

24<sup>th</sup> February 2010

## LATEST RESEARCH REVEALS “SMART” CHILDREN HAVE BETTER VISION

Reports that children’s health in the UK has barely improved since 1999 despite an estimated £10 billion investment have caused alarm. Obesity and dental health problems are singled out as key issues, but news that eyesight is also getting worse will add more fuel to the fire. Short-sightedness or Myopia - the inability to see distant objects clearly, has increased in the western world by 66% over the last 30 years. However, new research out this month indicates that a new type of contact lens worn only at night can slow or even halt the development of short-sightedness in children.



What is behind this short-sightedness epidemic? The culprit appears to be “modern living”. Whilst short-sightedness is genetically inherited – if one or both parents are myopic there is a strong chance that their children will be; recent growth in short-sightedness cannot solely be due to genetics because it has occurred over such a short period. Until recently, it has been assumed that around 25% of westerners are short-sighted but research published last December states this figure has increased dramatically since the early 1970’s. “The prevalence of myopia in people aged 12-54 went from 25% to 41.6%” concludes epidemiologist Susan Vitale.

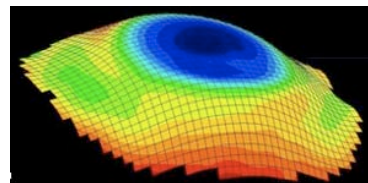
The prime suspect is increased close work under gloomy indoor light, staring at books, TVs, PSP’s, mobile phones and computer screens. A computer, which is viewed at 50 cm, adds a new vision distance in our repertoire – we normally read at 30cms and focus on distant objects at 4-5m away. Research released by the Kaiser Family Foundation indicates that children are now spending an average of 7hrs each day on screen-based activities. This means that as children’s eyesight is forming there is more focus on near-sighted things and less on distance objects. Today’s children also spend much less time playing outside and an Australian study has concluded that not being exposed to the much brighter outdoor light has been found to be a significant factor in myopia development.

The holy grail of optical science is to find a way to cure myopia. The “SMART” Study currently underway in the US aims to find out if “Overnight Vision Correction” can arrest or even reverse childhood myopia. It involves wearing specially shaped contact lenses at night which act like a dental brace by gently reshaping the eye and holding it in the correct shape as it develops. The study is the largest of its kind and is following more than 250 children over a five-year period. The 2<sup>nd</sup> year results have just been released and are extremely promising. The control group - wearing conventional **soft contact lenses**, saw an overall rate of increase in their prescription over the two year period of almost one full dioptre (equal to 3-4 lines on an eye test chart). However in those wearing the [new overnight contact lenses](#) there was no clinically significant increase in their myopia. There was also no evidence of any differential outcome between overnight and conventional contact lenses from a health and safety perspective.

The results of the SMART Study have important implications for parents who themselves are short-sighted as it offers children the opportunity to avoid the problems their parents have experienced. If a child’s vision can be stabilised at around -1.00 dioptre (approximately British legal driving standard) when younger, by the time they become an adult they will have a very manageable prescription. However if they were to go on and develop moderate to high myopia they would not be able to manage without glasses or contact lenses. Children who wear glasses tend to suffer from poor self-confidence, are less

likely to participate in sport and playground activities and it can even affect their academic performance. In the long term those with high degrees of short-sightedness are more likely to develop retinal detachment, glaucoma, cataracts and even blindness.

Myopia is typically diagnosed around the age 10 and **progresses on average at a rate of 0.5 dioptres a year** until it stabilises in the early 20's. So if a child needs glasses to see the blackboard at school by the time they reach adult age they could be highly myopic. **17% of 5-15 year olds and 29% of 16-19 year olds in the UK require vision correction.** It often goes undetected in very young children who do not realise that the blurry blackboard is not normal. As short-sightedness develops it causes the eye to elongate making the cornea too curved. Light, which enters the eye focuses in front of the retina rather than directly on it and this is why distance objects look blurry.



3D map of an eye after correction

Unlike conventional contact lenses that are sold off the shelf the new [night-time contact lenses](#) are individually made and specially designed to sleep in. A unique computerised map of the eye surface is generated and a personalised blueprint for the lenses is created from which the lenses are made. They are worn each night while sleeping and the eyelid and lenses exert pressure on the tear film which in turn gently flattens the cornea. This alters the angle at which light enters the eye and ensures it focuses correctly on the retina. When they are removed in the morning, the child has full vision correction that is maintained for over 24hrs. It takes around a week to get good stable vision and top-up soft lenses are supplied for those of higher prescriptions if necessary. The lenses can be worn at any age but for children the additional benefit of stabilising their prescription before it becomes too high is very significant.

Many parents do not realise that children can wear contact lenses. Research has shown that while only 8% of children are actually fitted, 97% are very happy with them – much higher than for adults. Jennifer Golden CEO of i-GO Optical - the company which markets the new overnight lenses in the UK under i-GO name says "Whilst the lenses are relatively new, there are already over 100,000 people worldwide successfully and safely wearing them, a large proportion of whom are children. In fact we have just fitted 3 children from the same family and even children as young as six can wear them".

Shelly Bansal, independent optician and specialist contact lens practitioner who has fitted a number of adolescents says "Over the years there have been many products which have claimed to halt myopia progression in children and now for the first time there is real evidence to support overnight vision correction as a treatment for short-sighted children. The results of the study speak for themselves, there are no real downsides and parents have the added assurance that their child has constant good vision throughout the day and full control as the lenses are only used in the home environment".

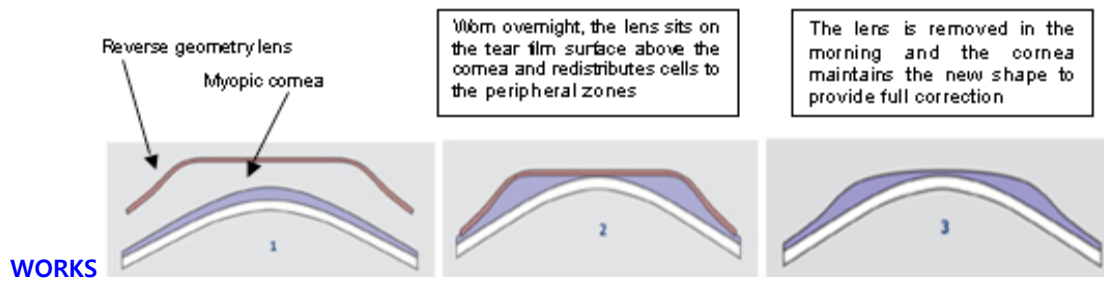
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**For more information please contact Jennifer Golden 07976 439060 or [Jennifer@igolenses.com](mailto:Jennifer@igolenses.com)**

#### NOTES TO EDITORS

- **The SMART Study uses i-GO OVC contact lenses** which is the UK trademark for the Emerald Lens design a US trademarked and patented contact lens made by Euclid Systems Corp, Herndon,VA
- The contact lenses are suitable for people who are shortsighted with a prescription of up to -5.0D who are mildly astigmatic - 1.5D or less – this equates to around 75% of all short-sighted people.
- A non-invasive risk free alternative to laser eye surgery – the minimum age for laser treatment is 21 with a stable prescription for two years
- Initial computer design and fitting is from £200, a direct debit from £40 per month covers initial lenses and six monthly replacements, all aftercare, annual eye-checks and cleaning solutions. A small annual NHS allowance can be claimed against the treatment.
- The lenses are a European **CE marked medical device** and received [US Food and Drugs administration](#) approval for overnight wear in 2004. They have also just received government approval in China.
- **i-GO OVC** contact lenses are only available on prescription through **i-GO** accredited opticians. Interested consumers can contact **i-GO** on 0844 7362579 or visit [www.igolenses.com](http://www.igolenses.com) for a full list of accredited opticians

#### [HOW OVERNIGHT VISION CORRECTION](#)



#### AVAILABLE FOR INTERVIEW

- **Dr S Barry Eiden, OD, FAAO** – The **SMART Study** Lead Clinician
- **Shelly Bansal FBDO, (Hons)CL, FBCLA** – Clinical consultant for i-GO, Ciba Vision, Johnson and Johnson
- **Dr Trusit Dave PhD, BSc(Hons), MCOptom, FAAO** – Independent researcher, practitioner, international speaker and co-author of the definitive text "[Orthokeratology: Principles and Practice](#)".
- **Caroline Christie BSc (Hons) FCOptom DipCLP** – Lecturer, City University and international speaker on children's vision

#### CASE STUDIES

[Paediatric case](#) studies can be seen on our website. Below are new cases not yet uploaded.

1. **Two 11 year old twins from the Home Counties started wearing the lenses in October**
2. **A family of three 15, 14 and 6 from North London all now wearing i-GO.**
3. **A child actor aged 10 who needed to get rid of glasses for a part he was auditioning for.**
4. **Son of a doctor who has high myopia**
5. **Mother and daughter who both use the lenses**

#### REFERENCES

- **SMART Study – (The Stabilization of Myopia through Accelerated Reshaping Technique)**  
A 5 year longitudinal study currently underway in the greater Chicago area of the US. It is funded by EyeVis Eye and Vision Research Institute. At the end of each year the children from both groups stop wearing their lenses for one month and their prescription is measured to see if there has been any change. Year two findings were presented at the Global Specialty Lens Symposium by Dr S Barry Eiden, OD, FAAO in Las Vegas (January 2010)
- [Increased Prevalence of Myopia in the United States Between 1971-1972 and 1999-2004](#)  
*Susan Vitale PhD, MHS Epidemiologist at the National Eye Institute;*; Robert D. Sperduto, MD; Frederick L. Ferris III, MD *Archives of Ophthalmology* December 2009;127(12):1632-1639. (2009)
- [Generation M2: Media in the Lives of 8- to 18-Year-Olds](#) – The Kaiser Family Foundation  
Children spend 7hrs a day using some type of screen based electronic device (2010)
- [Outdoor Activity Reduces the Prevalence of Myopia in Children](#)  
Kathryn A. Rose, PhD, Ian G. Morgan, BSc, PhD, Jenny Ip, MBBS3, Annette Kifley, MBBS, MAppStat, Son Huynh, MBBS, MMed (ClinEpi), Wayne Smith, BMed, PhD4, Paul Mitchell, MD, PhD (2009)
- [Johnson and Johnson](#) Girls' Overall Self-Worth Improves With Contact Lens Wear, Study Shows (2009)