Study Spotlight: ZEISS IOLMaster 700 with TK in keratoconus eyes

Seeing beyond

Source

Title
IOL Power Calculations in Keratoconus Eyes Comparing Keratometry, Total Keratometry, and Newer Formulae

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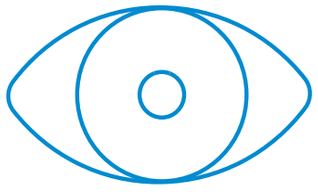
Methodology

IOL calculation

13 Formulas compared

- SRK/T
- Holladay 1
- Haigis
- Hoffer Q
- Barrett Universal II (BUII)
- Kane
- EVO 2.0
- K6
- Pearl-DGS
- BUII keratoconus with measured PCA (M-PCA)
- BUII with predicted PCA (P-PCA)
- Kane keratoconus
- Holladay 1 with equivalent keratometry reading (EKR)

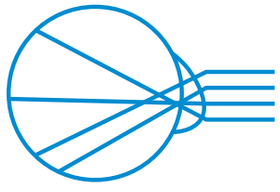
Sample size



67 Eyes - 67 Keratoconus Patients (KCN)

Retrospective study

Evaluation criteria



Refractive Prediction Errors

including root mean square error (RMSE)

Results

TK and PK values can improve refractive accuracy in keratoconus eyes.

KCN eyes (K: mean = 45.59 +/– 3.88 D; from 35.43 to 53.6 D; with 18 eyes > 50 D) n = 67			
IOL calculation formula	MAE	RMSE	% +/– 1.0 D
Barrett True-K KCN (**TK**)*	0.779	1.043	**74.6 %**
Barrett True-K KCN (K)**	0.834	1.147	64.2 %
Barrett Univ. II (**TK**)	0.864	1.207	**67.2 %**
Barrett Univ. II (K)	0.905	1.298	62.7 %
EVO 2.0 (**TK**)	0.799	1.141	**68.7 %**
EVO 2.0 (K)	0.833	1.219	65.7 %
Kane KCN (K)	0.844	1.170	70.1 %
Kane (**TK**)	0.848	1.186	**68.7 %**
Kane (K)	0.884	1.268	64.2 %
Cooke K6 (**TK**)	0.868	1.208	**65.7 %**
Cooke K6 (K)	0.895	1.289	62.7 %
Pearl DGS (**TK**)	0.885	1.233	**65.7 %**
Pearl DGS (K)	0.925	1.305	67.2 %
SRK/T (**TK**)	0.932	1.258	**61.2 %**
SRK/T (K)	0.956	1.322	59.7 %
Holladay 1 (**TK**)	0.987	1.354	**56.7 %**
Holladay 1 (K)	1.043	1.460	58.2 %
Haigis (**TK**)	0.967	1.355	**65.7 %**
Haigis (K)	1.022	1.439	65.7 %
Hoffer Q (**TK**)	1.084	1.451	**55.2 %**
Hoffer Q (K)	1.144	1.541	53.7 %

Table: Refractive prediction errors from 67 eyes of 67 patients for unilateral analysis. Excerpt from original. For the complete table/figure, please refer to the publication.

* referred to as Barrett II Universal True-K Keratoconus M-PCA in the paper
** referred to as Barrett II Universal True-K Keratoconus P-PCA in the paper

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