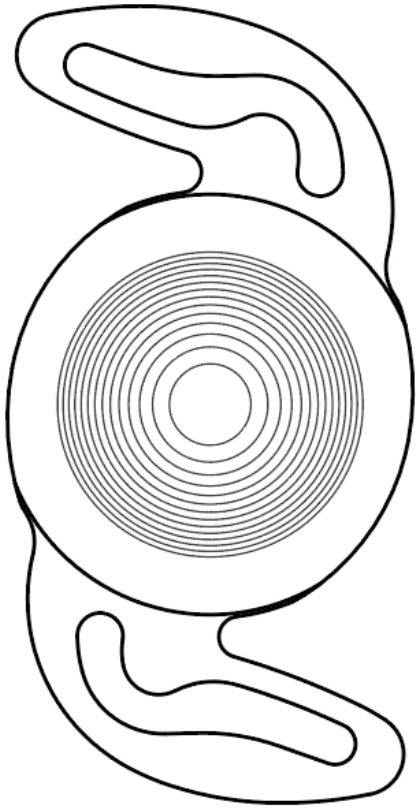
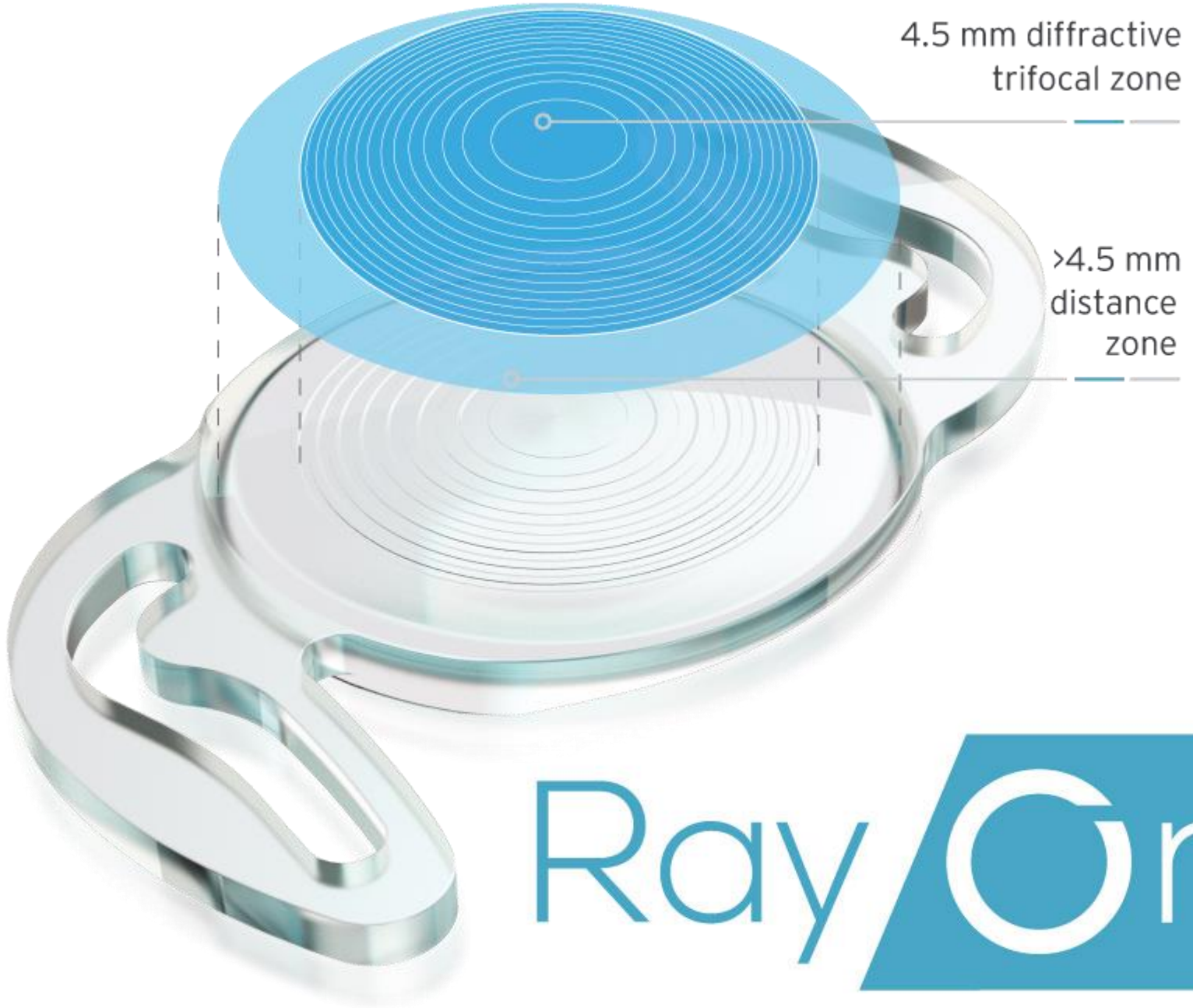
Results from a prospective study in 1000 Eyes after implantation of RayOne Trifocal



Gonzalo Muñoz MD, PhD, FEBO
Cataract and Refractive Surgery
Medical Director
Clinica Baviera Spain - AIER Group

FINANCIAL DISCLOSURE

I have no financial interest in any of the materials mentioned in this presentation



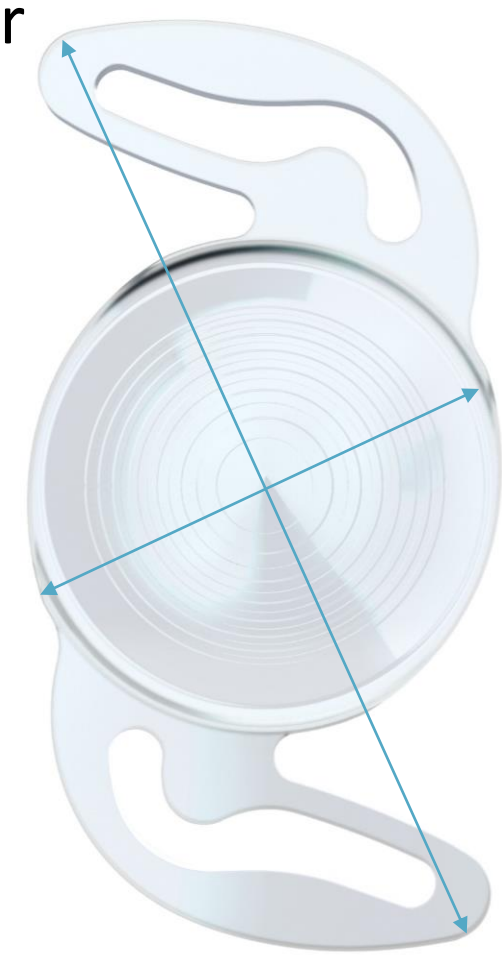
RayOne

TRIFOCAL

LENS DESIGN

12.5 mm diameter

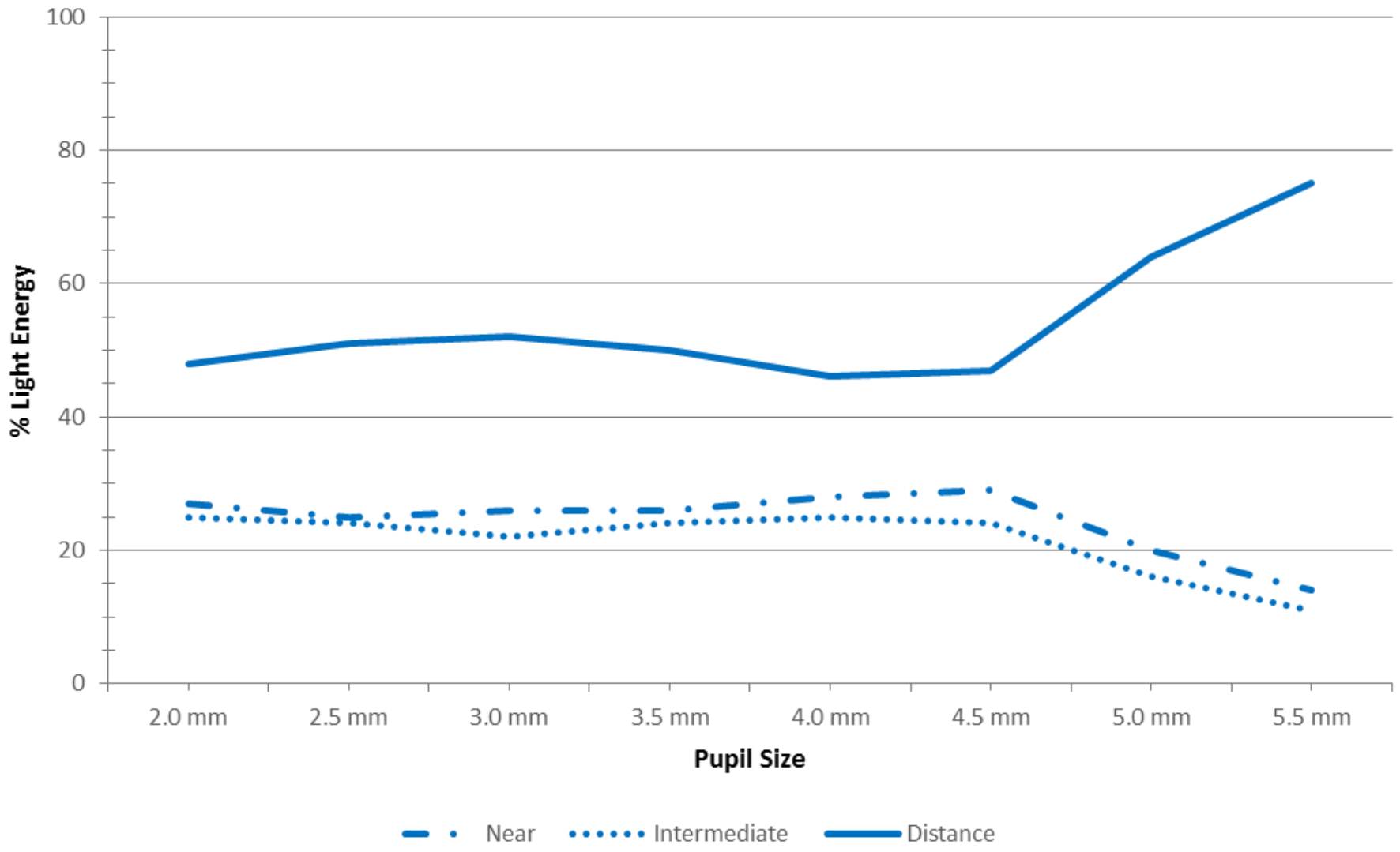
6 mm optic size



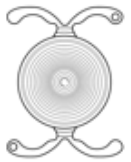
LENS DESIGN

- 16 diffractive rings
- 4.5 mm central trifocal zone
- Monofocal (distance) in zone > 4.5 mm

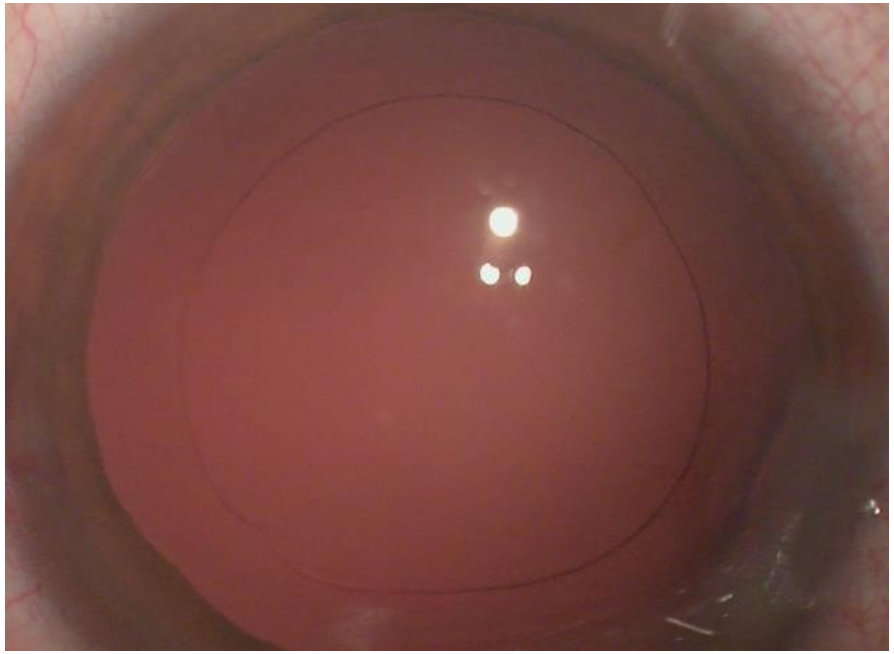
LENS DESIGN

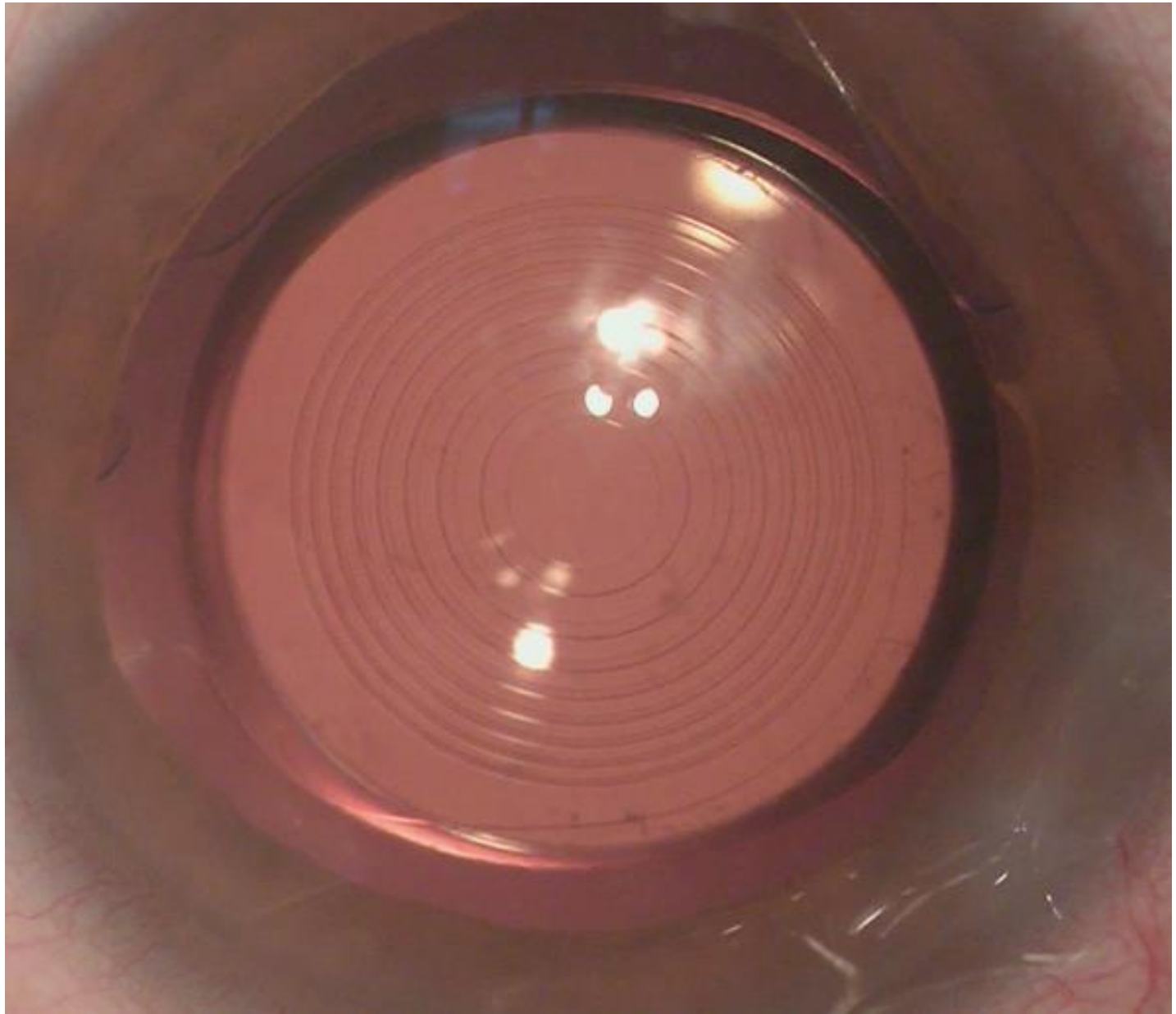

100
80
60
40
20
0
% Light Energy
2.0 mm
2.5 mm
3.0 mm
3.5 mm
4.0 mm
4.5 mm
5.0 mm
5.5 mm
Pupil Size
Near
Intermediate
Distance

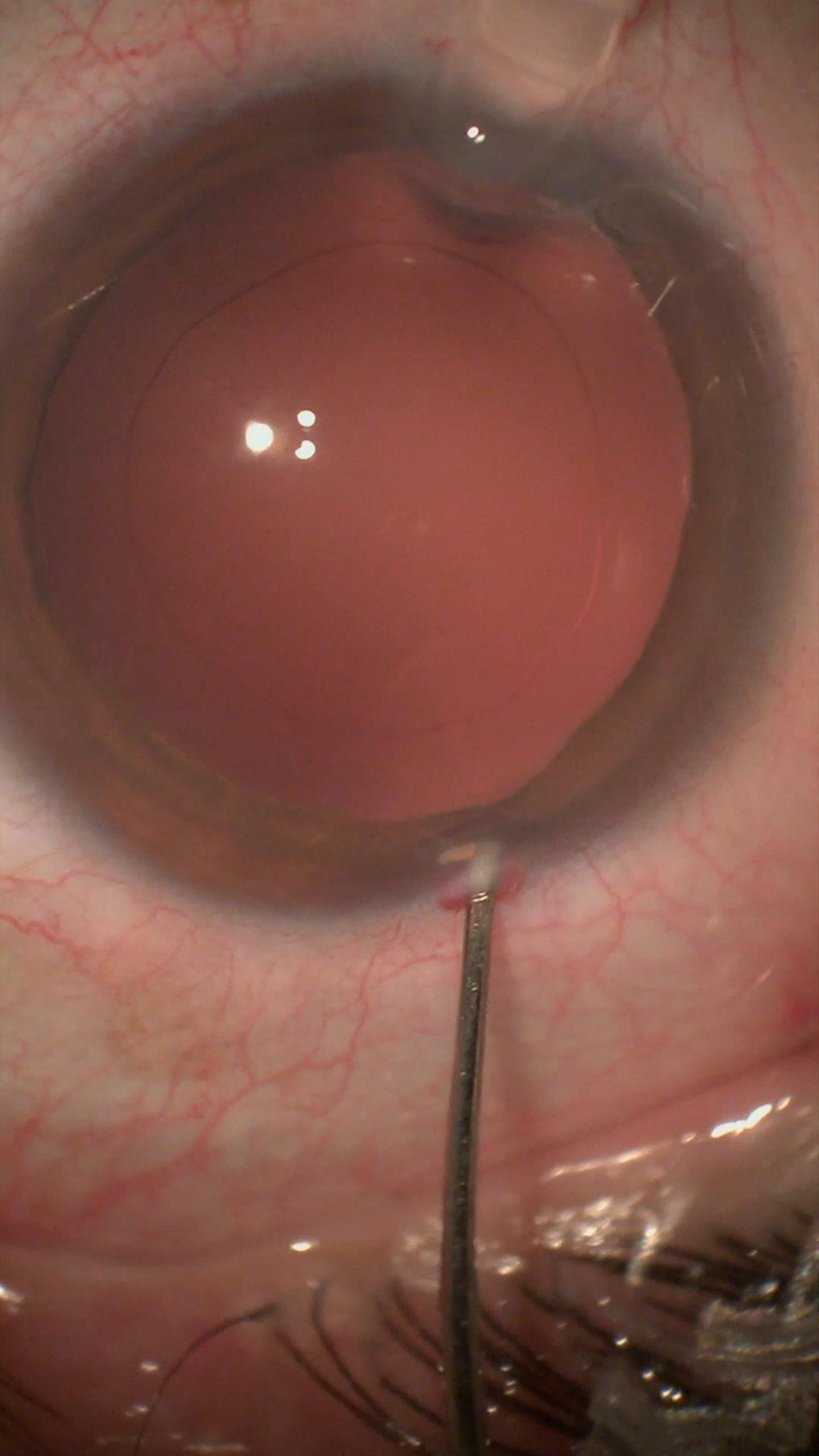
LENS DESIGN COMPARISON

	PhysIOL FineVision	Zeiss AT LISA Tri	Alcon PanOptix	Rayner Trifocal
				
Diffractive Technology	Diffractive Apodized Trifocal across full optic surface	Diffractive Trifocal up to 4.34 mm thereafter bifocal	Diffractive Trifocal up to 4.5 mm thereafter monofocal	Diffractive Trifocal up to 4.5 mm thereafter monofocal
Diffractive Steps	26 diffractive steps	29 diffractive steps 0.0 D	15 diffractive steps	16 diffractive steps
Diffractive Orders	0, 1, 2	0, 1, 2	0, 2, 3 (non-sequential)	-1, 0, 1
Light Loss 3.0 mm pupil	14%	14.3% (Ave.)	12%	11%
Light Energy Split 3.0 mm pupil	42% D / 15% I / 29% N	50% D / 20% I / 30% N	42% D / 24% I / 22% N (includes 12% light loss)	52% D / 22% I / 26% N
Optic Add Powers	+3.50 D Near add +1.75 D Intermediate add	+3.33 D Near add +1.66 D Intermediate add	+3.25 D Near add +2.17 D Intermediate add	+3.50 D Near add +1.75 D Intermediate add
Reading Distance	37.5 cm 75.0 cm	40.0 cm 80.0 cm	42.0 cm 60.0 cm	37.5 cm 75.0 cm
Aberration correcting	Biconvex aspheric (-0.11 SA)	Aberration correcting (-0.20 SA)	Aberration correcting (-0.20 SA)	Aberration Neutral
Lens Material	Hydrophilic	Hydrophilic	Hydrophobic	Hydrophilic
Dioptre range	+6.0 D to +35.0 D	+0.0 D to +32.0 D	+13.0 D to +34.0 D	+0.0 D to +30.0 D
Optic / Haptic Diameter	6.00 mm / 11.45 mm	6.00 mm / 11.00 mm	6.00 mm / 13.00 mm	6.00 mm / 12.50 mm
Haptic design	Double C loop	Plate	C loop	Closed C loop
PCO rate (estimated by review on studies stating YAG: caps rates on monofocal lenses)	Medium (24 months)	High (24 months)	Low (24 months)	Low (1.7% @ 24 months)
Filtration	UV and blue light	UV	UV and blue light	UV
Angulation	5°	0°	0°	0°
Injection System	Loadable	Semi preloaded	Loadable	Preloaded
Nozzle Tip Size	1.74 mm	1.65 mm	2.0 mm x 1.5 mm	1.65 mm
Incision Size (wound in)	2.4 mm	2.2 mm	2.4 mm	2.2 mm

LENS DESIGN COMPARISON







SAMPLE CHARACTERISTICS

- n = 1000 eyes of 500 patients

- 62% women, 38% men
- Age: 60.4 ± 6.0 (52 to 74)
- Corneal astigmatism < 1.25 D

- Mean follow-up: 3.4 months (range 1 to 14 months)

REFRACTIVE RESULTS

	Refractive result (D)				
	Sphere	**Cylinder**	**M**	**J0**	**J45**
Average	0.05	-0.19	-0.04	-0.04	0.02
S.D.	0.27	0.24	0.26	0.11	0.09

IOLMaster

- SRK/T and Barret U-II if AXL>22.00 mm
- Holladay II if AXL<22.00mm

SimK

Pentacam (Maeda[1] criteria)

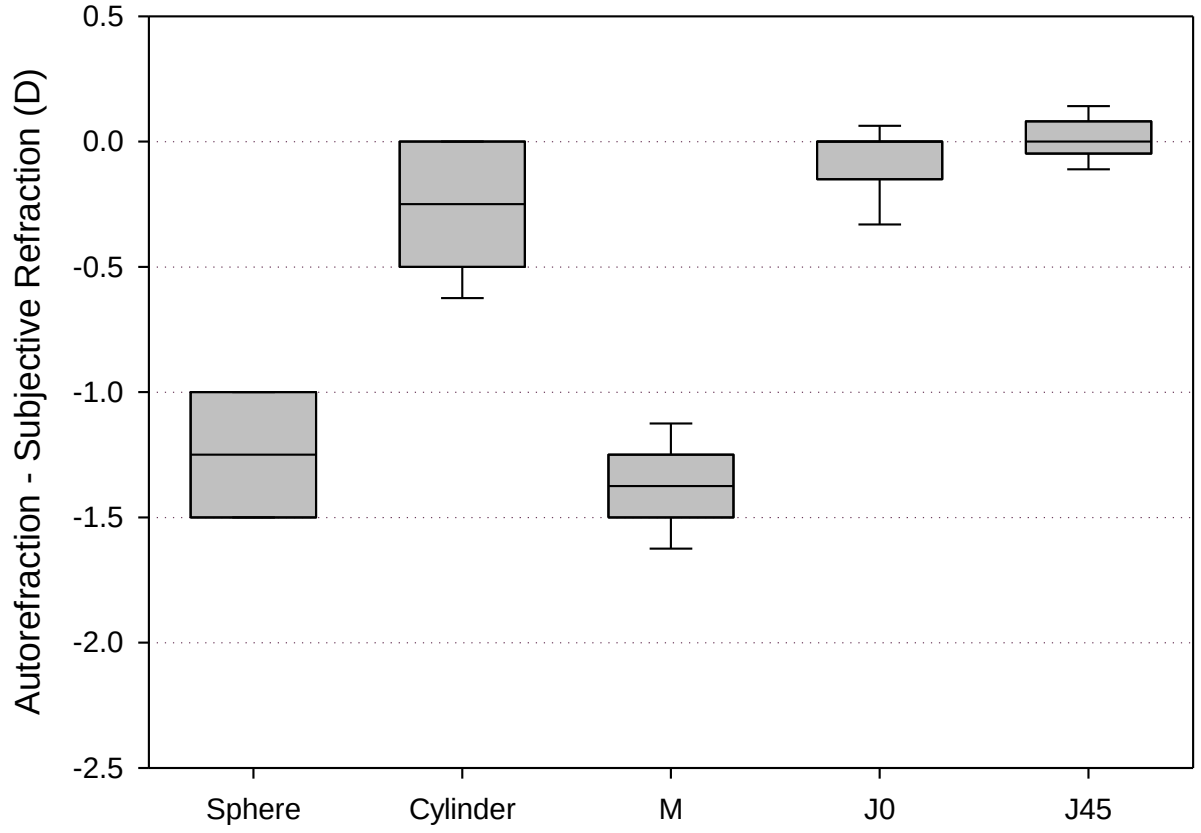
Macular OCT

1-Maeda N. Assessment of corneal optical quality for premium IOLs with Pentacam. Highlights of Ophthalmology, 2011-Vol 39-4: 2-5.

POSTOP-AUTOREFRACTION

Add +1.50 D to AR_esf

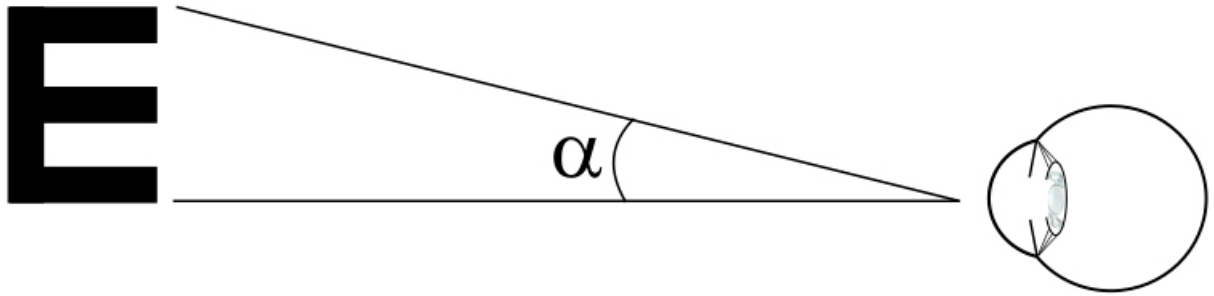
	Diference AR-Rx	
	Average	S.D.
Sphere	-1.26	0.26
Cylinder	-0.25	0.28
M	-1.38	0.22
J0	-0.08	0.15
J45	0.01	0.10



ICC > 0.7 in all cases

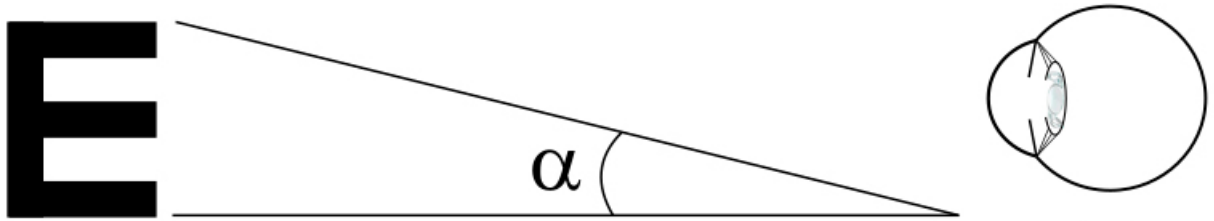
MONOCULAR VA RESULTS

		MONOCULAR VA			
		UCDVA	DCVA	DCIVA (67)	DCNVA (40)
LogMAR	Average	-0.02	-0.05	0.06	0.09
	S.D.	0.04	0.03	0.06	0.07
Decimal	Average	1.05	1.13	0.87	0.81
	S.D.	0.43	0.30	0.65	0.68



BINOCULAR VA RESULTS

		BINOCULAR VA		
		UCVA	UCIVA	UCNVA
LogMAR	Average	-0.07	0.01	0.04
	S.D.	0.04	0.05	0.04
Decimal	Average	1.18	0.98	0.92
	S.D.	0.39	0.51	0.37



DEFOCUS CURVE MEASUREMENT

Qvision Multifocal Lens Analyzer, for measuring Defocus Curves

Ver más de este desarrollador

Por Manuel Rodriguez Vallejo

Abre iTunes para comprar y descargar Apps.

Ver en iTunes

Gratis

Categoría: Medicina
Actualizado : 17/02/2016
Versión: 1.0.1
Tamaño: 26.1 MB
Idiomas: Español, Alemán, Checo, Chino simplificado, Chino tradicional, Coreano, Francés, Inglés, Italiano, Japonés, Neerlandés, Polaco, Portugués, Ruso, Sueco, Turco
Vendedor: Manuel Rodriguez Vallejo
© Manuel Rodríguez Vallejo
Clasificación 4+

Compatibilidad: Requiere iOS 5.1.1 o posterior. Compatible con iPad.

Valoraciones de clientes

No hemos recibido suficientes valoraciones para poder mostrar un promedio de la versión actual de este artículo.

Descripción

Esta aplicación ha sido desarrollada para medir Curvas de Desenfoque basadas en Agudeza Visual o Sensibilidad al Contraste. La aplicación tiene dos botones principales:
1.- (Botón Izquierdo) Para medir Curvas de Desenfoque de Agudeza Visual

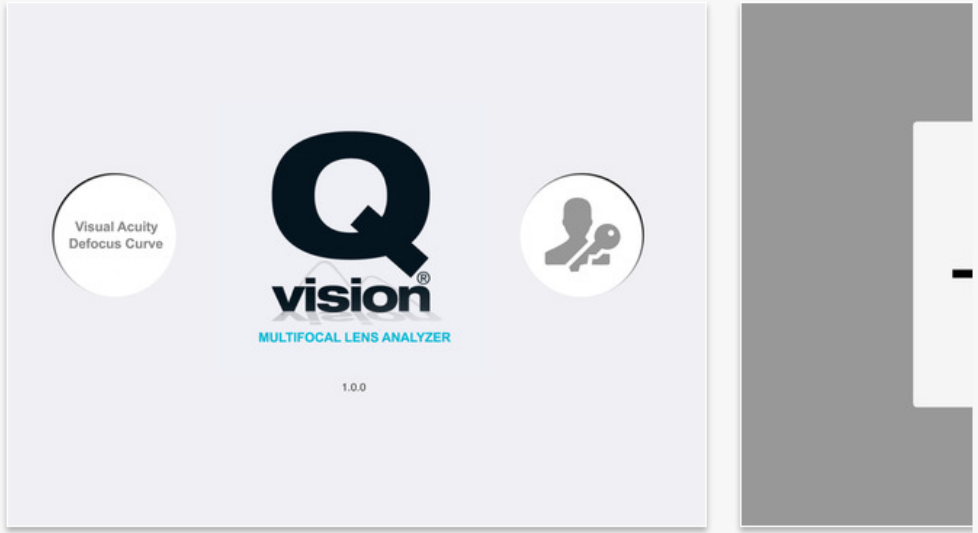
Sitio web de Manuel Rodriguez Vallejo ▸ Soporte técnico para Qvision Multifocal Lens Analyzer, for measuring Defocus Curves ▸ ...Más

Novedades de la versión 1.0.1

1.- Figura de Curva de Desenfoque de Agudeza Visual corregida. La versión anterior mostraba de manera incorrecta el rango de lentes de -5 a 0 D mientras que esta versión muestra el rango correcto de -4.00 D a +1.00 D.
2.- Se han incluido las etiquetas del eje de ordenadas y abcisas en la Figura de resultados.

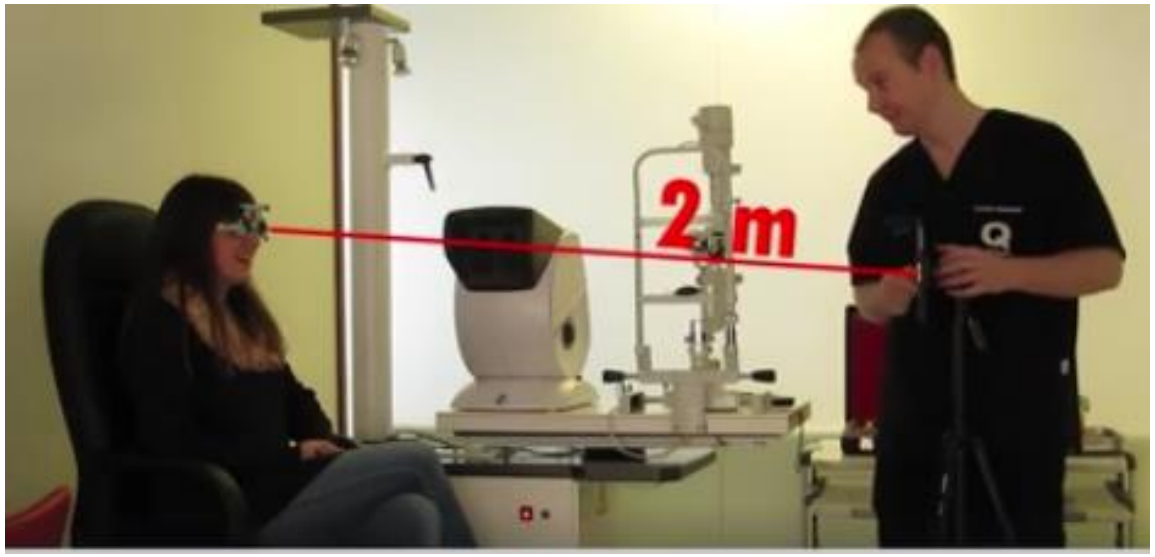
...Más

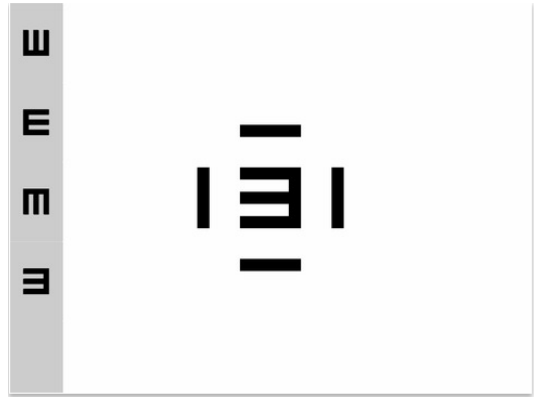
Capturas de pantalla del iPad



DEFOCUS CURVE MEASUREMENT

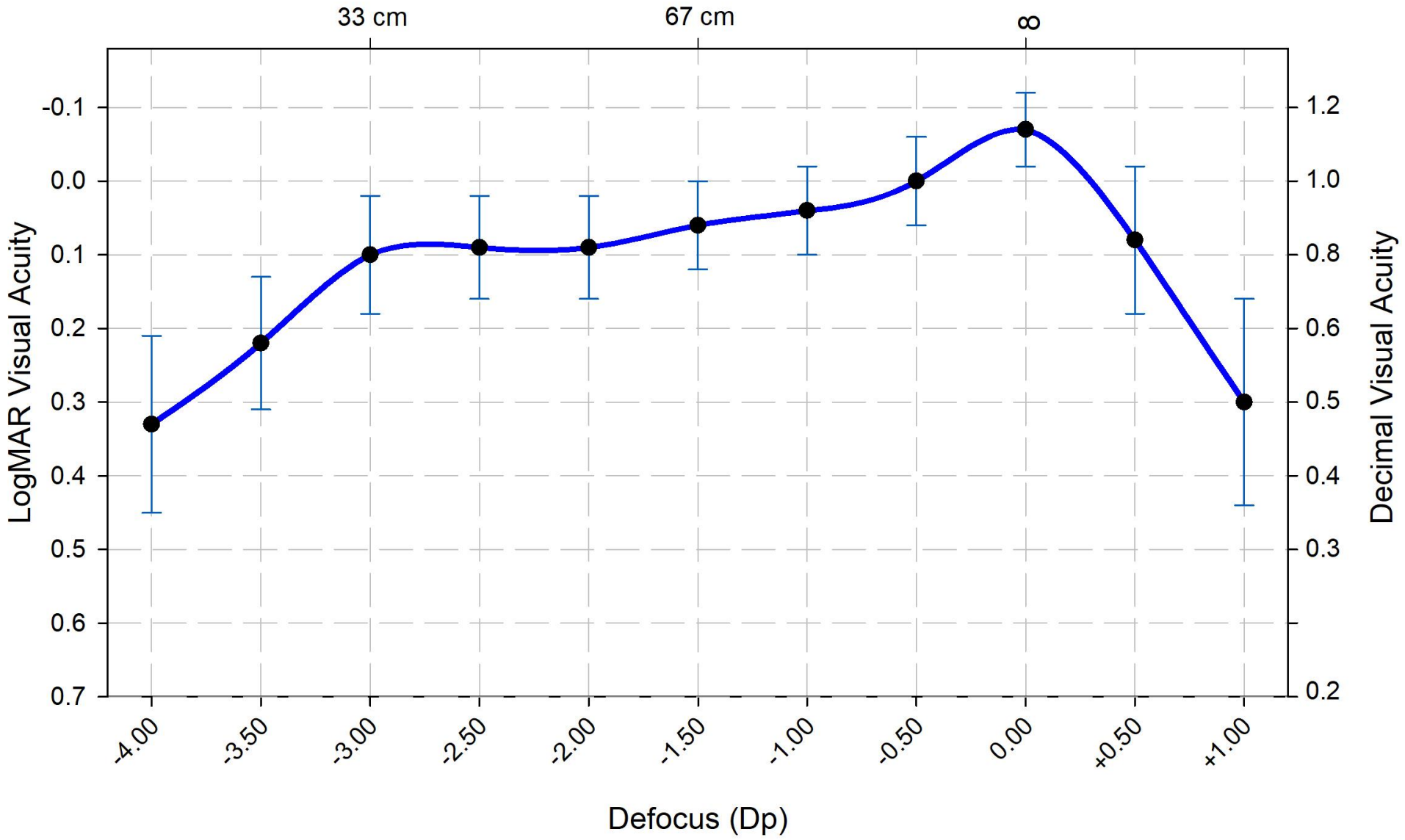
- Ipad at 2 meters (with tripod)
- Colimator lens +0.50 D (test in ∞)
- Tumbling E test, randomized automatic presentation
- Double blind procedure



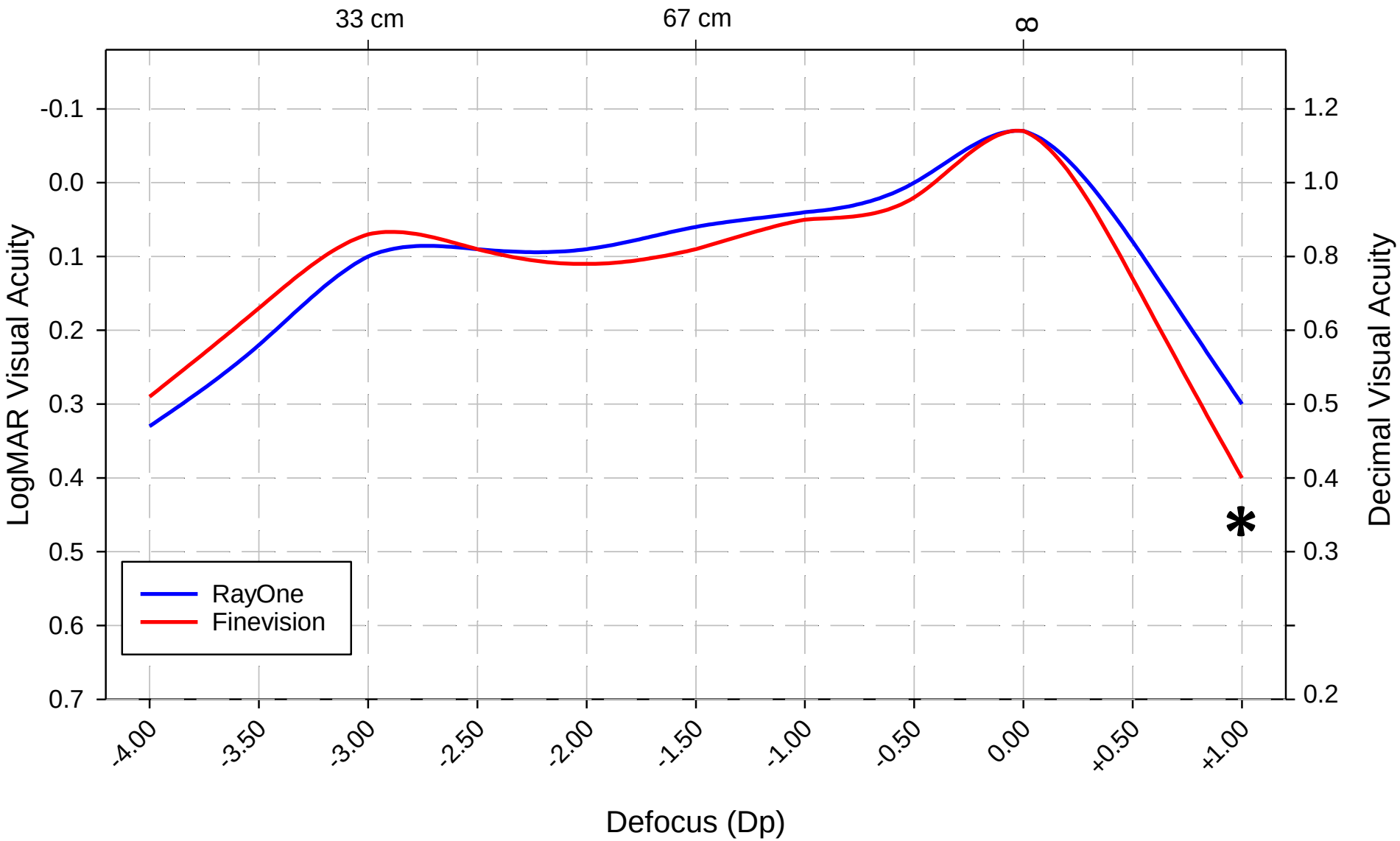


Fernández J, Rodríguez-Vallejo M, Tauste Francés A, Albarrán C, Basterra I, Piñero DP. Fast Measure of Visual Acuity and Contrast Sensitivity Defocus Curves with an iPad Application. *The Open Ophthalmology Journal.* 2019;13:15-22

MONOCULAR DEFOCUS CURVE

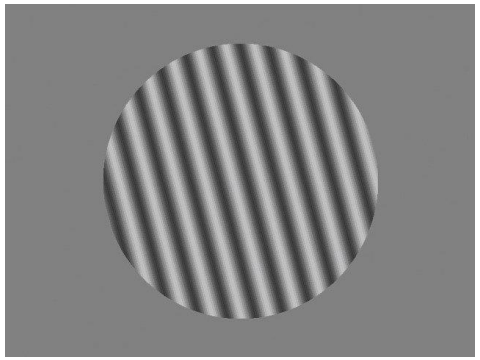


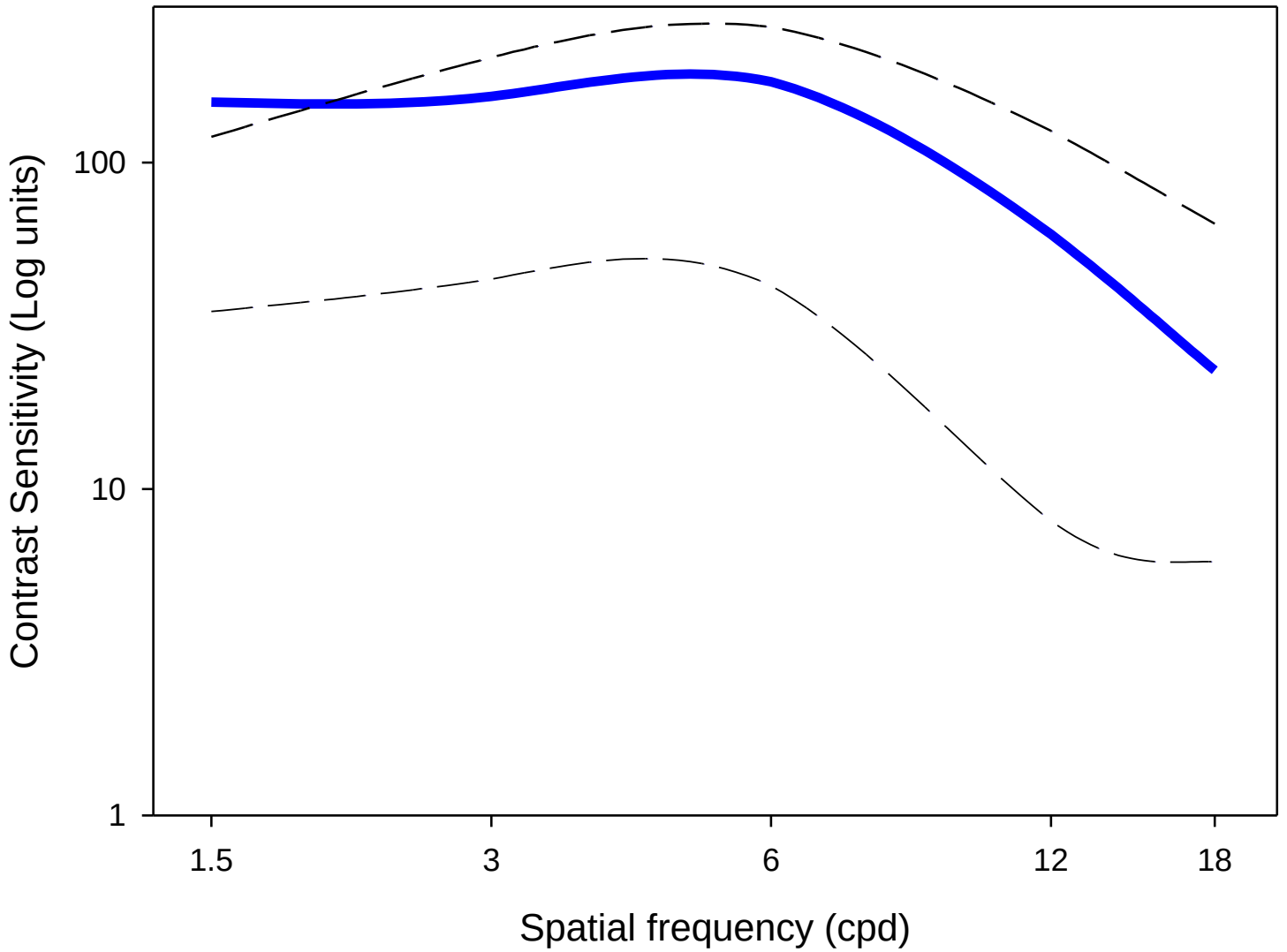
DEFOCUS CURVE COMPARISON



DISTANCE CSF

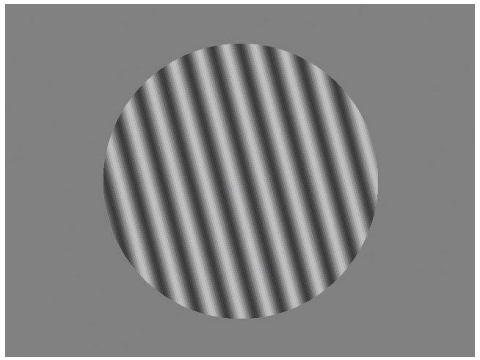
(Topcon CSV-100 test)

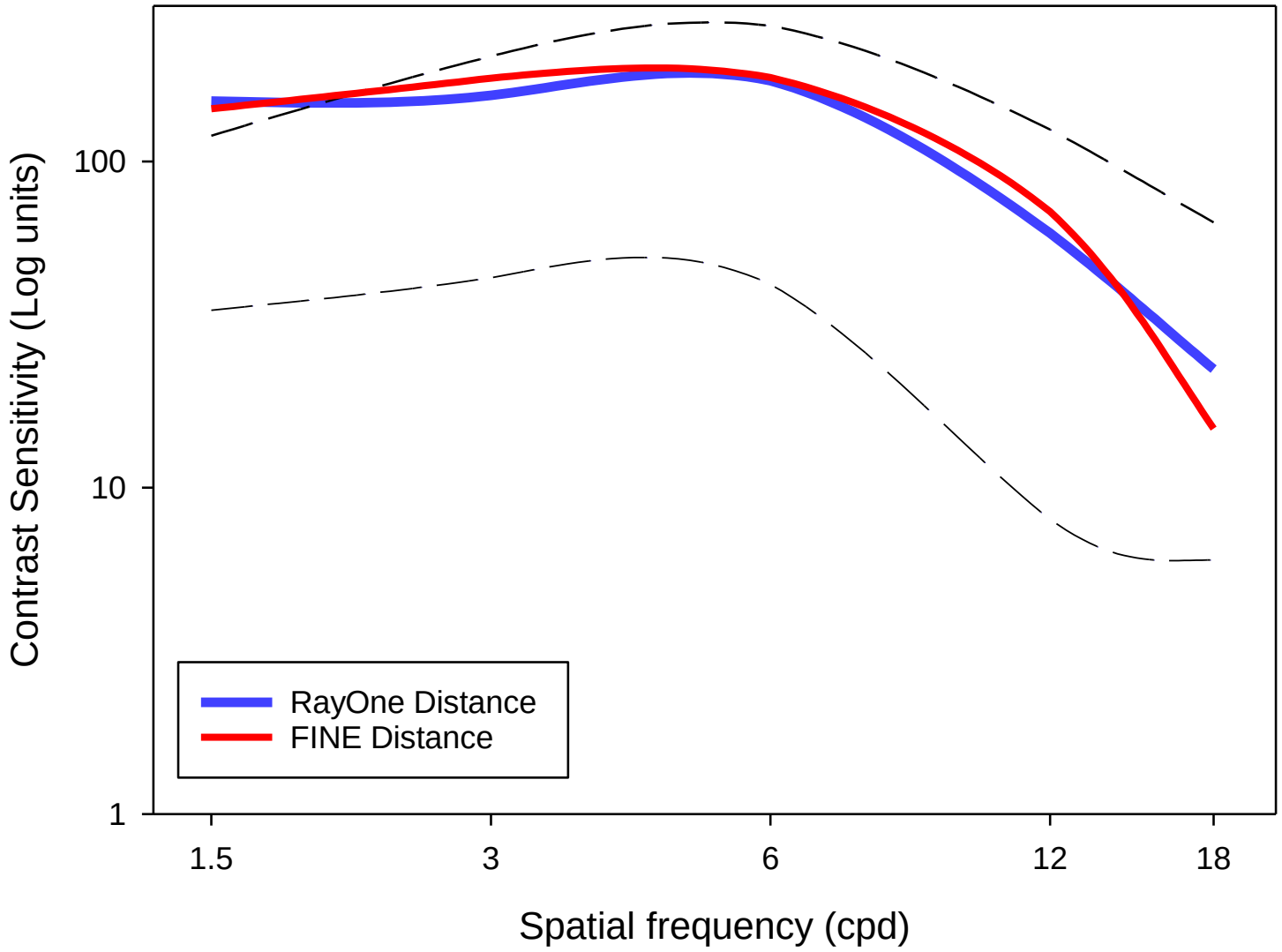




DISTANCE CSF COMPARISON

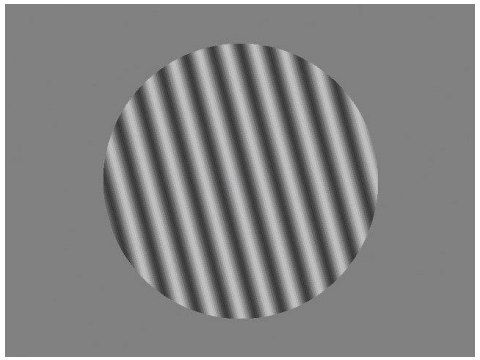
(Topcon CSV-100 test)

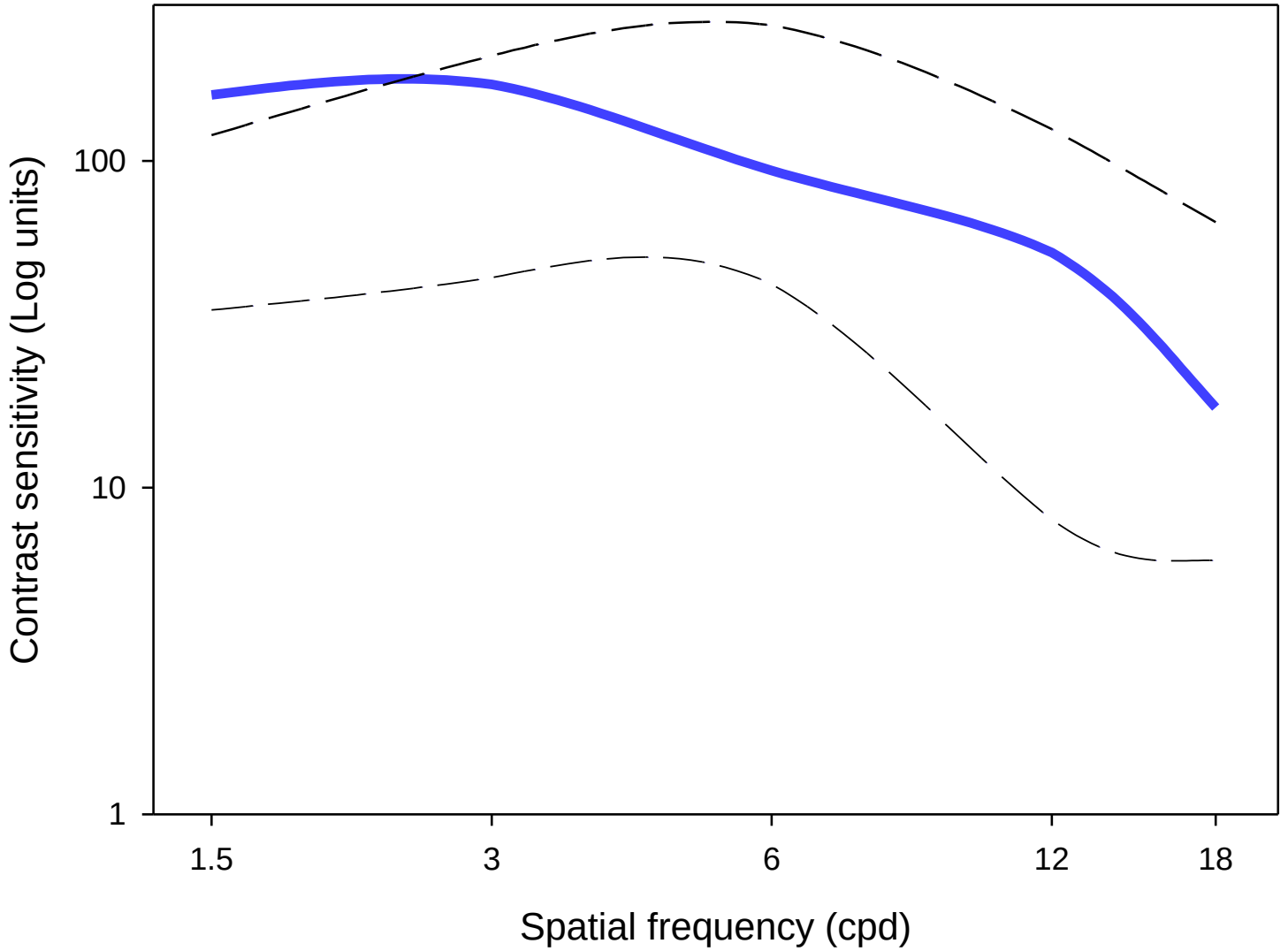




INTERMEDIATE CSF

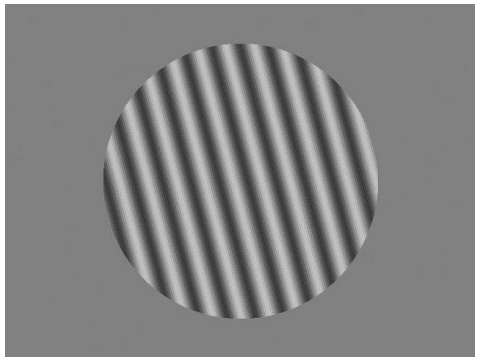
(Topcon CSV-100 test)

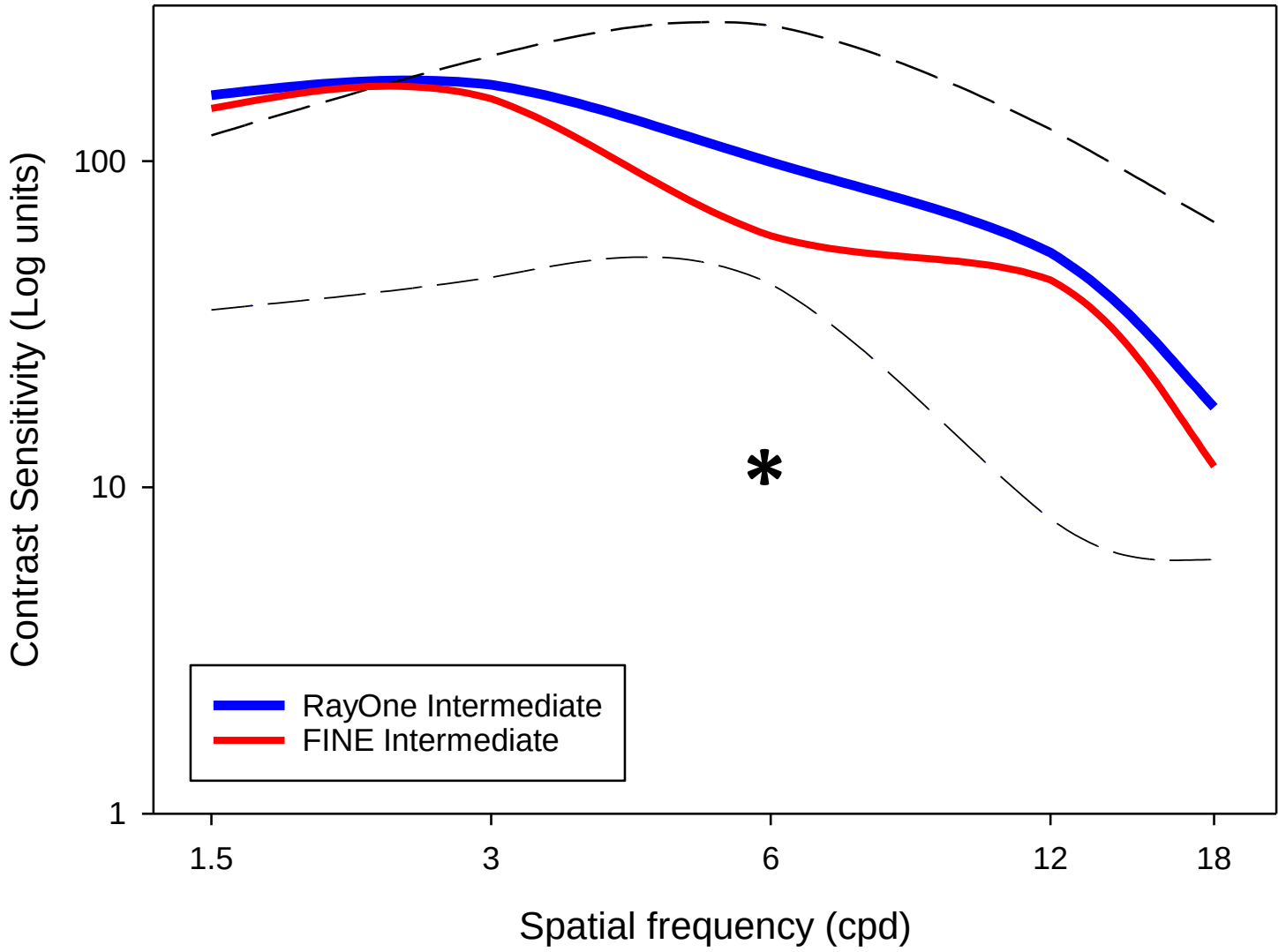




INTERMEDIATE CSF COMPARISON

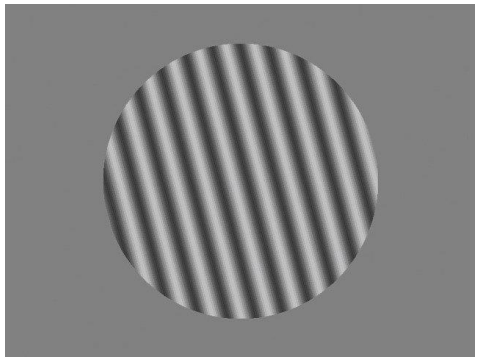
(Topcon CSV-100 test)

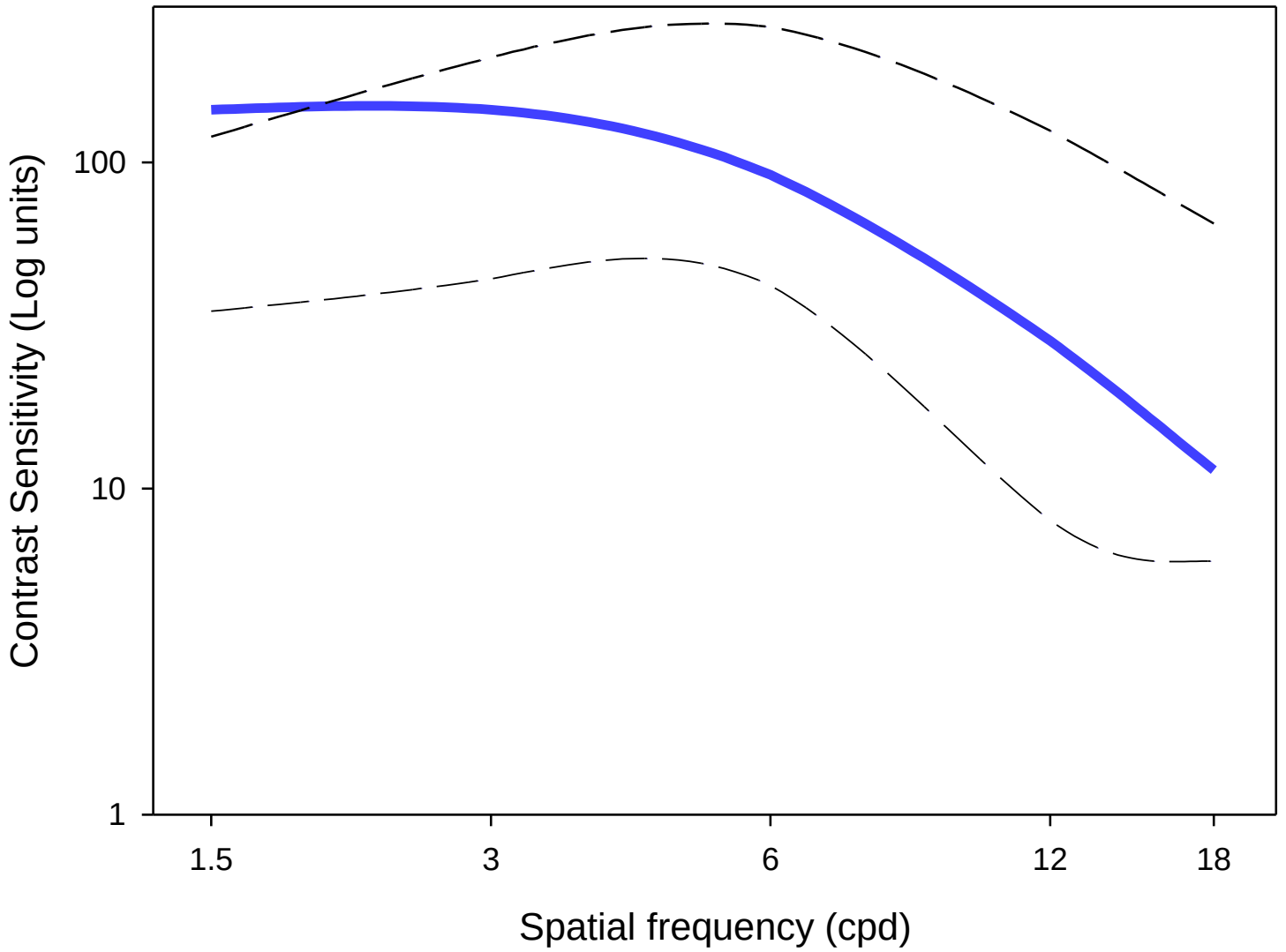




NEAR CSF

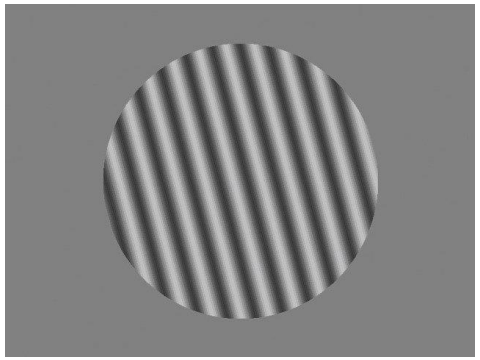
(Topcon CSV-100 test)

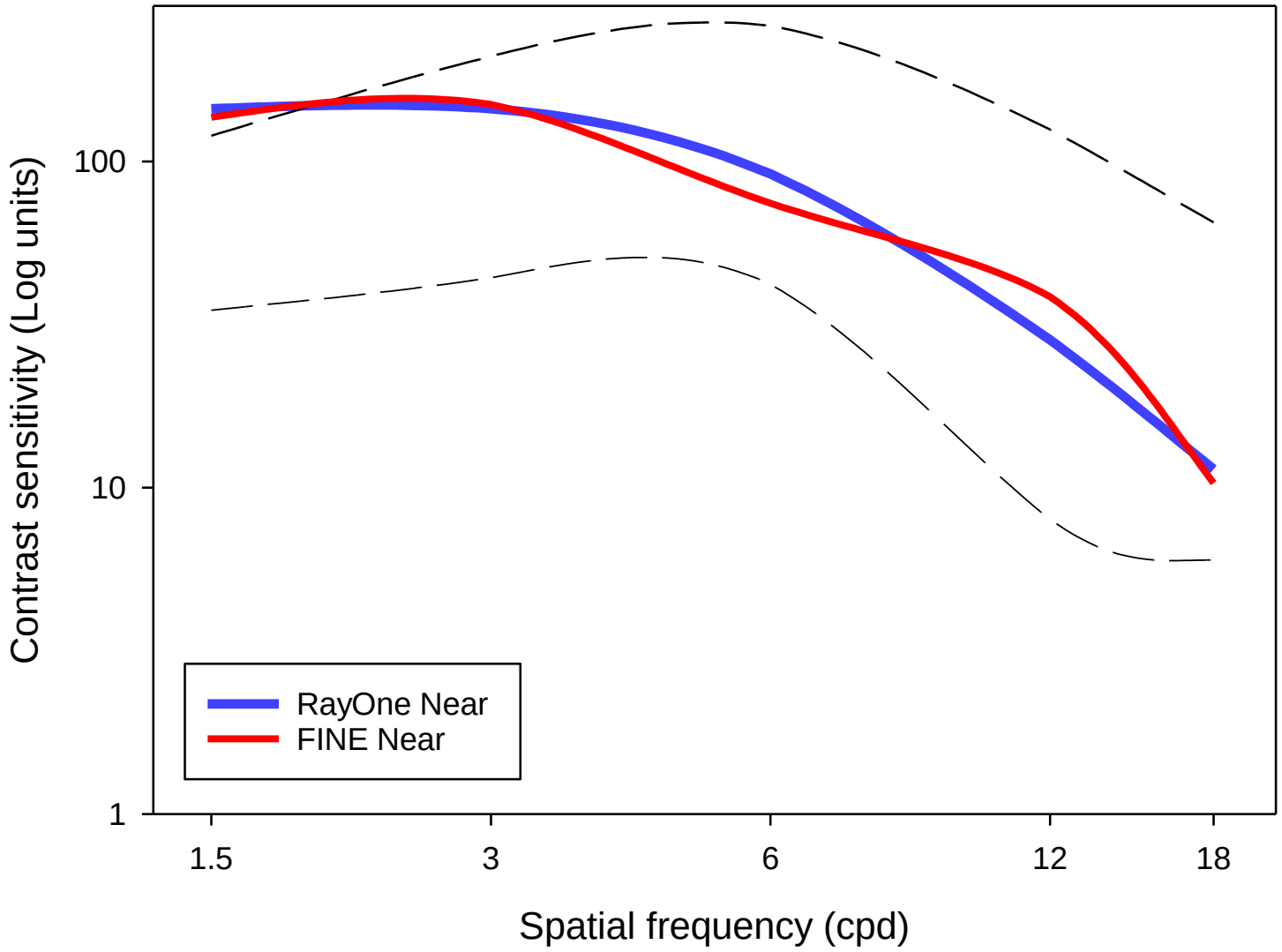




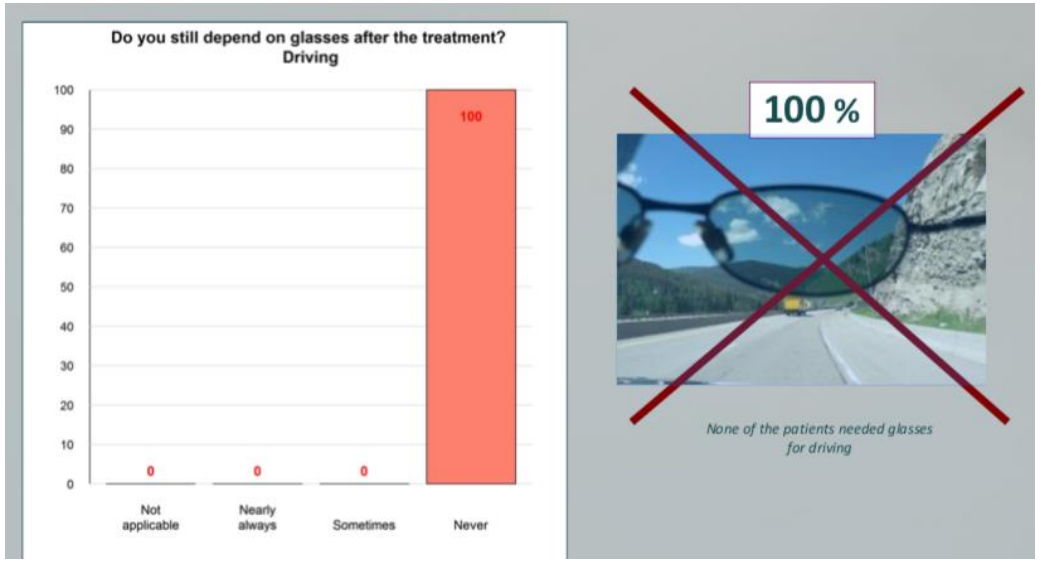
NEAR CSF COMPARISON

(Topcon CSV-100 test)

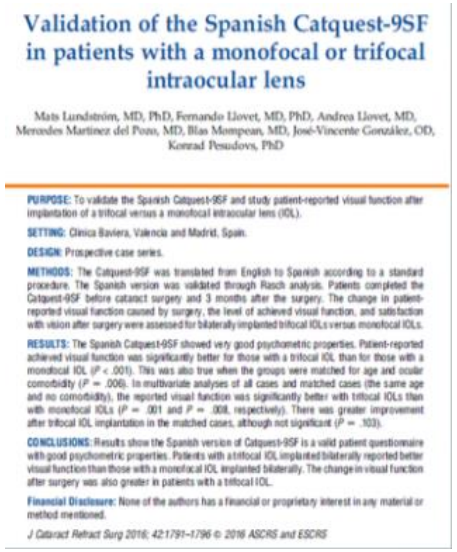




SATISFACTION



n = 132 patients
At 6 months FU



Validation of the Spanish Catquest-9SF in patients with a monofocal or trifocal intraocular lens

Mats Lundström, MD, PhD, Fernando Llovet, MD, PhD, Andrea Llovet, MD, Mercedes Martínez del Pozo, MD, Blas Mompean, MD, José-Vincente González, OD, Konrad Pesudovs, PhD

PURPOSE: To validate the Spanish Catquest-9SF and study patient-reported visual function after implantation of a trifocal versus a monofocal intraocular lens (IOL).

SETTING: Clínica Baviera, Valencia and Madrid, Spain.

DESIGN: Prospective case series.

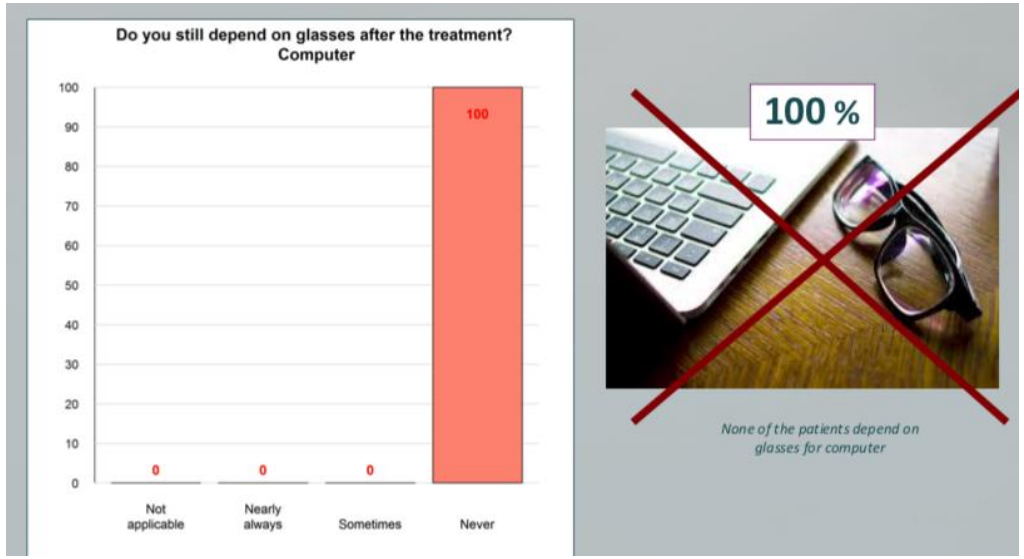
METHODS: The Catquest-9SF was translated from English to Spanish according to a standard procedure. The Spanish version was validated through Rasch analysis. Patients completed the Catquest-9SF before cataract surgery and 3 months after the surgery. The change in patient-reported visual function caused by surgery, the level of achieved visual function, and satisfaction with vision after surgery were assessed for bilaterally implanted trifocal IOLs versus monofocal IOLs.

RESULTS: The Spanish Catquest-9SF showed very good psychometric properties. Patient-reported achieved visual function was significantly better for those with a trifocal IOL than for those with a monofocal IOL ($P < .001$). This was also true when the groups were matched for age and ocular comorbidity ($P = .006$). In multivariate analyses of all cases and matched cases (the same age and no comorbidity), the reported visual function was significantly better with trifocal IOLs than with monofocal IOLs ($P = .001$ and $P = .008$, respectively). There was greater improvement after trifocal IOL implantation in the matched cases, although not significant ($P = .103$).

CONCLUSIONS: Results show the Spanish version of Catquest-9SF is a valid patient questionnaire with good psychometric properties. Patients with a trifocal IOL implanted bilaterally reported better visual function than those with a monofocal IOL implanted bilaterally. The change in visual function after surgery was also greater in patients with a trifocal IOL.

Financial Disclosure: None of the authors has a financial or proprietary interest in any material or method mentioned.

J Cataract Refract Surg 2016; 42:1791–1796 © 2016 ASCRS and ESCRS



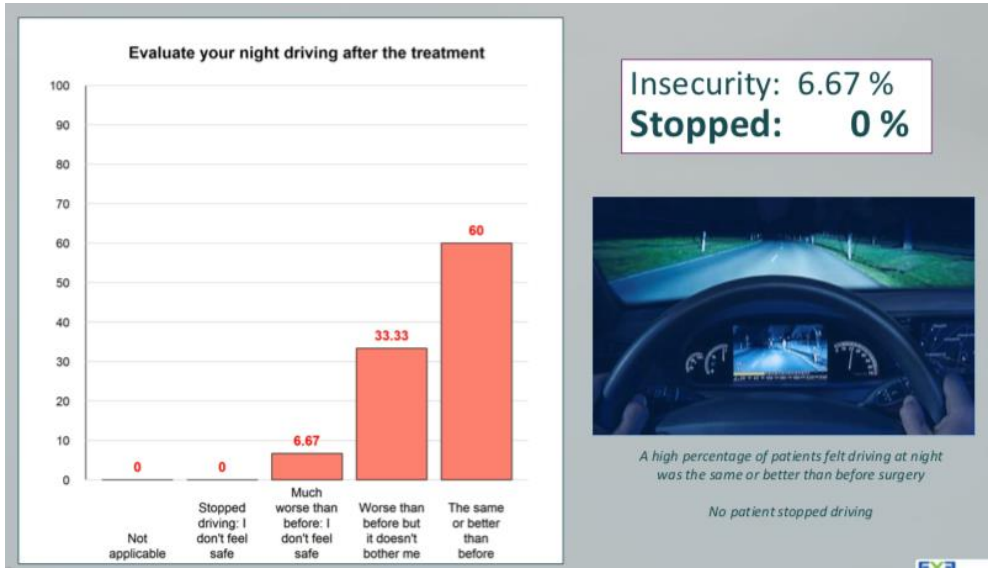
SATISFACTION

Very good: **73.33** %
Good: **26.67** %

All the pacients reported reading well or very well

Very good: **66.67** %
Good: **33.33** %

Very good: **73.33** %
Good: **26.67** %

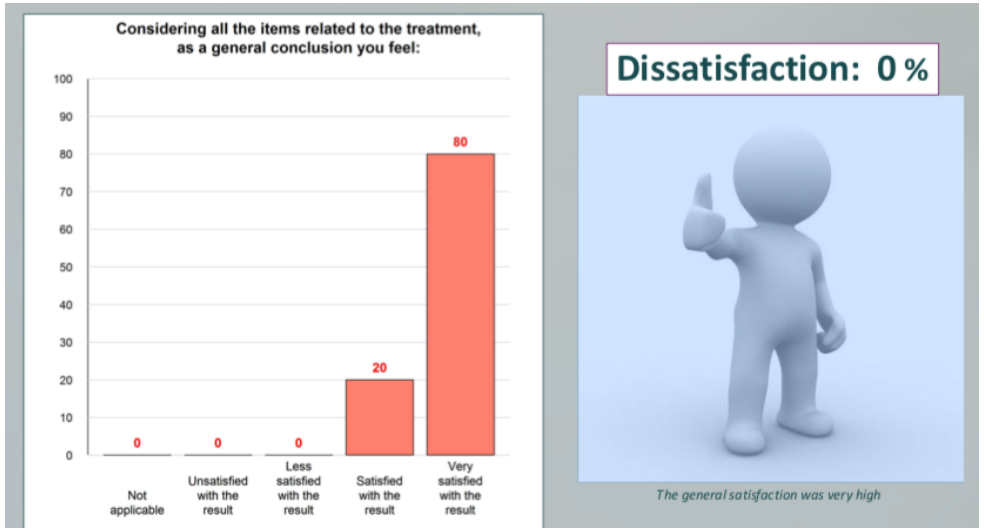


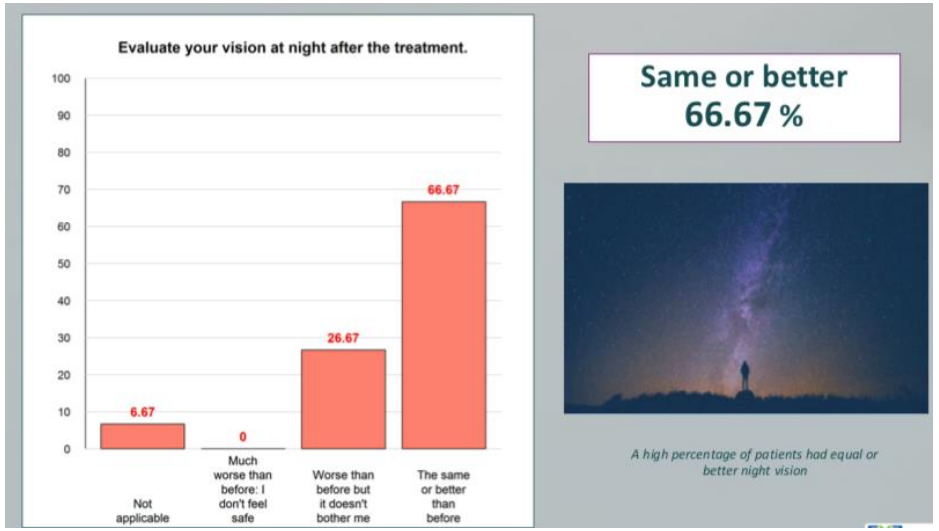
Insecurity: 6.67 %
Stopped: 0 %

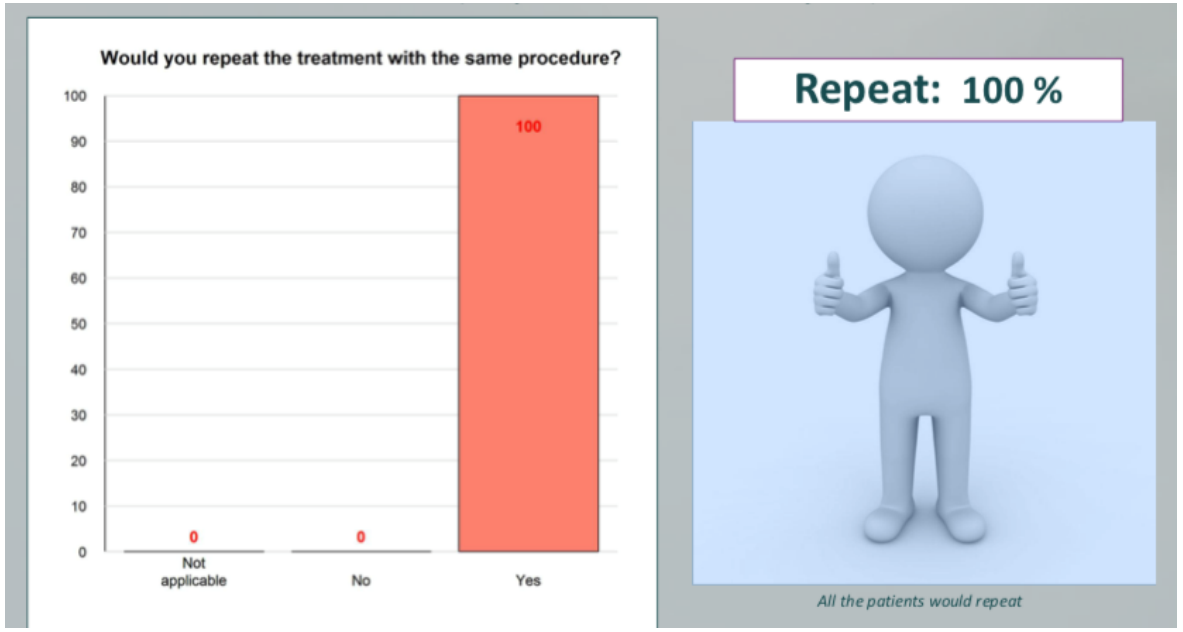
A high percentage of patients felt driving at night was the same or better than before surgery

No patient stopped driving

SATISFACTION







CONCLUSIONS

1. Excelent VA at all distancies > 0.8 decimal
2. Good contrast sensitivity at all distancies, specially in medium spatial frequencies
3. Spectacle independency and high satisfaction
4. Non-invalidating night dysphotopsia

Prospective Comparison of Clinical Performance and Subjective Outcomes Between Two Diffractive Trifocal Intraocular Lenses in Bilateral Cataract Surgery

Tiago B. Ferreira, MD, FEBOS-CR; Filomena J. Ribeiro, MD, PhD, FEBO

ABSTRACT

PURPOSE: To compare clinical outcomes and subjective experience after bilateral implantation of two non-toric diffractive trifocal intraocular lenses (IOLs).

METHODS: In a prospective, comparative case series, patients were randomly allocated to receive bilateral implantation of either the preloaded RayOne Trifocal (Rayner, Worthing, UK) or the FineVision POD F (PhysIOL, Liège, Belgium). At the 3-month follow-up, the main outcomes were monocular and binocular uncorrected and corrected distance (UDVA, CDVA), intermediate at 80 cm (UIVA, DCIVA), and near at 40 cm (UNVA, DCNVA) visual acuities, refractive outcomes, and defocus curves. Patients' satisfaction in terms of visual disturbance was also evaluated.

RESULTS: Each group comprised 30 eyes (15 patients). The mean monocular UDVA was 0.03 ± 0.11 (RayOne Trifocal) and 0.04 ± 0.08 (FineVision POD F) logMAR (P = .605); DCIVA was 0.05 ± 0.13 and 0.05 ± 0.10 logMAR, respectively (P > .999); and DCNVA was 0.02 ± 0.12 and 0.03 ± 0.11 logMAR (P = .742). A better manifest spherical equivalent was found in the RayOne Trifocal than in the FineVision POD F group (P = .035) and depth perception issues were less severe with the RayOne Trifocal IOL (P = .042). There was no significant difference in other photic phenomena between groups.

CONCLUSIONS: Both IOLs provided good visual outcomes at all distances with no differences between the groups. Refractive accuracy was better for the RayOne Trifocal IOL. The results indicated that the new trifocal IOL may represent a safe and effective option for presbyopic patients.

[*J Refract Surg*. 2019;35(7):418-425.]

REGULATIONS IN FRANCE

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