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## AUTHORS

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**Commercial Relationships Disclosure (Abstract):** Gonzalo Carracedo: Commercial Relationship: Code N (No Commercial Relationship) | Laura Batres: Commercial Relationship: Code N (No Commercial Relationship) | MAria Serramito: Commercial Relationship: Code N (No Commercial Relationship) | Anahi Gonzalez: Commercial Relationship: Code N (No Commercial Relationship) | Carlos Carpena-Torres: Commercial Relationship: Code N (No Commercial Relationship)

**Study Group:** Ocupharm Research Group

## ABSTRACT

**TITLE:** Efficacy and repeatability of aberrometry-based binocular refraction compared with subjective refraction.

### **ABSTRACT BODY:**

**Purpose:** The aim of this study was to evaluate the repeatability of a new system of binocular refraction, mainly based on ocular aberrometry, (BROA) and to compare its efficacy with the traditional subjective refraction (SR) as Gold Standard.

**Methods:** A prospective, double-blind and transversal study was performed. It was recruited 99 subjects (35 men and 64 women) with a mean age of  $37.22 \pm 18.04$  years old (age range: 7 to 70 years). Refractive surgery or irregular cornea were considered as exclusion criteria. SR was performed by three different optometrists and BROA by another optometrist (three times) in three different days, randomly. Neither patients nor optometrist knew the refraction achieved by the others. For statistical analysis, the refraction was converted to vectorial parameters (M, J0 and J45). Then, best corrected visual acuity (BCVA), subjective vision evaluated with visual analog scale (VAS), refraction spent time and M, J0 and J45 were analyzed. Intraclass correlation (ICC) was used to study the refraction methods repeatability and Pearson correlation to compare the efficacy between binocular refraction based on aberrometry and subjective refraction. Data are represented as mean  $\pm$  SD and p value  $< 0.05$  were considered statistically significant.

**Results:** The refraction parameters repeatability of BROA were excellent (ICC: 0.994;  $p < 0.001$  for M; ICC: 0.945;  $p < 0.001$  for J45 and ICC: 0.950;  $p < 0.001$  for J0). Moreover, the repeatability of SR were slightly worse for M and J0 (ICC: 0.986;  $p < 0.001$  for M; ICC: 0.949;  $p < 0.001$  for J45 and ICC: 0.919;  $p < 0.001$  for J0). Both refraction methods showed similar BCVA, being  $-0.12 \pm 0.09$  LogMAR for binocular refraction based on aberrometry and  $-0.11 \pm 0.11$  for SR. The main difference was found in the spent time to perform the refraction. The time spent with BROA was  $3.24 \pm 0.37$  minutes meanwhile it was  $5.37 \pm 1.47$  minutes for SR, being statistically significant ( $p < 0.05$ ). Regarding the VAS, the mean score were 85 out 100 and 88 out 100 for BROA and SR, respectively. Finally, a positive strong correlation between BROA and SR were found for M (Pearson: 0.984;  $p < 0.001$ ) and J0 and J45 (Pearson: 0.837;  $p < 0.001$  y Pearson: 0.852;  $p < 0.001$ , respectively).

**Conclusions:** The BROA shows an excellent repeatability and a strong correlation with SR, spending less chair time. The BROA seems to be a good tool for refraction.

(No Image Selected)

## DETAILS

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## TRAVEL GRANTS and AWARDS APPLICATIONS

**AWARDS:**

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