

有效改善兒童及成年 輕度弱視患者視力的遊戲訓練

Electronic Game Training for Treating Mild Amblyopia in Children and Adults

通過有趣的遊戲療程改善視力及立體感

An enjoyable treatment process that can improve visual acuity and stereopsis

專利由加拿大麥基爾大學擁有

特色與優點

- 非入侵性治療
- 電子遊戲比傳統遮眼訓練有趣和吸引
- 使用簡單工具：紅綠眼鏡及iPod機
- 隨時隨地都可以參與訓練，每日只需一小時
- 因應弱視患者的視力調整遊戲的對比度

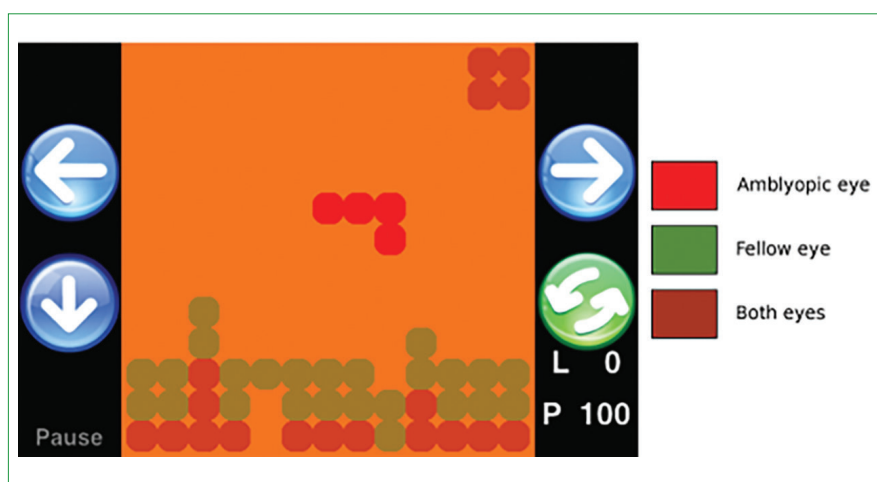
應用

小童及成人的弱視治療

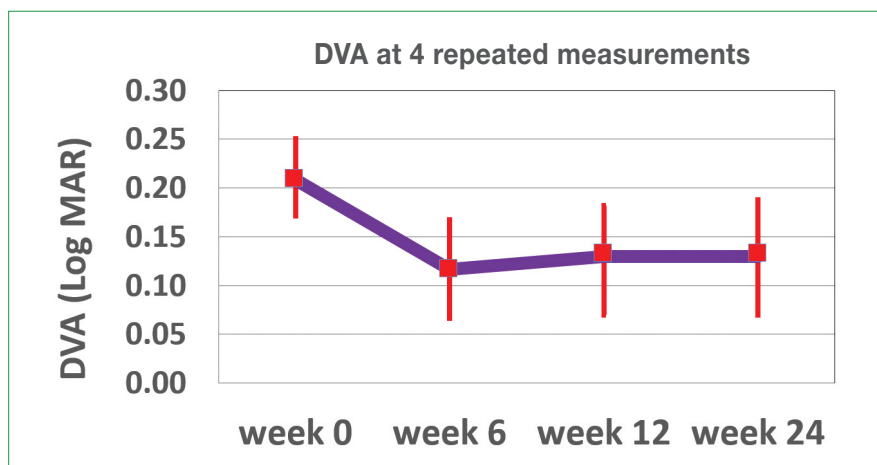
獎項

視覺及眼睛研究國際會議2017：最佳海報獎第三名

弱視是指一隻眼的視力，無論用任何方法，包括配戴眼鏡 / 隱形眼鏡和手術治療等，都無法達到正常水平。過去普遍認為弱視治療只對八歲或以下的患者有效果。理大眼科視光學院一直與加拿大麥基爾大學、滑鐵盧大學及新西蘭奧克蘭大學聯合進行的一項以離眼式電子遊戲訓練為成年弱視患者治療的研究。研究結果雖顯示嚴重至中度弱視患者的視力並未有改善，但理大團隊發現輕度弱視患者在家中進行了六週的訓練後，參與測試者的視力及立體感均有明顯改善。



弱視眼看到紅色，好眼看到綠色，而棕色的圖形雙眼都看得到
Red and green colour blocks are seen by amblyopic and fellow eyes respectively;
brown blocks are seen by both eyes



弱視眼分別於第0周(訓練開始)、第6周(訓練完結)、第12周(訓練完結後六周)及第24周(訓練完結後十八周)的視力檢查結果，logMAR值愈低表示視力愈好
Mean DVA (logMAR) of amblyopic eye at week 0 (training starts), week 6 (training ends), week 12 (6 weeks after training), and week 24 (18 weeks after training). The smaller the DVA value, the better vision is

Amblyopia is a vision development disorder in which an eye fails to function normally, even with prescription eyeglasses or contact lenses or after surgery. It is generally believed that treatment for amblyopia is only effective for sufferers that are 8 years old or younger. PolyU School of Optometry has been collaborating with McGill University, the University of Waterloo in Canada, as well as the University of Auckland in New Zealand on a study in using dichoptic video games as a therapy for adult amblyopia patients. Although the result did not show improvement in the vision of “severe-to-moderate” amblyopes, the PolyU team did find a significant improvement in “mild” amblyopes: after playing the games at home for six weeks, the subjects’ distance visual acuity (DVA) and stereopsis were significantly improved.

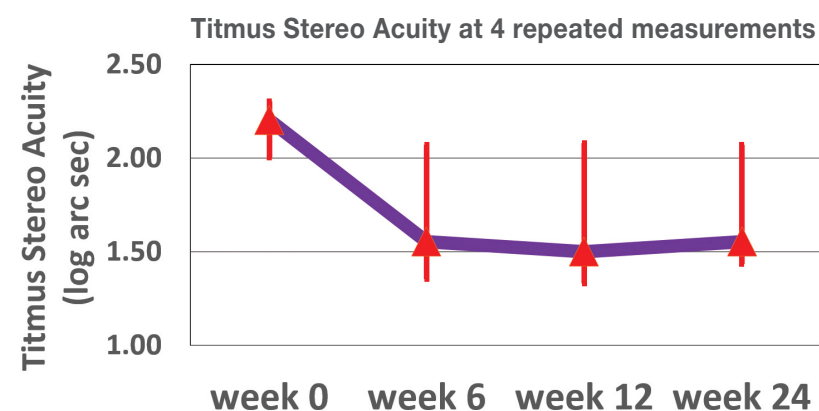
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Median stereopsis (log arc sec) at week 0 (training starts), week 6 (training ends), week 12 (6 weeks after training), and week 24 (18 weeks after training). The smaller the log arc sec value, the better the stereoacuity is

Patent belongs to McGill University

Special Features and Advantages

- Non-invasive treatment
- Training with interesting video games: more attractive and enjoyable than conventional occlusion therapy
- Simple devices: red-green goggles and an iPod
- Play one hour per day: can be done anytime, anywhere
- Configuration of contrast of the game based on the amblyopic patient's visual levels

Application

Amblyopia treatment for both children and adult

Award

Third Prize of Best Posters in the International Conference of Vision & Eye Research 2017 (iCover 2017)



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