

Myopia-Progression-Control

HELP !

My Child growths ?!

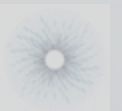
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Swiss Academy
of Ophthalmology



Luzern, 1. March 2018

Voting:



Are you practicing myopia control ?

- A. I do regularly
- B. Rare or very rare
- C. I don't
- D. What is Myopia Control ?

Myopia-Progression-Control

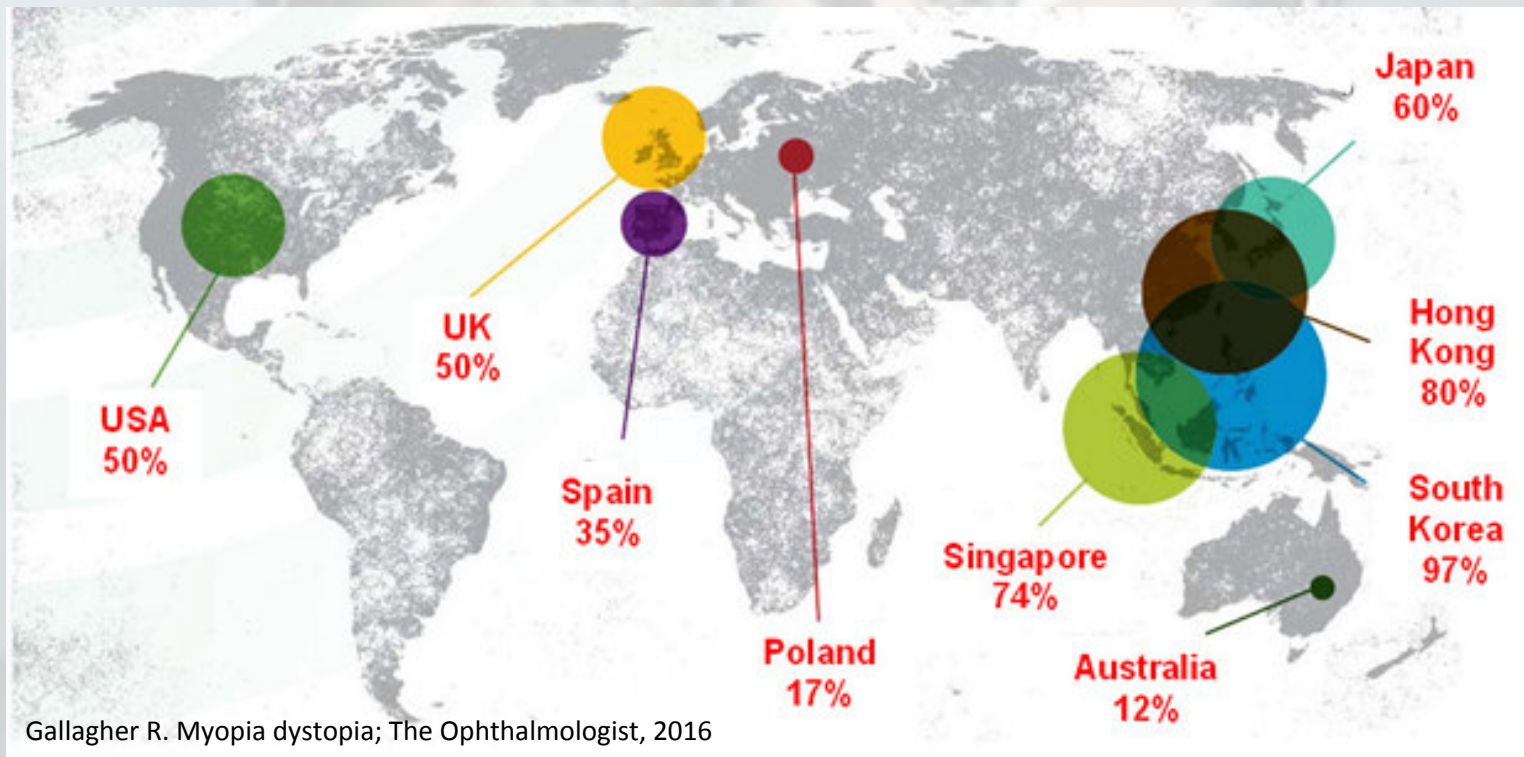
- Kontrollierte Anwendung präventiver Massnahmen zur nachhaltigen Hemmung des Längenwachstums des Auges zwecks Minimierung krankhafter Folgeschäden.



Epidemiology

“The actual global myopia prevalence is 28.3% of the world population (2 billion). With a strong increase tendency. In 2050 half of the world population will be myope. >4 billion people !”

Hopf und Pfeiffer: Der Ophthalmologe, 01/2017

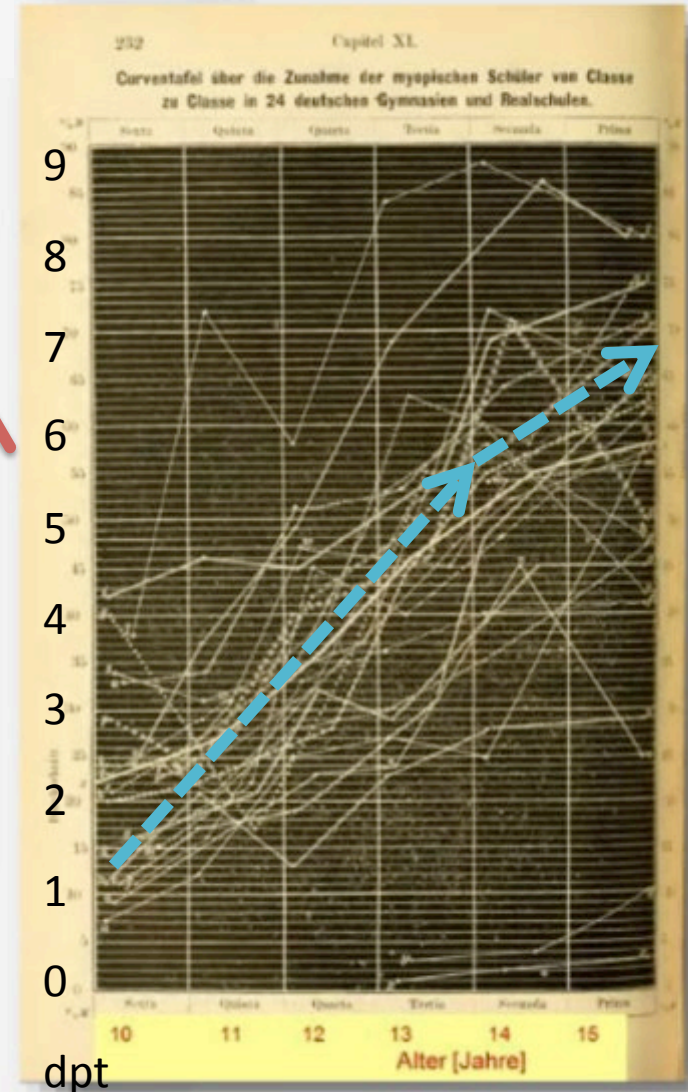


Myopia progression 1867

Dr. med. Hermann Cohn, Breslau 1838-1906
from lecture Dr. Hakan Kaymak, DOC 2017



-1.5 --> -6dpt in 5 years
= ca. 0.9dpt / year



Clinical Evidence

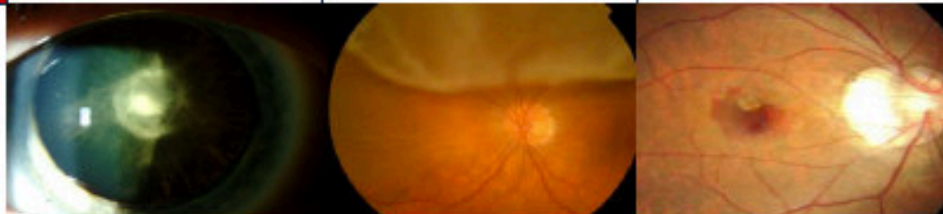
- Makula-Erkrankung (Myopic Macular Degeneration)
- Netzhautablösung (Ablatio Retinae)
- Grauer Star (Cataract)
- Grüner Star (Glaucoma)



Risk Ratio

Increased risk

	Cataract (PSCC)	Retinal detachment	Myopic Maculopathy
-1.00 to -3.00	2.1	3.1	2.2
-3.00 to -6.00	3.1	9.0	9.7
-6.00 to -8.00	5.5	21.5	40.6



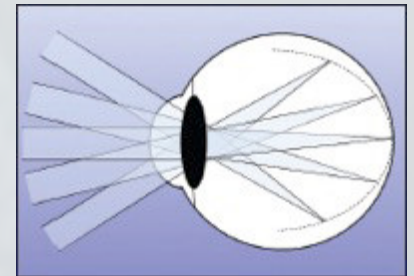
Younan et al 2002, Ogawa & Tanaka 1988, Vongphanit et al 2002 in Flitcroft 2012.

Causality

Multifactorial

Many theories, often controversial results !

- **Genetics** (Wu und Edwards 1999, Morgan und Rose 2005, Foster und Jiang 2014)
- **Environment / Dopamin** (Feldkämper und Schäffel 2003, Jones et al 2007, Rose und Morgan 2008, Pan, Chen et al. 2015, Xiong et al 2017)
- **Emmetropization** (Xiang et al 2012, Zadnik et al 2015)
- **Close work / Digitalization** (McBrian et al 1993 (-), Lin et al 2004, Mutti und Zadnik 2009 (-), Wojciechowski 2011 (+), Mirshahi et al 2014 (+), Huang et al 2016 (-))
- **Accomodative lag /Esophoria** (Gwiazda et al 2004 (-), Cheng et al 2014 (+), Huang et al 2016 (-))
- **Peripheral Defocus**
(Smith et al 2005/2013, Atchinson et al 2005, Cagnolati et al 2011)



Publications by end of January 2018

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myopia control
myopia control contact

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Best matches for myopia control:
[The Role of Atropine Eye Drops in Myopia Control.](#)
Grzybowski A et al. Curr Pharm Des. (2015)
[Parents' knowledge and perspective of optical methods for myopia control in children.](#)
Cheung SW et al. Optom Vis Sci. (2014)
[Myopia, an underrated global challenge to vision: where the current data takes us on myopia control.](#)
Hilder B et al. Eye (Lond). (2014)

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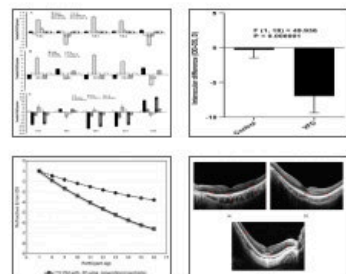
☐ [Inferior decentration of multifocal intraocular lenses in myopic eyes.](#)
1. Zhu X, He W, Zhang Y, Chen M, Du Y, Lu Y.
Am J Ophthalmol. 2018 Jan 17. pii: S0002-9394(18)30010-2. doi: 10.1016/j.ajo.2018.01.007. [Epub ahead of print]
PMID: 29355482

☐ [Assessment of Clinical Trials for Devices Intended to Control Myopia Progression in Children.](#)
2. Robboy MW, Hilmantel G, Tarver ME, Eydelman MB.
Eye Contact Lens. 2018 Jan 15. doi: 10.1097/ICL.0000000000000476. [Epub ahead of print]
PMID: 29341978
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PMC Images search for myopia control



Environment

Everybody talks about !

Visual Neuroscience IOVS 2015

Correlation Between Light Levels and the Development of Deprivation Myopia

Cindy

¹Centre
Universi
²Researc

thematics,

METHODS. B
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= 12 per g
and were s
40,000 lux
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Environment and humans !

- “Increased time outdoors is effective in preventing the onset of myopia as well as in slowing down the myopic shift in refractive error. But paradoxically, outdoor time was not effective in slowing progression in eyes that were **already myopic.**”

(Xiong et al.: Meta-Analyse/Review, Acta Ophthalmologica 2017)



Fact Check Environment

Acta Ophthalmologica

ACTA OPHTHALMOLOGICA 2017

Review Article

Time spent in outdoor activities in relation to myopia prevention and control: a meta-analysis and systematic review

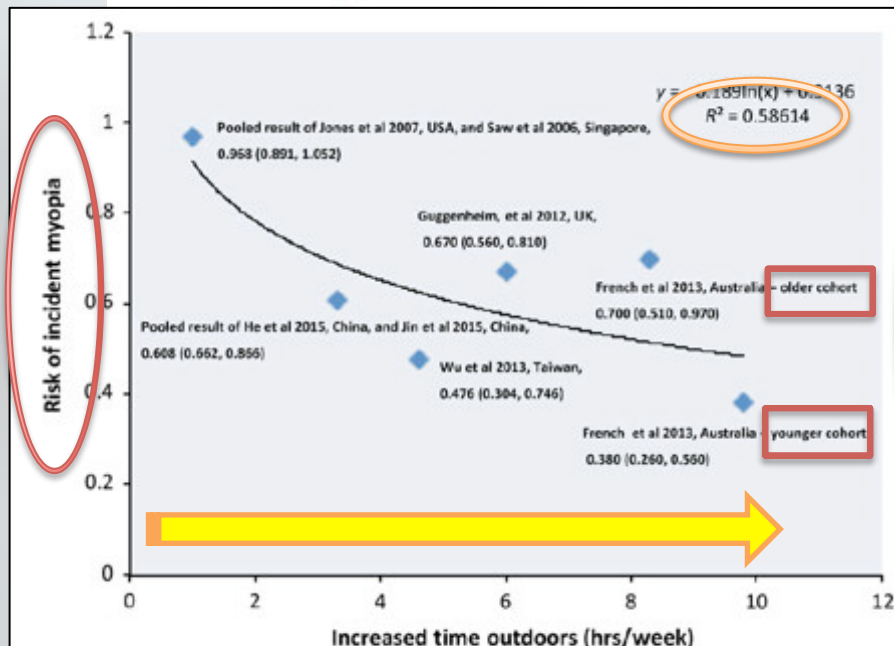


Fig. 3. Dose-response analysis of the time spent outdoors and the risk of myopia (y : risk ratio; and x : increased time spent outdoors).

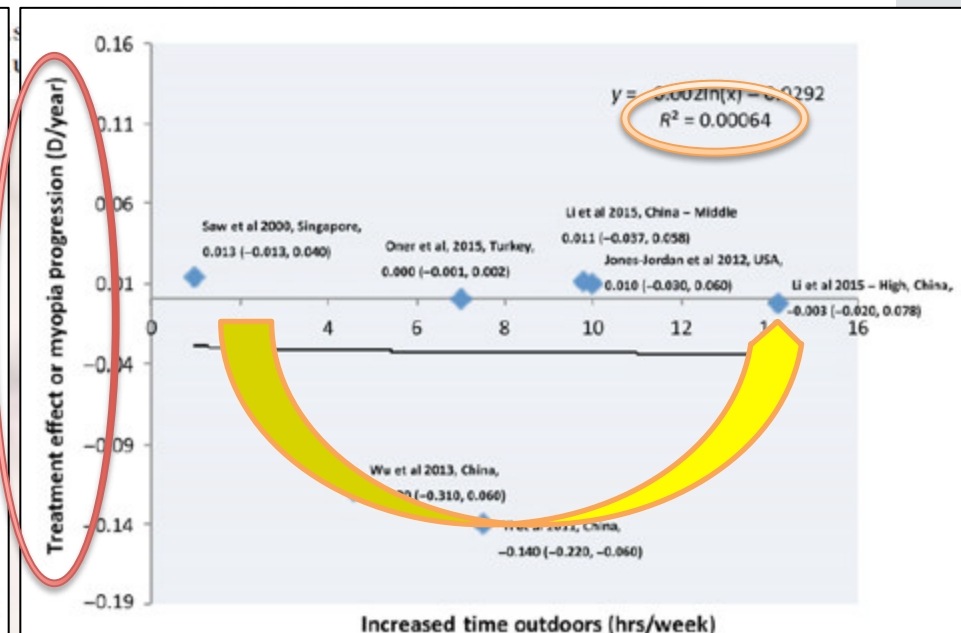


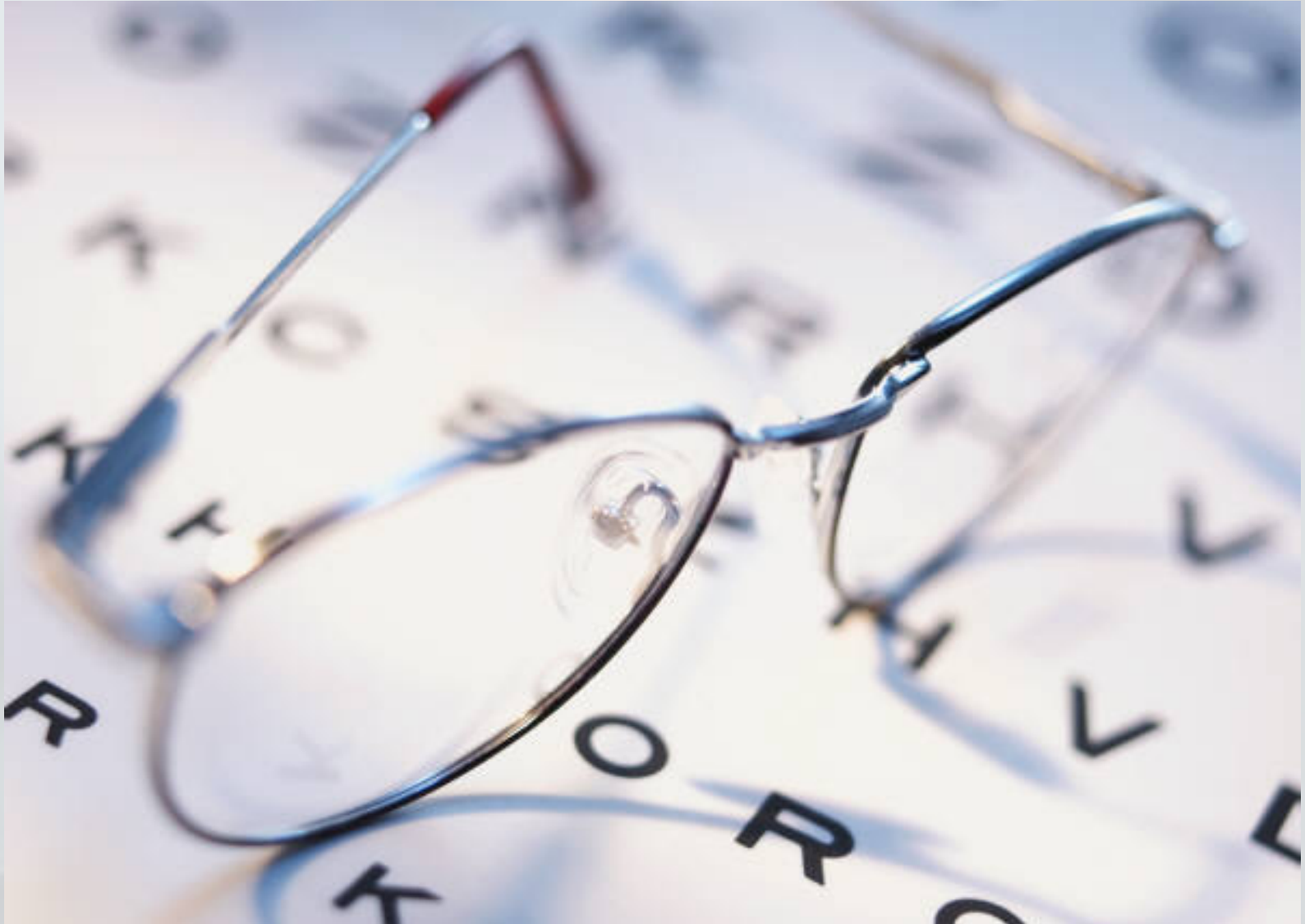
Fig. 6. Dose-response analysis of the time spent outdoors and myopic progression rate (y : treatment effect or annual myopic progression, and x : increased time spent outdoors).

Myopiaprogression by age



Sankaridurg und Holden: Eye 2014

Let's go for the solutions !



Actually most used and studied therapies

- Outdoor time



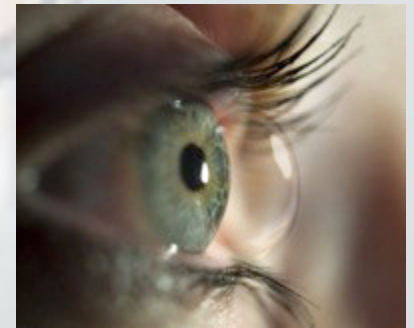
- Eye glasses

(prismatisch, bi-/multifokal, PDF)



- Contact lenses

(bi-/multifokal, PDF, Ortho-Keratologie)



- Pharmaceuticals

(Atropin, Pirenzepin)



Efficacy of actual therapies



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Ophthalmology 2016



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Efficacy Comparison of 16 Interventions for Myopia Control in Children

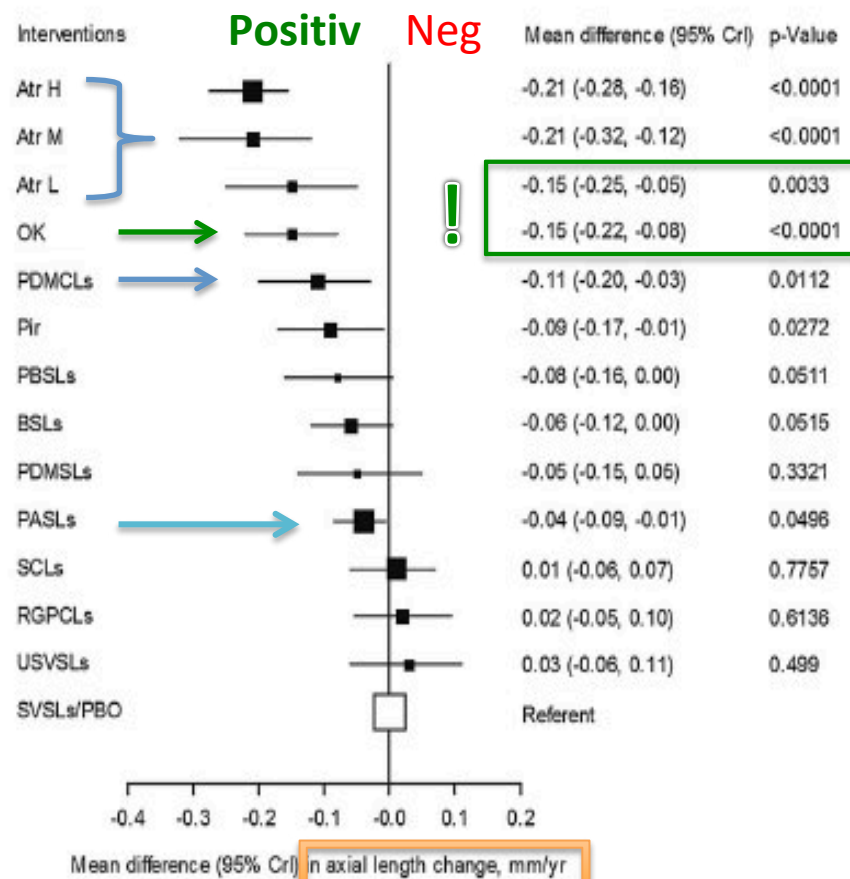
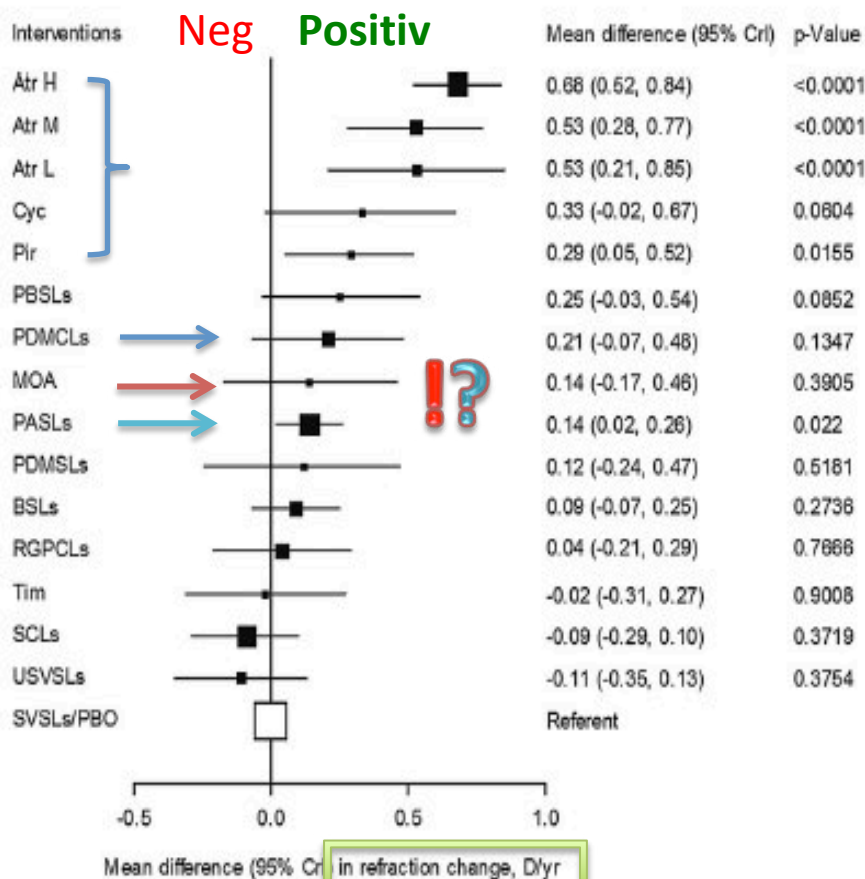
A Network Meta-analysis

change: -0.04 [-0.09 to -0.01]) showed slight effects.

Conclusions: This network analysis indicates that a range of interventions can significantly reduce myopia progression when compared with single vision spectacle lenses or placebo. In terms of refraction, atropine, pirenzepine, and progressive addition spectacle lenses were effective. In terms of axial length, atropine, orthokeratology, peripheral defocus modifying contact lenses, pirenzepine, and progressive addition spectacle lenses were effective. The most effective interventions were pharmacologic, that is, muscarinic antagonists such as atropine and pirenzepine. Certain specially designed contact lenses, including orthokeratology and peripheral defocus modifying contact lenses, had moderate effects, whereas specially designed spectacle lenses showed minimal effect. *Ophthalmology* 2016;123:697-708 © 2016 by the American Academy of Ophthalmology. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Efficacy of actual therapies

Huang et al • Network Meta-analysis: Interventions for Myopia



Atr . atropine; Atr H . high-dose atropine (1% or 0.5%); Atr L . low-dose atropine (0.01%); Atr M . moderate-dose atropine (0.1%); BSLs . bifocal spectacle lenses; CrI . credible interval; Cyc . cyclopentolate; MOA . more outdoor activities (14e15 hrs/wk); OK . orthokeratology; PASLs . progressive addition spectacle lenses; PBO . Placebo; PBSLs . prismatic bifocal spectacle lenses; PDMCLs . peripheral defocus modifying contact lenses; PDMSLs . peripheral defocus modifying spectacle lenses; Pir . pirenzepine; RGPClS . rigid gas-permeable contact lenses; SCLs . soft contact lenses; SVSLs . single vision spectacle lenses; Tim . Timolol; USVSLs . undercorrected single vision spectacle lenses.

Three years experience of myopia control with contact lenses in Berne

Alexander Meyenberg (MD) ¹, Michael Bärtschi (PhD) ², Marc Fankhauser (BSc) ^{1,2}

¹ Augenärzte am Bollwerk Bern, dr.meyenberg@augen-arzt.ch

² Eyeness AG Bern, mbaertschi@eyeness.ch

SOG-SSO 2017 Davos

Table 1.

Patient demographics and annual changes in refraction and axial length of age and caucasian ethnicity correlated study groups

	Ortho-k	Bifoc-soft	Glasses
Eyes / patients (n)	14 / 7	13 / 7	27 / 14
Females / males (n)	4 / 3	4 / 3	5 / 9
Age mean $\pm$ SD (years)	12.3 $\pm$ 2.4	12.2 $\pm$ 1.9	12.1 $\pm$ 1.5
Moderate or high myopic parents (%)	57	86	71
Follow-up mean $\pm$ SD (days)	604.5 $\pm$ 180.0	744.5 $\pm$ 82.6	595.7 $\pm$ 154.9
SE refractive error at first visit, mean $\pm$ SD (D)	-2.841 $\pm$ 1.510	-4.212 $\pm$ 1.720	-2.949 $\pm$ 1.333
Annual change of SE refraction error, mean $\pm$ SD (D)	non available	-0.333 $\pm$ 0.257	-0.301 $\pm$ 0.255
Axial length at first visit, mean $\pm$ SD (mm)	24.566 $\pm$ 0.997	25.369 $\pm$ 0.965	24.381 $\pm$ 1.014
Annual change of axial length, mean $\pm$ SD (mm)	0.059 $\pm$ 0.072	0.175 $\pm$ 0.081	0.131 $\pm$ 0.094

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Results

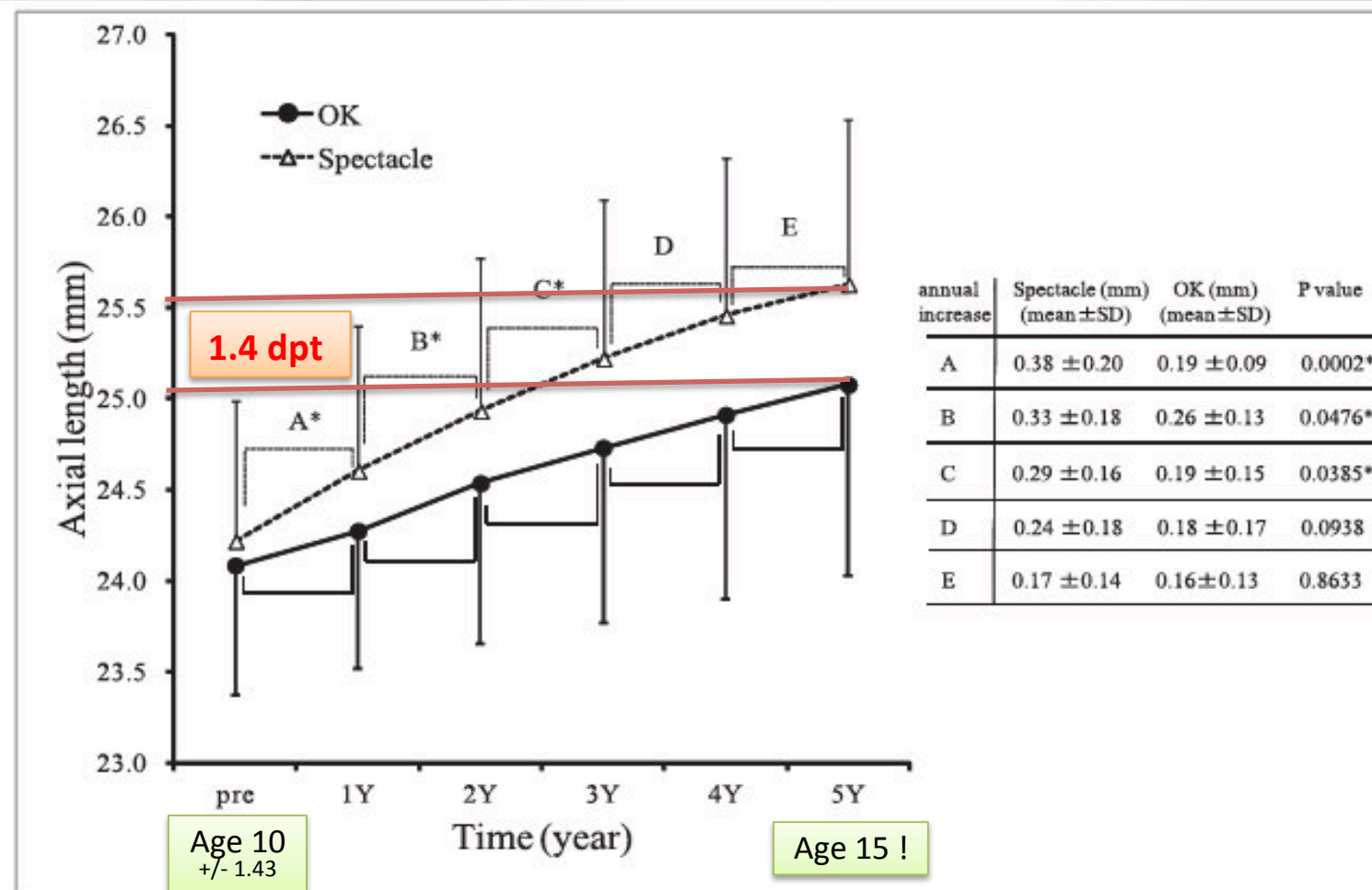
138 eyes of 71 patients between the age of 7 and 18 years, mean $12.9 \pm \text{SD } 2.1$ years, were included, 12 patients (7 females, 5 males) choosing ortho-k contact lenses, 14 patients (9 females, 5 males) bifoc-soft contact lenses, 45 patients (17 females, 28 males) spectacles. Full data sets including valid optical biometry measures were available for 24 eyes of the ortho-k group, 27 eyes of the bifoc-soft group, 87 eyes of the glasses group, respectively. Follow-up was 139 to 883 days, mean $520.8 \pm \text{SD } 203.4$ days. Contact lens fitting was successful in 92% of cases, all without complications during the follow-up period.

Conclusions

Ortho-k and bifocal silicone-hydrogel contact lenses showed a high level of safety for children and youths. Ortho-k contact lenses are a promising strategy to reduce myopia progression.

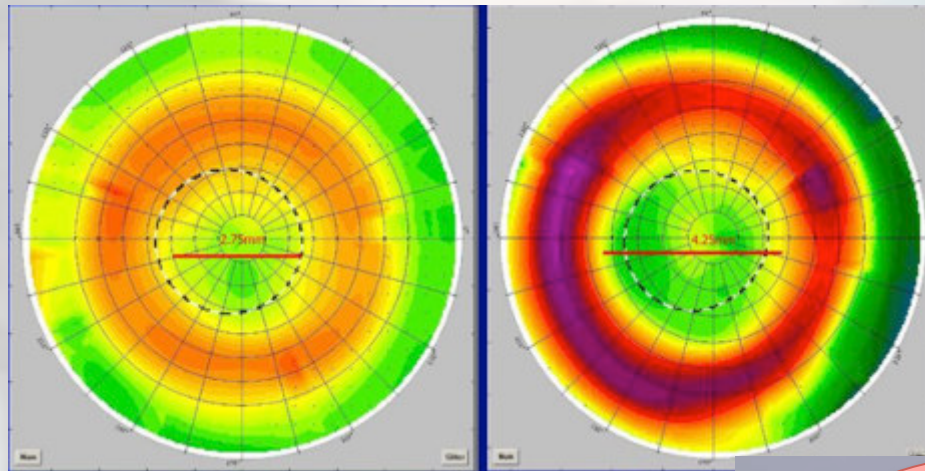
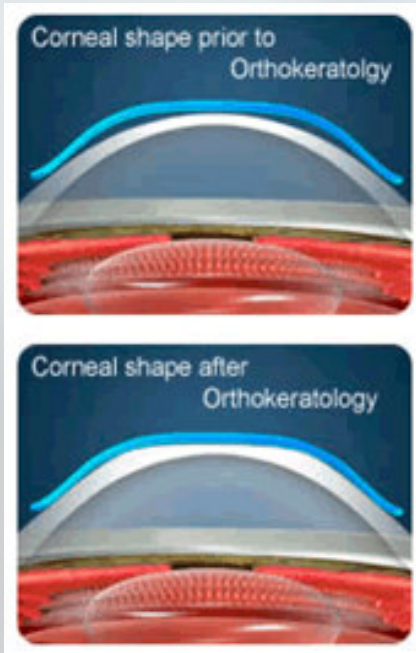
Long-Term Effect of Overnight Orthokeratology on Axial Length Elongation in Childhood Myopia: A 5-Year Follow-Up Study

Takabiro Hiraoka,¹ Tetsubiko Kakita,² Fumiki Okamoto,¹ Hideto Takahashi,³ and Tetsuro Osbika¹



Ortho-Keratology

Controlled corneal topographical reformation to correct ammetropia temporarily



Ortho-Keratology

Specials !

- No CL or glasses during daytime
- No pupil size, pupil dynamics or accommodation change
- Maximum effect of all CL therapies on axial length growth inhibition
- Children are well suitable for Ortho-K
- Safe and efficient (Hiraoka et al.: IOVS 2012)

fifth ($P = 0.8633$) years. There were no severe complications throughout the study period.

CONCLUSIONS. The current 5-year follow-up study indicated that OK can suppress axial length elongation in childhood myopia. (*Invest Ophthalmol Vis Sci.* 2012;53:3913-3919) DOI: 10.1167/iovs.11-8453

Ortho-Keratology and MK !

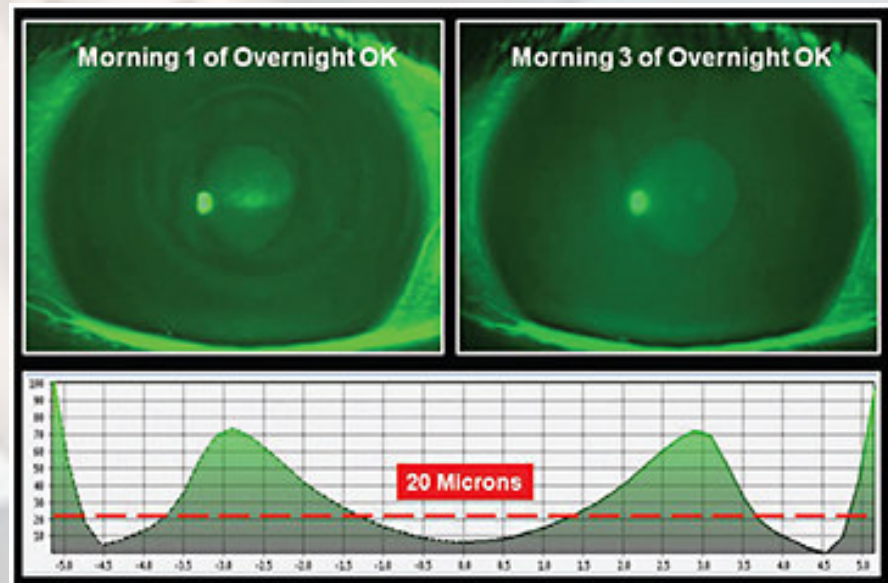
AMERICAN JOURNAL
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Orthokeratology-Associated Infectious Keratitis in a Tertiary Care Eye Hospital in Hong Kong

[Tommy C.Y. Chan](#), [Emmy Y.M. Li](#), [Victoria W.Y. Wong](#), [Vishal Jhanji](#)  

Hong Kong Eye Hospital, Hong Kong SAR, China; and Department of Ophthalmology & Visual Sciences, The Chinese University of Hong Kong, Hong Kong SAR, China

Am J Ophthalmol. 2014 Dec;158(6):1130-1135.e2. doi: 10.1016/j.ajo.2014.08.026. Epub 2014 Aug 23.



Ortho-Keratology and MK !

AMERICAN JOURNAL
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Myopia Control in Children through Refractive Therapy Gas Permeable Contact Lenses: Is it for Real?

[Bruce H. Koffler](#) , [James J. Sears](#)

[Am J Ophthalmol.](#) 2013 Dec;156(6):1076-1081.e1. doi: 10.1016/j.ajo.2013.04.039.

Conclusions

Studies show that the use of orthokeratology is a safe and efficacious nonsurgical treatment for myopia and that it is capable of slowing axial elongation, making it an effective myopic treatment for children.

Soft daily disposable contact lens



MiSight (COOPER Vision) “Dual-Focus Lens”



Lloyd's Register
LRQA

EC CERTIFICATE – FULL QUALITY ASSURANCE SYSTEM

In accordance with the requirements of the Medical Devices
Directive 93/42/EEC and the Medical Devices Regulations 2002, UK
Statutory Instrument 2002 No. 618

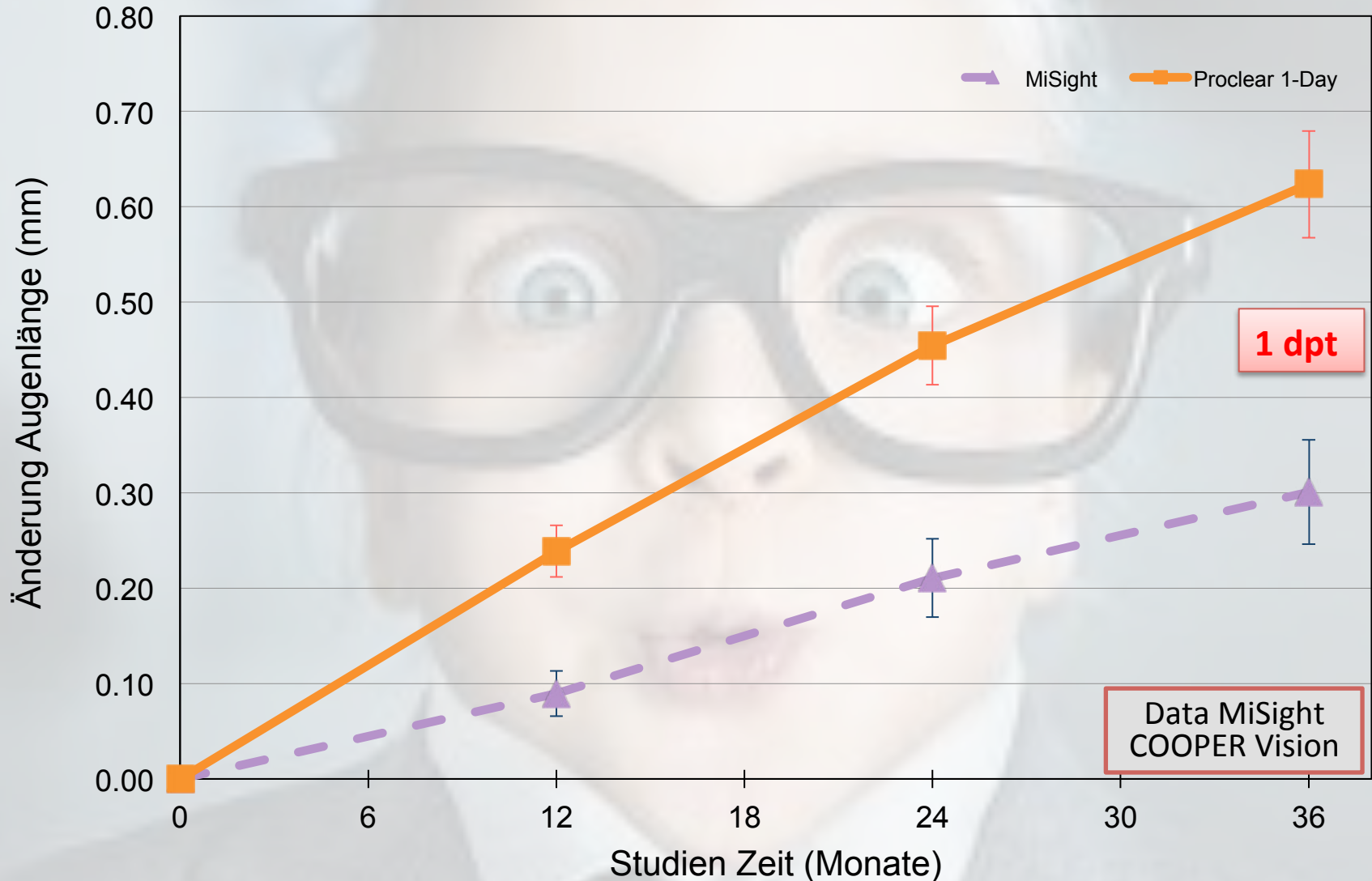
Soft (hydrophilic) contact lens products for the control of myopia:

Omafilcon A soft contact lens products for daily disposable wear

Somofilcon A soft contact lens products for daily disposable wear

3 years longitudinal results

MiSight[®] 1-Day vs Proclear 1-Day

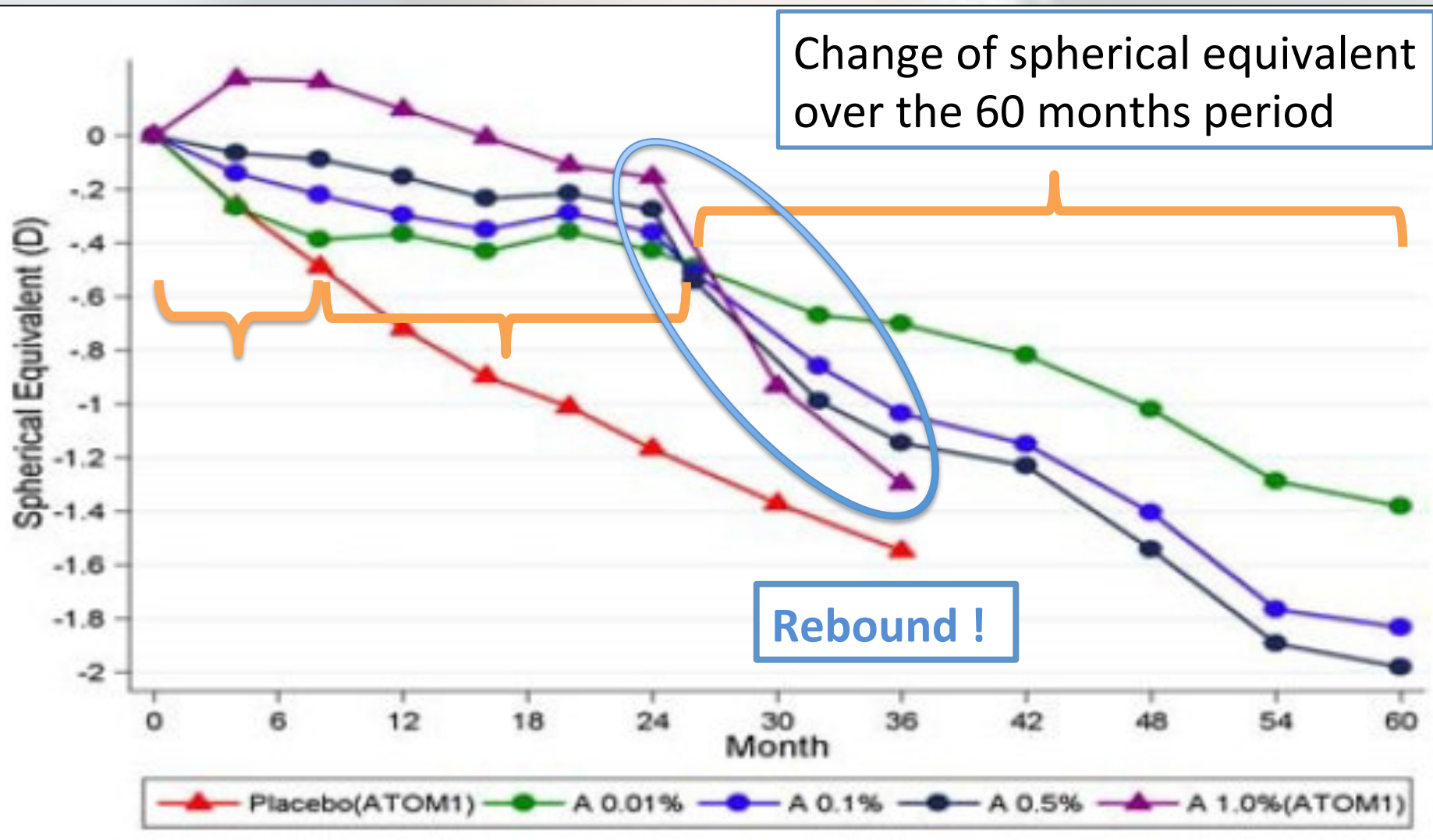


Atropine 0.5% vs 0.1% vs 0.01% (ATOM2 Study)

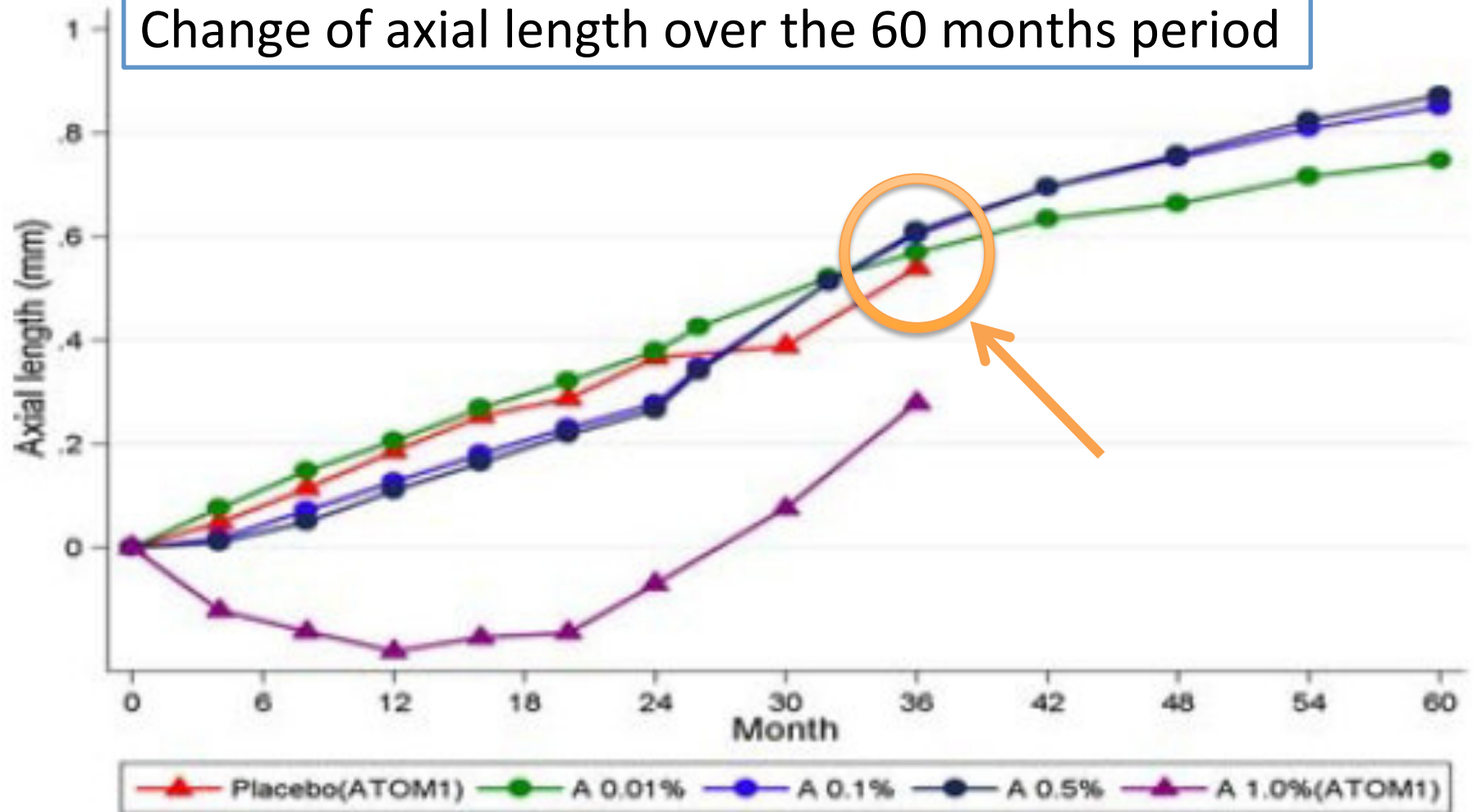
- “Over 5 years, atropine 0.01% eyedrops were more effective in slowing myopia progression with less visual side effects compared with higher doses of atropine.” Chia, Lu, Tan: Ophthalmology 2016



Atropine 0.5% vs 0.1% vs 0.01% (ATOM2 Study)



Atropine 0.5% vs 0.1% vs 0.01% (ATOM2 Study)



What means “Less side effects” ?



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ATOM 2 Study



CrossMark

Five-Year Clinical Trial on Atropine for the Treatment of Myopia 2

Myopia Control with Atropine 0.01% Eyedrops

Audrey Chia, FRANZCO, PhD,^{1,2} Qing-Shu Lu, PhD,^{3,4} Donald Tan, FRCS, FRCOphth^{1,2,4,5}

Purpose: To compare the safety and efficacy of different concentrations of atropine eyedrops in controlling myopia progression over 5 years.

Design: Randomized, double-masked clinical trial.

Participants: A total of 400 children originally randomized to receive atropine 0.5%, 0.1%, or 0.01% once daily in both eyes in a 2:2:1 ratio.

Methods: Children received atropine for 24 months (phase 1), after which medication was stopped for 12 months (phase 2). Children who had myopia progression (≥ -0.50 diopters [D] in at least 1 eye) during phase 2 were restarted on atropine 0.01% for a further 24 months (phase 3).

Main Outcome Measures: Change in spherical equivalent and axial length over 5 years.

Results: There was a dose-related response in phase 1 with a greater effect in higher doses, but an inverse dose-related increase in myopia during phase 2 (washout), resulting in atropine 0.01% being most effective in reducing myopia progression at 3 years. Some 24%, 59%, and 68% of children originally in the atropine 0.01%, 0.1%, and 0.5% groups, respectively, who progressed in phase 2 were restarted on atropine 0.01%. Younger children and those with greater myopic progression in year 1 were more likely to require re-treatment. The lower myopia progression in the 0.01% group persisted during phase 3, with overall myopia progression and change in

the 0.1% (-1.65 ± 1.16 D, $P = 0.005$, 0.65 ± 0.35 mm, $P = 0.144$) and 0.5% (-1.25 ± 1.14 D, $P < 0.001$, 0.67 ± 0.49 mm, $P = 0.075$) groups. Atropine 0.01% also caused minimal pupil dilation (0.8 mm), minimal loss of accommodation (2–3 D), and no near visual loss compared with higher doses.

Conclusions: Over 5 years, atropine 0.01% eyedrops were more effective in slowing myopia progression with less visual side effects compared with higher doses of atropine. *Ophthalmology* 2016;123:391–399 © 2016 by the American Academy of Ophthalmology.

See Editorial on page 232.

What means “Less side effects” ?

Table 4. Changes in Pupil Size, Accommodation, and Visual Acuity in Children within Different Atropine Groups (0.01%, 0.1%, and 0.5%) Who Were Re-treated and Who Did Not Require Re-treatment

	Re-treated Children		Untreated Children			
	Atropine 0.01% (N = 17)	P Value	Atropine 0.01% (N = 53)	Atropine 0.1% (N = 57)	Atropine 0.5% (N = 43)	P Value
Photopic pupil size, mm, mean (SD)						
Screening	3.93 (0.56)	0.872	3.89 (0.58)	3.86 (0.67)	4.02 (0.60)	0.363
24 mos	5.18 (1.02)	<0.001	5.02 (0.92)	6.46 (1.07)	7.28 (1.46)	<0.001
36 mos	3.78 (0.58)	0.993	3.73 (0.58)	3.59 (0.49)	3.74 (0.47)	0.193
48 mos	4.89 (0.99)	0.775	3.63 (0.52)	3.59 (0.51)	3.68 (0.40)	0.633
60 mos	5.13 (0.89)	0.275	3.58 (0.59)	3.48 (0.49)	3.58 (0.46)	0.448
Final visit	5.01 (0.59)	0.264	3.58 (0.59)	3.48 (0.49)	3.58 (0.46)	0.448
Accommodation, D, mean (SD)						
Screening	17.29 (3.24)	0.041	15.99 (3.15)	16.83 (2.72)	15.93 (2.76)	0.149
24 mos	10.68 (4.01)	<0.001	11.05 (2.73)	7.52 (2.58)	4.55 (2.16)	<0.001
36 mos	12.55 (2.49)	0.059	0.03 (0.06)	0.02 (0.07)	0.02 (0.06)	0.440
48 mos	11.37 (3.21)	<0.001	0.01 (0.07)	0.07 (0.12)	0.27 (0.22)	<0.001
60 mos	11.01 (3.20)	0.434	-0.02 (0.05)	-0.02 (0.06)	-0.02 (0.06)	0.676
Final visit	13.44 (2.48)	0.728	-0.01 (0.05)	-0.02 (0.06)	-0.03 (0.06)	0.049
		0.535	-0.02 (0.05)	-0.02 (0.06)	-0.04 (0.05)	0.191
		0.451	-0.02 (0.05)	-0.02 (0.06)	-0.04 (0.05)	0.191

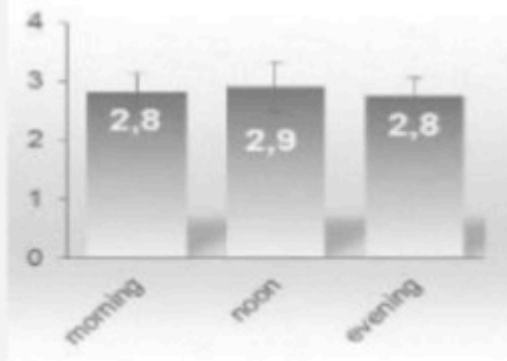
(Table 4). On restarting atropine 0.01%, there was a mean increase in photopic pupil size of approximately 1 mm and a loss of accommodation of 2.00 to 3.00 D, which were similar to the change noted in eyes treated with atropine 0.01% during phase 1 (Table 4). These mild side effects were deemed clinically insignificant, because there was no change or loss in distance or near visual acuity. Children were offered progressive addition

What means “Less side effects” ?

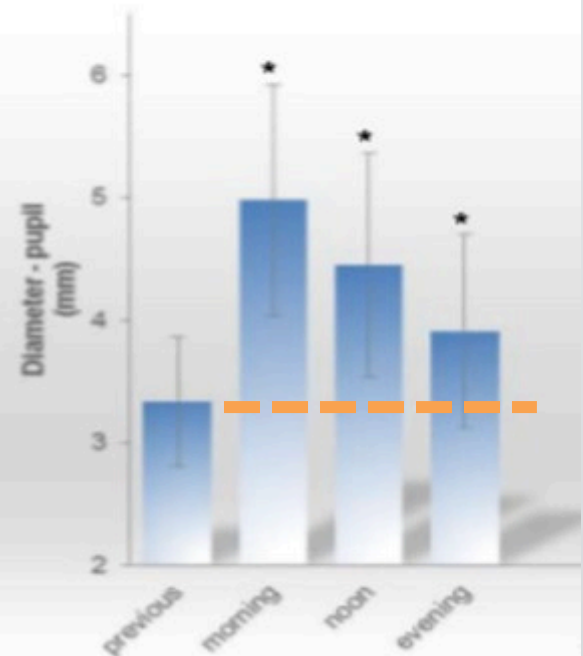
Atropin – kurzfristige Veränderungen (1) Pupillenweite

photopic

Control



0,01%



3.2mm -> 4.5mm = 40% grösser
10.24mm² -> 20.25mm² = 98% grösser

Atropine versus Contact Lenses

	Wirkungs- weise	Effekt nachge- wiesen	Einfachheit der Anwendung	Kosten	Medikam- entöse Nebenwir- kungen	Optische Nebenwir- kungen	Rebound Effekt nach Absetzen	Zulassu- ng	Risiko	Eltern
Atropine	Muscarin- antagonist <i>"It's exact mechanism of action in myopia control is unclear"</i> Tan et al. APJO 2016	+	++	++	++ ohne KS +/- mit KS BAC	+/- AL - bis -- AM/AH	+ AL - bis -- AM/AH	--	++ ohne KS	Angst der Eltern wegen chronischer Medikamen- tengabe
Contact Lenses	Correction of central and peripheral Defocus ? Cagnolati et al. 2011	+ OrthoK +/- PDMCL	+ OrthoK + MiSight	+/- OrthoK + MiSight	+/- OrthoK ++ MiSight	+ OrthoK + MiSight	- (14 jährig) + > 16 jährig	+ OrthoK ++ MiSight - PDMCL	+ OrthoK + MiSight	Handhabung Kontaktlinse Sicherheit Kosten

What we learned so far

Myopia progression is :

- Multifactorial
- strong related to age
- potentially pathological for growing eyeballs
- efficient strategies/therapies exist (evidence based !)
- sunlight works mainly during emmetropization phase, very weak correlation for inhibition in already myopic eyes
- Facts versus „headlines“ or „gut feeling“



The Shelter-Principle in myopia management

Consequent aftercare and co-operation

Atropine
0.01%

AGE ? e.g. 6 – 9 yo

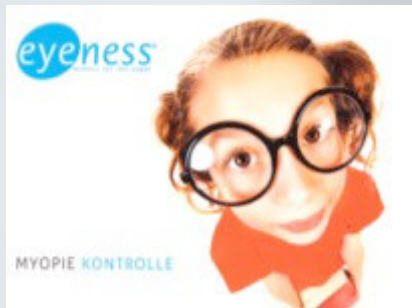
Outdoor
Sunlight

0 – 16 yo

Contact
Lenses

e.g. 10 – 16 yo

Myopia Progression Management



WARUM MYOPIE-KONTROLLE?

Die Anzahl Menschen mit einer Kurzsichtigkeit (Myopie) hat in den letzten Jahren massiv zugenommen, insbesondere in Asien. Eine Myopie kann sich bereits im Schulalter bemerkbar machen und sich in der Folge stetig verstärken. Dieses Längenwachstum des Auges stellt langfristig ein erhöhtes Gesundheitsrisiko dar. Das Risiko einer Netzhautablösung, als Beispiel, vervielfacht sich bereits bei 3 Dioptrien und liegt bei über 6 Dioptrien gar 36x höher.

GESUNDHEITSRISIKO NACH KORREKTUR

Kurzsichtigkeit	Grosser Star (3 Dioptrien)	Grosser Star (4 Dioptrien)	Wachstum abgebrochen
<1.0 bis <3.0	2x	4x	4x
>3.0 bis <6.0	3x	4x	10x
>6.0 oder höher	5x	4x	36x



WIE ENTSTEHT EINE MYOPIE?

Ein Auge ist kurzsichtig, wenn es zu lang gebaut ist und dadurch die Lichtstrahlen beim Blick in die Ferne schon vor der Netzhaut zu einem Bild vereinen. Dadurch sieht man entfernte Gegenstände verschwommen.

Ein eigentlicher Auslöser oder Grund für dieses Längenwachstum ist bis dato noch nicht bekannt. Folgende Faktoren sind aber an einer Myopie-Entwicklung beteiligt. Damit erarbeiten wir mit Ihnen zusammen Ihr persönliches Risikoprofil:

GENETIK > Familiengeschichte

Eltern nicht Myop	1 Elternteil ist Myop	Beide Eltern Myop
Tiefes Risiko	Mittleres Risiko (3x)	Hohes Risiko (9x)

VISUELLE EIGENSCHAFTEN > Korrektur

Altersgerecht	< als Altersgerecht	berreits Myop
Tiefes Risiko	Mittleres Risiko	Hohes Risiko

VISUELLE EIGENSCHAFTEN > Augen Zusammenspiel, Esophorie

Normal	Borderline	Überaktiv
Tiefes Risiko	Mittleres Risiko	Hohes Risiko

VISUELLE EIGENSCHAFTEN > Augen Zusammenspiel, Akkommodation

Normal	Borderline	Unteraktiv
Tiefes Risiko	Mittleres Risiko	Hohes Risiko

GEWOHNHEITEN > Outdoor Aktivitäten / Tag

2 1/2h oder mehr	1,5h bis 2 1/2h	weniger als 1,5h
Tiefes Risiko	Mittleres Risiko	Hohes Risiko

GEWOHNHEITEN > Naharbeiten / Tag, ausserhalb der Schulzeiten

unter 2h	2h bis 3h	mehr als 3h
Tiefes Risiko	Mittleres Risiko (2x)	Hohes Risiko (2-3x)

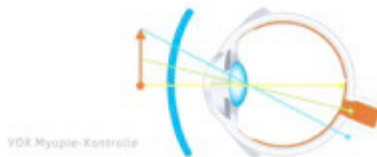
KANN MAN EINE MYOPIE-ENTWICKLUNG STOPPEN?

Ja, man kann!!! Seit Jahren werden umfangreiche Studien im Bereich der Myopie-Kontrolle durchgeführt. Neben den oben aufgeführten Faktoren ist es bei Kurzsichtigen so, dass die Umwelt nicht über die gesamte Netzhaut gleich scharf abgebildet wird. Es entsteht um den Brennpunkt des Auges ein unscharfer Ring, welcher mitverantwortlich für das Längenwachstum des Auges ist. Diesen Ring korrigiert man mit speziellen Kontaktlinsen so, dass die gesamte Netzhaut ein scharfes Bild erhält.

Bei frühzeitigen Gegenmassnahmen ist es also möglich, die negative Entwicklung deutlich zu verlangsamen.

Die folgende Tabelle zeigt eine Zusammenfassung der Verfahren zur Myopie-Kontrolle und deren Effektivität aus über 30 wissenschaftlichen Arbeiten:

VERFAHREN	VERLANGSAMUNG DER MYOPIE-ENTWICKLUNG IN %
Brillengläser und Standard Kontaktlinsen	0 - 5%
Multifokale / Bifokale Brillengläser	12 - 55%
Myovision (Spezial Brillengläser)	0 - 30%
Multifokale Kontaktlinsen	29 - 45%
Orthokeratologie / multifokale Orthokeratologie	32 - 100%
Atropin Augentropfen	30 - 77% (starke Nebenwirkungen)



VDR Myopie-Kontrolle



NACH Myopie-Kontrolle

UNSER ANGEBOT

INBEGRIFFENE LEISTUNGEN:

- Die professionelle Anpassung – Erstkonsultation (90min) inklusive Anamnese, subjektive Refraktion, digitale Mikroskopie des vorderen Augenschnittes, Topographie der Hornhaut, Hornhautdickenmessung, Augendruckmessung, Untersuchung der zentralen Netzhaut mittels Laser – Funduskamera und Computertomographie – Verträglichkeitstests (30min) nach 1 Woche und 1 Monat oder nach Bedarf
- Co-Management Augenarzt – regelmässige Messung und Überprüfung der Augendänge
- Komplettes Pflegemittelsystem und Zubehör
- Alle 6 Monate wird der Sitz der Kontaktlinsen und die Gesundheit der Augen genau kontrolliert.
- Regelmässiger Austausch der Kontaktlinsen

PREISE:

Erst Anpassung (einmalig):	
• Orthokeratologie	1060
• multifokale weiche Monatslinse	660
Monatliche Belastungen nach der Anpassung:	
• Myopie (Kurzsichtigkeit)	75
• Astigmatismus (Hornhautverkrümmung)	90

BEDINGUNGEN:

Das Abo läuft mindestens 24 Monate (danach ist eine Kündigung des Abos halbjährlich möglich). Die Beträge werden monatlich mittels Lastschriftverfahren gebucht. Einfach und unkompliziert.

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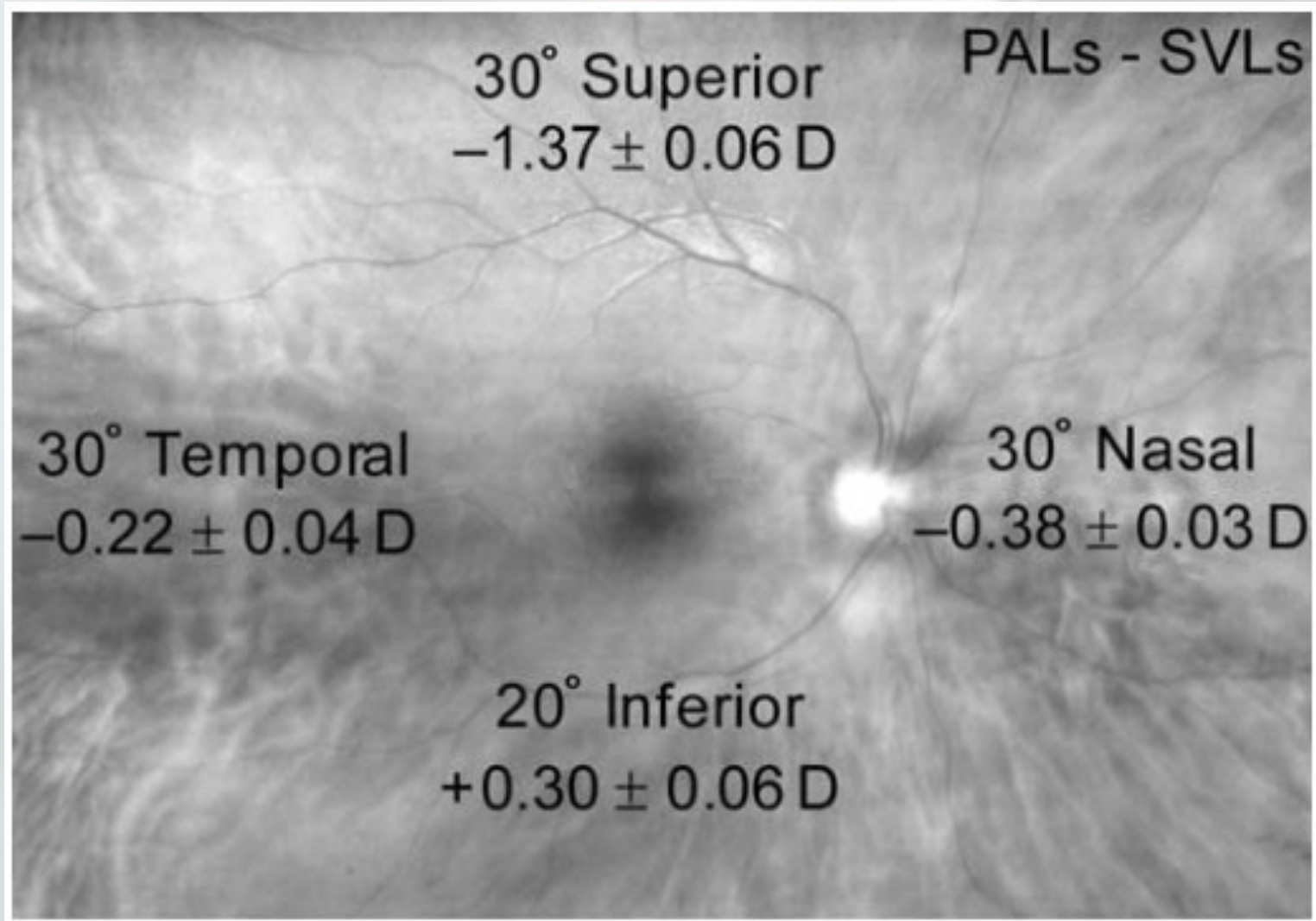
Egal welches Verfahren zum Zuge kommt, wir arbeiten eng mit Ihrem Augenarzt zusammen und lassen die Augenlänge regelmässig nachmessen.

Conclusion / Take Home

- Strategies to inhibit eye ball elongation works
- Act EARLY and consequent !
- Inform child and parents neutral and evidence based
- Choose the right therapy depending the age, the actual myopia, the progression rate and the attitude of the parents and the child. Adjust strategy over time !
- Local co-operation of Ophthalmologist and Optometrist 😊

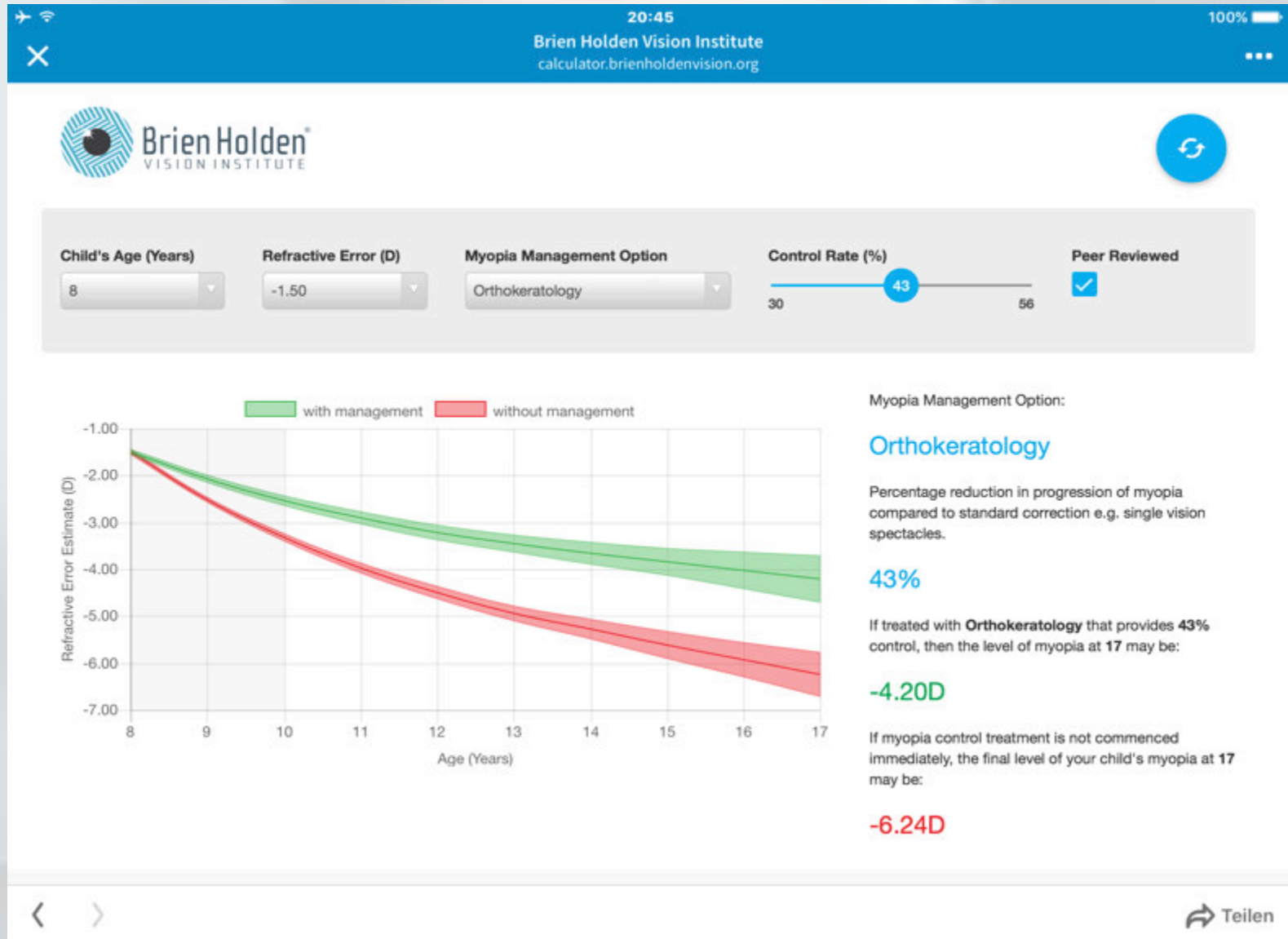


Retinal Defocus mit PAL (Gleitsichtglas)



Entscheidungshilfe

(Bsp. Brien Holden Myopia Calculator)



Entscheidungsschemata (Bsp. Galifa Augenblick)

