Supplemental material

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1   **Supplemental Material**

2   The Root Mean Square of individual Ocular and Corneal Higher-order

3   Aberrations of Pooled Population and Difference Among Different Age Groups at

4   baseline was listed in Supplementary Table 1. When comparing the individual Zernike

5   coefficients, RMS of Ocular and corneal spherical HOA increased in the older group.

6   RMS of ocular primary vertical comatic aberrations (Z_3^{-1}) were found to have

7   increased from 0.09μm to 0.21μm, while corneal primary vertical comatic aberrations

8   (Z_3^{-1}) increased from 0.14μm to 0.17μm with age. RMS of ocular primary vertical

9   trefoil aberrations (Z_3^{-3}) were found to have increased from 0.10μm to 0.12μm, while

10   corneal primary vertical trefoil aberrations (Z_3^{-3}) increased from 0.12μm to 0.13μm

11   with age. These findings were in line with the trends in individual Zernike terms

12   evaluated in the forms of mean values.

13   **SUPPLEMENTARY TABLE 1 RMS of individual Ocular and Corneal Higher-order**
14   **Aberrations of Pooled Population and Difference Among Different Age Groups at baseline**

Parameters	Total (n=458)	Age, years		
		≤12 (n=146)	13-15 (n=209)	16-18 (n=103)
Ocular, μm				
Z_4^0	0.08	0.08	0.08	0.08
Z_6^0	0.01	0.01	0.01	0.01
Z_3^{-1}	0.19	0.18	0.18	0.21
Z_3^1	0.09	0.09	0.09	0.09
Z_5^{-1}	0.03	0.02	0.03	0.03
Z_5^1	0.01	0.01	0.01	0.01

Z_3^{-3}	0.10	0.10	0.09	0.12
Z_3^3	0.08	0.09	0.08	0.08
Z_5^{-3}	0.02	0.02	0.02	0.02
Z_5^3	0.01	0.01	0.01	0.01
Corneal, μm				
Z_4^0	0.11	0.09	0.11	0.11
Z_6^0	0.02	0.02	0.02	0.02
Z_3^{-1}	0.15	0.14	0.14	0.17
Z_3^1	0.08	0.08	0.08	0.09
Z_5^{-1}	0.03	0.03	0.03	0.03
Z_5^1	0.02	0.02	0.02	0.01
Z_3^{-3}	0.12	0.12	0.12	0.13
Z_3^3	0.09	0.10	0.09	0.09
Z_5^{-3}	0.04	0.04	0.03	0.03
Z_5^3	0.03	0.02	0.02	0.03

Abbreviations: RMS: Root Mean Square;

Marked changes in ocular primary horizontal comatic aberrations (Z_3^1) (from 0.11 μm to 0.08 μm) and corneal primary horizontal comatic aberrations (Z_3^1) (from 0.11 μm to 0.06 μm) were observed in our high-myopia cohort, which was also in line with the mean value changes of individual Zernike terms (Supplementary Table 2) .

SUPPLEMENTARY TABLE 2 RMS of Higher-order Aberrations of the Pooled Population at Different Visits

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Parameters	Baseline (n=99)	First year (n=99)	Baseline (n=99)	First year (n=99)
	Ocular, μm	Ocular, μm	Corneal, μm	Corneal, μm
Z_4^0	0.08	0.07	0.10	0.11
Z_6^0	0.01	0.01	0.02	0.02
Z_3^{-1}	0.17	0.18	0.13	0.14
Z_3^1	0.11	0.08	0.11	0.06
Z_5^{-1}	0.03	0.03	0.03	0.02
Z_5^1	0.01	0.01	0.01	0.02
Z_3^{-3}	0.11	0.10	0.15	0.12
Z_3^3	0.09	0.10	0.10	0.10
Z_5^{-3}	0.02	0.01	0.04	0.03
Z_5^3	0.01	0.01	0.03	0.03

24   Abbreviations: RMS: Root Mean Square

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