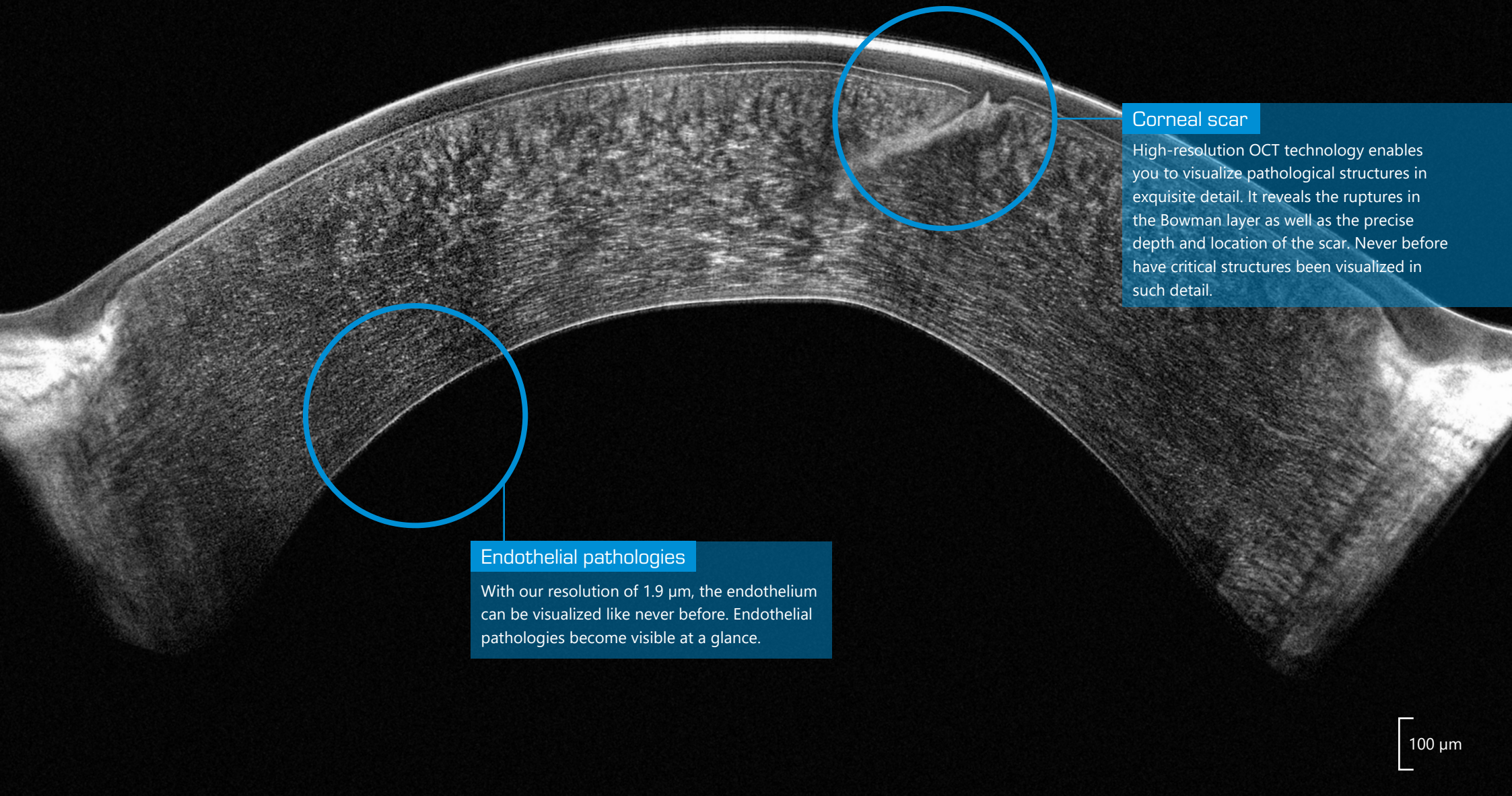
OCULUS
Pentacam® Cornea OCT
High-Resolution
Corneal Visualization



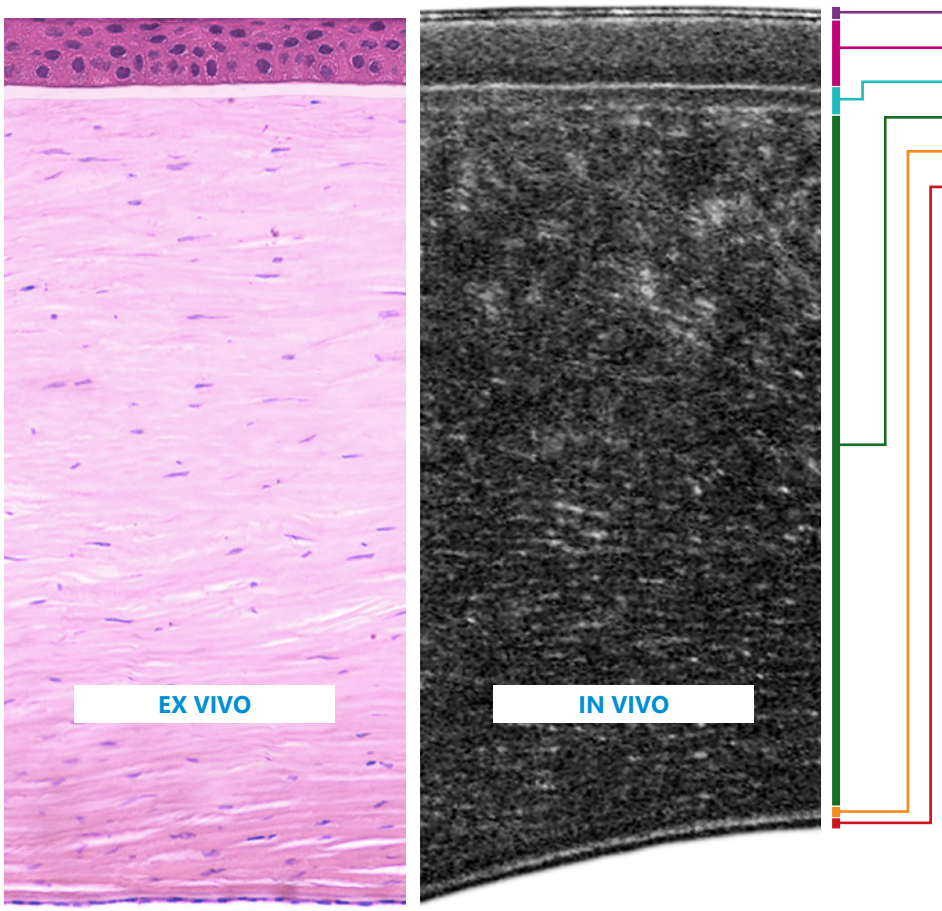
OCULUS®

Images Beyond **All Expectations**



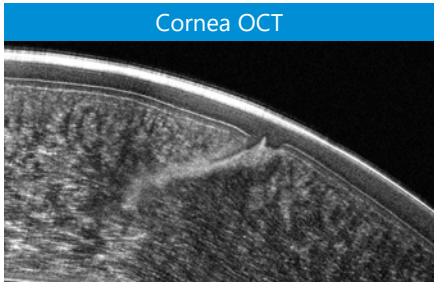
Showing Details You Have Never Seen Before

The unsurpassed resolution of the Pentacam® Cornea OCT technology makes details visible that have never been seen before in the living eye.

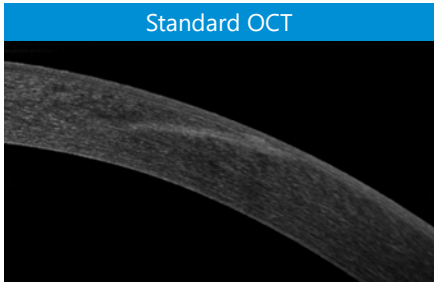


Resolution Comparison

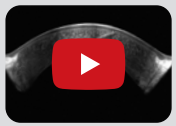
The Pentacam® Cornea OCT uses Spectral Domain OCT with specialized pericentric scanning technology to provide a resolution of corneal structures that conventional systems cannot achieve. While Swept Source OCT systems offer high scan depth, they are limited in resolution to approximately 10 µm, insufficient for revealing fine details.



Resolution: 1.9 µm

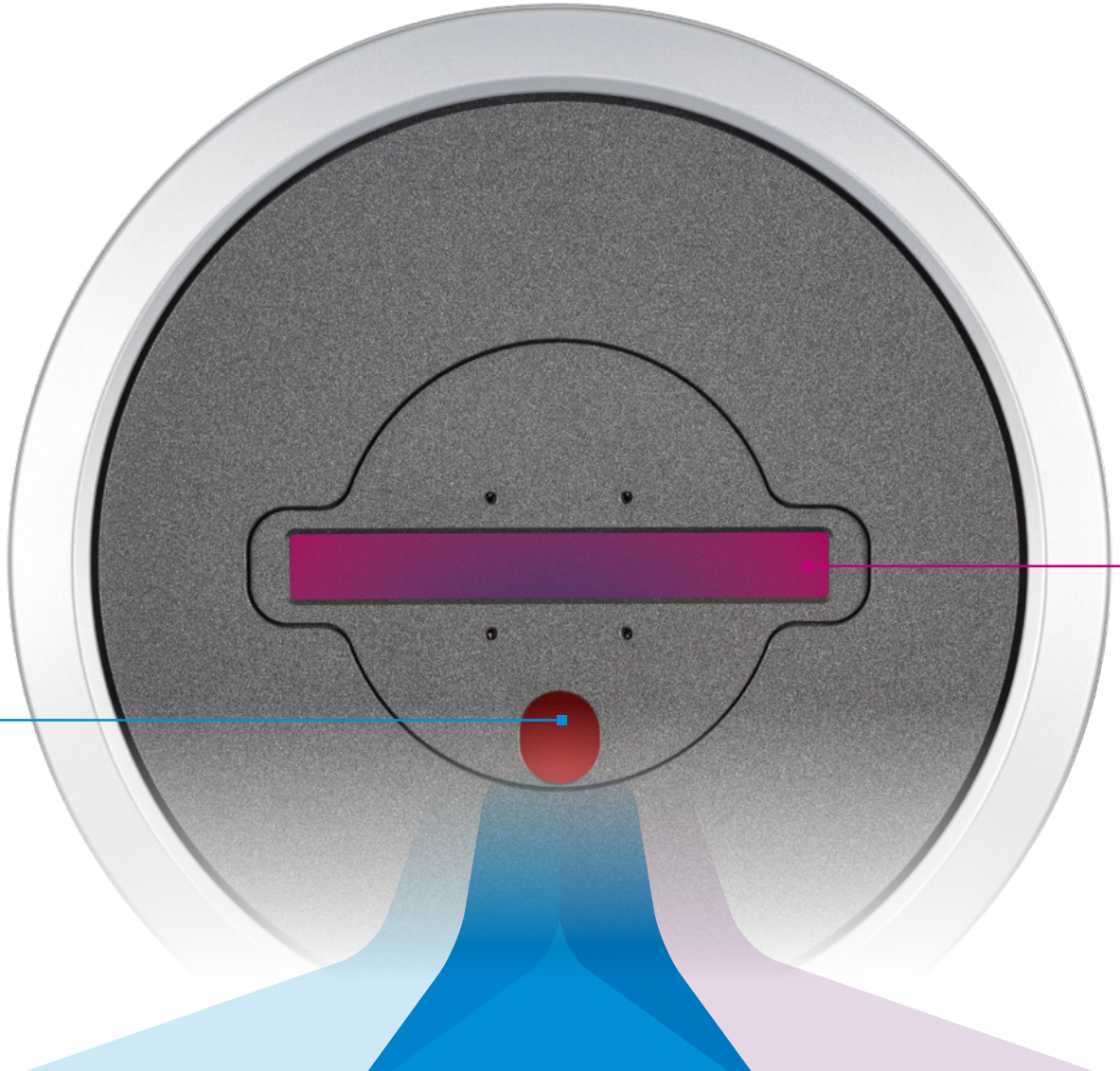


Resolution: approx. 10.0 µm



Find out why the Pentacam® Cornea OCT technology produces **significantly higher resolution** images than swept source OCTs.

Combining **Two Technologies** In One Single Device



Gold standard

The **proven Scheimpflug** technology provides the foundation for the most accurate geometric measurement of the entire anterior segment of the eye, backed by normative data from over 20 years.

NEW

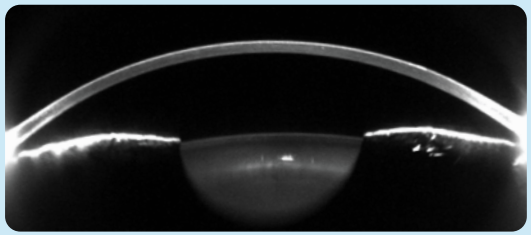
World's first pericentric OCT scanning system for a maximum of resolution in the cornea.

Advantages of the **Scheimpflug** Technology

For over 20 years, Scheimpflug technology has been the proven gold standard in anterior segment tomography. All parameters of the anterior segment are measured at once with very high accuracy. Clinical studies from the past two decades have formed the foundation for the software, which meets all needs from refractive screening, to the selection of premium IOLs, IOL calculation, and to fitting of scleral lenses.

Established and validated software with normative data:

- ☑ Belin/Ambrósio Display*
- ☑ Cataract Pre-OP Display*
- ☑ Corneal Optical Densitometry*
- ☑ Fast Screening Report*
- ☑ **NEW** FECD Analysis Display



Best of Both Worlds Scheimpflug & OCT

Combining Scheimpflug technology and OCT offers a comprehensive view: Scheimpflug reveals light-scattering structures in the anterior segment with blue light, while OCT provides unparalleled detail. Both measurements are taken simultaneously at exactly the same locations, allowing for immediate and detailed visualization of all anomalies.

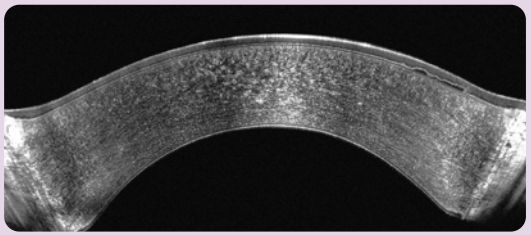
- ☑ **Superior image quality:** Scheimpflug visualizes scatter; OCT provides detailed structure
- ☑ **Increased accuracy:** Precise measurements at identical corneal locations
- ☑ **Advanced diagnostics:** Combining established tomographic analysis with epithelial mapping
- ★ **Downward compatible:** Follow-up measurements based on your existing Pentacam® data

KEY ADVANTAGE

Advantages of the **Cornea OCT** Technology

High-resolution OCT technology enables detailed visualization of corneal structures, including precise measurement of epithelial thickness. This measurement is crucial for early detection of corneal ectasia. The segmentation of corneal sub-layers also enhances surgical planning, contributing to optimal outcomes of vision correction procedures. OCT imaging is essential for post-operative care, monitoring healing and detecting complications after LASIK or keratoplasty.

- ☑ **Ultra high-resolution** over the **entire cornea**
- ☑ Unique **wide-angle pericentric** scan system
- ☑ Averaging mode for "**Optical Biopsy**"**
- ☑ **Advanced layer segmentation**
- ☑ **NEW** **AI Anomaly Finder**



* See Software Configurations information brochure

** Term quoted by Renato Ambrósio Jr.

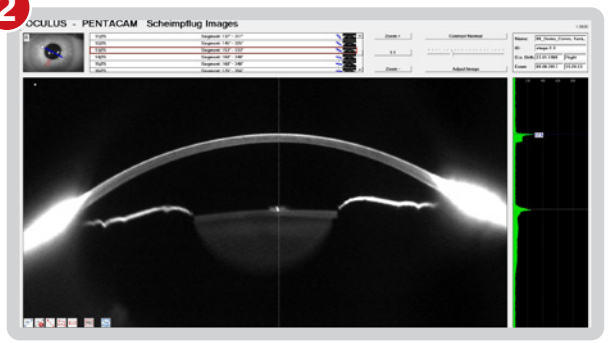
Your **Workflow** for More Safety, Deeper Insights, and For Better Results!

Use the unrivalled combination of Scheimpflug images, normative data and high-resolution corneal OCT images to make the best possible decision.

1

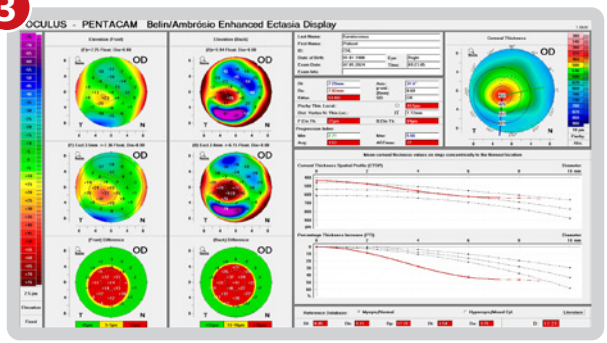
Complete **measurement** in less than one second

2



First check based on the **Scheimpflug image**

3



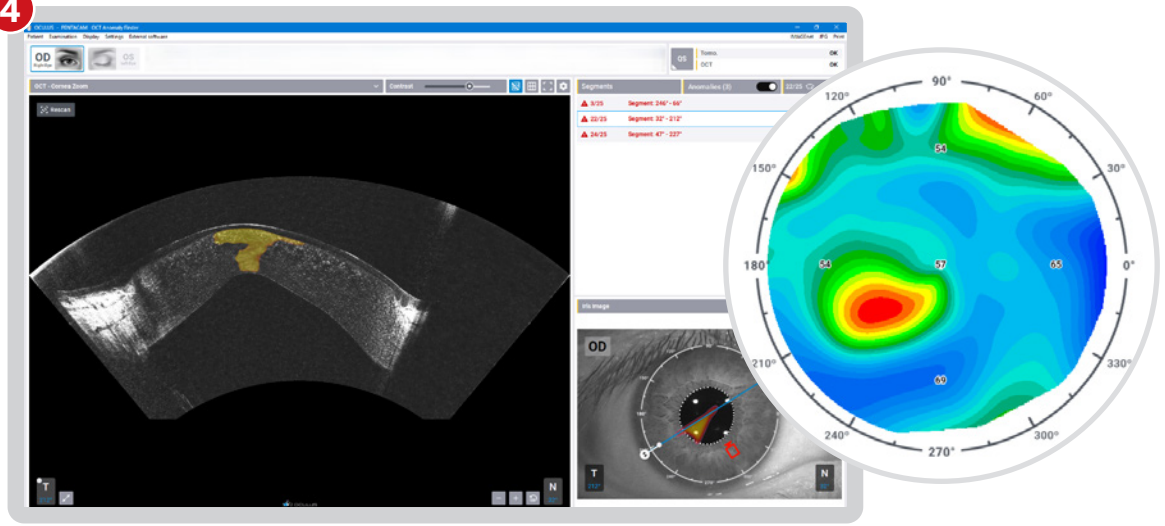
Belin/Ambrósio Display shows increased ectasia risk: keratoconus

4

3D Cornea OCT scan for analysis of corneal structure

AI Anomaly Finder highlights potential anomalies

Corneal layer segmentation provides deeper insights



5

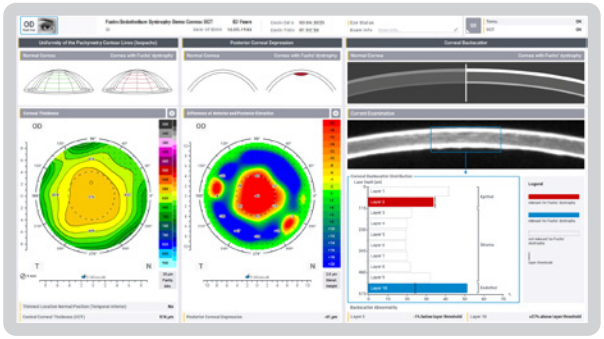
Assessment completed

Cornea Experts' First Choice

Cornea experts around the world rely on the outstanding analysis capabilities of the Pentacam® Cornea OCT.

CASE 1

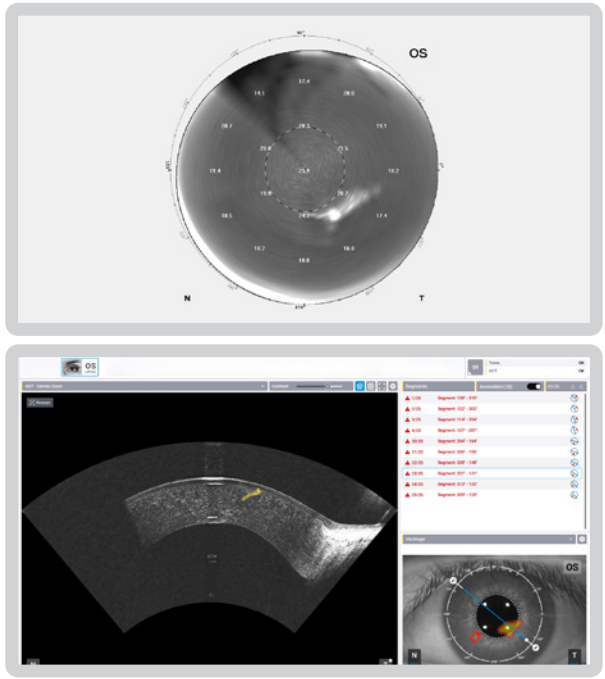
Premium IOL Candidate? No!
Fuchs' Dystrophy



The FECD Analysis display reveals characteristic signs of Fuchs' dystrophy, including irregular isopachs, a decentered thinnest point, a calculated edema thickness of 44 µm, and increased endothelial backscatter. Pentacam® Cornea OCT visualizes Descemet's membrane excrescences (guttae).

CASE 2

LASIK Candidate: Look for the Scars before Cutting a Flap.



Pentacam® corneal densitometry reveals a scar within the potential ablation zone. The AI Anomaly Finder detects and highlights the abnormality for direct navigation to the affected OCT scan, where the scar depth and Bowman's layer damage are clearly visualized.



"Knowing instead of assuming. The Pentacam® Cornea OCT has given me completely new insights."

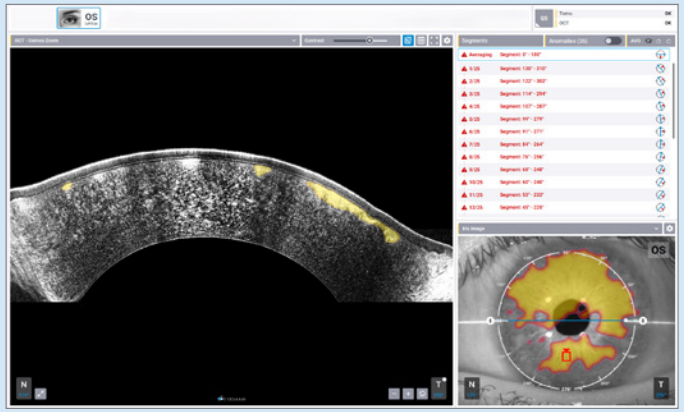
Imagine a world where the intricate layers of the cornea are illuminated with such precision that every detail is revealed, much **like turning on a light in a dark room.**

R. Ambrósio Jr.

Renato Ambrósio Jr.

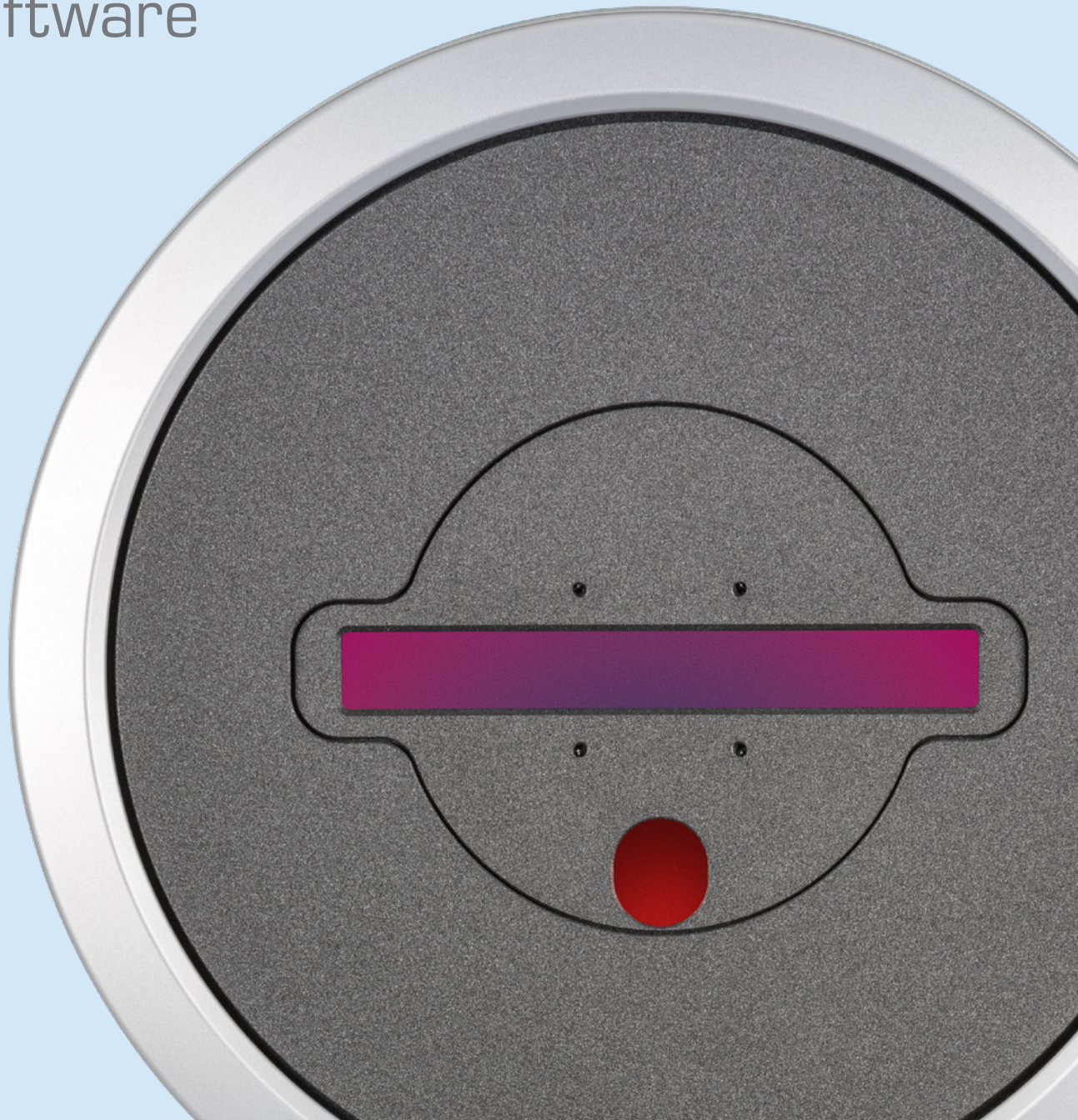
The Pentacam® Cornea OCT
Imaging Modes and Software

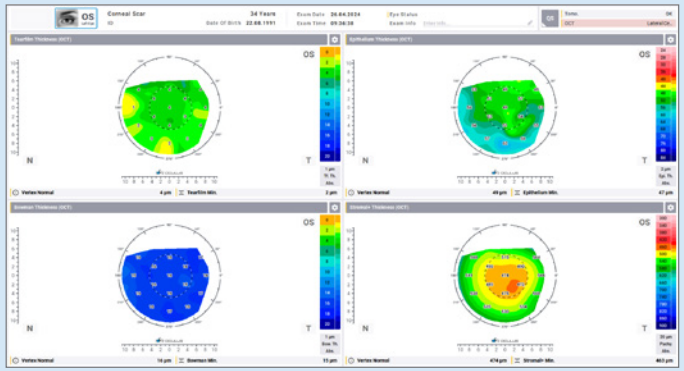
Multiple Views. Detailed Layers. Intelligent Analysis.
Scheimpflug imaging, Real Shape and Cornea Zoom provide different perspectives on corneal morphology. Detailed layer segmentation enables a comprehensive assessment of individual corneal structures, while the AI Anomaly Finder highlights potentially abnormal structures.



AI Anomaly Finder

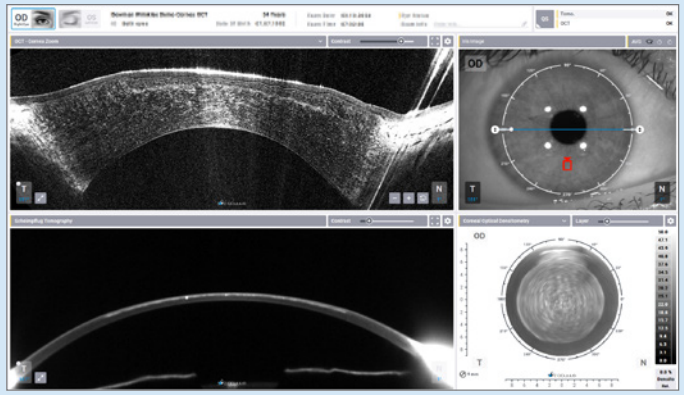
The AI Anomaly Finder automatically reviews all 25 OCT scans and highlights potentially abnormal findings in the scan overview. The corresponding images can be accessed directly, with coloured overlays indicating the regions contributing to the AI finding.





Cornea Segmentation

Depiction of the individual layers of the cornea, including the tear film, epithelium, Bowman's membrane, and stroma+.



OCT Scheimpflug Display

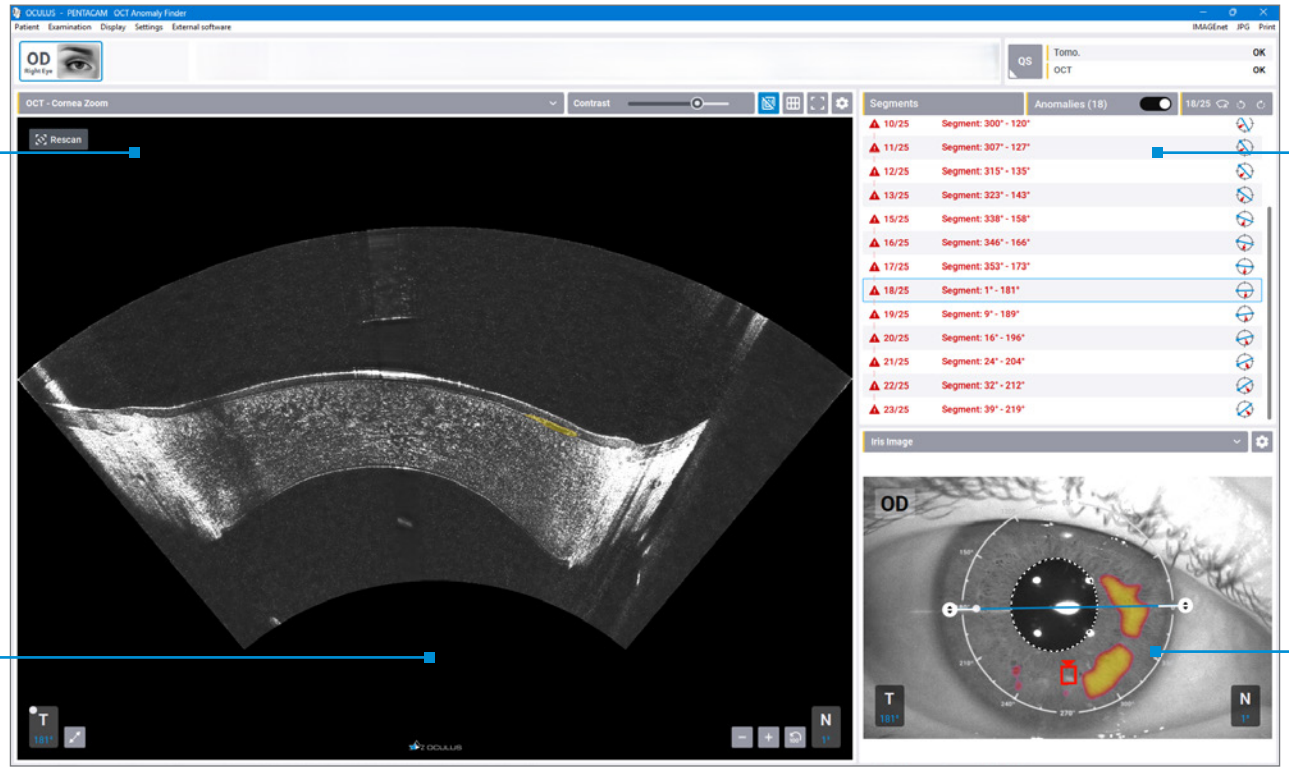
Display of Scheimpflug and OCT images, including epithelium thickness map for precise analysis of the corneal structure.



NEW AI Anomaly Finder

Intelligent Support for OCT Image Review

The AI Anomaly Finder supports efficient OCT image review by identifying and highlighting potentially abnormal structures across the complete examination. It serves as an attention-guiding tool, supporting the examiner while keeping clinical interpretation fully in their hands.



Rescan button

to perform a new scan at the exact location of the detected anomaly using the average mode for enhanced image quality

Cornea Zoom image

with the detected anomaly highlighted for precise localization

Individual corneal layers

can be selected to visualize the detected abnormalities within the respective layer

Iris image

with the corresponding anomaly marker for anatomical orientation

Advanced Segmentation of Corneal Sub-Layers

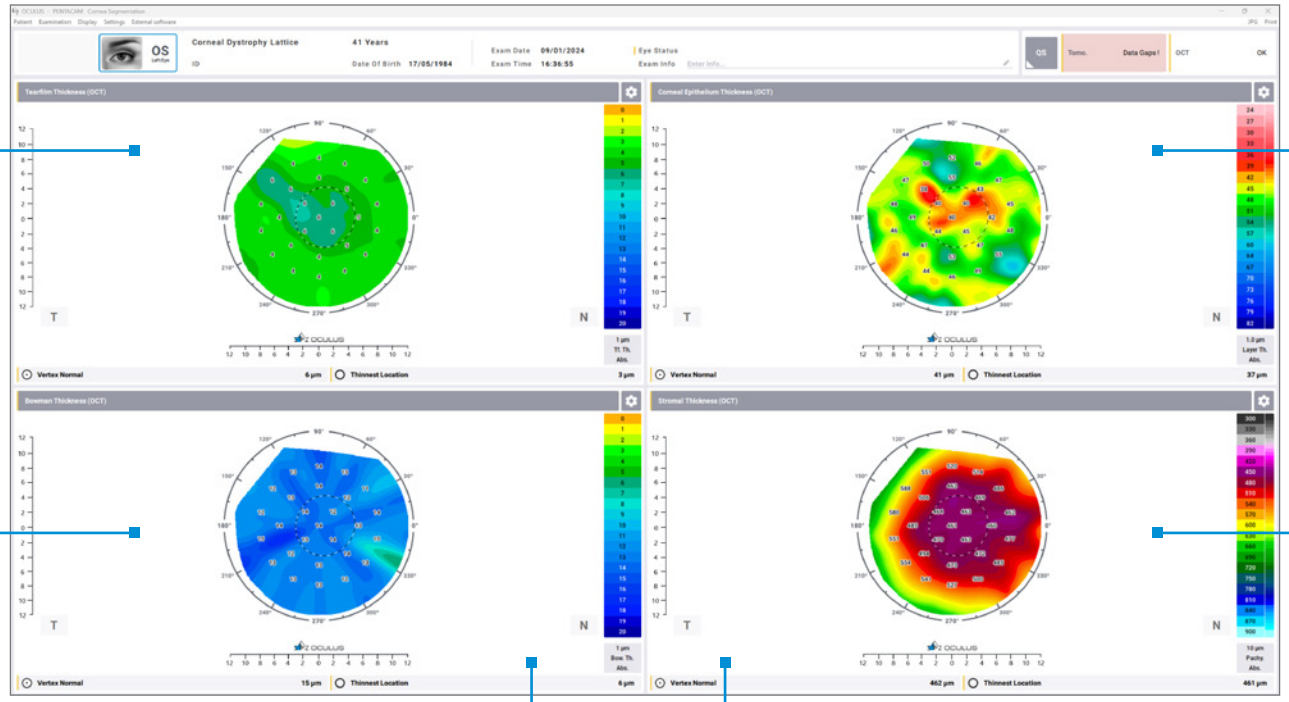
Sub-layer segmentation of the cornea provides deeper insights, illuminates previously hidden structures and enables more precise diagnostics and clinical assessment.

Tear film thickness map

Tear film thickness is essential for corneal hydration, optical quality, contact lens fitting, and planning of refractive surgery, as it can reveal surface irregularities or dry eye conditions.

Bowman thickness map

Bowman's layer provides structural integrity, and changes within it have been shown to be an early indicator of ectatic development such as keratoconus.



Epithelial thickness map

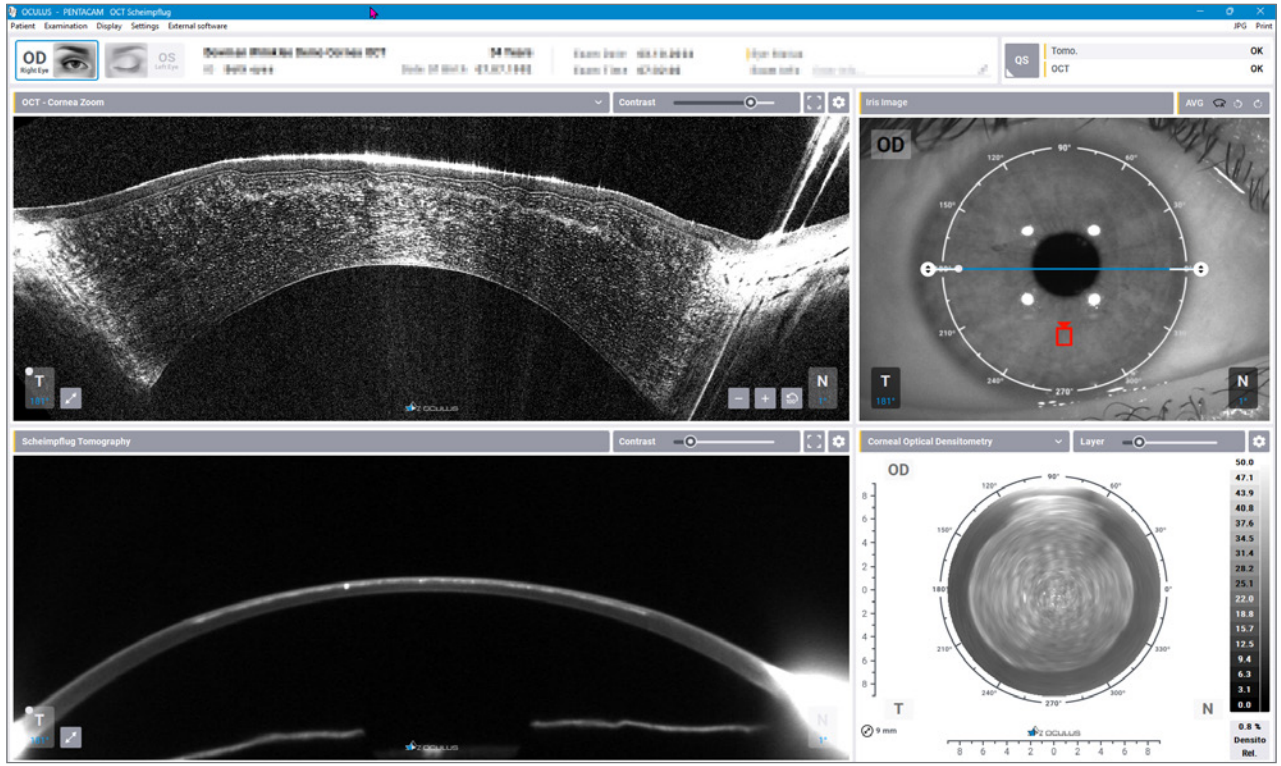
The corneal epithelium protects the eye, maintains optical clarity, undergoes remodeling after laser vision correction, and can mask or reveal early signs of ectatic changes.

Stromal+ thickness map

The stroma contributes to corneal shape and strength. Its highly regular collagen structure is essential for clear vision, and disruptions can indicate keratoconus or corneal edema. This thickness map also includes the Descemet membrane and the endothelium.

Pentacam® Cornea OCT

Experience unparalleled precision and detail with the combined capabilities of Cornea OCT and Scheimpflug imaging. This powerful synergy allows for comprehensive corneal assessment, providing precise measurements of all refractive layers and detailed visualization of sublayers, crucial for early detection, optimal surgical planning and post-operative care.



Cornea Zoom Mode

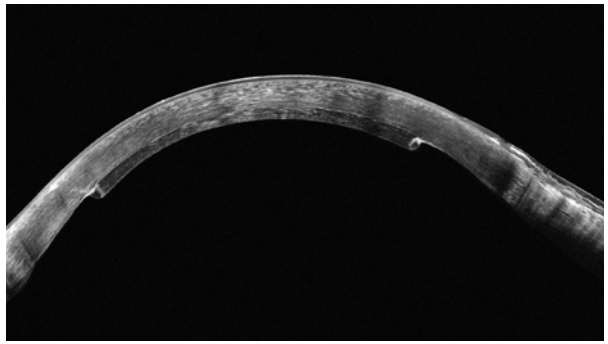
The Corneal Zoom mode revolutionizes corneal imaging by providing a comprehensive view of the entire cornea in just one image. This advanced mode ensures unparalleled clarity and detail, enhancing diagnostic capabilities.

Key Features:

- **Wide coverage:**
  Visualizes the entire 15 mm cornea in one image.
- **High-resolution:**
  Finest axial resolution of 1.9 µm.
- **Comprehensive scanning:**
  25 radial scans, matching Scheimpflug images.
- **Enhanced detection:**
  Unprecedented visibility of corneal anomalies.

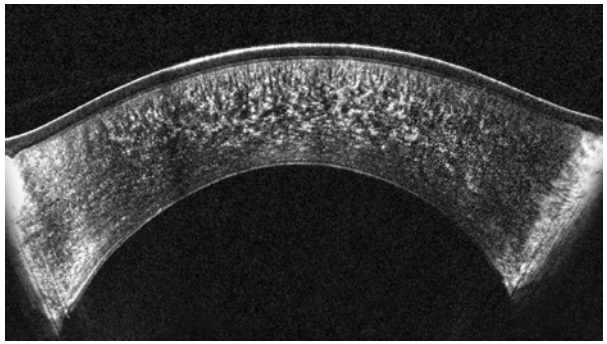
Advanced OCT Imaging and Analysis: Exploring the Full Potential of OCT

Begin with an overview in Real Shape, explore corneal structures in greater detail with Averaging Mode and let the AI Anomaly Finder guide your attention to potentially abnormal findings across the complete OCT examination.



Real shape B-scans and Comparison with Scheimpflug Images

The real shape mode represents the B-scans of the Pentacam® Cornea OCT in the true geometry of the cornea. This enables visualization of geometric changes in corneal sublayers and allows direct comparison of B-scans with Scheimpflug images in identical sectional planes. While Scheimpflug images reveal structures that scatter light, OCT images provide ultra high-resolution details of these structures

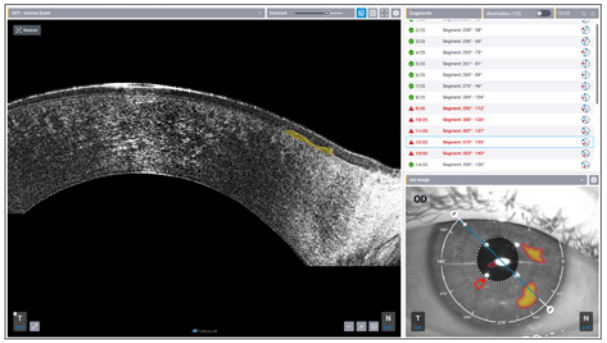


Averaging Mode

The averaging mode revolutionizes corneal imaging by combining multiple images to produce exceptionally clear and detailed views.
This mode enhances diagnostic capabilities and supports “non-invasive optical biopsies”.

Key Features:

- **Enhanced image quality:** Combines up to 25 images, reducing noise and increasing contrast.
- **Unprecedented detail:** Provides sharp, detailed images for accurate corneal assessment.
- Non-invasive “**Optical Biopsy**”*: Allows detailed corneal examination as in a biopsy or histological exam without invasive procedures.



AI Anomaly Finder

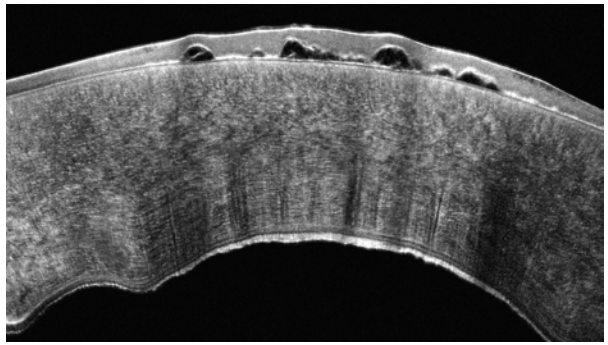
The AI Anomaly Finder analyzes all 25 OCT scans acquired during a Pentacam® Cornea OCT examination and highlights potentially abnormal scans in the overview. The examiner can navigate directly to the corresponding images, where a coloured overlay indicates the region of the potential anomaly.

The Rescan button allows the examiner to easily re-examine a potential abnormality using an averaged scan for high-resolution imaging when a corneal issue is suspected.

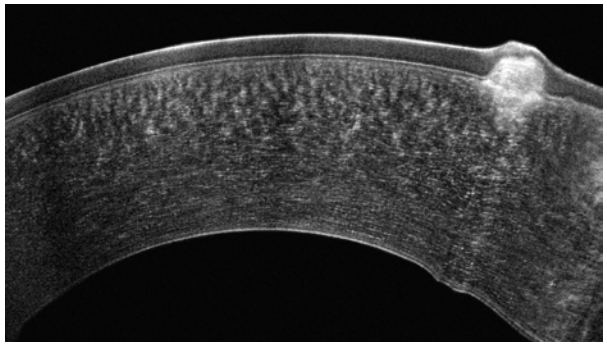
* Term quoted by Renato Ambrósio Jr.

Images You Must Have Seen

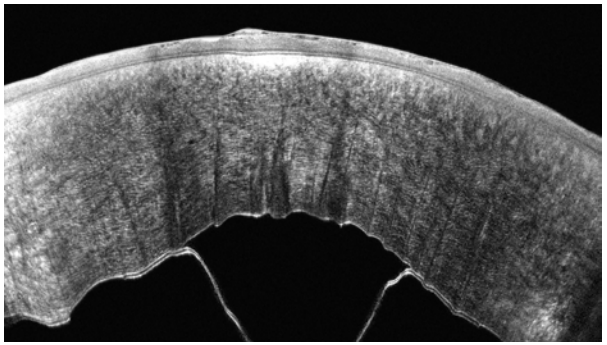
Cornea OCT Images – impressive, convincing, simply sharp



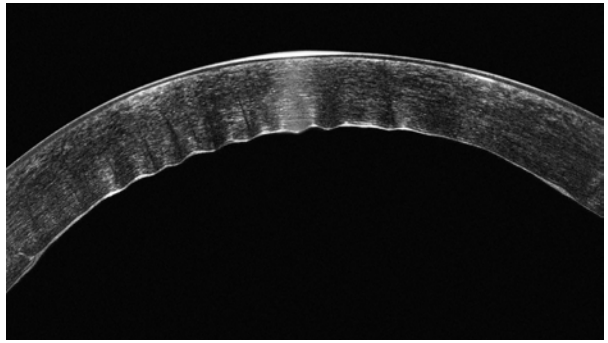
Bullous keratopathy in Fuchs' dystrophy



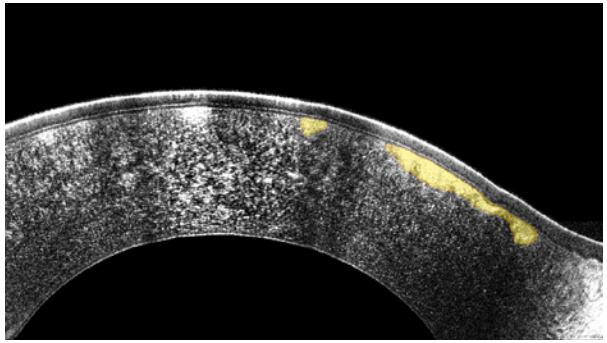
Salzmann's nodular degeneration



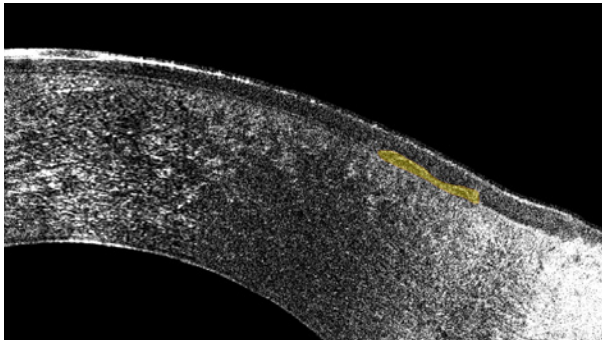
DMEK graft detachment



Corneal edema



Nummulis (highlighted by AI Anomaly Finder)



Map-dot fingerprint Dystrophy (highlighted by AI Anomaly Finder)

Would you like to see more?

Find more impressive images and cases, including measurement data, at pentacam-cornea-oct.com or by scanning the QR code

Build On Your Existing Examination Data

Seamless follow-ups with the Pentacam® Cornea OCT.

Full Compatibility with Existing Pentacam® Examination Data

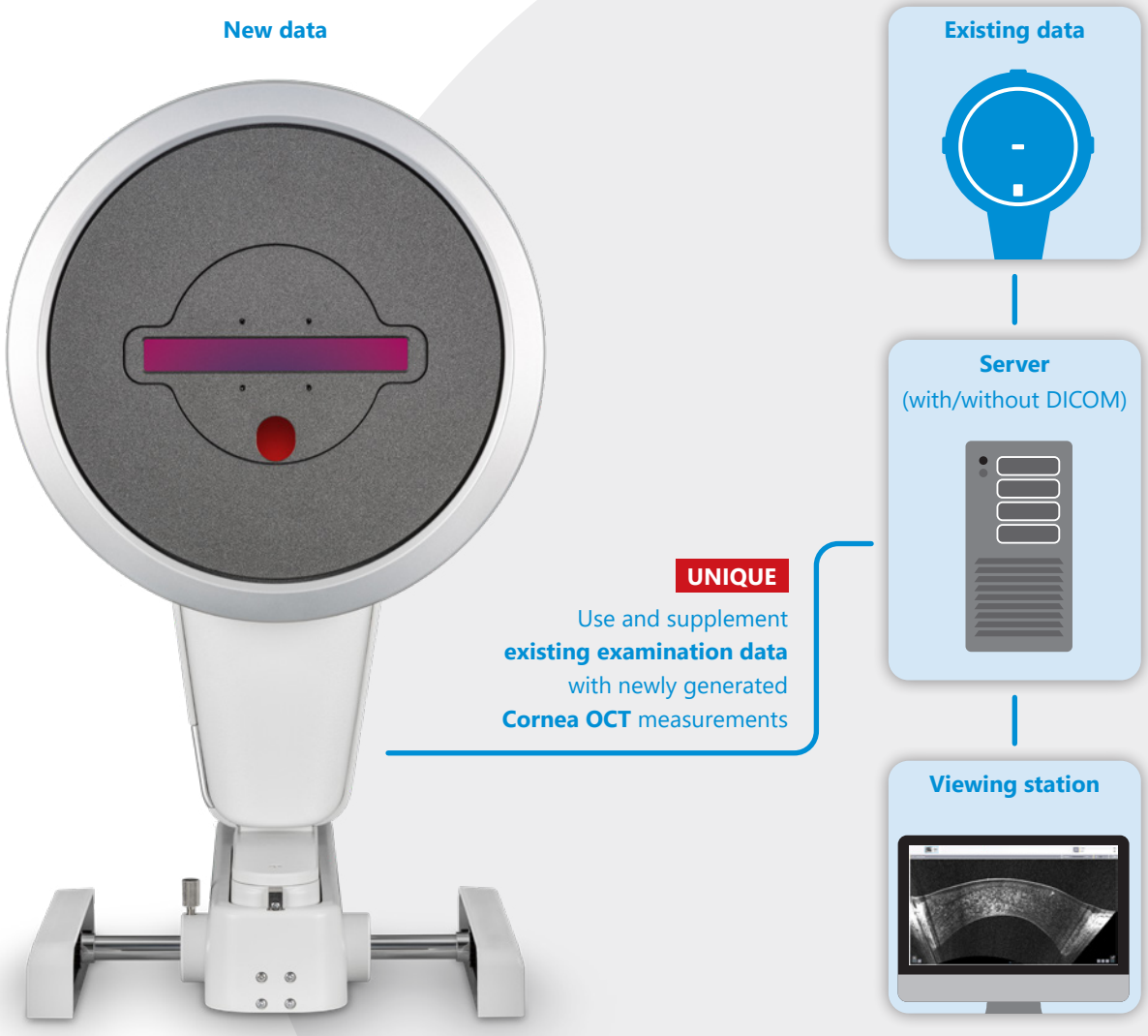
No matter which Pentacam® model you have used in the past, no matter which software version you have worked with: **No data will be lost.** All measured data can be transferred to the new Pentacam® Cornea OCT. This allows for easy follow-up examinations and progression analysis.

The Floating License Key

Licensed Pentacam® software modules for evaluation are stored in the Floating License Key and are already available at all Pentacam® workplaces in your network. You decide which optional examination and evaluation functions you need in addition. To assist you in decision-making, all optional evaluation functions can be accessed up to 20 times for demonstration purposes.

Made for the Network

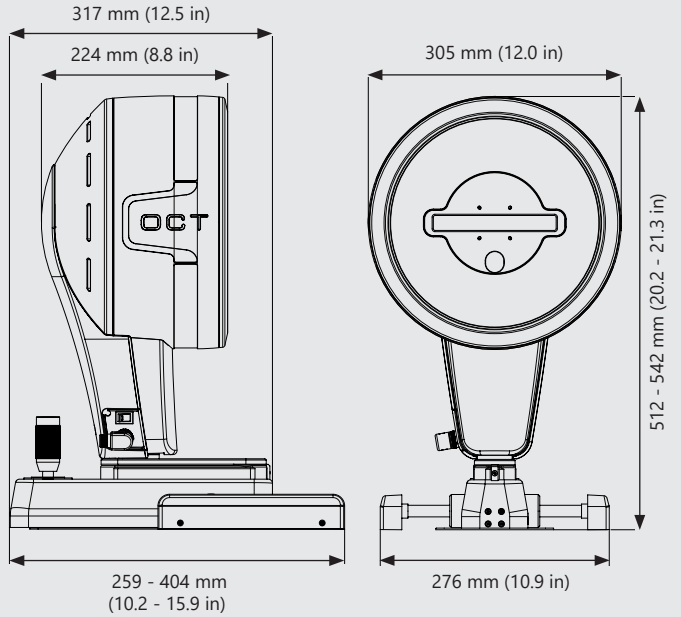
The OCULUS Patient Data Management system (PDM) organizes patient and examination data from all OCULUS instruments. The PDM is network-compatible and can be incorporated into many Electronic Medical Record (EMR) systems. Needless to say, the OCULUS PDM communicates with the DICOM environment and makes results available in DICOM format.



Pentacam® Cornea OCT
Technical Data

OCT camera	
OCT type	Spectral Domain OCT
Axial resolution	1.9 µm
Lateral resolution	10 µm
Scan geometry	Pericentric scan
A-Scan speed	50,000 scans/s
Scheimpflug camera	
Camera	Digital CMOS camera
Light source	Blue LED (475 nm UV-free)
Processor	DSP with 2,746 m operations/s
Speed	100 images in 2 seconds (Cornea Fine Scan)
Measuring points	max. 276,000
Measurement range	
Curvature	3 - 38 mm 9 - 99 D
Precision	± 0.1 D
Reproducibility	± 0.1 D
Operating distance	45 mm (1.8 in)
Technical specifications	
Dimensions (W x D x H)	305 x 259 - 404 x 512 - 542 mm (12 x 10.2 - 15.9 x 20.2 - 21.3 in)
Weight	27.8 kg (61.3 lb)
Max. power consumption	75 W
Recommended computer specifications	Intel® Core™ i7, 2 TB Drive, 32 GB RAM, Windows® 11

CE 0123



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The OCULUS QM system is certified in accordance with ISO 13485 (MDSAP) and (EU) 2017/745 (MDR).

Find your local OCULUS representative on our website.

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