Oral presentation at ARVO 2026.
Chen, X., et al. (2026, May 3-7). Slowing myopia progression with cylindrical annular refractive elements (CARE) – results from a 3-year prospective multi-center trial. [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Denver, CO, United States.

Purpose: To evaluate the effectiveness of 3 years of spectacle lens (SPL) wear incorporating cylindrical annular refractive elements (CARE) in slowing the progression of myopia as compared to a single vision SPL.

Methods: In an ongoing prospective, double-masked, multi-center clinical trial (NCT05288335), 240 Chinese children aged 6-13 yrs, spherical equivalent refractive error (SE) -0.75D to -5.00D were enrolled and randomly assigned to one of three groups: (1) single vision SPL (SV, N=80); (2) MyoCare (ZEISS) with CARE mean surface power of +4.6 D and a central clear zone of 7 mm (N=80); and (3) MyoCare S (ZEISS) with CARE mean surface power +3.8 D and 9 mm central clear zone (N=80). Cycloplegic SE and axial length (AL) were measured at six-monthly intervals. Changes in SE and AL from baseline were determined at six-month intervals and differences between groups assessed. After 2 .5 years, children assigned to SV were transferred to MyoCare. An intent to treat analysis with multiple linear regression was conducted, adjusting for relevant confounders (study group, site, gender, baseline value and compliance). Progression in SV for year 3 was estimated based on a) age-weighted annual progression through the trial and b) a model assuming a 15% year- to- year decrease in progression (Brennan et al. OVS, 101(8), 2024). Statistical significance was maintained at $p<0.05$.

Results: Estimated progression in SV for 3 years with age-weighted estimates and year-to-year decrease model were similar at s -1.62D/0.82mm and -1.63D/0.82mm respectively. Utilising age-weighted estimate and after adjusting for confounders, progression after 3 years in lens wear (mean, 95% CI) was -1.69 D (-1.85 to -1.53D)/ 0.85 mm (0.78 to 0.92mm) with SV, -1.07D (-1.23 to -0.91D / 0.57 (0.50 to 0.64)mm with MyoCare and -1.24 (-1.40 to -1.08D)/ 0.67 (0.60 to 0.73mm) with MyoCare S respectively, $p<.0001$. Progression did not differ significantly between MyoCare and MyoCare S ($p=0.387$ and 0.140 for SE and AL respectively) but were significantly different to SV with MyoCare showing an absolute change in SE of 0.62D/ 0.28mm ($p<0.001$ for both SE and AL) and MyoCare S 0.45D/0.18mm ($p<0.001$for both).

Conclusions: MyoCare and MyoCare S spectacle lenses continue to slow myopia progression as compared to SV lenses during year 3, with greater efficacy observed with MyoCare lenses.