



Research Proposal 2 of 3

Myopic Vitreopathy & Vision Degrading Myodesopsia

VMR Research Foundation

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Project Overview

Myopia (near-sightedness) is a leading cause for visual impairment,ⁱ predicted to attain epidemic proportions in coming years.ⁱⁱ The prevalence of myopia in the United States has increased from 25% to 44% between 1972 and 2004.ⁱⁱⁱ In East Asia, the prevalence of myopia is significantly higher, around 80-90% among young adults and 84% in children.^v It is estimated that by 2050 there will be 5 billion myopic people in the world.ⁱⁱ

In youth, the vitreous body fills the center of the eye with a solid clear gel. During aging, there are molecular re-arrangements that result in liquefaction of the gel and formation of opacities within the vitreous body that interfere with light getting to the retina (tissue lining the inside of the back of the eye, acting like a film in a camera). The resulting shadows are perceived as “floaters”. This process is accelerated in myopia, resulting in precocious senescence with fibrous vitreous liquefaction and early posterior vitreous detachment (collapse of the vitreous body), making the visual phenomenon of floaters worse. In fact, myopic vitreopathy is the leading cause of vitreous floaters and Vision Degrading Myodesopsia (VDM) in young people. Yet, the underlying mechanisms are poorly understood.

This research aims to use quantitative ultrasonography and measurements of contrast sensitivity function in myopic patients complaining of floaters to gain a better understanding of vitreous structure and visual function in myopia. Recommendations regarding management are anticipated.



Appendix

- i.** Pararajasegaram R. Vision 2020 - the right to sight: from strategies to action. *Am J Ophthalmol* 1999;182:359–360.
- ii.** Holden BA, Fricke TR, Wilson DA, et al. Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050. *Ophthalmology* 2016;123(5):1036-42.
- iii.** Vitale S, Sperduto RD, Ferris FL 3rd. Increased prevalence of myopia in the U.S. between 1971-1972 and 1999-2004. *Arch Ophthalmol* 2009;127(12):1632-9.
- iv.** Wu PC, Huang HM, Yu HJ, et al. Epidemiology of myopia. *Asia Pac J Ophthalmol (Phila)* 2016;5(6):386-393. doi: 10.1097/APO.0000000000000236.
- v.** Dong, L, Kang YK, Li Y, et al. Prevalence and time trends of myopia in children and adolescents in China: A systemic review and meta-analysis. *Retina* 2020;40(3):399-411.



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