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Analysis Of The Effects Of Two Extended-Depth-Of – Focus Intraocular Lenses On Visual Quality Under Different Illumination Conditions.

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Disclosure for conflicts of interest to declare

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INTRODUCTION

- Currently, patients have an increased demand and high expectations for good visual quality and spectacle independence after surgery.^{1,2}
- In addition, said surgery is being performed earlier and earlier due to the visual demands that require **good vision** at all distances.³ Especially, in intermediate distances due to the appearance of **new technologies** and the continuous work on screens. For this reason, there is a continuous evolution of **IOL designs**.⁴

PURPOSE

- To analyze the effect of PhysiOL[®] IsoPure123[™] and AcrySof[®] IQ Vivity[™] extended range intraocular lens design on patients visual quality under photopic and mesopic illumination conditions.
- **Setting:** The study was performed at the Hospital Universitario Sanitas la Moraleja in Madrid. All surgeries were performed by the same experienced surgeon (E.D.R). The study followed the principles of the Declaration of Helsinki.

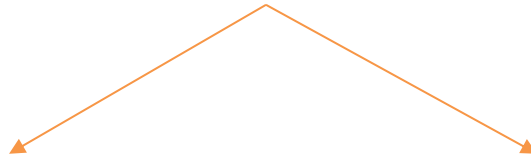
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METHODS

- **STUDY DESIGN**: Observational, prospective, cross-sectional study.
- **SAMPLE**: 68 eyes of 34 patients (71.5 ± 8.4) years, operated on for cataract
- **MATERIALS**: Test ETDRS for visual acuity (Far at 4 m, intermediate at 66 cm and near at 40 cm) and Halo V1.0 software for halometry.
- **LIGHT CONDITION**: Photopic ($> 10 \text{ cd/m}^2$) and Mesopic ($10 - 0.01 \text{ cd/m}^2$).

INTRAOCULAR LENSES

**PhysiOL® IsoPure
123™ (PhysiOL, Liège):**
Isofocal aspherical
(EDOF)
n= 26 eyes



**AcrySof® IQ Vivity™
(Alcon Laboratories):**
Non-diffractive
(EDOF)
n= 42 eyes

RESULTS

Table 1: Data of the results obtained from halometry and for distance (CDVA), intermediate (CIVA) and near (CNVA) vision with correction in the different IOL models through mean, standard deviation and p-value.

	PhysiOL® IsoPure 123™		AcrySof® IQ Vivity™		P-Value	
	Photopic	Mesopic	Photopic	Mesopic	Photopic	Mesopic
CDVA (LogMar)	-0.10 ± 0.09	0.05 ± 0.16	-0.14 ± 0.07	-0.02 ± 0.11	0.354	0.249
CIVA (LogMar)	0.13 ± 0.08	0.51 ± 0.16	0.06 ± 0.06	0.31 ± 0.09	0.060	0.001*
CNVA (LogMar)	0.11 ± 0.06	0.44 ± 0.12	0.08 ± 0.07	0.42 ± 0.12	0.144	0.842
Halometry	-----	0.96 ± 0.04	-----	0.98 ± 0.03	-----	0.141

* P < .05

CONCLUSION

1. Both AcrySof[®] IQ Vivity[™] and PhysiOL[®] IsoPure 123[™] intraocular lens designs provide optimal VA for far and near distances in both photopic and mesopic illumination conditions.
2. The AcrySof[®] IQ Vivity[™] IOL provides better intermediate VA under mesopic conditions than the PhysiOL[®] IsoPure 123[™] IOL, with this difference being clinically significant.
3. There was no statistically significant difference between the two intraocular lenses in relation to the perception of halos.