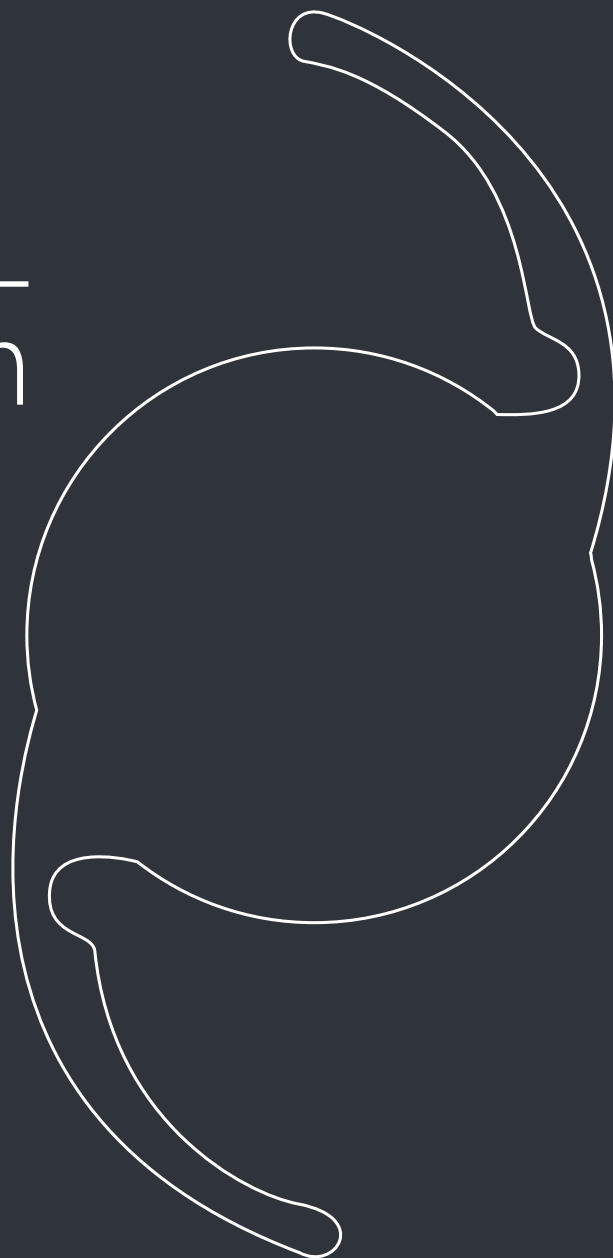


TECNIS  
Synergy™ IOL  
Compendium



TECNIS  
Synergy™ IOL

## PREFACE

The TECNIS Synergy™ IOL represents a breakthrough innovation in presbyopia correction that combines the unique TECNIS® IOL optical benefits with multifocal and extended depth of focus (EDOF) IOL technologies to deliver a range of vision from distance to intermediate to near.<sup>1</sup> Built on the strength of the TECNIS® IOL platform, key features of the TECNIS Synergy™ IOL include its proprietary diffractive design, reduces spherical aberration to near-zero and corrects chromatic aberration, and violet light-filtering technology.<sup>1</sup>

This clinical science compendium provides a consolidated summary of peer reviewed publications and conference presentations that discuss the efficacy and clinical characteristics of the TECNIS Synergy™ IOL. The research and information presented in this compendium were compiled from published literature across the globe as well as papers and poster presentations from ophthalmology conferences. This compendium is not comprehensive.

Reference:

<sup>1</sup> Johnson & Johnson Surgical Vision (2021) TECNIS Synergy™ IOL Directions for Use, Z311372\_A (v0.1), REF2021CT4146

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Sci Rep. 2021;11(1):12081.

Department of Ophthalmology, University Hospital Quirónsalud, Madrid, Spain.

Department of Optics, Pharmacology and Anatomy, University of Alicante, Crta San Vicente del Raspeig s/n, 03690 San Vicente del Raspeig, Alicante, Spain.

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European Journal of Ophthalmology, 2022

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Department of Ophthalmology, Severance Eye Hospital, Yonsei University College of Medicine, Seoul, Republic of Korea

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Hospital da Luz, Lisbon, Portugal | Lisbon University, Lisbon, Portugal

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# Clinical Outcomes with a New Continuous Range of Vision\*\* Presbyopia-Correcting Intraocular Lens

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 J Refract Surg. 2021;37(4):256-262.

 University Eye Clinic Svjetlost, Zagreb, Croatia and the Department of Optics, Pharmacology, and Anatomy, University of Alicante, Alicante, Spain

## OVERVIEW



### Study Design



### Study IOL(s)/Number of eyes/patients and Study Duration



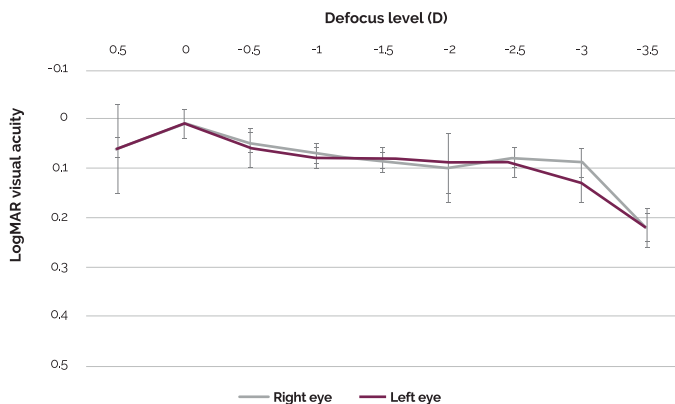
### Key End Points

- Non-randomized, prospective case series to evaluate clinical and patient-reported outcome measures following bilateral implantation of the TECNIS Synergy™ IOL
- TECNIS Synergy™ IOL DFR00V (Johnson & Johnson Vision) / 206 eyes of 103 patients / 3 month follow-up
- Monocular and binocular uncorrected distance visual acuity (UDVA) and uncorrected near visual acuity (UNVA), monocular corrected distance visual acuity (CDVA) and corrected near visual acuity (CNVA), refractive outcomes, monocular defocus curves, monocular low-contrast visual acuity, patient reported visual performance using the Catquest-gSF questionnaire

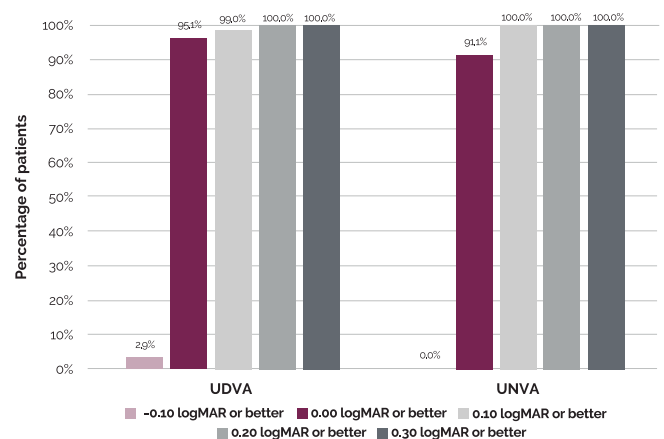
## KEY TAKEAWAYS

### Results

- At 3 months post-operative, TECNIS Synergy™ IOL provided significant improvement in CDVA, UDVA, CNVA, and UNVA in comparison with pre-operative visual acuities
- TECNIS Synergy™ IOL showed a high level of achieved refractive predictability with significant reduction in sphere and spherical equivalent. 99% of patients had postoperative spherical equivalent within +/-0.50 D
- TECNIS Synergy™ IOL demonstrated relatively flat monocular defocus curves showing visual acuities between 0.00 (20/20) and 0.10 logMAR (20/25) for defocus levels of -1.00 and -2.50 D in both eyes
- Distance visual acuity continued to be maintained following reduction of contrast and low contrast monocular UNVA showed a loss of half of a logMAR line (0.05 logMAR) with worsening light conditions.
- Visual function impact on a patient's daily life showed no activity limitations as seen by the Catquest-gSF questionnaire



Mean defocus curve obtained at 3 months after surgery in right and left eyes of patients enrolled in the study. D = diopters



Distribution of 3-month postoperative binocular uncorrected distance (UDVA) and near (UNVA) visual acuity data in the analyzed sample

### Conclusions

TECNIS Synergy™ IOL provides a functional continuous\*\* range of vision across distances commonly used for daily life activities with minimal incidence of dysphotopsia under mesopic conditions.

# Depth of Field Measures in Pseudophakic Eyes Implanted with Different Type of Presbyopia-Correcting IOLs



C. Palomino-Bautista, R. Sanchez-Jean, D. Carmona-Gonzalez, D.P. Piñero, A. Molina-Martin



Sci Rep. 2021;11(1):12081.



Department of Ophthalmology, University Hospital Quirónsalud, Madrid, Spain.  
 Department of Optics, Pharmacology and Anatomy, University of Alicante, Crta San Vicente del Raspeig s/n, 03690 San Vicente del Raspeig, Alicante, Spain.  
 Department of Ophthalmology, Vithas Medimar International Hospital, Alicante, Spain

## OVERVIEW



### Study Design

- A total of 150 eyes undergoing cataract surgery at Hospital Universitario Quiron (Madrid, Spain) were enrolled and divided into 6 groups depending on the IOL implanted to evaluate depth of field (DOF) provided by the different presbyopia-correcting IOL designs, comparing the results obtained using different criteria for defining the defocus tolerance.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 25 eyes of 25 patients / 3 month follow-up
- TECNIS Symphony™ IOL ZXR00 (Johnson & Johnson Vision) / 25 eyes of 25 patients / 3 month follow-up
- AT LISA Tri (Carl Zeiss Meditec) / 25 eyes of 25 patients / 3 month follow-up
- FineVision (PhysIOL) / 25 eyes of 25 patients / 3 month follow-up
- AcrySof® IQ PanOptix® Trifocal IOL TFNT00 (Alcon) / 25 eyes of 25 patients / 3 month follow-up
- Miniwell (SIFI MedTech) / 25 eyes of 25 patients / 3 month follow-up



### Key End Points

- Objective and subjective depth of field (DOF)

## KEY TAKEAWAYS

### Results

- TECNIS Symphony™ IOL, TECNIS Synergy™ IOL, and PanOptix® IOL groups showed better objective and subjective DOF compared to the rest of the IOL groups
- Comparison between objective and subjective DOF showed subjective measures were higher for all IOLs



### Conclusions

Objective and subjective measures of DOF are not comparable due to differences in methodologies and criteria to define the level of degradation tolerance. However, both objective and subjective measures showed a trend to a greater DOF for TECNIS Symphony™ and TECNIS Synergy™ IOLs compared to most trifocal diffractive designs, with the exception of PanOptix®.

# Comparison of Refractive and Visual Outcomes of Three Presbyopia-Correcting Intraocular Lenses

 T. Ferreira, F. Ribeiro, D. Silva, A.C. Matos, S. Gaspar, S. Almeida

 J Cataract Refract Surg. 2022;48(3):280-287.

 Hospital da Luz Lisboa, Lisbon University, Lisbon, Portugal

## OVERVIEW



### Study Design

- Prospective, comparative case series in Lisbon, Portugal, to evaluate and compare the clinical outcomes after cataract surgery with implantation of three different types of IOLs



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 60 eyes of 30 patients / 3 month follow-up
- Acrysof PanOptix® (Alcon) / 60 eyes of 30 patients / 3 month follow-up
- POD FineVision (PhysIOL) / 60 eyes of 30 patients / 3 month follow-up



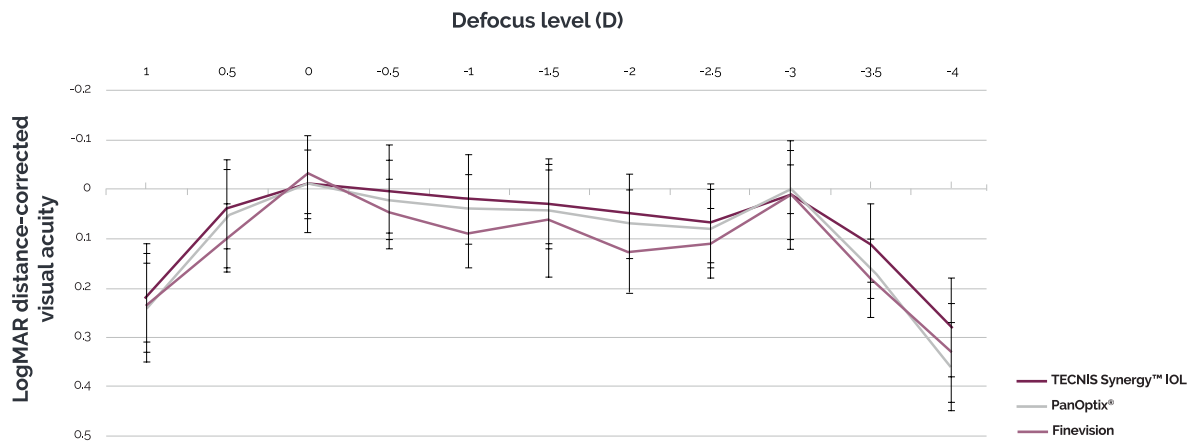
### Key End Points

- Distance, intermediate, and near visual acuity, refraction, defocus curve, photic phenomena, spectacle independence\*

## KEY TAKEAWAYS

### Results

- Excellent distance visual outcomes were obtained with the three PCIOLs; however, a trend to less refractive predictability was observed in the FineVision group, with a significantly more myopic post-operative spherical equivalent in this group compared to the TECNIS Synergy™ IOL group
- Significantly better monocular post-operative UIVA was found in the TECNIS Synergy™ IOL group compared to the FineVision group
- No significant differences were present in terms of photic phenomena and spectacle independence



### Conclusions

The three IOLs evaluated provided an effective visual rehabilitation with minimal incidence of photic phenomena. A trend to obtain a wider range of functional focus was observed with the TECNIS Synergy™ IOL.


\*TECNIS Synergy™ is not indicated for spectacle independence



# Comparison of Visual Results and Optical Quality of Two Presbyopia-Correcting Intraocular Lenses: TECNIS Symphony™ Versus TECNIS Synergy™

 European Journal of Ophthalmology, 2022

 D.E. Shin, H. Lee, T. Kim, K. Koh

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 Department of Ophthalmology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Republic of Korea  
 Department of Ophthalmology, Severance Eye Hospital, Yonsei University College of Medicine, Seoul, Republic of Korea

## OVERVIEW



### Study Design

- Single-center, retrospective, comparative study in Seoul, Republic of Korea, to compare an extended depth of focus lens and a new presbyopia-correcting lens that combines extended depth of focus and multifocal profiles with the same material.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00 (Johnson & Johnson Vision) / 17 eyes of 9 patients / 3 month follow-up
- TECNIS Symphony™ IOL ZXR00 (Johnson & Johnson Vision) / 21 eyes of 12 patients / 3 month follow-up



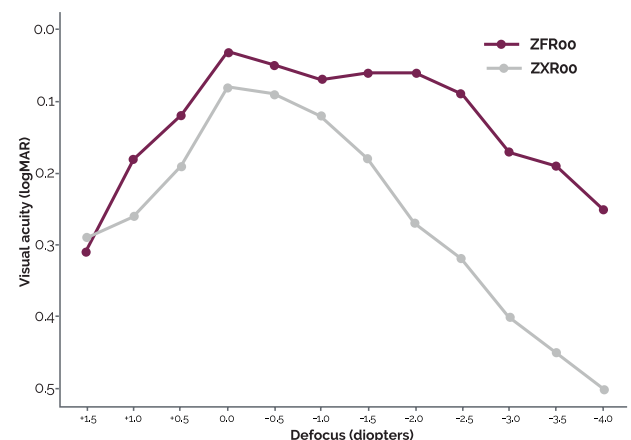
### Key End Points

- Uncorrected near, intermediate, and distance visual acuity (VA), corrected distance visual acuity (VA), defocus curves, refractive errors (RE), optical quality parameters, patient-reported visual performance parameters

## KEY TAKEAWAYS

### Results

- The uncorrected distance VA and corrected distance VA (at 4 m) had excellent results in both groups and no statistical difference was noted.
- The ZFR00 group outperformed the ZXR00 group with respect to intermediate and near VA.
- The mean post-operative residual spherical equivalent was  $-0.02 \pm 0.36$  in the ZXR00 group and  $-0.21 \pm 0.39$  in the ZFR00 group.
- The modified Korean VF-14 questionnaire indicated the ZXR00 group achieved better results.
- Optical quality was assessed with the OQAS (optical quality analysis system) and parameters indicated the ZXR00 provided better optical quality than the ZFR00.



### Conclusions

Both IOLs had comparable distance visual acuity however, TECNIS Synergy™ IOL was superior for intermediate and near visual acuity while TECNIS Symphony™ IOL was better for optical quality.

# Visual Outcomes and Patient Satisfaction After Implantation of a Presbyopia-Correcting Intraocular Lens That Combines Extended Depth-of-Focus and Multifocal Profiles

 F. Ribeiro, T. Ferreira, D. Silva, A. Matos, S. Gaspar.

 J Cataract Refractive Surg. 2021;47(11):1448-1453.

 Hospital da Luz, Lisbon, Portugal | Lisbon University, Lisbon, Portugal  
Visual Sciences Research Centre, Lisbon, Portugal

## OVERVIEW



### Study Design

- Prospective observational study of patients who underwent bilateral implantation with TECNIS Synergy™ ZFR00V



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ ZFR00V (Johnson & Johnson Vision) / 54 eyes of 27 patients / 3 months



### Key End Points

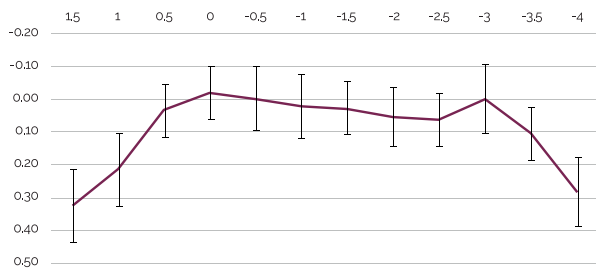
- Corrected and uncorrected visual acuities at distance, intermediate, and near under both photopic and mesopic conditions, binocular defocus curve, spectacle independence, patient satisfaction.

## KEY TAKEAWAYS

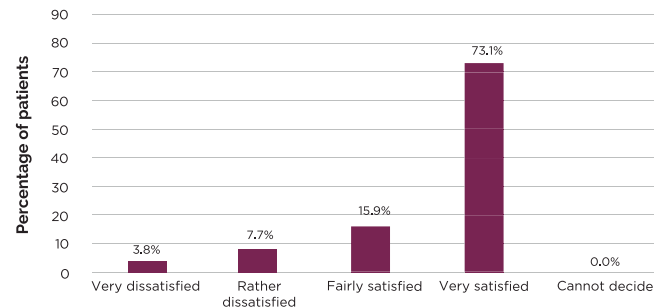
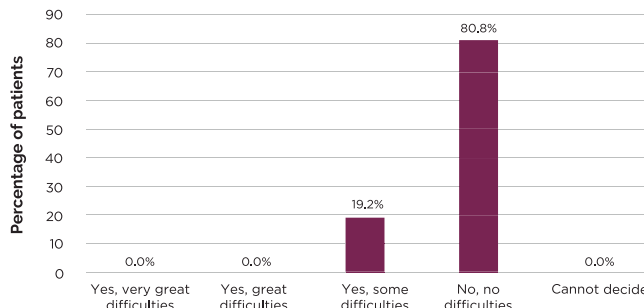
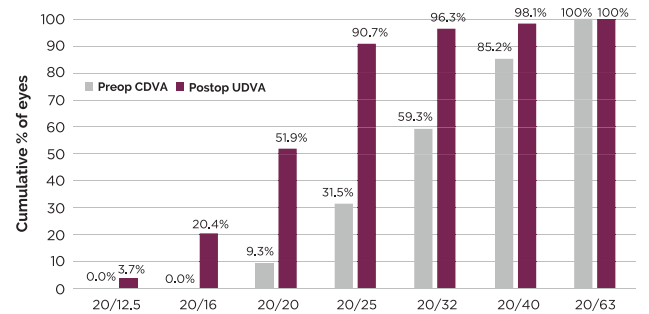
### Results

- Binocular defocus curve vision was better than 0.30 logMAR (20/40) from +1.00 to -4.00 and better than 0.10 logMAR (20/25) between +0.50 and -3.00 at 3 months postoperatively.
- 27 (100%) patients said they did not require glasses for distance vision, 1 (3.7%) said they used them occasionally for intermediate tasks, and 1 (3.7%) said they used them frequently for near vision.
- Spherical equivalent at 3 months was 0.05 (20/22.4) ±0.49 (-1.13 to 1.13) from -0.09 (20/16.3) ±0.34 (-0.75 to 0.75) at 1 month postoperatively
- At 3 months postoperatively in photopic conditions CDVA was -0.2 (20/12.6) ±0.07, DCIVA was 0.03 (20/21.4) ±0.11, and DCNVA was 0.00 (20/20) ±0.08. In mesopic conditions CDVA was -0.01 (20/19.5) ±0.05 and DCNVA was 0.07 (20/23.5) ±0.09.
- 88% of patients reported being fairly satisfied or very satisfied on the Catquest-gSF questionnaire.

Defocus level (D)



Cumulative SnellenVA (20/x or better)



### Conclusions

TECNIS Synergy™ ZFR00V IOL is capable of providing very good intermediate and near vision, under both photopic and mesopic conditions.

# Novel IOL Technologies that Maximize Spectacle Independence

 G. Auffarth

 Presented at Evolve Independent Medical Education 2020

## OVERVIEW



### Study Design

- Multi-center, randomized, bilateral 6-month study conducted in Heidelberg Germany comparing the clinical performance between the TECNIS Synergy™ IOL (test) and TECNIS® Multifocal IOL +3.25 (control).



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL DFR00V (Johnson & Johnson Vision) 38 patients, 76 eyes, TECNIS® Multifocal IOL +3.25 D (ZLB00) (Johnson & Johnson Vision) 36 patients, 72 eyes



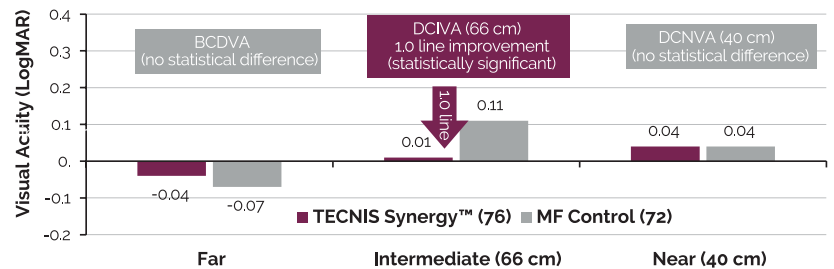
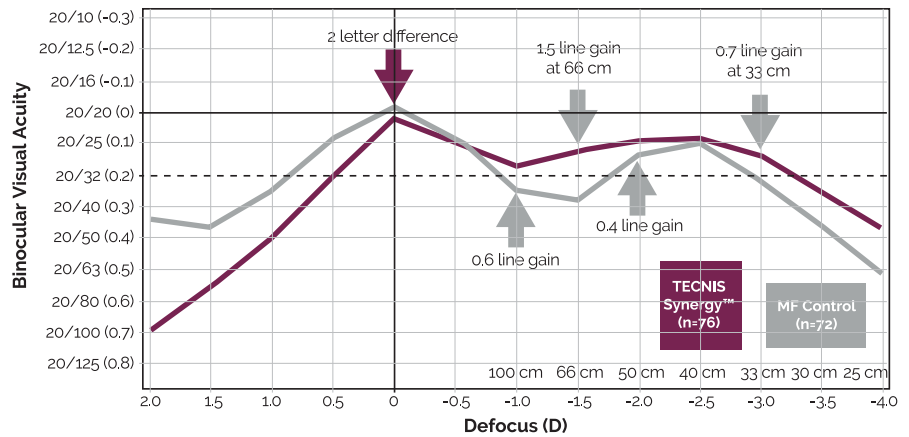
### Key End Points

- Distance corrected visual acuity (DCVA), distance corrected intermediate visual acuity (DCIVA) at 66cm, distance corrected near visual acuity (DCNVA) at 40cm

## KEY TAKEAWAYS

### Results

- TECNIS Synergy™ IOL demonstrated no statistically significant difference in DCVA
- TECNIS Synergy™ IOL provided a statistically significant improvement (1 line) in DCIVA (66cm)
- TECNIS Synergy™ IOL provided no statistical difference of DCNVA (40cm)



### Conclusions

TECNIS Synergy™ IOL when compared with TECNIS® Multifocal IOL +3.25 D provided an improvement of intermediate vision due to a new hybrid design combining extended depth of focus with multifocal technology creating a broader range of vision from distance through near.

\*TECNIS Synergy™ is not indicated for spectacle independence

# Astigmatism – New Treatment Options By Innovative IOL Technologies

 B. Galan

 Presented at the Virtual Winter European Society of Cataract and Refractive Surgery Meeting (WESCRS), February 2021

## OVERVIEW



### Study Design

- Outcomes evaluation of surgeons' personal clinical experience following bilateral implantation of the TECNIS Synergy™ Toric II IOL in Romania



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ Toric II IOL (DFW) (Johnson & Johnson Vision), 32 eyes of 16 patients, 3 month follow-up



### Key End Points

- Rotational stability, uncorrected distance visual acuity (UCDVA) and best corrected distance visual acuity (BCDVA), clinical contrast sensitivity, spectacle independence, patient satisfaction determined via a questionnaire

## KEY TAKEAWAYS

### Results

- TECNIS Synergy™ Toric II IOL demonstrated excellent rotational stability at 3 months.
- All patients resulted in very good UCDVA and BCDVA with minimal refractive error
- Low light contrast sensitivity was superior, leading to better quality of vision and the dysphotopsia profile showed patients to have occasional night glare and halos and found them to be either meaningless or negligible.
- 100% of patients were spectacle independent on most tasks
- Patients were extremely satisfied with their visual outcomes, extremely satisfied with the overall experience, and would make the same choice again.

### Conclusions

The TECNIS Synergy™ Toric II IOL delivers a continuous\*\* range of vision incorporating low light contrast for high quality vision and provides excellent rotational stability and minimal post-operative refractive error.

# Visual Performance Following Bilateral Implantation of a Continuous\*\* Range of Vision IOL

 A. Hamid

 Presented at the 39th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Amsterdam, The Netherlands; 2020

## OVERVIEW



### Study Design

- Retrospective, non-comparative study evaluating refractive lens exchange patients with mean age of 59 and almost twice as many women as men.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 200 eyes of 100 patients / 3 month follow-up



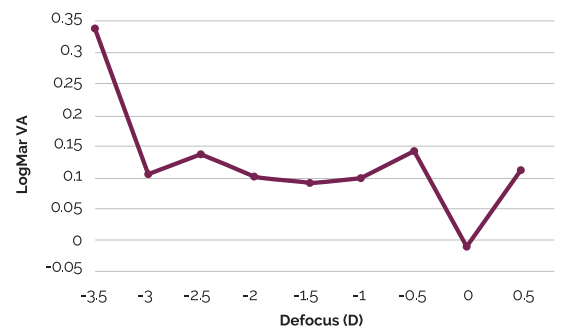
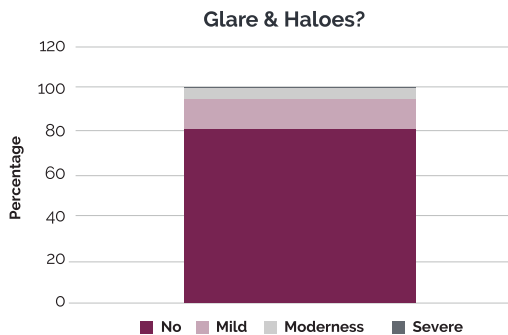
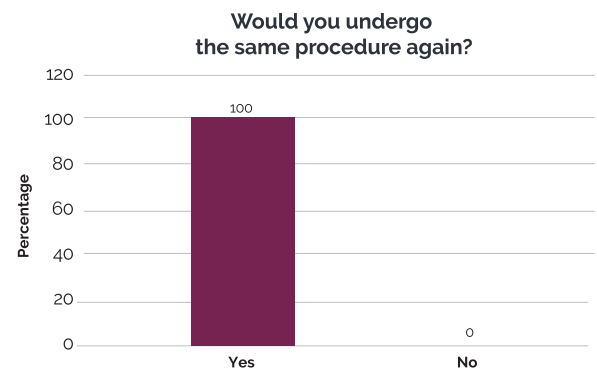
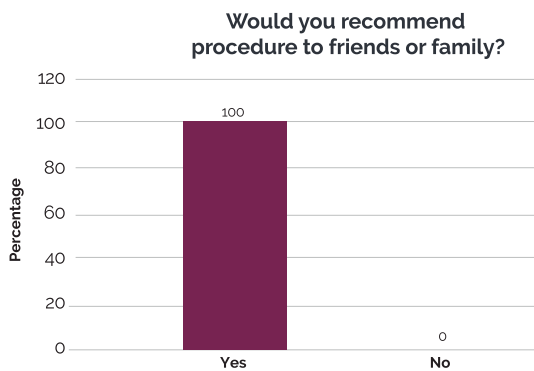
### Key End Points

- Uncorrected distance visual acuity (UCDVA), uncorrected intermediate visual acuity (UCIVA), uncorrected near visual acuity (UCNVA), defocus curve, patient-reported outcomes

## KEY TAKEAWAYS

### Results

- UCDVA 20/20, UCIVA 20/25, UCNVA 20/25
- UCVA 20/28 or better throughout defocus of -3.0D
- 100% of patients would have the procedure again, 100% of patients would recommend the procedure to friends or family, and 100% of patients reported spectacle independence<sup>1</sup>.
- No incidence of severe glare/halos



**Conclusions** Excellent clinical results, 100% spectacle independence<sup>1</sup>, and high patient satisfaction. Larger prospective study with longer follow up required to also include contrast sensitivity data.

<sup>1</sup>Results for spectacle independence may vary from product labeling. TECNIS Synergy™ is not indicated for spectacle independence.

# Introduction to an Innovative PCIOL Technology

 P. Piers

 Presented at the 37th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Paris, France; September 2019

## OVERVIEW



### Study Design

- General overview of TECNIS Synergy™ IOL technology/design with clinical and bench study information incorporated.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision), TECNIS® IOL ZCB00 (Johnson & Johnson Vision), PanOptix® (Alcon), FineVision (PhysIOL), AT LISA tri (Carl Zeiss Meditec), TECNIS® Multifocal IOL ZLB00 +3.25 D (Johnson & Johnson Vision), and ReSTOR® +3.0 D (Alcon)



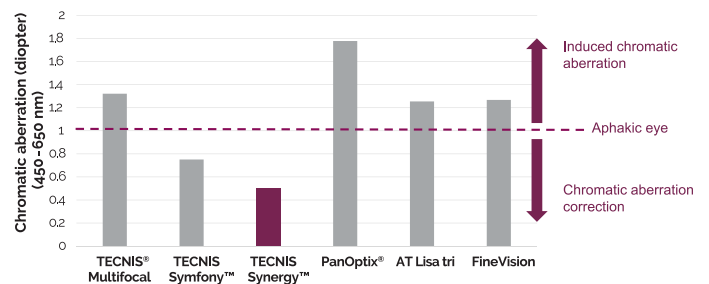
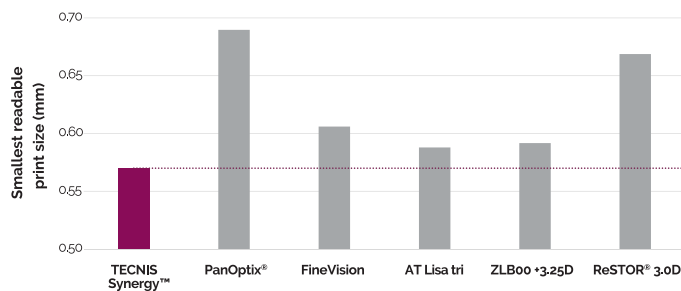
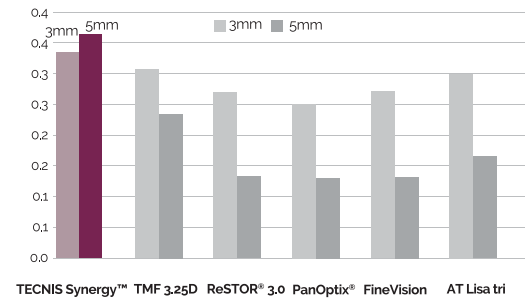
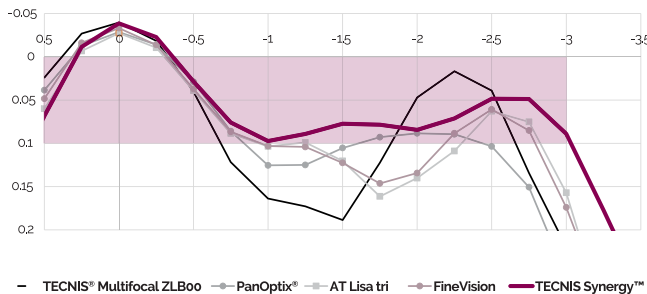
### Key End Points

- Image contrast at 3mm & 5mm, simulated visual acuity and defocus

## KEY TAKEAWAYS

### Results

- TECNIS Synergy™ IOL design combines diffractive technology from Multifocal and TECNIS Symfony™ IOLs to deliver continuous\*\* high-contrast vision across its range of vision. A proprietary design of 15 diffractive rings creates a profile such that the height and spacing of the diffractive zones determine the distribution of light and, ultimately, the vision delivered. It has achromatic correction and there is no distinct add power.
- TECNIS Synergy™ IOL provides superior image contrast (MTF) at both 3mm and 5mm pupil size, as well as smallest predicted reading print size when compared to PanOptix®, FineVision, AT Lisa tri TECNIS® Multifocal ZLB00 +3.25 add, and ReSTOR® 3.0.
- Violet light filtering technology selectively filters light 430nm and below, allowing blue light 450-500nm through maintaining benefits of blue light such as circadian rhythm regulation and low light image quality.



### Conclusions

TECNIS Synergy™ IOL provides visual acuity of 20/25 or better across a vision range from distance up to 33cm, providing continuous\*\* high-contrast vision from far through near, even, in low-light conditions.

# Clinical Outcomes of Cataract Surgery with a New Continuous\*\* Range of Vision IOL

 F. Ribeiro, T. Ferreira

 Presented at the 39th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Amsterdam, The Netherlands; 2020

## OVERVIEW



### Study Design

- Prospective case series review of bilateral implantation with TECNIS Synergy™ IOL



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ ZFR00V (Johnson & Johnson Vision) / 50 eyes of 25 patients / 1 month follow-up



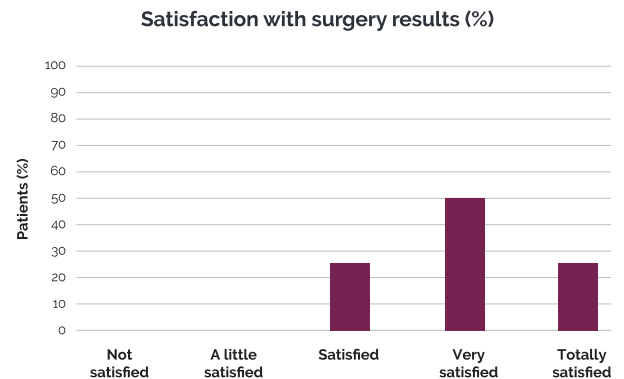
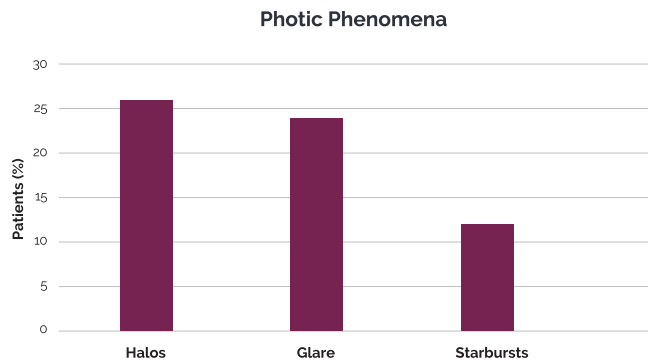
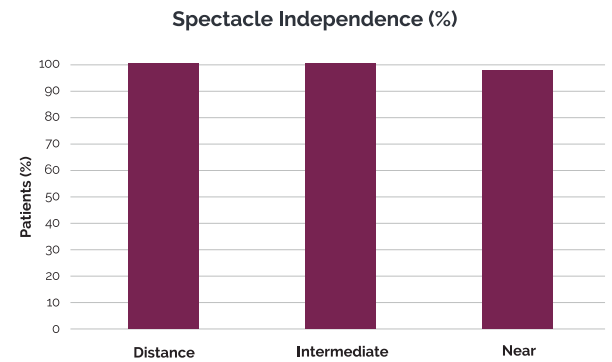
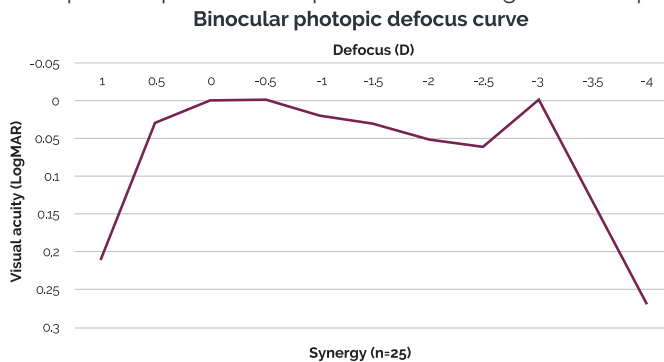
### Key End Points

- Monocular and binocular visual acuities at distance, intermediate, and near, binocular contrast sensitivity, photic phenomena, spectacle independence, patient satisfaction

## KEY TAKEAWAYS

### Results

- Photopic monocular mean UDVA 20/21 (logMAR 0.03); Mesopic monocular mean UDVA 20/20 (logMAR 0.01)
- Photopic monocular mean UCVA 20/21 (logMAR 0.02); Mesopic monocular mean UCVA 20/20 (logMAR 0.00)
- Photopic monocular mean DCIVA 20/21 (logMAR 0.03); Mesopic monocular mean DCIVA 20/25 (logMAR 0.09)
- Photopic monocular mean DCNVA 20/21 (logMAR 0.02); Mesopic monocular mean DCNVA 20/20.6 (logMAR 0.11)
- 100% patient spectacle independence with high levels of patient satisfaction.



### Conclusions

TECNIS Synergy™ IOL showed good refractive predictability and visual outcomes for all distances, visual acuity better than 20/25 from +0.5D to -3.25D of defocus, and low prevalence of photic phenomena.

# Short Term Clinical Outcomes with the TECNIS Synergy™ IOL Implanted During Refractive Lensectomy\*

 A. Shortt, A. Hamid, R. Morris, I. Siso-Fuertes, J. Dermott, S. Vaswani, C. O'Donnell

 Presented at the 39th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Amsterdam, The Netherlands; 2020

## OVERVIEW



### Study Design

- Observational case series of bilaterally implanted TECNIS Synergy™ IOLs for refractive lensectomy (patients with comorbidities or targeted for monovision were excluded from analyses)



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 178 eyes of 90 patients / 3 month follow-up



### Key End Points

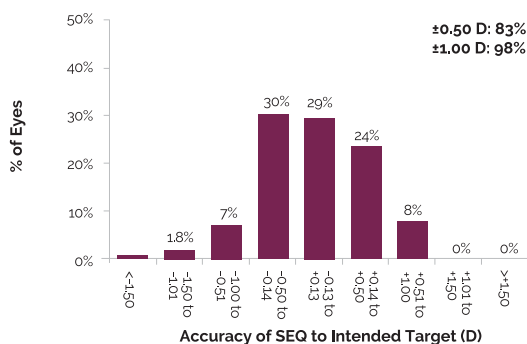
- Monocular uncorrected distance visual acuity (UCDVA), monocular corrected distance visual acuity (CDVA), monocular uncorrected near visual acuity (UCNVA)

## KEY TAKEAWAYS

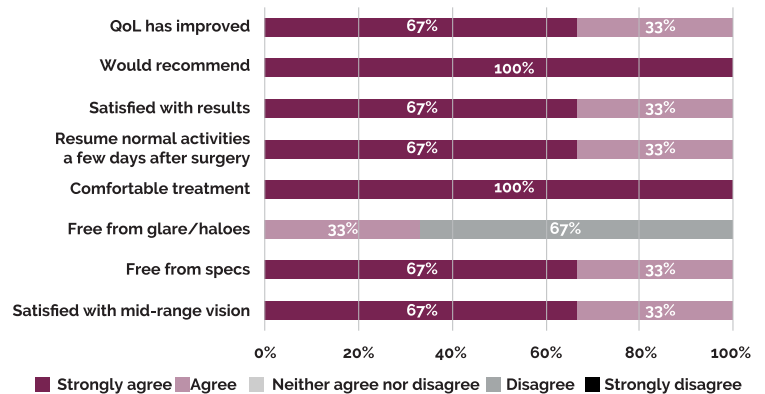
### Results

- Mean monocular CDVA 20/10 (logMAR -0.03), mean monocular UCDVA 20/23 (logMAR 0.07).
- % of eyes achieving UCDVA 20/20 (6/6) 56%, % of eyes achieving CDVA 20/20 (6/6) 84%
- % of eyes achieving UCDVA 20/25 (6/7.5) 79%, % of eyes achieving CDVA 20/25 (6/7.5) 98%
- % of eyes achieving UCDVA 20/40 (6/12) 99%, % of eye achieving CDVA 20/40 (6/12) 100%
- % of eye achieving UNVA 20/15 (N4) 43%, % of eyes achieving 20/30 (N5) 75%, % of eyes achieving 20/50 (N8)

### Spherical Equivalent Refraction Accuracy



### Patient Reported Outcomes



### Conclusions

Emerging data suggest patients implanted with TECNIS Synergy™ IOL achieve satisfactory clinical and subjective outcomes. UDVA results are comparable to those reported for other multifocal IOLs. UNVA results appear favorable with 98% of eye achieving at least 20/50 (N8). Further data collection is ongoing to provide comparative data on a wider range of metrics over a longer time period.

\* Refractive lensectomy is not an approved indication for the TECNIS Synergy™ IOLs in the U.S.



# Optical and Predicted Visual Performance of TECNIS® Intraocular Lenses

 C. Canovas, A. Alarcon, B. Koopman, G. Perez, G. Auffarth, P. Piers.

 Presented at the 37th Congress of the European Society of Cataract & Refractive Surgeons (ESCRS), Paris, France; 2019

## OVERVIEW



### Study Design

- Bench test to assess intermediate and near optical and predicted visual performance provided by different technologies designed to extend depth of focus; through focus MTF was recorded in an eye model that mimics the average corneal spherical and chromatic aberration of the human eye.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)
- TECNIS® Monofocal IOL ZCBoo (Johnson & Johnson Vision)
- TECNIS® Multifocal IOL ZLBoo (Johnson & Johnson Vision)
- TECNIS Eyhance™ IOL ICB00 (Johnson & Johnson Vision)
- AcrySof® IQ PanOptix® Trifocal IOL TFNT00 (Alcon)
- AT LISA tri (Carl Zeiss Meditec)
- FineVision (PhysIOL)

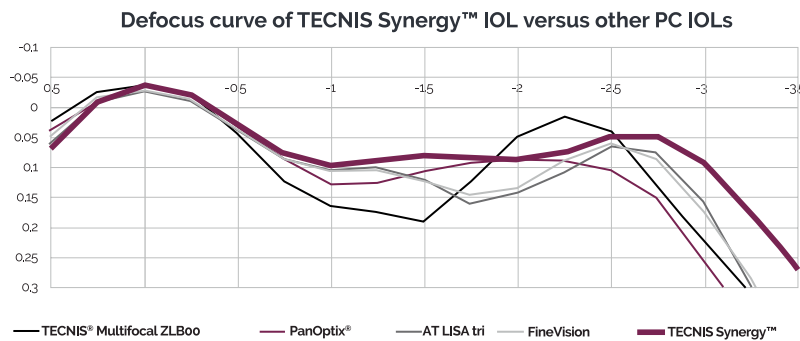


### Key End Points

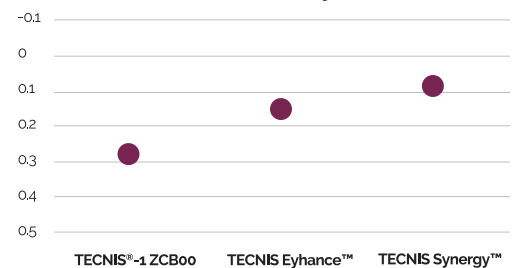
- Binocular simulated visual acuity

## KEY TAKEAWAYS

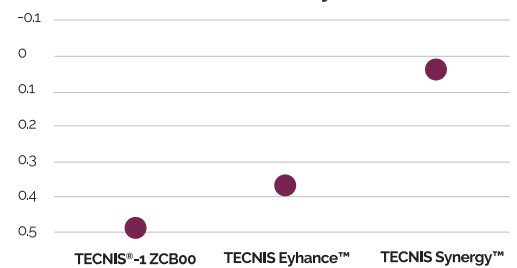
- Results**
- TECNIS Synergy™ IOL provided a range of vision of more than 3 D above 0.1 logMAR, longer than that of other PCIOLs.
  - In comparison to the two monofocal IOLs, TECNIS Synergy™ IOL provided superior intermediate and near vision.



### Simulated Visual Acuity (sVA) at 1.5D



### Simulated Visual Acuity (sVA) at 2.5D



**Conclusions** Preclinical data showed both intermediate and near vision are superior for the TECNIS Synergy™ IOL, delivering continuous\*\* high-contrast vision from distance to intermediate to near.

# Depth of Focus, Visual Outcomes, and Spectacle Independence of a New Diffractive Presbyopia-Correcting Intraocular Lens

R. Ang, A. Villarrubia, C. Palomino, A. Castillo, D. Janakiraman, E. Thomas, C. Sefton, L. Tsai.

Presented at the Virtual 38th Congress of the European Society of Cataract & Refractive Surgeons (ESCRS); 2020

## OVERVIEW



### Study Design

- Prospective, multicenter, randomized (2:1), bilateral implant clinical study in Singapore, EU, Philippines, New Zealand evaluating the visual performance, spectacle independence, and visual symptoms of TECNIS Synergy™ IOL compared to PanOptix®.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 216 eyes of 108 patients / 3 month follow-up
- AcrySof® IQ PanOptix® Trifocal IOL TFNT00 (Alcon) / 108 eyes of 54 patients / 3 month follow-up



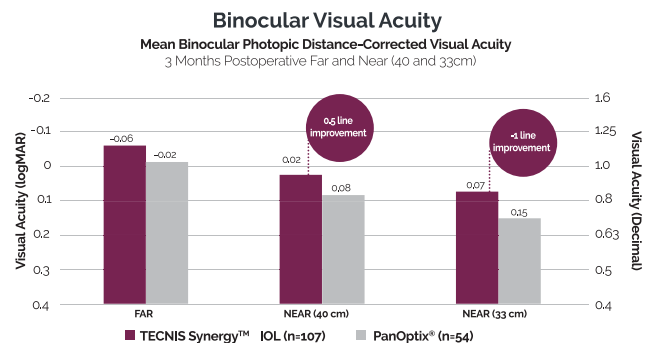
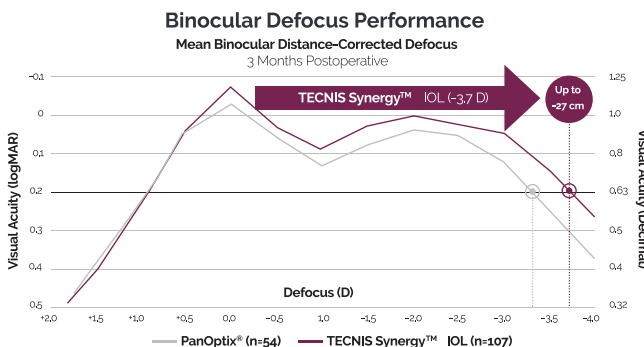
### Key End Points

- Binocular distance-corrected depth of focus, binocular distance-corrected visual acuity at far and near, binocular distance-corrected visual acuity distributions, spectacle independence and satisfaction questionnaire, non-directed visual symptoms

## KEY TAKEAWAYS

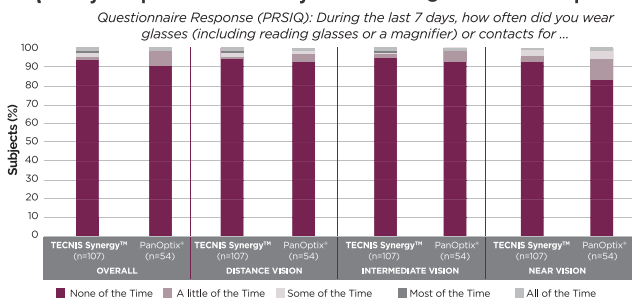
### Results

- TECNIS Synergy™ IOL displayed higher VA and longer binocular defocus curve than PanOptix®
- TECNIS Synergy™ IOL displayed better far and near binocular VA than PanOptix®
- More TECNIS Synergy™ IOL patients achieved 0.0 logMAR at far and 0.1 logMAR at near (40 cm and 33cm) than PanOptix®



- 90% of patients reported not wearing spectacles at far, intermediate, and near with TECNIS Synergy™ IOL
- TECNIS Synergy™ IOL displayed less spectacle wear at near than PanOptix® while spectacle wear was comparable at distance and intermediate
- Both IOLs show high patient satisfaction and a similar dysphotopsia profile

### Frequency of Spectacle Wear by Distance at 3 Months Postoperative



### Conclusions

TECNIS Synergy™ IOL demonstrated continuous\*\* range of vision through 33cm, better binocular visual acuity at far and near, and increased spectacle independence<sup>1</sup> at far, intermediate, and near in comparison to PanOptix®.

# Visual Outcome After Implantation of New Presbyopia-Correcting Intraocular Lens

 J. Coloma Bockos.

 Presented at the Virtual 38th Congress of the European Society of Cataract & Refractive Surgeons (ESCRS); 2020

## OVERVIEW



### Study Design

- Study at Clinica Baviera (Spain) to evaluate visual outcomes following bilateral cataract removal and TECNIS Synergy™ IOL implantation in patients without ocular comorbidities.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 42 eyes of 21 patients / 3 month follow-up



### Key End Points

- Monocular and binocular uncorrected visual acuity (UCVA) at 40cm, 66cm, 6m, monocular and binocular corrected (CVA) at 40cm, 66cm, 6m

## KEY TAKEAWAYS

### Results

- Monocular CDVA: mean 0.03 logMAR (+/- 0.05 SD) from 0 to 0.22
- All patients had a cumulative binocular CDVA of 0.09 logMAR or better; mean 0.01 logMAR (+/- 0.03 SD)
- Binocular UCVA at near: mean 0.06 (+/- 0.07) logMAR
- Binocular UCVA at intermediate: 0.18 (+/- 0.12) logMAR
- Defocus curve showed a peak of best visual acuity at distance and a second peak at 50cm, with a smooth plateau up to 33cm

### Conclusions

Bilateral TECNIS Synergy™ IOL implantation provided good distance, intermediate, and near vision, providing patients with an extended range of focus.

# Visual Outcomes in Patients Implanted with a New Diffractive Presbyopia-Correcting Intraocular Lens

H.B. Dick, A. Villarrubia, D.P. Janakiraman, E. Thomas, C. Sefton, L. Tsai.

Presented at the 39th Congress of the European Society of Cataract & Refractive Surgeons (ESCRS); 2021

## OVERVIEW



### Study Design

- Prospective, multicenter, randomized (2:1), bilateral implant clinical study at 12 global sites comparing the post-operative visual acuity of TECNIS Synergy™ IOL and PanOptix



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 194 eyes of 97 patients / 3 month follow-up
- AcrySof IQ PanOptix® Trifocal IOL TFNT00 (Alcon) / 104 eyes of 52 patients / 3 month follow-up



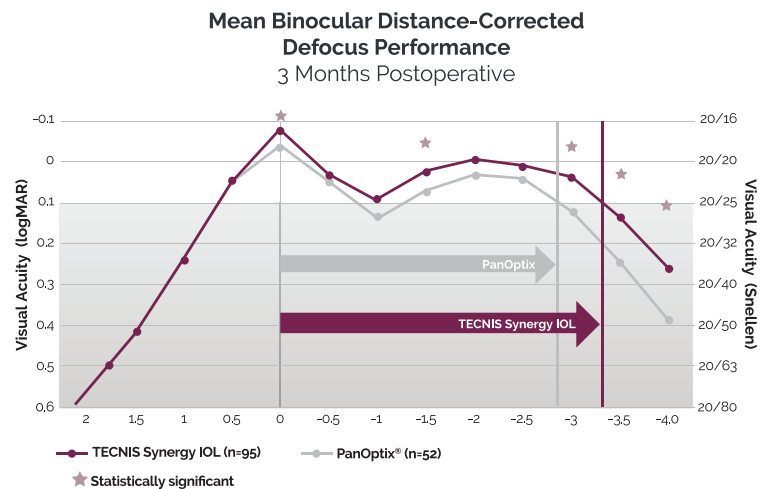
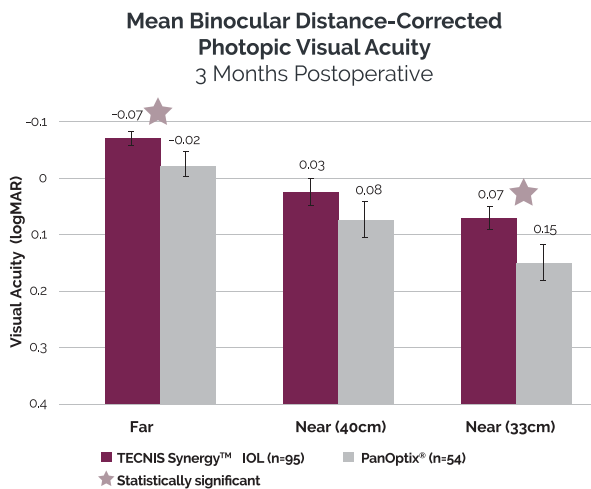
### Key End Points

- Mean binocular photopic distanced-corrected visual acuity (DCVA) at far and near, proportion of TECNIS Synergy™ IOL patients who achieved less than or equal to 0.1 LogMAR at all tested distances, defocus curve

## KEY TAKEAWAYS

### Results

- TECNIS Synergy™ IOL photopic VA performance is higher by at least 0.5 line at all distances
- A greater proportion of TECNIS Synergy™ IOL subjects achieved less than or equal to 0.1 LogMAR (20/25) at distance and near: 100% achieved 20/25 or better at distance, 88% achieved 20/25 or better at 40cm, 79% achieved 20/25 or better at 33cm
- TECNIS Synergy™ IOL maintained 0.1 LogMAR through -3.4 D of defocus, or approximately 0.5 D more than PanOptix



### Conclusions

The results of this study demonstrated that the visual performance of TECNIS Synergy™ IOL exceeded the visual performance of PanOptix® at 3 month follow up.

# Long-Term Non-Randomized Results With a New Continuous\*\* Range of Vision Presbyopia-Correcting Intraocular Lens



I. Gabric, N. Gabric, K. Gabric.



Presented at the 39th Congress of the European Society of Cataract & Refractive Surgeons (ESCRS); 2021

## OVERVIEW



### Study Design

- Non-randomized, single-site case series in Zagreb, Croatia, evaluating the long-term clinical outcomes and patient satisfaction with a new model of presbyopia-correcting IOL



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 800 eyes of 400 patients / 12 month follow-up



### Key End Points

- Uncorrected distance visual acuity (UCDVA), uncorrected near visual acuity (UCNVA), mesopic reading conditions, patient-reported visual performance

## KEY TAKEAWAYS

### Results

- 96.8% of patients achieved binocular post-operative UCDVA and UCNVA of 0.00 LogMAR (20/20), respectively
- Mean post-operative mesopic UCNVA for both eyes was 0.12 +/- 0.04 LogMAR
- Mean binocular UCDVA and UCNVA were 0.00 +/- 0.05 and 0.05 +/- 0.03 LogMAR
- Posterior capsular opacification was observed as disturbing in 9% of patients and Nd/YAG laser capsulotomy was performed
- Residual refractive error above 0.5 D SE was observed in 17 eyes and treated with laser vision correction. Average residual refractive error before enhancement was 0.25 +/- 0.13 sphere and 0.63 +/- 0.23 cylinder

### Conclusions

The TECNIS Synergy™ IOL provided full spectacle independence in 99% of patients with a limited deterioration of contrast sensitivity and patient reported dysphotopsias. This was perceived as a satisfactory outcome by the patient if proper patient selection is performed.

# Clinical Outcomes of a Novel Hybrid Preloaded Toric IOL for Presbyopia Correction

 B. Galan, S. Galan, L. Epifanov, M. Anton.

 Presented at the 39th Congress of the European Society of Cataract & Refractive Surgeons (ESCRS); 2021

## OVERVIEW



### Study Design

- Prospective, single-center interventional clinical study at SanOptic Eye Clinic, Romania, evaluating clinical outcomes



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ Toric II IOL ZFWOO (Johnson & Johnson Vision) / 32 eyes of 16 patients / 3 month follow-up



### Key End Points

- Functional vision and subjective quality of vision assessed by a standardized patient satisfaction questionnaire, monocular and binocular visual acuity, subjective refraction, defocus curve, contrast sensitivity, halometry, rotational stability

## KEY TAKEAWAYS

### Results

- 100% of patients reported spectacle independence
- Uncorrected distance visual acuity and distance corrected visual acuity were  $-0.056 \pm 0.051$  LogMAR and  $-0.081 \pm 0.05$  LogMAR, respectively
- Mean residual refractive sphere was  $-0.016 \pm 0.16$
- 100% of patients exhibited less than or equal to 4 degrees of lens rotation and a mean residual refractive cylinder of  $-0.164 \pm 0.15$  one month post-operatively

### Conclusions

The TECNIS Synergy™ Toric II IOL provides continuous\*\* vision from distance to 35cm, good rotational stability, and the dysphotopsia profile is similar to other presbyopia correcting IOLs

# Low Light Visual Outcomes and Satisfaction in Patients with a New Diffractive Presbyopia-Correcting Intraocular Lens

 R. Ang, M. Tetz, DP. Janakiraman, E. Thomas, C. Sefton, L. Tsai

 Presented at the 39th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Amsterdam, Netherlands; October 2021

## OVERVIEW



### Study Design

- Prospective, multicenter, randomized (2:1), bilateral implant clinical study conducted at 12 sites (Global)



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00v (Johnson & Johnson Vision)/ 97 patients/ 3 months
- AcrySof IQ PanOptix® Trifocal IOL TFNTOO (Alcon)/52 patients/ 3 months



### Key End Points

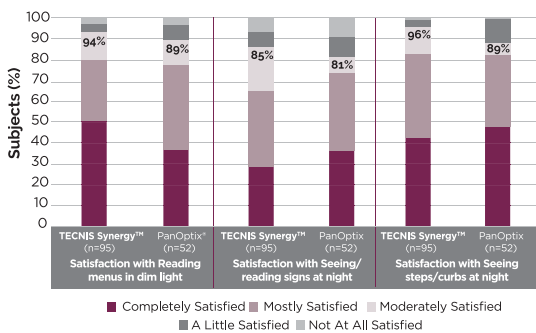
- Mean photopic binocular low-contrast best corrected distance visual acuity (BCDVA), proportion of TECNIS Synergy™ IOL patients that achieve a mesopic BCDVA of  $\leq 0.0$  LogMAR, patient questionnaire responses (PRSIQv2)

## KEY TAKEAWAYS

### Results

- TECNIS Synergy™ IOL provided both a clinical and subjective benefit over the PanOptix® IOL in low-light and low-contrast conditions
- A greater proportion of TECNIS Synergy™ IOL group achieved a mesopic BCDVA of  $\leq 0.0$  logMAR than the PanOptix® group (52.6% vs 30.8%)
- Satisfaction with vision and various tasks tended to favor TECNIS Synergy™ IOL group at near and under low-visibility conditions (mesopic lighting, low-contrast)

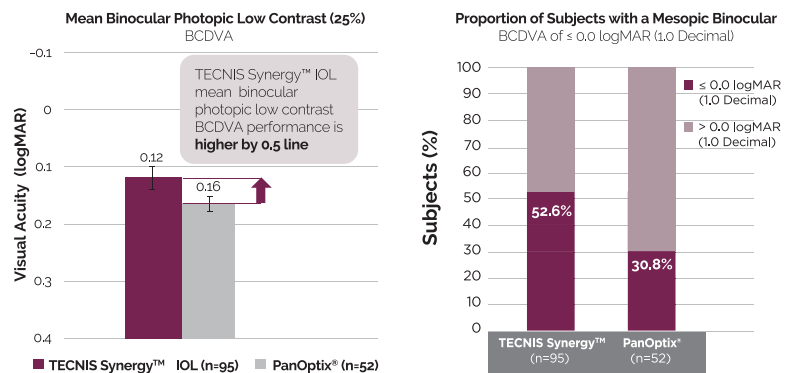
**Satisfaction with Low Light Functional Abilities**  
3 Months Postoperative (PRSIQv2)



(PRSIQv2) Patient-Reported Spectacle Independence Questionnaire

Satisfaction with low light functional abilities 3 month postoperative (PRSIQv2)

**Visual Acuity**  
3 Months Postoperative



3-month postoperative mean binocular photopic low contrast (25%) BCDVA, proportion of subjects with mesopic binocular BCDVA of  $< 0.0$  logMAR (1.0 decimal)

### Conclusions

TECNIS Synergy™ IOL when compared with AcrySof IQ PanOptix® Trifocal IOL TFNTOO provided a clinical and subjective improvement in low-light and low-contrast conditions. More TECNIS Synergy™ patients achieved a mesopic BCDVA of  $\leq 0.0$  logMAR and a greater overall satisfaction with vision and performing tasks at near and under mesopic lighting and low contrast conditions.

# Combined Diffractive Optic – EDOF compared to a Trifocal Diffractive Optic: Which Added Value?

 A. Benyoussef, B. Cochener

 Presented at the 39th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Amsterdam, Netherlands; October 2021

## OVERVIEW



### Study Design

- Comparative, prospective, monocentric, two-arm study 1 month follow up



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL DFR00V (Johnson & Johnson Vision)/21 patients/1 month follow up
- FineVision HP (Pod F GF, Physiol)/21 patients/1 month follow up



### Key End Points

- Monocular and binocular visual acuity at 4m, 70cm, and 35cm, binocular defocus curve, reading speed (Salzburg Reading Desk), halometry, and patient questionnaire

## KEY TAKEAWAYS

### Results

- Both IOLs showed very good visual acuity results at all distances and quality of vision
- Visual acuities (logMAR) less than 0.1 (i.e. > 0.8 in decimal) at all distances for both IOLs
- TECNIS Synergy™ IOL patients demonstrated better predictability of implant calculation
- TECNIS Synergy™ IOL allowed faster reading demonstrated at 100% and 30% contrast sensitivity (+28.6% and +52.0% respectively)
- Binocular glare angle: 1.10 +/- 0.22 degrees (FineVision HP Group) and 1.29 +/- 0.31 degrees in the TECNIS Synergy™ IOL Group

### Conclusions

The TECNIS Synergy™ IOL (bifocal-EDOF combination) provided good defocus continuity and was minimally sensitive to moderate refractive error. Following bilateral implantation of the TECNIS Synergy™ IOL reading performance showed to be close to the general population.



# Clinical Evaluation of a Diffractive Continuous-Range-Of-Vision\*\* Intraocular Lens with the Salzburg Reading Desk

 ID. Baur, G. Auffarth, A. Stengele, M. Koeppe, R. Khoramnia

 Presented at the 39th Congress of the European Society of Cataract and Refractive Surgeons (ESCRS), Amsterdam, Netherlands; October 2021

## OVERVIEW



### Study Design

- Ongoing prospective study of refractive lens exchange patients



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL (DFROOV) (Johnson & Johnson Vision)/56 eyes of 28 patients/ 6 month follow up



### Key End Points

- Unilateral and bilateral uncorrected and distance corrected reading acuity, refractive outcome, reading distance, reading speed, smallest print size read effectively, and dysphotopsia evaluation using software-based halo and glare simulator (Eyeland Design Network GmbH, Vreden, Germany)

## KEY TAKEAWAYS

### Results

- Very good visual acuity results for uncorrected distance ( $-0.05 \text{ logMAR} \pm 0.10$ ), intermediate ( $-0.07 \text{ logMAR} \pm 0.07$ ), and near ( $-0.03 \text{ logMAR} \pm 0.06$ ) using ETDRS chart
- Compared to preoperative baseline assessment uncorrected reading acuity at intermediate and distance improved considerably
- Patients preferred a closer distance but reading performance was comparable for the subjectively preferred and set distances (40 cm/80 cm)
- All patients reported halos and 2/3 reported glare

### Conclusions

The TECNIS Synergy™ IOL implanted into refractive lens exchange patients delivered very good uncorrected and distance corrected, intermediate, and near visual acuities along with a considerable improvement noted in the uncorrected reading acuity at intermediate and near. Photopic phenomena was comparable to those reported for diffractive trifocal IOLs as expected for diffractive lens designs.

# Initial experiences with a new continuous\*\* range of vision intraocular lens

 J. Venter, D. Teenan, S. Hannan

 Presented at the 2021 Meeting of the European Society of Cataract and Refractive Surgeons, Amsterdam, The Netherlands

## OVERVIEW



### Study Design

- Retrospective analysis of bilateral implantation with TECNIS Synergy™ IOL



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V / 112 eyes of 56 patients / up to 9 months follow up



### Key End Points

- Uncorrected visual acuity at distance, intermediate, and near, patient-reported satisfaction.

## KEY TAKEAWAYS

### Results

- 71% UCVA 20/20 or better; 100% UCVA 20/40 or better; 73% UCVA 20/40 or better; 92% UCVA 20/40 or better
- 81.6% of patients were satisfied or very satisfied with their quality of vision. 13% were dissatisfied and 0% were very dissatisfied with their quality of vision.
- 94.7% of patients would recommend the procedure

### Conclusions

Initial results suggest the new continuous-range-of-vision IOL\*\* may be a good alternative for patients looking for meaningful gains in uncorrected visual acuities at distance, intermediate and near ranges. A larger sample size and longer follow-up is warranted to better understand the comparative performance of this IOL.

# Clinical Evidence Supporting the Range of Vision with a New Presbyopia-Correcting IOL with Hybrid Technologies

 D. Chang, E. Thomas, C. Sefton, L. Tsai, J. Nilpub.

 Presented at the American Academy of Ophthalmology (AAO); 2021

## OVERVIEW



### Study Design

- Prospective, multicenter, bilateral, comparative, three-way-masked (Sponsor, subject, and evaluator), randomized clinical evaluation at 15 US sites, evaluating a new presbyopia-correcting IOL in comparison to a monofocal IOL



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision) / 270 eyes of 135 patients / 6 month follow-up
- TECNIS 1-Piece IOL ZCB00 (Johnson & Johnson Vision) / 274 eyes of 137 patients / 7 month follow-up



### Key End Points

- Monocular and binocular distance-corrected defocus, spectacle wear

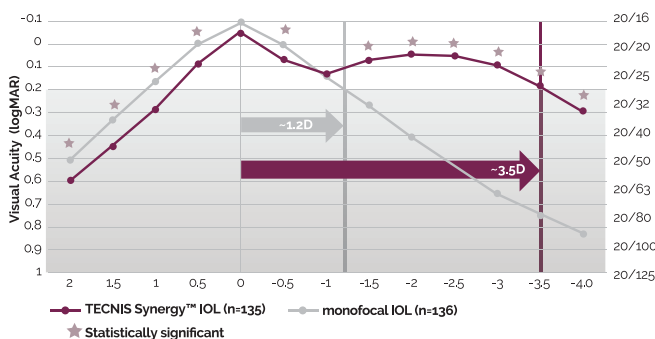
## KEY TAKEAWAYS

### Results

- TECNIS Synergy™ IOL maintains 0.2 LogMAR VA through at least 2.3 D more binocular distance-corrected defocus than the control monofocal IOL
- TECNIS Synergy™ IOL had 85% more patients who did not wear glasses at all distances compared to the control monofocal IOL
- At least 91% of TECNIS Synergy™ IOL patients reported not needing glasses for distance, intermediate, or near vision

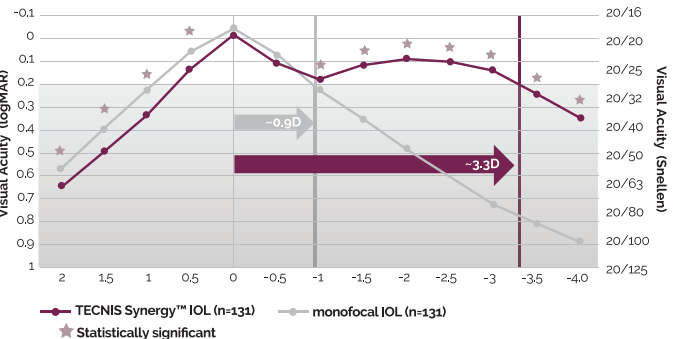
#### Binocular Distance-Corrected Defocus at 1 Month

TECNIS Synergy™ IOL maintains 0.2 LogMAR VA through at least **2.3D** defocus more than control lens



#### Monocular Distance-Corrected Defocus at 6 Months

TECNIS Synergy™ IOL maintains 0.2 LogMAR VA through at least **2.4D** defocus more than control lens



### Conclusions

This clinical investigation demonstrated the effectiveness of TECNIS Synergy™ IOL in providing continuous\*\*, extensive range of vision that affords patients spectacle-independence after cataract surgery.

# Comparison of Visual Outcomes Between Patients with a New Diffractive Presbyopia-Correcting IOL and a Trifocal

 R. Ang, C. Sefton, L. Tsai.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Prospective, multicenter, randomized (2:1), bilateral implant clinical study completed at 12 global sites.



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/112 patients/  
3-6 month follow up
- AcrySof IQ PanOptix® Trifocal IOL TFNT00 (Alcon)/62 patients/  
3-6 month follow up



### Key End Points

- Binocular uncorrected distance and near visual acuity

## KEY TAKEAWAYS

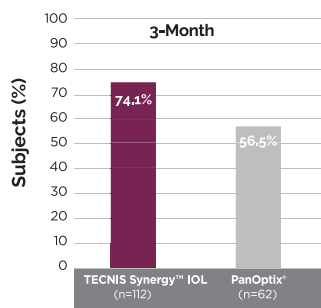
### Results

- Both groups demonstrated similar change in mean UCDVA from 3 to 6 months
- At 3 months, mean binocular UCNVA at 40 cm was 0.7 line higher in TECNIS Synergy™ IOL compared to PanOptix.
- At 6 months, mean binocular UCNVA at 40 cm was 0.5 line higher in TECNIS Synergy™ IOL compared to PanOptix.
- A greater proportion of TECNIS Synergy™ IOL subjects achieved 20/20 or better UDVA at both 3-month (17.6%) and 6-month visits (7.8%).

#### Mean Binocular UCDVA

Percentage of subjects achieving 20/20 or Better

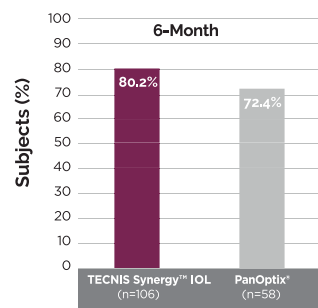
	3 Months	6 Months
TECNIS Synergy™ IOL	0.02 logMAR	0.00 logMAR
PanOptix®	0.05 logMAR	0.02 logMAR



#### Mean Binocular UCNVA

Percentage of subjects achieving 20/20 or Better

	3 Months	6 Months
TECNIS Synergy™ IOL	0.03 logMAR	0.07 logMAR
PanOptix®	0.10 logMAR	0.12 logMAR



### Conclusions

At 6 months, the results demonstrated that TECNIS Synergy™ IOL performed better compared to PanOptix® at near distances (40 cm) without correction. TECNIS Synergy™ IOL also afforded higher quality distance vision compared to PanOptix.

# Objective Metrics for Quantifying Monofocal and Presbyopia-Correcting IOL Contrast Performance

 D. Chang, H. Weeber, T. Pastuck, P. Piers.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design



### Study IOL(s)/Number of eyes/patients and Study Duration



### Key End Points

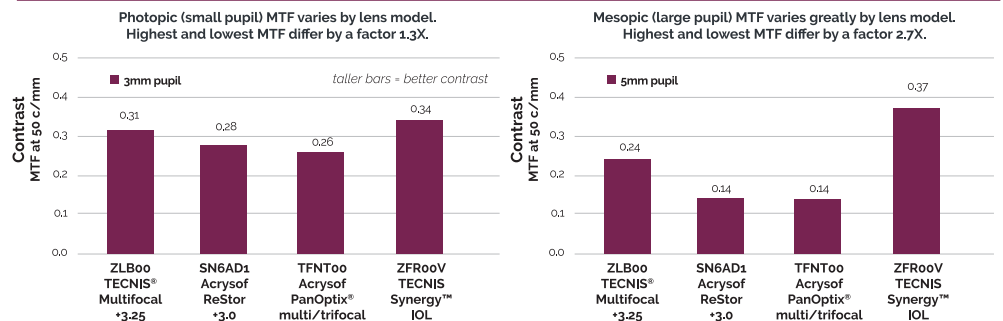
- Through focus and frequency Modulation transfer function (MTF) was measured under clinically relevant conditions. MTF at both 3 mm (photopic) and 5 mm (mesopic) pupil diameters were recorded.
- TECNIS Synergy™ IOL ZFRooV (Johnson & Johnson Vision)
- TECNIS® Monofocal IOL ZCB00 (Johnson & Johnson Vision)
- TECNIS® Multifocal IOL ZLB00 (Johnson & Johnson Vision)
- TECNIS Eyhance™ IOL ICB00 (Johnson & Johnson Vision)
- TECNIS Symphony™ OptibluE IOL ZXR00V (Johnson & Johnson Vision)
- AcrySof IQ PanOptix® Trifocal IOL TFNT00 (Alcon)
- AcrySof IQ Monofocal IOL SN60WF (Alcon)
- AcrySof IQ Vivivity IOL DFT015 (Alcon)
- AcrySof IQ ReSTOR IOL SN6AD1 (Alcon)
- Contrast performance, simulated visual acuity, and defocus curves.

## KEY TAKEAWAYS

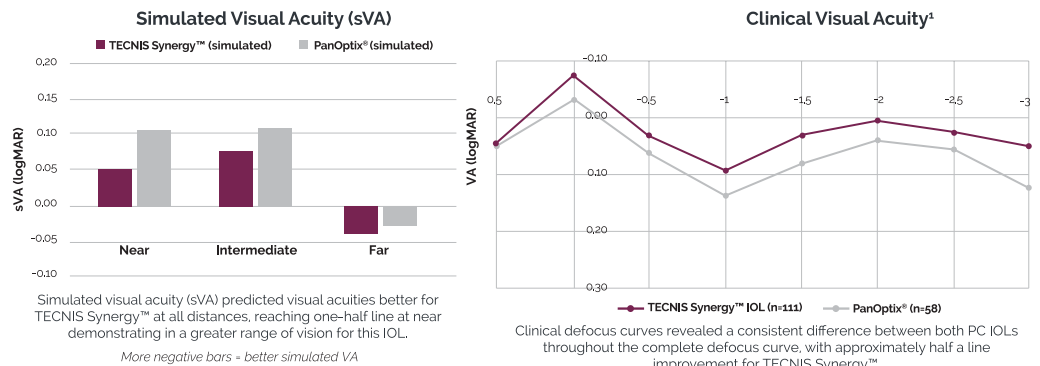
### Results

- Simulated visual acuity (sVA) predicted better visual acuities for TECNIS Synergy™ IOL compared to Vivivity and PanOptix® at all distances, reaching one-half line at near
- Clinical defocus curves revealed a greater difference between TECNIS Synergy™ IOL and Vivivity, with more than half a line improvement at intermediate and one line at near for TECNIS Synergy™ IOL
- Clinical defocus curves revealed a consistent difference between TECNIS Synergy™ IOL and PanOptix® throughout the complete defocus curve, with approximately half a line improvement for TECNIS Synergy™ IOL

### Measured image contrast of PC IOLs



### Visual acuity and defocus curves of presbyopia-correcting IOLs covering the full range of vision



### Conclusions

MTF varied widely between the different lens models, especially for the larger pupil sizes (mesopic conditions). EDOF IOLs and PC IOLs covering the full range of vision can exhibit differences of up to a line in simulated VA and half a line in clinical defocus curve testing.

# Measuring Reading Speed and Low Contrast Visual Acuity after Implantation of New Continuous Range of Vision\*\* Presbyopia-Correcting IOL



J. De Rojas, D. Shoemaker, K. Solomon, et al.



Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Ambispective investigator initiated trial



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/ 20 patients/6-10 month follow up



### Key End Points

- Reading speed by reading acuity (at 40 cm) in photopic and mesopic conditions, visual acuity under low contrast (10%) and high contrast conditions (at 4 m), VA under low contrast AND mesopic versus photopic conditions

## KEY TAKEAWAYS

### Results

- Mean uncorrected reading speed was 160 words per minute at larger print sizes.
- Mesopic reading speed was 25% lower than photopic (until the mesopic mean critical print size, 0.60 logMAR, or 20/80)
- Low contrast BCVA was 2 lines lower than high contrast (p<0.001)
- Mean difference was 3 lines of acuity loss in mesopic conditions (p<0.001)

### Conclusions

The TECNIS Synergy™ IOL provided excellent photopic reading speed for subjects, even at small print sizes and excellent vision in high contrast conditions (mean BCVA better than 20/20). The IOL also provided great visual acuity under low contrast conditions and good functional reading ability under dim light/mesopic conditions.

# Patient Satisfaction after Implantation of New Continuous Range of Vision\*\* Presbyopia-Correcting IOL



J. De Rojas, D. Shoemaker, K. Solomon, et al.



Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Ambispective investigator initiated trial



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/ 20 patients/6-10 month follow up



### Key End Points

- Patient feedback from standardized, validated questionnaires: PRSIQ (Patient Reported Spectacle Independence), VFQ-25 (Visual Function), PRVSO (Patient Reported Visual Symptoms)

## KEY TAKEAWAYS

### Results

- Results showed a high degree of spectacle independence at all distances
  - 100% of patients did not need spectacles for intermediate
  - 95% of patients did not need spectacles for near
  - 95% of patients did not need spectacles for distance
- There was a high degree of satisfaction with uncorrected vision (90% completely or mostly satisfied with intermediate and near)
  - "Halos" were the most common visual disturbance reported
  - Often around lights at night
  - Most of these patients were "not bothered" or "only slightly bothered" by halos

### Conclusions

Patient feedback from standardized questionnaires demonstrated a high level of satisfaction and spectacle independence with the TECNIS Synergy™ IOL.

# Describing Early Outcomes of a Novel IOL that Combines Multifocal and EDOF Properties



J. De Rojas, D. Shoemaker, K. Solomon, et al.



Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Ambispective investigator initiated trial



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/ 20 patients/6-10 month follow up



### Key End Points

- Uncorrected and distance-corrected Visual Acuity (VA) outcomes under photopic conditions at: "Very near" (33 cm), Near (40 cm), Intermediate (66 cm), and Distance (4m). Results compared to FDA data.

## KEY TAKEAWAYS

### Results

- Results: Refractive Data targeting "first plus" (Monocular)
  - 85% (34/40) of eyes within 0.50 D of plano
  - 80% (32/40) of eyes with 0.50 D or less of refractive cylinder
- Results: Binocular Photopic VA (n = 20)
  - 85% of patients had UCVA of 0.1 logMAR (20/25) or better at all test distances
  - 90% of patients had a distance corrected VA (DCVA) of 0.1 logMAR (20/25) or better at every test distance
- Study mean UCVAs were better than the TECNIS Synergy™ SSED UCVA's at near, intermediate, and distance

### Conclusions

In this study cohort, the TECNIS Synergy™ lens provided a wide range of functional binocular vision from distance to 33 cm. The performance of the IOL was at least equal to that previously reported in the SSED.



# Functional Outcomes after Binocular Implantation of a Continuous-Range-of-Vision\*\* IOL in Refractive Lens Exchange Patients

 R. Khoramnia, I. Baur, G. Labuz, et al.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Ongoing prospective study of 28 refractive lens exchange patients



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/ 56 eyes of 28 patients/ 3 month follow up



### Key End Points

- Uncorrected and distance corrected visual acuity testing at far, intermediate, and near; defocus curve testing; contrast sensitivity testing (mesopic and photopic conditions)

## KEY TAKEAWAYS

- Results**
- Results confirmed by defocus curve testing; visual acuity of 0.2 logMAR or better from +0.75 to -3.5 diopters
  - Photopic and mesopic contrast sensitivity were within the normal range

**Conclusions** TECNIS Synergy™ IOL demonstrated good results for uncorrected and distance corrected visual acuity testing at far, intermediate, and near distance.

# Comparison of Visual Acuities between Two Bilaterally Implanted Multifocal Lenses that Provide Continuous Range of Vision\*\*

 R. Roth, S. Modi, B. Fisher, et al.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Prospective, study-level interim data of multicenter (4 sites), randomized (1:1 ratio), double masked, bilateral study



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/27 patients
- AcrySof IQ PanOptix® Trifocal IOL TFNT00 (Alcon)/25 patients



### Key End Points

- Binocular uncorrected visual acuity (VA) and distance corrected VA at distance (4 m), intermediate (60 cm), and near (40 cm and 33 cm), in logMAR.

## KEY TAKEAWAYS

### Results

- Binocular uncorrected VA and distance-corrected VA at distance, intermediate and near were similar between PanOptix® and TECNIS Synergy™ IOL under photopic conditions
- Binocular distance-corrected VA at intermediate and near with PanOptix® were similar to TECNIS Synergy™ IOL under mesopic conditions

### Conclusions

Interim data from this ongoing prospective study showed that bilateral implantation of PanOptix® and TECNIS Synergy™ IOL had similar full range visual acuities at distance, intermediate, and near.

# Initial Experience with a New Toric Intraocular Lens

 J. Schallhorn.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Prospective study of consecutive patients that underwent bilateral implantation by 2 surgeons



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ Toric IOL DFW (Johnson & Johnson Vision)/21 eyes of 13 patients/3-6 month follow up



### Key End Points

- Binocular uncorrected visual acuity (VA) at distance and intermediate

## KEY TAKEAWAYS

### Results

- 100% of patients achieved uncorrected binocular distance VA of 20/20 postoperatively, with 77% achieving 20/16
- 100% of patients achieved uncorrected binocular intermediate VA of 20/32 postoperatively, with 77% achieving 20/25

### Conclusions

Early data suggests that the TECNIS Synergy™ Toric IOL is a viable option for astigmatism patients interested in improving continuous range of vision\*\*. Early outcomes also show a low incidence of complications and visual phenomena.

# Questionnaire Outcomes with a Presbyopia-Correcting Intraocular Lens

 W. Christie, I. Yau, L. Tsai.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Global study: Prospective, multicenter (12 sites), randomized study assessing patient and surgeon experience with bilaterally implanted TECNIS Synergy™ IOL via questionnaire
- US Study: Prospective, multicenter (15 sites), randomized study assessing patient and surgeon experience with bilaterally implanted TECNIS Synergy™ IOL via questionnaire



### Study IOL(s)/Number of eyes/patients and Study Duration

- Global study: TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/114 patients/3 month follow up
- US study: TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/131 patients/6 month follow up



### Key End Points

- Patient reported spectacle independence at all ranges of vision and surgeon satisfaction questionnaire

## KEY TAKEAWAYS

### Results

- At 3 months (global study), 88.4% of subjects reported wearing glasses or contacts "none of the time" for distance, intermediate, near, and overall vision
- At 6 months (US study), 87.8% of subjects reported wearing glasses or contacts "none of the time" for distance, intermediate, near, and overall vision.
- Patient satisfaction ratings of Mostly or Completely Satisfied with overall vision ranged from 81.6% (global study) to 89.3% (US study)
- In the global study, surgeons were Very Satisfied / Satisfied with the clinical outcomes 96.8% of the time and with the surgical experience 100% of the time.

### Conclusions

Limited spectacle wear reported by subjects with TECNIS Synergy™ IOL was consistent between studies conducted in the US and globally and at different time points after surgery. The low spectacle wear time achieved with the TECNIS Synergy™ IOL translates to high satisfaction among both patients and surgeons.

# Comparison of Visual Outcomes of Bilateral Dual-Technology Diffractive IOL versus Blended of Aspheric Monofocal with Dual-Technology IOL

 T. Hida, C. Cortez, J. Lake, et al.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Prospective, parallel-group, randomized (1:1), double-masked, post-market clinical study; patients received either bilateral TECNIS Synergy™ IOL or blended TECNIS Synergy™/Eyhance™ IOL



### Study IOL(s)/Number of eyes/patients and Study Duration

- Bilateral TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/32 eyes of 16 patients
- Blended TECNIS Synergy™ IOL ZFROOV and TECNIS Eyhance™ IOL ICB00 (Johnson & Johnson Vision)/20 eyes of 10 patients



### Key End Points

- Binocular uncorrected visual acuity (VA) at distance (4 M), intermediate (60 cm), and near (40 cm); contrast sensitivity testing and defocus curves; patient-satisfaction and subjective visual quality questionnaires

## KEY TAKEAWAYS

### Results

- The bilateral TECNIS Synergy™ group was noninferior to the blended TECNIS Eyhance/Synergy™ IOL group for all distances (95% CI <0.1 logMAR) for binocular uncorrected VA
- Subjects who received the bilateral TECNIS Synergy™ IOL implantation achieved a higher mean visual acuity of 20/25 or better between -2.00 D and -2.50 D versus blended TECNIS Eyhance/Synergy™ IOL
- Similar contrast sensitivity values were found in both groups in photopic or mesopic conditions with and without glare
- There were no significant differences between groups regarding quality-of-life questionnaire

### Conclusions

Both presbyopia correcting IOL combinations presented similar results for binocular UDVA, UIVA and UNVA in addition to contrast sensitivity outcomes and quality of life questionnaire. Binocular defocus curve showed a higher mean Va in the bilateral TECNIS Synergy™ IOL group between 40 cm and 50 cm.

# Safety and Efficacy Outcomes with a New Continuous-Range-of-Vision\*\* Intraocular Lens

 J. Venter, D. Teenan, S. Hannan.

 Presented at the American Society of Cataract and Refractive Surgery (ASCRS); 2022

## OVERVIEW



### Study Design

- Retrospective case series of patients that underwent bilateral implantation of TECNIS Synergy™ IOL



### Study IOL(s)/Number of eyes/patients and Study Duration

- TECNIS Synergy™ IOL ZFR00V (Johnson & Johnson Vision)/549 eyes of 324 patients/1-9 months follow up



### Key End Points

- Binocular uncorrected visual acuity (VA) at distance, intermediate, and near; patient reported outcomes

## KEY TAKEAWAYS

### Results

- 92% of patients achieved uncorrected binocular distance VA of 20/25 or better postoperatively, with 47% achieving 20/20 and 22% achieving 20/16
- 88% of patients achieved uncorrected binocular intermediate VA of 20/25 or better postoperatively
- 94.1% of patients achieved uncorrected binocular near VA of N6 or better postoperatively
- 92.7% of patients reported that they would recommend to friends and family

### Conclusions

The safety and efficacy outcomes suggest the TECNIS Synergy™ lens may be a good option for patients looking for meaningful gains in uncorrected visual acuities at distant, intermediate, and near ranges.

\*\*Continuous 20/32 or better in the US pivotal clinical trial

<sup>1</sup> Results may vary from the clinical study data presented in product labeling;  
The TECNIS Synergy™ lens in the U.S. is indicated only for a reduction in eyeglass wear

## Important Safety Information Disclaimer

For Healthcare Professionals Only. Please reference the Instructions for Use for a complete list of Indications and Important Safety Information and contact our specialists in case of any question.