



# Myopie-Monitoring mit der Achslänge & Co

## Myopia Master®

# Myopia Management ist wichtig, weil...

... mit ansteigender Myopie das Risiko an ernsthaften Augenkrankheiten zu erkranken, ansteigt.

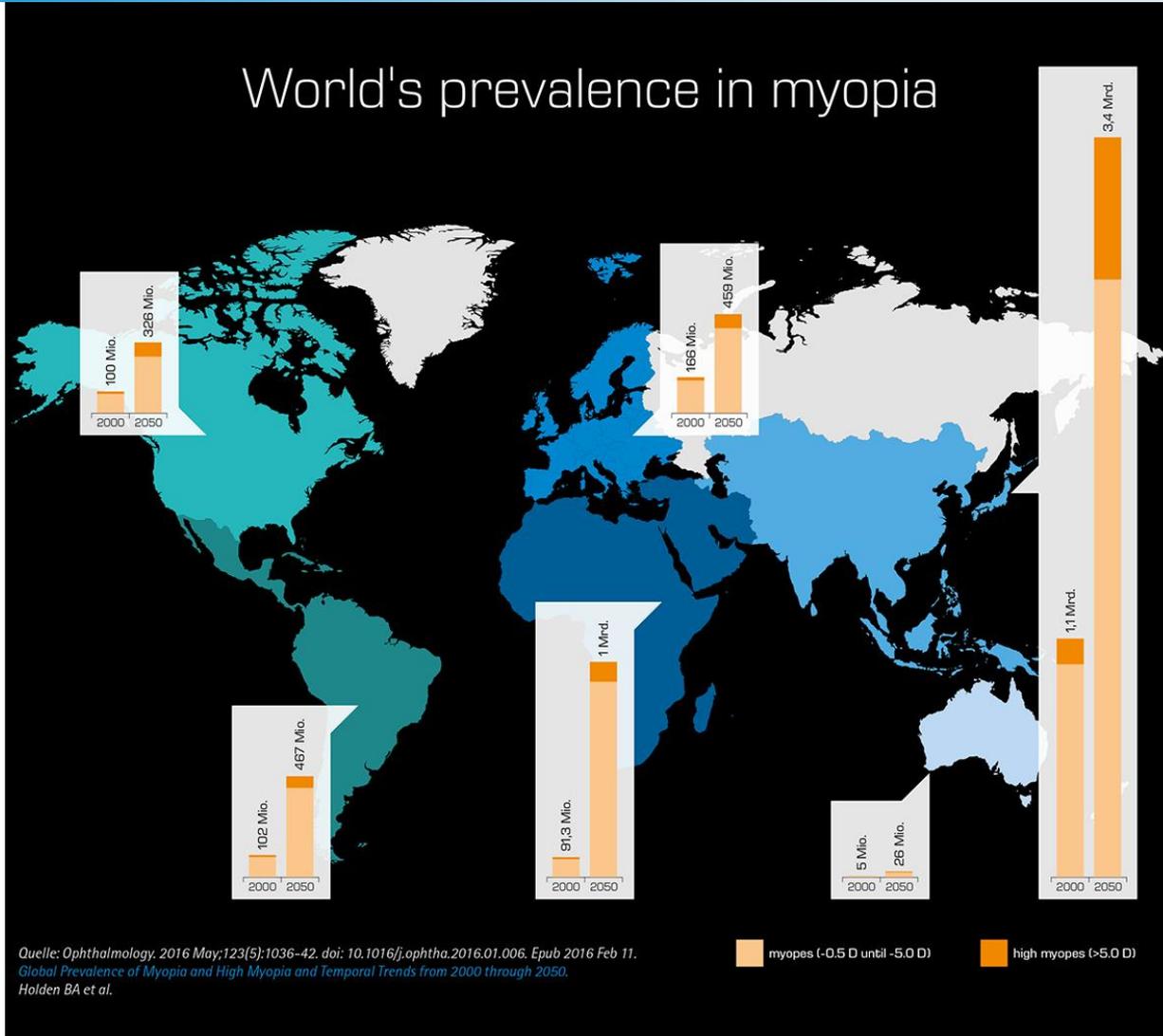
... die Prävalenz weltweit ansteigt und jeder 2. im Jahr 2050 myop sein wird.

... es die Möglichkeit gibt die Myopiesierung zu verlangsamen oder gar zu stoppen.



# THE MYOPIA BOOM

# World's prevalence in myopia



Quelle: *Ophthalmology*, 2016 May;123(5):1036-42. doi: 10.1016/j.ophtha.2016.01.006. Epub 2016 Feb 11.  
*Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050.*  
 Holden BA et al.

myopes (-0.5 D until -5.0 D)
  high myopes (>-5.0 D)

SCIENCE

## COVID-19 and eyesight: Myopia on the rise during lockdown

Due to coronavirus lockdowns, less time outdoors and more time on screens is leading to significantly more people suffering from myopia, especially children.



# 'Quarantine myopia': Study examines near-sightedness among children



Alexandra Mae Jones CTVNews.ca writer  
@AlexandraMaeJ | Contact

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(kinga/shutterstock.com)

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TORONTO -- Experts are warning about something called "quarantine myopia" in the wake of new research out of China that suggests that lockdowns could have a serious effect on young children's eyesight.

| Level of myopia | Increased risk factor |                               |                               |
|-----------------|-----------------------|-------------------------------|-------------------------------|
|                 | <i>Cataract (6)</i>   | <i>Retinal detachment (7)</i> | <i>Myopic maculopathy (8)</i> |
| -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                          |

# Retinale Veränderungen

junge myope Teenager  
Refraktion:  $8,41 \pm 1,60$  dpt

## Häufigsten Läsionen:

|                                |       |
|--------------------------------|-------|
| Veränderung am optischen Nerv: | 52.5% |
| Helle periphere Netzhaut:      | 51,7% |
| Periphere retinale Ausdünnung: | 5,8%  |
| Pigmentdegeneration:           | 4,2 % |

**Achslänge > 26 mm ist ein signifikanter Risikofaktor**

Patientenaufklärung der Warnsignale von Netzhautablösung und regelmäßige Kontrollen

# Why AXL and Refraction?

## Instruments for use in a myopia management practice

July 12, 2020 Global Myopia Centre, Myopia in Focus



Jennifer Sha, BOptom, BSc(Hons)

BHVI

“

An autorefractor is a helpful instrument that provides a rapid measurement of the refractive error of the eye and a benchmark to consider for subjective refraction.

“

*Nonetheless, an optical biometer would be valuable for practices specialising in myopia management as a tool for monitoring progression and identifying those at risk of retinal pathology (axial length greater than 26 mm<sup>1</sup>).*

Food and Drug Administration, American Academy of Ophthalmology, American Academy of Optometry, American Association for Pediatric Ophthalmology and Strabismus, American Optometric Association, American Society of Cataract and Refractive Surgery, and Contact Lens Association of Ophthalmologists Co-Sponsored Workshop: Controlling the Progression of Myopia: Contact Lenses and Future Medical Devices

*Jeffrey J. Walline, O.D., Ph.D., Marc W. Robboy, O.D., Gene Hilmantel, O.D., M.S., Michelle E. Tarver, M.D., Ph.D., Natalie A. Afshari, M.D., Deepinder K. Dhaliwal, M.D., Christie L. Morse, M.D., Christopher J. Quinn, O.D., Michael X. Repka, M.D., and Malvina B. Eydelman, M.D.*

patients stating the control group should be single vision spectacle wearers, because patient masking is more difficult with this device.

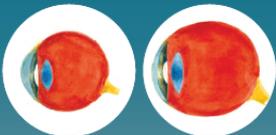
Panelists discussed determination of the primary effectiveness endpoint and agreed that both refractive error change and axial elongation should be measured and reported. Some panel members favored axial elongation because it is more precise than measurement of refractive error it is the least cumbersome

# MYOPIA MANAGEMENT: Axial Length or Refractive Error?

## 1. DIAGNOSING MYOPIA

Refractive state is the balance of the optical and axial components, i.e., variation in axial length exists between eyes but is compensated by corneal and lens power. Thus, axial length alone is not a good diagnostic for myopia.

Presence of any myopia = eye length > intended eye length.



Two emmetropic (+0.50) eyes. B has a longer axial length but flatter corneal curvature.

**CAUTION:** Failure to cycloplege for refractive error in young children may result in falsely identifying an eye as myopic and may result in unwarranted treatment.

The best way to **DIAGNOSE** myopia is with refractive error.

## 2. MONITORING PROGRESSION

Sensitive measures are required to assess progression. Subjective refraction is only  $\pm 0.50D$  accurate. Axial length measurements are more sensitive with optical biometers delivering reliable accuracy (0.04mm or 0.12D).



An optical biometer

**CAUTION:** Axial length measurements can be influenced by diurnal and seasonal variations. Failure to consider these may lead to false conclusions about treatment efficacy and may result in unwarranted variation in treatment.

The best way to **MONITOR** progression is to measure axial length.

## Myopie Diagnostizieren:

Das refraktive Stadium ist die Balance zwischen den brechenden Medien, sowie der Achslänge des Auges. Nur die Achslänge wäre kein guter Diagnose-Parameter

## Überwachung der Progression:

Subjektive Refraktion ist zu ungenau ( $\pm 0.50$  dpt Genauigkeit) um Progression frühzeitig zu erkennen. Die Achslänge allerdings ist viel genauer und somit optimal geeignet.

The best way to **DIAGNOSE** myopia is with refractive error.

The best way to **MONITOR** progression is to measure axial length.

## 3. MYOPIA MANAGEMENT

Every young myope can be helped with some degree of myopia management.



### ACKNOWLEDGEMENTS:

Prof Earl Smith, College of Optometry, University of Houston, USA ; Dr Thomas J Aller, Independent Myopia Practitioner, USA ; Prof Padmaja Sankaridurg, Brien Holden Vision Institute, Australia. Creative Layout: Emimari Riquezes. Art: Mahitha Ramanathan.

# Hohe Genauigkeit der Achslänge

$$1 \text{ D} \triangleq 0.4 \text{ mm}$$

Wiederholbarkeit der obj. Refraktion bei Kindern ohne Cyclopentolat:

$$\pm 0.57 \text{ D}^2 \triangleq 0.23 \text{ mm}$$

Genauigkeit der Achslänge des Myopia Masters:

$$\pm 0.1 \text{ D} \triangleq 0.04 \text{ mm}$$

1: Taneriet al 2020, Repeatability and reproducibility of manifest refraction, DOI: 10.1097/j.jcrs.0000000000000343

2: Rauscher et al 2019, Agreement and Repeatability of Noncycloplegic and Cycloplegic Wavefront-based Autorefraction in Children, DOI:10.1097/OPX.0000000000001444

# Refraktion

## Vorteile der Refraktion

- Einfach zu verstehen
- Schnelle Messung

## aber

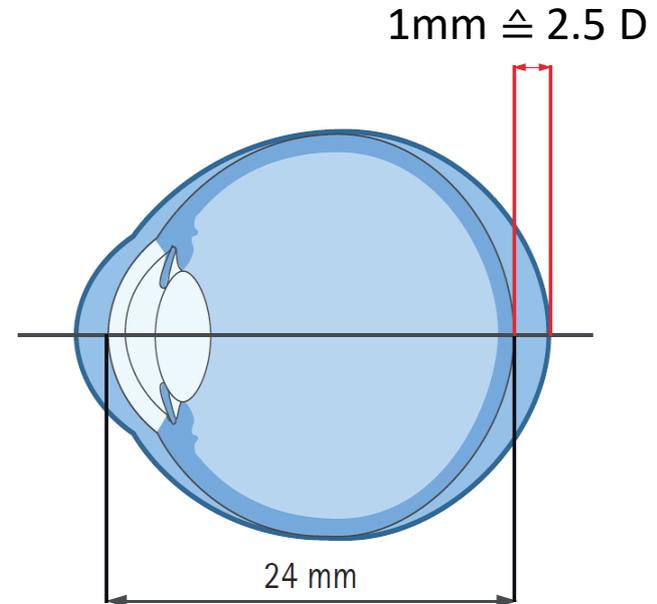
- Wiederholgenauigkeit bei ca. 0,50 dpt
- Monitoren bei Veränderungen der refraktiven Medien  
des Auges schwierig



# Achslänge

## Vorteile der Achslänge

- Sehr gute Genauigkeit und somit der beste Parameter um Progression festzustellen
- Keinen Einfluss auf Akkommodation
- Keine Zykloplegie notwendig
- Sehr guter Parameter nach Ortho-K tragen & refraktiven Eingriffen an der Cornea
- Wenn Achslänge  $> 26.0$  mm  $\rightarrow$  hohes Risiko für Augenerkrankungen



# Myopia Master<sup>®</sup>



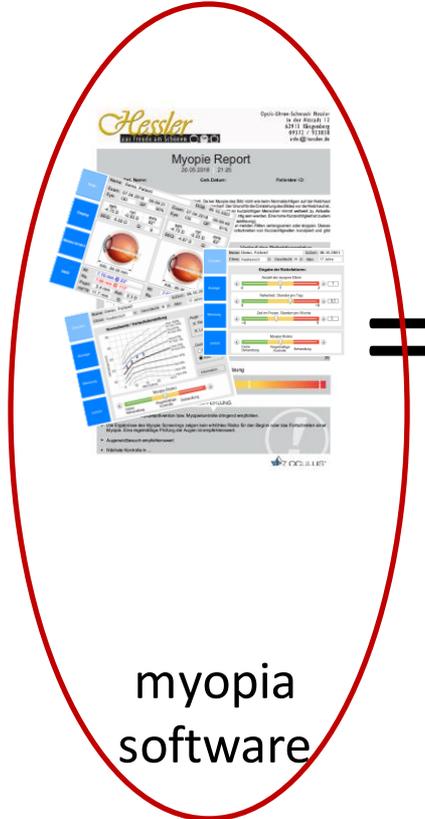
refraction  
&  
keratometer

+



axial length  
&  
keratometer

+



myopia  
software

=



Myopia Master<sup>®</sup>

# Myopie-Management in 7 Schritten

Einfach und professionell

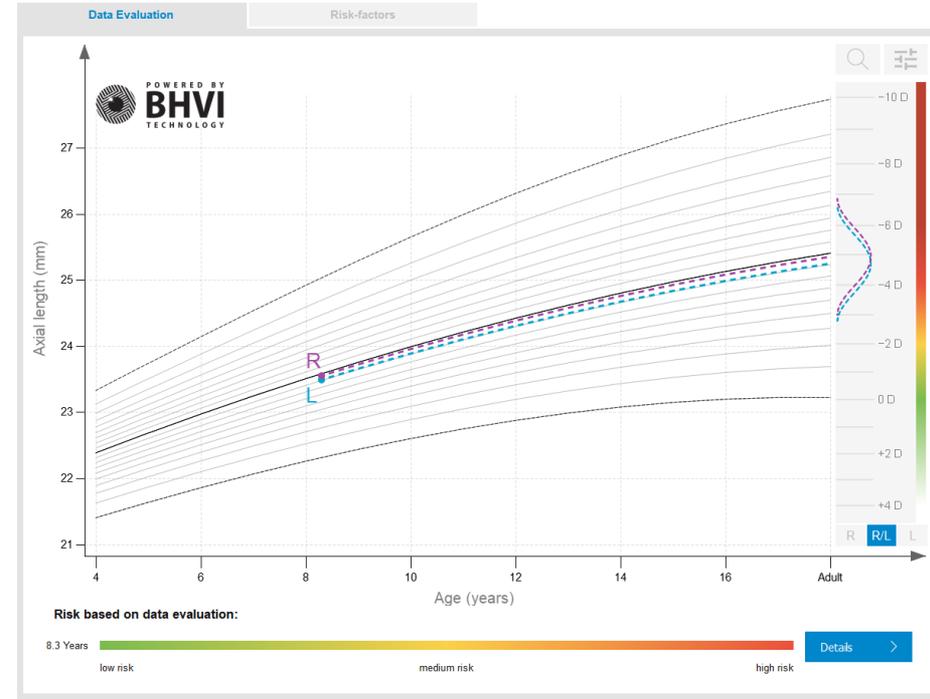


# MYOPIA MASTER

# Oculus und BHVI kooperieren bei Myopia Master

## News & Names

21. November 2019 von Judith Kern





Kate Gifford hat einen Link geteilt.

Admin · 11. Februar · 🌐



We are excited to announce Myopia Profile's new partnership with OCULUS Optikgeräte GmbH - International. Together we have identified a growing clinical interest and need for education in understanding axial length measurement in myopia - read more in the link about the growth in discussion on axial length topics over the past 18 months (it's huge!).

Get excited - our first detailed educational content release on 'Measuring the whole eye in myopia' is coming next month.

Übersetzung anzeigen



MYOPIAPROFILE.COM

Myopia Profile and OCULUS highlight leading clinical issue in myopia management | Myopia Profile

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8 Kommentare

Gefällt mir

Komentieren



Sara Mulholland  
Kathryn Saunders

1

Gefällt mir · Antworten · 4 Wo.



Doc Concon Fabreo  
Pat Navarro look



1

Gefällt mir · Antworten · Übersetzung anzeigen · 4 Wo.



Wong Wall  
Very impressive! Very professional photo btw.

1

Gefällt mir · Antworten · Übersetzung anzeigen · 4 Wo.



David Berkow  
That's great news!

1

Gefällt mir · Antworten · Übersetzung anzeigen · 4 Wo.



Cesar Rodriguez  
Excellent Drs Gifford.. Greetings from Colombia

1

Gefällt mir · Antworten · Übersetzung anzeigen · 4 Wo.



Paul Planer  
As the saying goes: "Onward and Upward!!!"  
Congratulations to y'all and for all the good things that will result in our fight against the Myopia Disease!!!

2

Gefällt mir · Antworten · Übersetzung anzeigen · 4 Wo.



Bhavin Shah  
Congratulations 🎉🎉🎉

1

Gefällt mir · Antworten · Übersetzung anzeigen · 4 Wo.



Doc Concon Fabreo  
Sir Charlie Ho look





Warum wird Myopie-Management immer wichtiger?

# Weil es um die Zukunft unserer Kinder geht!

Die Zahlen sprechen eine klare Sprache:

- Jedes zweite Kind unter 10 Jahren ist oder wird myop.
- In Europa sind derzeit gut 47 % der 25- bis 29-Jährigen kurzsichtig.
- Bis 2050 könnten laut Brien Holden Vision Institute (BHVI) 50 % der Weltbevölkerung myop sein.

## OCULUS Myopia Master®

Professionelles Myopie-Management mit dem OCULUS Myopia Master®

MEHR ERFAHREN

ANGEBOT ANFORDERN



<https://www.myopia-master.com/de/>

„Ich werde  
Prinzessin.“

Lotta, 5 Jahre

