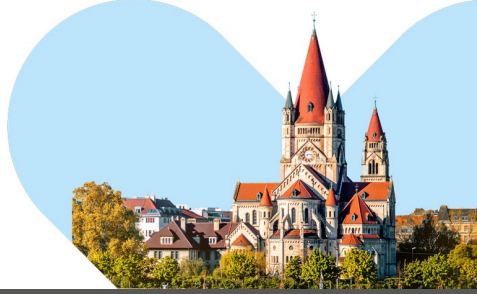
ESCRS VIENNA 2023
41ST CONGRESS OF THE ESCRS | 8-12 SEPTEMBER 2023



Evaluation Of The Effects Of Tecnis® Eyhance™ And Acrysof® Iq Vivity™ Intraocular Lenses On Visual Quality Under Different Lighting Conditions.

Inas Baoud Ould Haddi Msc [1]

Emilio Dorronzoro Ramírez Msc [2], Dayan Flores Cervantes Msc [1,2], Vanesa Blázquez Sánchez Phd [1], Cristina Bonnin Arias Phd [1], Celia Sánchez Ramos Phd [1]

1. Optometry and Vision, University Complutense of Madrid, Madrid, Spain.
2. Ophthalmology, Hospital Universitario Sanitas La Moraleja, Madrid, Spain.

The authors have no financial interest in any aspect of this study.

Disclosure for conflicts of interest to declare

In compliance with COI policy, ESCRS requires the following disclosures to the session audience:

Shareholder	No relevant conflicts of interest to declare.
Grant / Research Support	No relevant conflicts of interest to declare.
Consultant	No relevant conflicts of interest to declare.
Employee	No relevant conflicts of interest to declare.
Paid Instructor	No relevant conflicts of interest to declare.
Speaker Bureau	No relevant conflicts of interest to declare.
Other	No relevant conflicts of interest to declare.

INTRODUCTION

- Presbyopia correction surgeries undergo a thorough evaluation, combining objective measurements like visual acuity, contrast sensitivity, glare disability, and halometry, along with subjective assessments through satisfaction questionnaires. This comprehensive approach ensures accurate assessment of outcomes.
- To meet individual patient needs, various designs and types of intraocular lenses are available. Among the latest advancements are Extended Depth of Focus (EDOF) lenses, providing both distance and intermediate vision capabilities, offering improved visual functionality for presbyopia patients.

PURPOSE

- To analyze the effect of the design of Tecnis® Eyhance™ and AcrySof® IQ Vivity™, extended range intraocular lenses on patients visual quality under photopic and mesopic lighting 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.

METHODS

- **STUDY DESIGN:** Observational, prospective, cross-sectional study.
- **SAMPLE:** 76 eyes of 38 patients (70.5 ± 7.5 years), operated on for cataract.
- **MATERIALS:** Test ETDRS for visual acuity (Far at 4 m, intermediate at 66 cm and near at 40 cm), sensitivity contrast with the CSV-1000 test (2.5 m) and VFQ-14 satisfaction questionnaire.
- **LIGHT CONDITION**: Photopic (> 10 cd/m^2) and Mesopic (10 – 0.01 cd/m^2).

INTRAOCULAR LENSES

Tecnis® Eyhance™(Johnson & Johnson Surgical Vision): Difractive, (Monofocal plus) n= 34 eyes

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

RESULTS

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

	Tecnis® Eyhance™		AcrySof ® IQ Vivity™		P-Value	
	Photopic	Mesopic	Photopic	Mesopic	Photopic	Mesopic
CDVA (LogMar)	-0.09 ± 0.09	0.03 ± 0.13	-0.14 ± 0.07	-0.02 ± 0.11	0.075	0.739
CIVA (LogMar)	0.10 ± 0.08	0.43 ± 0.11	0.06 ± 0.06	0.31 ± 0.09	0.138	**0.017***
CNVA (LogMar)	0.09 ± 0.08	0.40 ± 0.15	0.08 ±0.07	0.42 ±0.12	0.789	0.489

** P< .05*

- No statistically significant values were found between IOLs in relation to **contrast sensitivity** in both illumination conditions.
- No statistically significant values were found between IOLs in the **questionnaire** responses.

CONCLUSION

1. The AcrySof® IQ Vivity™ and Tecnis® Eyhance™ designs provide optimal AV, at distances (far and near), in both photopic and mesopic illumination conditions.

2. The AcrySof® IQ Vivity™ IOL provides better intermediate VA, in mesopic conditions, than the Tecnis® Eyhance™ IOL.

3. However, this difference does not translate into a perceived subjective improvement in patients quality of life.

4. The design of the AcrySof® IQ Vivity™ and Tecnis® Eyhance™ extended range IOLs improves intermediate vision without deteriorating contrast sensitivity.

Correspondence to: ibaoud@ucm.es