

Table S1 Study participants' clinical characteristics

Variables	Normal (N)	Epicanthus (E)	Concomitant esotropia (C)
No. of subjects	100	100	100
No. of right (esotropia) eyes	100	100	100 (41)
No. of left (esotropia) eyes	100	100	100 (59)
No. of subjects with epicanthus	0	100	57
Age, median (Q1, Q3) (years)	9.5 (8, 11)	9.5 (8,11)	9.5 (8, 11)
Age, range (years)	7–18	7–18	7–18
Sex, female (%)	47%	48%	52%

Q1:2 5th percentile; Q3: 75th percentile.

Table S2 The consistency of automated and manual measurements of periocular morphological parameters in esotropia subjects with epicanthus

Metrics	ICC	95% CI
OCD	0.983	0.964–0.992
ICD	0.989	0.976–0.995
PFW	0.931	0.854–0.967
PFH	0.956	0.907–0.979
LCA	0.973	0.945–0.987
MCA	0.984	0.963–0.993
CTA	0.974	0.947–0.988

ICC, intraclass correlation coefficients; CI, confidence interval; OCD, outer canthal distance; ICD, inner canthal distance; PFW, palpebral fissure width; PFH, palpebral fissure height; MCA, medial canthus angle; LCA, lateral canthus angle; CTA, canthus tilt angle.

Table S3 Statistical analysis of morphological parameters within the group

Groups	Parameters	Left/gaze eye (mean ± SD)	Right/esotropia eye (mean ± SD)	P value
Normal	PFW (mm)	24.20±1.69	24.69±1.91	0.0590
	PFH (mm)	9.58±1.20	9.63±1.29	0.7743
	EL (mm)	59.12±4.05	60.20±4.39	0.2680
	MCA (°)	55.15±11.81	54.59±12.73	0.7507
	LCA (°)	66.10±10.40	66.16±11.61	0.9722
	CTA (°)	6.27±3.65	6.66±3.22	0.3229
	PFA (mm ²)	166.43±25.82	170.89±28.09	0.2967
	NR	0.18±0.04	0.20±0.04	0.0652
Epicanthus	PFW (mm)	21.34±1.60	21.48±1.46	0.5171
	PFH (mm)	8.92±1.32	8.91±1.42	0.9505
	EL (mm)	53.66±4.22	53.94±3.40	0.7595
	MCA (°)	52.11±12.95	50.18±13.59	0.3081
	LCA (°)	74.45±10.83	75.25±12.52	0.6452
	CTA (°)	5.80±3.10	5.75±3.50	0.9084
	PFA (mm ²)	137.70±27.26	138.16±27.87	0.9135
	NR	0.15±0.05	0.14±0.04	0.1790
Concomitant esotropia	PFW (mm)	24.30±2.06	24.50±2.36	0.5190
	PFH (mm)	9.98±1.34	9.72±1.42	0.1937
	EL (mm)	62.10±4.98	62.48±5.44	0.6097
	MCA (°)	57.10±10.84	57.77±11.21	0.7080
	LCA (°)	63.99±12.41	63.27±13.35	0.7010
	CTA (°)	7.62±3.28	6.86±3.01	0.0899
	PFA (mm ²)	174.26±33.04	175.99±37.85	0.7334
	NR	0.16±0.05	0.07±0.04	0.0001****

****, P<0.0001; SD, standard deviation; PFW, palpebral fissure width; PFH, palpebral fissure height; EL, eyelid length; CTA, canthus tilt angle; MCA, medial canthus angle; LCA, lateral canthus angle; PFA, palpebral fissure area; NR, The ratio of nasal sclera area.

Table S4 Statistical analysis of morphological parameters between the normal group and the epicanthus group

Parameter/index	Normal (mean ± SD)	Epicanthus (mean ± SD)
PFW (mm)	24.45±1.82	21.41±1.53**
PFH (mm)	9.60±1.25	8.91±1.37**
EL (mm)	59.66±4.26	53.80±4.11**
CTA (°)	6.46±3.45	5.78±3.30*
MCA (°)	54.87±12.28	51.15±13.31**
LCA (°)	66.13±11.02	74.83±11.69**
PFA (mm ²)	168.66±27.07	137.93±27.57**
CI	0.43±0.02	0.46±0.02**
CP	0.56±0.03	0.59±0.03**
NR	0.19±0.04	0.14±0.05**

**, P<0.01; *, P<0.05. SD, standard deviation; PFW, palpebral fissure width; PFH, palpebral fissure height; EL, eyelid length; CTA, canthus tilt angle; MCA, medial canthus angle; LCA, lateral canthus angle; CI, canthal index; CP, the percentage of the intercanthal distance over the interpupillary distance; NR, the ratio of nasal sclera area.

Table S5 Statistical analysis of morphological parameters between groups

Parameter	Normal, median (Q1, Q3)	Epicanthus, median (Q1, Q3)	Concomitant esotropia, median (Q1, Q3)
NI	0.97 (0.95, 0.99)	0.95 (0.93, 0.98)####	0.90 (0.86, 0.93)****
SI	1.09 (1.04, 1.15)	1.13 (1.05, 1.23)####	1.68 (1.44, 2.04)****

****, P<0.0001, compared with the normal group; ####, P<0.0001, compared with the Concomitant esotropia group. Kruskal-Wallis test was employed and Bonferroni correction was utilized for post-hoc analysis. Q1: 25th percentile; Q3: 75th percentile. SI, symmetry index; NI, area symmetry index of nasal sclera.

Table S6 The predictive performance of the symmetry index in different ranges of age

Age range (years)	Subjects	Esotropia (%)	Sensitivity	Specificity	Accuracy
7–10	201	67 (33)	0.93	0.90	0.91
11–14	81	27 (33)	0.93	0.94	0.94
15–8	18	6 (33)	0.83	1.00	0.94

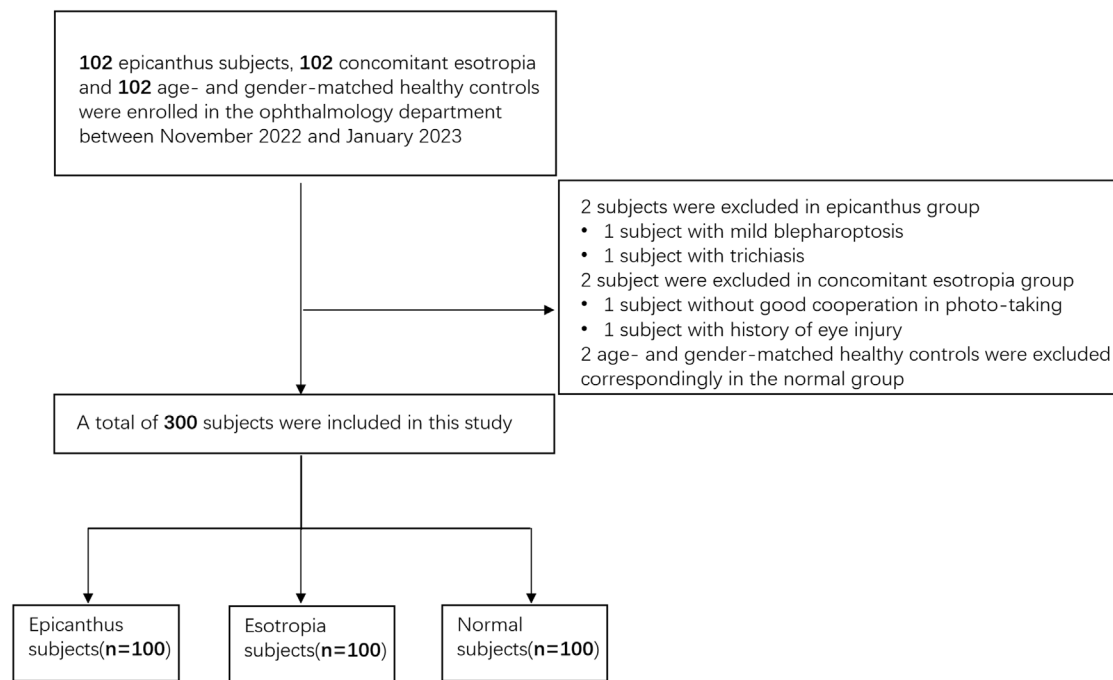


Figure S1 Flowchart of the study population.

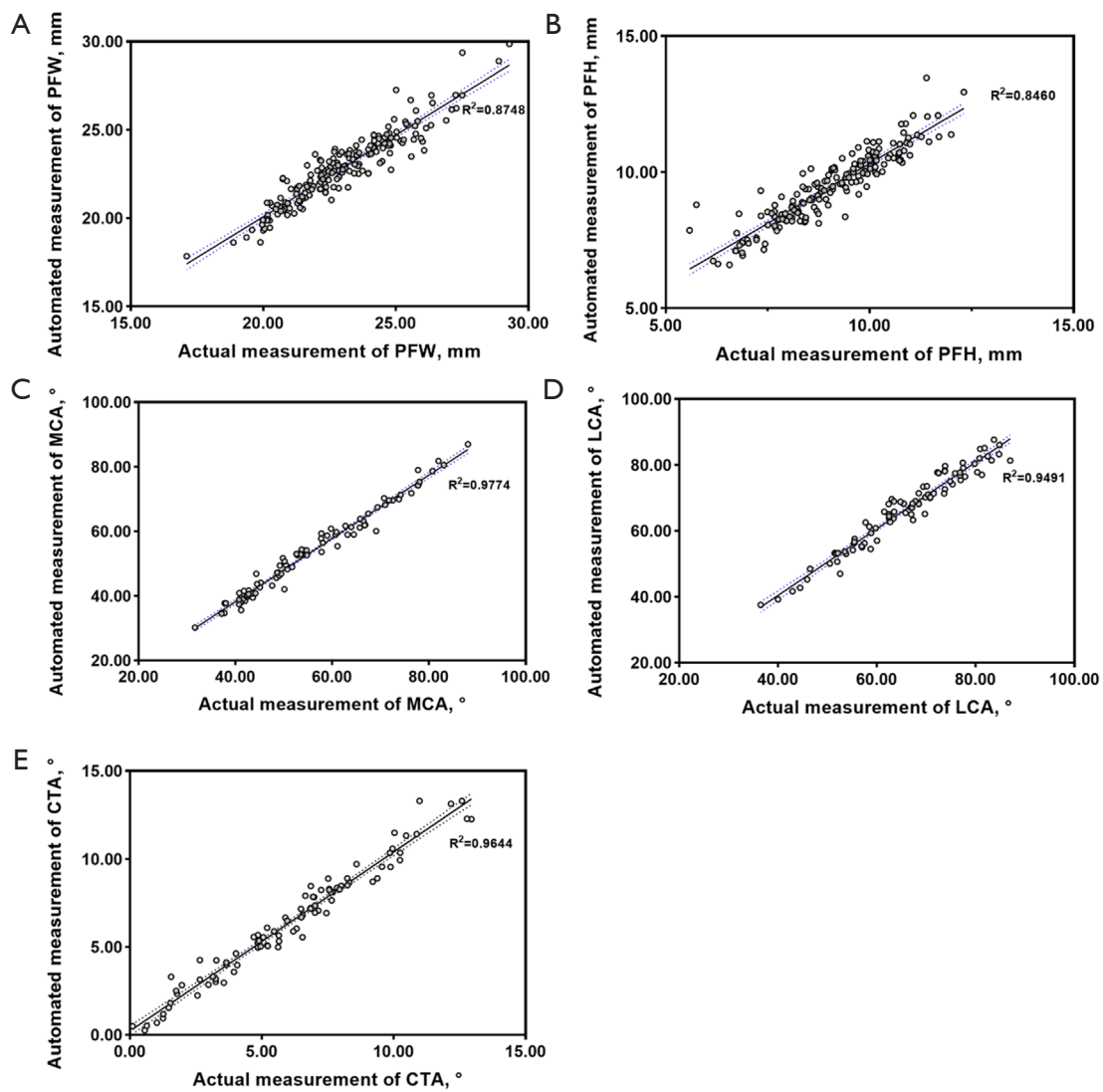


Figure S2 Scatter plots of automated and manual measurements. (A) Scatter plots of two measurements of PFW. (B) Scatter plots of two measurements of PFH. (C) Scatter plots of two measurements of MCA. (D) Scatter plots of two measurements of LCA. (E) Scatter plots of two measurements of CTA. PFW, palpebral fissure width; PFH, palpebral fissure height; MCA, medial canthus angle; LCA, lateral canthus angle; CTA, canthus tilt angle.

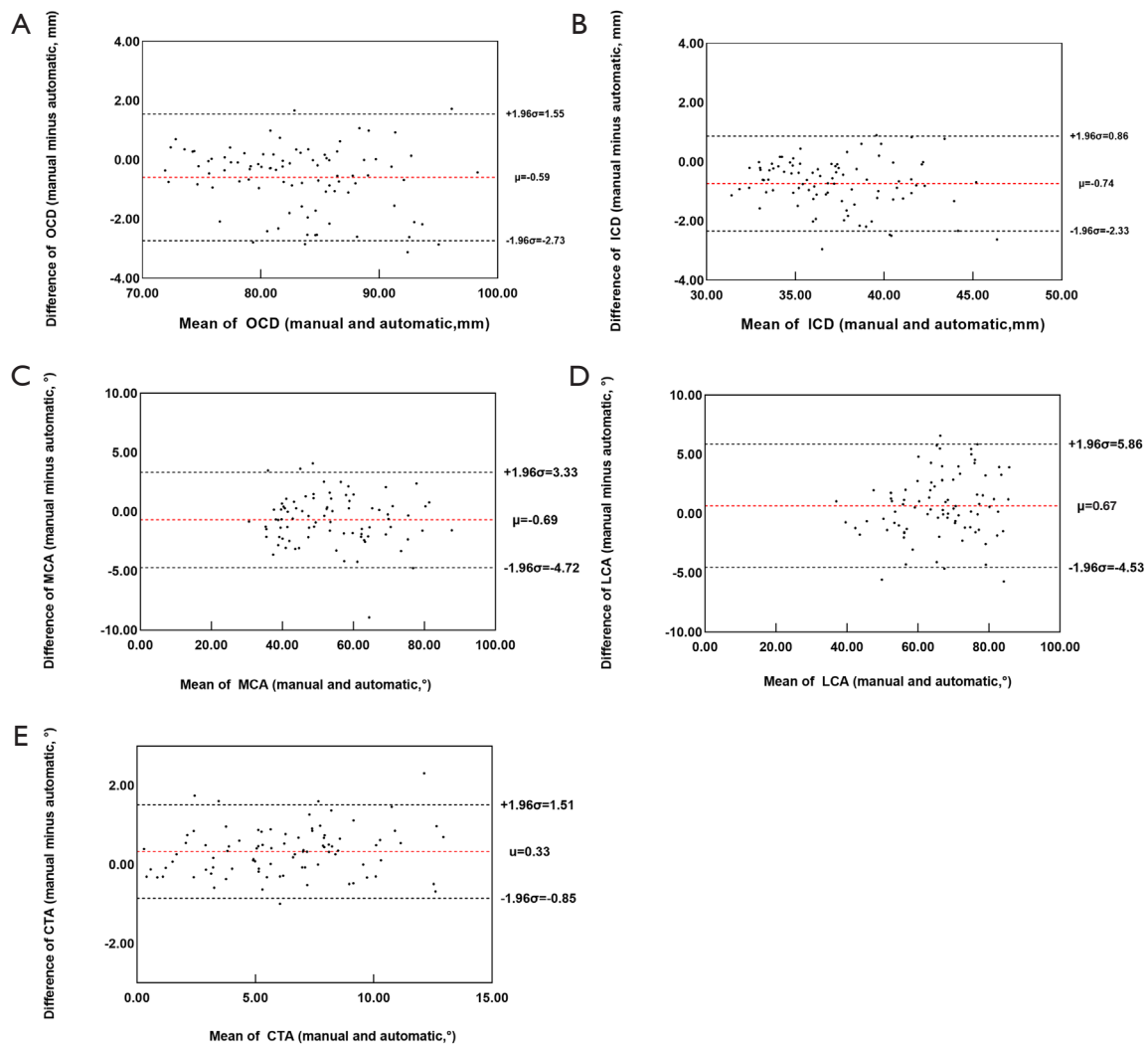


Figure S3 Bland-Altman plots analysis of automated and manual measurements. (A) Bland-Altman plots analysis of two measurements of OCD. (B) Bland-Altman plots analysis of two measurements of ICD. (C) Bland-Altman plots analysis of two measurements of MCA. (D) Bland-Altman plots analysis of two measurements of LCA. (E) Bland-Altman plots analysis of two measurements of CTA. OCD, outer canthal distance; ICD, inner canthal distance; MCA, medial canthus angle; LCA, lateral canthus angle; CTA, canthus tilt angle.

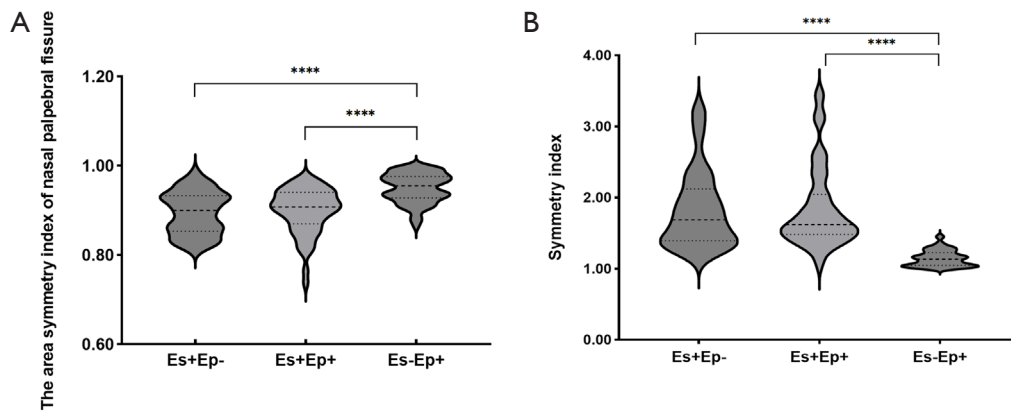


Figure S4 Violin plots of eye position symmetry. (A) Violin plots of NI among epicanthus, esotropia alone, and esotropia with epicanthus groups. (B) Violin plots of SI among epicanthus, esotropia alone, and esotropia with epicanthus groups. ****, $P < 0.0001$, Kruskal-Wallis test was employed and Bonferroni correction was utilized for post-hoc analysis. Es+/-, presence/absence of esotropia; Ep+/-, presence/absence of epicanthus; NI, area symmetry index of nasal sclera; SI, Symmetry index of eye position.

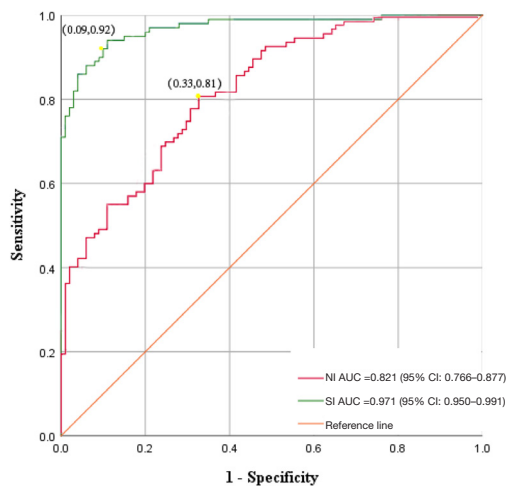


Figure S5 The ROC curves indicating the discrimination performance of NI and SI for esotropia eyes. NI, area symmetry index of nasal sclera; AUC, area under the curve; CI, confidence interval; SI, symmetry index of eye position; ROC, receiver operating characteristic.