

Life Sciences 生命科學

# Studies on the common vision problems of children and adults

## 兒童和成人常見的視力問題研究

Optometry experts find correlation between local myopia and astigmatism trends.

視光學專家分析本地人患近視和散光的趨勢，並發現它們之間的關連。



To better understand the latest trend in myopia amongst Hong Kong school children, PolyU's School of Optometry partnered with the Hong Kong Paediatric Foundation to conduct a two-year "Smart Practice for Healthy Vision for School Children" project in the Kwai Tsing District. Funded by the Quality Education Fund and supported by the Kwai Tsing Safe Community and Healthy City, the project provided vision screening for 5,148 school children from 15 schools (nine primary schools and six secondary schools).

The survey found that the prevalence of myopia is similar to those reported in previous studies, but the percentage of students with high myopia (-6.00 Diopters or more) showed an increasing trend. It also found that school children did not have significant knowledge of primary eye care, and more effort should be put into educating them about it.

Prof. Carly Lam, Head of the School of Optometry, said that "the average degree of myopia for children aged 12 was -1.45D twenty years ago, but our latest findings show an average of -2.11D, suggesting that children are suffering from higher myopia now. 5.2% of our subjects had -6.00D or higher in the right eye compared with 4% in previous surveys, which means that the myopia problem has become more serious. If the criterion for high myopia is relaxed to being either eye having -6.00D or above, the percentage rises to 7.1%."

In analysing the trend of increasing myopia, Prof. Lam said that the need to read or do assignments with short reading distance requirements, if compounded by poor illumination, may be a cause. Excessive use of electronic digital products will further affect the quality of school children's vision. The fact that local students are less exposed to outdoor activities than students in other places may also be a cause of increasing myopia.

為進一步瞭解香港學童患近視的趨勢，理大眼科視光學院聯同香港兒科基金，在葵青區進行為期兩年的「良好習慣營造健康眼睛」計劃。在優質教育基金的資助下，理大與葵青安全社區及健康城市協會協辦此計劃，為十五所學校（九所小學及六所中學）的五千一百四十八名學童進行視力健康篩查。

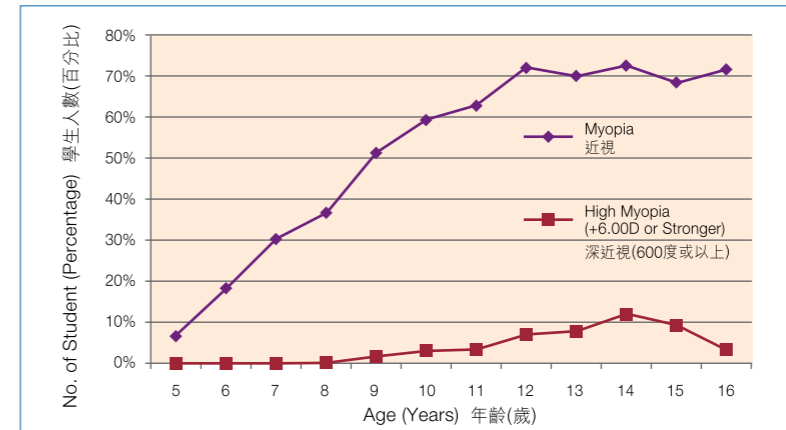
研究顯示，學生的近視情況普遍與以往同類型調查的結果相約，然而學生患深近視(600度或以上)的百分比卻有上升趨勢。研究亦發現，受訪學童對保護眼睛的認知不足，有需要在這方面加強教育，灌輸眼睛護理常識。

眼科視光學院主任林小燕教授表示：「二十年前，十二歲的學生之平均近視為145度；而在今次調查中，平均近視度數已上升至211度，顯示患近視的學童之情況比以往嚴重。另外，患有600度或以上深近視的學童之百分比(單以右眼計算)上升至5.2%，較往年調查結果的4%為高，情況比以往更嚴重。如果將準則放寬至任何一只近視達600度或以上的眼睛，深近視比率更銳升至7.1%。」

林教授分析學童近視加深速度上升的成因，其一可能是學生經常要近距離閱讀或做習作，或許加上環境光線不足的緣故。而學童過量使用電子產品亦會進一步影響他們的視力。本地學童較少參與戶外活動，這也可能與他們近視加深速度上升有關。

(Photo on the left page) Prof. Carly Lam, Head of PolyU's School of Optometry, (right) and Dr. Chan Chok Wan, President of the Hong Kong Paediatric Foundation (左頁相片)理大眼科視光學院主任林小燕教授(右)，旁為香港兒科基金董事會主席陳作耘醫生

Prevalence of myopia and high myopia in each age group among Hong Kong school children  
香港學童於各年齡組別的近視與深近視的趨勢



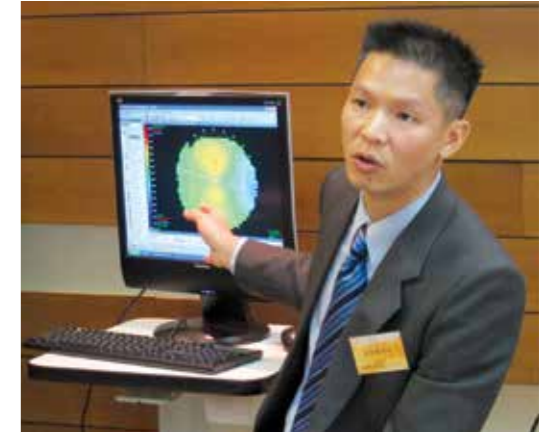
In another study, Dr. Kee Chea-su, Assistant Professor at the School of Optometry, found that nearly one out of 10 people between 21 and 30 years of age have astigmatism of more than 200 degrees (2.00D). The prevalence of refractive astigmatism (1.00D) is even higher for people aged above 60, at over 40%.

Dr. Kee conducted a comprehensive analysis of the 2,759 clinical cases received by the PolyU's Optometry Clinic in 2007. There were two peaks in the prevalence of manifest astigmatism – one in young adults aged between 21 and 30 (38.1%) and another in people older than 60 (41.8%). Those in the 21 to 30 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% of the same age group also has a high degree of astigmatism (over 2.00D). For people older than 60, the prevalence of refractive astigmatism is suspected to be caused by the degeneration of their corneas and lens.

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

Dr. Kee explained that children with astigmatism, especially those with the oblique meridian near 45° or 135°, 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 Syndrome' if they need to use electronic products frequently and for long period. They may feel tired and develop headaches and neck pains.

Dr. Kee Chea-su develops a topographic map from the corneal topographer showing astigmatism, and explains the formation of astigmatism. 紀家樹博士利用角膜地形圖儀素描散光人士的角膜地形圖，並解釋散光出現的成因。



在另一項研究中，理大眼科視光學院助理教授紀家樹博士發現，每十個二十一歲至三十歲的香港人中就有一位有200度或以上的深度散光。年齡超過六十歲的長者當中，散光人口比率更超過四成。

紀博士早前就二零零七年理大眼科視光學診所的二千七百五十九個臨床個案作出分析。散光分別於兩個年齡組別中出現高峰期，分別為二十一歲至三十歲(38.1%)，以及六十歲以上(41.8%)。由於二十一歲至三十歲時期同時亦為近視人口比率的高峰期，於此年齡組別人士的眼角膜多出現規則性散光，其中有深度散光(即超過200度)的個案更高達11.5%。至於年齡超過六十歲而患散光的長者，相信是由於眼角膜及水晶體退化所致。

研究亦證實了散光與近視及遠視的關連。「遠視超過75度的人出現散光的機會率比正常視力的人高兩倍，近視低於500度的人出現散光的機會率則多三點三倍，而超過500度深近視的人比正常視力的人出現散光的機會率更高出七點四倍。」紀博士說。

紀博士表示：「有散光問題的兒童，尤其散光軸向接近45°或135°的兒童，若不作跟進治療，嚴重者會變成弱視。有超過50度散光的人若經常長時間使用電子產品，更容易出現『電腦視覺綜合症』，並會感到疲倦、頭痛及頸痛。」