



CHANGES IN MYOPES VISUAL ACUITY WITH DIFFERENT CONTRAST STIMULI

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Introduction

For corrected myopes visual acuity is better with positive Weber contrast (white symbols on black background) than with negative contrast (black symbols on white background) optotypes. Some authors showed that in case of myopia visual acuity is better with the positive than with negative contrast optotypes. One of explanations of this difference between myopes and emmetropes is that myopes have neurological changes in ON and OFF pathways of the visual system. However it is well known that in case of increased light scattering level in the eye symbols with positive contrast are resolved better than with negative contrast, because bright background increases straylight level in the eye more than dark background. Contact and spectacle lenses also increase retinal straylight in the eye. In our research we wanted to find out how optical correction influences myopes visual acuity with positive and negative contrast stimuli.

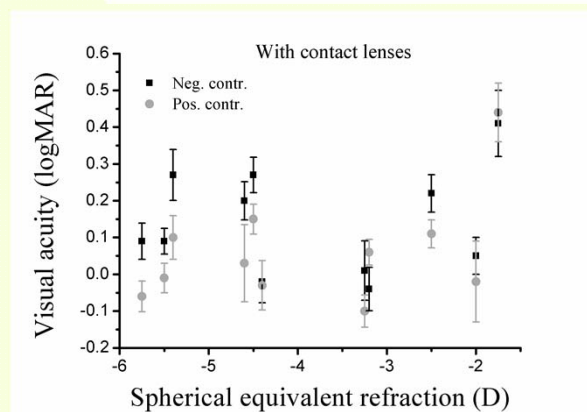
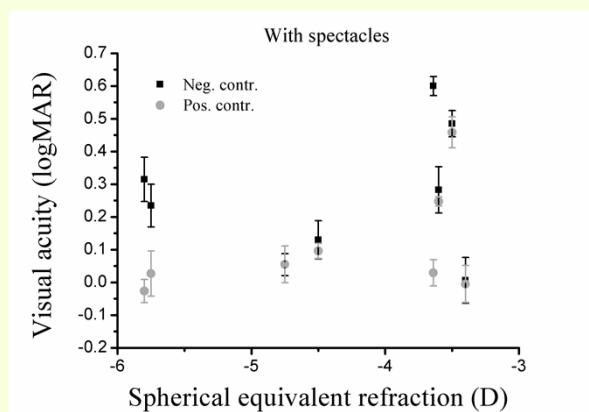
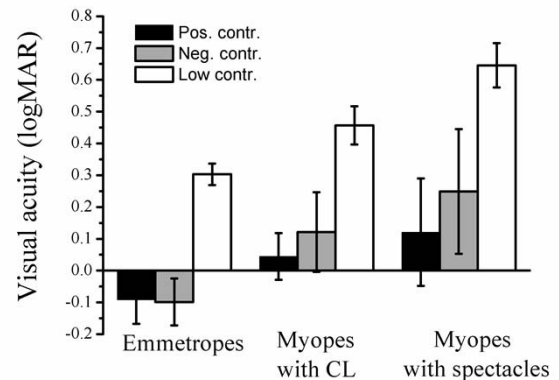
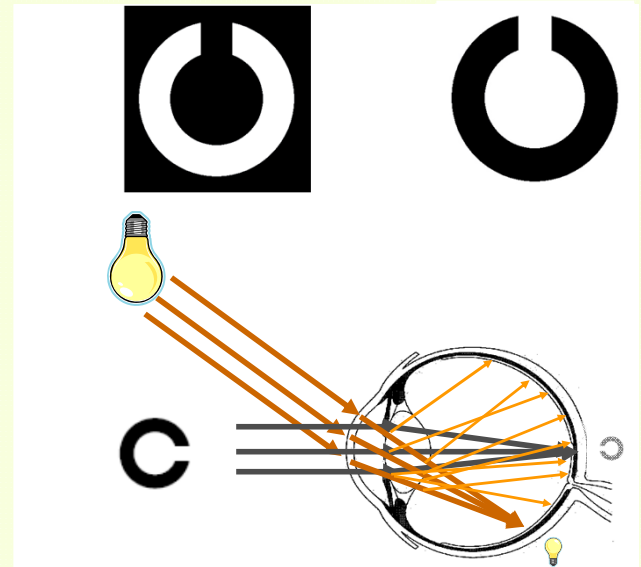
Method

29 persons (11 myopes and 8 emmetropes) at the age from 20 to 22 participated in this research. Monocular visual acuity (VA) with positive (35.7), negative (-0.97) and low contrast (-0.1). Landolt optotypes was determined using FrACT computer program.

Results

Compared low contrast results, myopes don't have worse contrast sensitivity than myopes because visual acuity obtained with high contrast stimuli also were lower.

For emmetropes visual acuity with positive and negative contrast was not significantly different, while for myopes visual acuity was better with positive contrast than with negative contrast stimuli. A greater difference between these values for myopes was in measurements done with spectacles. These results are in accordance with other researches which showed that spectacle lenses increase retinal straylight more than contact lenses.



Conclusion

Better visual acuity for myopes with positive than negative contrast stimuli is related mainly with neurological not optical factors.

References

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