ZEISS MyoCare portfolio: Efficacy confirmed across multiple sites, large cohorts, and various ethnic groups

ZEISS Vision Care Abstracts and Posters @ ARVO 2024 – **Expert Digest**

Highlights

Results from two on-going multicenter trials in Asian and Caucasian children show that ZEISS MyoCare and ZEISS MyoCare S spectacle lenses **slow the progression of myopia** as compared to ZEISS single vision spectacle lenses across all sites involving large samples and **in both Asian and Caucasian children**.

The prevalence of myopia and high myopia is continuing to rise globally, causing substantial health and financial burden to individuals and the society. Whilst exploration of strategies to prevent and slow the progression of myopia has gained momentum, to ensure translation of results to the wider population, it is crucial to establish a robust body of **evidence from diverse ethnic groups**, **large samples**, and **multiple locations**. Studies on myopia treatments involving Asians are many, but research on Caucasians remains limited.

ZEISS MyoCare lenses are being evaluated in multi-center trials in China and Europe for a comprehensive and robust evaluation of their effectiveness in slowing myopia. ZEISS MyoCare lenses incorporate cylindrical annular refractive elements (C.A.R.E.) and introduce simultaneous myopic defocus at the retina. At the annual meeting of the Association for Research in Vision and Ophthalmology (ARVO'24), ZEISS Vision Care presented data from two **on-going, 2-year prospective, double-masked, multi-center clinical trials**. Results indicate that ZEISS MyoCare lenses slowed progression of myopia as compared to single vision spectacle lenses.

Trial 1 (NCT05288335)

240 Chinese children aged 6 to 13 years, spherical equivalent refractive error (SE) **-0.75 D to -5.00 D**, were randomly assigned to ZEISS single vision lenses (SV, N = 80), ZEISS MyoCare with C.A.R.E. mean surface power of +4.6 D and a central clear zone of 7 mm (N = 80), or ZEISS MyoCare S with C.A.R.E. mean surface power of +3.8 D and 9 mm central clear zone (N = 80).

Trial 2 (NCT05919654)

304 Caucasian children aged 6 to 13 years, SE **-0.75 D to -5.00 D**, past annual progression of at least -0.50 D, were randomly assigned to ZEISS single vision lenses (N = 152) or ZEISS MyoCare with C.A.R.E. mean surface power of +4.6 D and a central clear zone of 7 mm (N = 152).

In Asian children (Trial 1, 12 month results)

ZEISS MyoCare and ZEISS MyoCare S significantly **slowed the progression of myopia**. The following average reductions were observed as compared to ZEISS single vision lenses[1]:

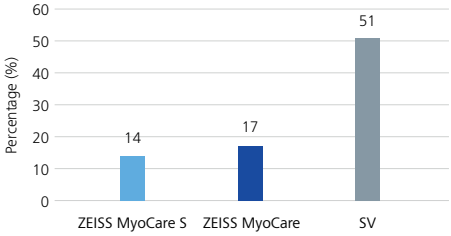
ZEISS MyoCare

- 0.31D (48%) — average reduction of **refractive error**
- 0.13mm (41%) — average reduction of **axial length progression**

ZEISS MyoCare S

- 0.29D (45%) — average reduction of **refractive error**
- 0.11mm (34%) — average reduction of **axial length progression**

Additionally, the **risk of fast progression (-0.75D or worse) was significantly reduced**, with only **17%** and **14%** of ZEISS MyoCare and ZEISS MyoCare S wearers **experiencing fast progression** compared to **51%** of children wearing single vision lenses.[2]



Wear time and subjective assessment of vision were comparable to single vision lenses, indicating **high acceptance**.[3]

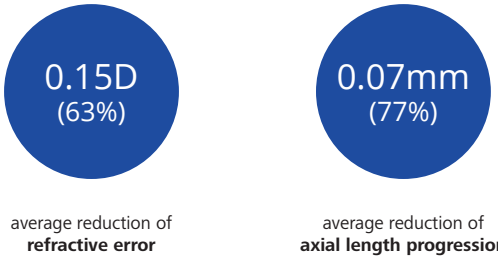
Interestingly, both ZEISS MyoCare and MyoCare S slowed myopia progression **irrespective of the presence of parental myopia**, unlike single vision lenses which showed greater progression in children with parental myopia.[4]

ZEISS MyoCare portfolio: Efficacy confirmed across multiple sites, large cohorts, and various ethnic groups

ZEISS Vision Care Abstracts and Posters @ ARVO 2024 – **Expert Digest**

In Caucasian children (Trial 2, 6-month results)

ZEISS MyoCare lenses resulted in a **reduction of myopia progression** by an average of **0.15D (63%)** for spherical equivalent error and **0.07mm (77%)** for axial length.[5]



average reduction of **refractive error**

average reduction of **axial length progression**

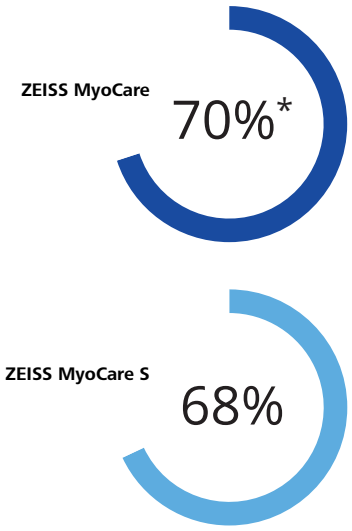
Vision with ZEISS MyoCare was subjectively rated as **good or very good by 95%** of all participants for **far distances**, **93% for near distances**, and **96% for dynamic vision**.[6]

The Emmetropic Progression Ratio (EPR)

The ability of ZEISS MyoCare lenses to slow eye growth from that of a myopic eye to approach physiological growth observed in emmetropic eyes was reported as **Emmetropic Progression Ratio** (EPR)[7]. Published data on annual AL elongation for myopic and emmetropic eyes (> 1000 eyes each, age 7 – 12 years, Asian and Caucasian ethnicity respectively) were used to determine age-wise AL growth curves. EPR was defined as follows:

$$EPR = \left(1 - \frac{progression\ with\ intervention - emmetropic\ progression}{myopic\ progression - emmetropic\ progression}\right) \times 100\%$$

In trial 1, after 12-months of lens wear, both ZEISS MyoCare lenses **slowed AL significantly** and approached closer to AL growth of an emmetropic eye, with average EPRs of **70%* for ZEISS MyoCare and 68% for ZEISS MyoCare S**.[7]



References

*EPR for ages 7-12 yr old children as sample size for ages 6 and 13 was small. When the entire sample of 6 to 13 years were considered, EPR for ZEISS MyoCare was 71.

1. Chen, X., et al. (2024, May 5-9). Slowing myopia progression with cylindrical annular refractive elements (CARE) – 12-month interim results from a 2-year prospective multi-center trial [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, WA, United States.
2. Sankaridurg, P., et al. (2024, May 5-9). Probability of surviving fast progression and eye growth reversal after 1-year of spectacle wear with cylindrical annular refractive elements [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, WA, United States.
3. Rifai, K., et al. (2024, May 5-9). Subjective acceptance of spectacle lenses with cylindrical annular refractive elements (CARE) in Chinese children with myopia [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, WA, United States.
4. Boeck-Maier, C., et al. (2024, May 5-9). Impact of parental myopia on myopia control efficacy of spectacle lenses with cylindrical annular refractive elements (CARE) [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, WA, United States.
5. Alvarez-Peregrina, C., et al. (2024, May 5-9). Efficacy of a next-generation design of ophthalmic lenses for myopia control: Six-month results of the CEME Study [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, WA, United States.
6. Alvarez-Peregrina C., et al. (2024, April 12-14). Vision, confort y tiempo de adaptacion a un nuevo diseno de lente oftalmica para el control de miopia [Conference presentation abstract]. OPTOM 2024, Madrid, Spain.
7. Ohlendorf, A., et al. (2024, May 5-9). Myopia control efficacy through Emmetropic Progression Ratio:1-year of spectacle wear with cylindrical annular refractive elements (CARE) [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, WA, United States.