

# Limited Change in Anisometropia and Aniso-Axial Length Over 13 Years in Myopic Children Enrolled in the Correction of Myopia Evaluation Trial

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**PURPOSE.** We investigated changes in anisometropia and aniso-axial length with myopia progression in the Correction of Myopia Evaluation Trial (COMET) cohort.

**METHODS.** Of 469 myopic children, 6 to <12 years old, enrolled in COMET, 358 were followed for 13 years. Cycloplegic autorefractometry and axial length (AL) in each eye were measured annually. The COMET eligibility required anisometropia (interocular difference in spherical equivalent refraction) of  $\leq 1.00$  diopter (D). For each child, a linear regression line was fit to anisometropia data by visit, and the regression slope  $b$  was used as the rate of change. Logistic regression was applied to identify factors for significant changes in anisometropia ( $b \geq 0.05$  D/y, or a cumulative increase in anisometropia  $\geq 0.50$  D over 10 years). Similar analyses were applied to aniso-AL.

**RESULTS.** A total of 358/469 (76.3%) children had refractions at baseline and the 13-year visit. The mean (SD) amount of anisometropia increased from 0.24 D (0.22 D) at baseline to 0.49 D (0.46 D) at the 13-year visit. A total of 319/358 (89.1%) had slopes  $|b| < 0.05$  D/y and 39 (10.9%) had slopes  $|b| \geq 0.05$  D/y, with only one negative slope. Similarly, 334/358 (93.3%) children had little change in aniso-AL over time. The correlation between changes in anisometropia and aniso-AL over 13 years was 0.39 ( $P < 0.001$ ). The correlation between changes in anisometropia and myopia progression was significant ( $r = -0.36$ ,  $P < 0.001$ ). No correlation was found between baseline anisometropia and myopia progression ( $r = -0.02$ ,  $P = 0.68$ ).

**CONCLUSIONS.** Myopia and axial length progressed at a similar rate in both eyes for most children in COMET during the period of fast progression and eventual stabilization. These results may be more generalizable to school-aged myopic children with limited anisometropia at baseline. (ClinicalTrials.gov number, NCT00000113.)

Keywords: anisometropia, myopia, axial length

Anisometropia is a condition in which refractive errors between the two eyes are different. Although there is substantial evidence for the axial nature of anisometropia,<sup>1-5</sup> little is known about what initially triggers mismatched eye growth. Furthermore, the possible association of myopia or hyperopia and the development of anisometropia is a topic of interest.

In general, asymmetric refractions in the two eyes occur infrequently in the population, since the prevalence of significant anisometropia (difference in spherical equivalent refraction [SER]  $\geq 1.00$  diopters [D]) is low ( $\leq 18\%$ ) before 40 years of age, with most studies reporting prevalences lower than 10%.<sup>3,4,6-13</sup> The highest reported prevalence (18%) was found in a group of progressing myopes.<sup>6</sup> The prevalence is higher in older populations than in children ( $>20\%$  at 70+ years of age).<sup>11,14</sup> As age-related ocular conditions (e.g., cataract) are more likely to be associated with anisometropia in the elderly, the underlying causes for anisometropia development in children may differ from those for older people.

In school-aged children, special interest has been drawn to the association between myopia progression and the development of anisometropia.<sup>3,6</sup> The cause-and-effect relationship between myopia and anisomyopia remains unknown, given that few longitudinal studies are available to investigate the question in depth.

Previously, Parssinen<sup>6</sup> examined the change in anisometropia over three years in school-aged myopic children participating in a lens treatment study. He found an increase in the prevalence of significant anisometropia ( $\geq 1.00$  D) from 8% to 18% after three years of myopia progression. In addition, he also observed a small but significant correlation ( $r = 0.13$ ) between myopia progression and the increase in anisometropia. However, he did not find any correlation between the magnitude of anisometropia at baseline and the amount of myopia progression. Another longitudinal study, conducted in Singapore, reported: an increase in the prevalence of anisometropia from 3.6% to 9.9% after three years in children with

baseline age between 7 and 9 years, and faster myopia progression rates in anisometropic (defined as being anisometropic at any visit) versus nonanisometropic children.<sup>3</sup> Furthermore, this study showed that the changes in the interocular difference in axial length (aniso-AL) correlated with the changes in the difference in SER. A recent longitudinal study<sup>8</sup> in the United States examined the dependence of anisometropia on SER, astigmatism, and age from infancy to 15 years. This study found a higher prevalence of anisometropia in the groups with high refractive errors (myopes and hyperopes) than in emmetropes, a low (<2%) prevalence of significant anisometropia from infancy to preschool age with an increase to 6% in the teen-aged years, and significant anisometropia in infancy associated with significant astigmatism. Although these three studies investigated anisometropia and its association with refractive error over time, they had either a short period of follow up,<sup>3,6</sup> examined children in only one ethnic group,<sup>3,6,8</sup> or did not have axial length measurements.<sup>6,8</sup>

The current study reported data from an ethnically-diverse cohort of children from a myopia treatment trial over 13 years of follow-up, specifically investigating: how anisometropia changes over time by individual, whether more myopia progression is related to a larger increase in the amount of anisometropia, the prevalence of anisometropia over time, and risk factors associated with increasing anisometropia. In addition, the relationship between axial length and aniso-AL over the course of myopia progression, and the correlation between anisometropia and aniso-AL were examined.

## MATERIALS AND METHODS

The present analyses were based on data from participants in the Correction of Myopia Evaluation Trial (COMET). The primary goal of the COMET study was to evaluate whether progressive addition lenses (PALs) slow myopia progression in school-aged children compared to single vision lenses (SVLs). From September 1997 to September 1998, 469 children aged between 6 and <12 years were recruited at four clinical centers at colleges/schools of optometry in Boston, Massachusetts; Birmingham, Alabama; Houston, Texas; and Philadelphia, Pennsylvania. The main inclusion criteria were SER in each eye with cycloplegia between  $-1.25$  and  $-4.50$  D, astigmatism 1.50 D or less, and anisometropia equal to or less than 1.00 D. Children with previous use of bifocals, PALs, or contact lenses; strabismus; best corrected visual acuity (BCVA) worse than 20/25; and/or history of ocular disease or refractive surgery were excluded. The sample is ethnically diverse (46% Caucasians, 26% African-Americans, 14% Hispanic, 8% Asians, and 5% mixed and others), with a balanced sex distribution. The SVLs or PALs were assigned randomly to each participant. A consent form was signed by a parent or guardian, and an assent form by the child after the nature and possible consequences of participation were explained. Upon turning 18 years old, participants were re-consented as adults. The Institutional Review Boards of each college/school approved the protocols and the consent forms. All COMET protocols and procedures adhered to the tenets of the Declaration of Helsinki.

### Procedures

At baseline and at each annual visit, cycloplegic autorefraction measurements (ARK700A; Nidek, Tokyo, Japan) were taken by a licensed optometrist 30 minutes after the subject had the second drop of tropicamide 1.0%. Five readings were taken and the average of at least four reliable readings was used as the refraction at that visit. Axial length was measured by A-scan ultrasonography (model A 2500; Sonomed, Lake Success, NY,

USA). Five measurements were taken at each visit and the average of at least three reliable measures was used in the analyses.

The details of the recruitment, measurement procedures, and baseline characteristics in COMET can be found in previous reports.<sup>15-17</sup>

## Statistical Analysis

Statistical analyses were performed with the software package Splus (Insightful, Seattle, WA, USA) and SAS (SAS Institute, Inc., Cary NC, USA).

**Analyses Based on Individual Curves.** Children with refraction records of both eyes at baseline and 13 years ( $n = 358$ ) were used for individual curve fitting. Each of these subjects had data from at least 10 visits. Their individual profiles were examined for the difference in SER between right and left eyes over 13 years, and a linear regression line was fit to each individual plot. Using the regression slope  $b$  as a measure of rate of change in the amount of anisometropia, the children were grouped into little change and significant change groups ( $|b| < 0.05$  D/y and  $b \geq 0.05$  D/y, equivalent to an increase of 0.50 D over 10 years). Similar curve fitting was applied to aniso-AL data, where the cutoff for a significant change was set at 0.025 mm/y. A change in axial length of 0.025 mm/y was considered equivalent to 0.05 D/y based on a previous finding that every 0.5 mm increase in axial length results in approximately 1 D increase in myopia among the COMET cohort.<sup>18</sup> Therefore, to compute the difference in the rates of change between anisometropia and aniso-AL, we multiplied the slopes for aniso-AL by a factor of 2. Multivariate logistic regression (MLR) analysis was conducted to identify risk factors associated with a significant increase in rate  $b$  in anisometropia or aniso-AL over 13 years.

**Analyses Based on Group Data.** Statistical analyses were based on averaged data from all available subjects. Pearson correlation coefficients (PCCs) were computed to measure the overall correlations between SER and anisometropia at baseline and the 13-year visit, between changes in anisometropia and the amount of myopic progression over 13 years, and between the amount of anisometropia at baseline and the amount of myopic progression over 13 years in the average of the two eyes and in the faster progressing eye. Fisher's  $Z$  test was applied to PCCs to evaluate their significances. The comparisons of anisometropia between groups with different progression rates and among five ethnic groups were conducted by linear mixed model (LMM) adjusting for other covariates (sex, lens type, and baseline age). The same analysis strategies were applied to aniso-AL.

## RESULTS

The mean (SD) age for the 358 subjects at baseline was 9.29 (1.30) years; 198 of 358 (55.3%) were girls, 178 of 358 (49.7%) were in the PAL group, and 44.4% of subjects were Caucasian, 28.8% African-American, 13.4% Hispanic, 8.1% Asian, and 5.3% mixed or other. The amount of myopia (average of two eyes) at baseline was  $-2.41$  D (0.80 D). The axial length (average of two eyes) at baseline was 24.12 mm (0.72mm). The Table presents comparisons of the baseline characteristics between the 358 subjects included versus the 111 subjects excluded. No significant differences were found except for a slightly higher percentage of girls (55.3% vs. 43.2%) in the included versus the excluded sample ( $\chi^2$  test,  $P = 0.03$ ).

### Anisometropia Individual Curves

For most individuals, the rate of change in the amount of anisometropia over 13 years (defined by the linear regression

**TABLE.** Baseline Characteristics of Subjects Included and Excluded in the Individual Curve Fitting for Anisometropia

Variable Names	Included, <i>n</i> = 358	Excluded, <i>n</i> = 111	<i>P</i> Value
Baseline SER, D	-2.41 (0.80)	-2.33 (0.81)	0.39
Baseline AL, mm	24.12 (0.72)	24.12 (0.72)	0.97
Baseline age, y	9.29 (1.30)	9.47 (1.25)	0.20
Sex			
Males	160 (44.7%)	63 (56.8%)	0.03
Females	198 (55.3%)	48 (43.2%)	
Lens			
PAL	180 (50.3%)	55 (49.6%)	0.89
SVL	178 (49.7%)	56 (50.4%)	
Ethnicity			
Asian	29 (8.1%)	7 (6.3%)	0.15
African American	103 (28.8%)	20 (18.0%)	
Hispanic	48 (13.4%)	20 (18.0%)	
Caucasian	159 (44.4%)	59 (53.2%)	
Mixed or other	19 (5.3%)	5 (4.5%)	

slope *b*) was small. Figure 1 gives examples of individual profiles showing two different patterns: little change ( $|b| < 0.05$  D/y) and significant increase ( $b \geq 0.05$  D/y). The two subjects at the top (Examples A and B) had relatively constant anisometropia over time. In contrast, the two subjects at the bottom (Examples C and D) had significant increases from baseline to the 13-year visit, with Example C having a moderate climb from no anisometropia to approximately 1.00 D and Example D having a larger increase from 0.60 D to more than 2.00 D.

Figure 2A shows the distribution of the regression slopes for anisometropia in 358 subjects with baseline and 13-year data. It is evident that for the majority of the subjects ( $n = 319$ , 89.1%) the magnitude of the slope is smaller than 0.05 D/y (equivalent

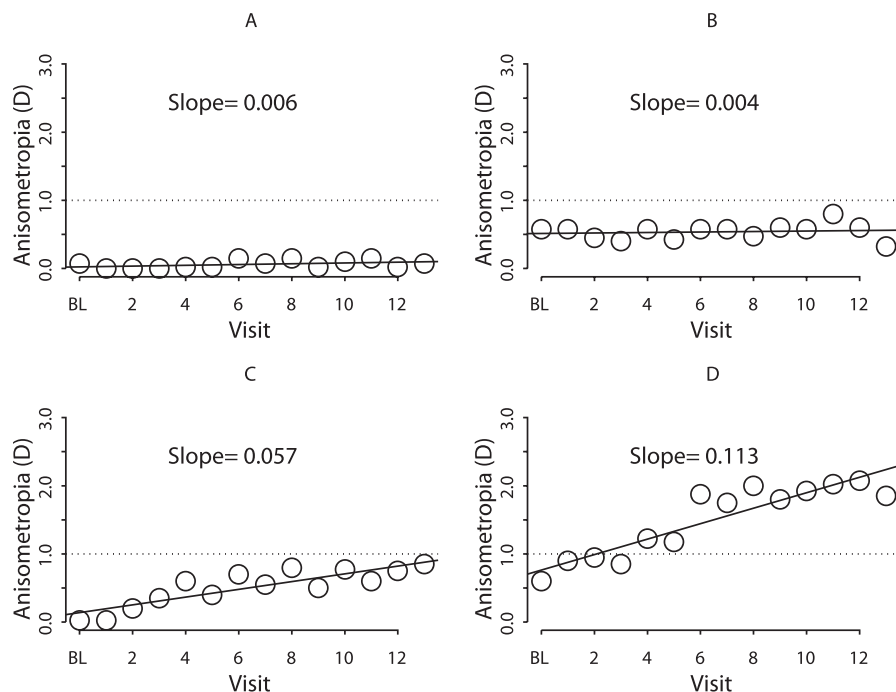
to 0.50 D or less change over a 10-year period of time). The remaining 38 (10.9%) had larger increases ( $b \geq 0.05$  D/y). Only one subject had a significant decrease in anisometropia over time (a negative slope  $b < -0.05$  D/y).

The group with more myopia progression (defined by the median split rounded down to 2.50 D or more progression over 13 years in the faster progressing eye) had a higher percentage of participants with a significant increased rate in anisometropia ( $b \geq 0.05$  D/y, similar to Figs. 1C, 1D), compared to the group with less myopia progression (18.0% [35/194] vs. 1.8% [3/163], respectively; MLR  $P = 0.0001$ ). In addition, the risk for a significant increase in anisometropia was greater in females than males (14.7% [29/197] vs. 5.6% [9/160], MLR  $P = 0.02$ ). Lens type, baseline age, baseline refraction, and ethnicity were not significantly associated with a significant increased rate ( $b \geq 0.05$  D/y) in anisometropia over 13 years (MLR, all  $P$  values  $> 0.05$ ).

### Group Data

Overall, the prevalence of significant anisometropia (between-eye difference in SER  $\geq 1.00$  D) gradually increased from 0.9% (4/469) at baseline to 9.0% (39/435) at the 6-year visit and remained relatively constant afterwards ( $\sim 10\%$ , Fig. 3). Similarly, the mean amount of anisometropia increased from 0.24 D at baseline to 0.49 D at the 13-year visit (Fig. 4, solid line), with increases occurring mainly in the first 6 years. The group with more myopia progression had a larger increase in anisometropia than the group with less progression (LMM, slope difference = 0.01,  $P < 0.0001$ , Fig. 5). The difference in the mean amount of anisometropia over time across ethnicity groups was small (LMM,  $P = 0.30$ , Fig. 6). Also, no difference was found by sex or original lens assignment group (LMM, both  $P$  values  $> 0.05$ ).

To explore the relationship between refractive error and anisometropia over time treating both variables as continuous data, we compared their correlations by visit. At baseline, the degree of refractive error (average of two eyes in SER) was



**FIGURE 1.** Four examples with different rates of change for anisometropia. (A) Little anisometropia over time. (B) Little change in anisometropia over time. (C) Significant change in anisometropia over time. (D) Significant change in anisometropia over time. BL, baseline.

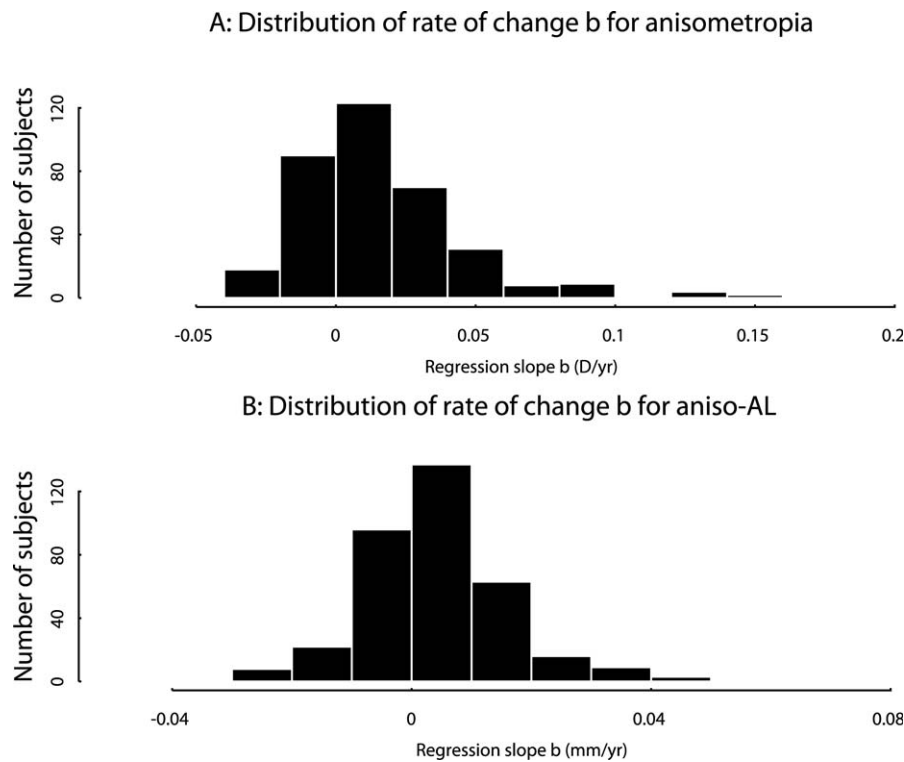


FIGURE 2. Histograms for rates of change in anisometropia and aniso-AL based on individual curve fitting.

weakly but significantly correlated with the amount of anisometropia (Fisher's  $Z$  test;  $r = -0.16$ ,  $P = 0.003$ ). After 13 years, this correlation became stronger (Fisher's  $Z$  test;  $r = -0.29$ ,  $P < 0.001$ ), with larger amounts of anisometropia being associated with more myopia.

Since the faster progressing eye could be identified retrospectively, we also computed the correlation between SER for the faster progressing eye and the amount of anisometropia by visit. At baseline, the correlation between SER of the faster progressing eye and the amount of anisometropia was small (Fisher's  $Z$  test;  $r = -0.14$ ,  $P = 0.009$ ). At the 13-year visit, this correlation was stronger (Fisher's  $Z$  test;  $r = -0.39$ ,  $P < 0.0001$ ). This increase in correlation after 13 years of myopic progression was echoed in the moderate correlation (Fisher's  $Z$  test;  $r = -0.36$ ,  $P < 0.001$ ) between the change in the amount of anisometropia and the amount of myopic progression over 13 years. However, no correlation was found (Fisher's  $Z$  test;  $r = -0.02$ ,  $P = 0.68$ ) between baseline anisometropia and the amount of progression over 13 years. These correlations for the faster progressing eye were similar to those for the average of the two eyes.

### Interocular Difference in Axial Length (Aniso-AL)

**Individual Aniso-AL Curves.** Figure 2B shows the distribution of the regression slopes for aniso-AL in 358 subjects with baseline and 13-year data. The rate of change in aniso-AL was small for most individuals ( $n = 334$ , 93.3%) with  $|b| < 0.025$  mm/y. The remaining 24 subjects (6.7%) had a larger change ( $b \geq 0.025$  mm/y,  $n = 22$ ;  $b \leq -0.025$  mm/y,  $n = 2$ ), and two had negative slopes.

Similar to anisometropia, the percentage of subjects with a significant increase in aniso-AL over 13 years ( $b \geq 0.025$  mm/y) was higher in the group with more axial elongation (increase in AL greater than a median split of 1.275 mm over 13 years in

the faster growing eye) compared to the group with less axial elongation (9.6% vs. 2.8%; MLR,  $P = 0.02$ ).

**Group Aniso-AL Data.** Overall, the mean degree of aniso-AL increased slightly over 13 years from 0.15 to 0.21 mm (Fig. 4, dashed line with  $y$ -axis on the right side). The group with more axial elongation had consistently more aniso-AL at each yearly visit (Fig. 7; adjusted mean difference in aniso-AL = 0.04 mm; LMM,  $P = 0.005$ ). Caucasian children had a consistently higher degree of aniso-AL over the 13 years than Hispanic children (LMM Dunnett adjustment,  $P = 0.02$ ), but were not significantly different from African-American children (LMM Dunnett adjustment,  $P = 0.07$ ) or Asian children (LMM Dunnett adjustment,  $P = 0.95$ , Fig. 8).

Similar to the analyses done for anisometropia, the correlation between axial length and aniso-AL was examined by visit. At baseline, there was no correlation between eye length (average of two eyes) and the degree of aniso-AL ( $r = 0.01$ ,  $P = 0.82$ ). After 13 years, this correlation became slightly stronger and statistically significant ( $r = 0.14$ ,  $P < 0.01$ ). In addition, we computed the correlation between AL of the faster growing eye and the amount of aniso-AL at baseline ( $r = -0.07$ ,  $P = 0.17$ ) and the 13-year visit ( $r = 0.23$ ,  $P < 0.0001$ ). The correlation between axial elongation (in the faster growing eye) and the change in aniso-AL over 13 years also was statistically significant (Fisher's  $Z$  test;  $r = 0.13$ ,  $P = 0.01$ ). However, the correlation between baseline aniso-AL and axial elongation over 13 years was small and did not reach statistical significance (Fisher's  $Z$  test;  $r = -0.10$ ,  $P = 0.07$ ). These correlations for the faster growing eye are similar to those for the average of the two eyes.

### Comparison Between Aniso SER and Aniso-AL

**Individual Curve Fitting.** For the majority of the children, the changes found in either anisometropia or aniso-AL over the 13 years of follow up, as shown in Figures 2A and 2B, were



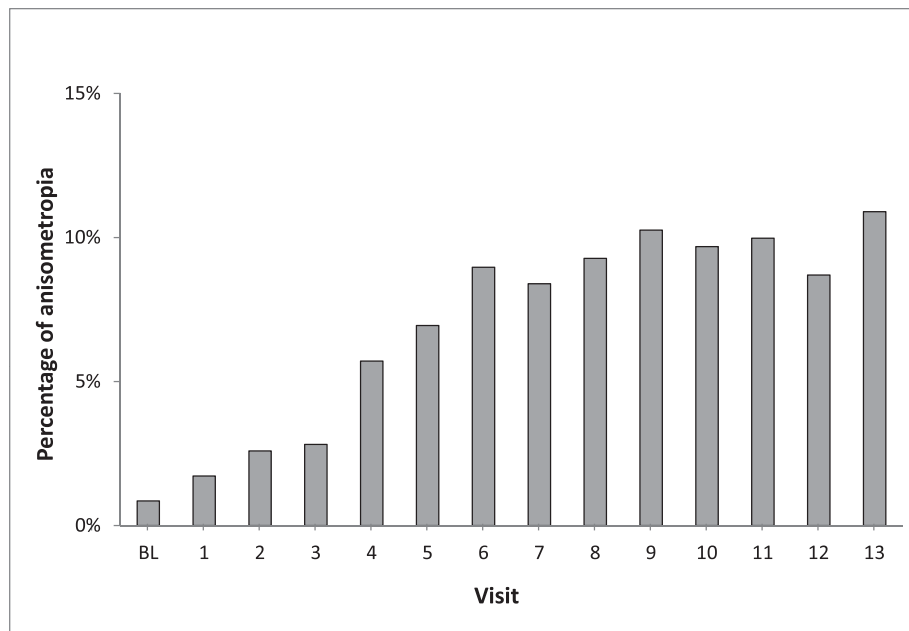


FIGURE 3. The prevalence of clinically significant anisometropia ( $\geq 1.00$  D) by visit.

small. Of the 356 subjects with anisometropia curve fits and aniso-AL curve fits, 344 (96.6%) had comparable change rates between anisometropia and aniso-AL. That is, the subject either had little change in anisometropia and aniso-AL ( $n = 313$ ) or had a significant change in both ( $n = 14$ ), or had very similar rates of change (rate of change difference equivalent to  $< 0.05$  D/y,  $n = 16$ ). The remaining 13 participants had different rates of change in anisometropia and aniso-AL.

**Group Data.** Overall, anisometropia and aniso-AL increased during myopic progression. The baseline anisometropia was

not linked to the amount of myopic progression and neither was the baseline aniso-AL related significantly to axial elongation over 13 years.

**Changes in Anisometropia and Aniso-AL Over Time**

The correlation between change in aniso-AL and change in anisometropia over 13 years was moderate and significant (Fisher’s Z test;  $r = 0.39$ ,  $P < 0.0001$ ). Approximately 16% of the variance in the change of anisometropia can be explained by the change in the aniso-AL alone.

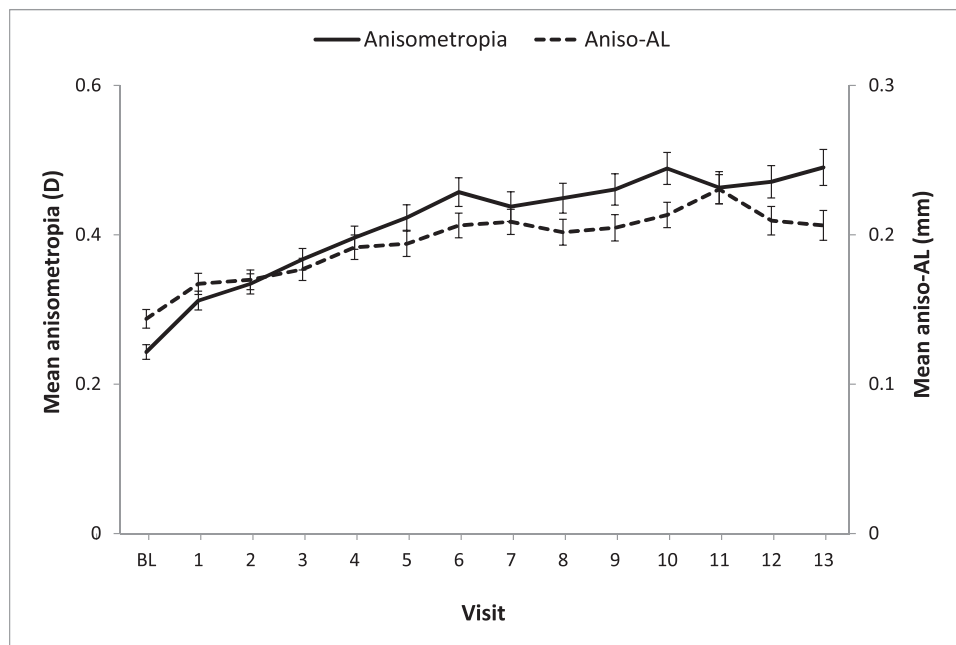


FIGURE 4. Mean amount of anisometropia and aniso-AL over the years ( $\pm$ SE). The y-axis on the left side is for anisometropia and y-axis on the right side is for aniso-AL.

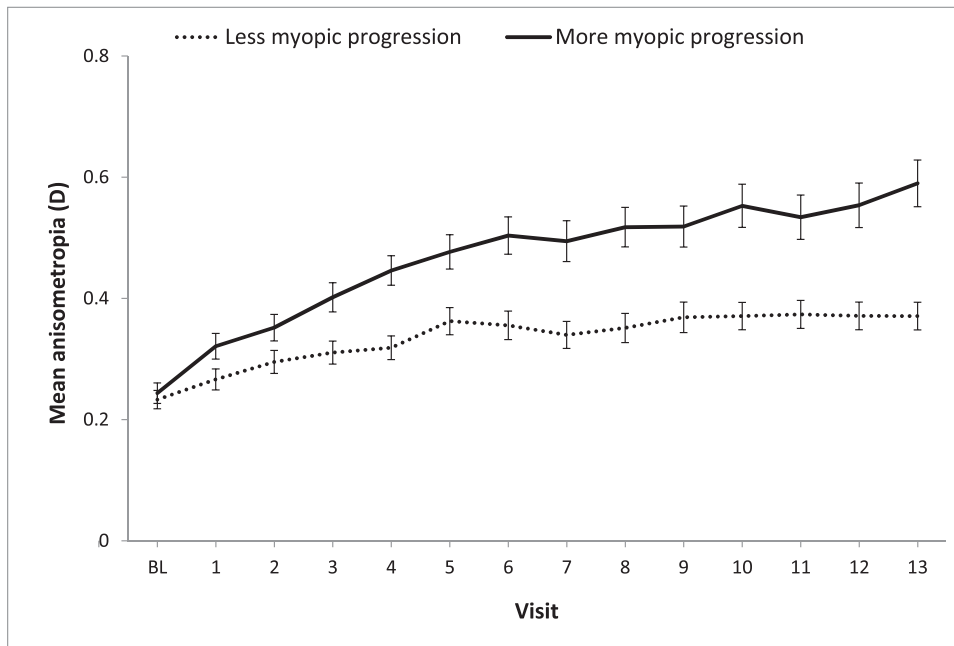


FIGURE 5. Mean amount of anisometropia ( $\pm$ SE) for more myopic progression (2.50 D or more progression in the fast progressing eye over 13 years,  $n = 163$ ) and less myopic progression group (less than 2.50 D progression in the fast progressing eye,  $n = 195$ ).

**DISCUSSION**

In this study, we found little change in anisometropia and aniso-AL in the majority of the COMET children after 13 years of myopic progression and stabilization. A small percentage of the subjects had a significant increase in anisometropia and/or aniso-AL, leading to a small average increase in the prevalence and mean amount of anisometropia and aniso-AL overall. Children with more myopic progression (2.50 D or more progression over 13 years) were more likely to have a significant rate of change ( $b \geq 0.05$  D/y) in anisometropia compared to those with less myopic progression. This finding

is mirrored in the axial length data. In addition, we observed a trend of ethnicity differences for aniso-AL. Overall, Caucasian children had a slightly higher amount of anisometropia and aniso-AL compared to African-American and Hispanic children.

Using individual longitudinal data from the COMET cohort, we found that for the majority of children (89%) the rate of change in SER was the same in the two eyes, and that the proportion of subjects with a significant increase in anisometropia (regression slope  $\geq 0.05$  D/y) over that period was small (~11%). For aniso-AL, we found an even smaller percentage of subjects (7%) with a significant increase in aniso-AL over the 13

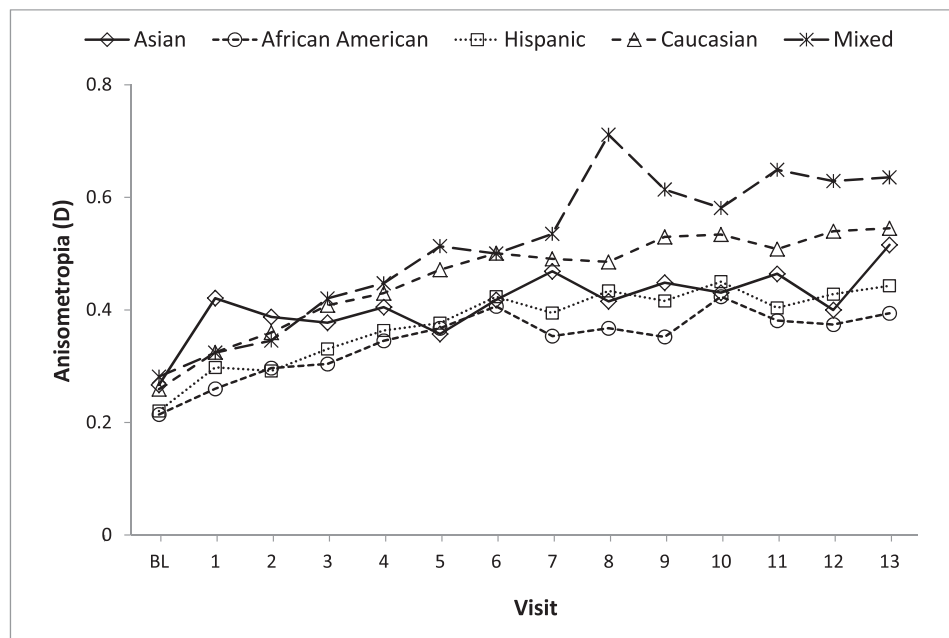


FIGURE 6. Anisometropia by ethnicity: Asian ( $n = 36$  at BL), African American ( $n = 123$  at BL), Hispanic ( $n = 68$  at BL), Caucasian ( $n = 218$  at BL), and mixed ( $n = 23$  at BL). Only one subject was in the “other” ethnicity group (data not shown here).

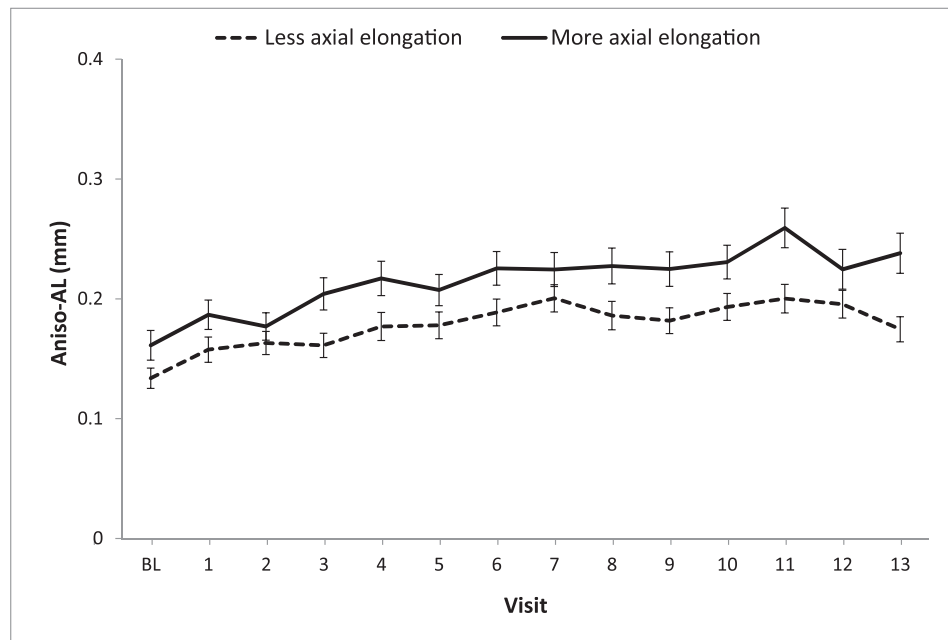


FIGURE 7. Mean amount of aniso-AL ( $\pm$ SE) for more axial elongation (more than 1.275 mm axial elongation in the faster growing eye over 13 years,  $n = 179$ ) and less axial elongation group (1.275 mm or less axial elongation in the faster growing eye,  $n = 179$ ).

years. The evidence from anisometropia and aniso-AL converges to the point that the two eyes usually grow at a similar rate and myopia progresses by a similar amount in the COMET cohort of children with low myopia and anisometropia of less than 1.00 D at baseline.

On average, the COMET children showed an overall increase in the amount of anisometropia of approximately 0.25 D over 13 years. The group with more myopic progression had a larger increase in anisometropia compared to the group with less progression, though by a small amount. The prevalence of anisometropia ( $\geq 1.00$  D) increased from

nearly zero at baseline to 11% at the 13-year visit. These longitudinal findings agreed with the findings reported by Parssinen,<sup>6</sup> except that our subjects had a smaller amount of anisometropia on average at baseline and a much longer follow-up period. The overall increase in anisometropia in our study was correlated significantly with the amount of myopic progression (the average of two eyes;  $r = -0.29$  for 13 years of change), higher than the  $r = -0.13$  reported for 3 years of change in the study of Parssinen.<sup>6</sup> However, the correlation was smaller for 3 years of change in our study ( $r = -0.08$ ). The correlation based on the faster progressing eye was slightly

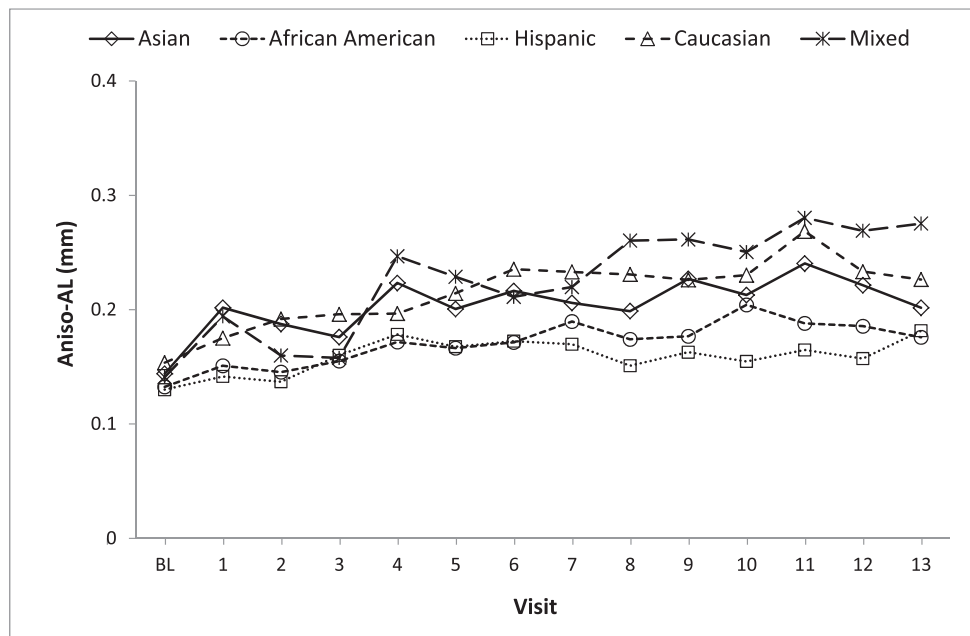


FIGURE 8. Aniso-AL by ethnicity: Asian ( $n = 36$  at BL), African American ( $n = 123$  at BL), Hispanic ( $n = 68$  at BL), Caucasian ( $n = 218$  at BL), and mixed ( $n = 23$  at BL).

higher, but the conclusions remain the same. Both studies showed that the amount of anisometropia at baseline does not predict the amount of myopic progression.

Similar to the study by Tong et al.,<sup>3</sup> we also found a moderate correlation between changes in the between-eye difference in AL and changes in the between-eye difference in SER (0.39 in our study versus 0.43 in reported by Tong et al.<sup>3</sup>). This, again, confirms the axial nature of anisometropia among a younger population. However, as this correlation is not high, interocular differences in ocular components other than axial length, such as corneal curvature, lens, or anterior chamber depth, also may contribute to anisometropia.

A number of studies conducted in different samples have reported an increase in the prevalence of anisometropia during the school-age years.<sup>3,6,8,10,19</sup> Most studies, however, only examined the overall change of anisometropia by averaging data across subjects, but the overall increase does not necessarily reflect the trend for individuals. Like other studies, our group results showed an overall increase in the prevalence of anisometropia and the amount of anisometropia over time. However, an examination of the individual curves, looking at the change within each subject over time, produced a somewhat different message. According to the individual curve fitting results, anisometropia in most children (~89%) did not change over time. Therefore, increases in the prevalence of anisometropia or the mean amount of anisometropia with age in previous reports likely were driven by a small proportion of subjects who had significant anisometropia during the period of myopic progression.

Compared to previous studies, cross-sectional<sup>4,7-9,11,12</sup> and longitudinal,<sup>3,6,8,10,13</sup> this study has several advantages. First, a large number of children (358/469, 76.3%) were followed for a long period of time (13 years). Unlike previous longitudinal studies on anisometropia, we had a much longer follow-up period, which enabled us to quantify a long-term trend by individual. With a moderate number of time points, any seemingly big change is less susceptible to random noise/errors and, thus, the results are more robust than those with shorter follow-up time. Compared to the approach using the overall pattern (group data), the individual profile-based analysis offers a great opportunity to examine intersubject variability. We believe that by using individual data we have gained more insights into anisometropia overall compared to using the group data analysis alone. Other strengths of our study include an ethnically diverse sample from which cycloplegic refraction as well as axial length data by A-Scan ultrasonography were available for both eyes. Although the initial lens treatment assignment was not adhered to after 5 years, it is unlikely this would confound the main results as the changes in anisometropia or aniso-AL after the 5-year visit were much smaller than before the 5-year visit. A limitation of this study included the fact that all children were myopic and had limited anisometropia at baseline. Therefore, the current results may not be generalizable to all children.

## CONCLUSIONS

Myopia and axial length progressed at a similar rate in the two eyes for most children enrolled in COMET during the period of fast progression and eventual stabilization. These results may be more generalizable to myopic school-aged children who have limited anisometropia at baseline.

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## APPENDIX

### COMET Study Group

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