Associations with photoreceptor thickness measures in the UK Biobank

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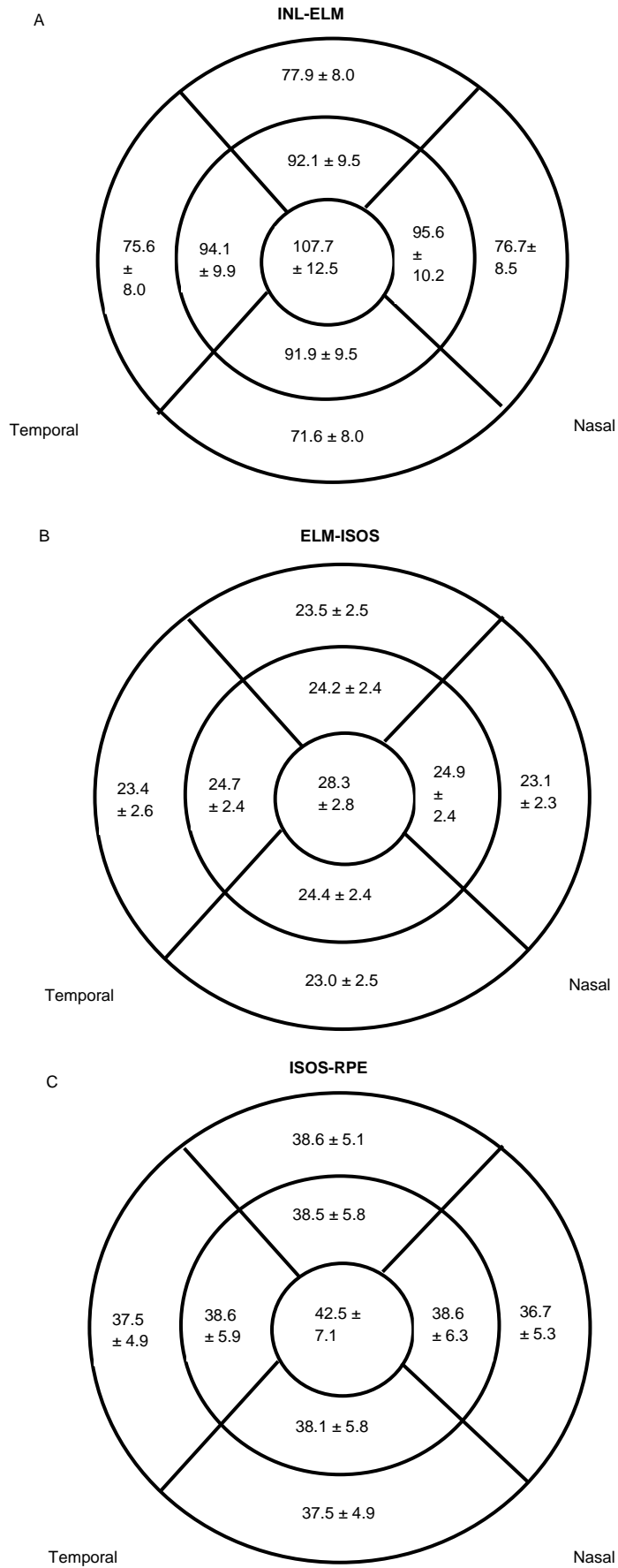
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A **INL-ELM**

77.9 ± 8.0

92.1 ± 9.5

75.6 ± 8.0 | 94.1 ± 9.9 | 107.7 ± 12.5 | 95.6 ± 10.2 | 76.7± 8.5

91.9 ± 9.5

Temporal

71.6 ± 8.0

Nasal

B **ELM-ISOS**

23.5 ± 2.5

24.2 ± 2.4

23.4 ± 2.6 | 24.7 ± 2.4 | 28.3 ± 2.8 | 24.9 ± 2.4 | 23.1 ± 2.3

24.4 ± 2.4

Temporal

23.0 ± 2.5

Nasal

C **ISOS-RPE**

38.6 ± 5.1

38.5 ± 5.8

37.5 ± 4.9 | 38.6 ± 5.9 | 42.5 ± 7.1 | 38.6 ± 6.3 | 36.7 ± 5.3

38.1 ± 5.8

Temporal

37.5 ± 4.9

Nasal

Figure S1. Diagrams showing Inner nuclear layer- External limiting membrane (INL-ELM) thickness (µm) (A), External limiting membrane-Inner and outer segments (ELM-ISOS) thickness (µm) (B) and Inner and outer segments-Retinal pigment epithelium thickness (ISOS-RPE) thickness (µm) (C) at the central, inner and outer subfields across the 4 sectors
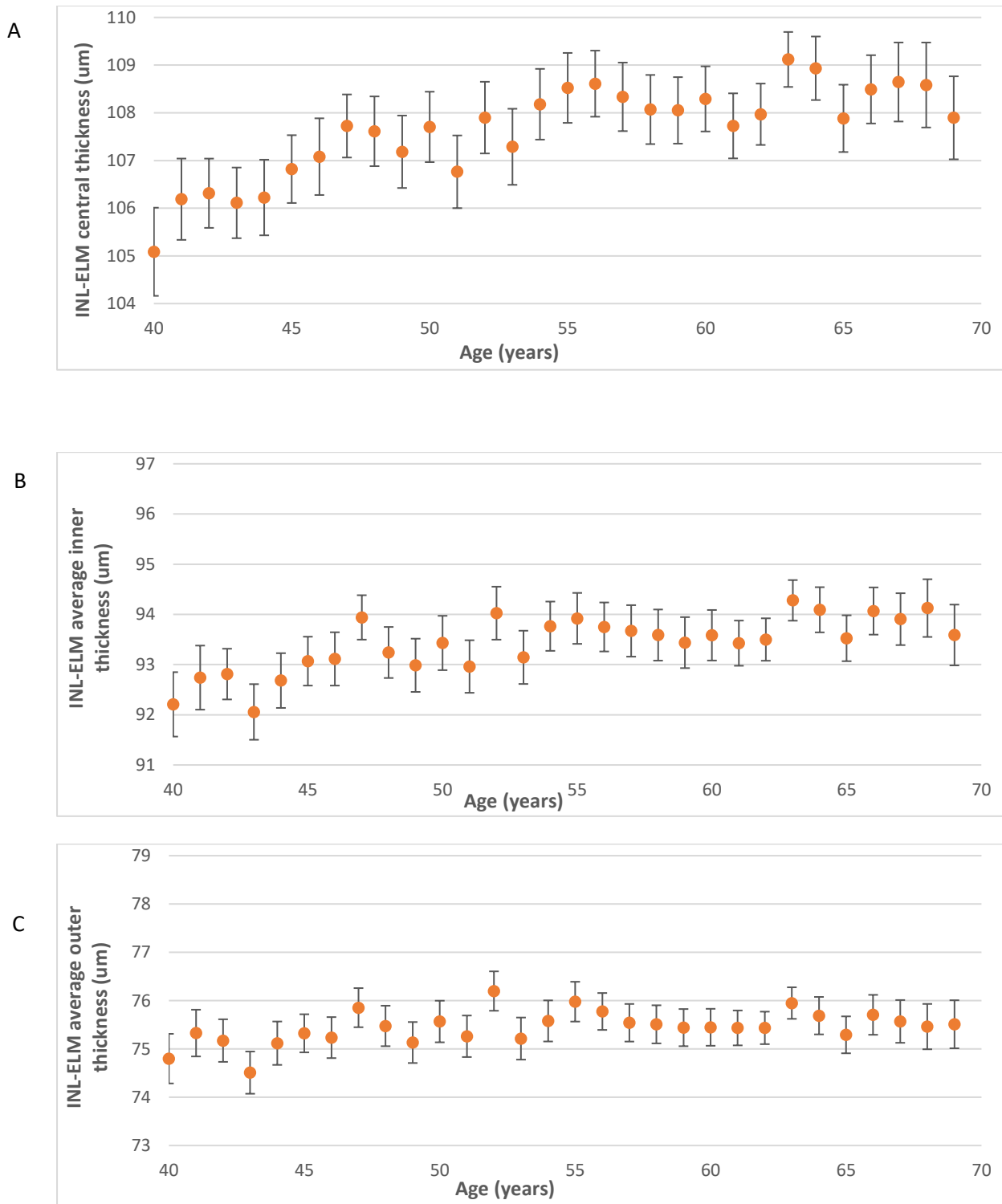
Figure S2. Graphs showing the mean Inner nuclear layer- External limiting membrane (INL-ELM) thickness(μm) in the (A) central, (B) average inner, and (C) average outer subfields by age. Error bars indicate 95% confidence interval.
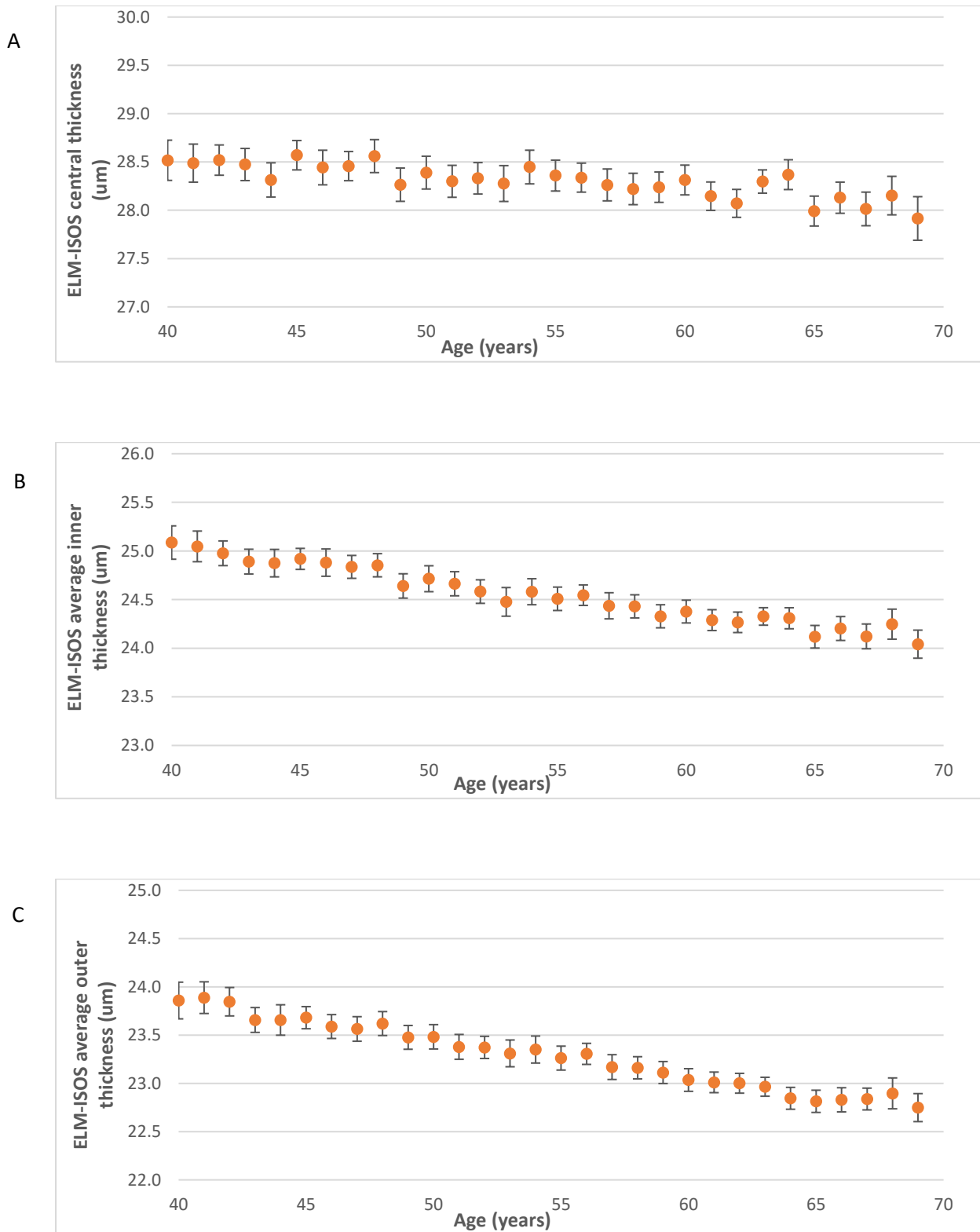
Figure S3. Graphs showing the mean External limiting membrane-Inner and outer segments (ELM-ISOS) thickness (μm) in the (A) central, (B) average inner, and (C) average outer subfields by age. Error bars indicate 95% confidence interval.
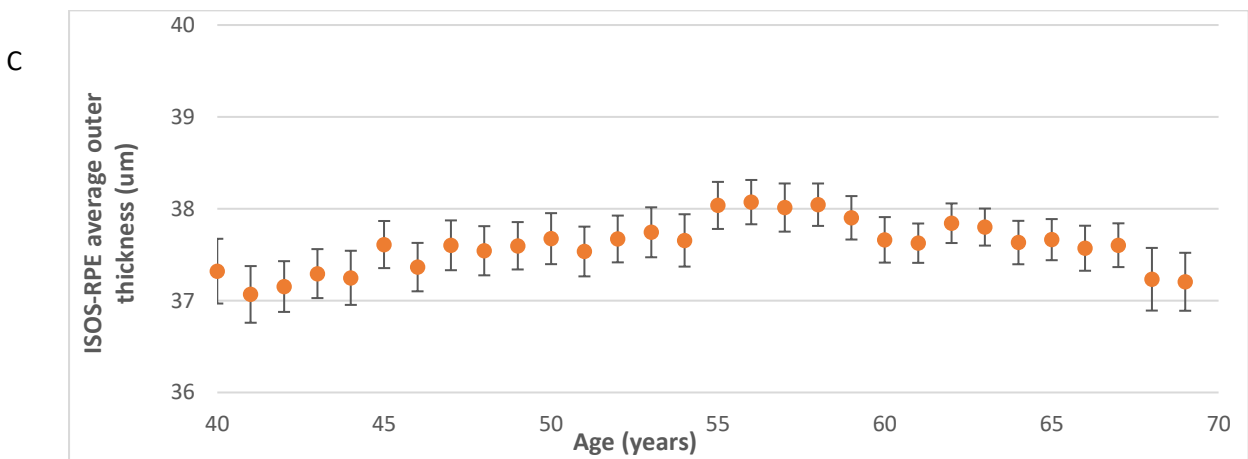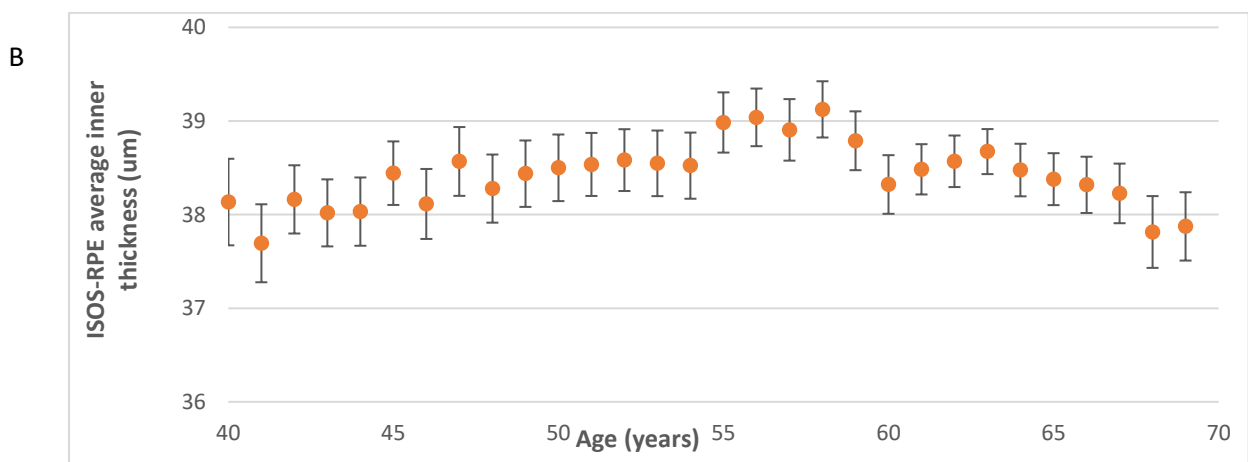
Figure S4. Graphs showing the mean Inner and outer segments-Retinal pigment epithelium thickness (ISOS-RPE) thickness (μm) in the (A) central, (B) average inner, and (C) average outer subfields by age. Error bars indicate 95% confidence interval.

Figure S5. Graphs showing the mean Inner nuclear layer- External limiting membrane (INL-ELM) thickness (µm) in the (A) central, (B) average inner, and (C) average outer subfields by IOP$_{cc}$ (mmHg). Error bars indicate 95% confidence interval.

Figure S6. Graphs showing the mean External limiting membrane-Inner and outer segments (ELM-ISOS) thickness (μm) in the (A) central, (B) average inner, and (C) average outer subfields by IOP$_{cc}$ (mmHg). Error bars indicate 95% confidence interval.
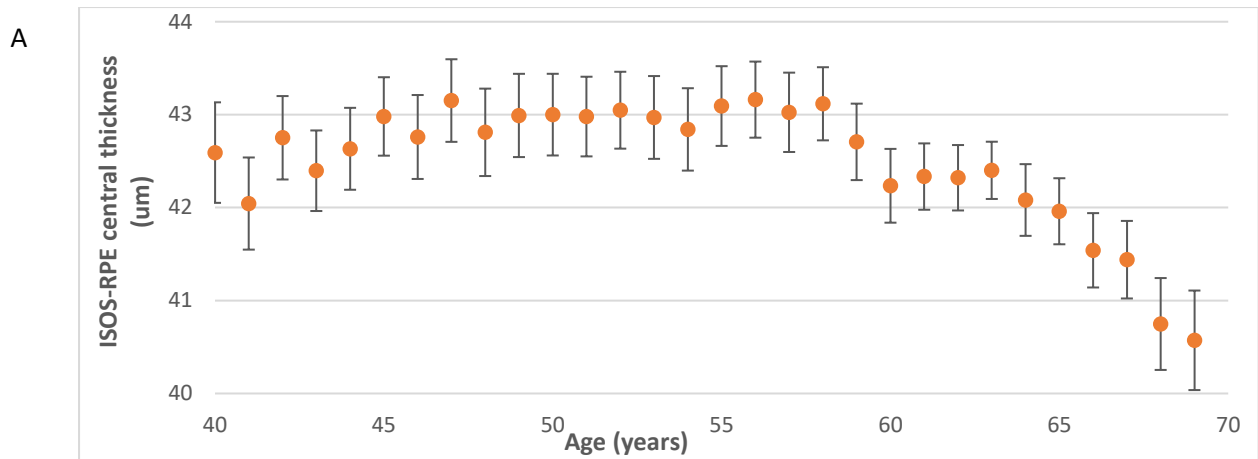
A

B

C

Figure S7. Graphs showing the mean Inner and outer segments-Retinal pigment epithelium thickness (ISOS-RPE) thickness (µm) in the (A) central, (B) average inner, and (C) average outer subfields by IOP_{cc} (mmHg). Error bars indicate 95% confidence interval
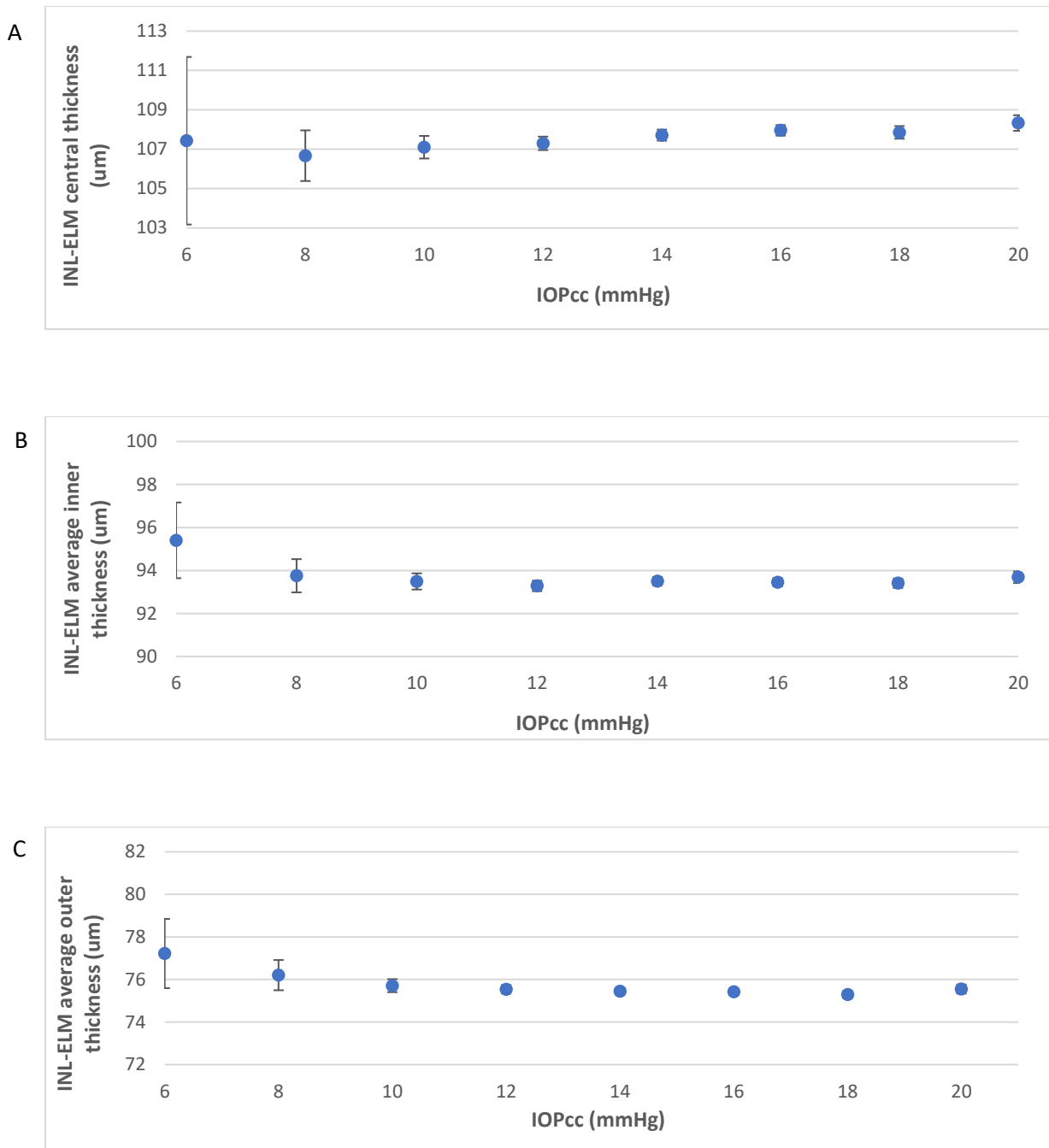
Figure S8. Graphs showing the mean Inner nuclear layer- External limiting membrane (INL-ELM) thickness (μm) in the (A) central, (B) average inner, and (C) average outer subfields by refraction (D). Error bars indicate 95% confidence interval
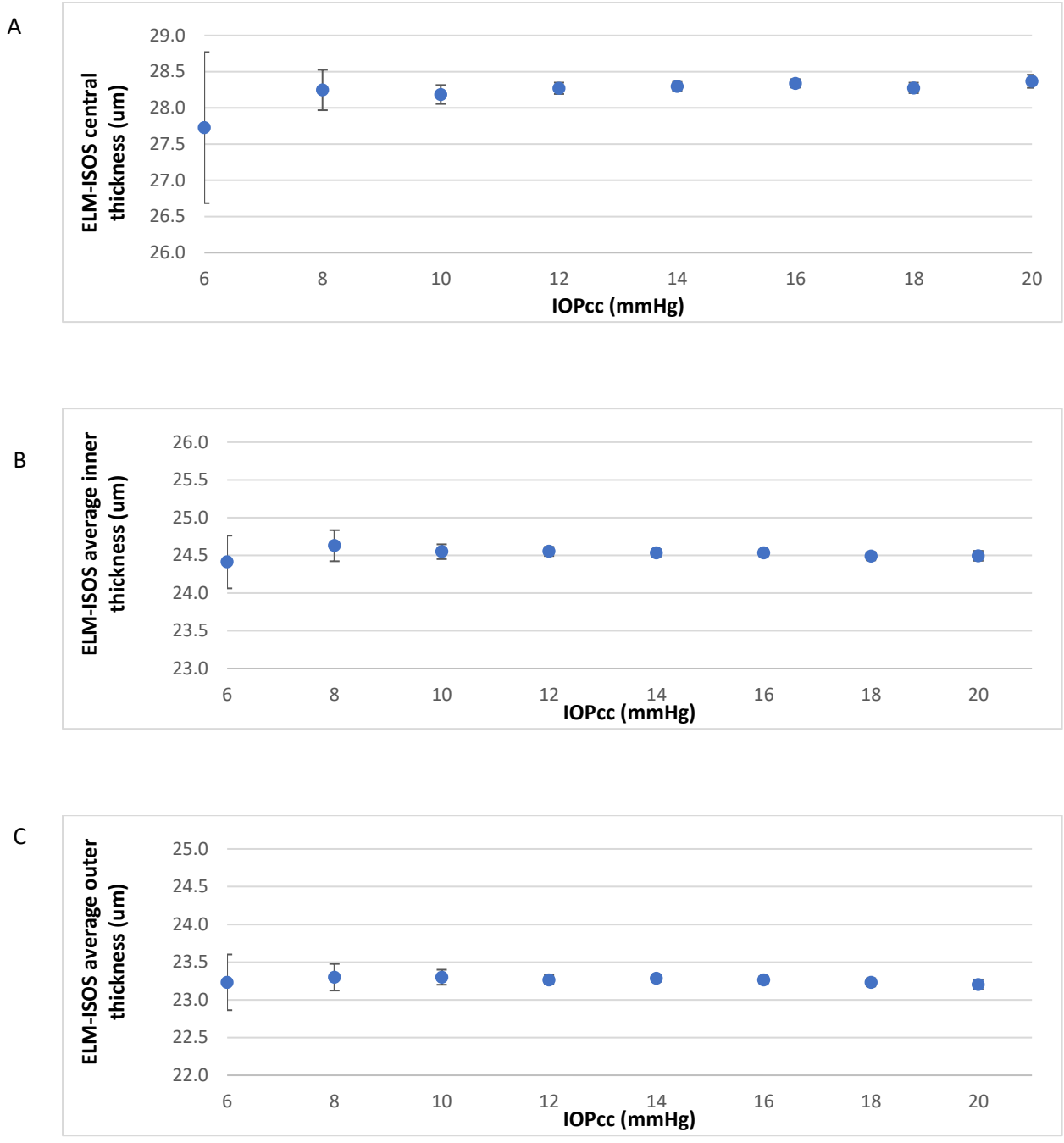
Figure S9. Graphs showing the mean External limiting membrane-Inner and outer segments (ELM-ISOS) thickness (μm) in the (A) central, (B) average inner, and (C) average outer subfields by refraction (D). Error bars indicate 95% confidence interval
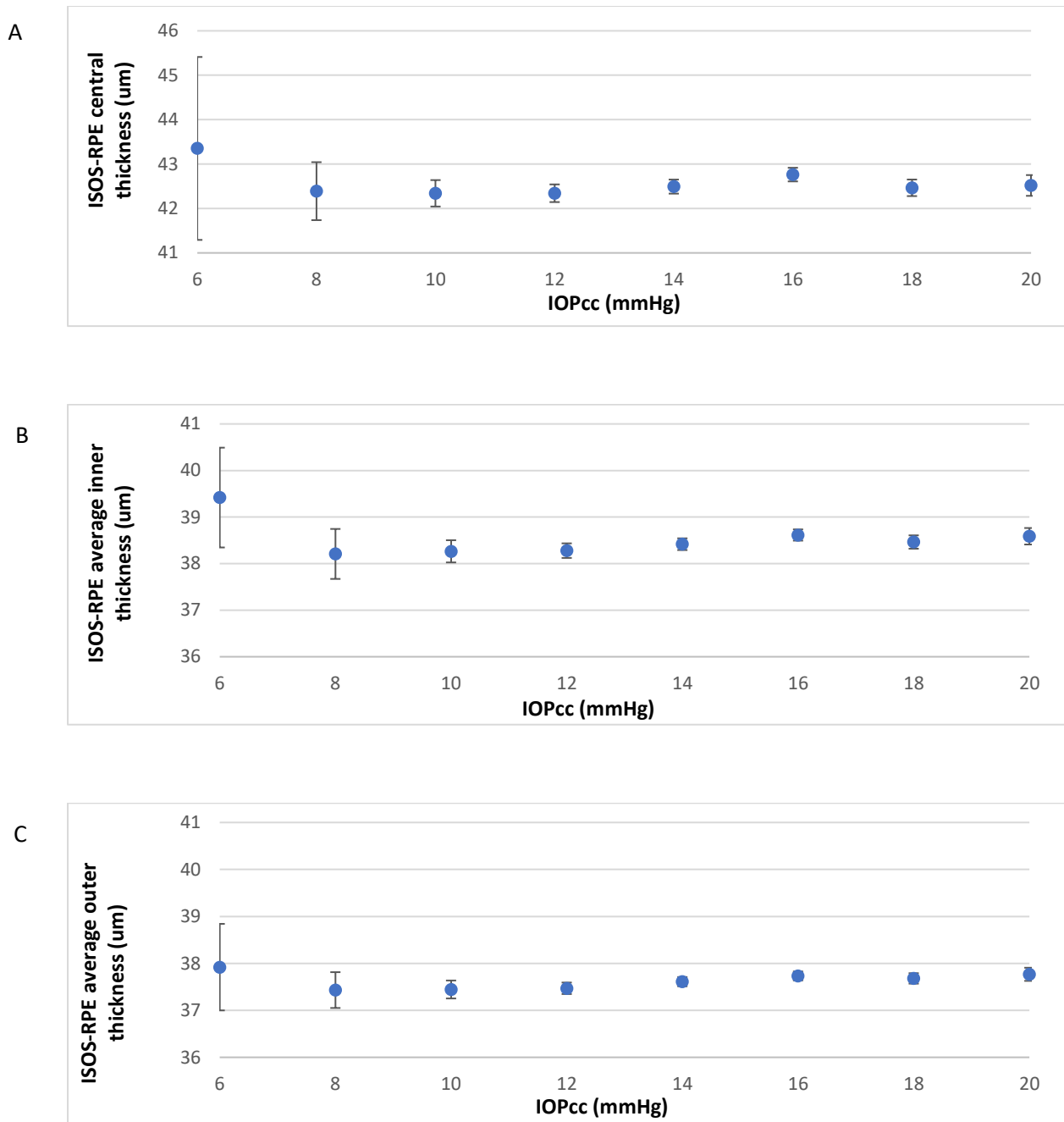
A

B

C

Figure S10. Graphs showing the mean Inner and outer segments-Retinal pigment epithelium thickness (ISOS-RPE) thickness (μm) in the (A) central, (B) average inner, and (C) average outer subfields by refraction (D). Error bars indicate 95% confidence interval.
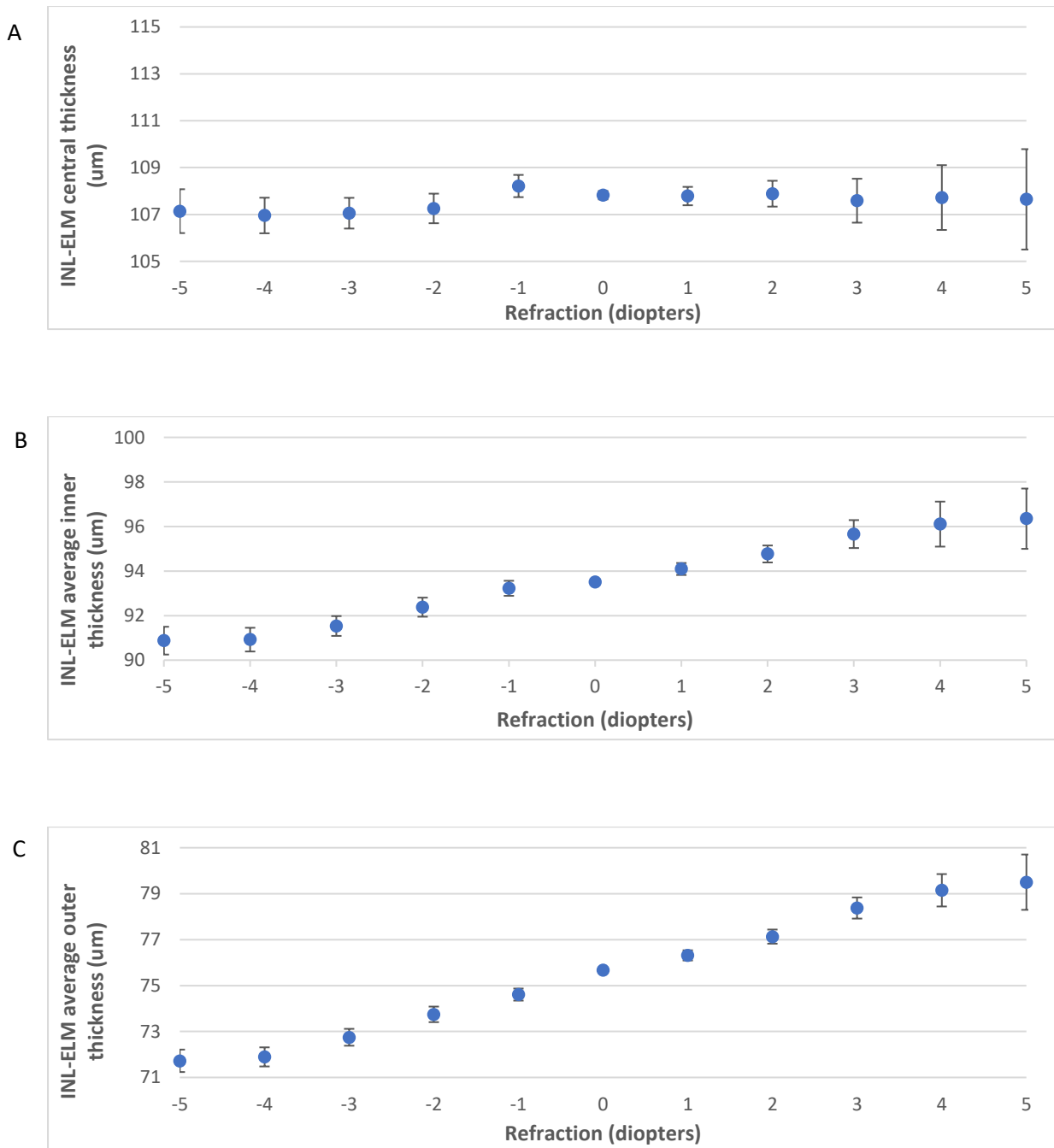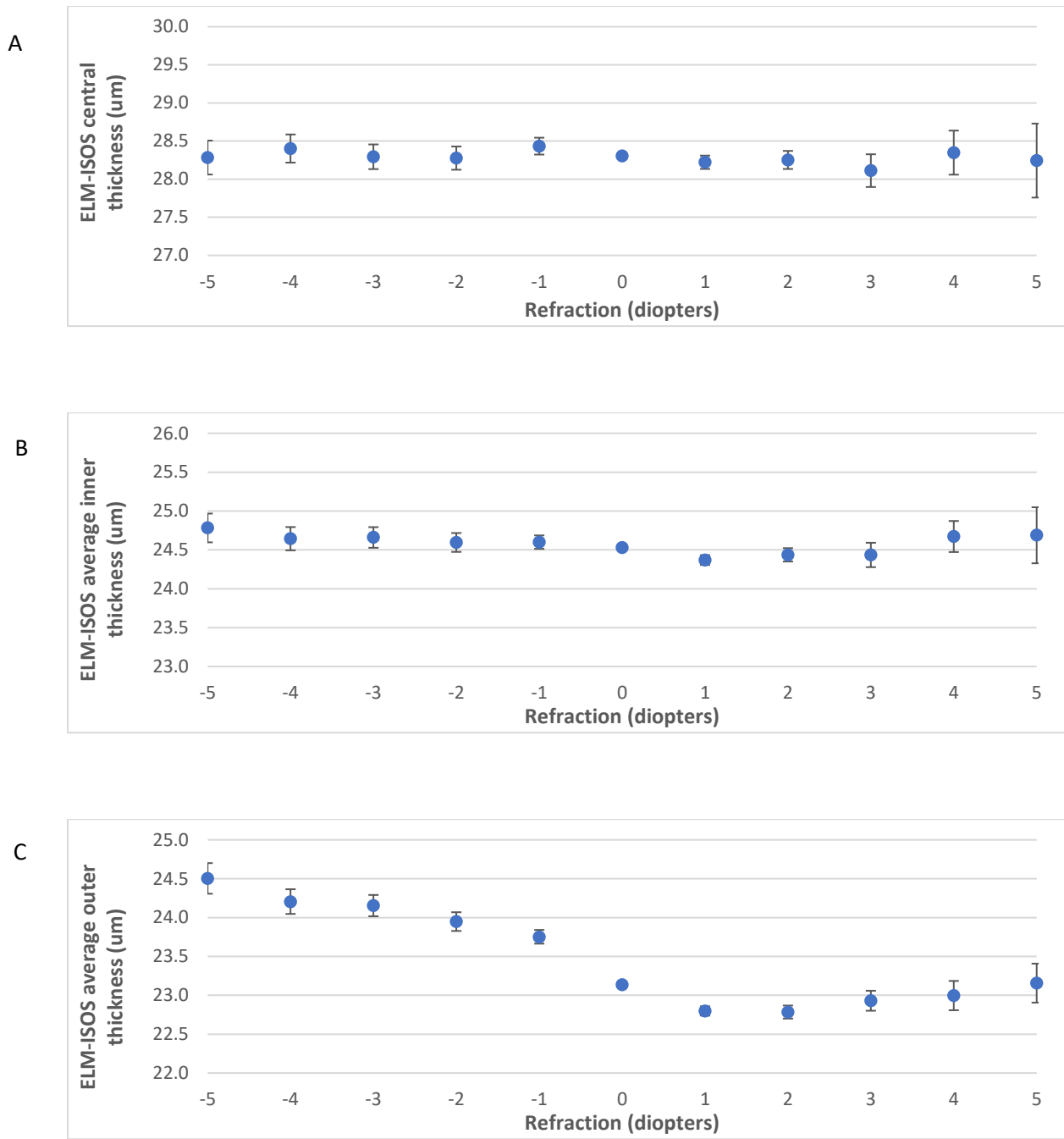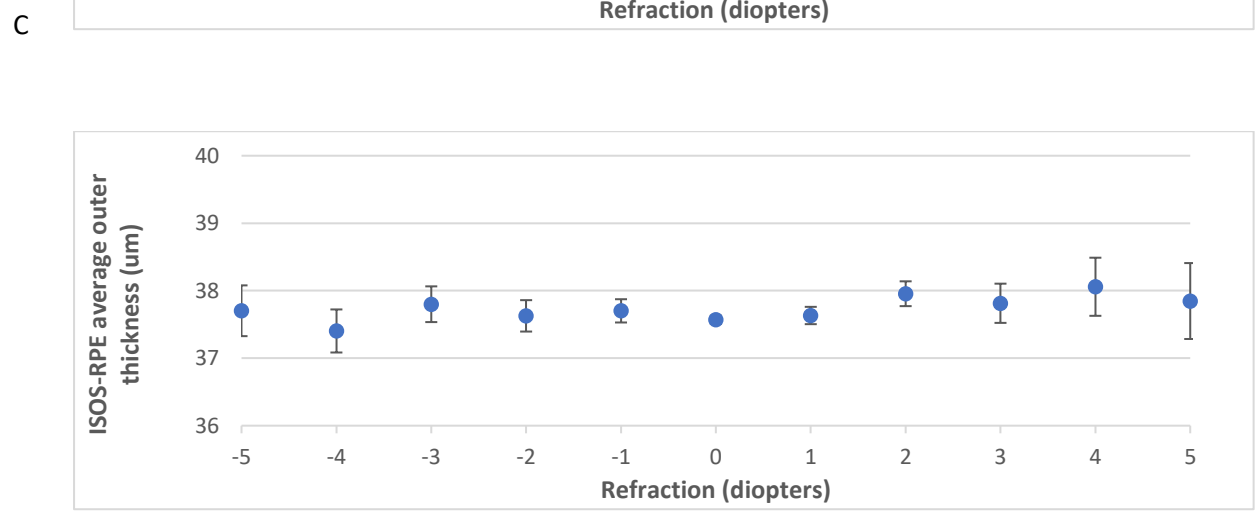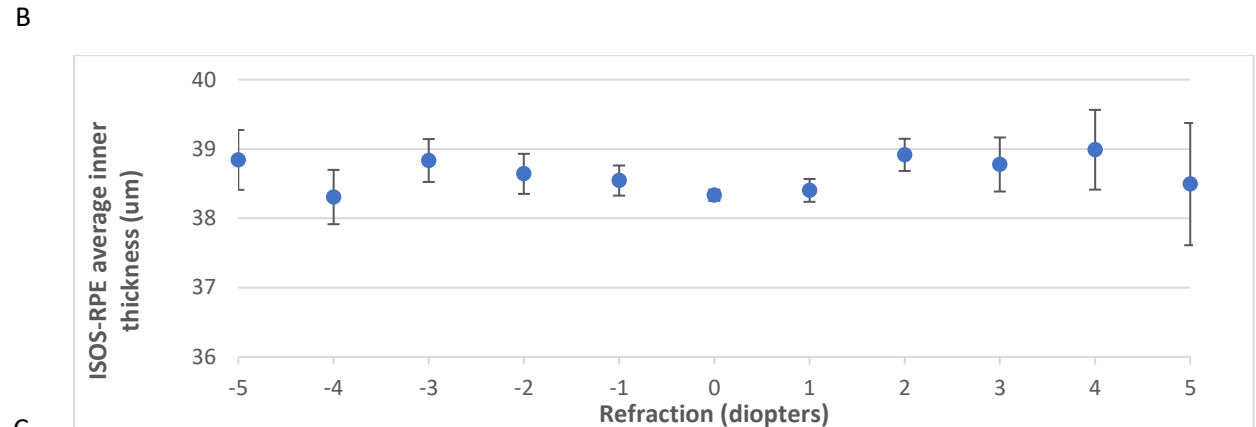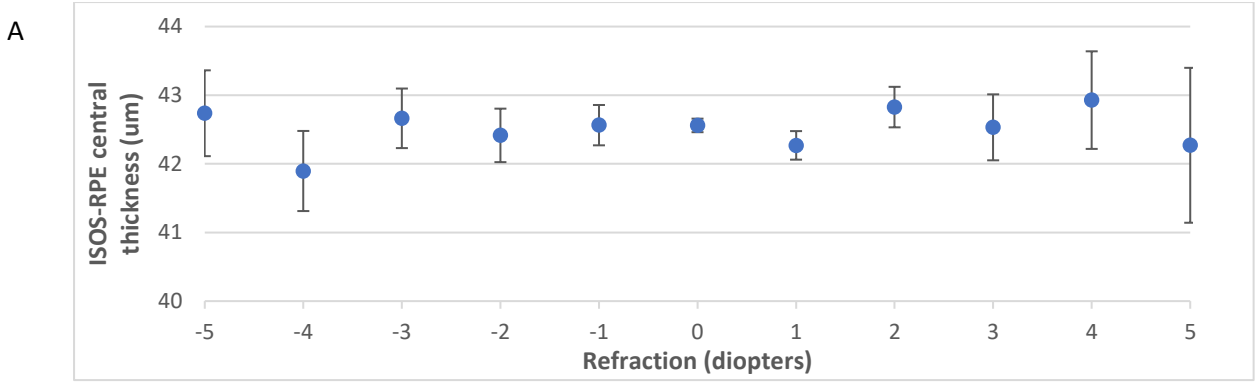
Table S1. Multivariate analysis of demographics and risk factors with the thickness of INL-ELM layer

	Central subfield				Average Inner Subfield				Average Outer Subfield				Total Average			
	β	*B*	95% CI	P	β	*B*	95% CI	P	β	*B*	95% CI	P	β	*B*	95% CI	P
Age	0.03	0.05	(0.03, 0.07)	<0.001	0.003	0.003	(-0.009, 0.02)	0.60	-0.037	-0.03	(-0.04, -0.02)	<0.001	-0.024	-0.02	(-0.03, -0.01)	<0.001
Sex																
Male		Ref				Ref				Ref				Ref		
Female		-2.18	(-2.58, -1.79)	<0.001		-1.42	(-1.70, -1.15)	<0.001		-1.39	(-1.60, -1.17)	<0.001		-1.43	(-1.66, -1.21)	<0.001
Race																
White		Ref				Ref				Ref				Ref		
Chinese		-4.67	(-7.02, -2.33)	<0.001		-2.44	(-4.05, -0.82)	0.003		-1.23	(-2.52, 0.06)	0.06		-1.30	(-2.64, 0.04)	0.06
Asian		-5.60	(-6.49, -4.71)	<0.001		-3.78	(-4.39, -3.17)	<0.001		-2.60	(-3.09, -2.11)	<0.001		-2.97	(-3.48, -2.47)	<0.001
Black		-7.38	(-8.24, -6.52)	<0.001		-4.26	(-4.85, -3.66)	<0.001		-3.58	(-4.05, -3.11)	<0.001		-3.67	(-4.15, -3.18)	<0.001
Mixed/Others		-2.95	(-3.87, -2.03)	<0.001		-1.75	(-2.39, -1.12)	<0.001		-1.44	(-1.94, -0.93)	<0.001		-1.55	(-2.07, -1.02)	<0.001
Smoking status																
Never		Ref				Ref				Ref				Ref		
Previous		0.30	(0.002, 0.59)	0.05		0.16	(-0.05, 0.36)	0.14		0.05	(-0.12, 0.21)	0.60		0.09	(-0.08, 0.26)	0.28
Current		0.12	(-0.36, 0.60)	0.63		0.13	(-0.20, 0.46)	0.44		-0.05	(-0.32, 0.21)	0.70		-0.04	(-0.31, 0.23)	0.78
SBP (per 10mmHg)	-0.12	-0.08	(-0.16, -0.004)	0.04	-0.07	-0.03	(-0.08, 0.02)	0.25	-0.11	-0.04	(-0.08, 0.002)	0.06	-0.10	-0.04	(-0.08, 0.01)	0.09
Refraction (per 1D)	0.005	0.04	(-0.05, 0.13)	0.38	0.11	0.60	(0.54, 0.66)	<0.001	0.20	0.89	(0.84, 0.94)	<0.001	0.18	0.81	(0.76, 0.86)	<0.001
IOP$_{cc}$ (mmHg)	0.01	0.06	(0.003, 0.11)	0.04	0.003	0.009	(-0.03, 0.05)	0.61	-0.001	-0.003	(-0.03, 0.03)	0.82	0.0001	0.0003	(-0.03, 0.03)	0.99
Corneal hysteresis	-0.01	-0.08	(-0.16, -0.002)	0.05	0.0004	0.0002	(-0.06, 0.06)	0.99	0.01	0.03	(-0.02, 0.07)	0.22	0.006	0.02	(-0.02, 0.07)	0.34

Adjusted for age, gender, ethnicity, Townsend deprivation index, height, smoking status, systolic blood pressure, refraction, IOP$_{cc}$, and corneal hysteresis

β = standardised beta; *B*= unstandardised beta; P= P value; SBP= systolic blood pressure; IOP$_{cc}$= Corneal-compensated intraocular pressure

Table S2. Multivariate analysis of demographics and risk factors with the thickness of ELM-ISOS layer

	Central subfield				Average Inner Subfield				Average Outer Subfield				Total Average			
	β	*B*	95% CI	P	β	*B*	95% CI	P	β	*B*	95% CI	P	β	*B*	95% CI	P
Age	-0.06	-0.02	(-0.02, -0.02)	<0.001	-0.13	-0.03	(-0.04, -0.03)	<0.001	-0.11	-0.03	(-0.03, -0.03)	<0.001	-0.13	-0.03	(-0.03, -0.03)	<0.001
Sex																
Male		Ref				Ref				Ref				Ref		
Female		-0.30	(-0.39, -0.22)	<0.001		-0.30	(-0.37, -0.23)	<0.001		-0.23	(-0.29, -0.16)	<0.001		-0.25	(-0.31, -0.18)	<0.001
Race																
White		Ref				Ref				Ref				Ref		
Chinese		-0.20	(-0.73, 0.34)	0.47		0.55	(0.15, 0.95)	0.008		0.64	(0.24, 1.04)	0.002		0.62	(0.25, 1.00)	0.001
Asian		-0.63	(-0.83, -0.43)	<0.001		0.02	(-0.14, 0.17)	0.84		0.06	(-0.10, 0.21)	0.48		0.02	(-0.13, 0.16)	0.84
Black		-1.08	(-1.28, -0.89)	<0.001		-0.48	(-0.62, -0.33)	<0.001		-0.20	(-0.35, -0.06)	0.007		-0.29	(-0.42, -0.15)	<0.001
Mixed/Others		-0.30	(-0.51, -0.09)	0.005		-0.16	(-0.32, -0.002)	0.05		-0.12	(-0.28, 0.04)	0.14		-0.13	(-0.27, 0.02)	0.09
Smoking status																
Never		Ref				Ref				Ref				Ref		
Previous		-0.03	(-0.10, 0.03)	0.33		-0.02	(-0.07, 0.03)	0.51		-0.02	(-0.07, 0.03)	0.40		-0.03	(-0.07, 0.02)	0.29
Current		-0.23	(-0.33, -0.12)	<0.001		-0.22	(-0.30, -0.14)	<0.001		-0.19	(-0.27, -0.11)	<0.001		-0.20	(-0.27, -0.12)	<0.001
SBP (per 10mmHg)	-0.15	-0.02	(-0.04, -0.01)	0.01	-0.18	-0.02	(-0.03, -0.01)	0.003	-0.25	-0.03	(-0.04, -0.01)	<0.001	-0.26	-0.03	(-0.04, -0.01)	<0.001
Refraction (per 1D)	0.003	0.005	(-0.01, 0.03)	0.60	0.002	0.003	(-0.01, 0.02)	0.66	-0.15	-0.21	(-0.22, -0.19)	<0.001	-0.12	-0.15	(-0.17, -0.14)	<0.001
IOP_{cc} (mmHg)	0.01	0.01	(0.001, 0.03)	0.03	0.002	0.001	(-0.007, 0.01)	0.75	0.001	0.001	(-0.008, 0.01)	0.85	0.002	0.001	(-0.007, 0.01)	0.77
Corneal hysteresis	-0.01	-0.02	(-0.03, 0.003)	0.10	-0.006	-0.006	(-0.02, 0.007)	0.37	0.011	0.01	(-0.001, 0.03)	0.08	0.007	0.007	(-0.006, 0.02)	0.29

Adjusted for age, gender, ethnicity, Townsend deprivation index, height, smoking status, systolic blood pressure, refraction, IOP_{cc}, and corneal hysteresis

β = standardised beta; *B*= unstandardised beta; P= P value; SBP= systolic blood pressure; IOP_{cc}= Corneal-compensated intraocular pressure

Table S3. Multivariate analysis of demographics and risk factors with the thickness of ISOS-RPE layer

	Central subfield				Average Inner Subfield				Average Outer Subfield				Total Average			
	β	*B*	95% CI	P	β	*B*	95% CI	P	β	B	95% CI	P	β	*B*	95% CI	P
Age	-0.06	-0.05	(-0.07, -0.04)	<0.001	0.003	0.002	(-0.006, 0.01)	0.62	0.01	0.006	(-0.001, 0.01)	0.09	0.006	0.003	(-0.004, 0.01)	0.36
Sex																
Male		Ref				Ref				Ref				Ref		
Female		0.54	(0.31, 0.77)	<0.001		0.04	(-0.14, 0.22)	0.64		-0.02	(-0.16, 0.12)	0.75		-0.006	(-0.15, 0.14)	0.94
Race																
White		Ref				Ref				Ref				Ref		
Chinese		0.97	(-0.39, 2.32)	0.16		0.81	(-0.26, 1.87)	0.14		0.17	(-0.66, 1.01)	0.69		0.40	(-0.47, 1.27)	0.37
Asian		0.36	(-0.15, 0.88)	0.17		0.27	(-0.13, 0.67)	0.19		-0.15	(-0.47, 0.16)	0.33		-0.05	(-0.38, 0.28)	0.76
Black		-2.97	(-3.47, -2.48)	<0.001		-3.03	(-3.42, -2.64)	<0.001		-2.43	(-2.73, -2.12)	<0.001		-2.55	(-2.87, -2.23)	<0.001
Mixed/Others		-1.04	(-1.57, -0.51)	<0.001		-1.07	(-1.48, -0.65)	<0.001		-0.92	(-1.24, -0.59)	<0.001		-0.93	(-1.27, -0.59)	<0.001
Smoking status																
Never		Ref				Ref				Ref				Ref		
Previous		0.32	(0.15, 0.49)	<0.001		0.17	(0.03, 0.30)	0.02		0.06	(-0.05, 0.16)	0.27		0.09	(-0.02, 0.20)	0.103
Current		0.03	(-0.25, 0.30)	0.85		-0.17	(-0.39, 0.04)	0.12		-0.35	(-0.52, -0.18)	<0.001		-0.31	(-0.48, -0.13)	0.001
SBP (per 10mmHg)	-0.11	-0.04	(-0.08, 0.005)	0.08	-0.04	-0.01	(-0.05, 0.02)	0.53	-0.14	-0.03	(-0.06, -0.01)	0.02	-0.12	-0.03	(-0.06, 0.0003)	0.052
Refraction (per 1D)	0.02	0.08	(0.03, 0.13)	0.002	0.001	0.004	(-0.04, 0.04)	0.83	0.01	0.03	(0.0004, 0.06)	0.05	0.01	0.03	(-0.003, 0.06)	0.079
IOP$_{cc}$ (mmHg)	0.03	0.07	(0.04, 0.10)	<0.001	0.02	0.05	(0.02, 0.07)	<0.001	0.03	0.04	(0.02, 0.06)	<0.001	0.03	0.04	(0.02, 0.06)	<0.001
Corneal hysteresis	0.02	0.07	(0.02, 0.12)	0.004	0.02	0.06	(0.02, 0.10)	0.001	0.02	0.04	(0.009, 0.07)	0.01	0.02	0.04	(0.01, 0.07)	0.005

Adjusted for age, gender, ethnicity, Townsend deprivation index, height, smoking status, systolic blood pressure, refraction, IOP$_{cc}$, and corneal hysteresis
β = standardised beta; *B*= unstandardised beta; P= P value; SBP= systolic blood pressure; IOP$_{cc}$= Corneal-compensated intraocular pressure