



EUCLID

A World Leader In Myopia Management

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Myopia Epidemic

- Myopia is a rapidly increasing 'epidemic', estimated 1.45 billion people had myopia in 2010
- It is predicted this number will continue to increase as the world's population grows, from one quarter to one third of the world's population (2.5 billion) by 2020
- The onset of myopia at an early age brings with it the need for life-long eye care and when left uncorrected can affect a child's ability to learn and develop

<http://www.who.int/mediacentre/factsheets/fs282/en/>





Myopia Time Bomb

- High levels of myopia doubles the risk of serious ocular health problems such as retinal detachment, cataract and glaucoma, which can lead to vision loss and blindness.
- A recent study carried out in Shanghai, China found the greatest cause of 'newly' blind people between 2003 and 2009 was myopic macular degeneration, ahead of glaucoma and age-related macular degeneration.

MYOPIA IS A SOCIO-ECONOMIC TIME BOMB





Myopia in the U.S.

- In the United States, nearsightedness now affects roughly 42 percent of the population

(Arch Ophthalmol 2009;12712:1632-1639)





Myopia in Asia Today

“all that appears to be certain at this point is that the myopia epidemic is accelerating. In East Asian countries the prevalence of myopia is approaching 100% in young adults”

Jacob Sivak, Distinguished Professor Emeritus at the School of Optometry and Vision Science, University of Waterloo

Contact lens Update 9/2/2014 Editorial





Myopia in Asia

- In Seoul, a whopping 96.5% of 19-year-old men are short-sighted
- China 10-20% population myopic in 1955
- Today 90+% of teenagers and young adults are myopic
- 600 million myopes in China today
- High myopes may be as high as 30% of these myopes
- Blindness in China related to high myopes is over 300,000

Dolgin,E, The Myopia Boom. *Nature*;2015;519:7543



Emerald™

Myopia and Orthokeratology

(Video)



Emerald™

Ortho-K has the Best Evidence for Myopia Management





Emerald Lens By Euclid

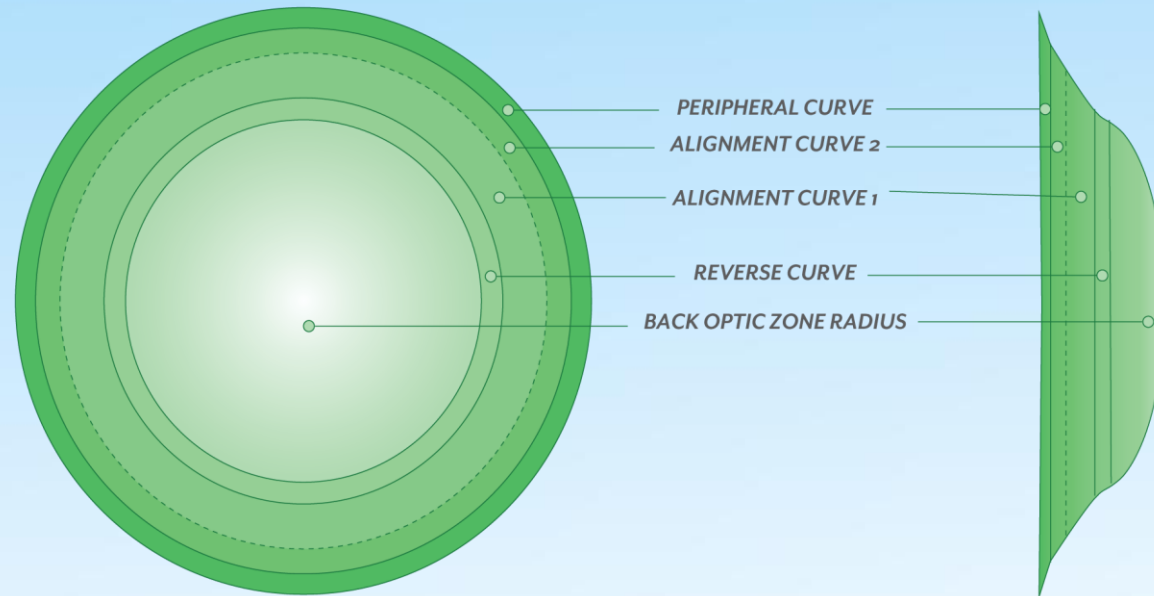
- Only worn during sleep
- Painlessly and comfortably remolds the cornea
- Controls the progression of Myopia
- 85% first fit success rate saves costly chair time





Unique Lens Design

- 4 Curve Reverse Geometry Lens
- 2 Alignment Curves within One Zone
- Equalens II Material
 - 86 Dk/L (ISO Fatt)





The Euclid Story

- Euclid Systems Corporation was founded by George Glady and Bruce DeWoolfson in 1995 as a specialty contact lens company
- 1999 saw the myopia epidemic starting in China and first sales
- U.S. FDA PMA approved for the Emerald Lens-2004
 - First to be approved in Boston Equalens II®
- China FDA approved 2007
- Still the only lens approved in China with USFDA approval
- First U.S. Ortho-K lens to be approved in Japan and Taiwan
- First U.S. Ortho-K company to have a wholly owned China subsidiary





Lens Designs Sold in 13 Countries

U.S.
China
Taiwan
Japan
Korea
Australia
Singapore
Russia
U.K.
Kazakhstan
Hong Kong
India
Macau





Expanding Markets

- Euclid Thailand-registration in process
 - ASEAN headquarters
 - Indonesia and Vietnam next
- South/Central American Sales to start by year end
- Expanding European Partnership with Optegra
 - Poland
 - Czech Republic
- Co-marketing arrangement to expand U.S. customer service and sales team
- Ukraine





Education and Training

- 74 training sessions last year
- 83 training sessions so far this year as of July 2015
- Intense 5 day Ortho-K training program to start this fall in collaboration with Tianjin Medical University and The Illinois College of Optometry
- Collaborative education and research relationships with major Chinese and Hong Kong Universities





Clinically Proven Effective in Slowing the Progression of Myopia

- SMART Study–Eiden and Davis
- Long-term effect of overnight orthokeratology on axial length elongation in childhood myopia Takahiro, Hiraoka et. Al. *IOVS*.11-8453
- The control effect of orthokeratology on axial length elongation in Chinese children with myopia-Zhu et. Al, 2014





SMART Study Methodology

- 5-year Longitudinal Study
- 10 clinical sites in the United States
- Recruitment goals: 150 test subjects and 150 control
- Subjects ages 8 to 14 at recruitment
- Visits:
 - baseline, day 1, 1 week, 1 month, 3 months, 6 months, annual





SMART Study Year 3 Results

Refractive Outcomes

- The change in the spherical equiv. from baseline is significantly less myopic in the Corneal Reshaping group relative to the Control group ($p > 0.0001$)

Test: OD -0.19D, OS -0.15D

Control: **OD -1.00D, OS -1.02D**

- There was no statistically significant change in astigmatism values for either group from baseline to the 3-Year analysis ($p > 0.05$)
There was no statistically significant difference in results OD vs. OS for either group ($p > 0.05$)





Long-term Effect of Overnight Orthokeratology on Axial Length Elongation in Childhood Myopia: A 5 Year Follow-up Study

- A prospective study was conducted to compare axial length elongation in myopic
- Treated with Euclid's Emerald lens controls wearing spectacles as controls
- The increase in axial length during the 5-year study period was 0.99 ± 0.47 mm and 1.41 ± 0.68 mm for the OK and control groups, respectively, and the difference was statistically significant ($P = 0.0236$, unpaired t-test)





Mengjun Zhu et. al.

- The control effect of orthokeratology on axial length elongation in Chinese children with myopia
- 2 year retrospective study showing significant reduction in progression and AE
- The 2-year axial elongation was significantly associated with initial age ($p < 0.001$) and treatment ($p < 0.001$), but not with gender, initial refractive error, initial axial length, initial corneal curvature
- High Myopia group also benefited

BMC Ophthalmology 2014, 14:141 doi:10.1186/1471-2415-14-141





Who is a Candidate for Emerald Lenses?

- Anyone with Myopia
 - Those who don't want to wear glasses or contacts during the day
 - People who are active in sports, especially water sports
 - Those who are afraid to have surgical vision correction
- Children get the benefit of slowing myopia progression
 - Especially children of highly myopic parents





Simple and Easy to Fit

- Optometrists can quickly become certified to fit with on-line training
- Empirical fitting is easy to learn and relies on technics already second nature to Doctors
- Emerald fitting requires minimal capital expenditures
- Ortho-K can be very profitable for any practice





The Products

- New Myopia Control designs
 - Daytime wear
 - Night-time wear
- New High Dk materials
- New Platforms
- High Myope and Toric designs
- Strategic acquisitions





Topaz Design Goals

- Increase holding time on patients with >6.00 diopters of myopia
- Reduce ghosting by flattening the BCOR to RC transition
- Reduce pressure on the corneal apex



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