

Peripheral myopization with multifocal contact lenses dominant design in myopic patients

¹Daniela Lopes Ferreira, OD, ¹Ana Ribeiro, OD, ¹Ana Maia, OD, ¹Jorge Jorge, PhD, ¹António Queirós, OD, ²Cesar Villa-Collar, PhD, ¹José Manuel González-Méijome, PhD
¹University of Minho, Braga, Portugal, ²European University of Madrid, Madrid, Portugal

Corresponding Author: dan_lopex88@hotmail.com

Purpose: The purpose of this paper was to show the potential of a commercial center-distance multifocal soft contact lens to change pattern of relative myopic refraction in peripheral retina of myopic patients.

Method: Twenty-eight myopic eyes were measured (mean spherical equivalent refraction = -2.24 ± 1.33) with a mean age of 22 ± 2 years. Refraction was measured in the center and at eccentricities between 35° nasal and temporal 35° (in 5° steps). The measurement of axial and off-axis refraction was made using an open field auto-refractometer Gran Seiko WAM-5500 without lenses, with multifocal lens (Proclear Multifocal D® Design) with +2.00 D and +3.00D add power. Measurements were made in two different sessions with both add powers in randomized order.

Results: Baseline peripheral relative refractive error as spherical equivalent (M) was -0.69 ± 1.14 D and -0.46 ± 1.38 at 35° in the nasal and temporal retina, respectively. Both add powers increased the relative peripheral myopia up to -0.82 ± 1.23 D ($p=0.002$) and -1.42 ± 1.45 D ($p<0.001$) at 35° in the nasal field or -0.87 ± 1.42 D ($p=0.003$) and -2.00 ± 1.48 D ($p<0.001$) at 35° in the temporal retina with +2.00 and +3.00D add, respectively.

Conclusions: It is possible to significantly change the pattern of peripheral refraction in the myopic direction with dominant design multifocal contact lenses. The higher add (+3.00D) demonstrated to be more effective than the +2.00D lens showing, increasing the peripheral relative myopia by two-fold.

Biography sketch: Graduated in Optometry and Vision Science in University of Minho in 2010. Research fellow at the Clinical and Experimental Research Laboratory of the Center of Physics, Minho University funded by Portuguese Foundation for Science and Technology. Has participated in research activities as an undergraduate student. Current research interests include contact lenses for the correction of presbyopia and assessment of the quality of vision. Currently is taking the Master Degree in Advanced Optometry at the University of Minho.