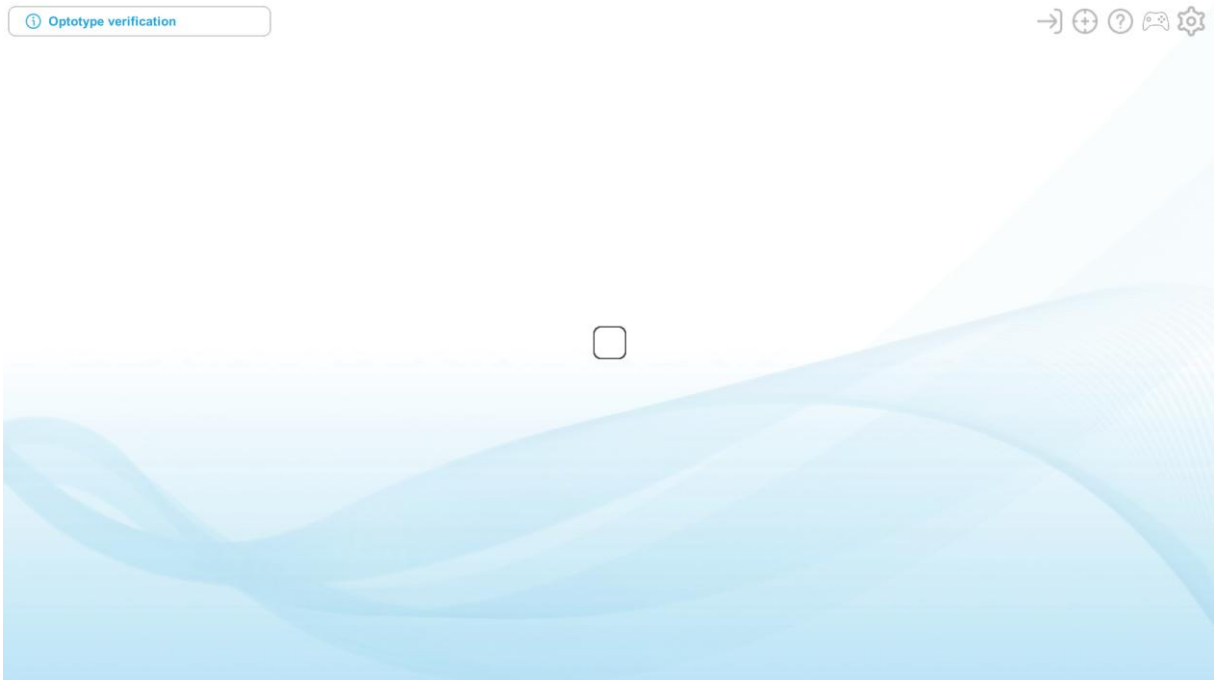


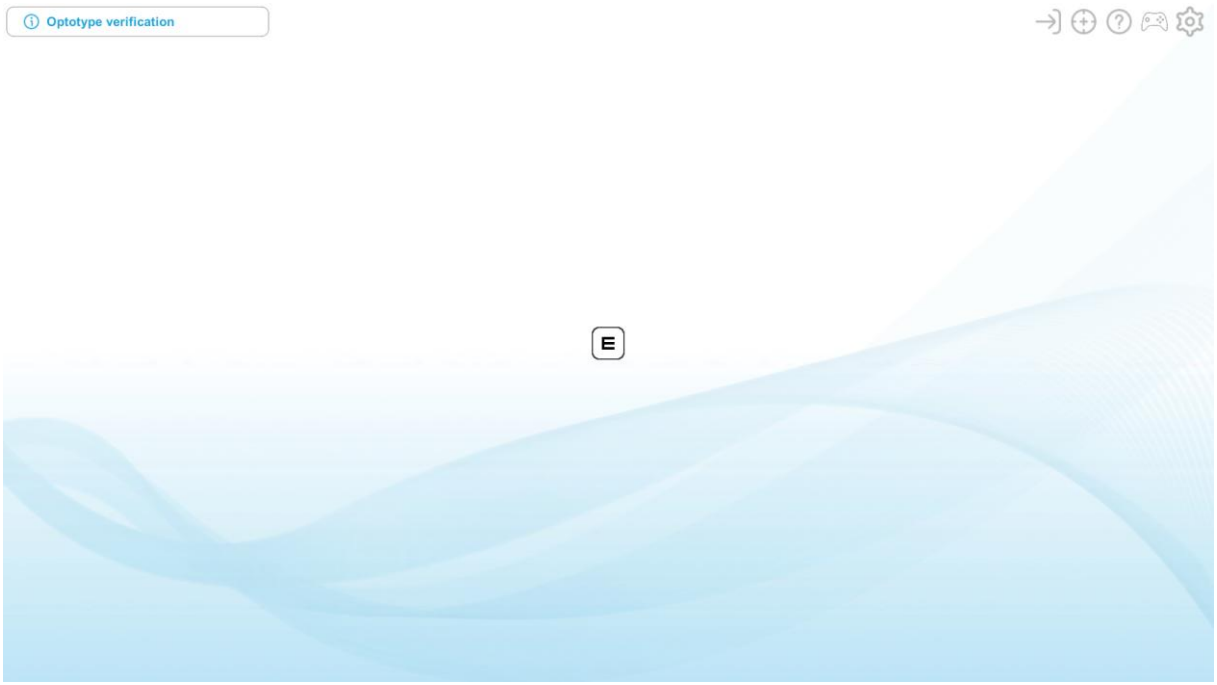
3.1.3.2. Reminder of procedure

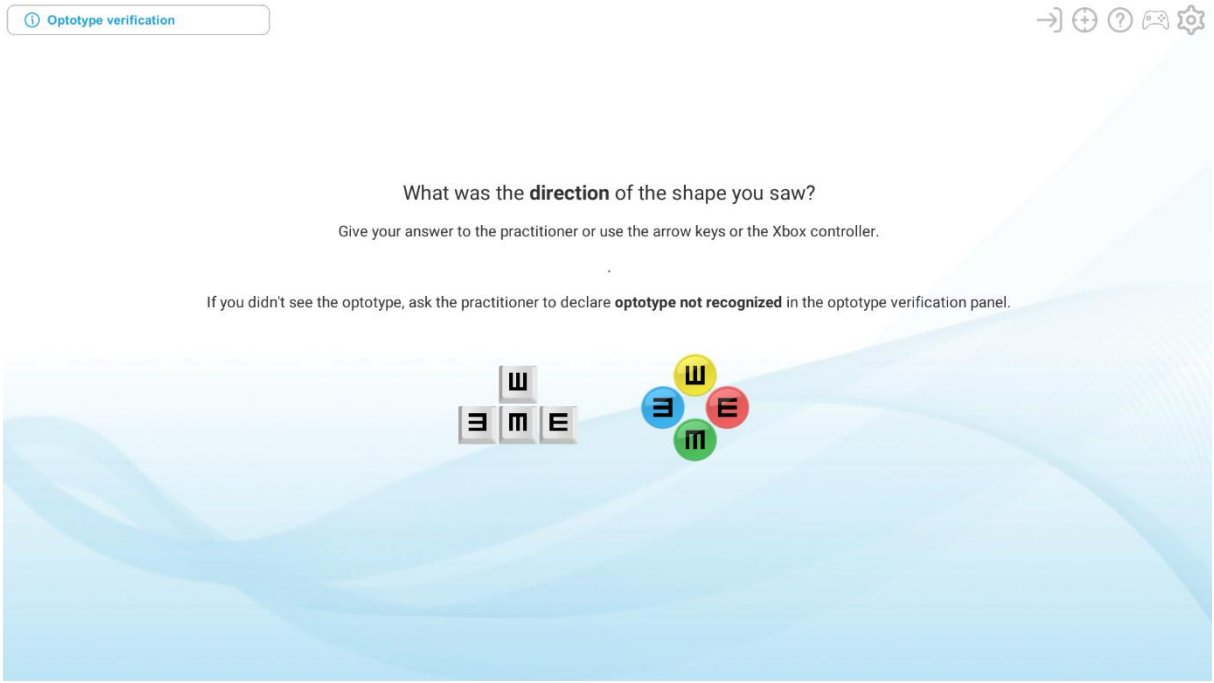


3.1.3.3. Procedure

The module displays the selected optotype at a fixed size determined by the session parameters for a variable amount of time. When the patient has recognized the optotype, the module increases the difficulty in order to find the threshold of the display time at which the patient can no longer recognize the optotype.

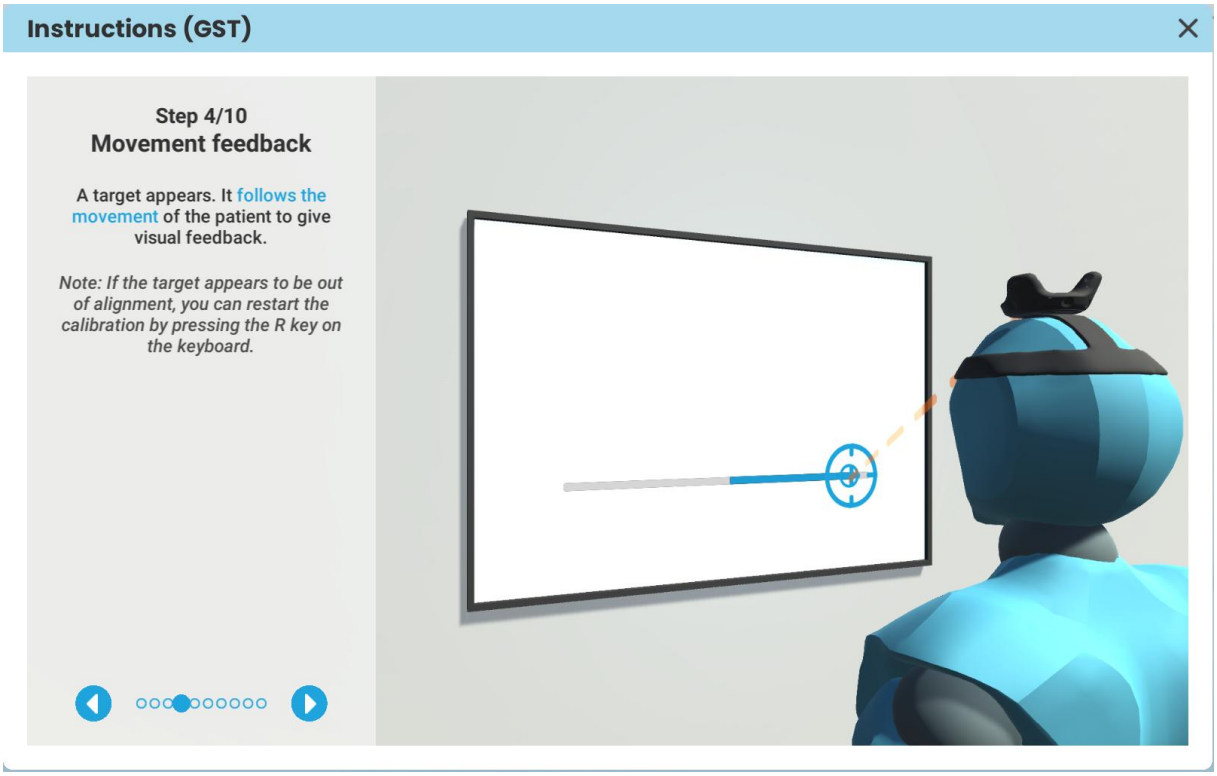

Optotype verification

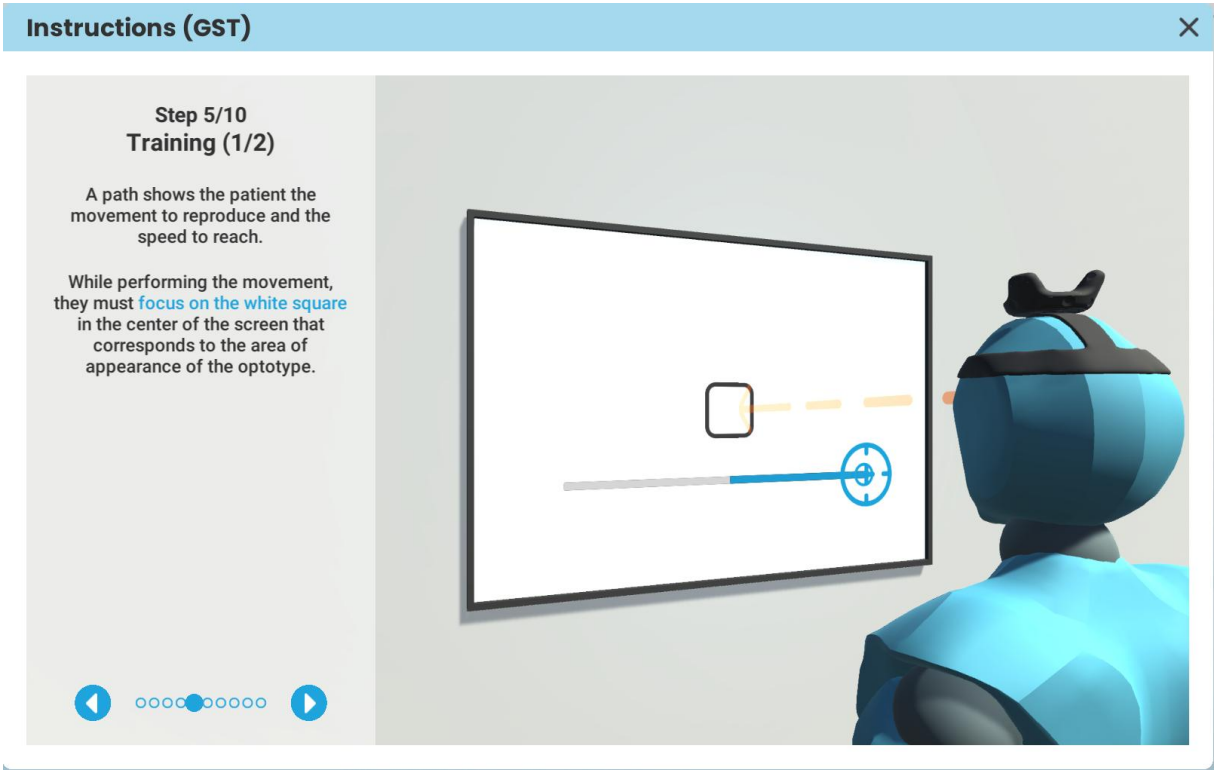

Optotype verification

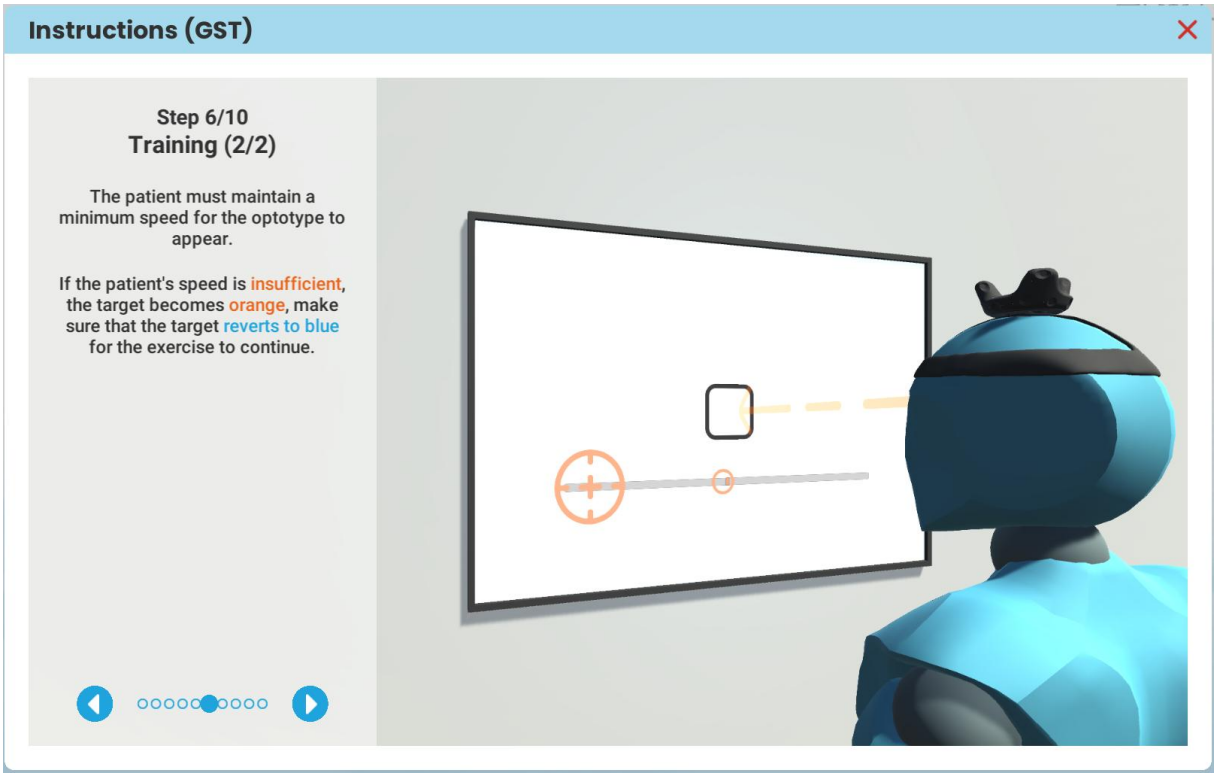


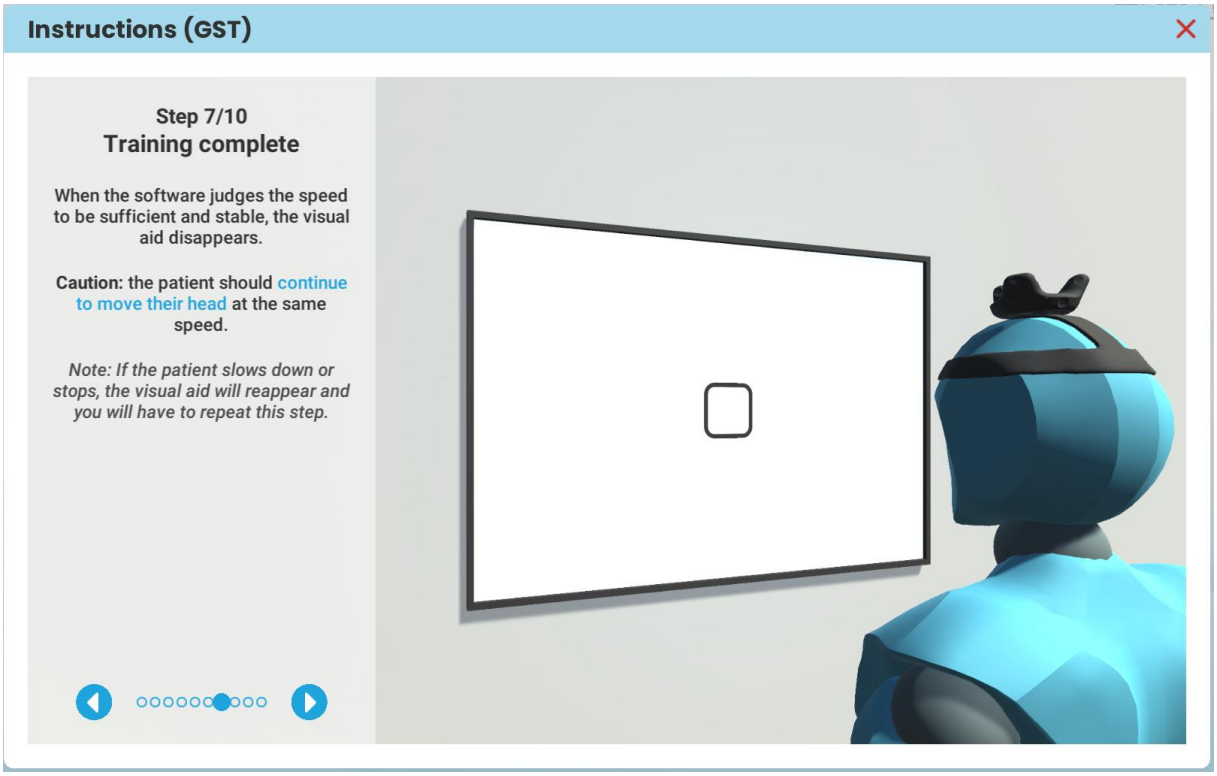
3.1.4. Gaze Stabilization Test

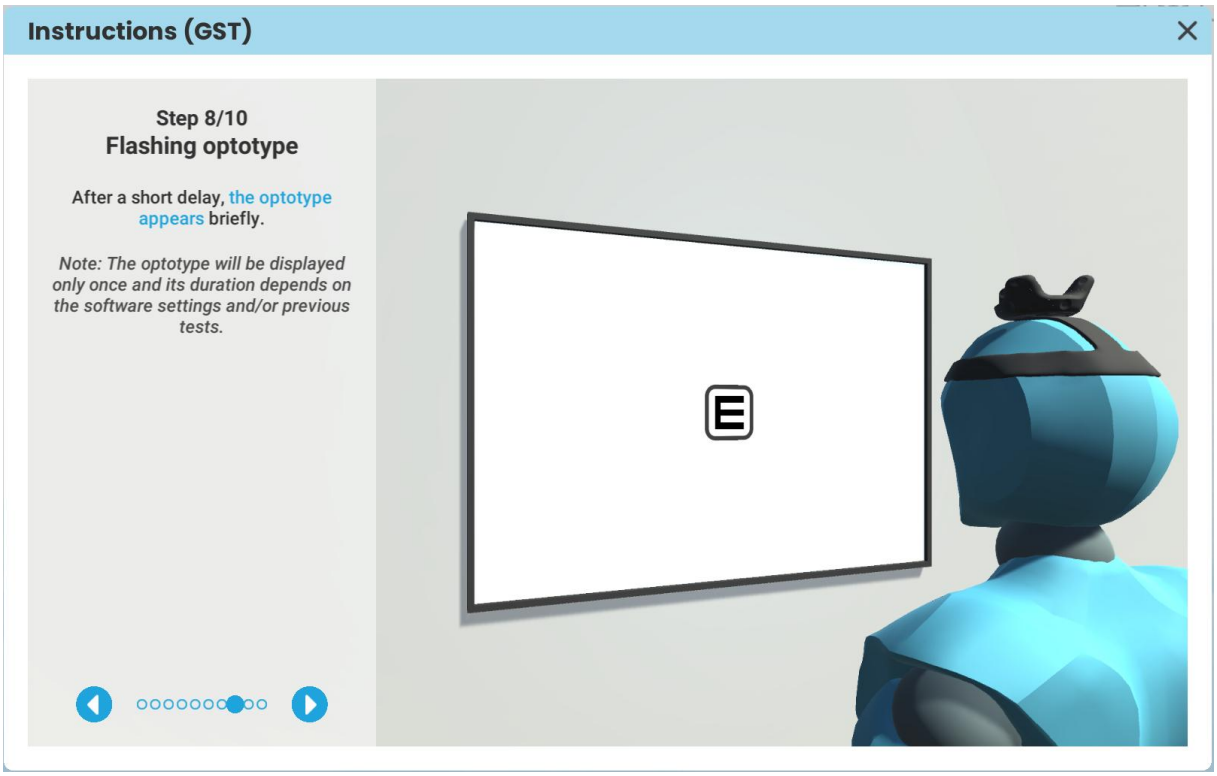
3.1.4.1. Tutorial: Explanation of the exercise



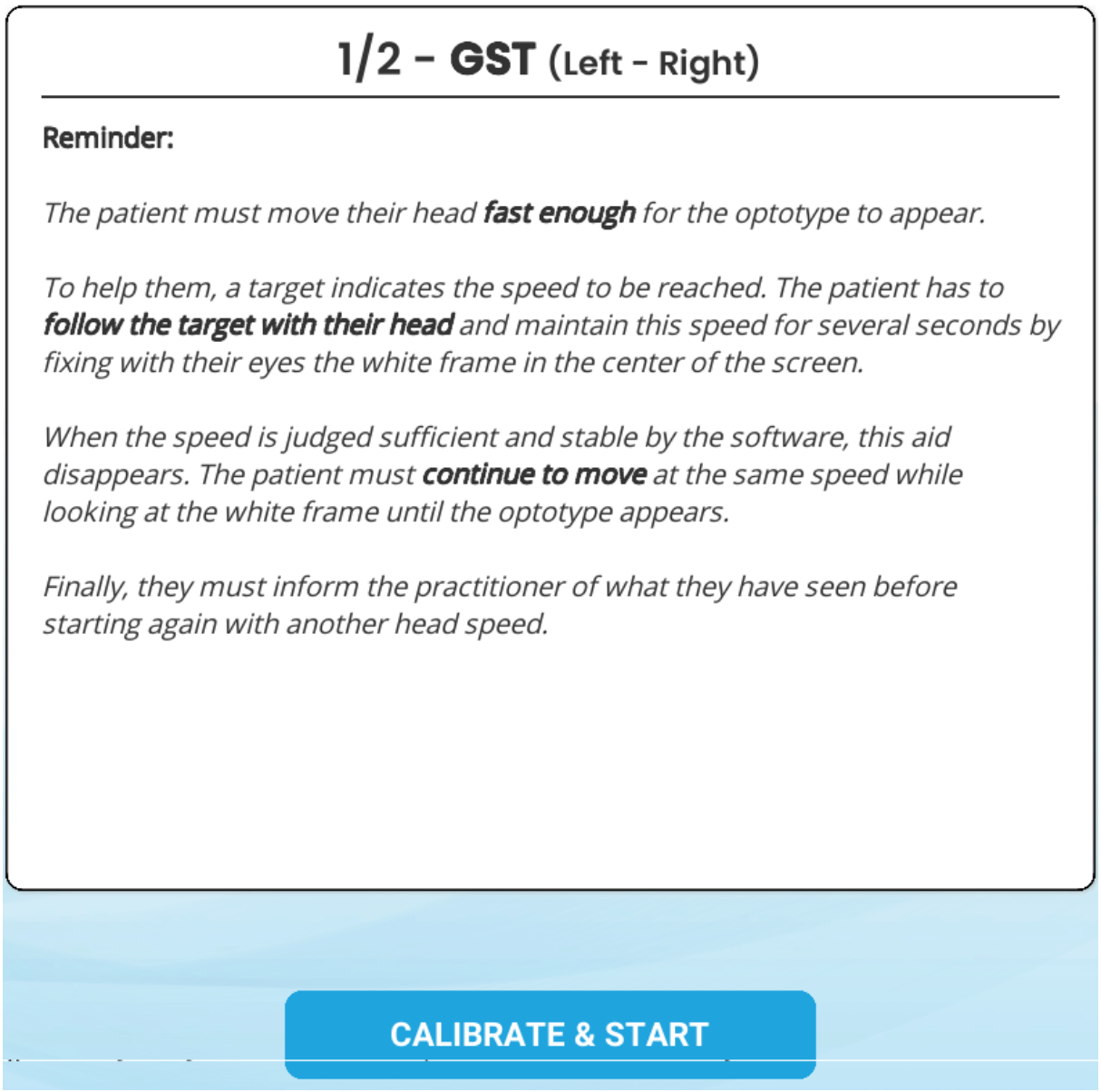

Instructions (GST)
Step 5/10
Training (1/2)
A path shows the patient the movement to reproduce and the speed to reach.
While performing the movement, they must focus on the white square in the center of the screen that corresponds to the area of appearance of the optotype.


Instructions (GST)
Step 6/10
Training (2/2)
The patient must maintain a minimum speed for the optotype to appear.
If the patient's speed is insufficient, the target becomes orange, make sure that the target reverts to blue for the exercise to continue.


Instructions (GST)
Step 7/10
Training complete
When the software judges the speed to be sufficient and stable, the visual aid disappears.
Caution: the patient should continue to move their head at the same speed.
Note: If the patient slows down or stops, the visual aid will reappear and you will have to repeat this step.


Instructions (GST)
Step 8/10
Flashing optotype
After a short delay, the optotype appears briefly.
Note: The optotype will be displayed only once and its duration depends on the software settings and/or previous tests.

3.1.4.2. Reminder of procedure



3.1.4.3. Procedure

Each selected axis is performed in a row.

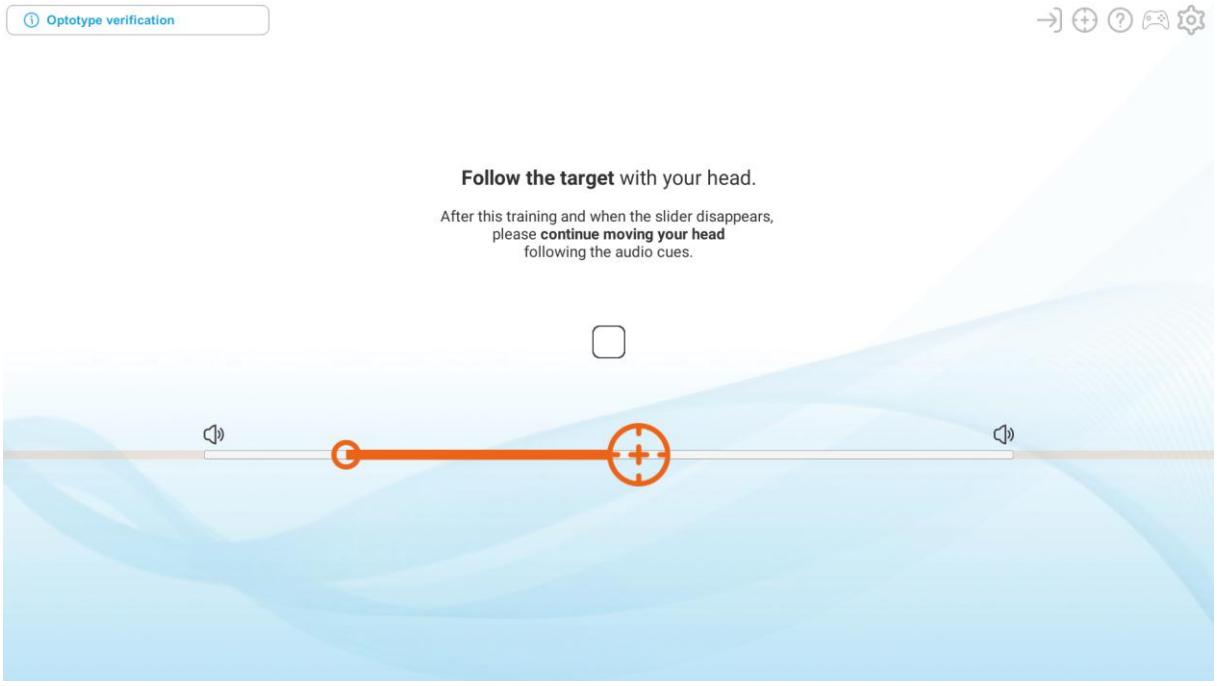
Horizontal: Left-right movement (Rotations).

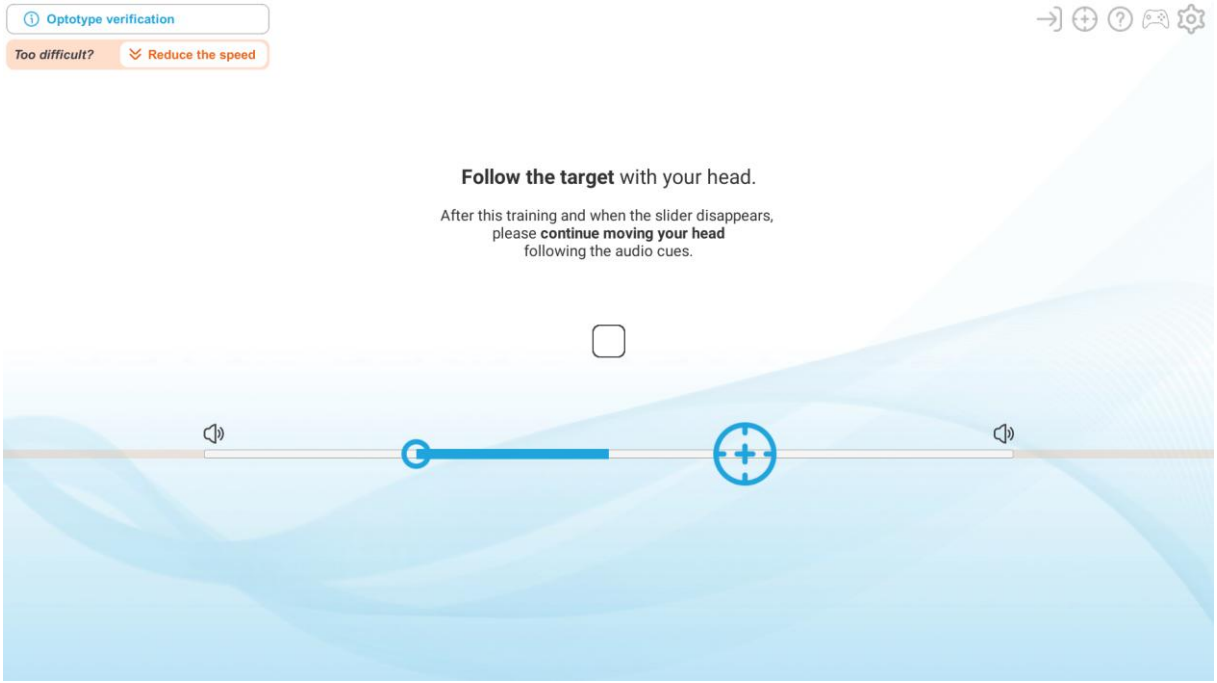
The patient should follow the target by making head movements. After a period of practice, the patient must continue without the visual aid while maintaining the same speed.

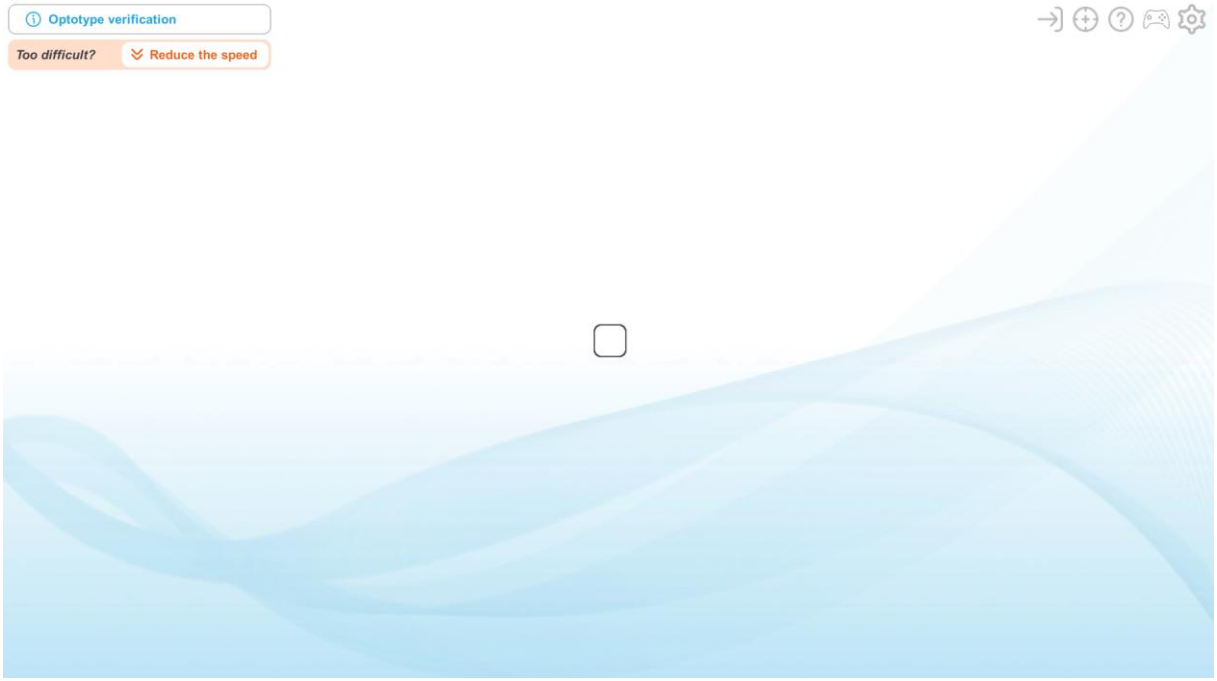
To help them, sound cues are broadcasted by the computer.

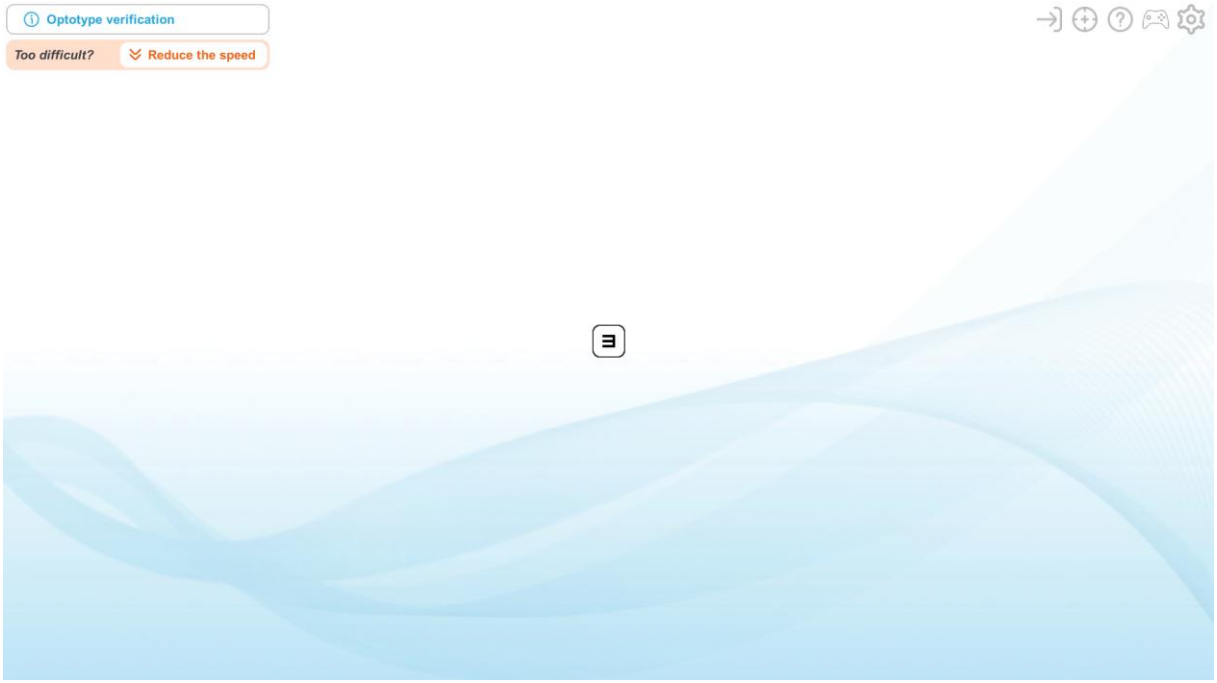
Be sure to choose the corresponding sound output in your computer's settings.

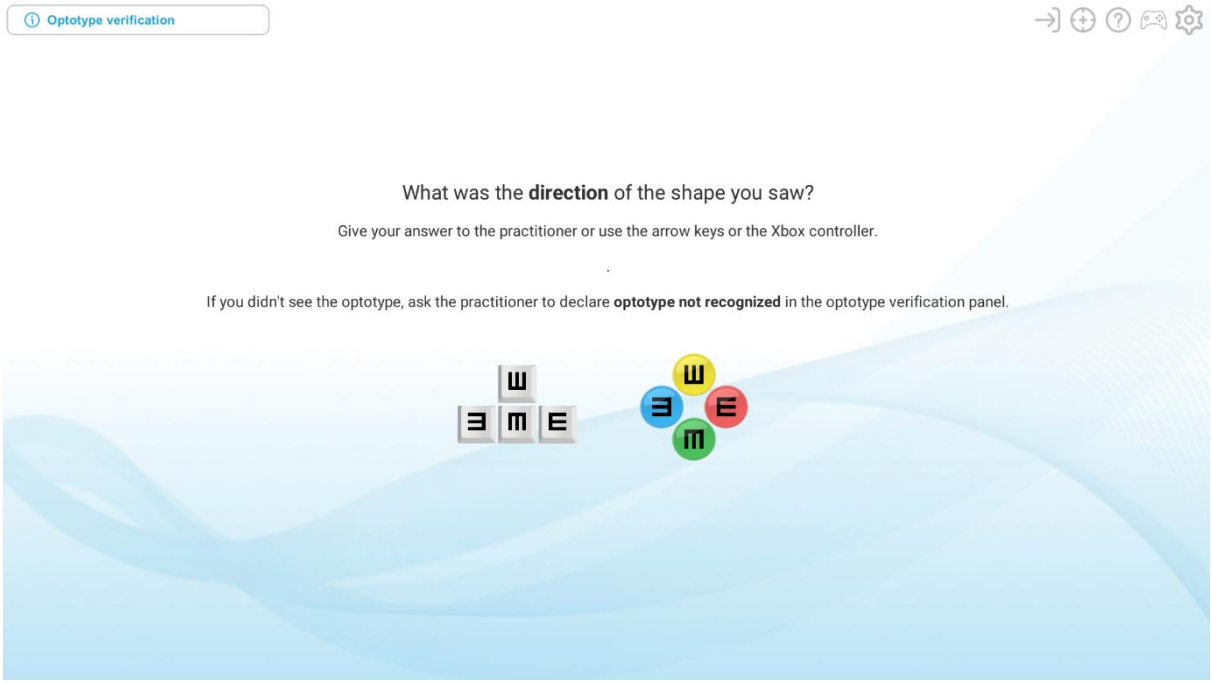
After 10 seconds without successfully triggering the display of the optotype, a button to reduce the speed appears. You should click it if the speed needed is too high for the patient.



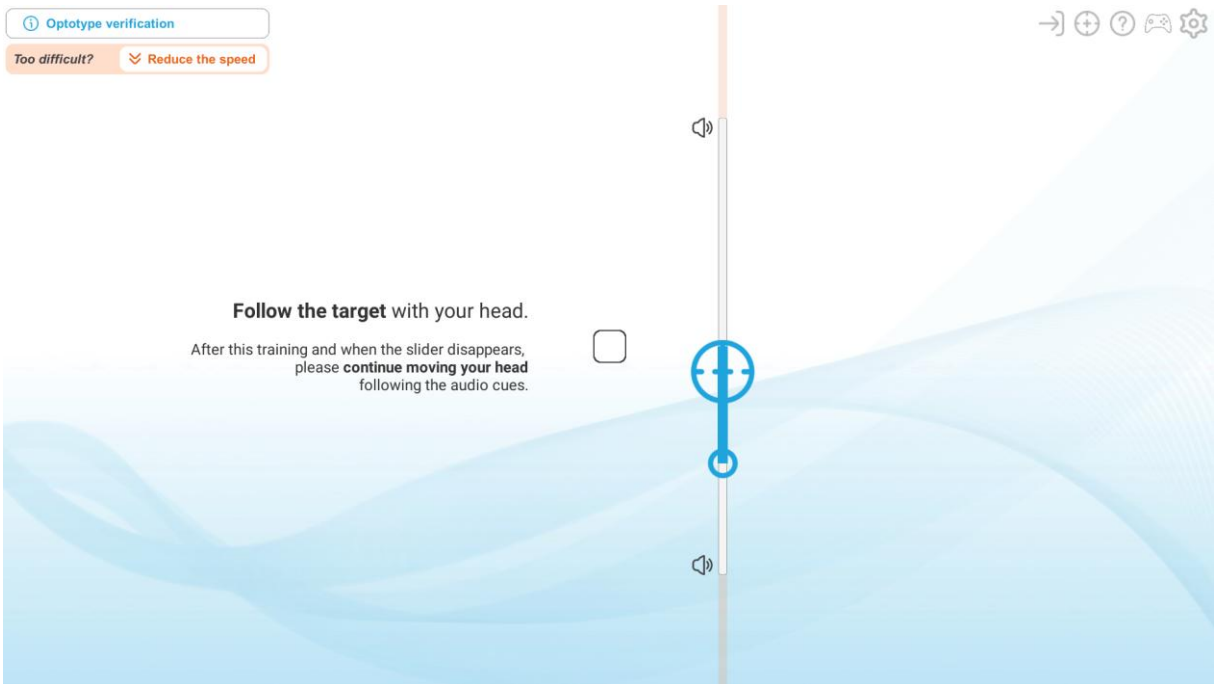



Optotype verification
Too difficult?
Reduce the speed

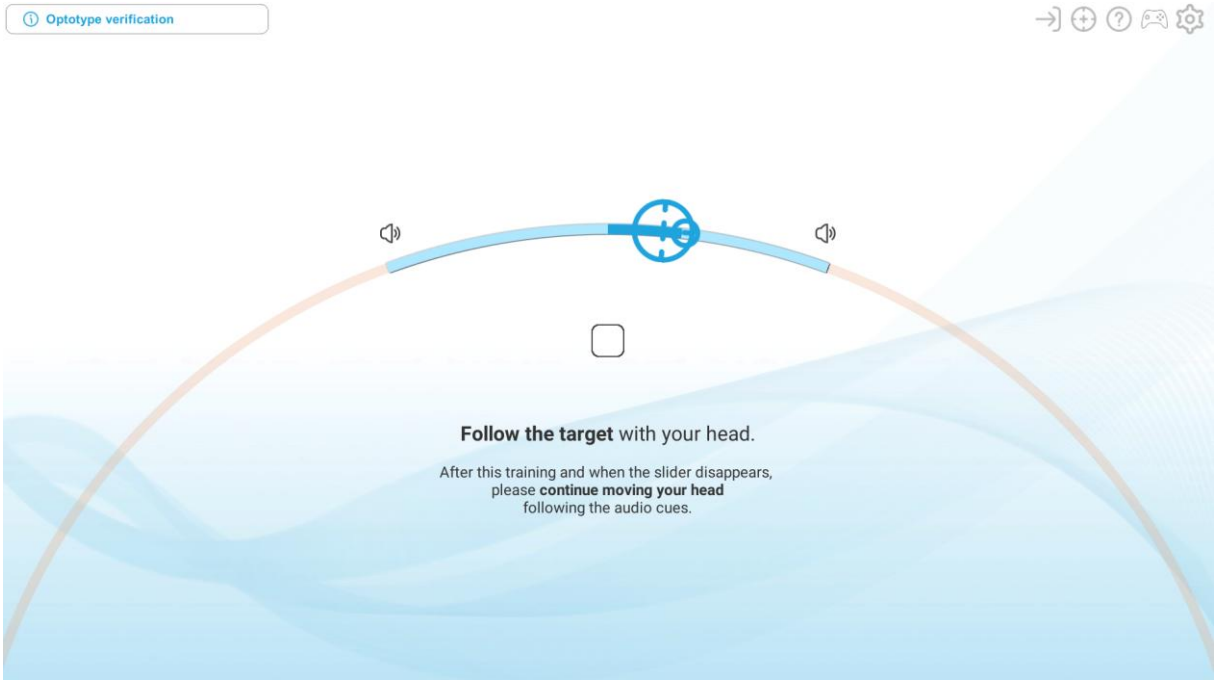

Optotype verification
Too difficult?
Reduce the speed



Vertical : Up-Down Movement (Flexion-Extension)



Transversal : Tilts (if the "Evaluate Tilts" mode is active).



3.1.5. Dynamic Visual Acuity

3.1.5.1. Tutorial: Explanation of the exercise

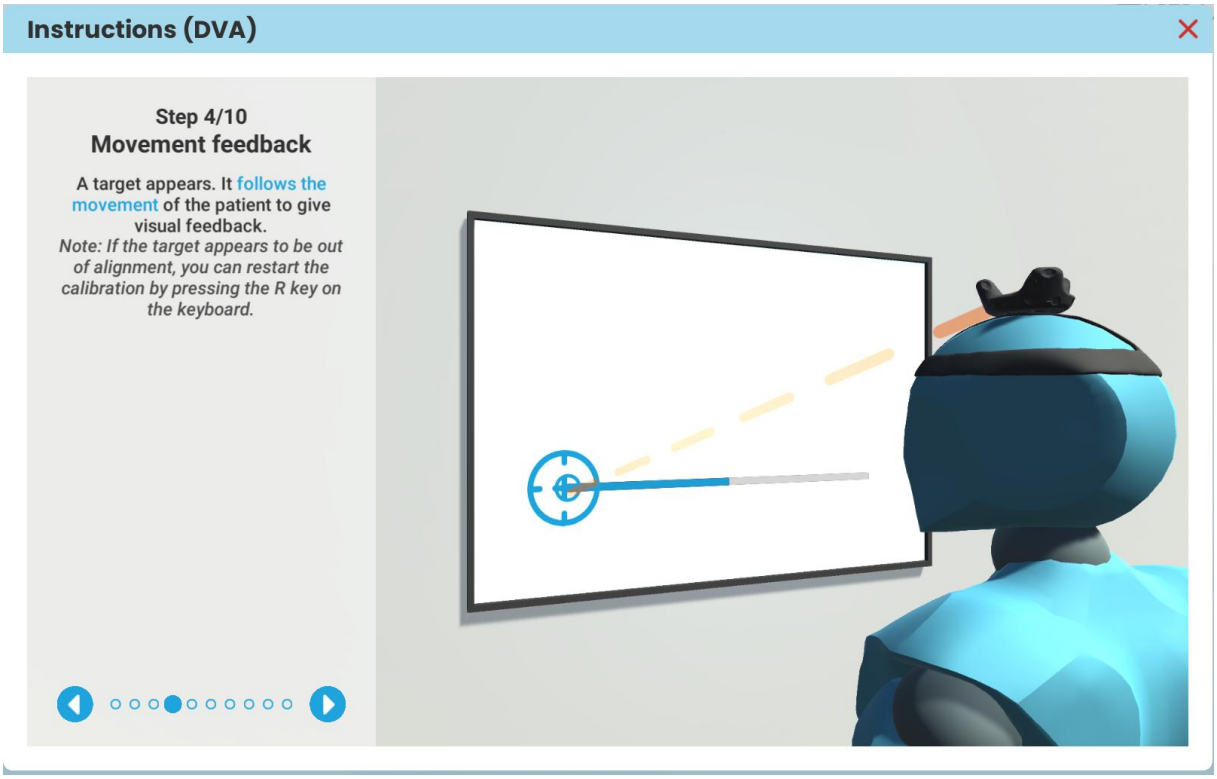
The tutorial differs depending on whether the "Force optotype display in the center" setting is selected.

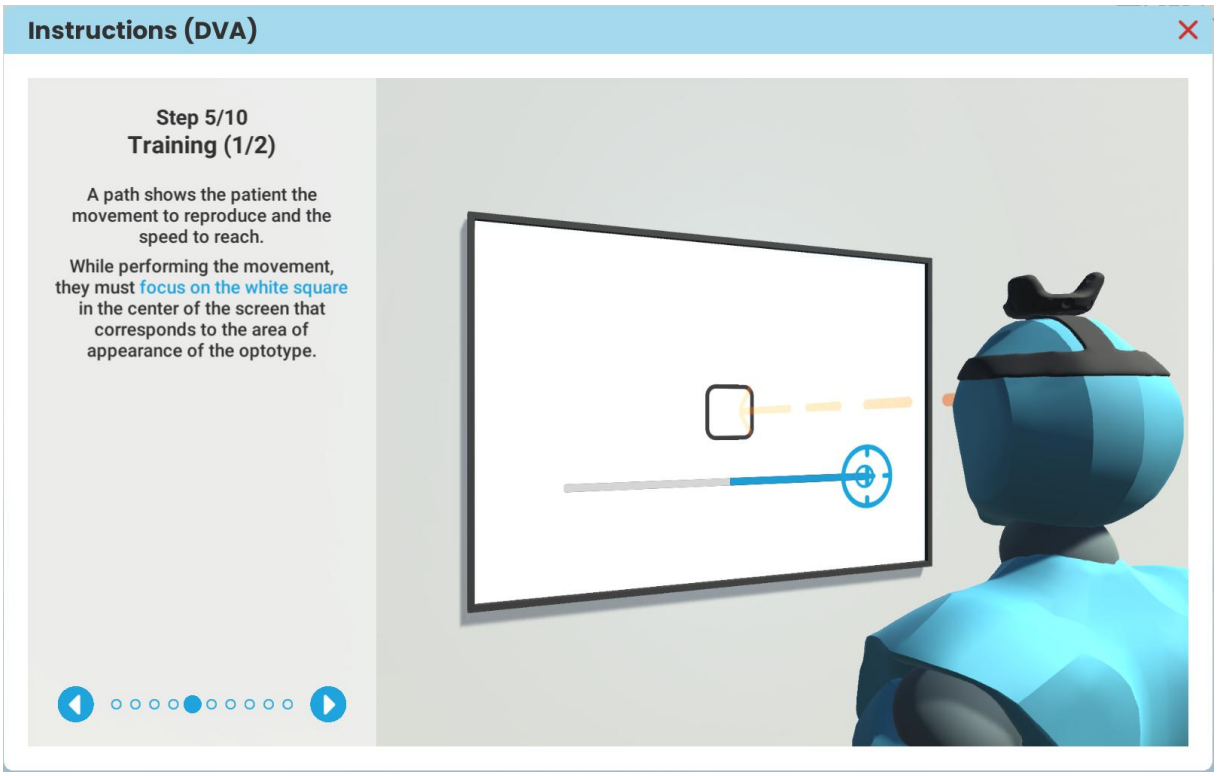
By default, the "Force Optotype Display in Center" mode is active.

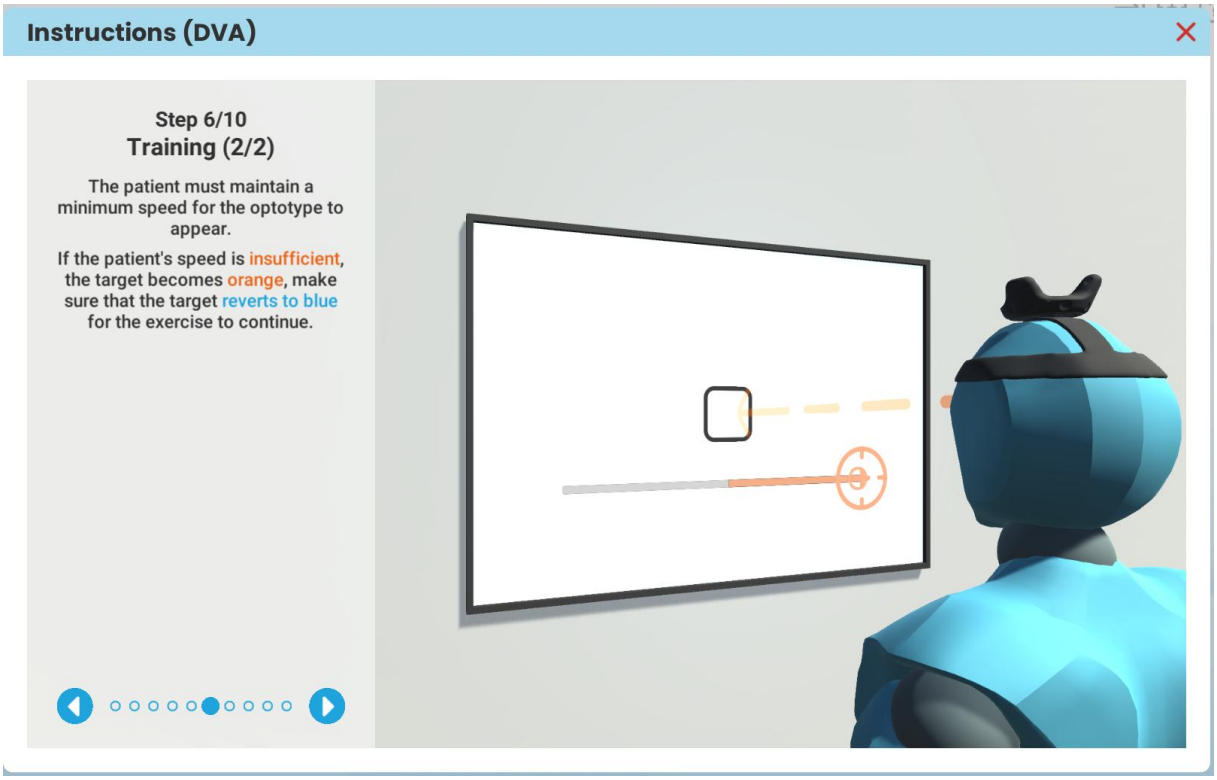
The patient should follow the target by making head movements. After a period of practice, the patient must continue without the visual aid while maintaining the same speed.

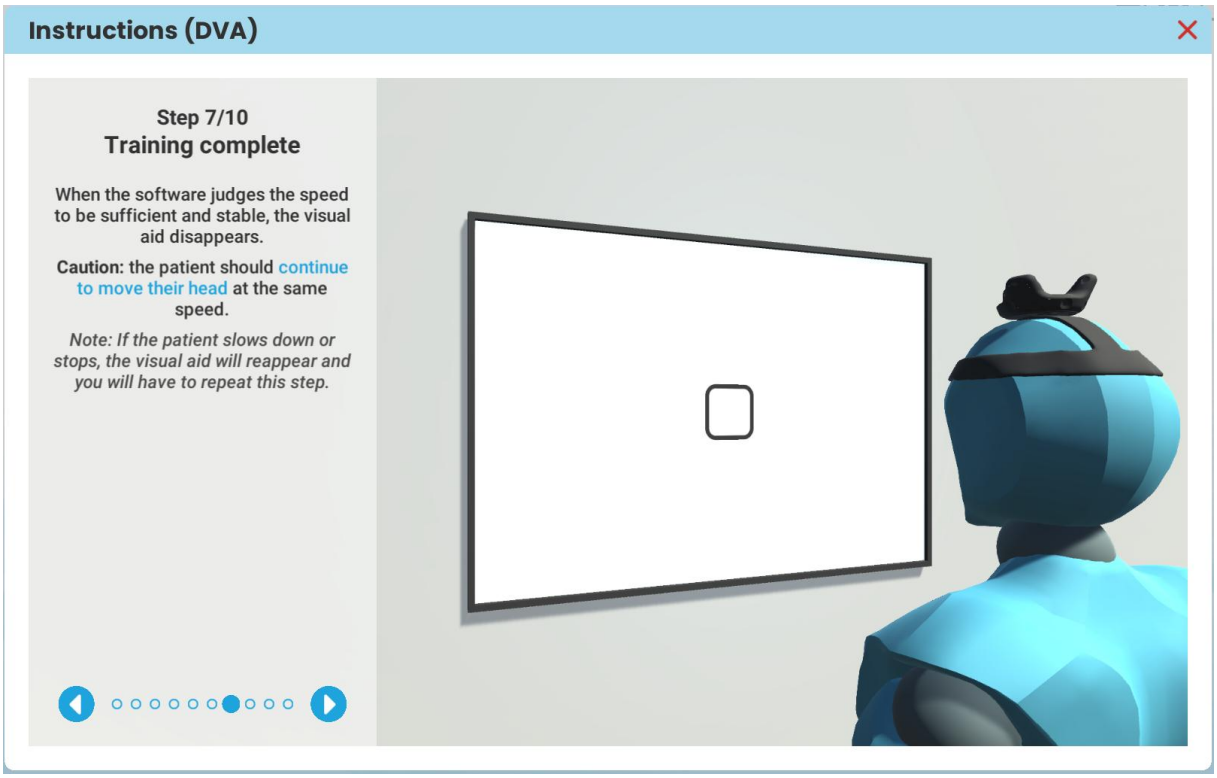
To help them, sound cues are broadcasted by the computer.

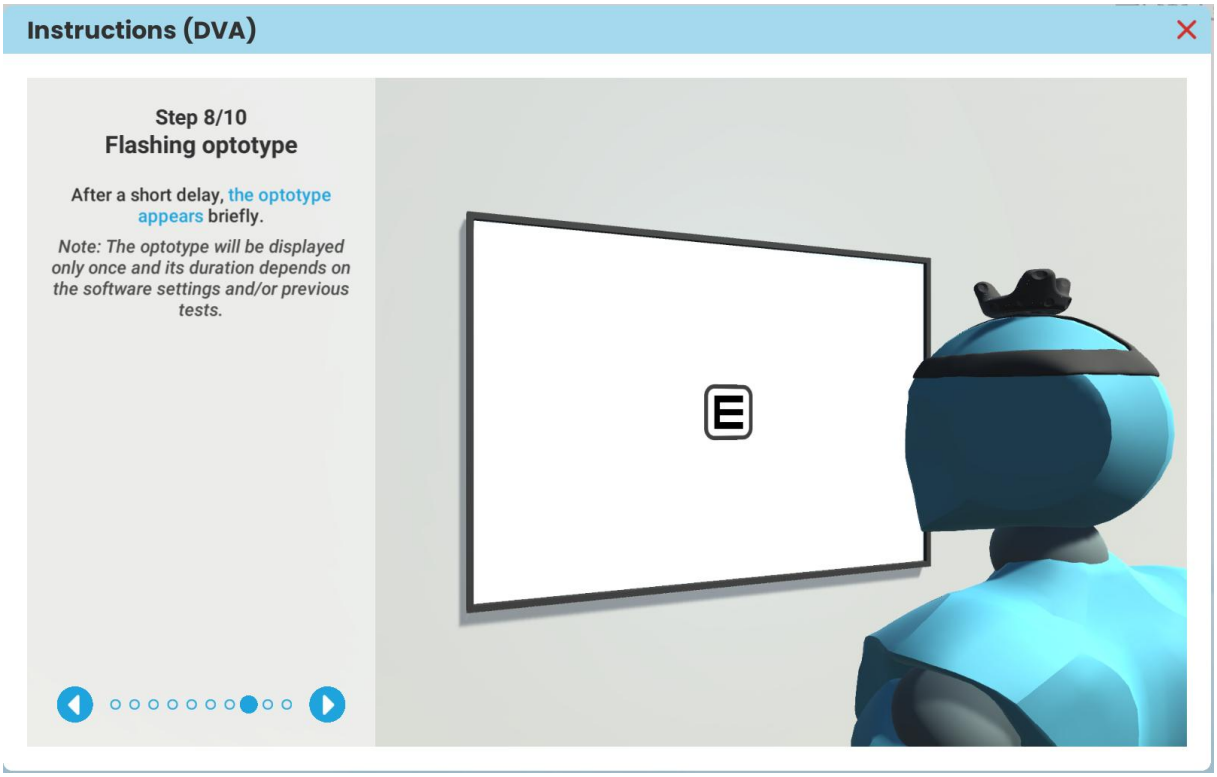
Be sure to choose the corresponding sound output in your computer's settings.


Instructions (DVA)
Step 4/10
Movement feedback
A target appears. It follows the movement of the patient to give visual feedback.
Note: If the target appears to be out of alignment, you can restart the calibration by pressing the R key on the keyboard.

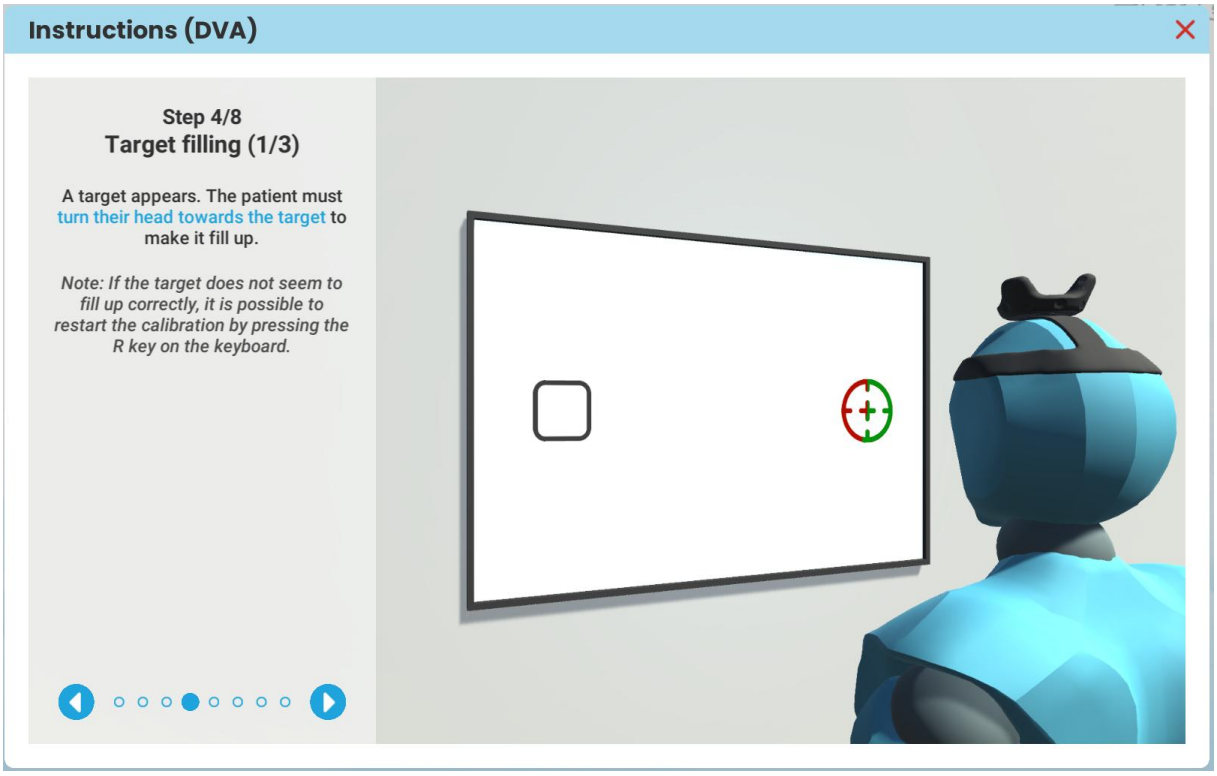

Instructions (DVA)
Step 5/10
Training (1/2)
A path shows the patient the movement to reproduce and the speed to reach.
While performing the movement, they must focus on the white square in the center of the screen that corresponds to the area of appearance of the optotype.

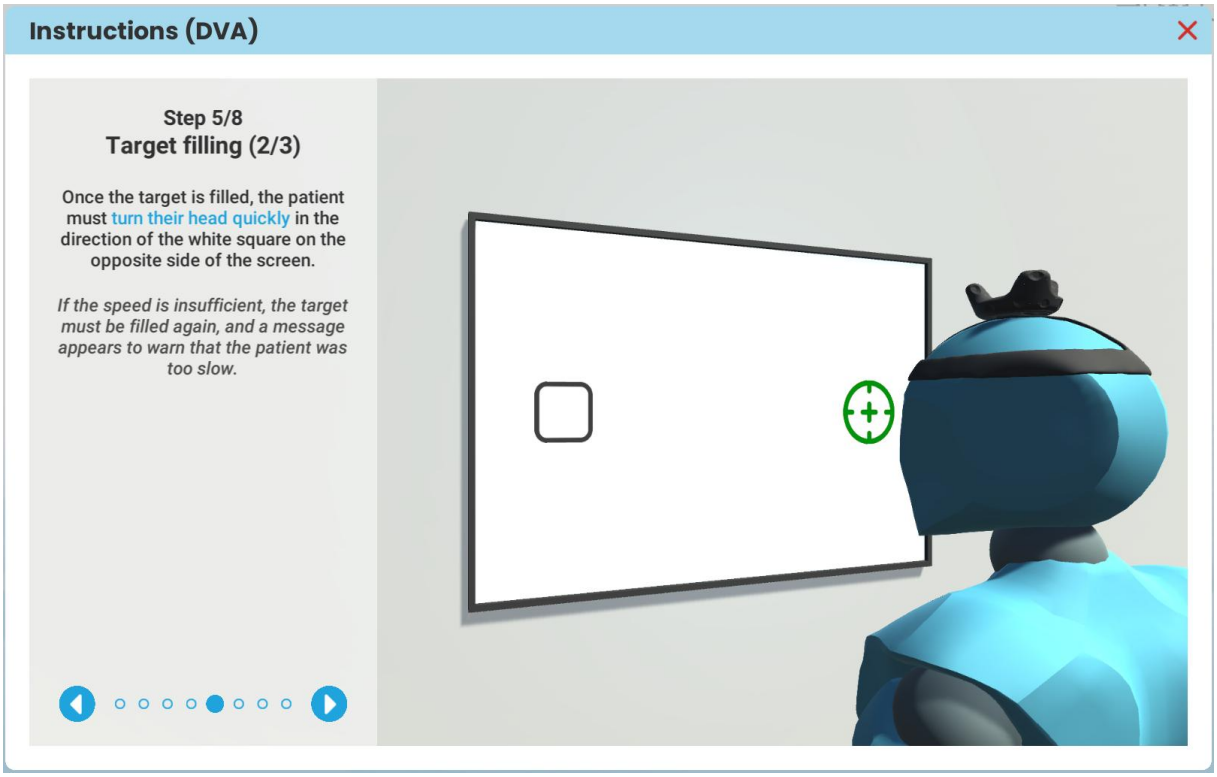

Instructions (DVA)
Step 6/10
Training (2/2)
The patient must maintain a minimum speed for the optotype to appear.
If the patient's speed is insufficient, the target becomes orange, make sure that the target reverts to blue for the exercise to continue.

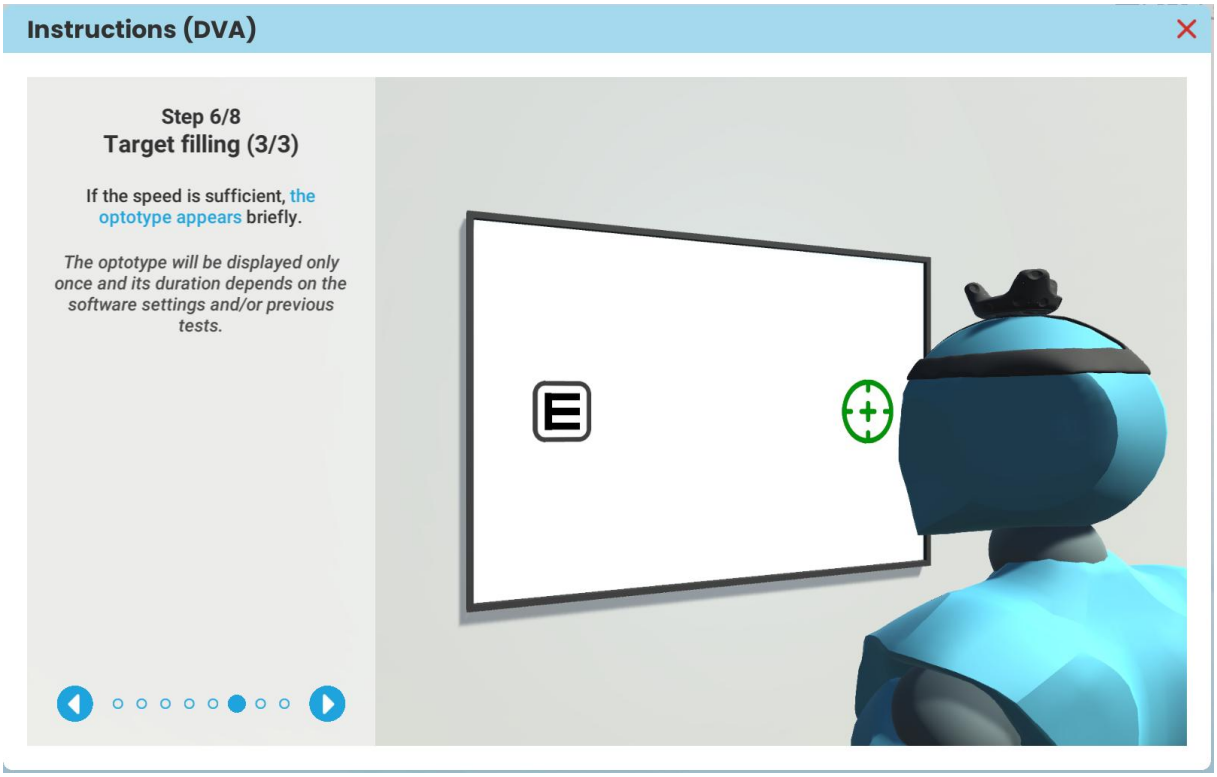

Instructions (DVA)
Step 7/10
Training complete
When the software judges the speed to be sufficient and stable, the visual aid disappears.
Caution: the patient should continue to move their head at the same speed.
Note: If the patient slows down or stops, the visual aid will reappear and you will have to repeat this step.



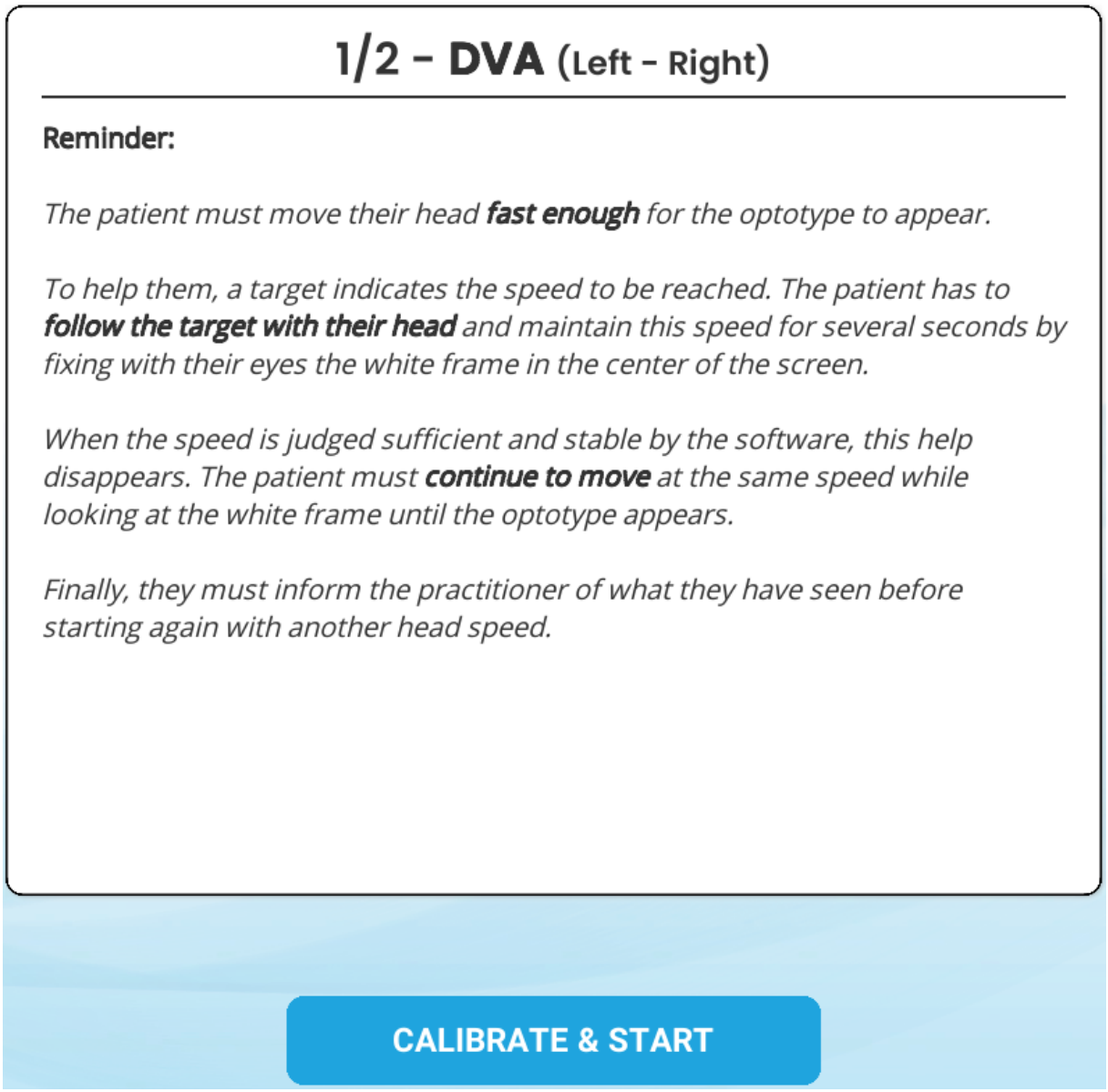
If you choose to exit the default mode, the "Force Optotype Display Center" mode is inactive.




Instructions (DVA)
Step 5/8
Target filling (2/3)
Once the target is filled, the patient must turn their head quickly in the direction of the white square on the opposite side of the screen.
If the speed is insufficient, the target must be filled again, and a message appears to warn that the patient was too slow.


Instructions (DVA)
Step 6/8
Target filling (3/3)
If the speed is sufficient, the optotype appears briefly.
The optotype will be displayed only once and its duration depends on the software settings and/or previous tests.

3.1.5.2. Reminder of procedure



3.1.5.3. Procedure

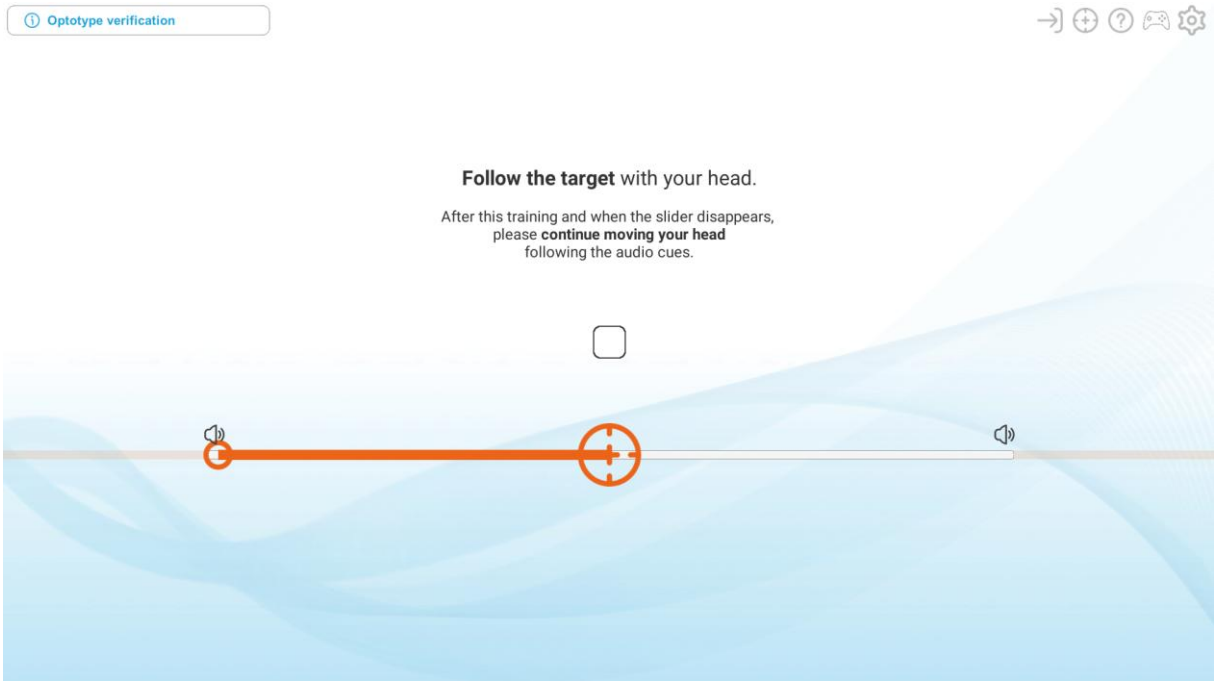
If the "Force optotype display in center" mode is active:

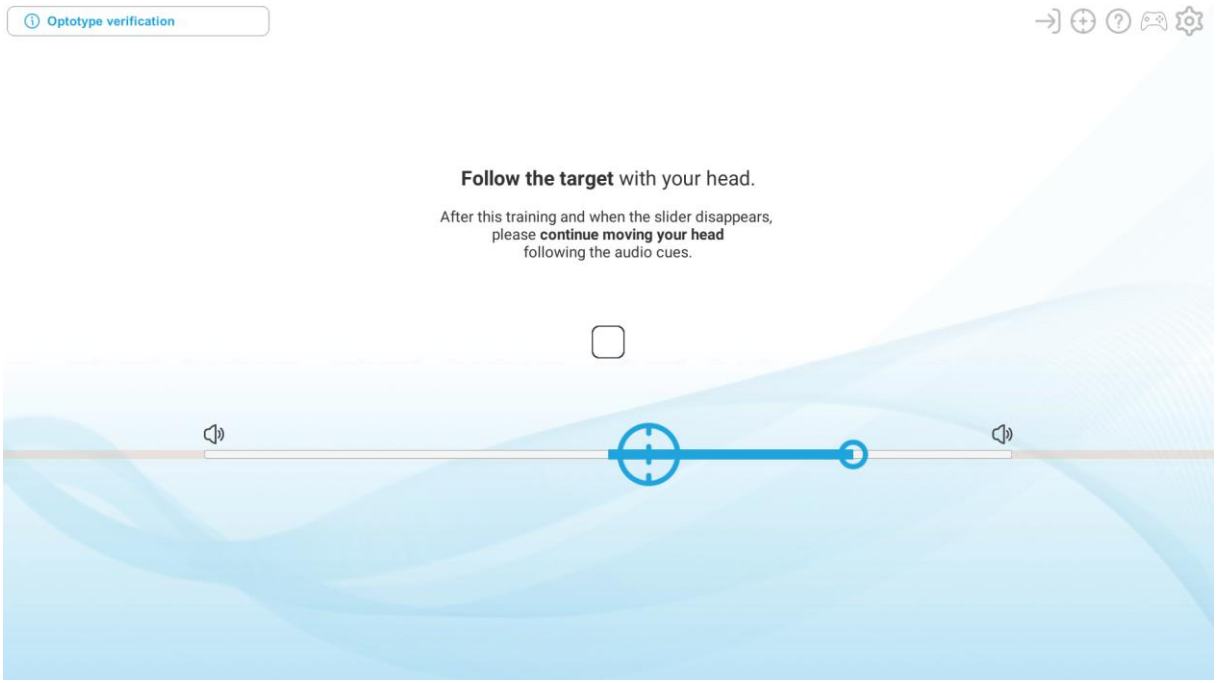
- As long as the minimum speed is not reached, the indicator remains orange.
- When the minimum speed is reached, the indicator will turn blue.
- The patient must continue his movements until the optotype appears.

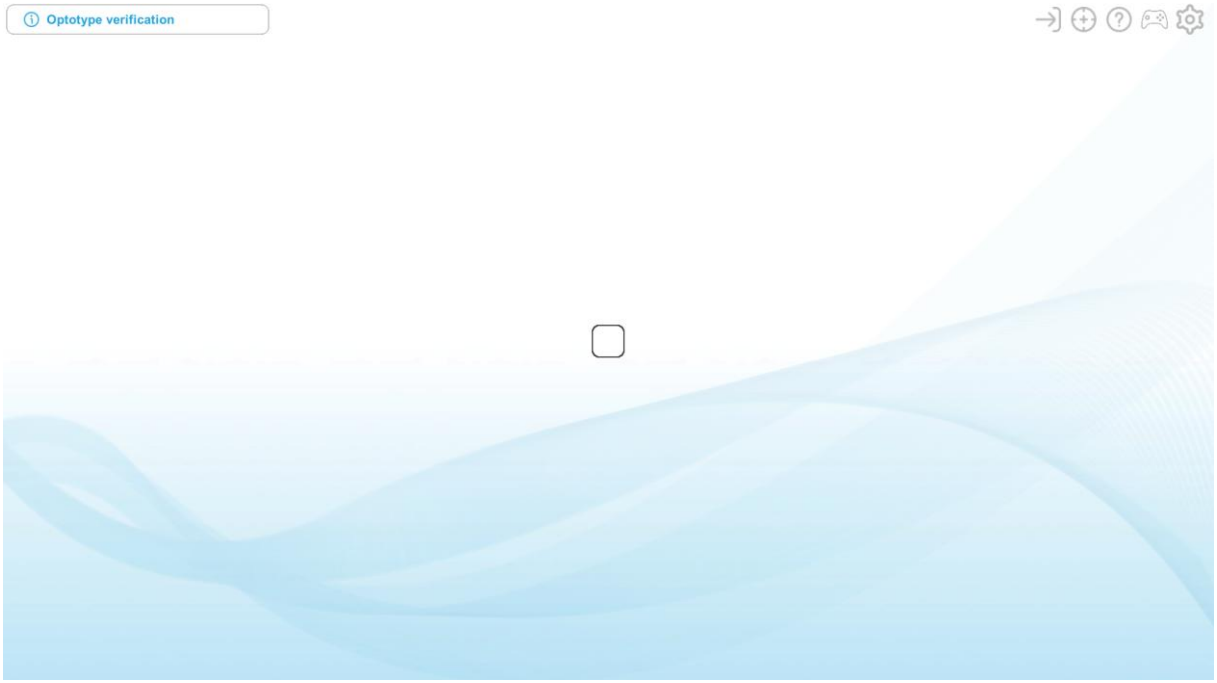
The patient should follow the target by making head movements. After a period of practice, the patient must continue without the visual aid while maintaining the same speed.

To help them, sound cues are broadcasted by the computer. (only when forced display in the center)

Recommendation: Be sure to choose the corresponding sound output in your computer's settings.

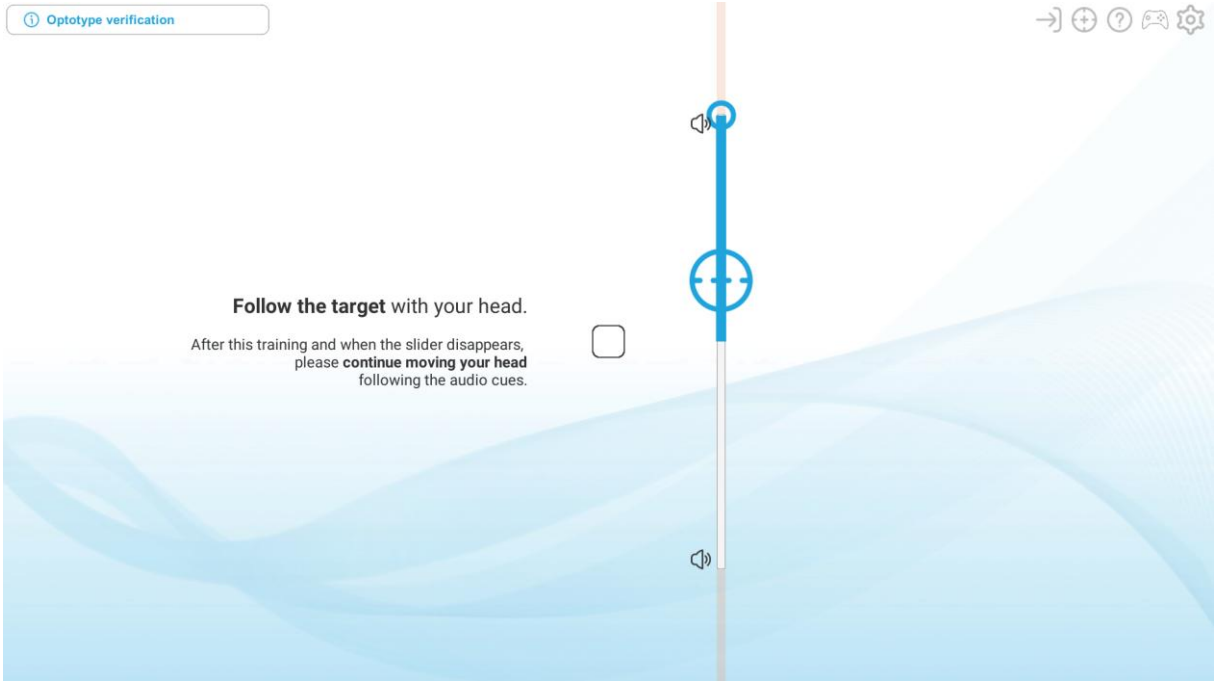




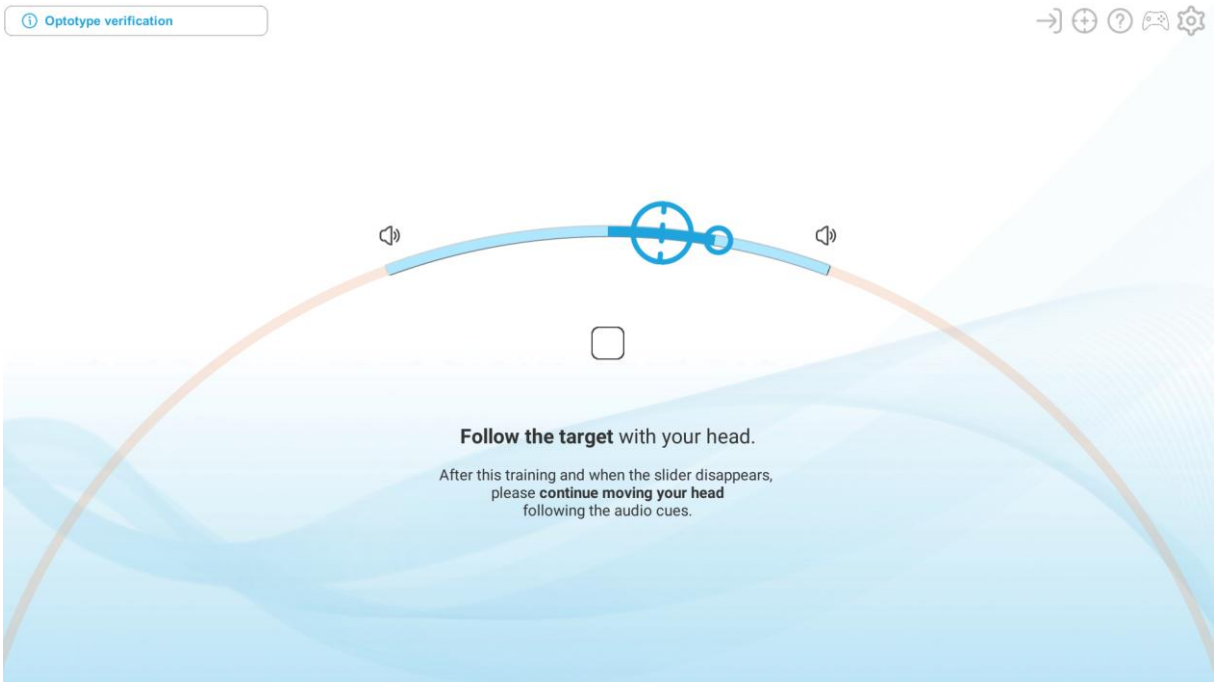

Optotype verification


Optotype verification

On the up-down axis, the display is different:



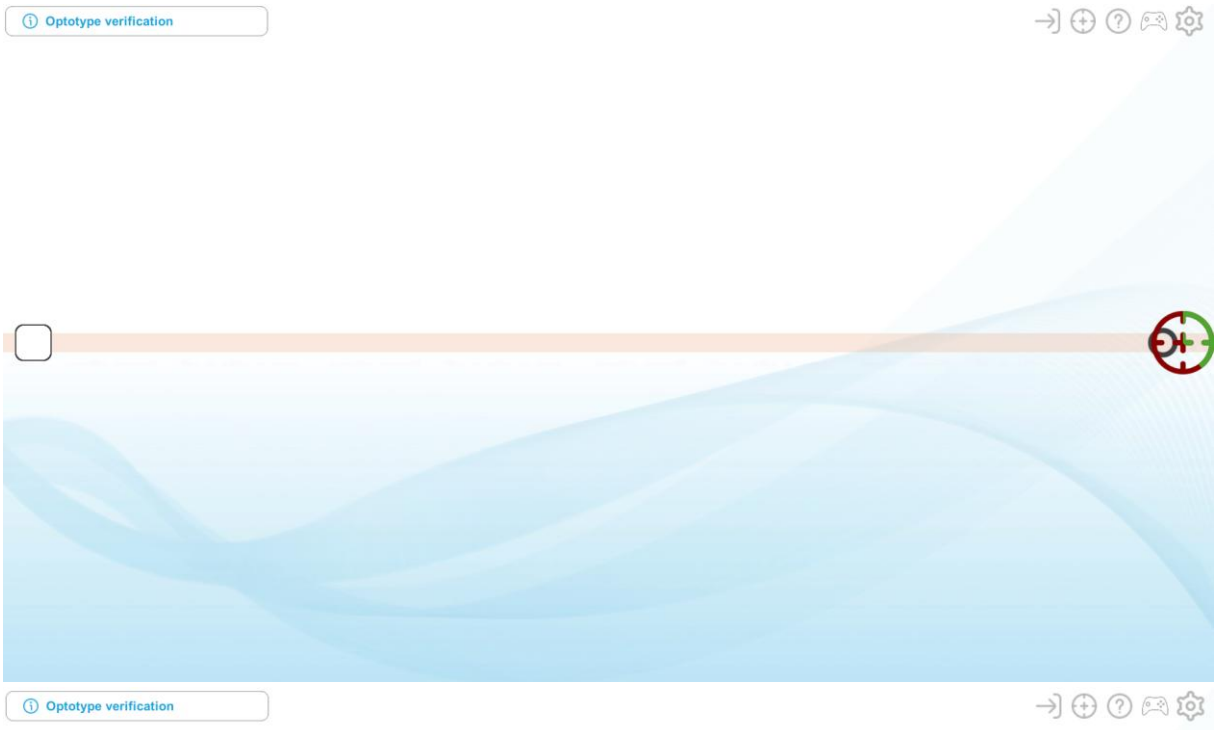
Tilts have a different display:

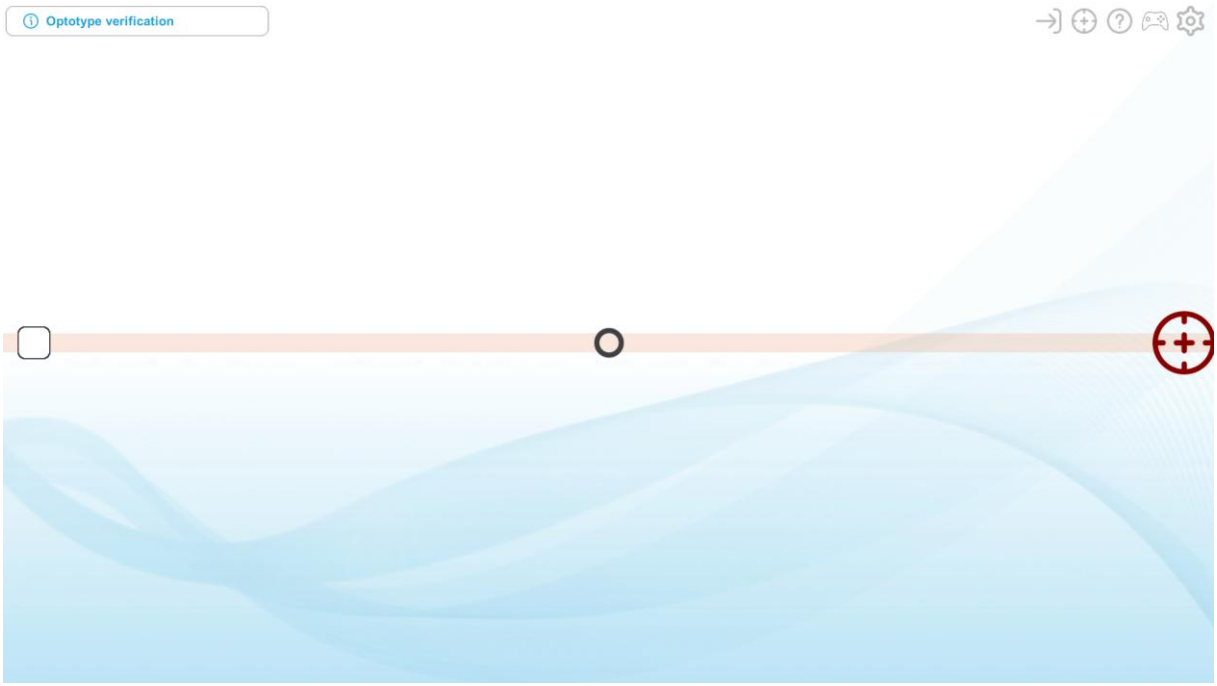


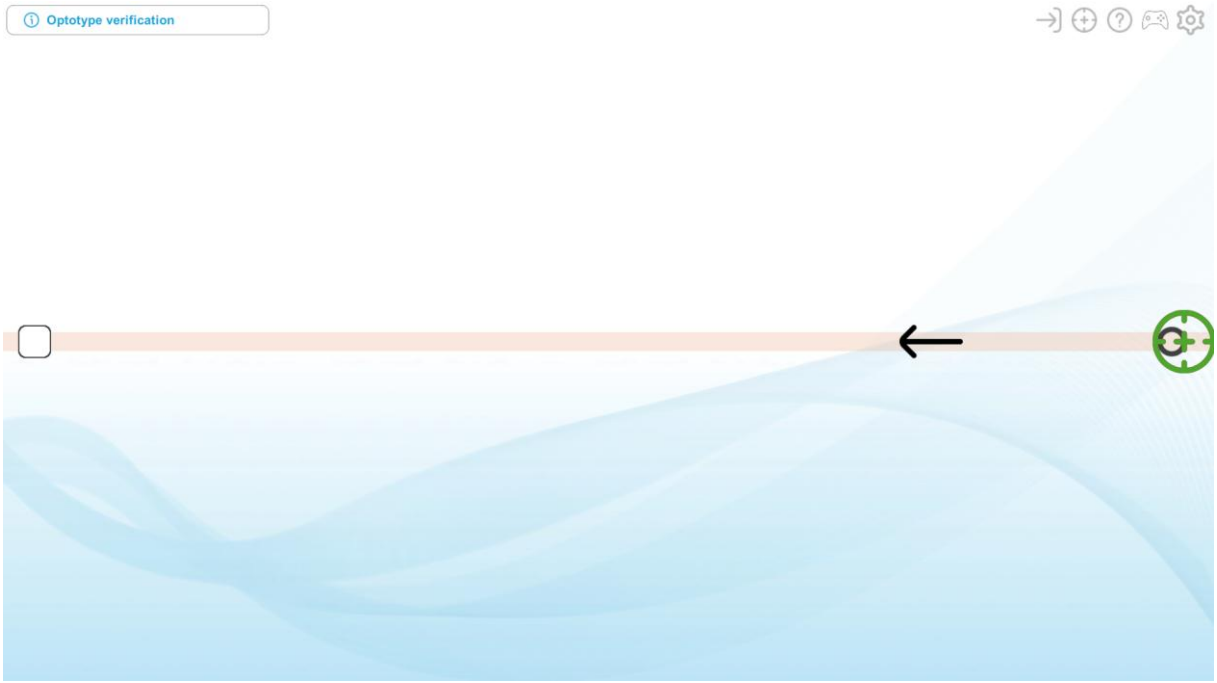
If the "Force optotype display in the center" mode is inactive:

The patient should hold the position to aim at the red target until the color is green before initiating movement by following the direction of motion arrows.

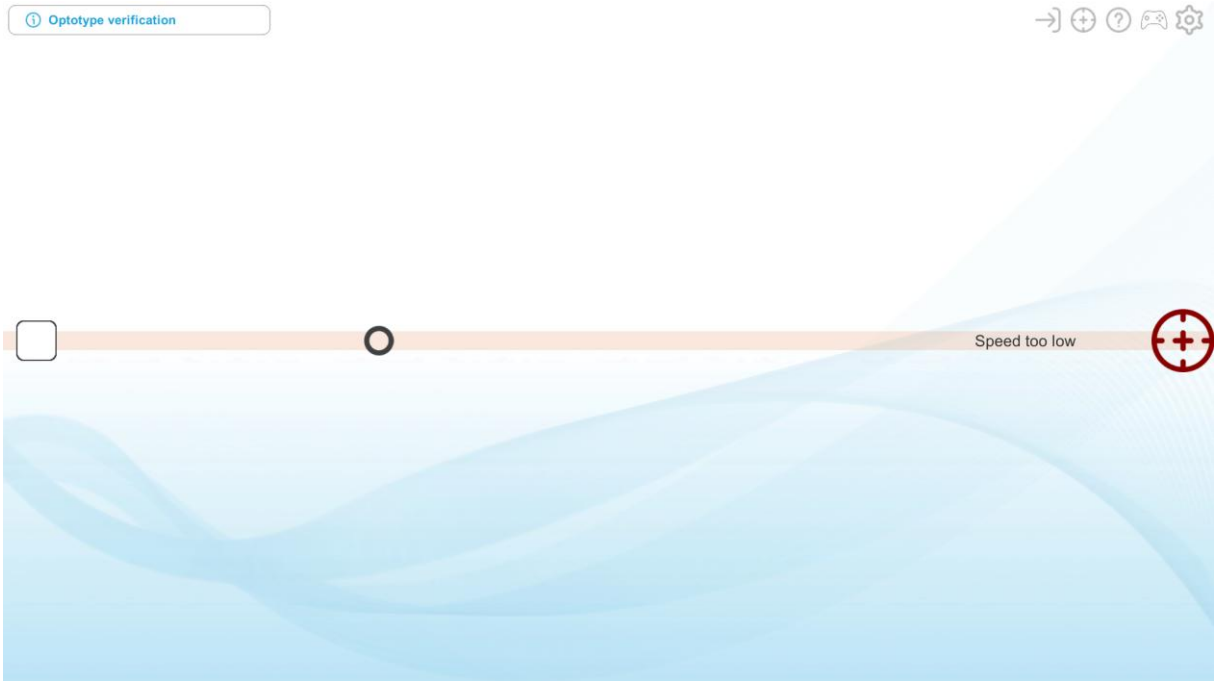
If the speed is insufficient, the target resets and the "Speed Too Low" information is displayed.


Optotype verification

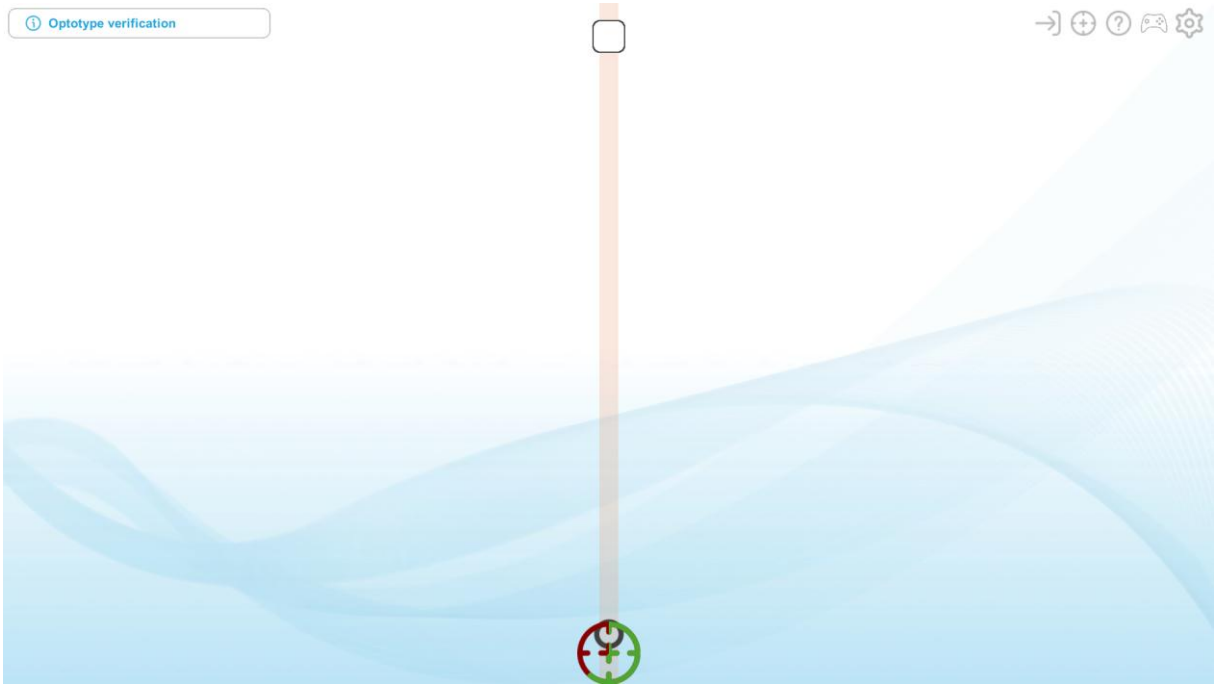

Optotype verification


Optotype verification

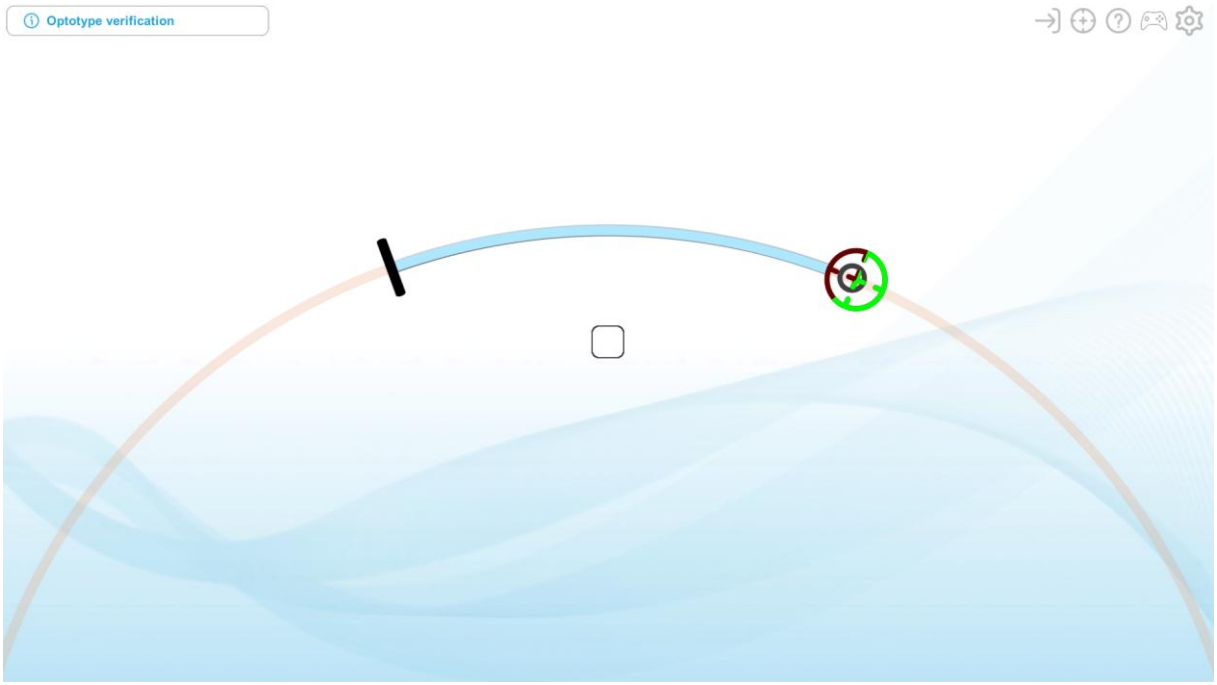

Optotype verification



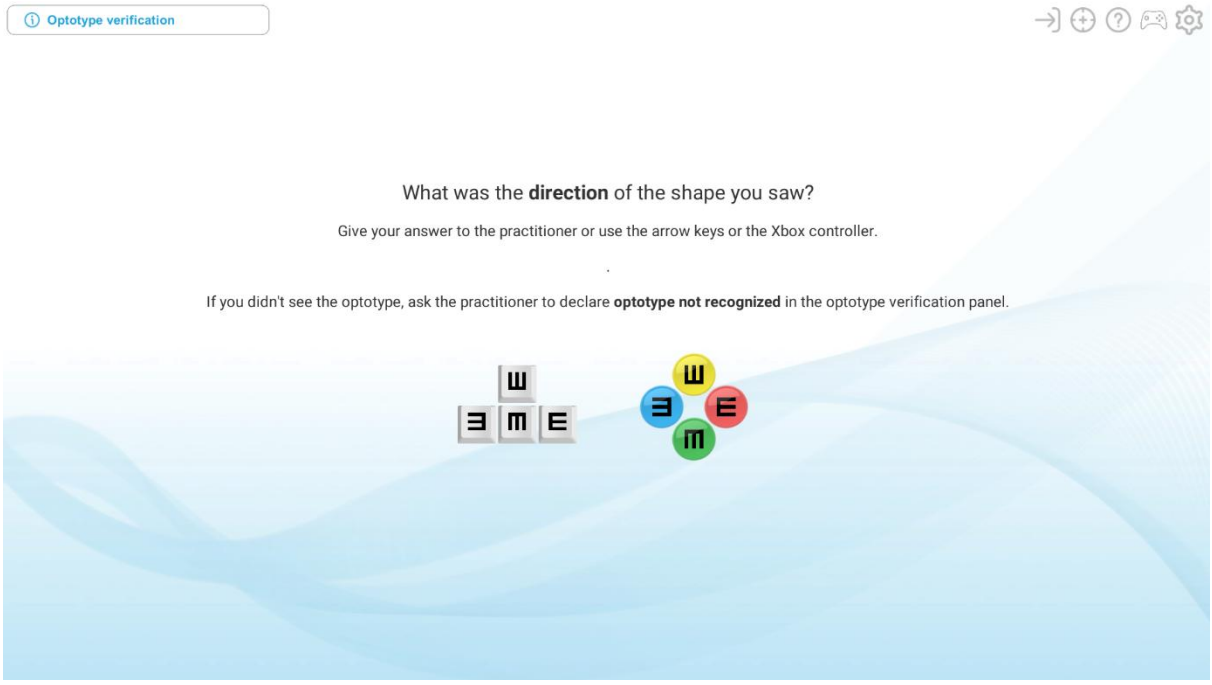
On the up-down axis, the display is different:



Tilts have a different display:

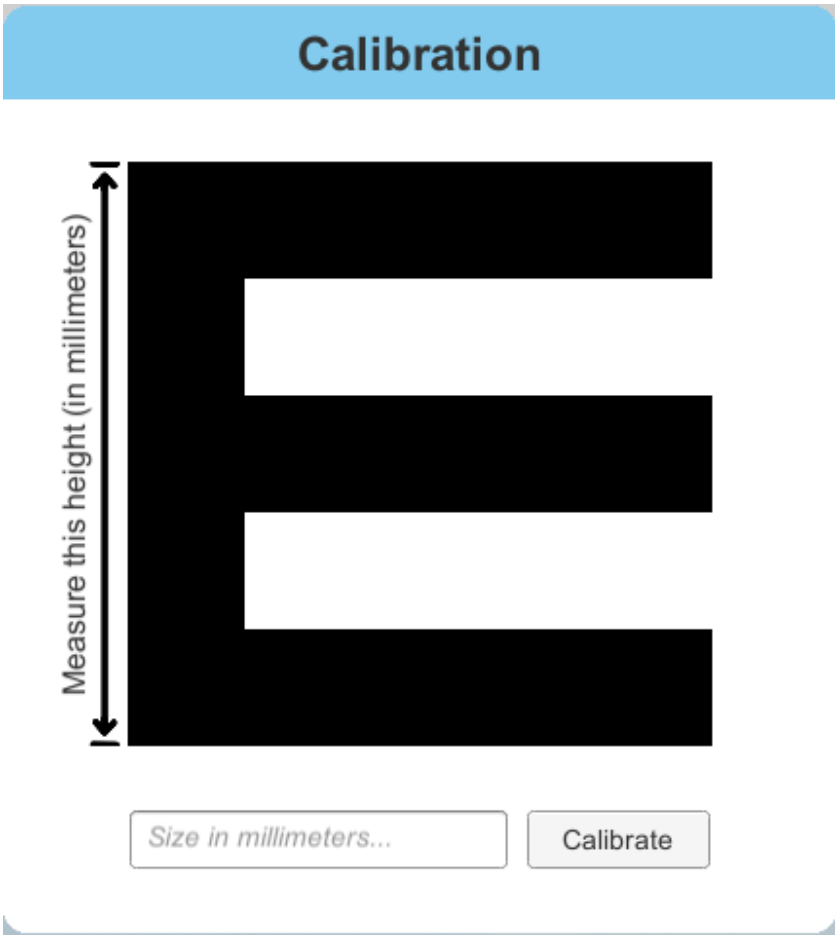


After the optotype is displayed:

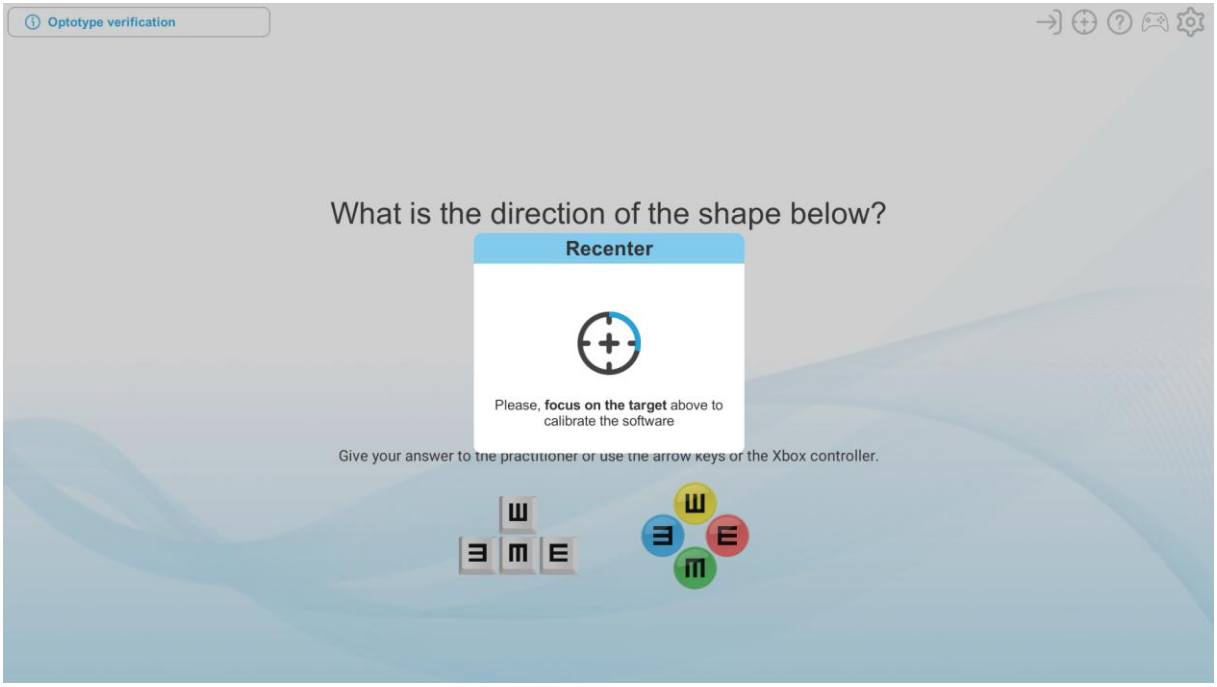


3.1.6. Generic interfaces

Screen calibration



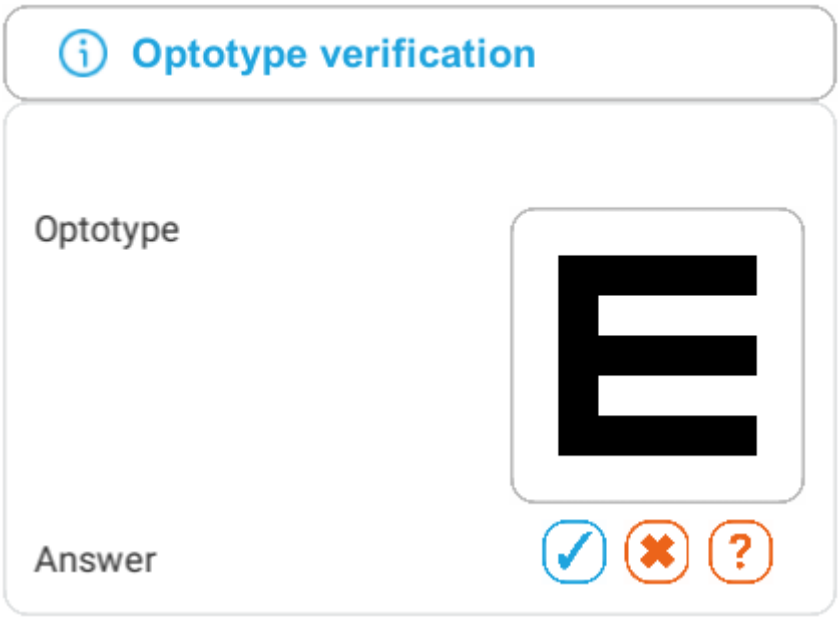
Calibration



3.2. Software interface

3.2.1. Optotype Verification

Clicking on the "Optotype verification" button opens or closes the panel containing information for the practitioner.



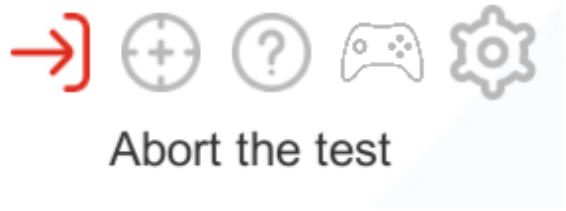
You can validate, invalidate or declare the optotype as unrecognized with the buttons at the bottom of this panel.

Validate the answer

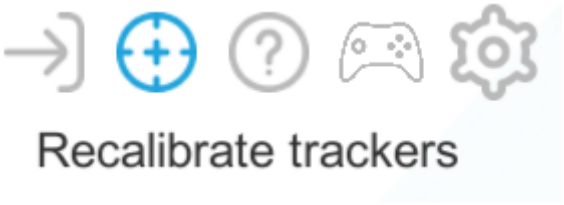
Reject or optotype not recognized or not seen

3.2.2. Action Buttons

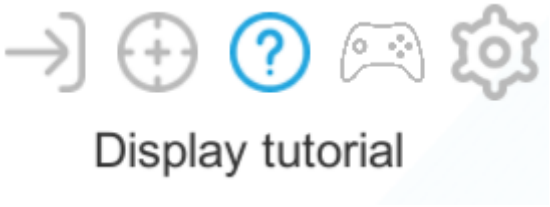
3.2.2.1. Abort Test



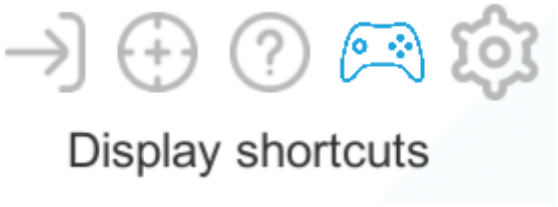
3.2.2.2. Recalibrate trackers



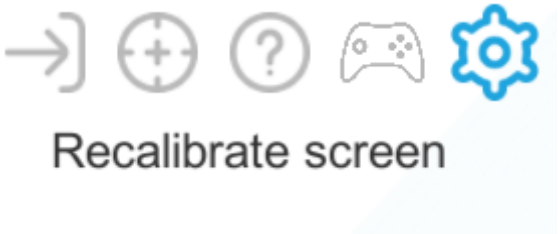
3.2.2.3. Tutorial display



3.2.2.4. Shortcuts display

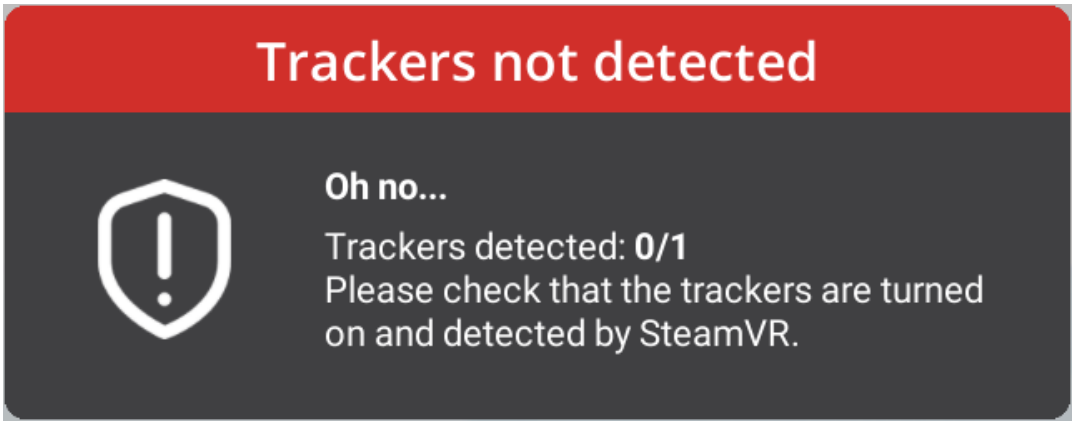


3.2.2.5. Calibrate the screen

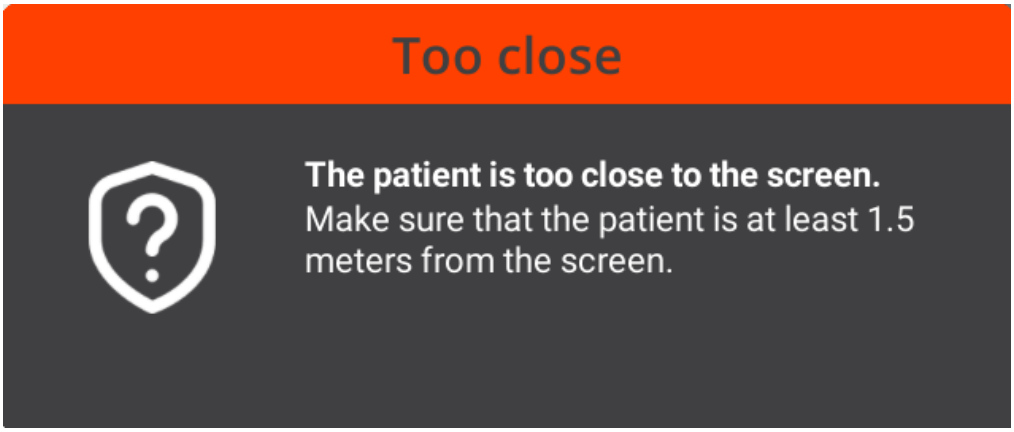


3.3. Error messages

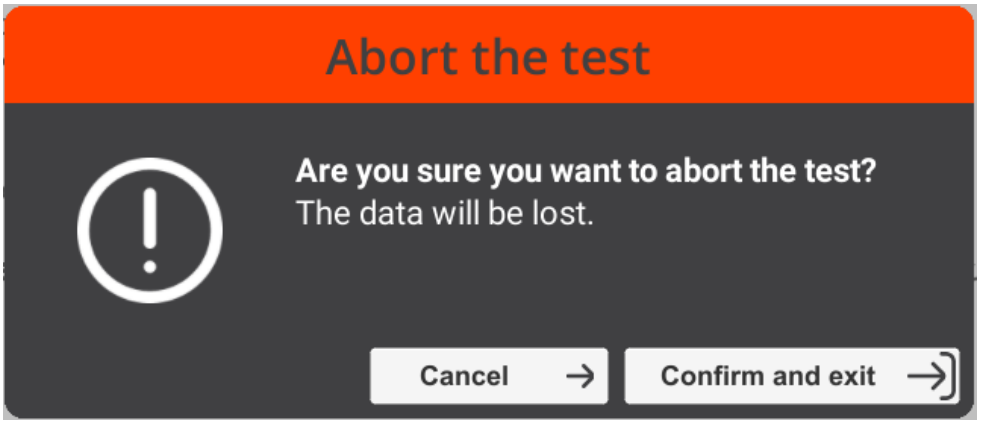
3.3.1. Trackers not detected



3.3.2. Patient too close

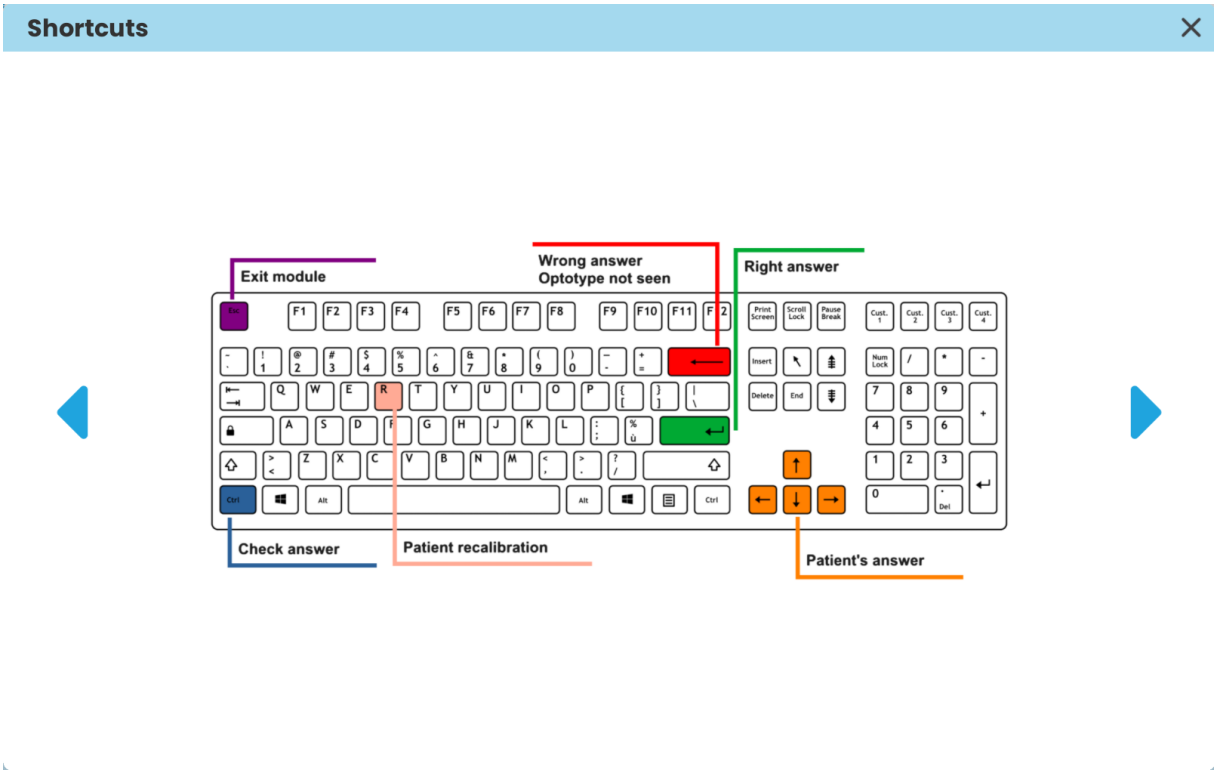


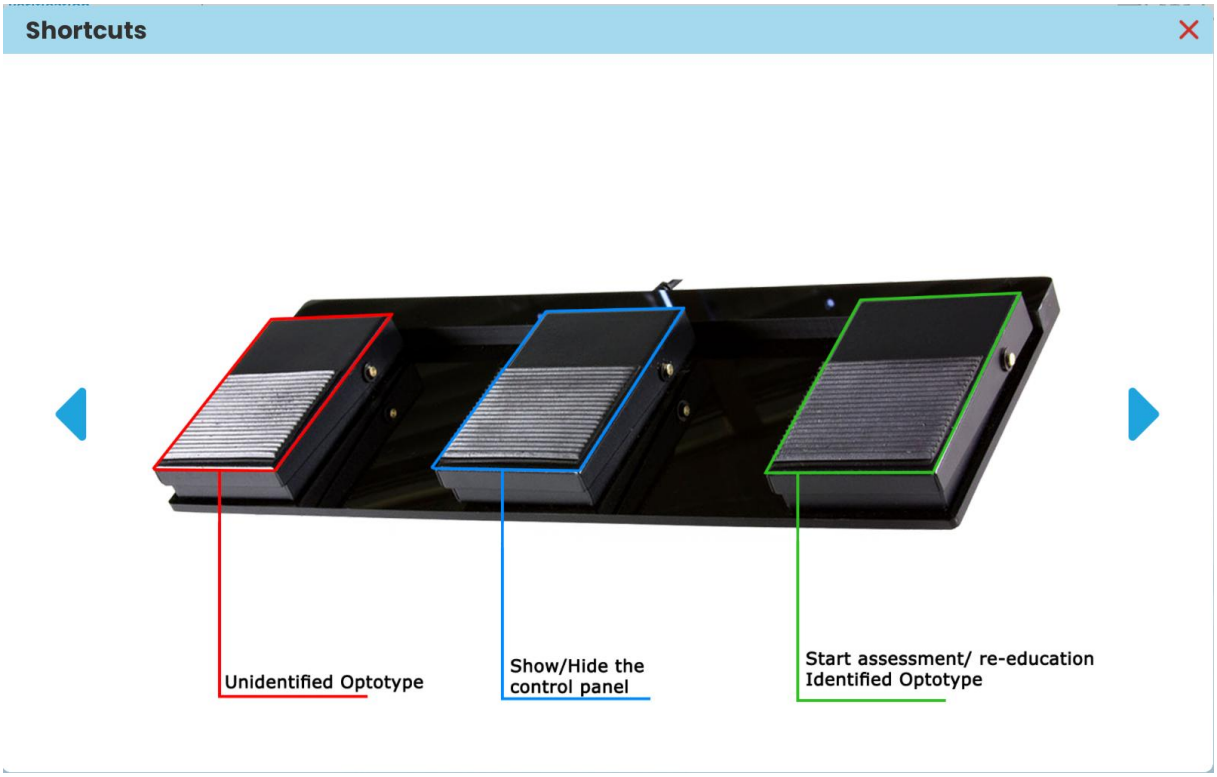
3.3.3. Confirm abort the test



3.4. Shortcuts

During the session, the shortcut list can be accessed from the Xbox controller icon in the top right corner of the screen.





3.5. Results

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

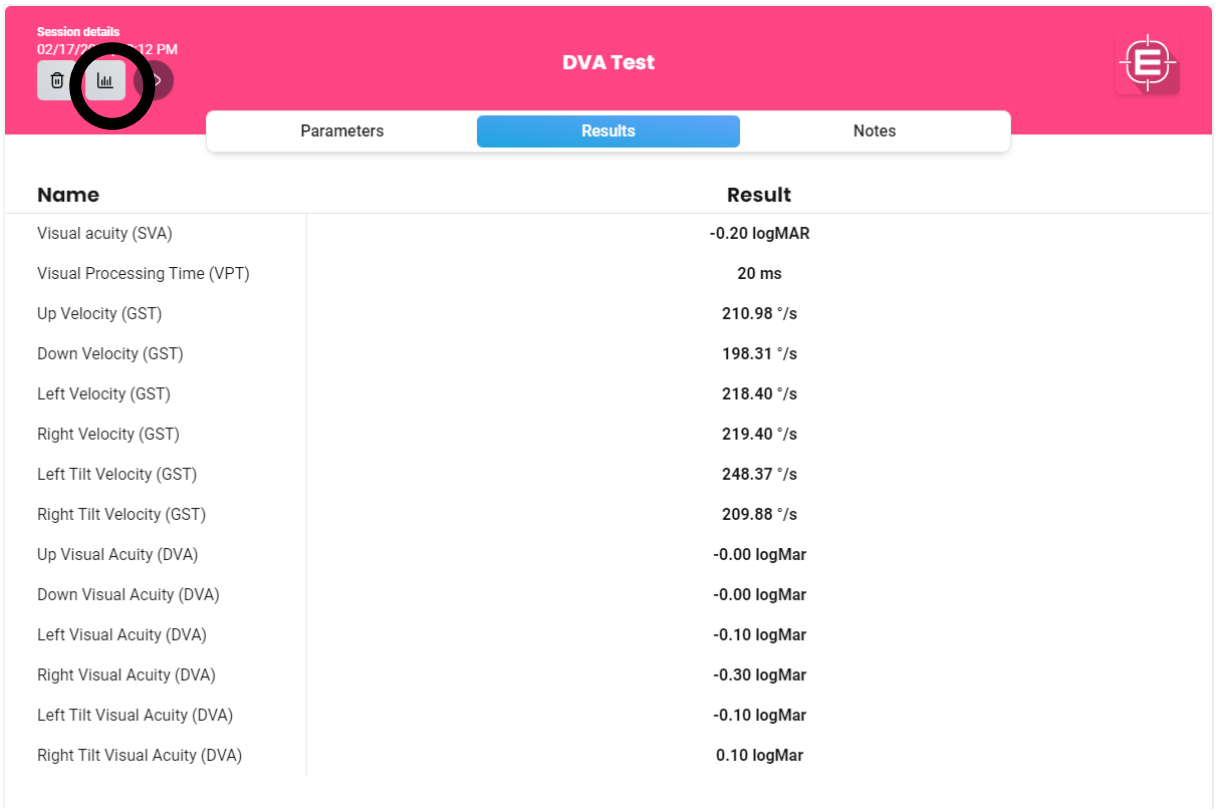
3.5.1. Summary results

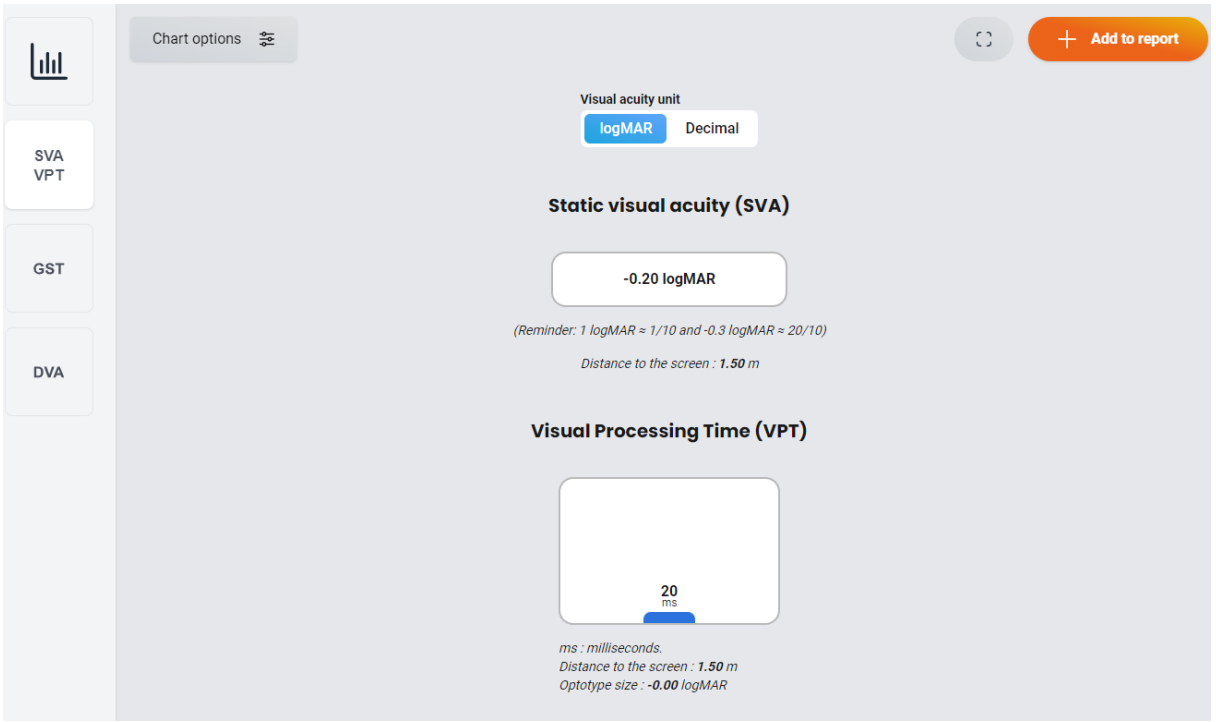
By default, the results are as follows:

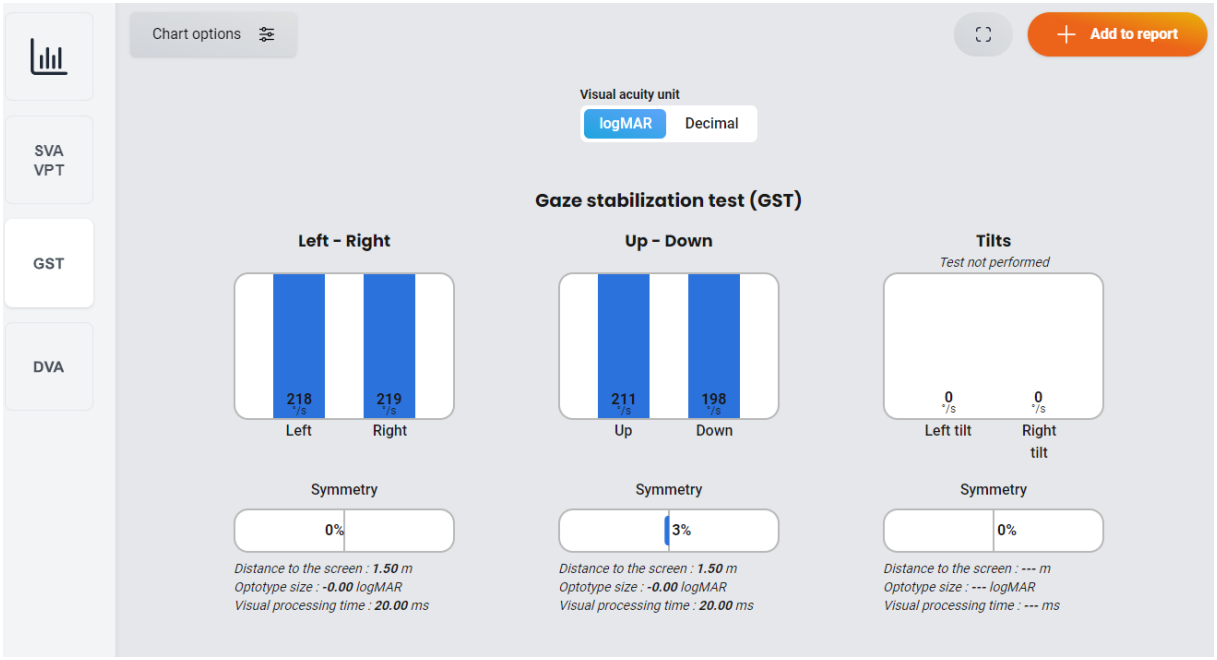
- Visual acuity (AVS)
- Visual Processing Time (VPT)
- Up Velocity (GST)
- Down Velocity (GST)
- Left Velocity (GST)
- Right Velocity (GST)
- Left Tilt Velocity (GST)
- Right Tilt Velocity (GST)
- Up Visual Acuity (DVA)
- Down Visual Acuity (DVA)
- Left Visual Acuity (DVA)
- Right Visual Acuity (DVA)
- Left Tilt Visual Acuity (DVA)
- Right Tilt Visual Acuity (DVA)

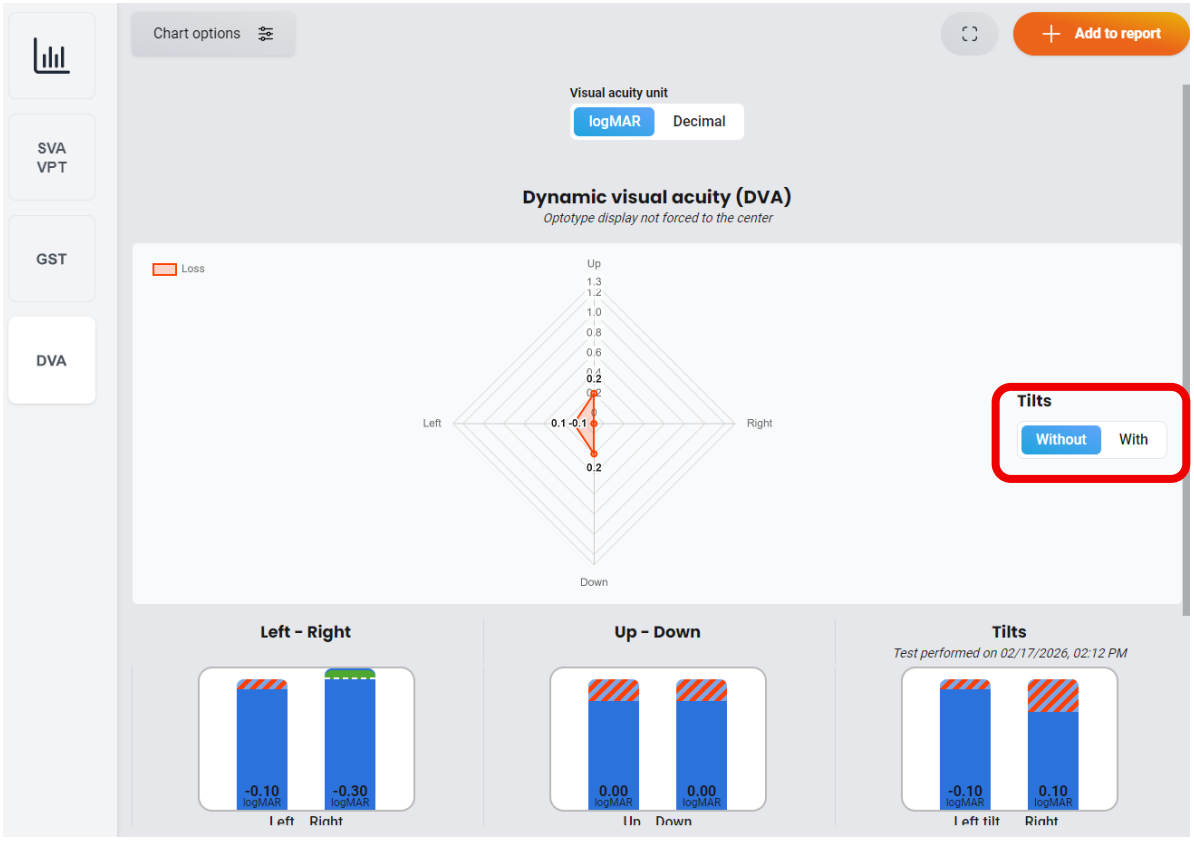
3.5.2. Report and Charts

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

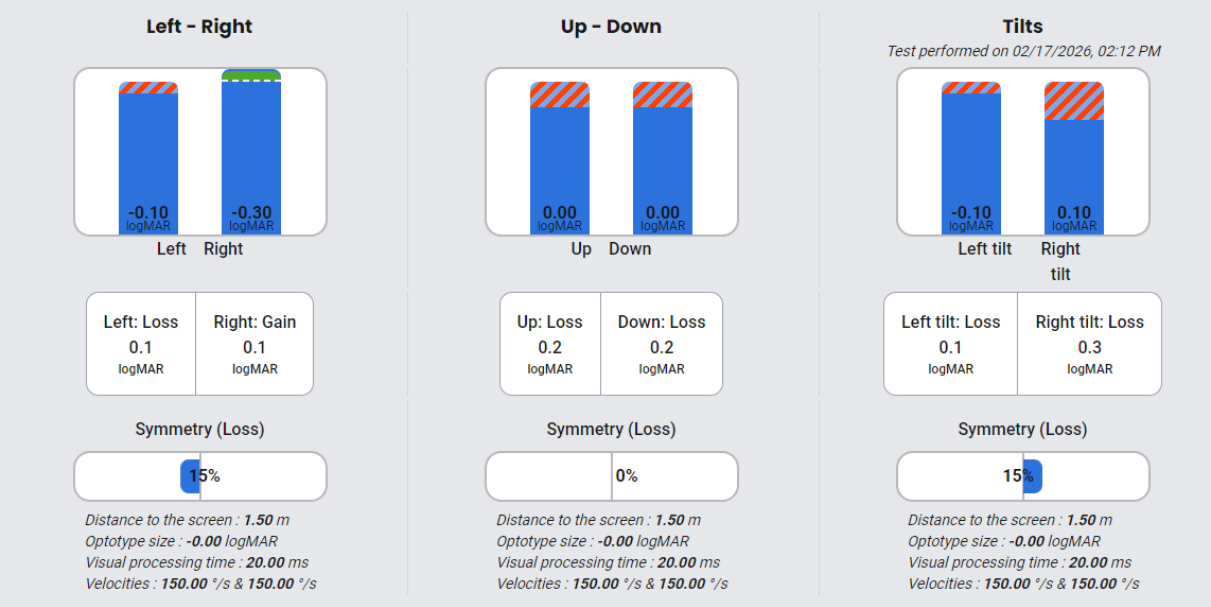








The "Tilts Without/With" option is only available if the tilts have been evaluated.


Left - Right
-0.10 logMAR
-0.30 logMAR
Left
Right
Left: Loss 0.1 logMAR
Right: Gain 0.1 logMAR
Symmetry (Loss)
15%
Distance to the screen : 1.50 m
Optotype size : -0.00 logMAR
Visual processing time : 20.00 ms
Velocities : 150.00 °/s & 150.00 °/s
Up - Down
0.00 logMAR
0.00 logMAR
Up
Down
Up: Loss 0.2 logMAR
Down: Loss 0.2 logMAR
Symmetry (Loss)
0%
Distance to the screen : 1.50 m
Optotype size : -0.00 logMAR
Visual processing time : 20.00 ms
Velocities : 150.00 °/s & 150.00 °/s
Tilts
Test performed on 02/17/2026, 02:12 PM
-0.10 logMAR
0.10 logMAR
Left tilt
Right tilt
Left tilt: Loss 0.1 logMAR
Right tilt: Loss 0.3 logMAR
Symmetry (Loss)
15%
Distance to the screen : 1.50 m
Optotype size : -0.00 logMAR
Visual processing time : 20.00 ms
Velocities : 150.00 °/s & 150.00 °/s