Myopic Defocus for Myopia Control

The prevalence of myopia is especially high reaching 80% in Asian urban regions and there is also an increasing trend among Caucasian countries. If the prevalence continues to increase, it is predicted that by 2050 half of the world’s population will be myopic. High myopia has long term retinal and ocular health consequences that affect quality of life and is now considered a global public health issue.

This lecture provides an overview of the variety of myopia control strategies using optical devices in attempts to slow myopia progression in children. A number of clinical trials adopting the principle of incorporating myopic defocus in simultaneous vision to achieve myopia control have been found to be effective.

In this lecture, we will illustrate and discuss the evidence from animal models and human clinical trials. The Defocus Incorporated Multiple Segments (DIMS) Spectacle Lens, co-developed by the School of Optometry, The Hong Kong Polytechnic University and research collaborator Hoya Vision Care, can slow down myopic progression in children. The design and optical performance of the novel Defocus Incorporated Multiple Segment (DIMS) lens will be presented. The trials have shown that significant retardation of myopia progression and axial elongation in myopic school children by 60% when children wore the DIMS spectacle lens over two years as compared to those wearing single vision lenses. The effectiveness of the DIMS lens in reducing myopia progression is better when compared with the use of Progressive Addition Lenses, bifocal spectacle lenses, multifocal and bifocal contact lenses as well as Orthokeratology.

The DIMS lens offers a least disruptive alternative and could become the preferred treatment for myopia control in future clinical practice.