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新聞稿 PRESS RELEASE

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How to Prevent Visual Loss when Viewing Solar Eclipse

A partial solar eclipse will occur on 22 July 2009 and this will be the largest solar eclipse visible in Hong Kong for more than half a century. Viewing the sun directly is dangerous to the eyes and may result in irreversible blindness. The condition is known as solar maculopathy and is caused by photochemical damage of the retina associated with the strong light energy.

Professor Timothy Yuk-yau Lai, Associate Professor of the Department of Ophthalmology and Visual Sciences, said, "More than 200 cases of solar maculopathy caused by viewing both complete and partial solar eclipses have been reported in the literature (See Table). Symptoms of the patients include blurred vision, central visual field loss, afterimage, and reddening of the image. The visual reduction may be very severe and can sometimes result in permanent blindness." All these cases of solar maculopathy developed due to sun viewing without eye protection.

Professor Vincent Yau-wing Lee, Assistant Professor of the Department of Ophthalmology and Visual Sciences said, "Examples of inappropriate eye protection for sun viewing include sunglasses, gaps between fingers, closing eye lids, stained glass, pinhole, or old negatives." Direct viewing of the sun without appropriate protection should never be performed.

Prevention is the preferable treatment for solar maculopathy, since there is no specific treatment once the damage has developed. "There are two ways to view the sun more safely including the projection method with pin-hole or appropriate use of good quality solar filters.", said Professor Dennis Shun-chiu Lam, Chairman of Department of Ophthalmology & Visual Sciences.

The projection method can be done by creating a small pin hole on a cardboard then allowing the sun image to be projected onto a second cardboard. The damage to the eyes can be avoided by viewing only the reflected image and not directly viewing the sun. On the other hand, solar filters allow only a small proportion of the sun's light to pass through so that safer viewing can be performed. Different filters are available in the market but their quality can differ. A good quality filter with optical density of 5 or more should be used for viewing solar eclipse. Professor Lam added, "Even with appropriate protective gear, direct viewing should be limited to less than 30 seconds each time. Take a small break of at least 30 seconds before continuing viewing."

Table: Selected Solar Maculopathy Cases during Solar Eclipse

Year	Country	Eclipse	Patients	Reference
1966	UK	Partial	4	Ridgway, Br Med J 1967
1966	UK	Partial	18	MacFaul, Br Med J 1969
1996	Germany	Partial	19	Ehrt et al, Ophthalmologie, 1999
1996	Poland	Partial	21	Kawa et al, Klin Oczna, 1998
1999	Sweden	Partial	15	Kallmark, Acta Ophth Scand 2005
2005	France	Partial	1	Macarez et al, J Fr Ophtalmol 2007
Year	**Country**	**Eclipse**	**Patients**	**Reference**
1976	Turkey	Total	58	Atmaca et al, Graefes Clin Exp Ophth, 1995
1976	Israel	Total	20	Rothkoff et al, Isr J Med Sci 1978
1999	UK	Total	45	Wong et al, Lancet 2001
1999	UK	Total	35	Michaelides et al, Eye 2001
1999	UK	Total	15	Doyle et al, Eye 2002
1999	Turkey	Total	21	Gulkilik et al, Retina 2009
2006	Turkey	Total	6	Arda et al, Doc Ophthalmol 2007

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致新聞編輯
請即發放

如何避免觀賞日蝕時視覺受損

二零零九年七月二十二日將發生日偏食，為本港逾半世紀以來所能見之最大規模日蝕。觀看日蝕者若未有作出足夠的保護措施，可致視網膜黃斑受損，嚴重者可致盲；該症稱「日光性黃斑病變」。

香港中文大學 (中大) 眼科及視覺科學學系副教授賴旭佑教授說：「文獻有超過二百例由觀看日全蝕和日偏食所致的日光性黃斑病變 (見表)。症狀包括視力模糊、中心視野受損、後像，以及映像變紅等。病人的視力受損可以十分嚴重，甚至可致永久性失明。所有這些日光性黃斑病變都因為在未有使用護眼措施下觀看日蝕或使用不當而引起。」

中大眼科及視覺科學學系助理教授李佑榮教授說：「不適當的護眼設備包括太陽眼鏡、指隙、針孔、舊底片、彩色玻璃或緊閉眼簾觀日等等」。李教授表示，必須避免在未有足夠的保護措施下觀看日蝕。

預防是最佳的治療，尤其是日光性黃斑病變沒有什麼好的辦法可治。中大眼科及視覺科學學系系主任林順潮教授表示：「較安全地觀賞日蝕的途徑主要有兩種，包括以針孔成像觀察法，以及適當使用優質的日蝕觀察鏡。」

投映法可如此進行：用針在紙上刺孔一個，通過針孔將日蝕投映於另外一張紙面上。由於只是觀看其投映像，而非直望太陽，於是傷目可免。另一方面，日蝕觀察鏡只容許一小部份陽光通過，因而容讓較安全的觀看。然而，在觀賞日蝕時，只有有效過濾 99.999%的陽光，才能避免視覺受損；這須備有光學密度為「五級」的中性濾光片的日蝕觀察鏡方能達致，而市面所供的日蝕觀察鏡，品質殊異。市民應於觀日前自行測試，其方法為：戴上日蝕觀察鏡後直視 40 瓦的燈泡，凡光學密度為五級的日蝕觀察鏡，應只能看見鎢絲；倘能看見鎢絲以外的任何事物，如燈泡的輪廓等，則其濾光功能不足，不應選用。

林順潮教授說：「傳統的醫學知識建議，即使備有合格的日蝕觀察鏡，仍應限制每次直接觀看日蝕的時間在 30 秒或以下，而在繼續觀賞前，至少應稍息 30 秒；我們則建議，直接觀看日蝕的時間應減半至 15 秒或以下，而眼睛休息的時距則倍增至 60 秒」。

2009 年 7 月 21 日

附表(一)：文獻所記載觀看日全蝕或日偏蝕所引致的日光性黃斑病變數字

年	國家	日蝕	病例	參考
1966	UK	Partial	4	Ridgway, Br Med J 1967
1966	UK	Partial	18	MacFaul, Br Med J 1969
1996	Germany	Partial	19	Ehrt et al, Ophthalmologie, 1999
1996	Poland	Partial	21	Kawa et al, Klin Oczna, 1998
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2006	Turkey	Total	6	Arda et al, Doc Ophthalmol 2007

附表(二)：不正確的觀看日蝕的方法

	方法	理由
1	太陽眼鏡	並非專門為觀測日蝕而設計，濾光功能極其有限
2	燻黑的鏡片或玻璃片	於表面形成的燃燒不充分碳粒分佈可能不均勻，以致保護不足
3	水面反射	經反射的太陽光仍能引致日光性黃斑病變
4	X 光片	過濾能力極為有限，根本無法提供所需要的保護
5	無護眼過濾片的照相機或望遠鏡	無或過濾功能極微，根本無法提供所需要的保護

附表(三)：正確的觀看日蝕的方法

	方法	推薦	理由
1	針孔投射法	是	觀日者僅觀看日蝕的投映像，而非直望太陽，於是傷目可免
2	配有濾光片的照相機或望遠鏡	是	備有光學密度為五級的中性濾光片的日蝕觀察鏡能有效過濾 99.999%的強光，從而有效保護觀日者的眼睛
3	配有日蝕護眼濾光片的照相機或望遠鏡	是	原理同上，但光學密度只需 3.8 級。
4	燒焊用面罩	否	面罩強度須達 14 級或以上，而一般應用的多為 12 級，非專業者難以分辨，容易出現不必要危險
5	已充分曝光，並經沖灑的底片	否	該些底片須為(1)黑白，確保(2)已經沖曬，並已(3)完全曝光。由於各人利用底本制作的水平不一，底片曝光度不均，不能完全保證觀日者的眼部安全。