

## BIOMETRY OF MYOPIC ANISOMETROPIA AND ISOMETROPIA

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This study investigated the relationship between refractive error and ocular elements in myopic anisometropia and isometropia. 15 visually normal myopic anisometropes (>1.00 D interocular difference), 14 emmetropes ( $\pm 0.50$  D), 15 low myopes (<3.00 D) and 15 high myopes (>3.00 D) participated in the study.

Refractive error was measured by non-cycloplegic subjective refraction. Corneal power and ocular elements were measured by keratometer and A-scan ultrasonography developed to minimise probe pressure against the cornea, and to aid alignment of the probe with the visual axis.

A summary of the results is shown in Table1.

Table 1. Summary of ocular elements. CP: corneal power, AL/CR: axial length/ corneal radius ratio, ACD: anterior chamber depth, LT: lens thickness, AXL: axial length, VCD: vitreous chamber depth, RE: refractive error, LME: less myopic eye, MME: more myopic eye, EM: emmetropia, LM: low myopia, HM: high myopia.

### (A) Anisometropes

Ocular elements	Correlation			LME vs MME
	RE	LT	VCD	
CP	No		Yes	LME = MME
AL/CR	Yes			LME < MME
ACD	No	Yes	Yes	LME = MME
LT	No		Yes	LME > MME
AXL (VCD)	Yes			LME < MME

(B) Isometropes

Ocular elements	Correlation			EM vs LM vs HM
	RE	LT	VCD	
CP	No		Yes (separate > combined)	EM = LM = HM
AL/CR	Yes			EM < LM < HM
ACD	Yes	Yes	Yes (linear < polynomial)	EM < LM (increasing) < HM (stable)
LT	Yes		Yes	EM > LM > HM (p = 0.07)
AXL (VCD)	Yes			EM < LM < HM

Aniso-myopia showed the same pattern in isometropia in corneal power, axial length, anterior chamber depth, lens thickness and vitreous chamber. The anterior chamber had a limitation of increase with increasing refractive error in isometropia. The coefficients of correlation between refractive error and axial length (mm)/corneal radius (mm) ratio (AL/CR ratio) were -0.69 (p < 0.001) for all anisometropic eyes and -0.93 (p < 0.001) for all isometropic groups combined.

The difference of ocular elements between more myopic eye and less myopic eye could be due to differential responses of the ciliary body and/or the lens to the same parasympathetic innervation in anisometropia while to the different parasympathetic innervation.

**M**  
**F**