ZEISS Myopia Research Highlights

Clinical Digest from ARVO 2026

ZEISS is actively engaged in research to advance our understanding of myopia. We collaborate with globally leading myopia researchers and institutes, such as through the full partnership in the EU-funded Marie Sklodowska-Curie Doctoral Network "MyoTreat". This partnership brings together top European universities and private sector experts to develop more effective treatments and earlier diagnoses for myopia.

Out of this research consortium, the ZEISS Vision Science Lab presented the results of two research contributions at the annual meeting of the world's largest eye and vision research organization – the Association for Research in Vision and Ophthalmology (ARVO), held May 3rd to 7th in Denver, Colorado, USA.

Together, these research contributions highlight ZEISS's commitment to advancing myopia research, focusing on peripheral aberrations and retinal curvature as potential future key factors in understanding and managing myopia progression.

Key Results

STUDY 1: NOVEL WIDE-FIELD PERIPHERAL WAVEFRONT SCANNER[1]

The ZEISS Vision Science Lab developed an optical device capable of measuring peripheral aberrations in the eye, both with and without spectacle lenses, using double-pass wavefront sensing. This instrument measures peripheral refraction up to ±35° in all directions, enabling wide-field aberrometry and offering new insights into how myopia control lenses work. The device is expected to improve myopia management by providing more comprehensive data on peripheral refraction.

STUDY 2: ESTIMATION OF RETINAL CURVATURE WITH STANDARD OPHTHALMIC CARE DEVICES[2]

In this pilot, the ZEISS Vision Science Lab developed a device to establish posterior retinal curvature as a novel biomarker for emmetropization – the eye's developmental process of achieving optimal focus. While MRI has traditionally been used for evaluating ocular geometry in research, its clinical use in vision research is limited. This study compared axial length measurements using the IOL Master 700 and MRI-derived values, finding strong correlation and no dependence on refractive error. The results lay the groundwork for estimating retinal curvature using standard ophthalmic devices, broadening clinical accessibility to this important biomarker.

References

1. Cid Viñas, P., et al. (2026, May 3–7). A Novel wide-field Peripheral Wavefront Scanner enables measurements with spectacle lenses. [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Denver, CO, United States.

2. Rodrigues, A., et al. (2026, May 3–7). Evaluating the Impact of Refractive Error on Central Axial Length Measurements Using IOL Master 700 and Brain MRI Scans. [Conference presentation abstract]. The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Denver, CO, United States