# Pentacam indices for early detection of keratoconus

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## PENTA = 5CAM = CAMERA

- 1. TOPOGRAPHY
- 2. PACHYMETRY
- 3. ANTERIOR ELEVATION
- 4. **POSTERIOR ELEVATION**
- 5. DENSITY METER
- ANTERIOR CHAMBER EVALUATION
- AC ANGLE MEASUREMENT
- IOP CORRELATION

EOS 2018

• The device have two cameras, one in the center for controlling fixation, and a rotating camera to capture the slit images.



	Regular Pentacam	HR Pentacam
Light source	blue LEDs (475 nm UV-free)	
Speed	50 images in 2 seconds, 500 measuring points per image	50 images in 2 seconds, 2760 measuring points per Scheimpflug image
Number of		A Contraction of the
measured	max. 25.000	max. 138.000
points	EOS 2018	







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## **Elevation maps ( Floats)**

 No normal reference to compare normal from abnormal corneas.

Comparing the acquired data to some standard reference surface (shape).

• Subtracting this known shape from the acquired data highlights the differences .( Elevation maps)

The reference body
Data surface (cornea) Data surface (cornea) Best fit (sphere)
Calculation Diameter C Automatic Manual 8.00 mm EOS 2018























### PARAMETERS DEPEND ON THE AREA ASSESSED

• THE CENTRAL 8 MM DIAMETER IS MORE STEEP THAN THE PERIPHERAL 9MM DIAMETER

• BEST FIT SURFACE IS ALSO STEEPER WITH THE SMALLER 8 MM DIAMETER

16

ANTERIOR FLOAT PARAMTERS			
	9 MM ZONE	8 MM ZONE	
NORMAL	LESS THAN 12 µm	LESS THAN 8µm	
SUGGESTING KC	MORE THAN 15 µm	MORE THAN 8 µm	
	EOS 2018		











































- The yellow represent a change between 6 and 12 microns for the front surface and 8 to 20 microns for the back surface. (suspect zone).
- The **red** represents difference between the 2 maps is 12 microns anteriorly or 20 microns posteriorly (Keratoconus).





