

# PROSPECTIVE COMPARATIVE STUDY OF BILATERALLY IMPLANTED RAYONE TRIFOCAL VS FINEVISION POD F IN 60 EYES



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## Tiago Ferreira's Financial Disclosure 2018

My "Financial Interest" relevant to this presentation is highlighted in yellow below

J&J Vision – C, R

PhysIOL – R

Alcon – R

Ophtec – S

## Purpose

To compare the clinical outcomes of two diffractive trifocal IOLs

✓ RayOne trifocal (Rayner)



✓ FineVision POD F (PhysIOL)



## Methods

- ✓ Prospective comparative randomized interventional study
- ✓ Patients submitted to cataract surgery (corneal astigmatism <0.75 D)
- ✓ 2 groups (1:1 randomization)

30 eyes (15 patients) – RayOne Trifocal

30 eyes (15 patients) – FineVision POD F

Mean Age  $67.0 \pm 6.9$ , Median age 68 (55-79)

- ✓ 3 months follow-up

## Methods

- ✓ Comprehensive preoperative ophthalmologic examination
- ✓ Optical biometry (Lenstar LS900; Haag-Streit AG)

Hill-RBF formula for IOL power calculation

Refractive target – first negative value

- ✓ Surgery – phacoemulsification with clear cornea temporal incision (2.2 mm)

## Methods

### Main outcome measures

Monocular and binocular visual acuities – ETDRS charts under photopic conditions (85 candelas/m<sup>2</sup>)

- ✓ Uncorrected (UDVA) and corrected (CDVA) distance visual acuities
- ✓ Uncorrected (UIVA) and distance corrected (DCIVA) intermediate visual acuities at 70 cm
- ✓ Uncorrected (UNVA) and distance corrected (DCNVA) near visual acuities at 40 cm

## Methods

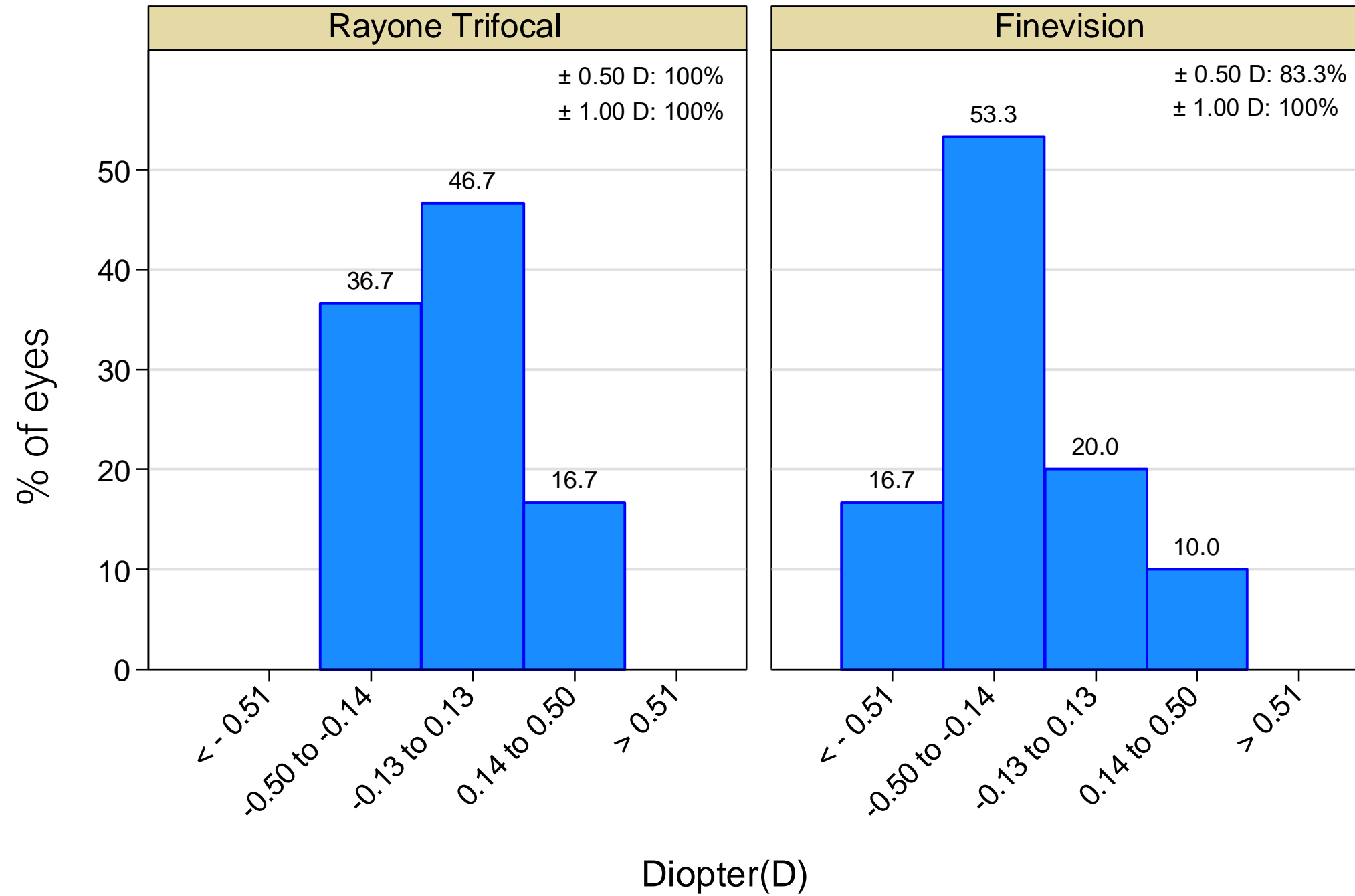
### Main outcome measures

- ✓ Manifest refraction
- ✓ Defocus curves
- ✓ Contrast sensitivity
- ✓ Presence of photic phenomena



## Results

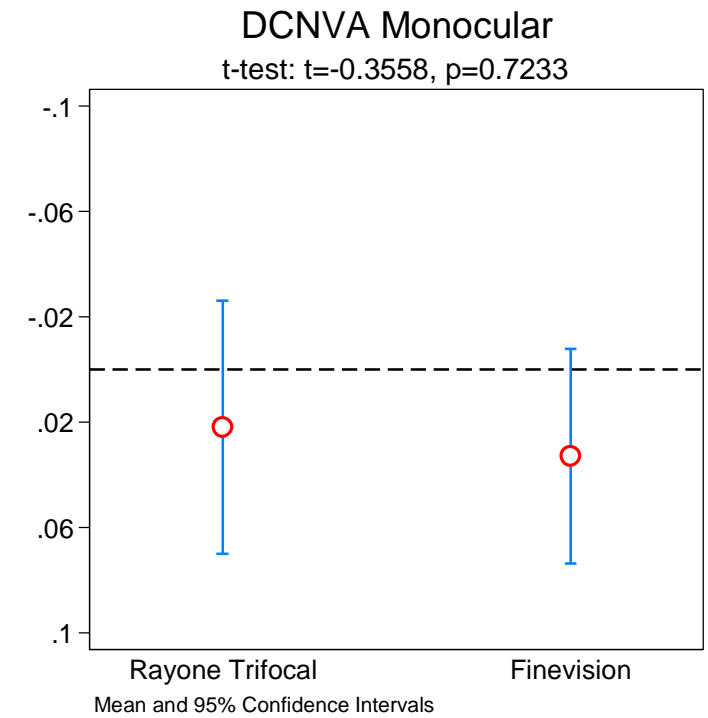
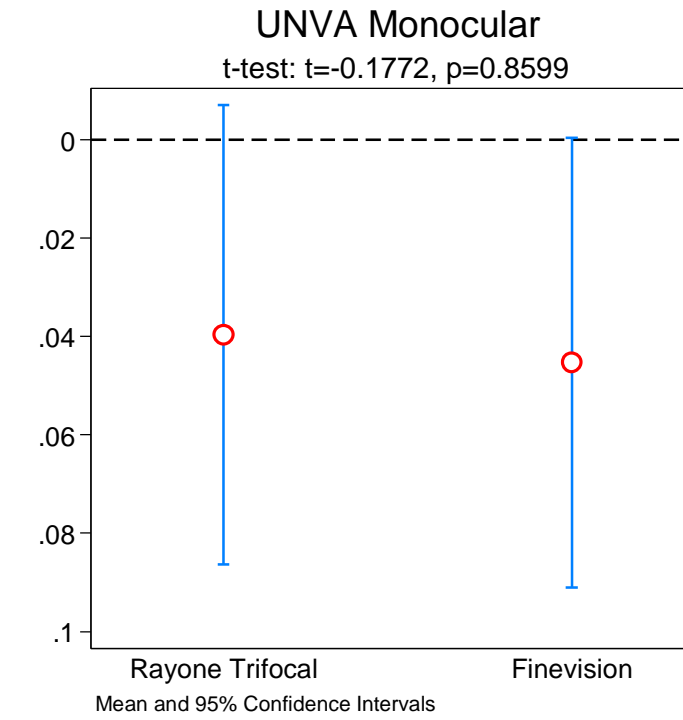
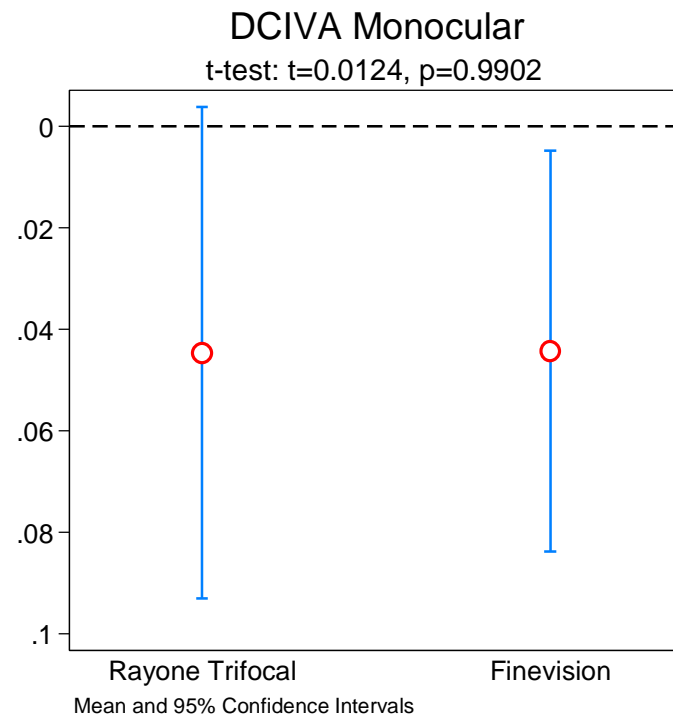
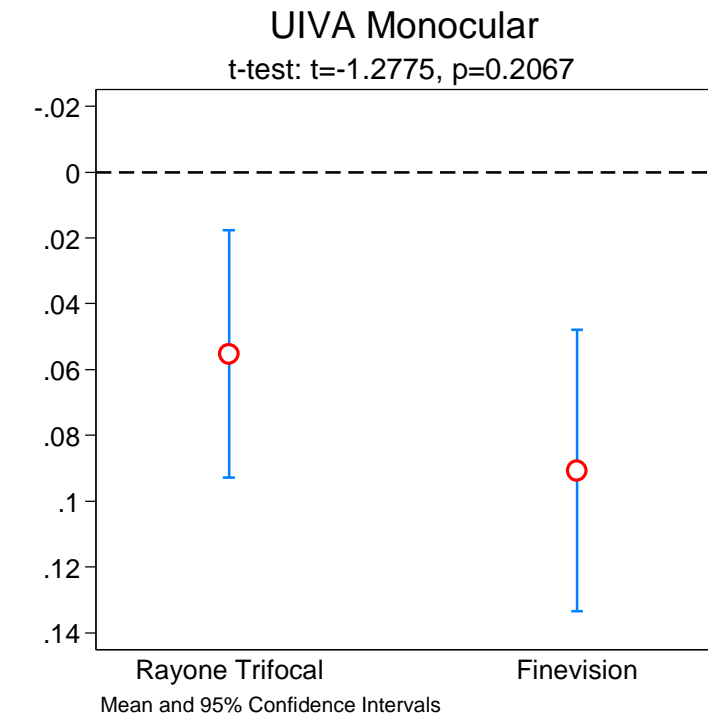
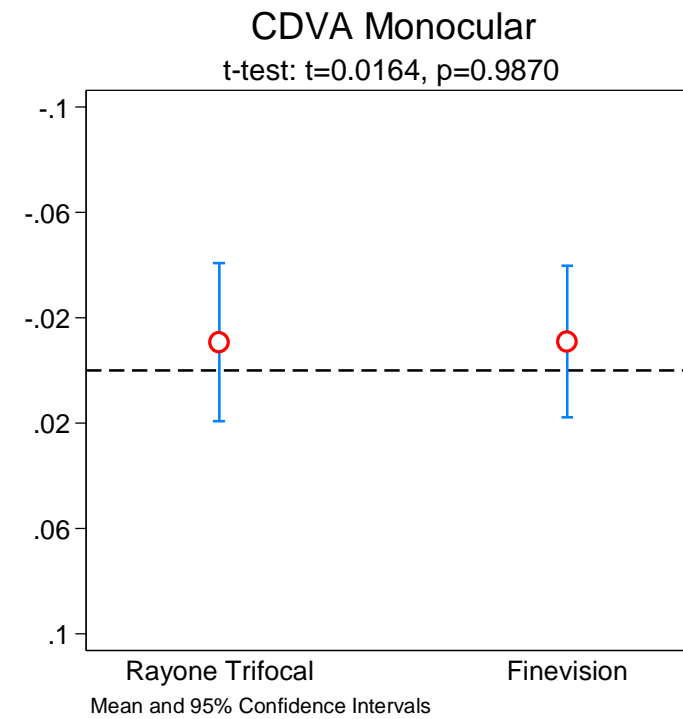
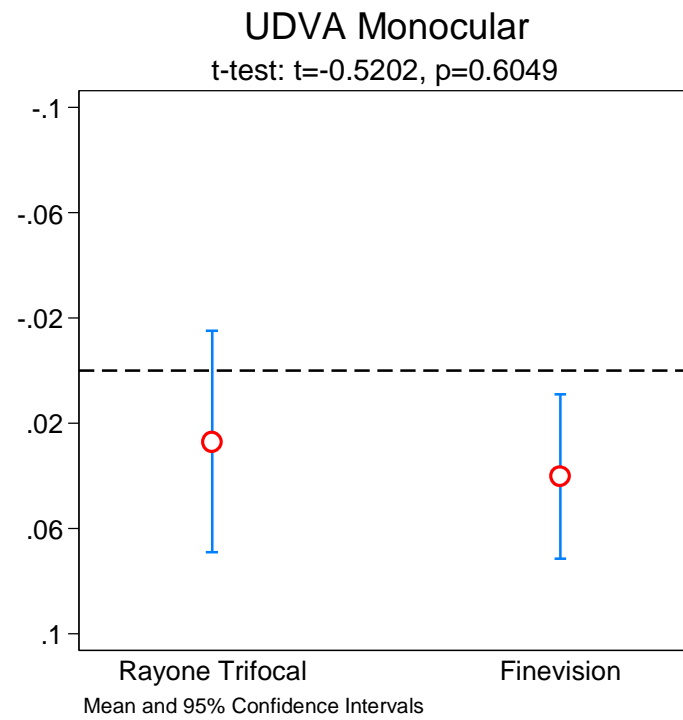
### Spherical Equivalent Refraction Accuracy





## Results

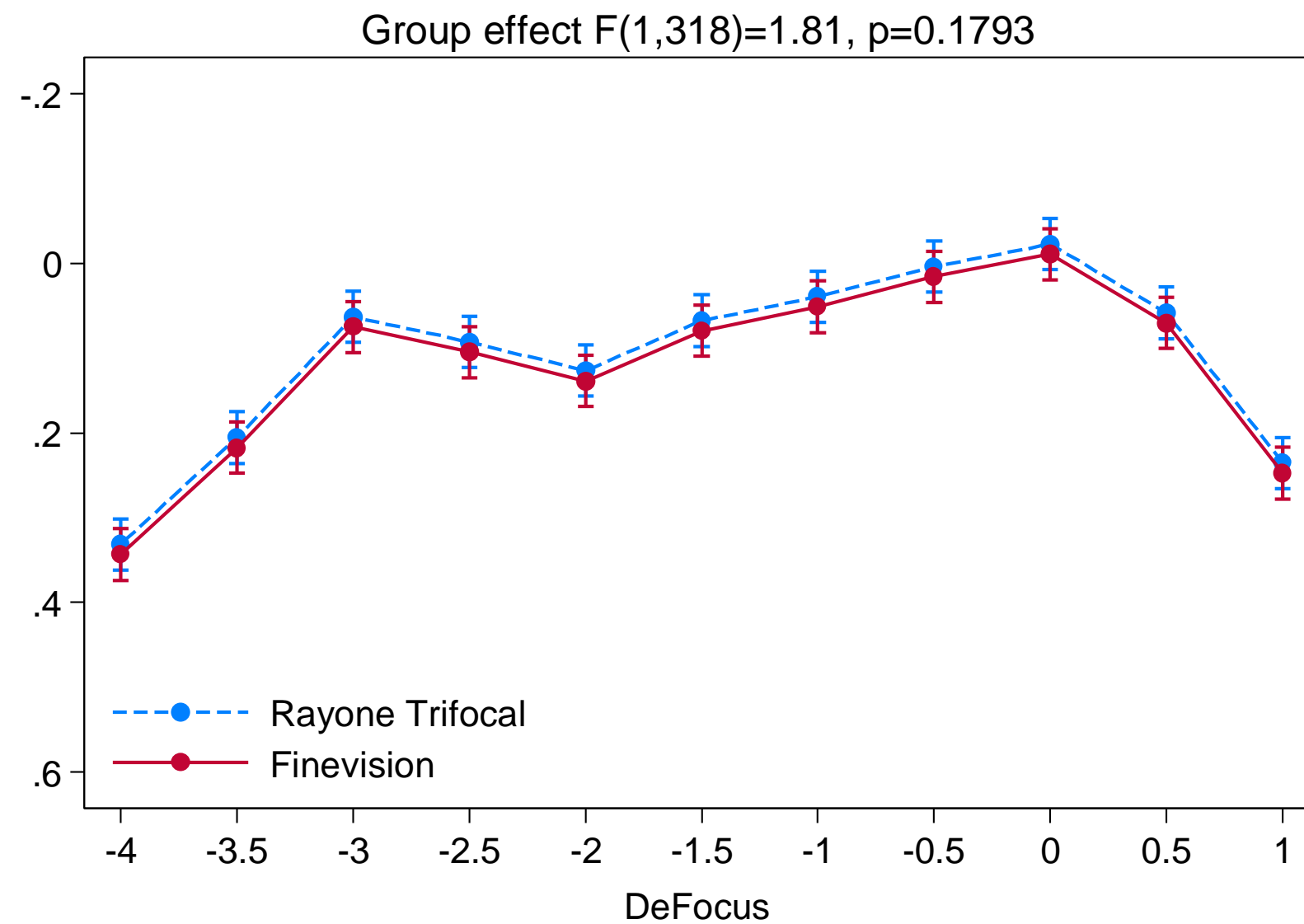
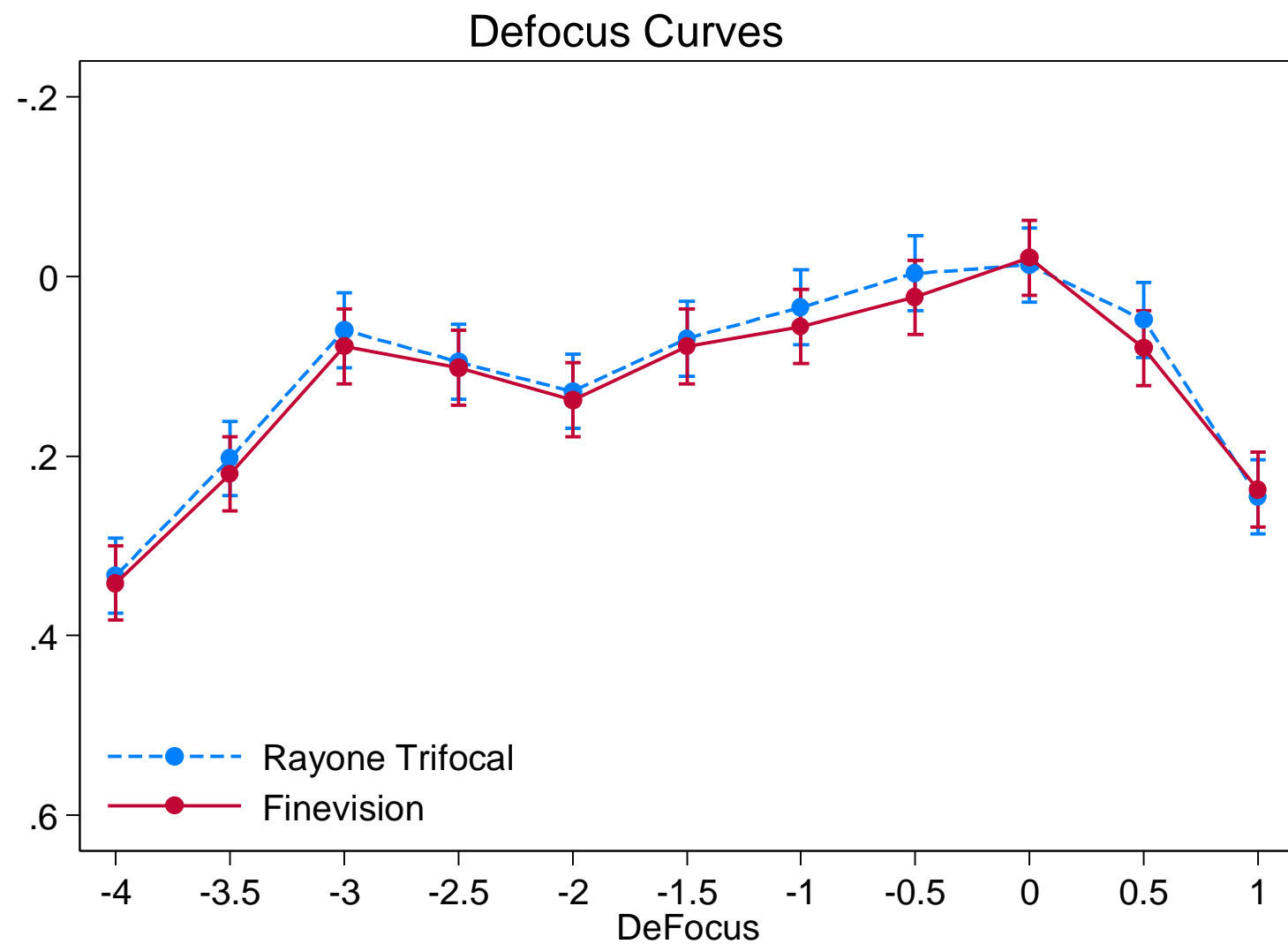
### Monocular visual acuities



# RAYONE TRIFOCAL VS FINEVISION

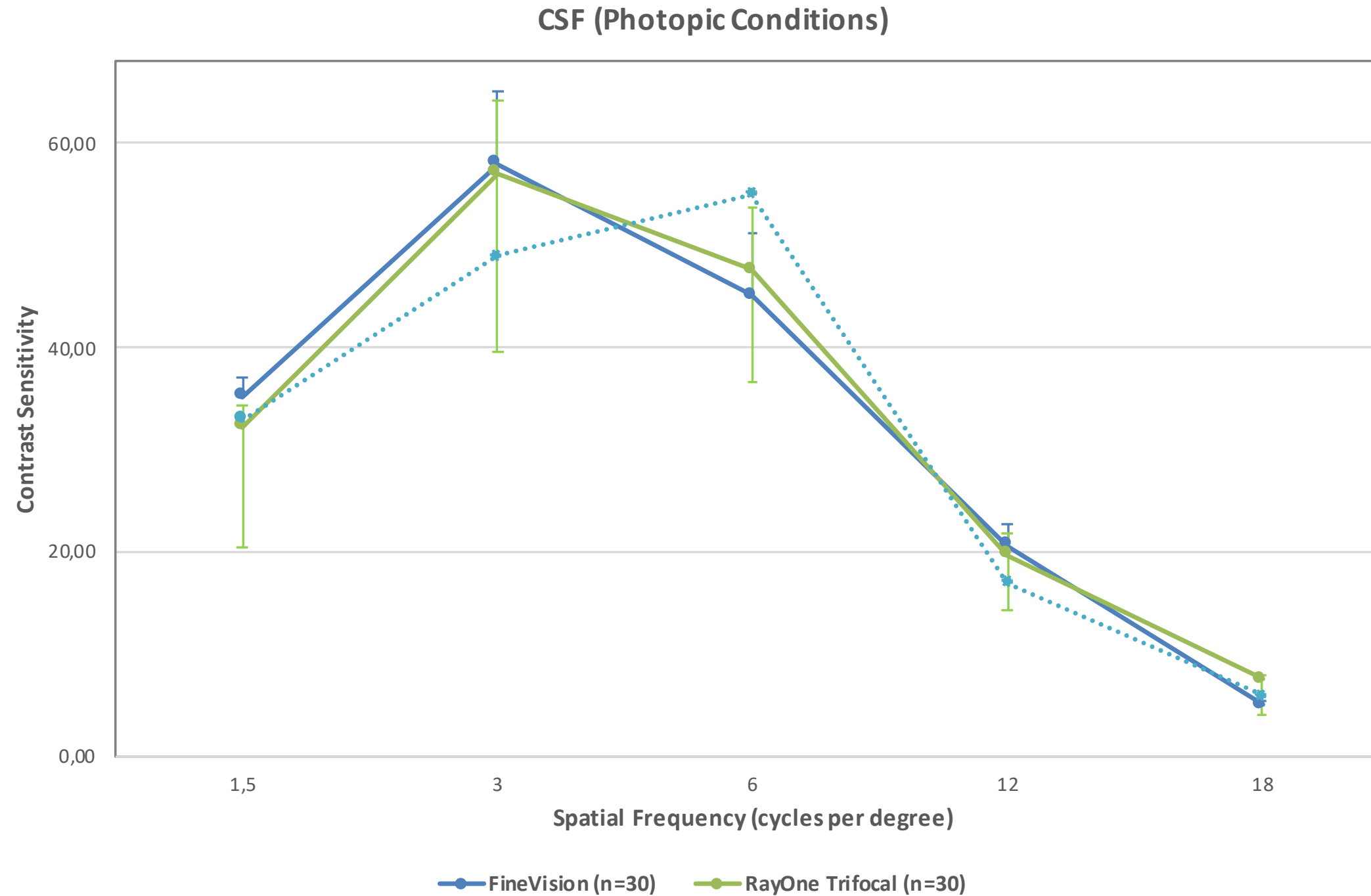
## Results

Monocular photopic (85.0 cd/m<sup>2</sup>) defocus curves



## Results

Photopic contrast sensitivity function (CSF) without glare – (Optec 6500, Stereo Optical, Inc.)  
luminance level: 85.0 cd/m<sup>2</sup>

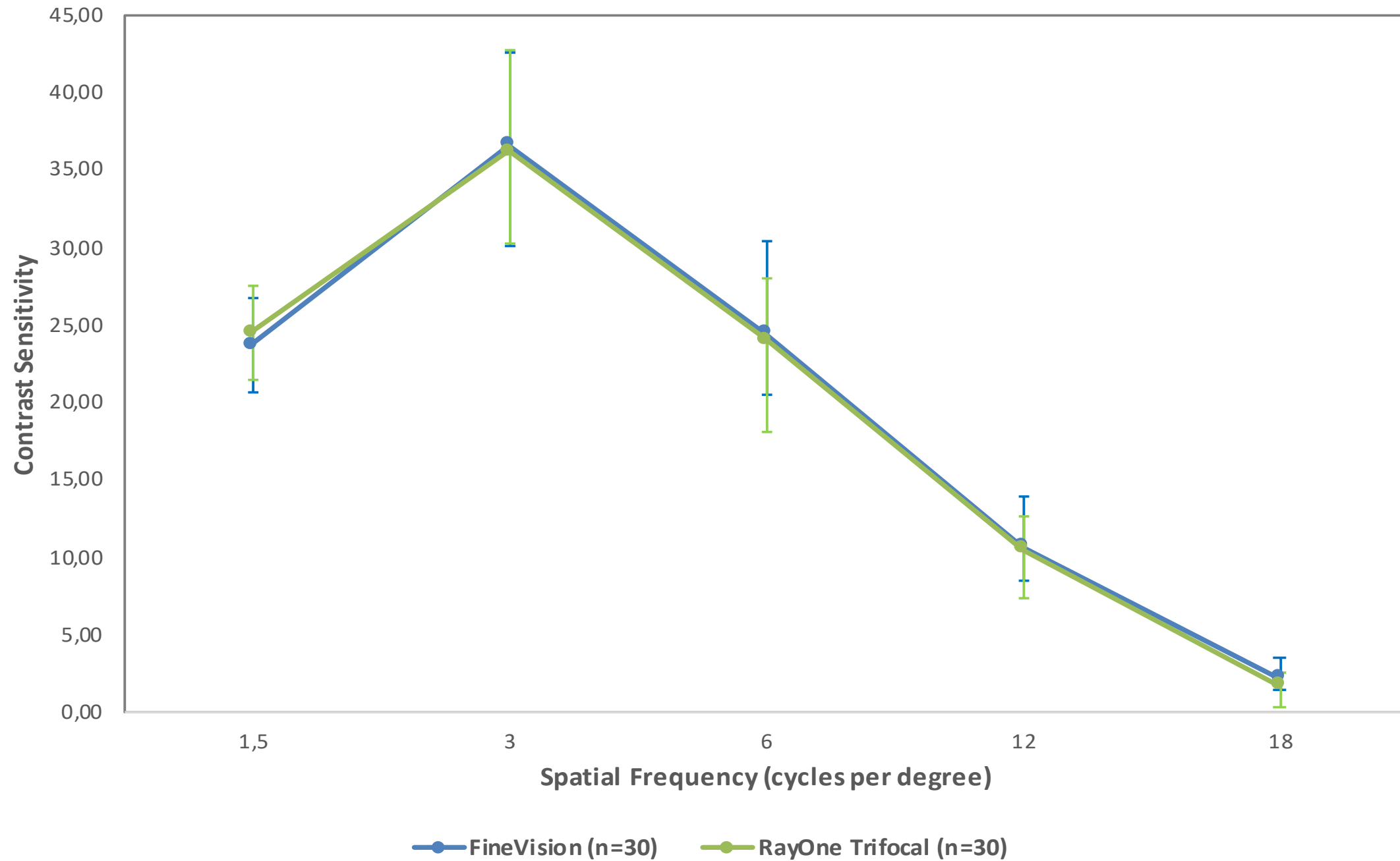


## Results

Mesopic CSF with glare – (Optec 6500, Stereo Optical, Inc.)

luminance level: 85.0 cd/m<sup>2</sup>

**CSF (Mesopic Conditions with Glare)**

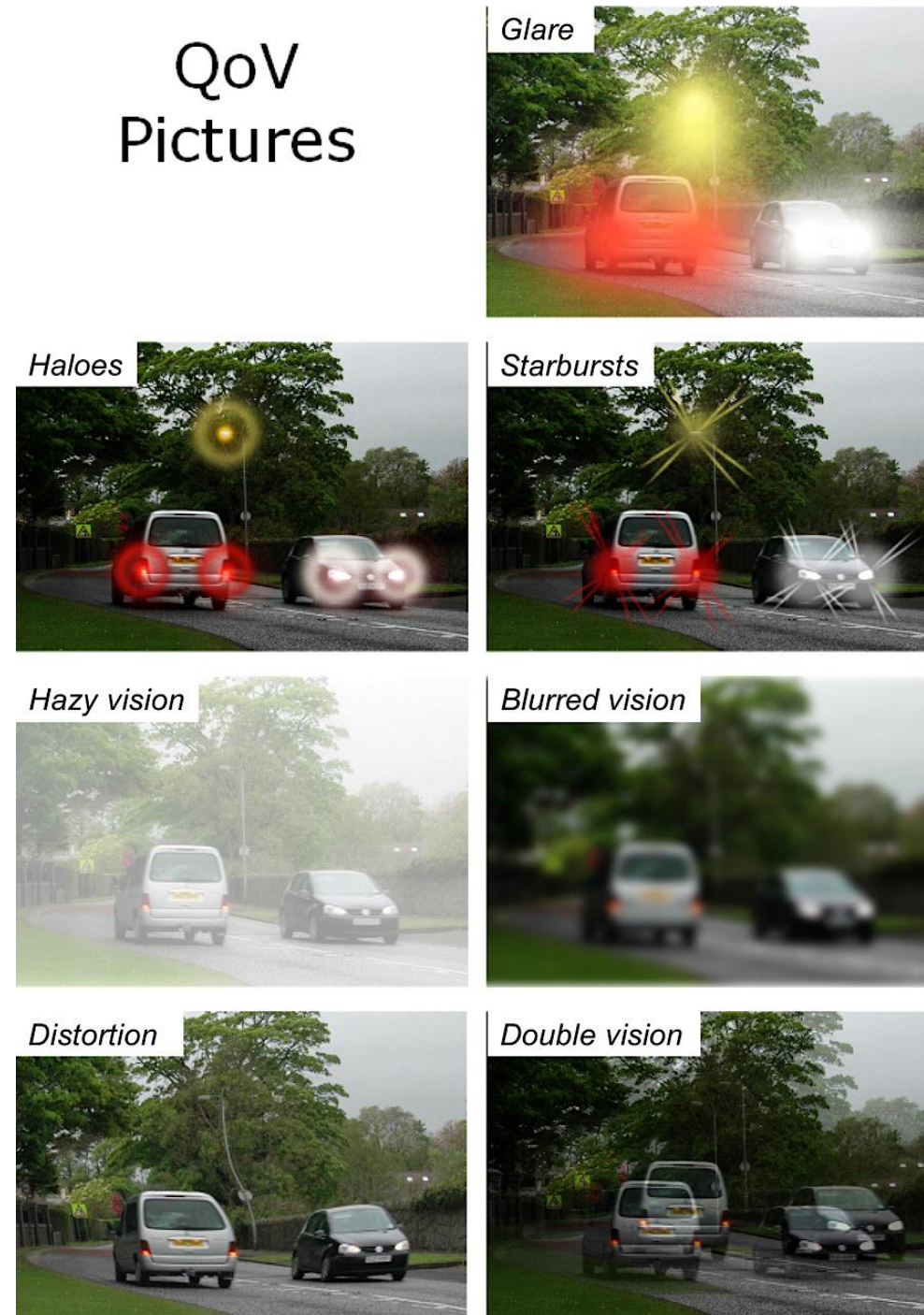


## Results

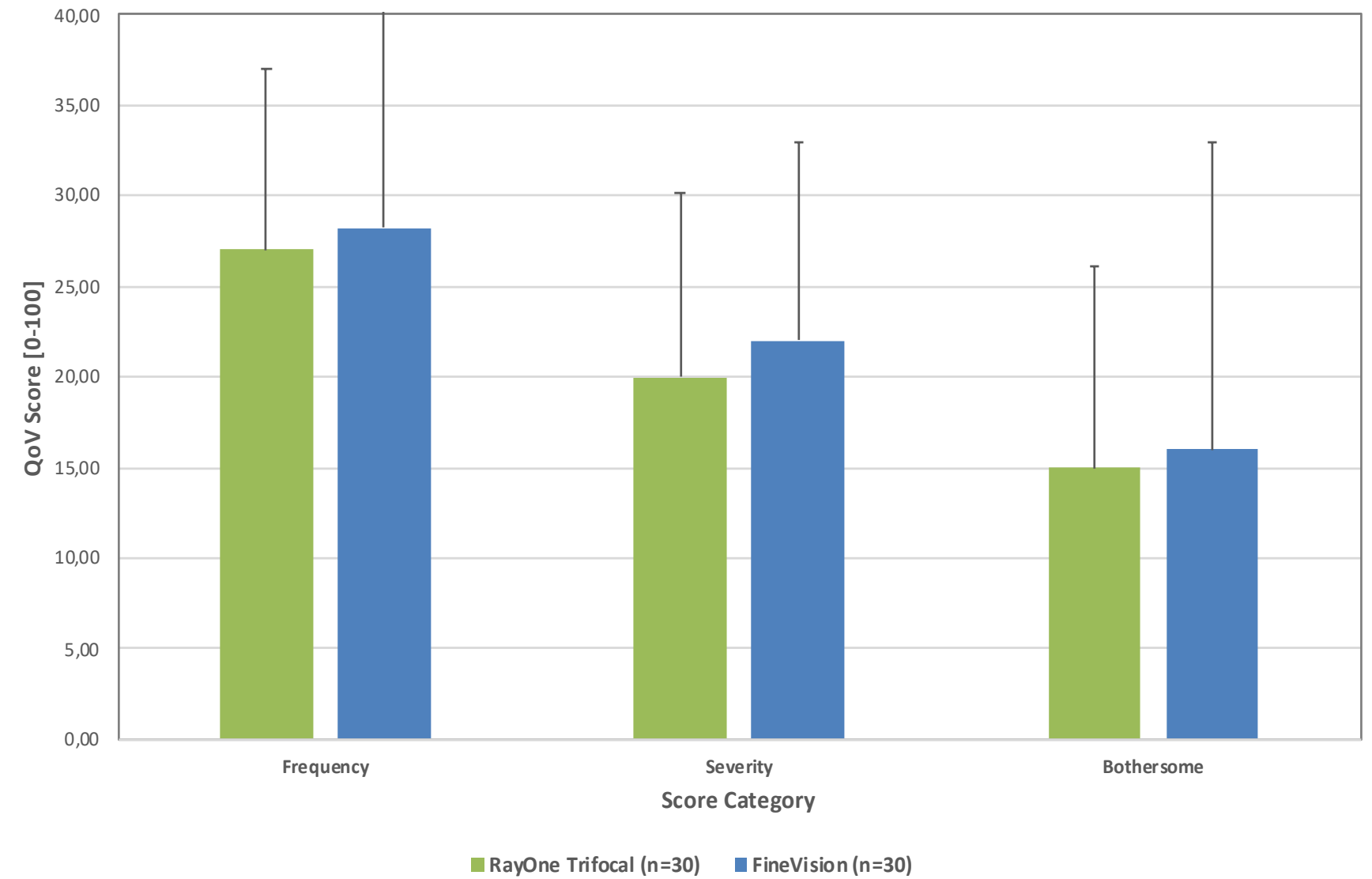
### Photic phenomena – subjective evaluation

#### McAlinden QoV Questionnaire

#### QoV Pictures



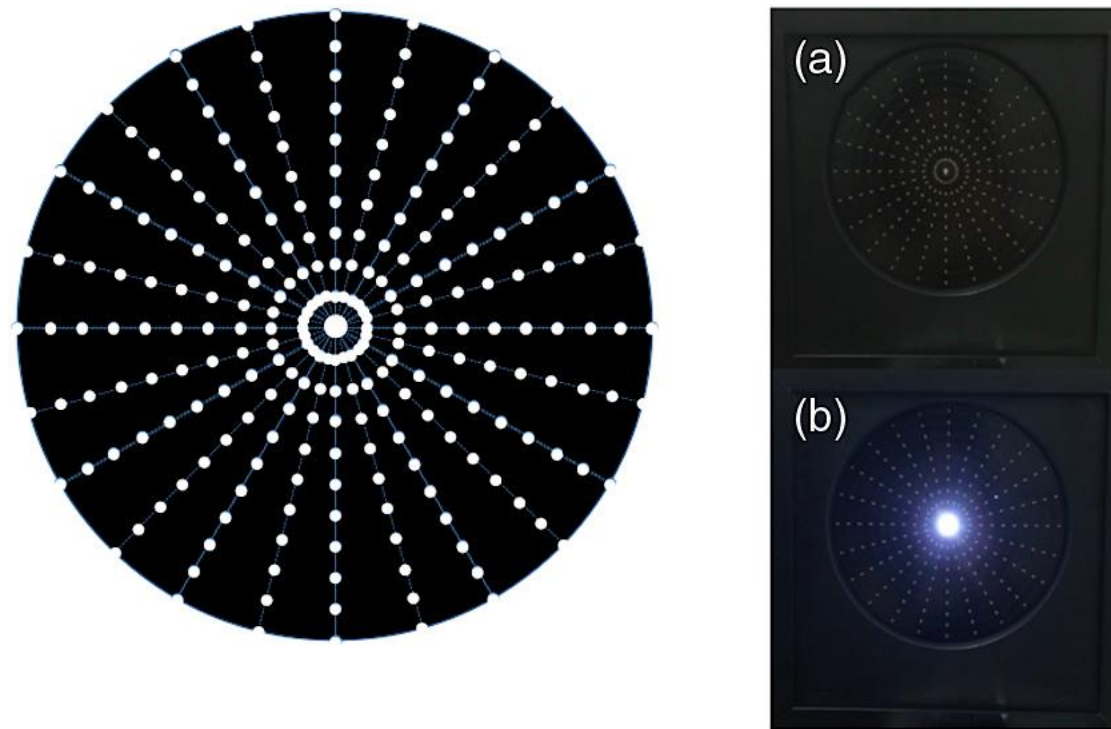
#### Global Scores



Statistically significant difference between the 2 groups in Depth Perception (p=0.042)

## Results

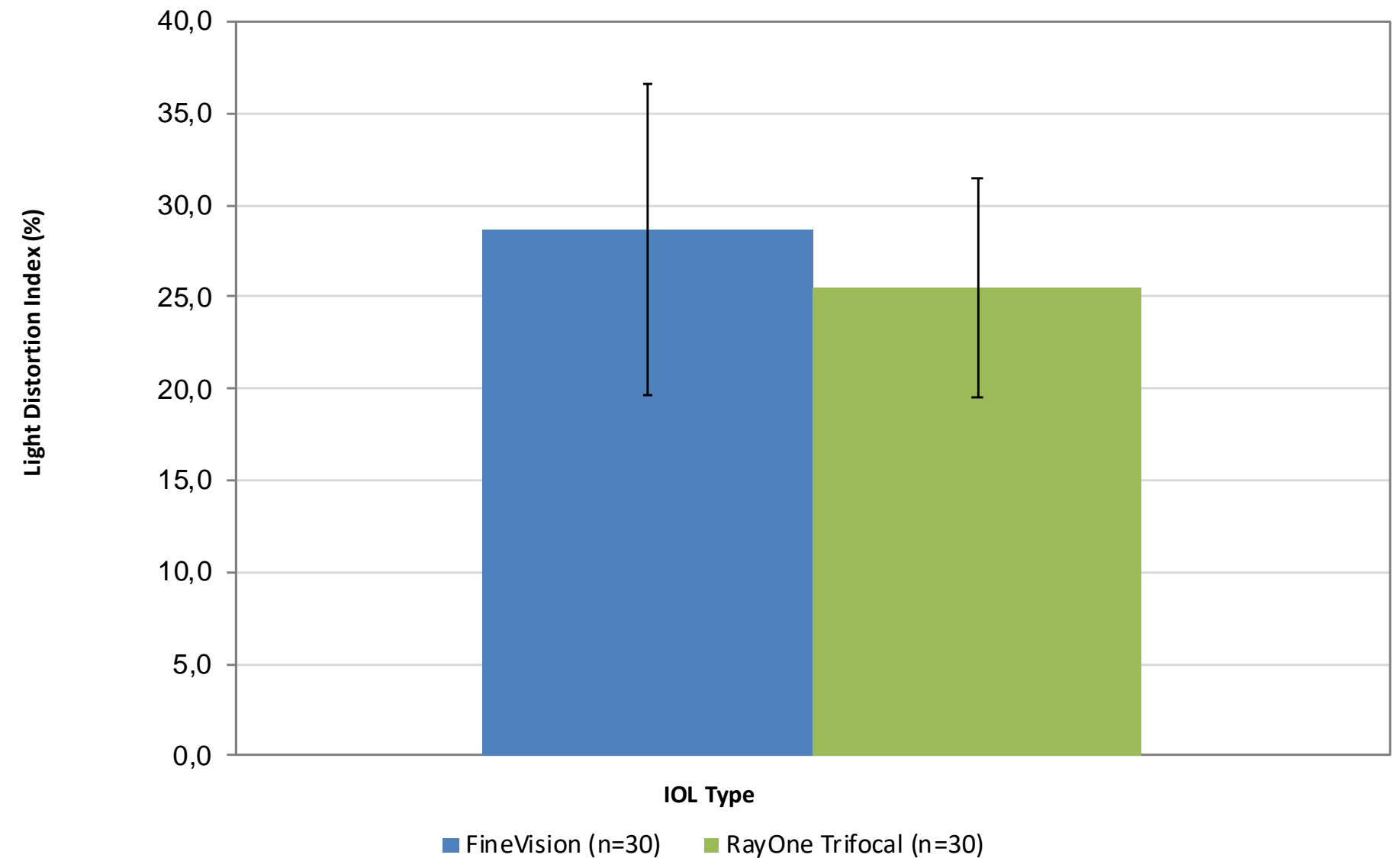
### Photic phenomena – objective evaluation



Light-distortion analyzer  
(HLMP-CW47-RU000, Agilent Technologies)

*J. Biomed. Opt.* 20(7) 075002 (6 July 2015)

Light distortion index (LDI)  
percentage of the total tested area not visible  
due to photic phenomena



## Conclusions

- ✓ Both IOLs offer excellent visual and refractive results
- ✓ Similar contrast sensitivity
- ✓ Less photic phenomena with the RayOne Trifocal



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*Thank you*

