

# OCULUS Myopia Software

## Myopia Management

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### USER MANUAL

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## Preface

The Myopia Master® and the Pentacam® AXL Wave have been manufactured and tested according to strict quality criteria. To ensure safe operation, it is essential that you use the devices correctly. It is also intended that you make yourself familiar with the instruction manual which were also delivered with the devices. This User Manual will provide you with extensive information, especially about the evaluation programs and displays produced by the examinations.

Due to ongoing development, the diagrams shown may depict minor changes to the actual device delivered.

If you have any questions or would like additional information about your device, please do not hesitate to contact us by mail or fax. Our service team will gladly assist.

OCULUS Optikgeräte GmbH

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## 1. General notes

All data that are recorded during an examination with the Myopia Master® or the Pentacam® AXL Wave are subsequently analysed and displayed by the myopia software. In general, the results are output as numerical values as well as graphical representations. There are different display options available in the program for different use cases, and these can be quickly and easily switched at any time. Furthermore, the standard information for the individual displays can be customized.

### 1.1. Structure of the Documentation

A folder containing a set of documentation is supplied with your Myopia Master® or the Pentacam® AXL Wave.

#### Instruction Manual

- Instruction Manual: The design of the device is described in detail in this document. The instruction manual also gives you all safety-related instructions for use of the device.



#### Note

All safety-related instructions for use of the Myopia Master® or the Pentacam® AXL Wave are given in the Instruction Manual for the unit. It is therefore imperative that you read and understand the whole Instruction Manual before you use the device.

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### 1.2. Softwareversion

This User Manual describes the following myopia software version and the patient data management:

- Patient data management: Version V7.5r7 - 19.12.2023
- Myopia software: Version V1.7r5



#### Tip

The patient data management's software version is displayed on the "Settings" screen in the "Version info" area in the patient data management.

The myopia software version is displayed on the "General settings" screen in the myopia software "Software information" section ([Sect. 9.1.12, page 49](#)).

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## 2. Myopia Software

This chapter describes how to start the myopia software, load examinations and initiate an examination.



**Note**

The actual measuring operations and the preparation work required (e.g. positioning the patient) are described in the instruction manual.

### 2.1. Licensing Options

Using a Floating Licence Key (FLK), various functions can be activated in the myopia software. For that purpose, the FLK must be installed either locally on a PC or in a network (Sect. 9.1.14, page 50).

- Viewing licence: This licence includes the patient data management and the display of measurement data on the PC. In this case, no tabs are shown on the right side of the screen page.

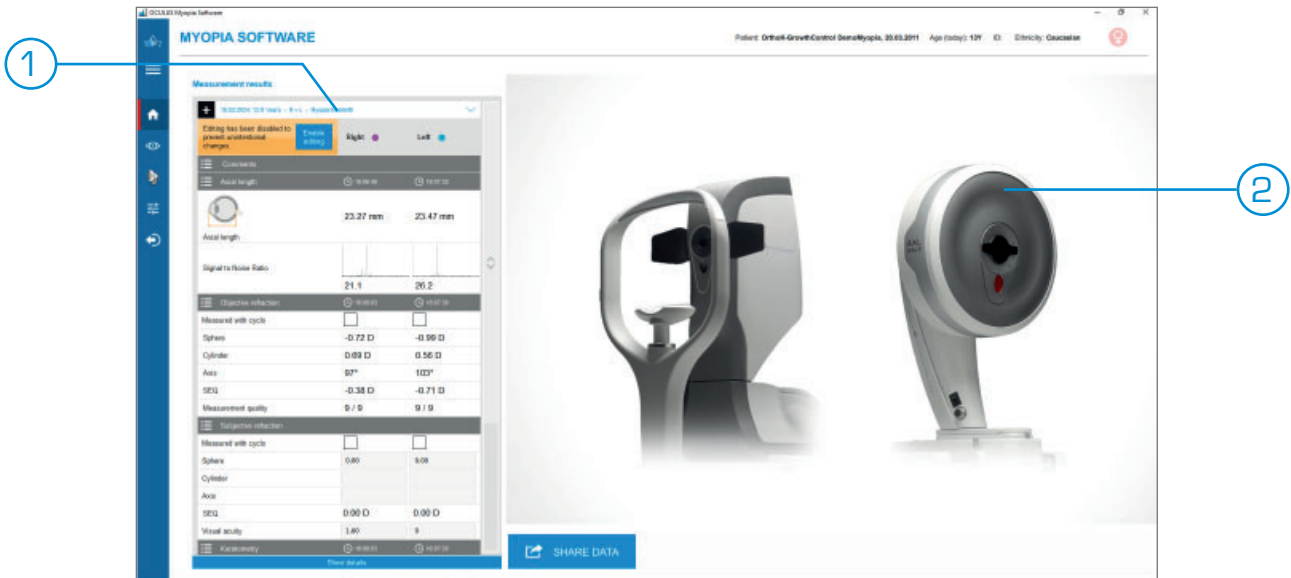


Fig. 1: Myopia software with viewing licence

1. Measurement data
2. Graphical representation of the devices

- Myopia licence: This licence includes the “Trend Analysis” licence, the “Myopia Guide” licence and the “Growth Curve” licence. In this case, the “Data Evaluation” tab and the “Risk Factors” tab are shown on the right side of the screen page.

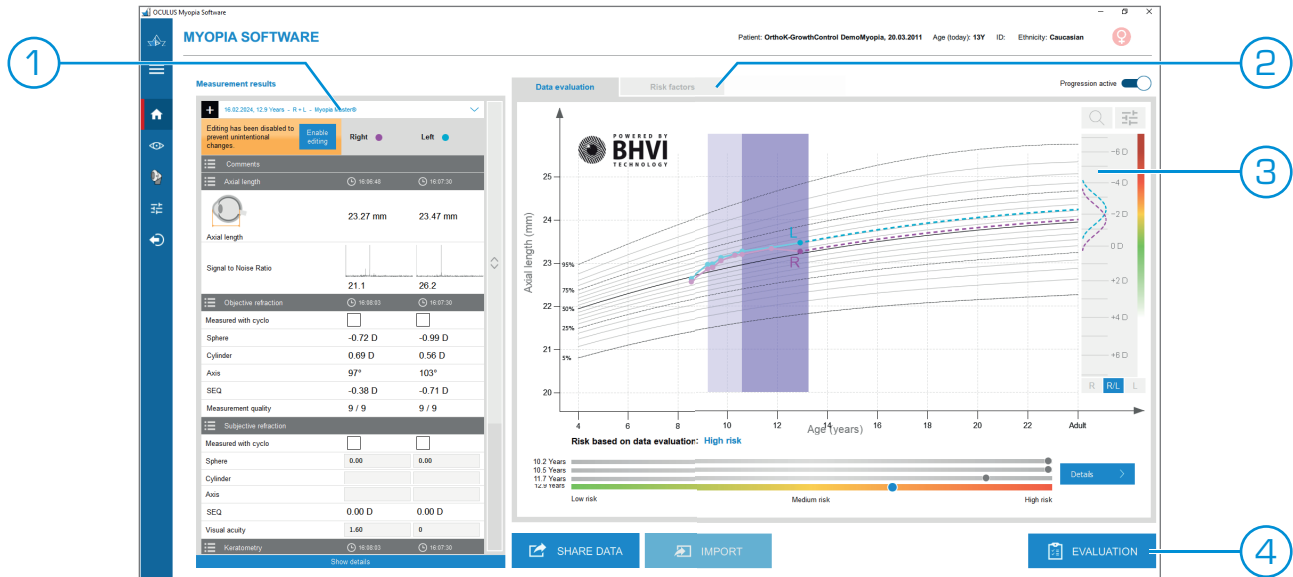


Fig. 2: Myopia software with myopia licence

1. Measurement data
2. “Risk Factors” tab
3. Data analysis
4. [Evaluation] button

- GRAS licence: This licence comprises the “Gullstrand Refractive Analysis System”. In this case, the “GRAS” tab is additionally shown on the right side of the screen page.

1. To purchase this licence, please get in touch with your OCULUS contact person.



**Note**

This user manual describes all of the myopia software’s options, including the optional myopia licence and GRAS licence.

## 2.2. Starting the Myopia Software

1. After selecting a patient in the patient data management: Double click on an examination from the examination list to start the myopia software.  
In this case, the data of the selected examination will be displayed in the myopia software.  
If Pentacam measurements are to be opened in the myopia software, proceed as follows:

2. After selecting a patient in the patient data management, start the myopia software by clicking the [+ MYOPIA SOFTWARE] button. In case of a newly added patient, no examination data will be displayed in the myopia software (at first).

### 2.2.1. Overview Page (Start)

The left part of the overview page shows the measurement results of the selected examination. This can either be the current examination or another previous examination. In the right part, you can switch between the "Data Evaluation" (Sect. 4, page 22), "Risk Factors" (Sect. 7, page 40) and GRAS (Sect. 8, page 44) tabs.

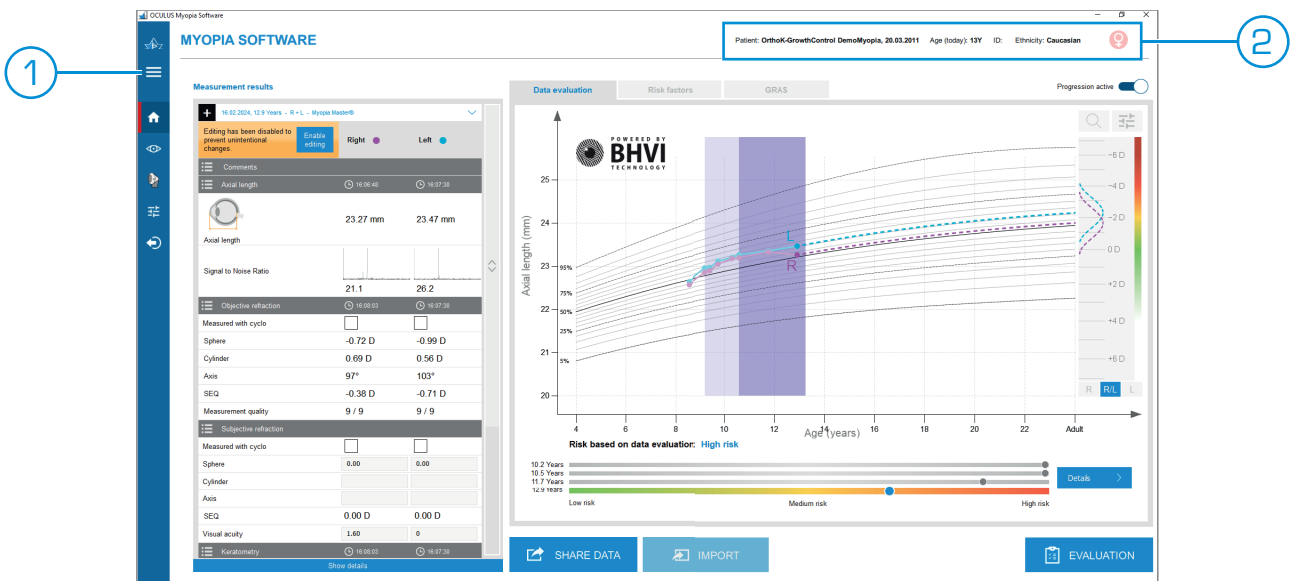


Fig. 3: Overview Page

1. Menu bar
2. Patient data

The most important patient and examination data, which are transferred from the linked patient data management, are displayed at the top right of the overview page.

- Last name and first name
- Date of birth
- Current age
- ID
- Ethnicity
- Gender

The menu bar is on the left edge of the screen. Here you can switch between the basic areas of the myopia software.

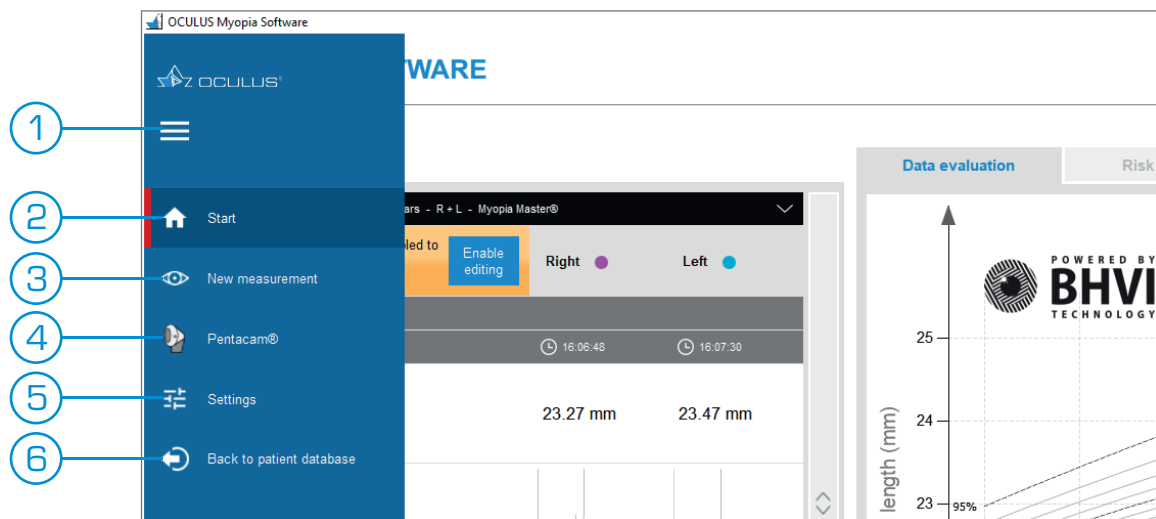


Fig. 4: Menu bar

- |                             |   |
|-----------------------------|---|
| 1. [Menu bar] button        | 4. [Path to the Pentacam software] button |
| 2. [Start] button           | 5. [Settings] button                      |
| 3. [New measurement] button | 6. [Back to patient database] button      |

1. Click on the [Menu bar] button to show or hide descriptions of the individual buttons.

## 2.3. Initiate Measurement (New Measurement)

### 2.3.1. with the Myopia Master®



#### Note

To initiate a measurement via the myopia software, patient data management must be active on the Myopia Master® itself. If measurement mode is active on the Myopia Master®, the USB interface is deactivated to prevent accidental cancellation of a measurement in progress.

1. Make sure that the Myopia Master® is selected as measuring device in the settings (Sect. 9.1.5, page 48).
2. Make sure that the patient data management is active on the Myopia Master®.
3. Click on the [New Measurement] button in the side menu bar. The message "Connecting to Myopia Master®" appears.
4. Carry out the measurement on the Myopia Master® as described in the instruction manual.



#### Note

Details on how to use the patient data management directly on the Myopia Master® can also be found in the instructions for use.

### 2.3.2. with the Pentacam® AXL Wave

1. Make sure that the Pentacam® software version V1.31 or newer is installed.
2. Make sure that the Pentacam® AXL Wave is selected as measuring device in the settings (Sect. 9.1.5, page 48).
3. Click on the [New Measurement] button in the side menu bar. The "Full Sequence Overview" measurement mode is opened on the Pentacam® AXL Wave.
4. Carry out the measurement on the Pentacam® AXL Wave as described in the instruction manual.

### 2.3.3. Repeating a Measurement

If, after completing a measurement, you notice that the measurement values are of insufficient quality or are missing completely, you can carry out the missing measurements later. To do this, a session (consisting of the measurements for the left and right eye) remains valid for a whole day. Any subsequent measurements of a patient on the same day are automatically assigned to this session.

If several measurements were taken in one session, the myopia software automatically selects the measurements with the best measurement quality. If you prefer a different measurement (with a lower measurement quality), proceed as follows:

1. Click on the [Enable editing] button to make changes in the left part of the screen (measurement results) (Sect. 3, page 16).
2. Open the drop-down list for the desired area of the examination (e.g. "axis length").  
All measurements from the current day are displayed.
3. Select the desired measurement.
4. Click on the [Best measurement] button to select the measurement with the best measurement quality again.

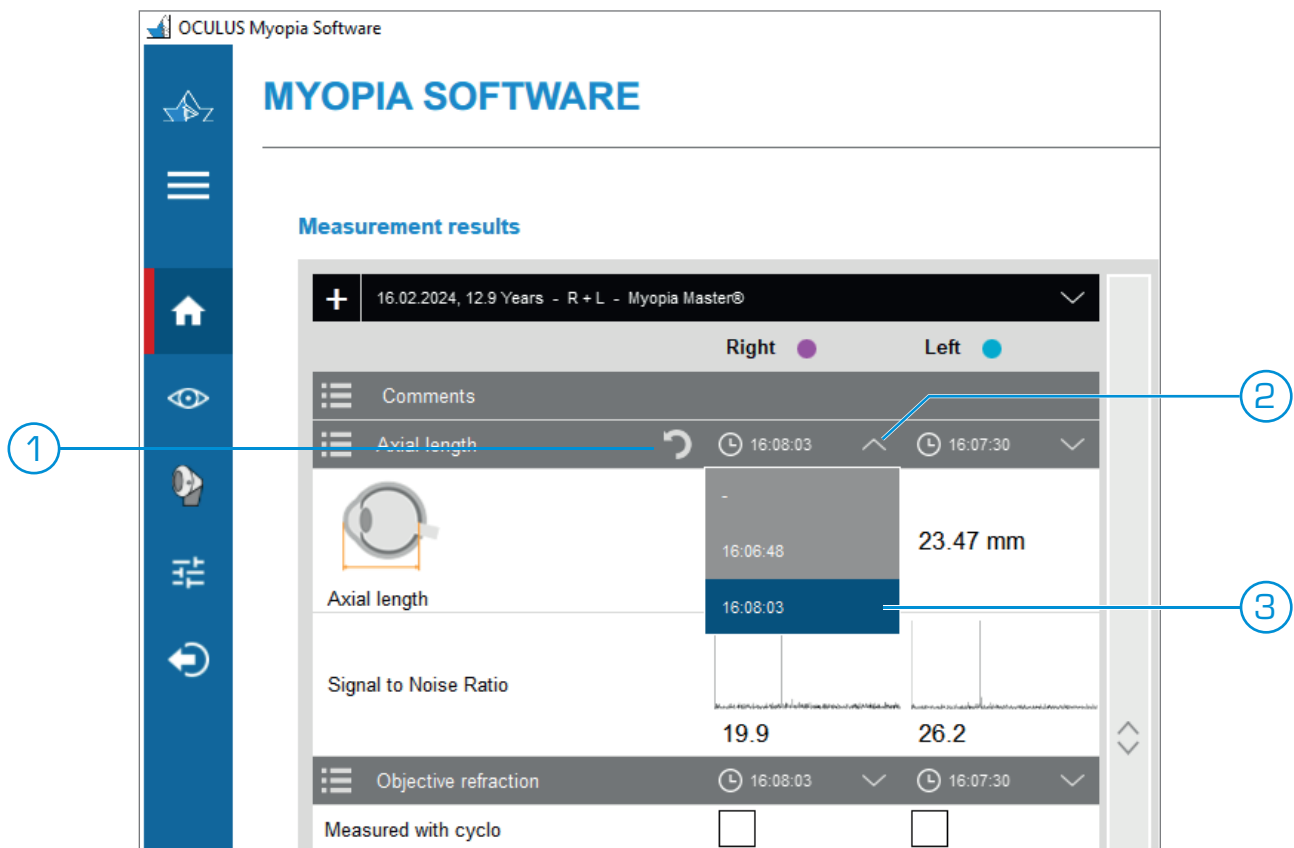


Fig. 5: Selection of measurements

1. [Best measurement] button
2. Drop-down list with all measurements
3. Currently selected measurement

### 2.3.4. Comment function

For each session, information about the respective examination can be stored in the "Comment" area (e.g. "Measurement in a darkened room.") The information stored here is then also displayed in the "Info" column of the respective session in the patient data management.

### 2.3.5. Settings

Basic settings for working with the myopia software can be made on the "Settings" screen (Sect. 9, page 46).

1. Click on the [Settings] button.  
The last selected screen opens in the "Settings" area.

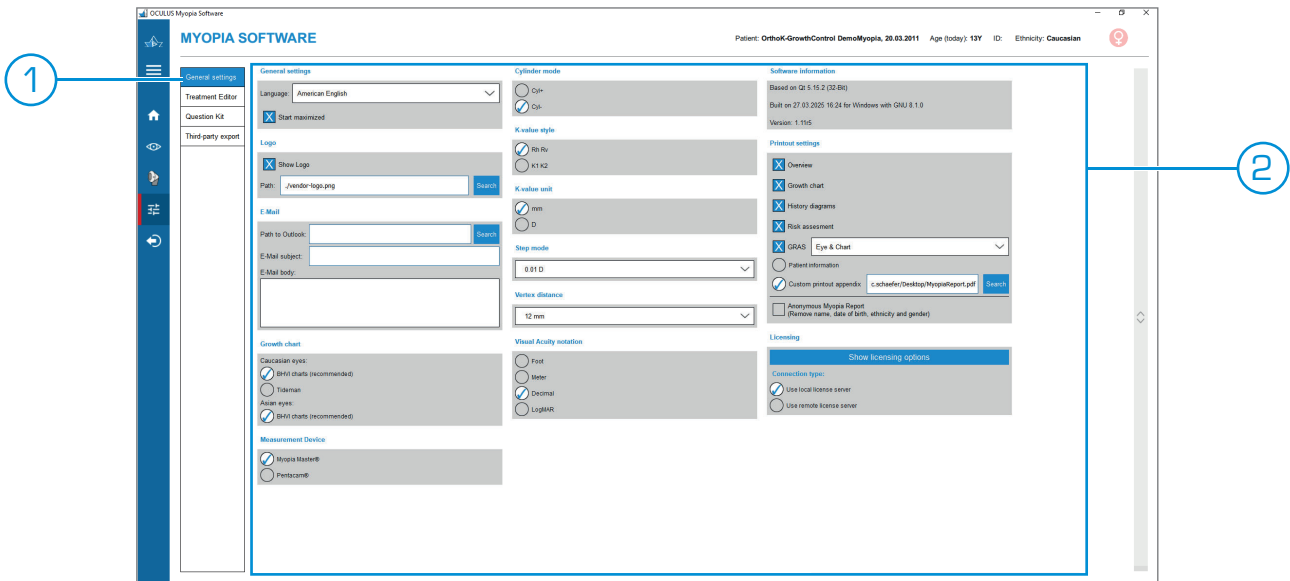


Fig. 6: “General Settings” screen

1. Selection of further screen
2. Setting options and information

Settings made on the screens in the “Settings” area do not have to be saved. The current settings are automatically adopted.

### 2.3.6. Back to Patient Data Management

When all measurements and the associated data evaluations of a patient have been completed, switch back to the patient data management to select the next patient.

1. Click on the [Back to patient database] button.  
The patient data management appears again

### 3. Measurement Results

After completing an examination or loading an examination, the results are displayed on the screen, separately for the right and left eye. Depending on the type and scope of the individual measurements carried out, no measurement results can be shown in individual areas. This section describes all the displays on the screen in the order in which they appear.

When loading an examination that has already been completed, a warning note is displayed at the top of the screen, indicating that the editing mode has been deactivated in order to prevent inadvertent changes.

1. Click on the [Enable editing] button to make changes on the left side of the screen page (measurement results).  
On the right side of the screen page (e.g. treatment methods entered), changes can still be made. Please note that your changes are saved immediately. Changes can only be undone manually by re-entering the previously saved data.

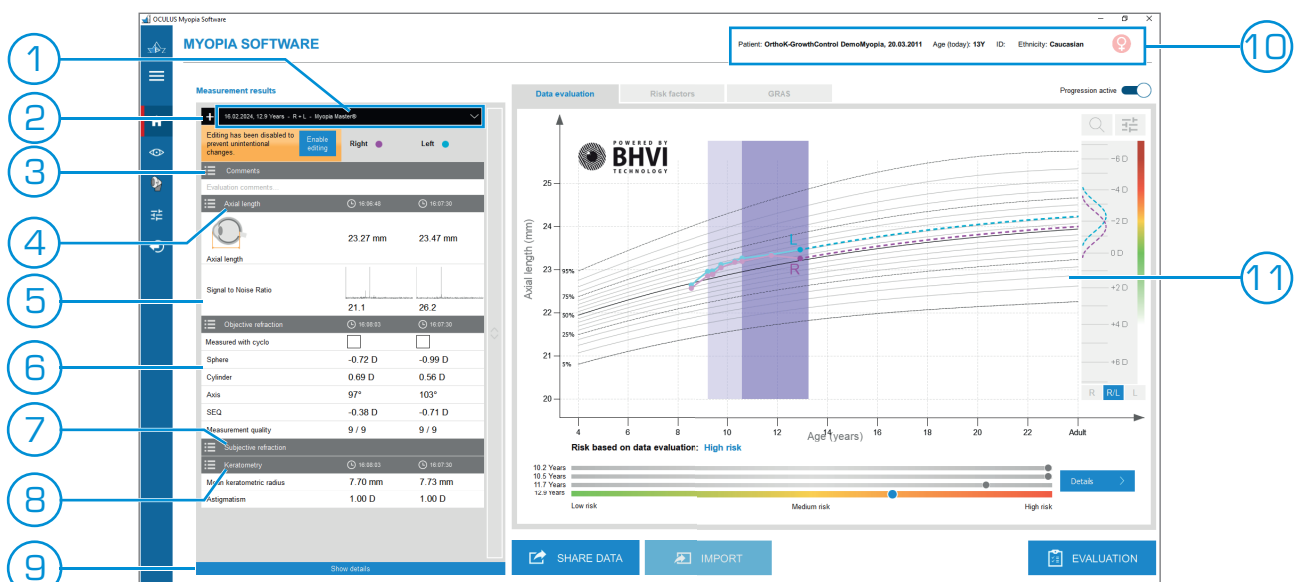


Fig. 7: “Measurement Results” screen

1. Examination/eye selection
2. [New measurement] button
3. [Details] button
4. Comment
5. Axial length
6. Objective refraction
7. Subjective refraction
8. Keratometry
9. [Show details] button
10. Patient data
11. Data evaluation/risk factors



#### Note

The actual measuring operations and the preparation work required (e.g. positioning the patient) are described in the instruction manual.

## 3.1. Reference Measurement

### 3.1.1. with the Myopia Master®

On delivery of the unit, a reference measurement must first be carried out with the supplied test eye. This verifies the correct functioning of the Myopia Master®.

1. Carry out the reference measurement on the Myopia Master® as described in the instruction manual.  
This allows you to measure various parameters.
2. Compare the measurement results with the values printed on the test eye.
3. If the measurement results for the refractive index or the axial length are outside the specified tolerance ranges, please contact OCULUS.

Refractive power:  $\pm 0.25$  dpt

AL [mm]:  $\pm 0.05$

SNR:  $> 4$



#### Note

In general, all measurements (not only reference measurements) can be evaluated where the signal-to-noise ratio is greater than "4.5".



#### Tip

Carry out the reference measurement again at regular intervals. This is the only way to ensure that the Myopia Master® delivers correct and reliable measurement results. OCULUS recommends that the reference measurement should be carried out monthly.

### 3.1.2. with the Pentacam® AXL Wave

1. Carry out the reference measurement on the Pentacam® AXL Wave as described in the instruction manual.  
This allows you to measure various parameters.

## 3.2. General Information

### 3.2.1. Patient Data

The patient data is displayed in the upper right area of the screen:

- **Patient:** First name, last name and date of birth of the patient
- **Age (today):** Patient's current age
- **ID:** External ID of the patient in the patient data management (if assigned)
- **Ethnicity:** Patient's ethnicity

### 3.2.2. Examination Data

The examination results of the selected examination are displayed in the "Measurement Results" area in the left part of the screen.

1. Click on the drop-down list.

The following information is displayed for all the patient's saved examinations.

- Date of the examination
- Age of the patient at the time of the examination
- Eye examined
- Measuring device

2. Click on the examination whose measurement results you want to view.

When multiple measurements of an examination type are taken, the myopia software automatically selects the best measurement.

3. If you want to display a different measurement, select it from the drop-down list ([Sect. 2.3.3, page 13](#)).

### 3.2.3. Comment area

For each session, information about the respective examination can be stored in the "Comment" area (e.g. "Measurement in a darkened room.") The information stored here is then also displayed in the "Info" column of the respective session in the patient data management.

## 3.3. Axial Length

In the first section of the measurement results you will find information about the measured axial lengths. The axial length is measured six times per eye during the examination. The value with the best signal-tonoise ratio is displayed from these individual measurements by default. The individual measurement values can also be viewed.

- **Axial length:** Measured axial length with the best signal-to-noise ratio.
- **Signal to Noise Ratio:** Ratio of the actual measurement signal to the noise.  
If the eye is opaque, the result is a generally worse value than without opacity (e.g. different value for left and right eye).  
When the patient blinks during the examination, on the other hand, this results in (strongly) different values for the individual measurements of the same eye.

The values of the individual measurements can also be displayed in addition to the best value in each case.

1. Click on the [Details] button in the "Axial length" heading to display the values of the individual measurements.

Furthermore, the signal-to-noise ratio of the individual measurements can be displayed graphically.

2. Click on the displayed signal-to-noise ratio to graphically display the values of the individual measurements in the right-hand area of the screen.  
The measurements with the highest (best) signal-to-noise ratio are outlined here in blue. The axial lengths determined during these measurements are used for further data evaluation.
3. Click the [X] button at the top right to close the graphical representation of the signal-to-noise ratio.

### 3.4. Objective Refraction

In the second area of the measurement results, below the axial length values, you will find information on the measured refraction values. These values are measured three times per eye during the examination. The value with the best measurement quality is displayed from these individual measurements by default. The individual measurement values can also be viewed.

- **Measured with Cyclo:** Activate this checkbox if the refraction values were measured after application of cyclopentolate.
- **Sphere:** Short-sightedness or long-sightedness in dioptres.
- **Cylinder:** Value of a measured corneal curvature.
- **Axis:** Alignment of the measured cylinder value.
- **SEQ:** Sum including algebraic sign of spherical power and half cylinder power. This value helps to easily and quickly compare the development of the eye over time.
- **Measurement quality at the Myopia Master®:**  
Mean quality of the measured values used to calculate the refraction values. The field is colored in the same way as on the device's display, depending on the quality of the measured value.

- Value in the range 9 and 8: the measurement results are good. The field has a white background.
- Value in the range 7 and 6: the measurement results are questionable; repeat measurement if necessary. The field has a yellow background.
- Value under 6: repeat measurement. The field has a red background.

■ **Measurement quality at the Pentacam® AXL Wave:**

Display "OK" or "NOT OK" depending on the average quality of the measured values.

The values of the individual measurements can also be displayed in addition to the mean value.

1. Click on the [Details] button under the heading "Objective Refraction" to display the values of the individual measurements mentioned above.

### 3.5. Subjective Refraction

You can enter the patient's current subjective refraction values in the third area of the measurement results, below the objective refraction. These values can be determined with measuring glasses or a phoropter, for example, and stored here for documentation purposes. Just like with the objective refraction measurement results, it is also possible to document whether the refraction values were measured after application of cyclopentolate by using the "Measured with Cyclo" checkbox.

### 3.6. Keratometry

In the fourth and last section of the measurement results, below the subjective refraction, you will find information about the measured keratometer values. These values are measured once per eye during the examination.



**Note**

The display of the keratometer values can be adjusted on the "General settings" screen ([Sect. 9.1, page 46](#)).

---

- **Mean keratometric radius:** Mean value of horizontal and vertical corneal radius.
- **Astigmatism:** Astigmatism of the cornea in the centre, calculated from the difference of the horizontal and vertical corneal radius.
- **Iris image:** Display of the image of the iris taken during the examination.

- **Horizontal radius:** Horizontal radius of curvature in the centre, shown as a radius value in mm or as a refractive power in dpt, and the associated axial position. The flatter meridian is shown in blue, the steeper one in red.
- **Vertical radius:** vertical radius of curvature in the centre, represented as a radius value in mm or as a refractive power in dpt, and the associated axial position. The flatter meridian is shown in blue, the steeper one in red.
- **HWTW:** Diameter of the cornea (white-to-white).
- **Pupil diameter:** Diameter of the pupil.
- **Measurement quality:** Mean quality of the measured values used to calculate the keratometry values.
  - Value in the range 9 and 8: the measurement results are good.
  - Value in the range 7 and 6: the measurement results are questionable; repeat measurement if necessary.
  - Value under 6: repeat measurement.

By default, the only two values displayed are “mean keratometric radius” and “astigmatism”.

1. Click on the [Details] button in the “Keratometry” heading to view all of the above values.

## 4. Data Evaluation

### 4.1. General

The “Data Evaluation” tab graphically displays the examination results on the right-hand side of the screen. Percentile curves of the axial length are displayed in the background for this purpose. The percentile curves displayed depend on the patient’s sex and ethnicity and are automatically selected on the basis of the values stored in the patient data. This enables easy and quick comparison of the measured values against the standard values of the respective age group.

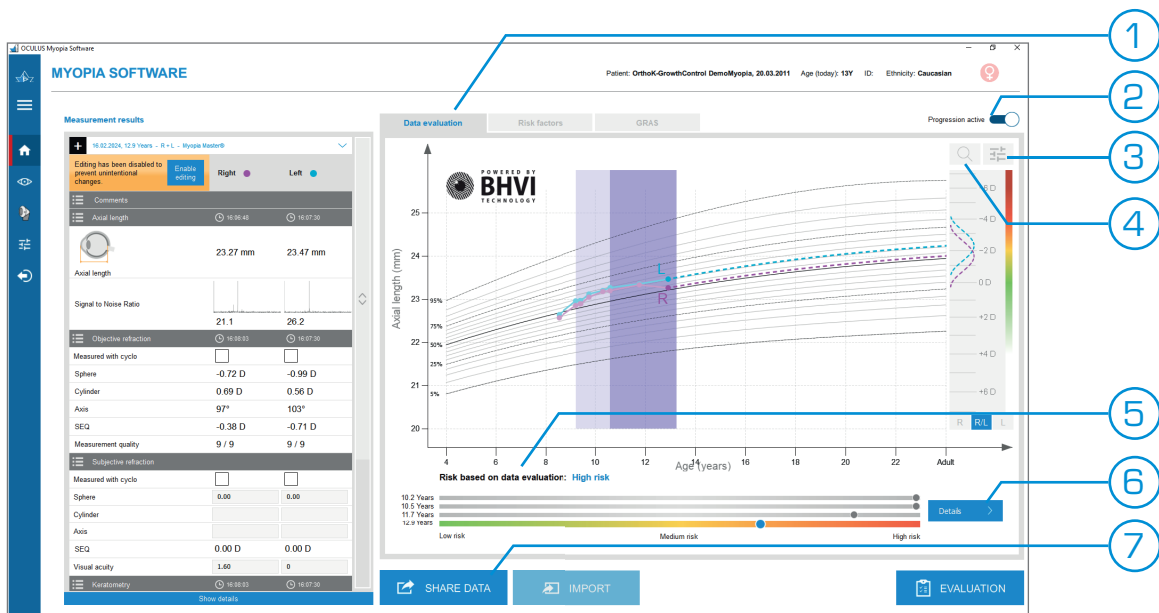


Fig. 8: “Data Evaluation” screen

- |                                     |   |
|-------------------------------------|---|
| 1. “Data Evaluation” tab            | 5. [Details] button                         |
| 2. Slider [Progression active]      | 6. Risk assessment based on data evaluation |
| 3. [Forms of Representation] button | 7. [Share Data] button                      |
| 4. [Full Screen] button             |   |

### 4.2. Adjust Display

The display can be adjusted in the upper right area of the diagram using two buttons and further setting options.

#### 4.2.1. Progression Active

1. Move the [Progression active] slider to the right.  
In the lower part of the screen, the “Risk based on data evaluation” area shows the assessments at the time of previous examinations.

- Alternatively, move the slider to the left.  
In this case, the assessment is only displayed for the currently selected examination.

#### 4.2.2. Full-Screen Display

- Click on the [Full Screen] button to display the currently selected representation full-screen.  
This can be useful, for example, when discussing the examination results with the patient.

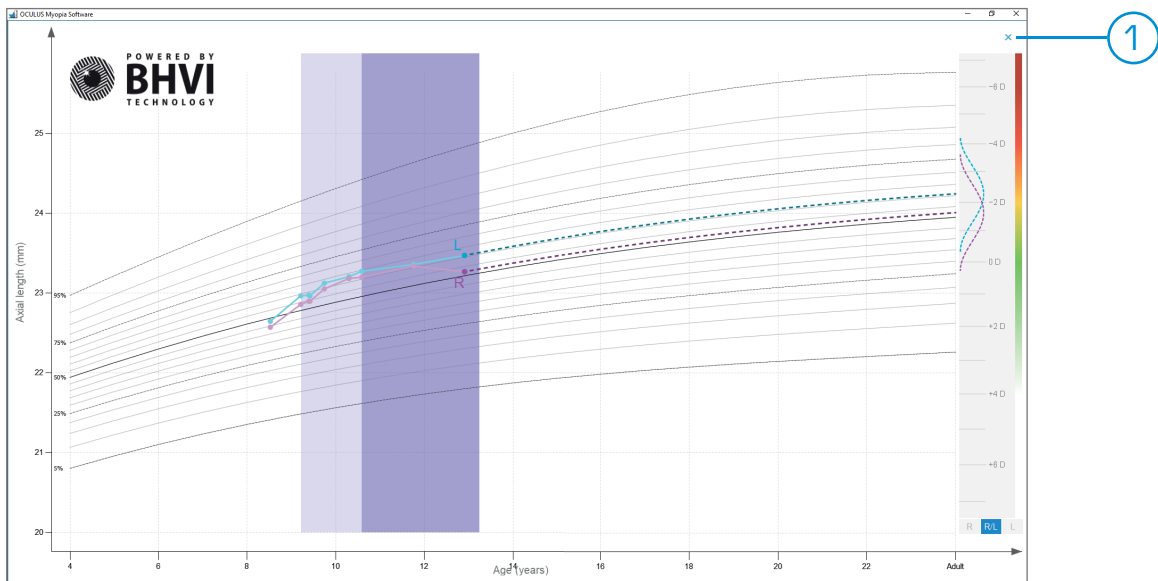


Fig. 9: Full-screen display

- [Close] button
- Click on the [Close] button to close the full-screen display.

#### 4.2.3. Other Forms of Representation

##### Growth analysis

In addition to the growth curves, growth control can also be displayed. The annual growth rate of the axial length of a treatment period is shown graphically.

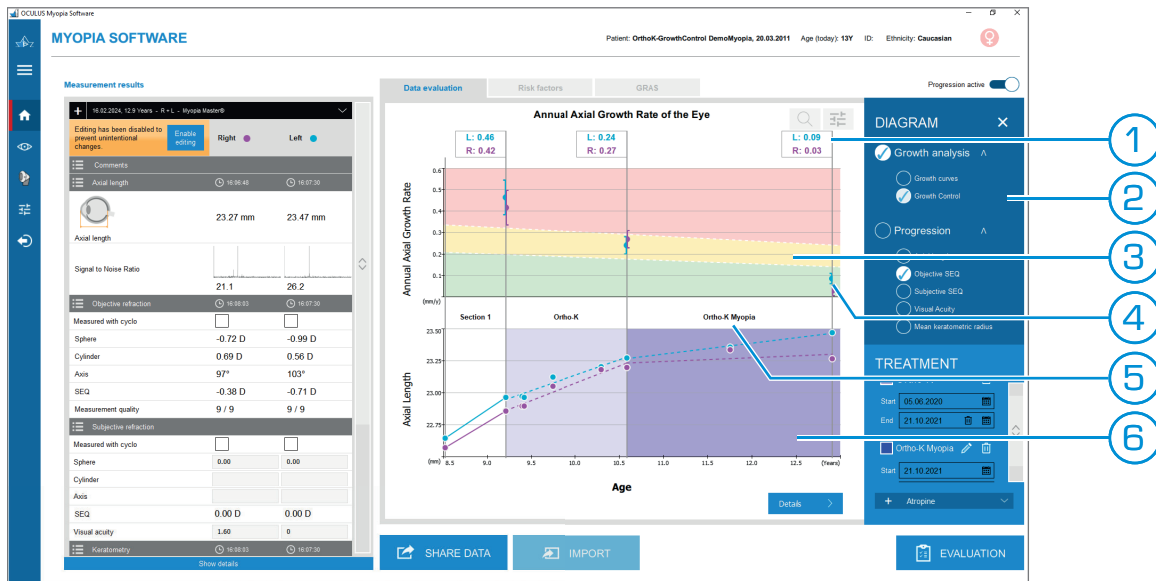


Fig. 10: Growth control

- |                              |                                    |
|------------------------------|------------------------------------|
| 1. Annual axial growth rate  | 4. Annual axial growth rate        |
| 2. "Growth Control" checkbox | 5. Absolute values of axial length |
| 3. Color classification      | 6. Classification by "treatments"  |

Critical growth rates can be quickly identified using the color division in the diagram (keyword "traffic light colors"). The upper section shows the annual growth in length including the variance, while the lower section shows the absolute value of the axial length.

### Progression

Instead of the growth curves or growth control with the measured axial lengths, the temporal development of the following measured values can also be shown:

- Axial length (without percentile curves)
- Objective SEQ
- Subjective SEQ
- Visual Acuity
- Mean keratometric radius

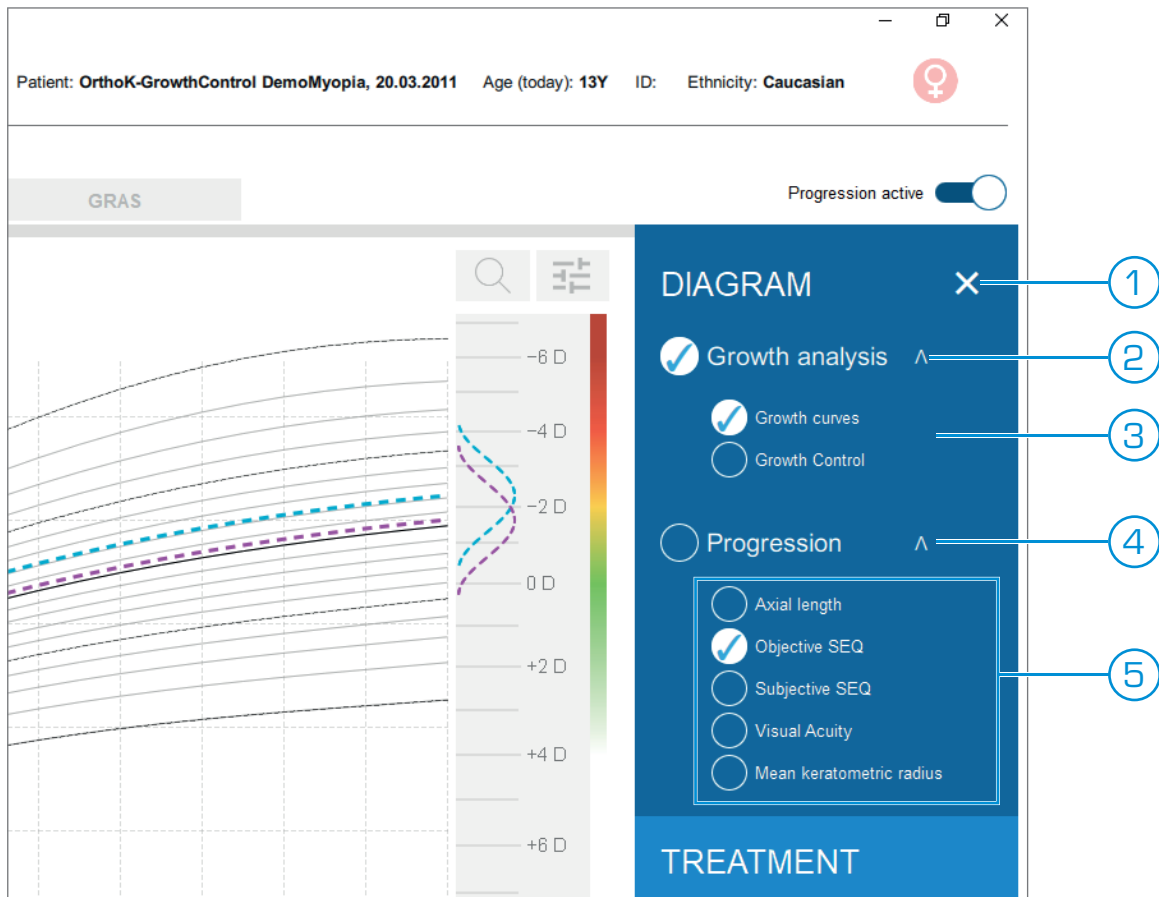


Fig. 11: Forms of presentation

- |   |  |
|---|--|
| 1. [Close] button                               | 4. "Progression" drop-down menu                  |
| 2. "Growth analysis" drop-down menu             | 5. Measurement selection for progression display |
| 3. "Growth curves" and "Growth Control" options |  |

1. Click on the [Forms of representation] button. A menu appears in which you can select the values displayed in the "Diagram" area. By default, "Growth curves" (axial lengths with percentile curves) is preselected here.
2. Select the "Progression" option.
3. Drop down the list of possible measured values to the right of the "Progression" option.
4. Select the desired measured value to be displayed. To show the subjective refraction values and the visual acuity values in the progression display, they have to be entered manually beforehand ([Sect. 3.5, page 20](#)).
5. If necessary, click the [Close] button to hide the display selection. If you select the "Axial length" display, the growth rate can also be displayed.

6. Click on the [Show growth rate] button to hide the display selection.
7. Move the vertical, dashed lines to the desired examination times.
8. For this time period, the total axial length growth and the annual axial length growth are displayed above the diagram.

### 4.3. Exporting Data

The data collected can be exported from the myopia software and transmitted to another external piece of software ([Sect. 9.4, page 55](#)).

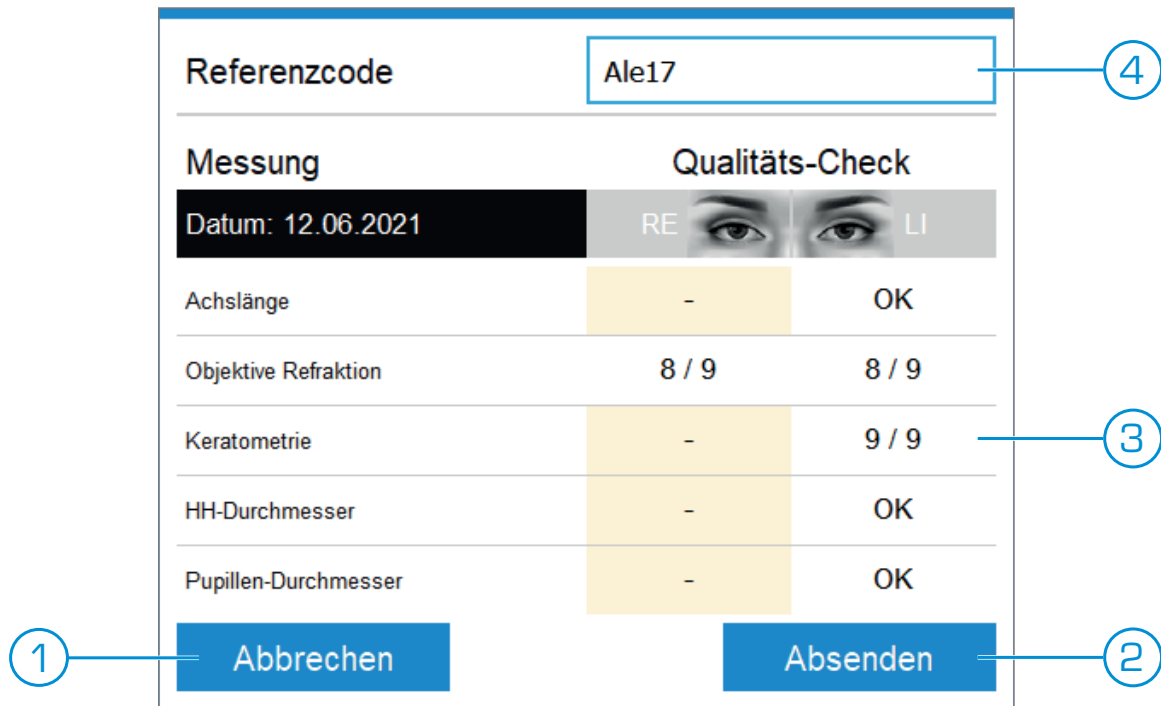


#### Note

In addition to the manual data export described here, an automatic export can also be specified for the individual interfaces ([Sect. 9.4, page 55](#)).

---

1. Click on the [Share data] button.  
A window opens in which all configured and active export options are shown.
2. Click on the logo in order to transmit the data to the respective software.  
A screen opens showing information on the quality of the individual measurements. Missing data is marked in yellow. In addition, the "color coding" (white, yellow, red – depending on the quality of the respective measured value) remains the same as on the device's display.



The screenshot shows a 'Quality Check' form. At the top, there is a 'Referenzcode' field containing 'Ale17'. Below this, the form is divided into 'Messung' and 'Qualitäts-Check' sections. The 'Messung' section includes a date field 'Datum: 12.06.2021'. The 'Qualitäts-Check' section features a table with columns for 'RE' and 'LI' and rows for various measurements. At the bottom, there are two buttons: 'Abbrechen' (labeled 1) and 'Absenden' (labeled 2). Callout 3 points to the 'Keratometrie' row, and callout 4 points to the 'Referenzcode' field.

Messung	Qualitäts-Check	
Datum: 12.06.2021	RE	LI
Achslänge	-	OK
Objektive Refraktion	8 / 9	8 / 9
Keratometrie	-	9 / 9
HH-Durchmesser	-	OK
Pupillen-Durchmesser	-	OK

Fig. 12: Quality Check

1. [Cancel] button
2. [Send] button
3. Quality information
4. Measurement reference code

3. Check the information and click the [Send] button when you want to export the data.

Depending on the settings, the respective application is started after the data has been exported.

When exporting via an HTTPS interface, the data must first be downloaded from the indicated server before importing them into the desired external piece of software. For this purpose, the reference code used is also required.

## 4.4. Risk Assessment Based on Data Evaluation

### 4.4.1. Percentile curves

Based on the data evaluation, it is advisable to make a (preliminary) risk assessment, if necessary taking into account the percentile curves. A slider is available for this below the display.

1. Move the slider to a range that reflects an assessment of myopia risk for the patient.
2. Use the displayed percentile curves as a comparison to the normal development of length growth.



Note

- Note that the growth curves and the comparison of the measured values with the percentile curves are not intended as a sole diagnostic tool.
- Use the growth curves to get a general, clinical, measurable impression of the patient's eye.

Please also note the following general explanations on the presentation of the percentile curves:

- The curves apply in each case to the combination of the patient's ethnicity and gender. Corresponding growth curves are not stored for all combinations. In this case, a corresponding note appears at the top of the "Data Evaluation" tab.
- The percentiles are displayed in increments of 5 in the range from 5% to 95%.
- The middle, thicker curve shows the median. Half of the axial lengths used to determine the percentile curves are below this value, the other half above.

Example

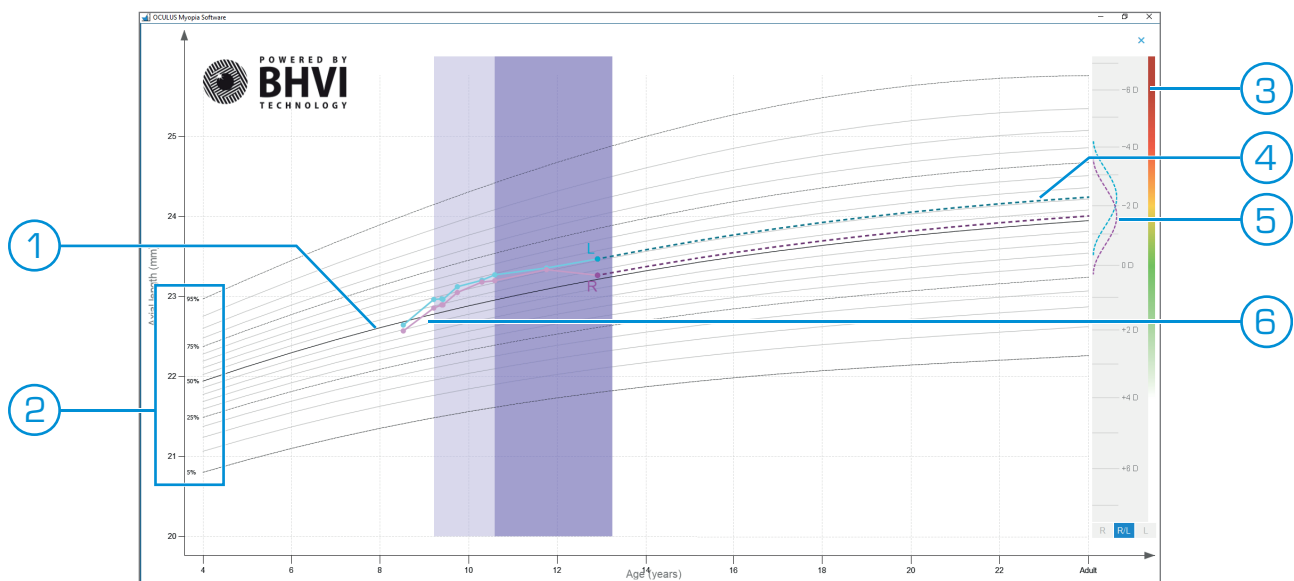


Fig. 13: Explanation of the percentile curves

- |  |   |
|--|---|
| 1. Median  | 5. Normal distribution for error estimation |
| 2. Percentile curves 5%-95%                        | 6. Strongly rising growth curve             |
| 3. Calculated refraction based on the axial length |   |
| 4. Growth curve with future outlook (dashed)       |   |

The values displayed are explained using the above example representation.

- The measured axial lengths are approximately on the 40% (right) or the 50% (left) percentile curve at a patient age of about 8.5 years. At first, a shortened examination interval was proposed to observe the development.
- By the age of about 9.2, there was an increase to the 55% (right) or 60% (left) percentile curve. Due to the sharp increase, the patient was treated and a further shortened examination interval was proposed to observe the development.
- The treatment resulted in only a slight increase until the next examination (approx. 1 month later), so the treatment was continued accordingly.
- However, further examinations at intervals of approx. 4 months showed a stronger increase up to the 60% (right) and 65% percentile curve (left). Due to this, the treatment was changed.
- The increase in axial length growth could be significantly reduced by the modified treatment (slight decrease).
- The outlook indicates a refraction in the range of about -2 dpt. This value should be determined more precisely by an appropriate measurement.

In the display selected, you can easily and quickly switch to another measurement.

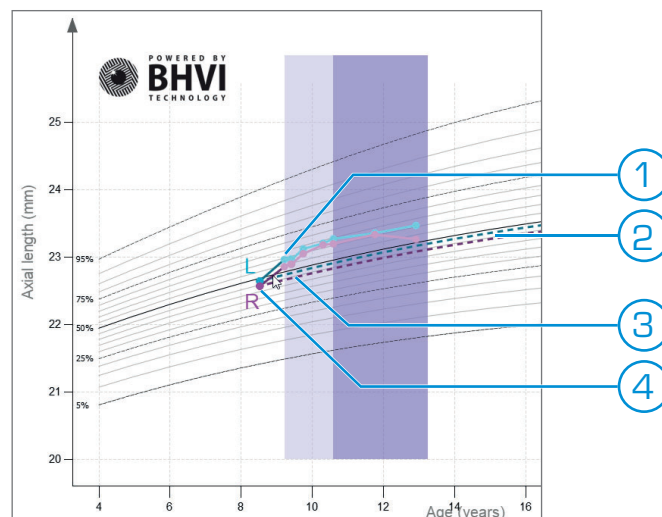


Fig. 14: Selection of previous measurements

- |  |   |
|--|---|
| 1. Subsequent measurement                              | 3. Selection of the desired measurement |
| 2. Trend curve at the time of the selected measurement | 4. Selected measurement                 |

1. Click on the area between two measurements. The measurement before that is selected.

- On the left side of the screen page, the measured values of this measurement are shown.
- In the graphical representation, the outlook at the time of the selected measurement is also shown.

### 4.4.2. Growth Control

The development of the annual axial length growth is calculated and graphically displayed in a diagram. The annual axial length growth is calculated as follows:

- $(\text{Axis length today} - \text{Axial length last}) / (\text{Patient age today} - \text{Patient age last})$

The displayed values are explained using the following example illustration.

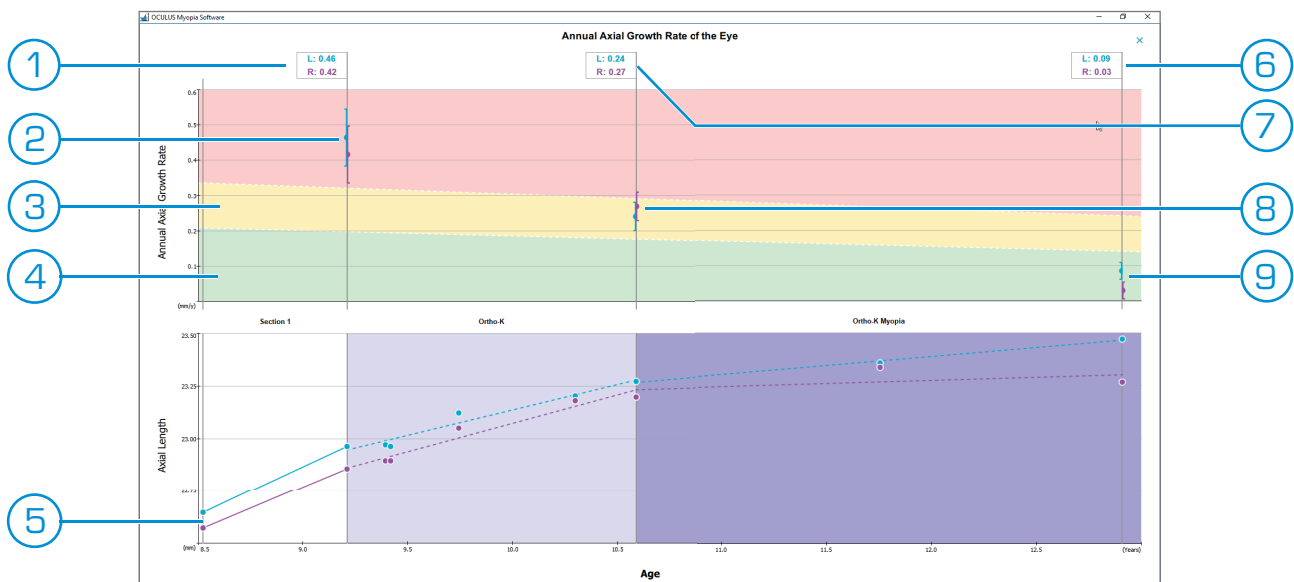


Fig. 15: Example illustration

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Annual length growth "Section 1"</li> <li>2. Length growth in Section 1 with variance (red area)</li> <li>3. Yellow area</li> <li>4. Green area</li> <li>5. Absolute values of the measured axial lengths</li> </ol> | <ol style="list-style-type: none"> <li>6. Annual length growth after changing the treatment</li> <li>7. Annual length growth with standard treatment</li> <li>8. Length growth with standard treatment with variance (yellow area)</li> <li>9. Length growth after changing the treatment with variance (green area)</li> </ol> |
|--|---|

- The axial length growth in section 1 (without treatment) is 0.42 mm/year for the right eye and 0.46 mm/year for the left eye.
- Using standard Ortho-K treatment, after multiple measurements of the axial length, a final growth change of 0.27 mm/year (right eye) and 0.24 mm/year (left eye) was achieved. The associated reduction suggests effectiveness.

- By further changing the treatment strategy (Myopia Ortho-K), the annual axial length growth can be reduced again to a value of 0.03 mm/year (right) and 0.09 mm/year (left).

## 5. Treatment

### 5.1. General

The eye specialist will finally suggest an appropriate treatment based on the data evaluation and the risk factors.

### 5.2. Entering the Treatment in the Chart

Irrespective of the display format chosen, the selected treatment method(s) should be stored in the myopia software. This approach allows the success of the treatment to be assessed in subsequent examinations.



Fig. 16: Treatment forms

- |                              |                                     |
|------------------------------|-------------------------------------|
| 1. [Colour selection] button | 4. Treatment 2                      |
| 2. [Delete] button           | 5. "Treatment forms" drop-down list |
| 3. "Treatment 1" duration    | 6. [Add] button                     |

1. Click on the [Forms of representation] button on the "Data Evaluation" tab (Fig. 8, page 22).

A menu appears in which you can select the selected treatment method and the corresponding duration in the "Treatment" area.

**Note**

You can create any treatment forms in the treatment editor so that they are directly available here ([Sect. 9.2, page 50](#)).

---

The basic procedure is now as follows:

2. Open the drop-down list in the lower area and select the desired treatment method (e.g. "Atropine").
  3. Click on the [Add] button.  
The selected treatment method is added. The current date is entered as the start and end date by default.
  4. Enter the start date of the treatment method.  
The start date is automatically set as the current date. The end date is (initially) set as "undergoing treatment".  
In the display, the selected period is converted to the age of the patient and a corresponding coloured area is displayed.
  5. After completion of a treatment, enter the corresponding end date.
  6. Click on the [Colour selection] button if required.  
A dialog opens in which you can specify the colour of the treatment method.
- 

**Note**

A specific treatment method is assigned a specific display colour across all examinations and patients. If you change the colour, this colour is automatically adopted for all other periods and all other patients.

---



Fig. 17: Treatment list

- |                                 |                            |
|---------------------------------|----------------------------|
| 1. Currently selected treatment | 3. "Custom Treatment"      |
| 2. Defined treatment forms      | 4. Expanded drop-down list |

In addition to the predefined treatment methods, the "Custom Treatment" entry can also be selected.

1. Open the drop-down list in the lower area and select "Custom Treatment".
2. Click on the [Add] button.  
An empty entry is added.
3. Enter the desired name of the treatment method in the text field.
4. As with other treatment methods, set the display colour and the start and end dates of the treatment.



**Note**

This "Custom Treatment" is only available for this particular patient. If this is also to be used for other patients, it makes sense to define it once only in the treatment editor ([Sect. 9.2, page 50](#)).

**Note**

Make sure that the treatment method stored here is also stored accordingly in the “Recommendations for action” area ([Sect. 6.3, page 37](#)).

---

## 6. Evaluation and Creation of a Myopia Report

### 6.1. General

Finally, the evaluation of the examination takes into account all risk factors.

1. Click the [Evaluation] button on the “Data Evaluation” tab or the “Risk Factors” tab.

The “Evaluation” screen opens.

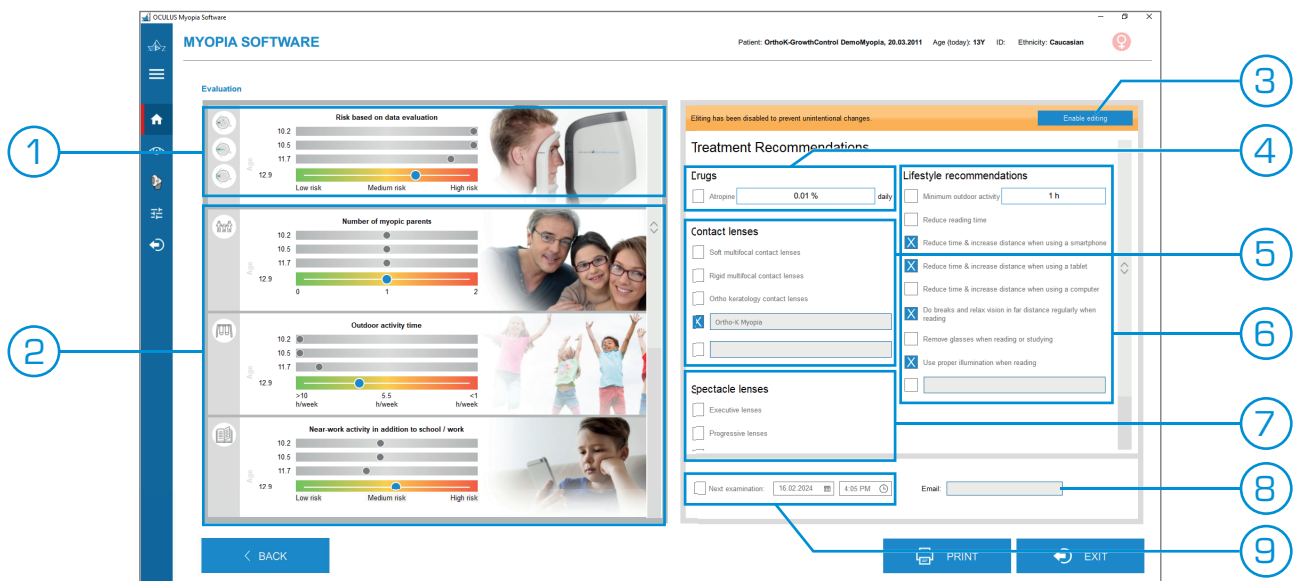


Fig. 18: “Evaluation” screen

- |  |  |
|--|--|
| 1. Risk based on data evaluation               | 6. Lifestyle recommendations                   |
| 2. Risk based on risk factors                  | 7. “Spectacle lens” recommendations for action |
| 3. [Enable editing] button                     | 8. Patient e-mail address                      |
| 4. “Drugs” recommendations for action          | 9. Date next examination due                   |
| 5. “Contact Lenses” recommendations for action |  |

These results are collected and output in the form of a myopia report.

### 6.2. Overview of the Risk Factors

The previously determined values of the data evaluation and the individual risk factors are clearly displayed in the left part of the screen page in abbreviated form (Sect. 7, page 40). It is no longer possible to make adjustments to the sliders here.

1. If necessary, switch to the “Risk Factors” tab with the [Back] button to make changes afterwards.

### 6.3. Treatment Recommendations

Treatment recommendations can be stored for the patient in the right part of the screen. The treatment recommendations are structured thematically:

- Drugs
- Contact lenses
- Spectacle lenses
- Lifestyle recommendations

All changes on the screen page are saved immediately.

When opening an examination that has already been completed, a warning note is displayed, indicating that the editing mode was deactivated in order to prevent inadvertent changes.

1. Click on the [Enable editing] button to make changes on the screen page.  
Please note that your changes are saved immediately. Changes can only be undone manually by reentering the previously saved data.



#### Note

Make sure that the treatment recommendations deposited here (at least the "Drugs" section) are also deposited graphically in the diagram ([Sect. 5.2, page 32](#)).

#### 6.3.1. Drugs

1. If necessary, activate the "Atropine" checkbox and enter the dosage.

#### 6.3.2. Contact Lenses

1. If necessary, activate the type of contact lenses prescribed.
2. If necessary, enter alternative or additional text in the text field (freely-definable) and activate the corresponding checkbox.

#### 6.3.3. Spectacle Lenses

1. If necessary, activate the type of prescription lens.
2. If necessary, enter alternative or additional text in the text field (freely-definable) and activate the corresponding checkbox.

#### 6.3.4. Lifestyle Recommendations

1. If necessary, activate the type of lifestyle recommendations selected.

2. Enter the number of hours of recommended outdoor time in the outdoor time requirement.
3. If necessary, enter alternative or additional text in the text field (freely definable) and activate the corresponding checkbox.

### 6.3.5. Next Examination

1. If necessary, activate the checkbox for the next check-up appointment.
2. Enter the date and time required.
3. If you want to send the myopia report by e-mail, enter the corresponding destination address in the "E-mail" field.



#### Note

The Myopia Report can only be sent by e-mail if Microsoft Outlook or Mozilla Thunderbird is installed and set up on the PC.

---

## 6.4. Creating the Myopia Report

---



### Note

The display of the myopia report can be adjusted on the “General settings” screen ([Sect. 9.1.13, page 49](#)).

---

Finally, a myopia report is created as a PDF file.

**1.** Click on the [Print] button.

The Myopia Report is created and opens automatically.

The Myopia Report is structured as follows:

- Creation date and time and patient data
- Measurement results of the examination
- Listing of treatment recommendations and, if applicable, indication of the next examination date
- Explanation of the individual data based on the standard curves
- If multiple examinations are available for different dates: Diagrams of the axial lengths and the spherical equivalent
- Diagrams of the risk factors for risk assessment
- Patient information with further, general information on myopia


**2.** Alternatively, click on the [E-mail] button to send the myopia report directly by e-mail.

For that purpose, the corresponding e-mail application will start automatically.

## 7. Risk Factors

In addition to the measurement results, especially the measured axial length, and the resulting data evaluation, there are other risk factors that can increase the risk of myopia.

When loading an examination that has already been completed, a warning note is displayed at the top of the screen, indicating that the editing mode has been deactivated in order to prevent inadvertent changes.

 Click on the [Enable editing] button to make changes on the screen page.

Please note that your changes are saved immediately. Changes can only be undone manually by reentering the previously saved data.

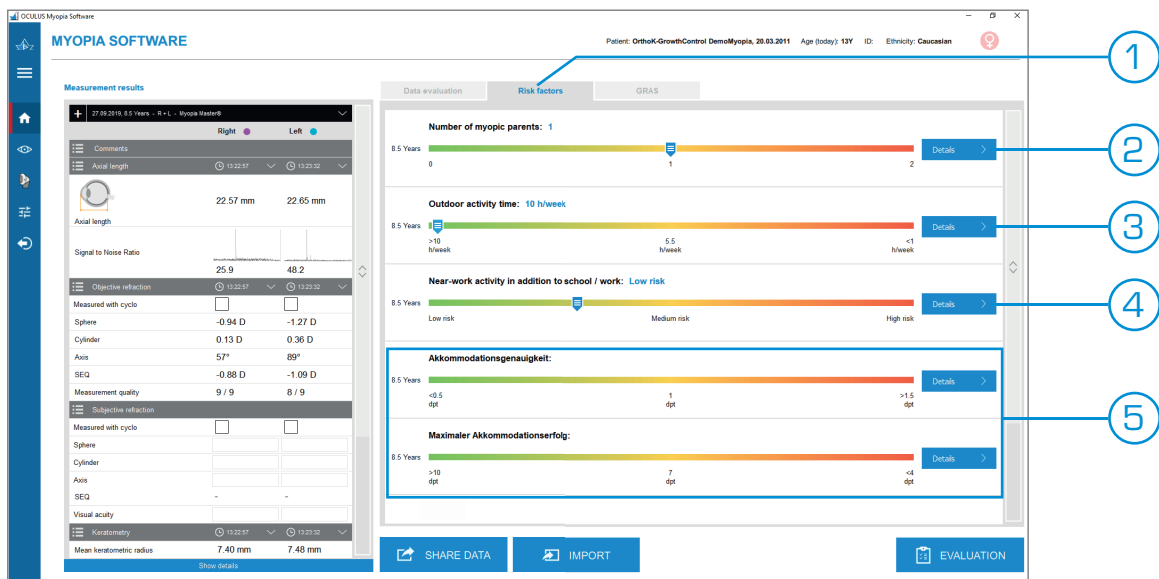


Fig. 19: "Risk factors" tab

1. "Risk factors" tab
2. Number of myopic parents
3. Time outdoors
4. Close work in addition to school/work
5. Space for further risk factors

1. Select the "Risk factors" tab to start the (extended) evaluation.  
The screen with all active risk factors opens ([Sect. 9.3, page 52](#)).  
The procedure for determining the risk factors is in principle identical for all factors:

2. Clarify the patient's behaviour with regard to the respective risk factor in the patient interview.
3. Move the slider to the appropriate numerical value for number-based risk factors (example: Number of myopic parents).  
It is possible to assess whether the respective risk factor increases or decreases the general risk of myopia using the colour bar.
4. Click on the [Evaluation] button to complete the evaluation of the risk factors.  
You can switch back to the "Risk Factors" tab at any time.

### 7.1. Number of Myopic Parents

The genetic component shows a correlation between the refractive deficiencies of the parents and their children. The more myopic parents a child has, the more likely the child is to develop myopia.

1. Move the slider to the appropriate number of myopic parents (0, 1 or 2).

### 7.2. Time Outdoors

Spending time outdoors influences the onset of myopia. Once myopia has developed, time spent outdoors has a less than significant impact on myopia progression.

1. Therefore, still assess this risk factor even after the patient has already developed myopia.
2. In this case, move the slider to the number of hours the patient spends outdoors per week.

### 7.3. Close Work in Addition to School/Work

The development of myopia depends, among other things, on near work duration and near work distance. Juvenile myopia onset is generally between 6 and 8 years of age; near work duration has no effect on myopia onset. The ratio of myopia potential increases by 2% per dioptic hour (DH) of near work per week. DH is defined as:

$$DH [D-h] = \text{near-work time [h]} \cdot \frac{1}{\text{near-work distance [m]}}$$

Fig. 20: Definition of the dioptic hour

The more time spent on near work, the greater the myopia progression.

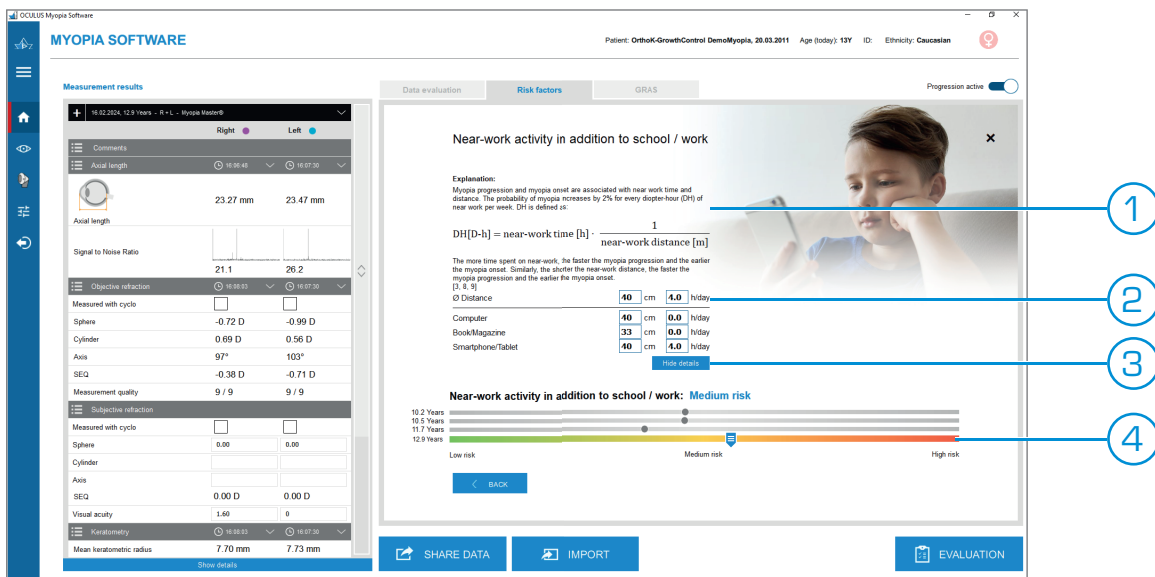


Fig. 21: "Near work" risk factor

1. "Near work" description
2. Input fields for calculating the risk factor
3. [Details] button
4. Sliders

Proceed as follows to estimate the "near work" risk factor:

1. Click on the [Details] button on the "Risk Factors" tab.  
A screen opens with further information (Fig. 21, page 41). Input fields are available here making it easy to determine the risk factor.
2. Enter an average distance at which the near work takes place in the corresponding field (e.g. 40 cm).
3. Also enter the number of hours per day during which near work takes place outside school/work.  
The slider in the lower area of the screen automatically moves to the corresponding value for the risk factor for the calculated dioptré-hour value.
4. Click on the [Show details] button if required.  
Near work can then be further broken down into the distance as well as the time duration for the following areas:
  - Computer
  - Book/magazine
  - Smartphone/tablet

The average value as well as the corresponding value for the risk factor is determined on the basis of these inputs and the slider again moves automatically.

## 7.4. Other Risk Factors

Further risk factors can be defined using the question configurator in the "Settings" area of the myopia software ([Sect. 9.3, page 52](#)).

1. If necessary, discuss all other indicated risk factors with the patient at the same time.

## 8. Gullstrand Refractive Analysis System (GRAS)

### 8.1. General

The Gullstrand Refractive Analysis System (GRAS) describes the refractive change in a patient and compares it to the schematic eye described by Gullstrand. The Gullstrand-eye is a world-famous optical model of the human eye. This eye is also known as the average eye (for adults). However, given that the eye continues to grow until a person reaches the age of 22, the Gullstrand-eye is not suitable for use in case of children. Therefore, an age-dependent model for children between 4 and 22 years of age was developed, which is used by default in the GRAS module.

In the GRAS module, the refractive effect for each refractive component of the eye is simulated separately. These values are compared to the above-mentioned age-dependent model. Alternatively, it is also possible to switch to the Gullstrand schematic eye.

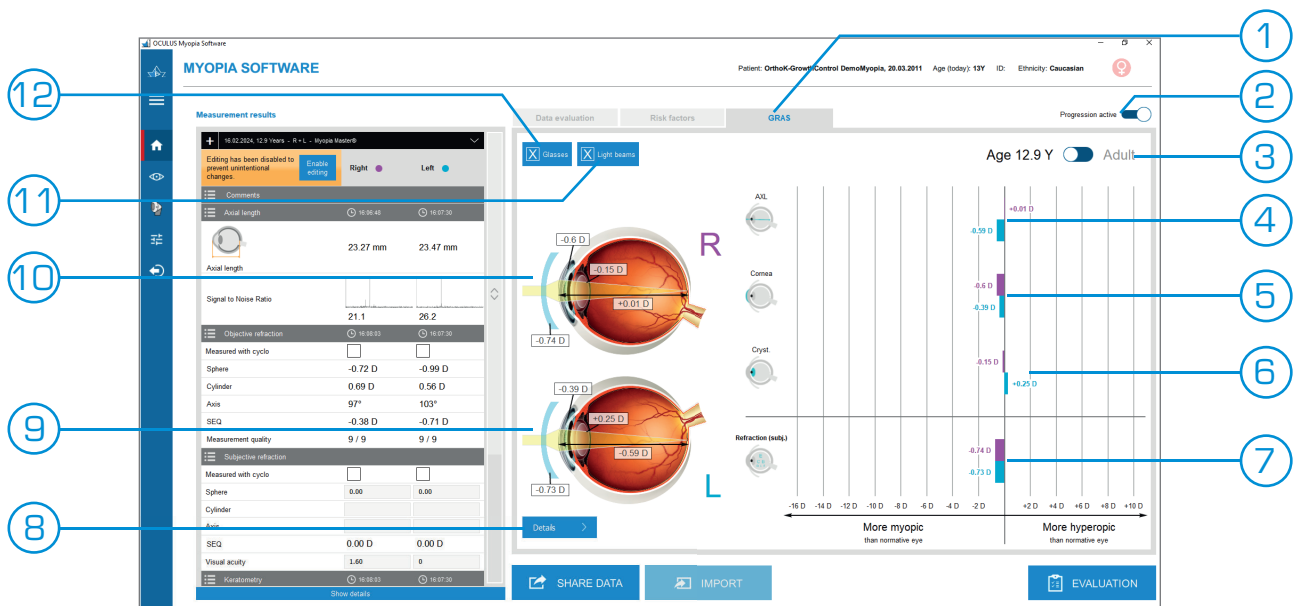


Fig. 22: "GRAS" screen

1. "GRAS" tab
2. [Progression active] slider
3. [Age/adult] slider
4. "Axial length" component
5. "Cornea" component
6. "Lens" component
7. Sum "refraction"
8. [Details] button
9. Graphical representation of the left eye
10. Graphical representation of the right eye
11. "Light Beams" checkbox
12. "Glasses" checkbox

1. Click on the [Age/adult] slider to switch between displaying the difference between the measured refractive values and the

Gullstrand-eye for adults and displaying the difference between the measured values and the age-dependent model.

The age-dependent model is selected by default, i.e. the slider points towards the patient's age.

- The difference between the three refractive components axial length, cornea and lens and the selected model are shown separately as well as for the right eye and the left eye in the form of bar charts in dioptres.
- In the bottom line, the overall refraction (resulting component) of the left and the right eye is also shown in terms of the difference to the selected model.
- Based on the graphical representations, it is possible to precisely assign individual components to "more myopic" or "more hyperopic".

In addition, the GRAS module helps the eye specialist in providing information to the patient based on a simulated light beam on the individual measured eye. The graphical representation of the eye also includes the respective refractive values of the individual components.

2. Deactivate the "Glasses" checkbox to see how the focal point changes with and without glasses.

In the graphic, the spectacle lens is shown or hidden.

If the spectacle lens is shown, the overall refraction to be corrected is also displayed.

3. Click on the [Details] button if required.

You will find further information on an additional screen.

## 9. Settings

### 9.1. “General Settings” Screen

You can carry out various basic settings for the myopia software in the “Settings” section on the “General settings” screen. The screen is divided thematically into several areas for this.

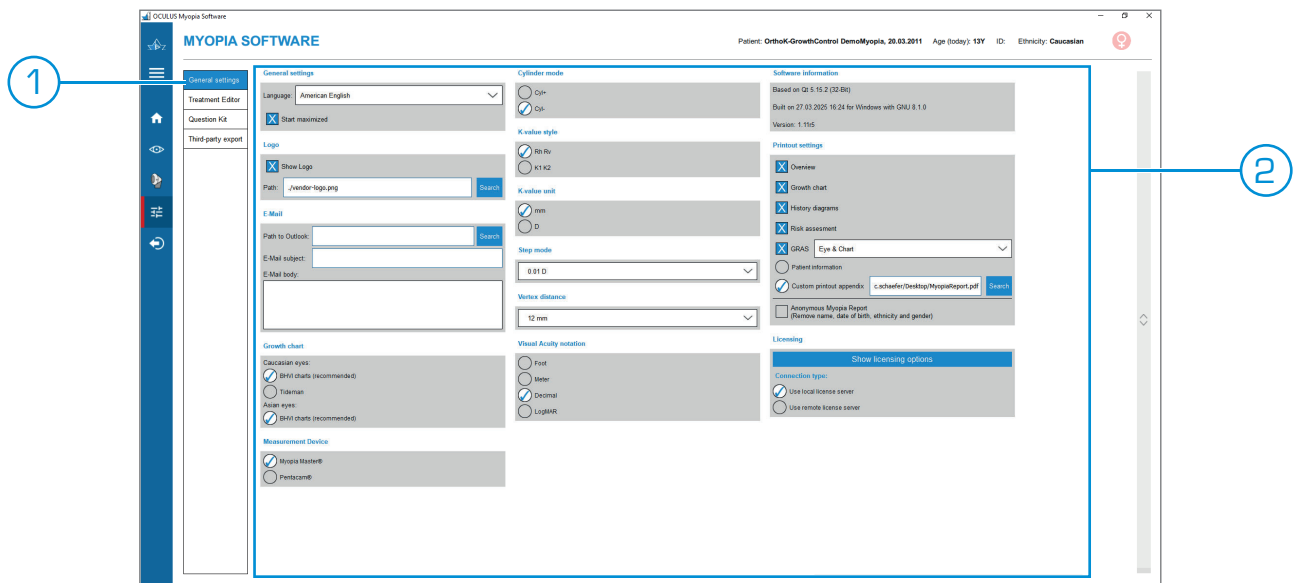


Fig. 23: “General Settings” screen

1. Activated “General settings” screen
2. Setting options and information

#### 9.1.1. General Settings

1. Select the language in which you want the myopia software to be displayed from the “Language” drop-down list.
2. If necessary, activate the “Start maximised” checkbox if the myopia software is to be started full-screen.  
If this checkbox is **not** activated, the program window is opened in a reduced size so that the patient data management is still visible in the background (but cannot be activated as long as the myopia software is open).

#### 9.1.2. Logo

You can select here whether a user-specific logo is to be output in the myopia report.

1. Activate the “Show logo” checkbox if a logo is to be output in the header on each page of the myopia report.
2. Click on the [Search] button.  
The “Please choose a file” dialog opens.

3. Select the desired image file and confirm the selection with the [Open] button.  
The file can be in any common graphic format.  
The complete path including the file name to the logo file is then displayed in the "Path" field.

### 9.1.3. E-mail

If you want to send myopia reports to patients by e-mail, carry out some basic settings here for sending mail using "Microsoft Outlook".



#### Note

As an alternative to "Microsoft Outlook", "Mozilla Thunderbird" can also be used as an e-mail application.

---

1. Click on the [Search] button.  
The "Please choose a file" dialog opens.
2. Select the executable file for "Microsoft Outlook" or "Mozilla Thunderbird" and confirm the selection with the [Open] button.  
The complete path including the file name is then displayed in the "Path" field.
3. In the "E-mail subject" field, enter the subject line text that should appear there by default.
4. At the same time, enter the default text that you want to appear for the actual e-mail in the "E-mail body" field.  
Both the text in the subject line and the actual email text can be adjusted and shortened or extended according before sending the email to suit individual circumstances.

### 9.1.4. Growth curves

The percentile curves used vary according to ethnicity. New percentile curves for Caucasian as well as Asian eyes have been calculated by the "Brien Holden Vision Institute" (BHVI). These curves, which vary according to age, sex and ethnicity, replace the curves that were previously used. This significantly improves data evaluation for each individual patient, and prospective analyses can be carried out much more accurately than before. In the myopia software, the BHVI curves are therefore activated by default.

1. If required, you can activate the original curves (Tideman).  
However, OCULUS recommends generally using the BHVI curves.

### 9.1.5. Measurement device

1. Choose whether the examinations will be carried out with a Myopia Master® or a Pentacam® AXL Wave.

### 9.1.6. Cylinder Mode

You can preset here whether the cylinder values for the measured refraction values are to be displayed as plus or minus cylinders.

1. Activate the "Cyl+" option if the cylinder values are to be displayed as positive values.
2. Alternatively, activate the "Cyl-" option if the cylinder values are to be displayed as negative values.

### 9.1.7. K-Value Style

You can preset whether the radius values are to be displayed "horizontally" and "vertically" or "flat" and "steep" here.

1. Activate the "Rh Rv" option if the radius values are to be displayed as horizontal and vertical radius.
2. Alternatively, activate the "Rf Rs" option if the radius values are to be displayed as flat and steep radius.

### 9.1.8. K-Value unit

You can preset here whether the radius values are to be displayed in "mm" or "dpt" units here.

1. Activate the "mm" option if the radius values are to be displayed in millimetres.
2. Alternatively, activate the "dpt" option if the radius values are to be displayed in diopters.

### 9.1.9. Step Mode

You can preset the increment here in which the measured refraction values for sphere and cylinder are to be displayed.

1. Select the desired increment size from the values available: "0.01", "0.125" and "0.25".

### 9.1.10. Vertex Distance

You can set the corneal vertex distance here to which the displayed refraction values should refer.

1. Select the desired value from the available values.

### 9.1.11. Visual Acuity notation

Here, you can select how visual acuity is to be notated.

1. Activate the desired option from the available units.

### 9.1.12. Software Information

The “Software Information” section displays version information about the myopia software.

1. Please have this information ready, especially in case of queries to OCULUS.

### 9.1.13. Print settings

Here, you can specify which sections should be included in the printout of the myopia report ([Sect. 6.4, page 39](#)).

1. Activate the “Overview” checkbox to include the patient and examination-specific data in the myopia report (including recommendations for action).  
This checkbox should always be activated.
2. Activate the “Growth chart” checkbox to include the explanation of the individual data based on the standard curves in the myopia report.
3. Activate the “History diagrams” checkbox in order to include progression charts for the axial lengths and the spherical equivalent in the myopia report if several examinations are available.
4. Activate the “Risk assessment” checkbox to include the diagrams of the risk factors for risk assessment in the myopia report.
5. Activate the “Patient information” checkbox to include the further, general notes on myopia in the myopia report.
6. Activate the “Custom printout appendix” checkbox to add your own content, personal advice, or treatment notes to the myopia report. To do this, simply link the PDF to the software.  
The software will then automatically include your content in the report when it is generated.
7. Activate the “Anonymous myopia report” checkbox to generate an anonymous myopia report according to settings specified beforehand, i.e. a myopia report without patient-related data such as name, date of birth, ethnicity and gender.

### 9.1.14. Licensing

Here, you can specify whether the licence server software should be used locally on the respective PC or in the network.

1. Activate the desired option.

If you use a licence server in the network, the following additional entries regarding the licence server are required:

- IP address and port, or, alternatively
  - MAC address
2. If you do not have this information: Click on the [Find licence server] button in order to determine the above-mentioned data automatically.
3. If required, activate the “Show advanced settings” checkbox and enter the required data into the fields.

## 9.2. Treatment Editor

You can predefine the settings for recurring treatment forms and adjust existing treatment forms in the treatment editor. You can then easily access these treatment forms later ([Sect. 5.2, page 32](#)).

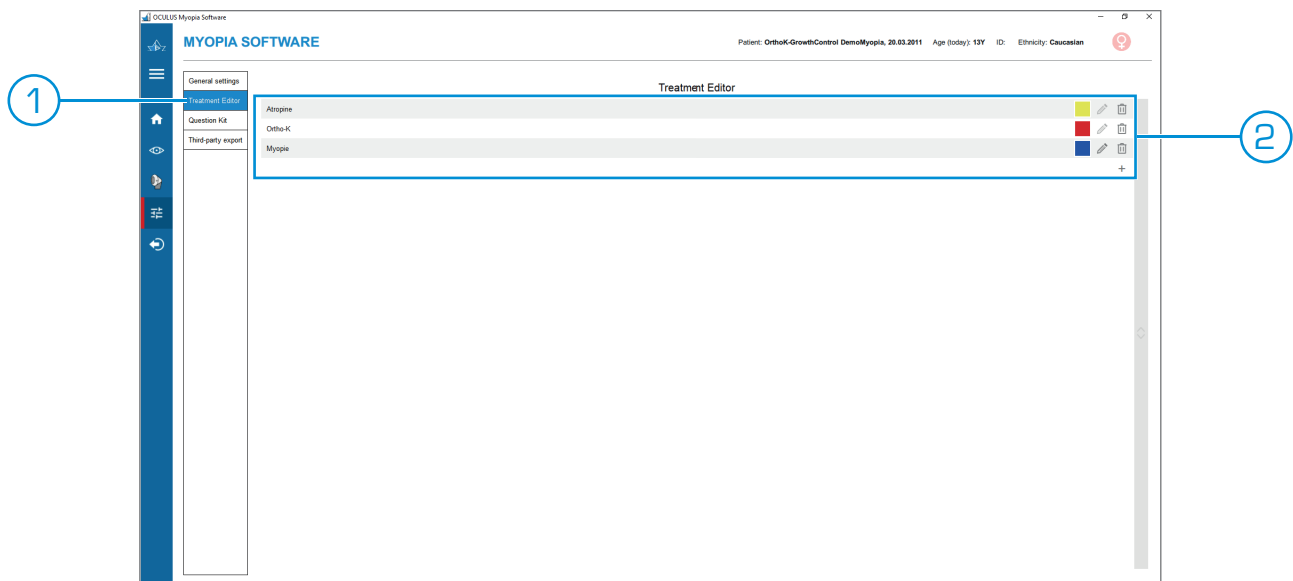


Fig. 24: “Treatment Editor” screen

1. Activated “Treatment Editor” screen      2. Setting “Treatment forms” options



#### Note

OCULUS recommends creating all treatment forms just once in the treatment editor. When changes are made to the presentation of a treatment form, these are then automatically transferred to all evaluations.

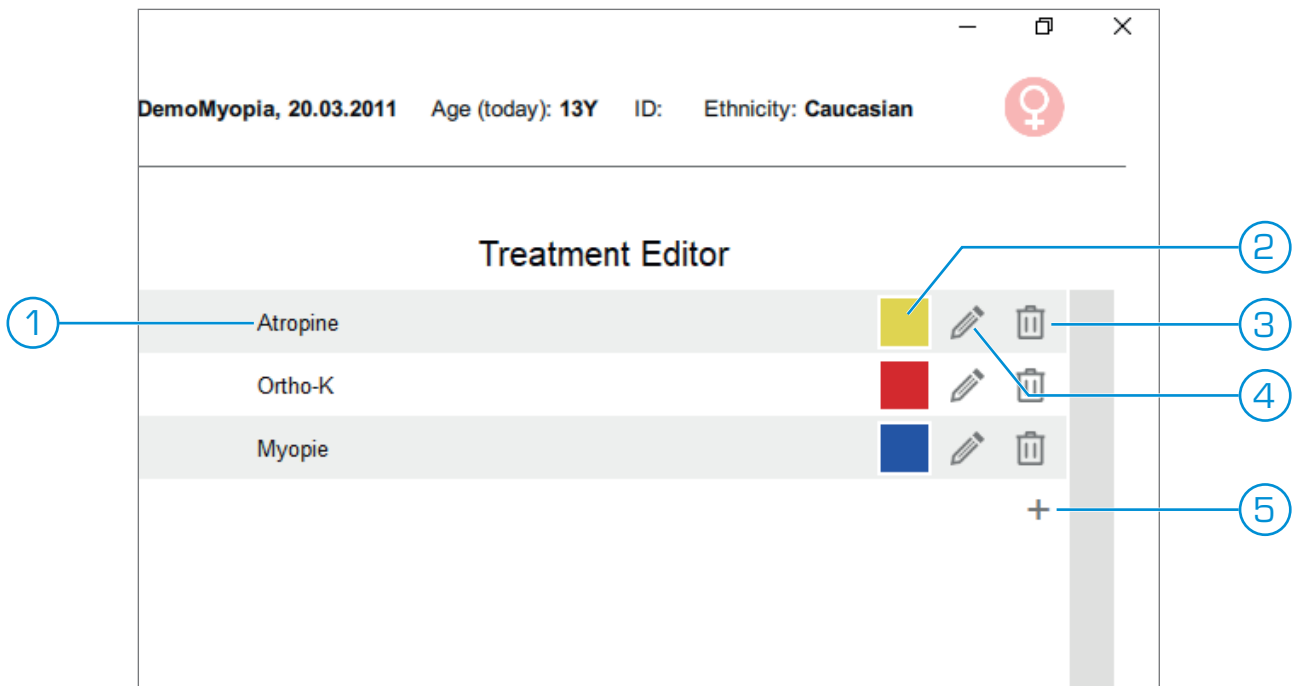


Fig. 25: "Treatment Editor" details

- |                              |                  |
|------------------------------|------------------|
| 1. Designation               | 4. [Edit] button |
| 2. [Colour selection] button | 5. [Add] button  |
| 3. [Delete] button           |                  |

1. Click on the [Add] button at the end of the list with the already defined treatment forms.  
A new line is inserted with an additional treatment form.
  2. Enter a unique name for the treatment form, e.g. "Myopia spectacle lens".
  3. Click on the colour assigned to the treatment form by default.
  4. Adjust the colour to suit your preferences and confirm your selection with the [OK] button.
- You can adjust the display of existing treatment forms:
5. Click on the [Colour Selection] button and change the currently assigned colour.  
The change is automatically adopted in all evaluations, giving a uniform appearance and making it easily recognisable.
  6. Click on the [Edit] button to adjust the name of the treatment form.  
This change is also automatically adopted in all evaluations.



**Note**

Changes in the treatment editor do not affect treatment forms with the same name that have been created as “Custom Treatment” (Sect. 5.2, page 32).

### 9.3. Question Kit

By default, four risk factors are discussed with the patient for further evaluation for the myopia report (Sect. 6, page 36). You can define further such factors, which are then used for evaluation and output in the myopia report, in the question kit.

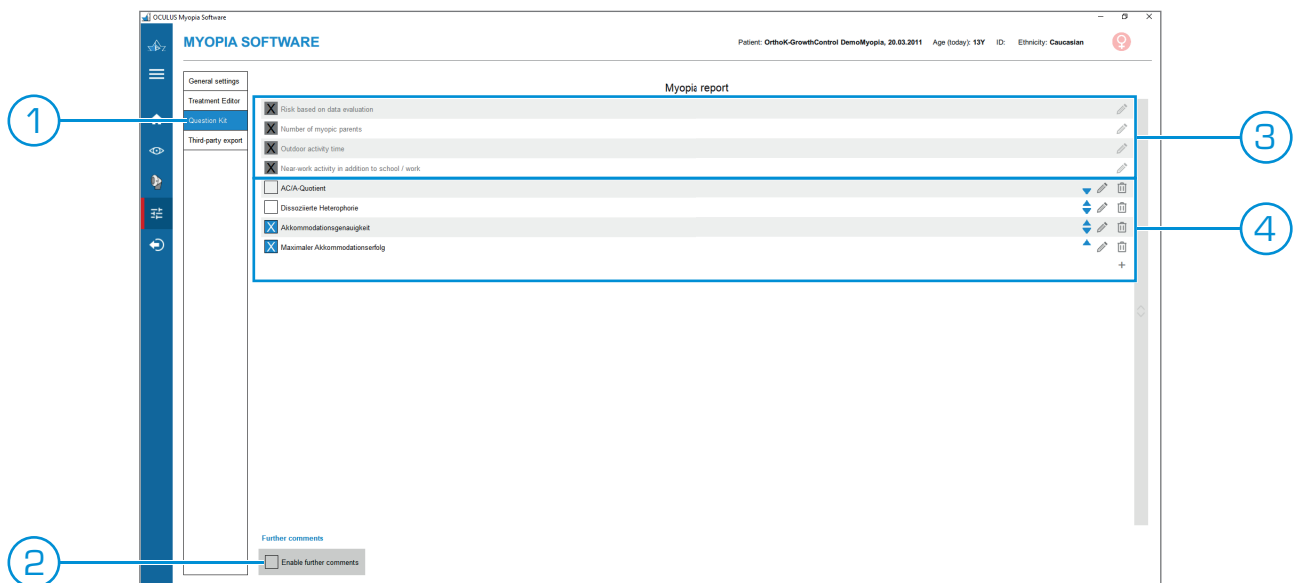


Fig. 26: “Question Kit” screen

- 1. Activated “Question Kit” screen
- 2. “Enable further comments” checkbox
- 3. Predefined questions
- 4. Custom questions

1. Click on the [Add] button at the end of the list with the factors already defined.  
A new line with an additional factor is inserted.

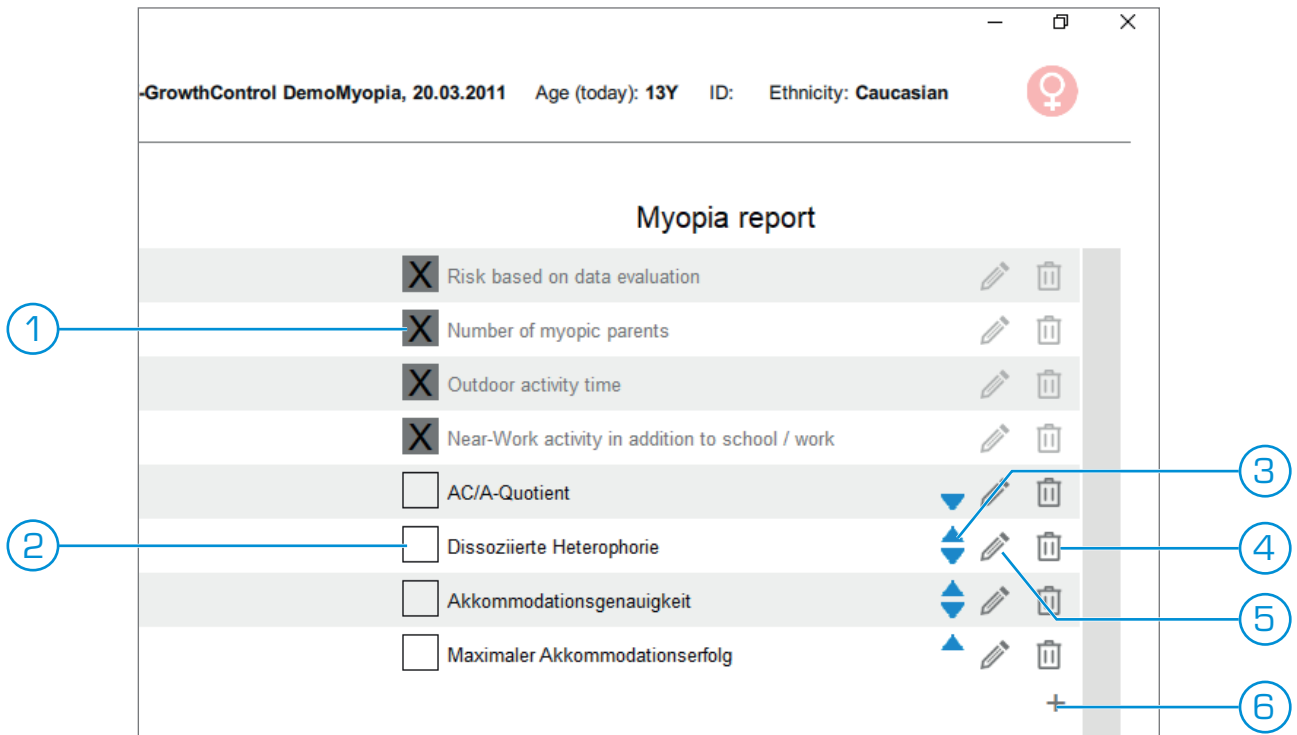


Fig. 27: "Question Kit" details

- |                         |                    |
|-------------------------|--------------------|
| 1. Activated question   | 4. [Delete] button |
| 2. Deactivated question | 5. [Edit] button   |
| 3. [Move] buttons       | 6. [Add] button    |

2. Enter a unique name for the risk factor, e.g. "Accommodation Accuracy".
3. Click on the [Edit] button.  
A screen opens where you can specify the properties of the risk factor in more detail.

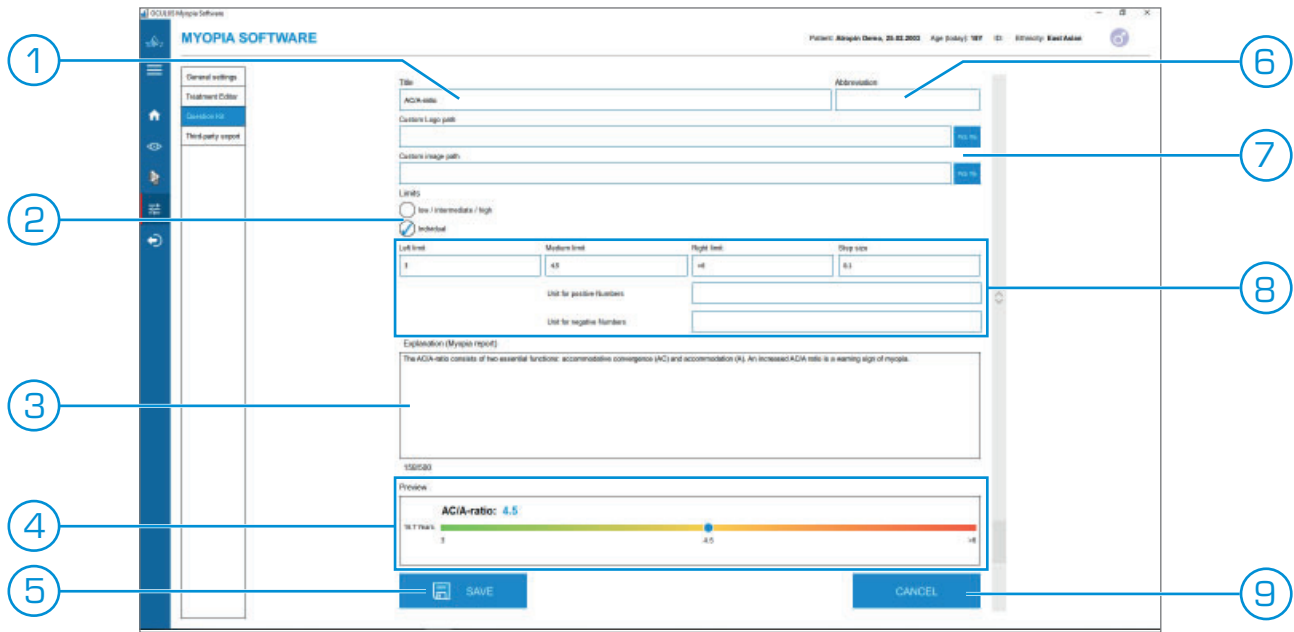


Fig. 28: Properties of a risk factor

- |                              |   |
|------------------------------|---|
| 1. "Title" input field       | 6. "Abbreviation" input field                           |
| 2. "Limits" selection        | 7. "Custom Logo path" and "Custom image path" selection |
| 3. "Explanation" input field | 8. "Limits" area  |
| 4. Preview                   | 9. [Cancel] button                                      |
| 5. [Save] button             |   |

4. If necessary, adjust the designation in the "Title" input field and enter an abbreviation.  
This abbreviation is displayed on the side of the myopia report and in the evaluation.
5. Where appropriate, insert a custom logo and a custom image for the risk factor. They will be displayed to the left / to the right of the risk factor on the screen, as well as in the myopia report.
6. Activate the "general limits" option if "low", "medium" and "high" can be chosen as values for the risk factor in the evaluation.
7. Alternatively, activate the "Individual" option if the risk factor is "measurable" and specify limit values, increment size as well as the unit.
8. Enter a explanation that describes the risk factor in more detail.  
This explanation is displayed on the "Details" screen when entering a value for the risk factor.  
A preview of the risk factor display is shown below the explanation.
9. Click on the [Save] button to apply the settings for the risk factor.
10. Alternatively, click the [Cancel] button to leave the settings unchanged.
11. Move the question up or down to the desired position using the corresponding buttons.

12. Finally, if necessary, activate the checkbox at the beginning of the line of the risk factor.  
If the checkbox is deactivated, the risk factor is not displayed in the further evaluation of the examination results.

### Further comments

A checkbox is displayed in the lower area of the question kit.

1. Activate the “Enable further comments” checkbox.  
An additional free text field is displayed in the myopia software where you can enter any further comments. These comments are also displayed and printed in the Myopia Report.

## 9.4. Third-party export

The data collected can be exported from the myopia software and transmitted to another external piece of software (Sect. 4.3, page 26). For that purpose, a corresponding interface must be defined.

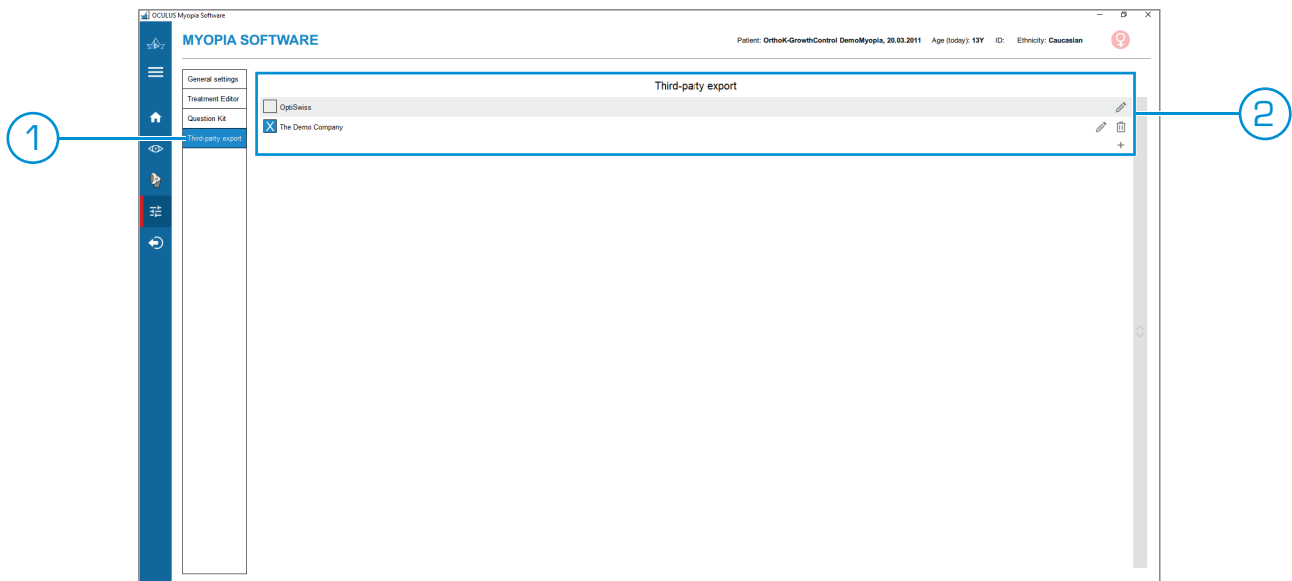


Fig. 29: “Third-party export” screen

1. Activated “Third-party export” screen
2. Settings for “interfaces”

1. Click on the [Add] button at the end of the list of the already defined interfaces.  
A new line with an additional interface is added.

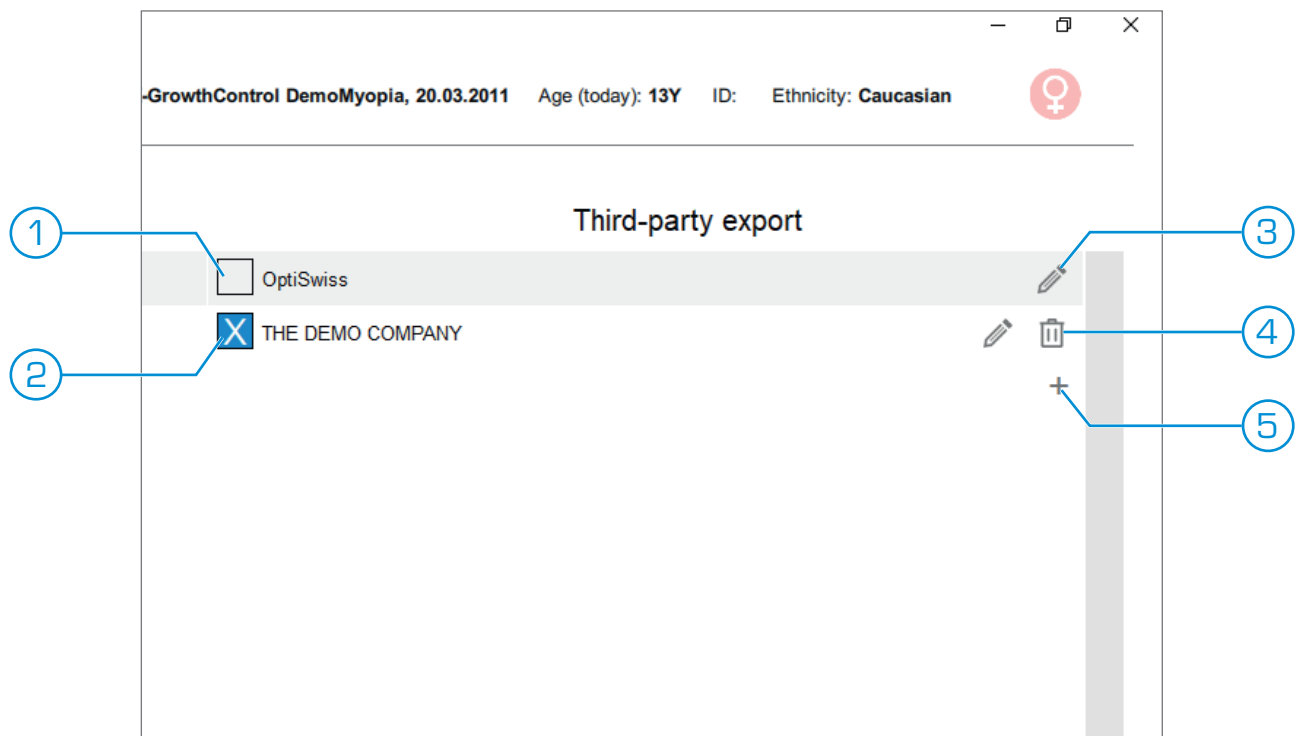


Fig. 30: "Third-party export" details

- |                          |                    |
|--------------------------|--------------------|
| 1. Deactivated interface | 4. [Delete] button |
| 2. Activated interface   | 5. [Add] button    |
| 3. [Edit] button         |                    |

2. Click on the [Edit] button.  
A screen opens where you can specify the characteristics of the third-party export in more detail.

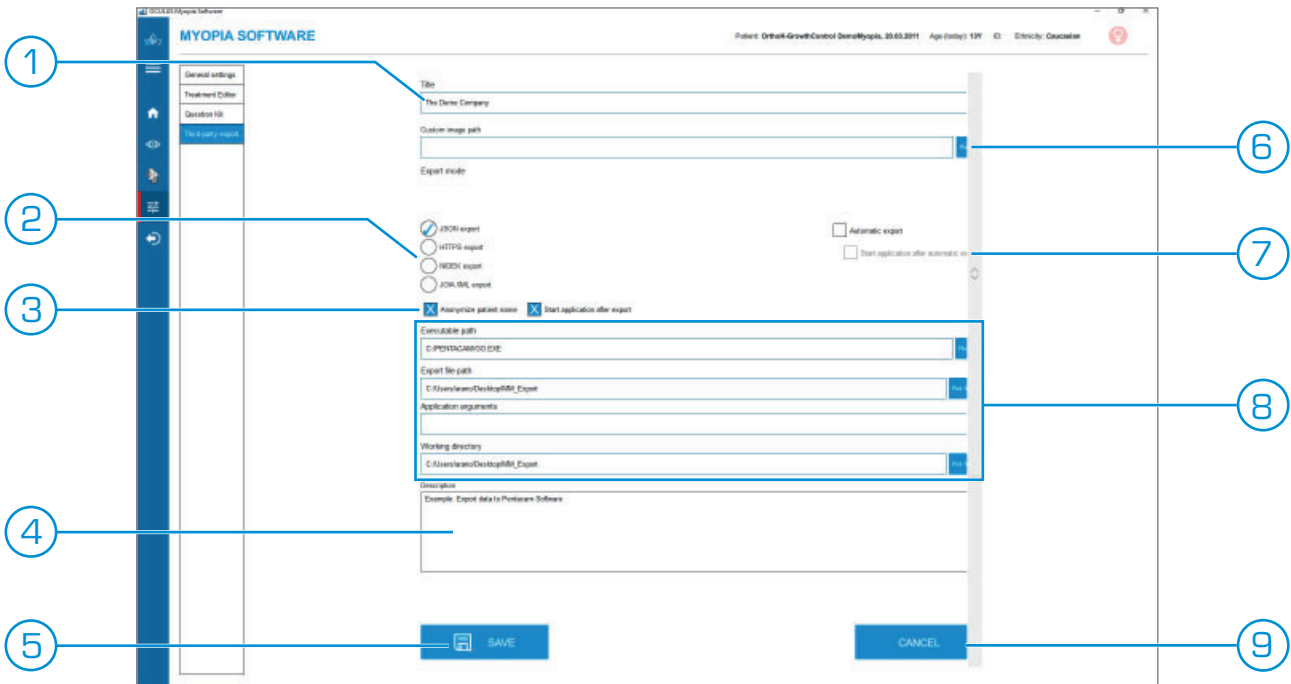


Fig. 31: Characteristics of third-party export

- |                              |  |
|------------------------------|--|
| 1. "Title" input field       | 6. "Custom image" selection              |
| 2. "Export mode" selection   | 7. "Automatic Export" selection          |
| 3. Checkboxes                | 8. Detailed information on the interface |
| 4. "Description" input field | 9. [Cancel] button                       |
| 5. [Save] button             |  |

3. Enter a unique designation for the interface in the "Title" field. This designation is shown when data is exported in order to distinguish between multiple interfaces.
4. Where appropriate, insert a custom image for the interface. This image is also shown when data is exported in order to distinguish between multiple interfaces.
5. Enter a description of the interface. This description will be displayed next to the logo/the designation of the interface when the data is exported.

### "JSON export" option

1. Activate the "JSON export" option in order to save the data to a local folder in the form of a file. The data can be further processed by a piece of external software.
2. Enter the required information regarding the external software (application path and arguments) as well as the path to the exported data and the working directory.
3. Activate or deactivate the checkboxes for exporting anonymised data and for automatically starting the application after the export.

### “HTTPS export” option

1. Activate the “HTTPS export” option if you would like for the exported data to be sent to a server.  
For example, this is suitable for cloud-based systems.
2. Enter the necessary server data (server address as well as login data) and a message to be output after successful data transmission.
3. Activate or deactivate the checkbox for exporting anonymised data. If the checkbox is activated, a reference code is generated prior to the export, which is composed of the first three letters of the patient’s first name and the patient’s age. This reference code can still be adjusted before sending the data.

### “NIDEK Export” option

1. Activate the “NIDEK Export” option in order to send the data to a NIDEK phoropter.
2. Enter the path for the exported data and a message to be output after successful data transmission.
3. Activate or deactivate the checkbox for exporting anonymised data.



#### Note

Also note the additional instructions on how to set up the computer and the NIDEK phoropter for data exchange with the myopia software ([Sect. 9.5, page 59](#)).

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### “JOIA XML Export” option

1. Activate the “JOIA XML Export” option in order to save the data to a local folder in the form of a “JOIA XML” file.  
The data can be further processed by a piece of external software.
2. Enter the path for the exported data and a message to be output once data transmission has been completed.
3. Activate or deactivate the checkbox for exporting anonymised data.

### “Automatic export” option

1. Activate the “Automatic export” checkbox to automatically export the data when switching back to patient data management and when the interface is activated.
2. For an interface of the “JSON” type, if necessary, also activate the checkbox to automatically start the application after the export has been completed.

## 9.5. Additional information on data exchange with a NIDEK phoropter

### 9.5.1. General



#### Note

Data exchange is possible with the NIDEK RT-6100 digital phoropter. It is not possible with the RT-5100 and RT-3100 analogue phoropters or older NIDEK phoropters.

Generally, the interface between the myopia software and the NIDEK RT-6100 phoropter can be set up with or without the NIDEK Memory Box (MEM). Since the Memory Box uses the "SMB 1.0" legacy protocol, OCULUS recommends setting up the interface without a Memory Box.

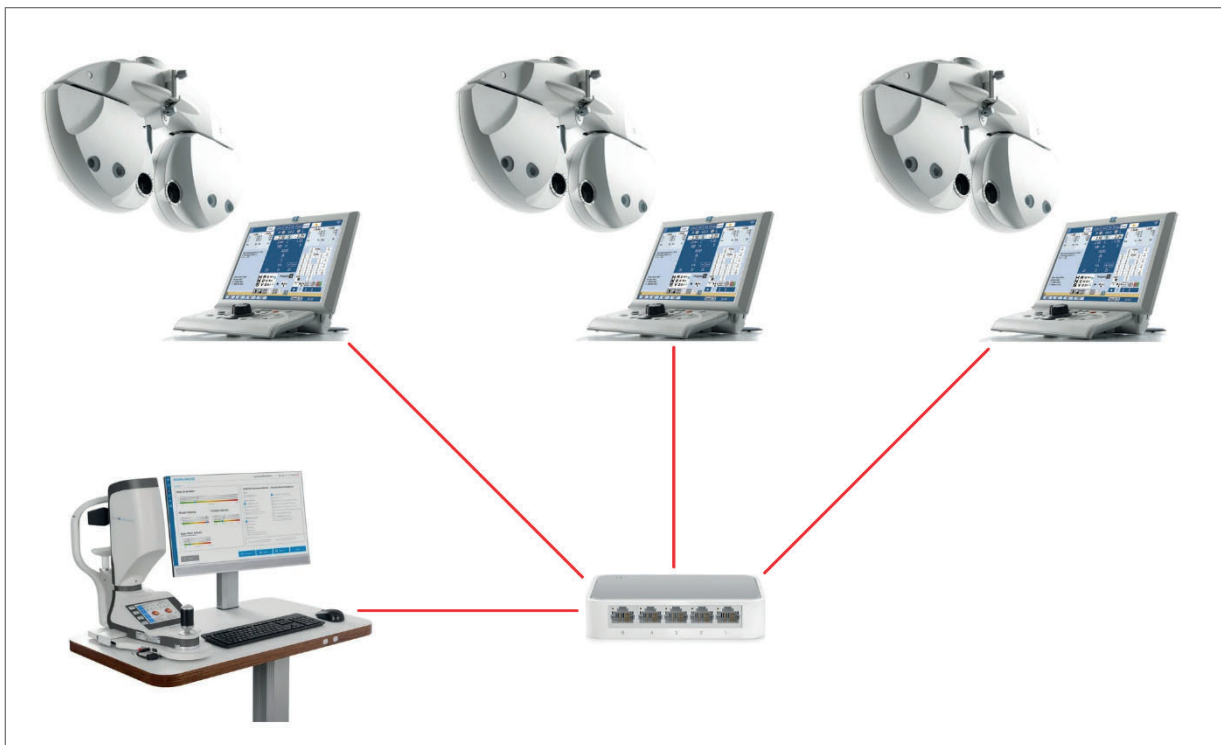


Fig. 32: Example connection of myopia software and 3 RT-6100s via a network switch

Data exchange offers the following options:

- Unlimited number of RT-6100 phoropters in the network.
- Data transmission from the myopia software to the RT-6100: Objective refraction data (sphere, cylinder, axis).
- Data transmission from the RT-6100 to the myopia software: Subjective refraction data (sphere, cylinder, axis).

### 9.5.2. Settings on the PC

The following settings must be made on the PC on which the myopia software is installed.

1. In the PC settings, check the computer name and the workgroup or domain that the PC belongs to.

Example:

Computer name: MyopiaMaster01

Full computer name: MyopiaMaster01

Workgroup: WORKGROUP

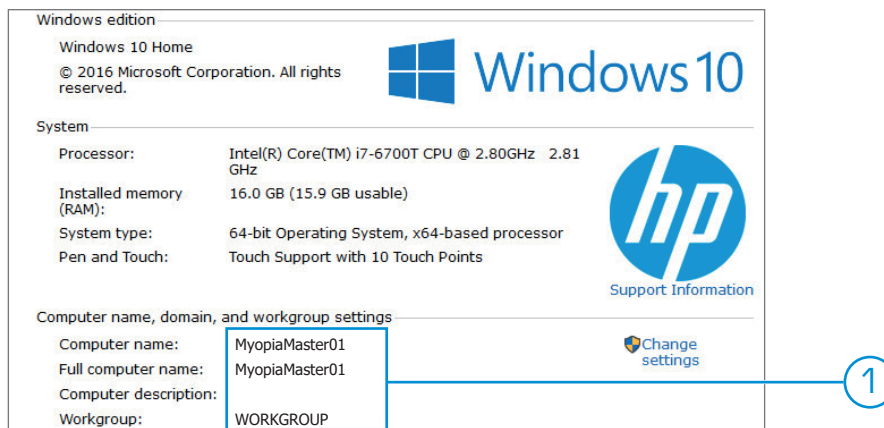


Fig. 33: PC settings

1. Computer name and workgroup

2. Make a note of the username and password you use to log on to the PC. Example:  
User name: OCULUS  
Password: oculus
3. Create a folder on the PC through which data will be exchanged. Example:  
Exchange folder: C:\OCULUS\DATA
4. Share this folder in the network with read/write permissions.
5. Also record the IP address and subnet mask in the network settings. Example:  
IP address: 192.168.0.20  
Subnet mask: 255.255.255.0

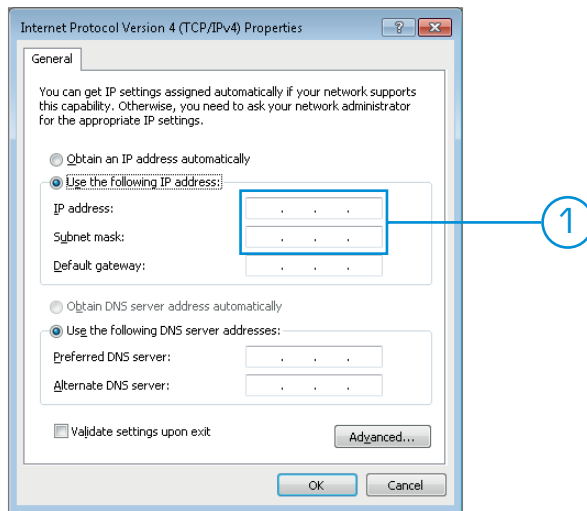


Fig. 34: Network settings

1. IP address and Subnet mask

### 9.5.3. Settings in the Myopia Software

1. Set the general parameters for data exchange with an external system, e.g. naming the interface and, if necessary, saving a user-defined image to easily identify the interface (Sect. 9.4, page 55).
2. Also set the parameters for the "NIDEK Export" option.
3. In the "Path to MEM-200" field, enter the path of the folder that you previously shared in the network for data exchange. Example: Exchange folder: C:\OCULUS\DATA

### 9.5.4. Settings on the NIDEK RT-6100 phoropter

On the phoropter, in the next step, enter the data that you previously defined on the PC on which the myopia software is installed (Sect. 9.5.2, page 60).

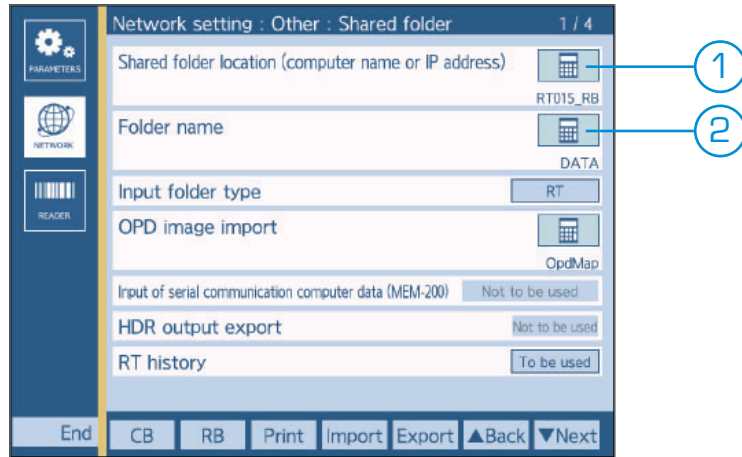


Fig. 35: Settings on the phoropter

- 1. IP address of computer
- 2. Exchange folder

1. Enter the computer name or IP address of the PC. Example:  
IP address: 192.168.0.20
2. Next, enter the name of the folder in which the data from the myopia software will be saved. Example:  
Exchange folder: C:\OCULUS\DATA

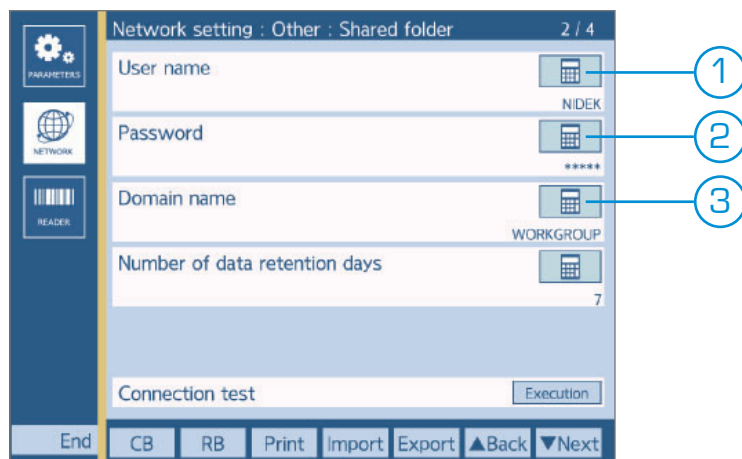


Fig. 36: Settings on the phoropter

- 1. User name
- 2. Password
- 3. Domain name or workgroup



ID	No	Datum	Uhrzeit	Importieren
NIDEK	001	28.04.2023	14:56:05	Abbrechen

Fig. 38: Selecting the desired measurement

11. Finally, check to ensure that all the data have been properly transferred in the "Subjective Refraction" section in the myopia software ([Sect. 3.5, page 20](#)).



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