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**Bruno Barbosa Ribeiro**

I do not have any potential conflict of interest\*

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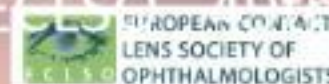
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## MYOPIA AND VISUAL PERFORMANCE WITH DIFFERENT CONTACT LENSES

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## Introduction

Myopia is a public health concern

By 2050, it is expected that half of the world's population (five billion people) will have myopia

Nearly one billion at high risk of sight-threatening pathology – myopic maculopathy, retinal detachment and glaucoma

Correction with contact lenses involves less aberrational blur, minification, and aniseikonia

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## Purpose

To analyse the visual performance in myopia patients already fitted with different contact lenses materials and designs



## Materials and Methods

Retrospective cohort study

Inclusion criteria

- Adult patients with a diagnosis of myopia
- Well-fitted contact lens wearers

We excluded patients who missed the complete clinical evaluation



## Materials and Methods

Demographic data

Functional parameters

Structural parameters





## Materials and Methods

Demographic data

Age  
Gender  
CL specifications  
Duration of wear

Functional parameters

Structural parameters

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## Materials and Methods

Demographic data

Functional parameters

Structural parameters

Best-corrected visual acuity (BCVA) with contact lens (BCVA-CL)

Contrast sensitivity under photopic (PCS) and mesopic (MCS) conditions  
(by Metrovision-MonPack3®)

Analysis of light scatter and impact of the tear film on dynamic optical  
quality (by HD Analyser®)



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## Materials and Methods

Demographic data

Functional parameters

Structural parameters

Subfoveal choroid thickness (SCT) and nerve fiber layer of optic disc  
(NFL-OD)

(by Heidelberg Spectralis® Spectral-Domain Optical Coherence Tomography)

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## Results

28 eyes of 18 patients

n=10 male (35.7%)

aged 24 to 62 years (mean $\pm$ SD of 47.8  $\pm$  9.9 years)

spherical equivalent (SE) (median  $\pm$ range of -11.25  $\pm$ 21.0 diopters (D))

Myopia

- Non-pathologic (SE < -6.0 D), n=8 (28.6%)

- Pathologic (SE > -6.0 D), n=20 (71.4%)

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## Results

### Contact lenses

- Rigid gas permeable CL (RGPCL) – 13 eyes
- Silicone hydrogel (SHCL) – 15 eyes

### Contact lenses use

- < 10 years, n=13 (46.4%)
- ≥ 10 years, n=15 (53.6%)



## Results – Visual Acuity

No significant differences were found regarding BCVA among groups ( $p = 0.722$ )



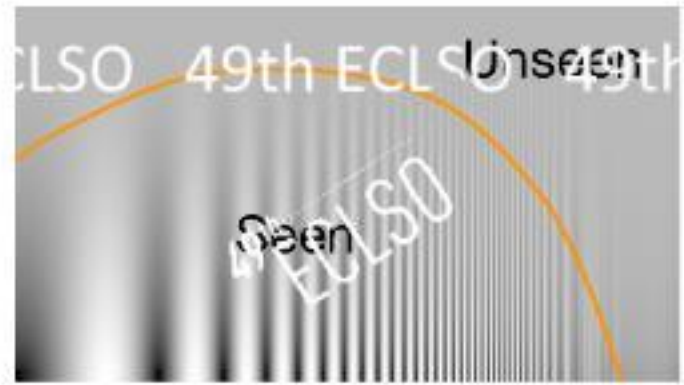
Rigid Gas Permeable (RGPCL) = Hydrogel Silicone (SHCL)



## Results – Contrast Sensitivity

### Photopic CS

- No significant differences between RGPCL and HSCL  
( $p = 0.763$ )



### Mesopic CS

- No significant differences between RGPCL and HSCL ( $p = 0.387$ )



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## Results - Light scattering analysis

### Objective scatter index (OSI)

- No significant differences between RGPCL and HSCL ( $p = 0.153$ )
- Higher SE, worse OSI ( $r = -0.500$ ,  $p = 0.007$ )
- Lower SCT and NFL-OD, worse OSI ( $r = -0.611$ ,  $p = 0.001$  and  $r = -0.447$ ,  $p = 0.019$ )

### Modulation Transfer Function (MTF)

- No differences between RGPCL and HSCL ( $p = 0.799$ )



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## Results – Contrast Sensitivity

CL wearers for  $\geq 10$  years

- Lower pupil diameter ( $p = 0.017$ )
- No significant differences in photopic ( $p = 0.209$ ) and mesopic ( $p = 0.584$ ) CS
- No significant differences between OSI ( $p = 0.612$ )

Longer duration of CL wear is not associated with reduced vision quality



## Conclusions

- Myopia is compatible with good BCVA-CL
- There is no significant variation in quality of vision with different types of CL and duration of CL wear
- Quality of vision varies significantly with refractive error and anatomical characteristics of myopic eyes

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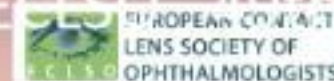
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