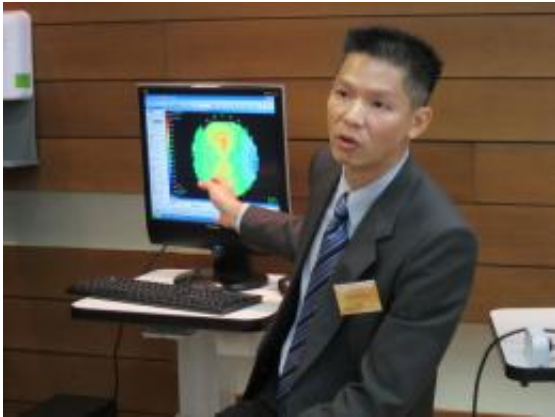


PolyU optometry study finds astigmatism prevalent among Hongkongers

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Nearly one out of 10 people between 21 to 30 years old have astigmatism more than 200 degrees (2.00D), according to the latest findings on a clinical population by optometry experts at The Hong Kong Polytechnic University (PolyU). The prevalence of refractive astigmatism (1.00D) is even higher for people aged above 60 years old, standing at over 40 per cent.

Astigmatism is a common vision problem. People with astigmatism experience blurred vision regardless of the working distance, creating hindrance to their everyday lives and even affecting their work and study. Although astigmatism is very common, there are only limited studies in this area. To determine the latest statistical data of astigmatism

in Hong Kong, PolyU researchers conducted a large-scale and comprehensive analysis on the clinical cases received by PolyU's Optometry Clinic.

Astigmatism is a [refractive error](#) of the eye in which parallel rays of light from an external source do not converge on a single focal point on the retina. It is usually caused by an irregularly shaped cornea. Instead of the cornea having a symmetrically round shape like a basketball, it is shaped more like a rugby football, with one meridian being significantly more curved than the meridian perpendicular to it. Vision scientists have been studying the causes and effects of astigmatism from the biomechanical, ocular structural and molecular perspectives. Although it is found that the formation of astigmatism is related to age, genes and eye diseases, it is yet inconclusive about the effect of astigmatism on the eye ball, or vice versa. Different studies on the prevalence of astigmatism worldwide have also shown that children living in the developed countries tend to have higher rates of astigmatism than those in the developing countries. This implies that [environmental factors](#) may also play a role in the formation of astigmatism.

The research team led by Dr Kee Chea-su, Assistant Professor of PolyU's School of Optometry, conducted an analysis on the clinical cases received by the PolyU's Optometry Clinic in 2007. Out of the 5,138 cases received by the Clinic, 2,759 cases were analysed and Dr Kee has drawn two important points.

"There were two peaks in the prevalence of manifest astigmatism: one in young adults aged between 21 to 30 years old (38.1 per cent) and another in elderly above 60 years old (41.8 per cent)," said Dr Kee. He further added, "Those in the 21 to 30 year-old age group not only have the highest magnitudes of myopia, but also have a higher prevalence of manifest astigmatism. More worrisome is that 11.5 per cent of the same age group also has high degree of astigmatism (over 2.00D). "As for

people above 60 years old, the prevalence of refractive astigmatism is suspected to be caused by the degeneration of their [corneas](#) and lens.'

Dr Kee also reported a significant relationship between astigmatism and myopia and hyperopia in this study. He said, "The chance for people with hyperopia over 0.75D to have astigmatism is twice as much as people with normal vision. Those with myopia less than 5.00D are 3.3 times more likely to have astigmatism, while those with high myopia over 5.00D are 7.4 times more likely to have astigmatism."

Apart from blurred vision, astigmatism will adversely affect one's daily lives such as exercising or driving as their eyes will get tired easily. Dr Kee said children with astigmatism, especially those with oblique meridian near 45o or 135 o, are at risk of developing amblyopia (or "lazy eye") if left untreated. People with over 0.50D of uncorrected astigmatism are prone to develop "Computer Vision Syndromes" if they need to use electronic products frequently and for long period. They will feel tired and may have headaches and neck pains. In addition, if an elderly fall and get hurt accidentally due to degraded vision caused by astigmatism, the consequences can be very serious.

To avoid the onset and progression of astigmatism, Dr Kee said good habit, posture and working ergonomics when reading are the keys. Outdoor activities are also recommended for relaxing the eyes. He also encouraged the general public to have comprehensive eye examination regularly for early detection and treatment of any visual problems. In case one has developed astigmatism, it is crucial for them to follow the optometrists' suggestions by wearing suitable glasses. However, spectacle frame in circular shape is not recommended. They may also consider wearing contact lens or receiving orthokeratology for vision correction. Dr Kee reminded that when selecting among different treatment options for astigmatism, one should also take into account the possible cause of [astigmatism](#), the visual acuity needs, and astigmatic progression.

Provided by Hong Kong Polytechnic University

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