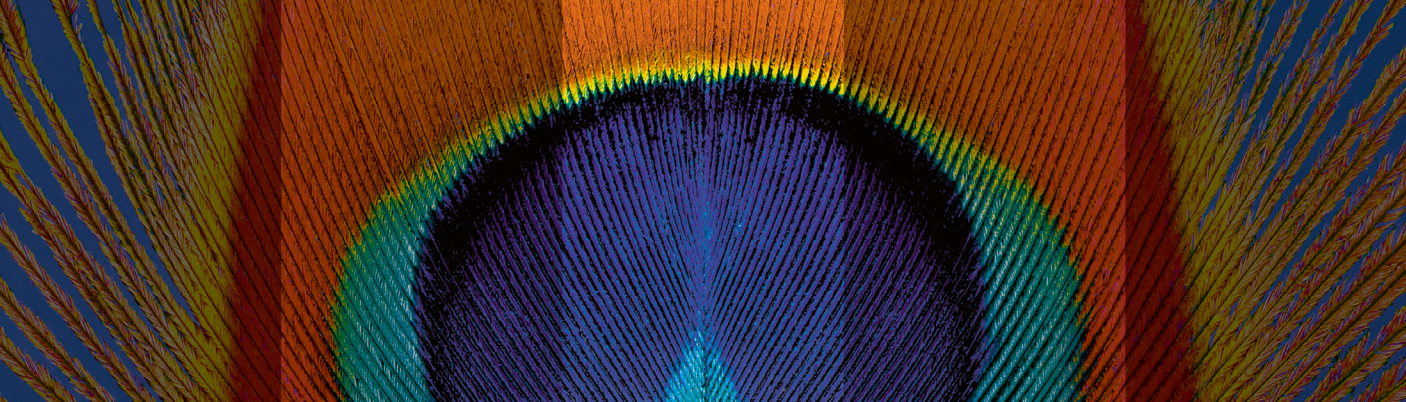


Quick Tutorial:
Follow-up



SPECTRALIS®

**HEIDELBERG
ENGINEERING**



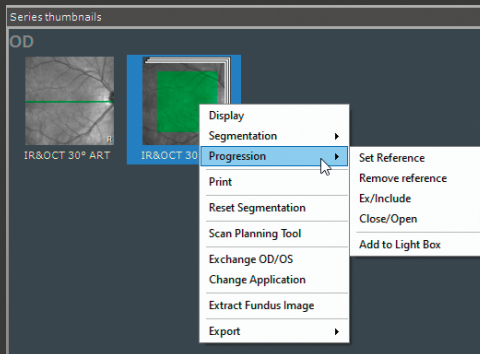
ACADEMY

Follow-up Image Acquisition: Retina & Glaucoma

Getting Started!



To start a progression series, the reference image must be defined **before** acquiring the follow-up image. It is not possible to group images into a progression series **after** image acquisition.



1

Defining the reference: Right-click on the desired image thumbnail, select **Progression** and **Set Reference**.

will appear on the bottom left corner of the image thumbnail.



All further retina scans are now compared to the previous examinations. For glaucoma scans, however, the reference is always the baseline examination and cannot be changed.

2

Removing the reference due to poor acquisition quality: Right-click on desired image thumbnail, select **Progression** and **Remove Reference**. will disappear.

3

Closing a progression series when image quality has improved, e. g. after cataract surgery: Right-click on desired thumbnail marked with , select **Progression** and **Close/Open**. will appear at the bottom of the thumbnail. The progression series can be reopened by repeating the operation.



4


Excluding/Including examinations from progression series: Right-click on desired image thumbnail marked with any follow-up icon, select **Progression** and **Exclude/Include**. or will appear at the bottom of the thumbnail. The excluded examination can be included again by repeating the operation.

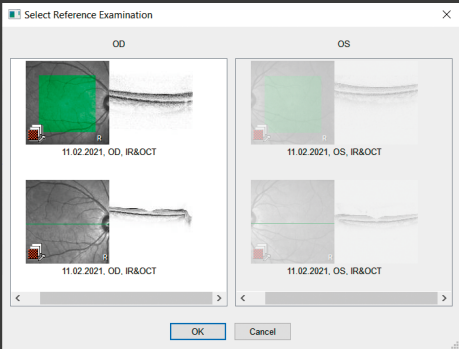
5

Changing the reference image if the follow-up is not to be compared with the last examination, e. g. poor image quality or when monitoring an eye post treatment: Right-click on desired image thumbnail, select **Progression** and **Set Reference**. The symbol on the follow-up image thumbnail of the newly defined reference will change to . If the baseline image is chosen as the reference, the symbol turns to . As long as the last visit is not the reference examination, the hint **Not compared to last visit** is displayed in the tool bar . The scan marked as reference cannot show a comparison.



Acquiring a Follow-up Image

- 1 Start image acquisition by pressing  and select **Follow-Up**.
- 2 Select the desired reference examination to follow-up on and click **OK** or alternatively double-click on the image thumbnail.
- 3 Check focus value and display message in acquisition window for errors and readjust focus if necessary.



If the focus value differs by more than +/- 1 diopter from the focus value from the reference examination, it will be displayed red in the **Settings** section and the error message **Focus mismatch to baseline image, please check focus!** will be displayed.

- 4 Align the infrared (IR) image and OCT section image so that the IR image is evenly illuminated on all sides, and the OCT section image is correctly positioned in the **Sweet Spot** (blue markers).



A small image of the reference examination is displayed beneath the live image. Ensure the patient's fixation is the same so that the live image is aligned correctly to the reference scan position.

Position of reference examination (green box)

Reference examination



Line Scan





RNFL Scan



Volume Scan



Radial Scan




- 5 Engage eye tracking with a long press of the joystick button or by pressing  on the touch panel. When the ART mean has reached the required number of frames in the OCT section image, acquire the image with a short press of the joystick button or press **Acquire** on the touch panel.
- 6 Click **Follow-Up** again to acquire further follow-up examinations. After exiting the acquisition module, the follow-up examination will be visible with . For future retina scans, the reference is automatically set to the last visit.

Start volume scan with a short press of the joystick button or press **Acquire** on the touch panel. The image acquisition stops automatically when all OCT section images have been acquired.

Analyzing Images: Retina & Glaucoma

Monitoring Thickness Changes

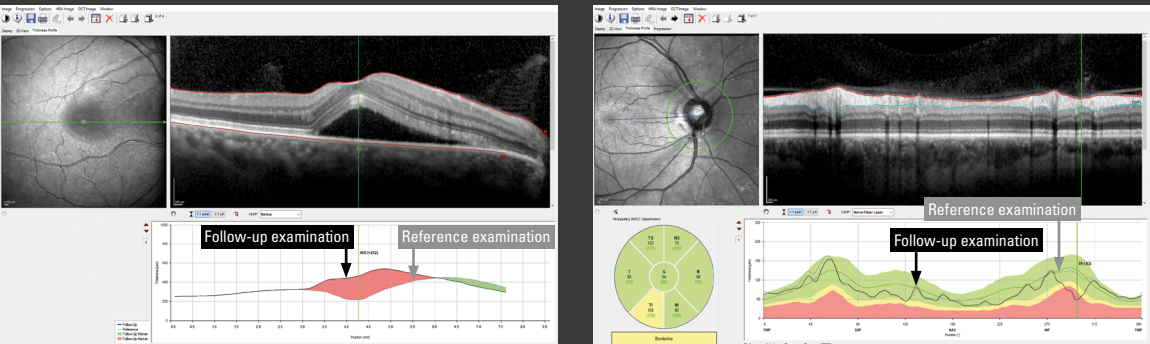
1 Display Tab

Reflectivity changes in the IR image as well as thickness changes in the OCT section image between the reference and follow-up can be quickly detected using the flicker function. Click on **Compare two Scans** and . Click  and  to navigate backwards and forwards through the progression series.



By courtesy of Christian Mardin, University Hospital Erlangen, Germany

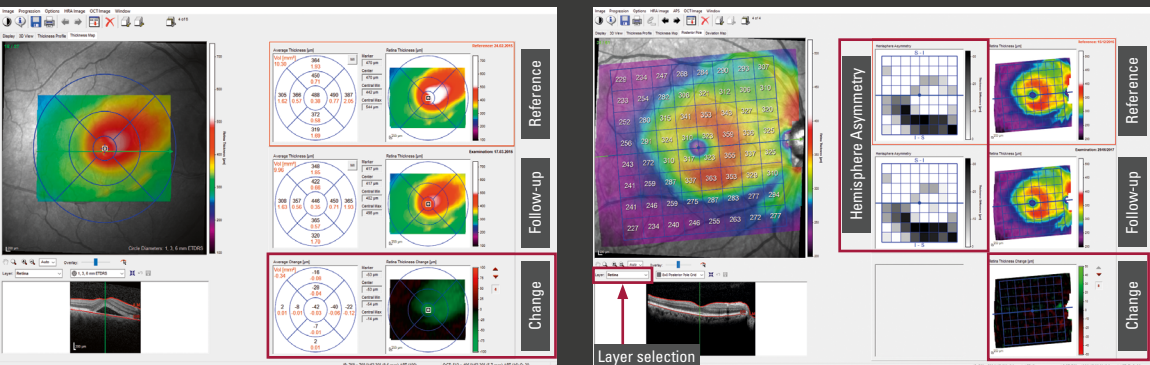
2 Thickness Profile Tab



By courtesy of Christian Mardin, University Hospital Erlangen, Germany

Compare reference and follow-up for retinal thickness increases (red) and decreases (green).

3 Thickness Map Tab



By courtesy of Christian Mardin, University Hospital Erlangen, Germany

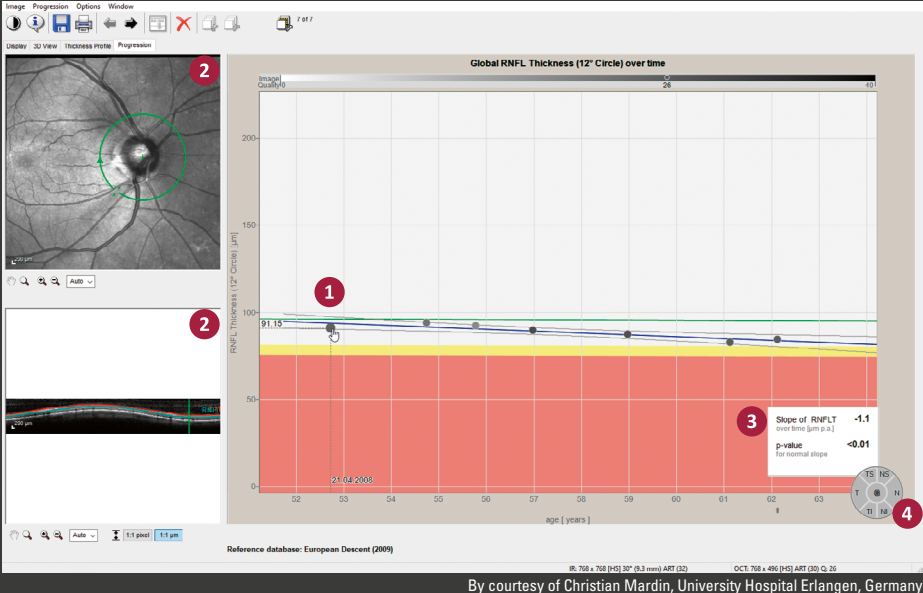
Check **Change map** for retinal thickness increase (red) and decrease (green).

Check **Change graph** for retinal thickness decrease (red) and **Hemisphere Asymmetry** for adjacent, deep gray squares which indicate a thickness decrease in contrast to the opposite hemisphere. View single layers by selecting e.g. RNFL/GCL via **Layer**.

Analyzing Images: Glaucoma

Glaucoma Progression

- For circle scans, the **Progression** tab shows the measured RNFL thickness over time, where each grey data point represents an examination.



The grey shading on each data point correlates with the image quality, ranging from white (bad image quality) to black (excellent image quality).

- 1 Hover with the mouse over a data point, to display the examination date on the horizontal axis and the value for RNFL thickness in µm on the vertical axis.
- 2 Click a grey data point to display the corresponding IR image and OCT section image in the progression series.
- 3 **Regression Analysis:**
 - The average rate of change for the selected parameter **Slope of RNFLT** is displayed in µm per year.
 - A **p-value** of < 0.05 is statistically significant and (in the case of a negative declining slope) supports the hypothesis that a thickness decrease faster than normal aging is possibly being observed for the selected parameter (RNFLT).
 - A **p-value** of > 0.05 is statistically not significant and suggests that there may be no change in thickness of the selected parameter (RNFLT) outside of normal age decrease, or that the observed change in thickness is confounded or unreliable.
 - The blue regression line shows the linear approximation from the given data and a five-year trend.

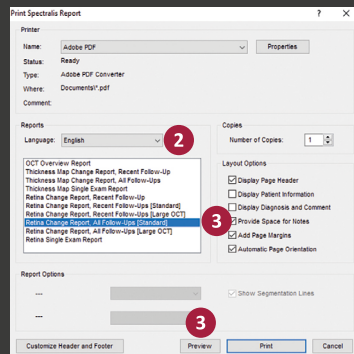
Full regression analysis results are only displayed, if the progression series consists of five or more included examinations.

A small p-value does not automatically mean that there is clinically relevant change. A large p-value does not exclude the possibility that a clinically important change has occurred.

- 4 Display progression information globally (G) and for each sector (T, TI, TS, N, NI, NS) by clicking on the sector buttons.

Follow-up Reports: Retina & Glaucoma

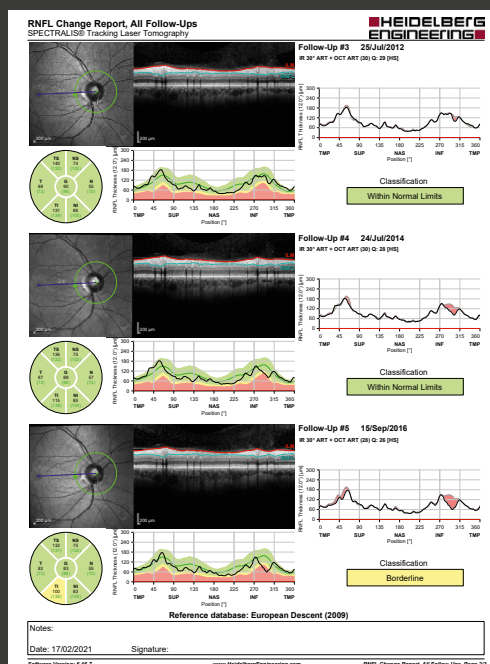
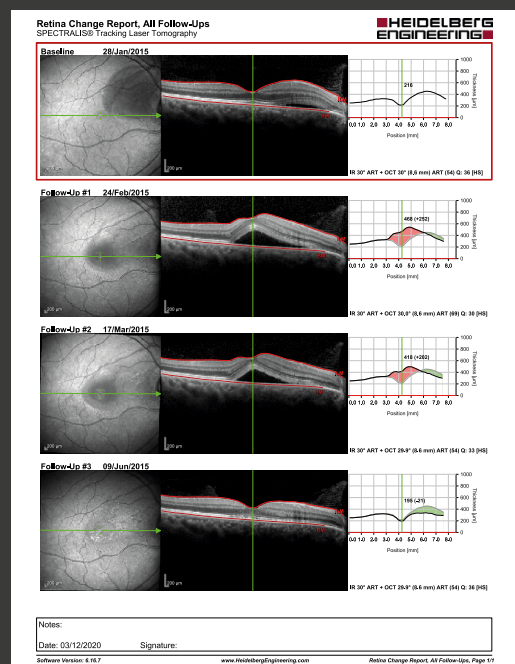
Printing Reports



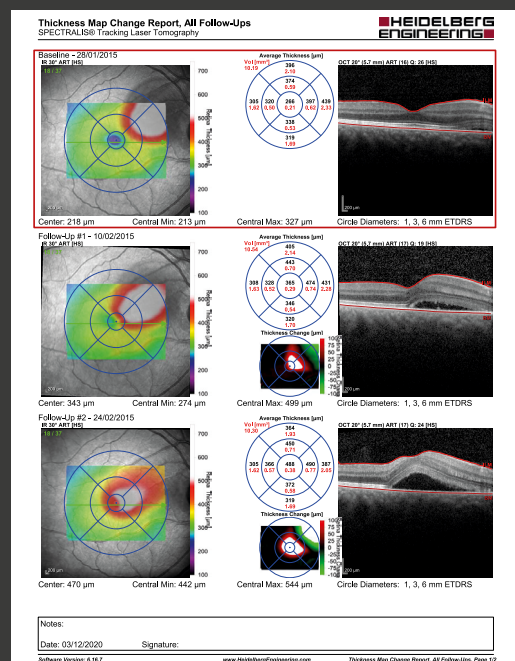
1 Right-click on any image thumbnail and select **Print**.

2 Choose language if necessary.

3 Select **Retina Change Report, All Follow-Ups** or **RNFL Change Report, All Follow-Ups** to display all follow-up images in a progression series. Click **Preview** to view the report.

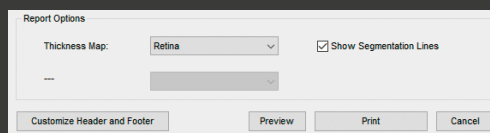


By courtesy of Christian Mardin, University Hospital Erlangen, Germany



4 Select **Thickness Map Change Report, All Follow-Ups** to display all follow-up maps in a progression series. Click **Preview** to view the report.

5 Select which layer of the retina you want the thickness map report to display from the **Report Options** section.



Additional report options are available. Please refer to the SPECTRALIS user manual for comprehensive information.