Comparison Of Vision, Spectacle Independence And Patient Satisfaction With Micro-Monovision Implantation Of two Toric Aspheric Intraocular Lenses (IOLs) In The Public Health Sector: Preliminary Results Of A Prospective Randomised Controlled Study

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Aims

To compare the visual outcomes, spectacle independence and patient satisfaction of bilateral implantation of either monofocal plus Toric IOLs or standard aspheric Toric monofocal IOLs, using a micro-monovision technique

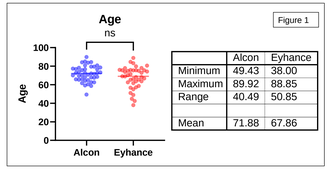
Methods

- Prospective, randomized controlled study
  - Clinicaltrials.gov no: NCT05506553
- Inclusion criteria:
  - Bilateral cataracts
  - Corneal astigmatism >1.25D in one or both eyes
  - No other significant ophthalmic pathology.
- Randomization to:
  - Insertion of Alcon SN6ATX IQ Toric

  or
  - insertion of Tecnis Eyhance Toric (Johnson & Johnson)
  - Patients masked
  - Micro-monovision
    - Dominant eye 0.00 to -0.25D
    - Non-dominant eye -0.75 to -1.0D
- Follow-up 6 weeks and 6 months
- Endpoints: Visual acuity, refraction, contrast sensitivity, stereoacuity, patient reported outcome measures (PROMs), need for glasses after surgery.
- Preliminary data of 84 patients who have completed 6-week reviews after bilateral cataract surgery.
  - 43 patients received Alcon SN6ATX IOLs
  - 41 patients received Eyhance Toric IOLs

Results

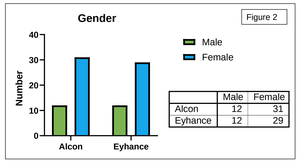
Figure 1



	Alcon	Eyhance
Minimum	49.43	38.00
Maximum	89.92	88.85
Range	40.49	50.85
Mean	71.88	67.86

Figure 1: Scatter plot of age distribution. No statistical significance found.

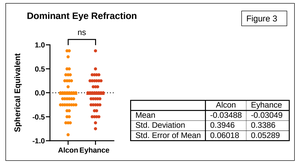
Figure 2



	Male	Female
Alcon	12	31
Eyhance	12	29

Figure 2: Bar chart demonstrating Gender distribution in two groups

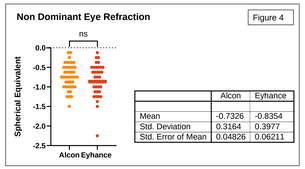
Figure 3



	Alcon	Eyhance
Mean	-0.03488	-0.03049
Std. Deviation	0.3946	0.3386
Std. Error of Mean	0.06018	0.05289

Figure 3: Scatter plot demonstrating distribution of refractive outcome in the dominant eye. No statistical significance found.

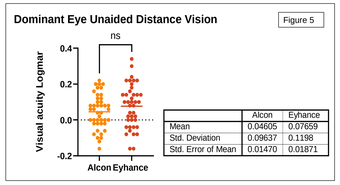
Figure 4



	Alcon	Eyhance
Mean	-0.7326	-0.8354
Std. Deviation	0.3164	0.3977
Std. Error of Mean	0.04826	0.06211

Figure 4: Scatter plot demonstrating distribution of refractive outcome in the non dominant eye. No statistical significance found.

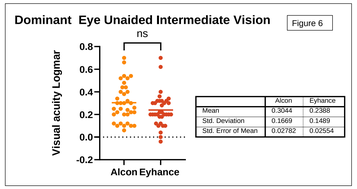
Figure 5



	Alcon	Eyhance
Mean	0.04605	0.07659
Std. Deviation	0.09637	0.1198
Std. Error of Mean	0.01470	0.01871

Figure 5: Scatter plot demonstrating distribution of unaided distance vision in the dominant eye. No statistical significance found.

Figure 6

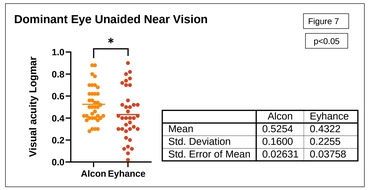


	Alcon	Eyhance
Mean	0.3044	0.2388
Std. Deviation	0.1669	0.1489
Std. Error of Mean	0.02782	0.02554

Figure 6: Scatter plot demonstrating distribution of unaided intermediate vision in the dominant eye. No statistical significance found.

Figure 7

p<0.05

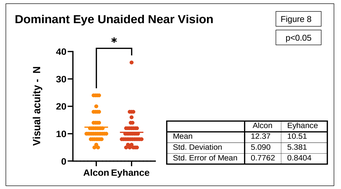


	Alcon	Eyhance
Mean	0.5254	0.4322
Std. Deviation	0.1600	0.2255
Std. Error of Mean	0.02631	0.03758

Figure 7: Scatter plot demonstrating distribution of unaided near vision (logMAR) in the dominant eye. (Unpaired T Test, p<0.05)

Figure 8

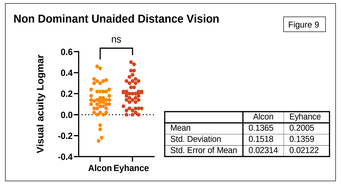
p<0.05



	Alcon	Eyhance
Mean	12.37	10.51
Std. Deviation	5.090	5.381
Std. Error of Mean	0.7762	0.8404

Figure 8: Scatter plot demonstrating distribution of unaided near vision (n chart) in the dominant eye. (Mann Whitney, p<0.05)

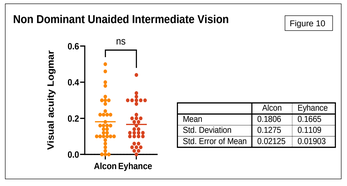
Figure 9



	Alcon	Eyhance
Mean	0.1365	0.2005
Std. Deviation	0.1518	0.1359
Std. Error of Mean	0.02314	0.02122

Figure 9: Scatter plot demonstrating distribution of unaided distance vision in the non dominant eye. No Statistical Significance found

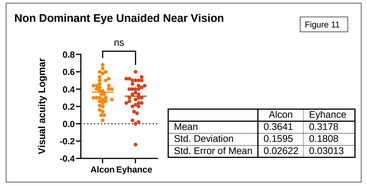
Figure 10



	Alcon	Eyhance
Mean	0.1806	0.1665
Std. Deviation	0.1275	0.1109
Std. Error of Mean	0.02125	0.01903

Figure 10: Scatter plot demonstrating distribution of unaided intermediate vision in the non dominant eye. No statistical significance found

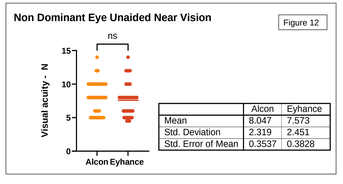
Figure 11



	Alcon	Eyhance
Mean	0.3641	0.3178
Std. Deviation	0.1595	0.1808
Std. Error of Mean	0.02622	0.03013

Figure 11: Scatter plot demonstrating distribution of unaided near vision (logMAR) in the non dominant eye. No statistical significance found

Figure 12

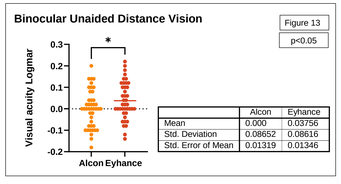


	Alcon	Eyhance
Mean	8.047	7.573
Std. Deviation	2.319	2.451
Std. Error of Mean	0.3537	0.3828

Figure 12: Scatter plot demonstrating distribution of unaided near vision (n chart) in the non dominant eye. No statistical significance

Figure 13

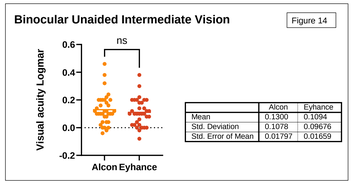
p<0.05



	Alcon	Eyhance
Mean	0.000	0.03756
Std. Deviation	0.08652	0.08616
Std. Error of Mean	0.01319	0.01346

Figure 13: Scatter plot demonstrating distribution of unaided binocular distance vision. (unpaired t test, p<0.05)

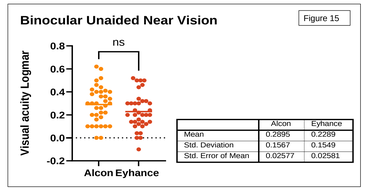
Figure 14



	Alcon	Eyhance
Mean	0.1300	0.1094
Std. Deviation	0.1078	0.09676
Std. Error of Mean	0.01797	0.01659

Figure 14: Scatter plot demonstrating distribution of binocular unaided intermediate vision outcome. No statistical significance.

Figure 15

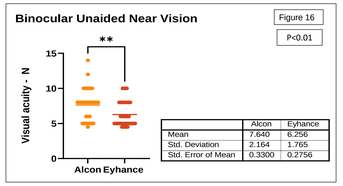


	Alcon	Eyhance
Mean	0.2895	0.2289
Std. Deviation	0.1567	0.1549
Std. Error of Mean	0.02577	0.02581

Figure 15: Scatter plot of distribution of binocular unaided near vision (logMAR). No Statistical Significance

Figure 16

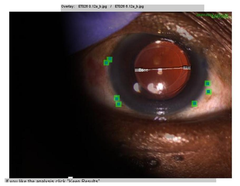
P<0.01



	Alcon	Eyhance
Mean	7.640	6.256
Std. Deviation	2.164	1.765
Std. Error of Mean	0.3300	0.2756

Figure 16: Scatter plot demonstrating distribution of unaided binocular near vision (n chart). (Mann- Whitney, p<0.01)

TORIC IOL ROTATION



Toric IOL rotation (colour photography analysed by independent 3rd party)

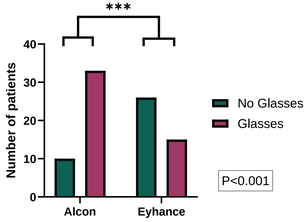
Mean rotation in the Alcon group was 1.08°

Mean rotation in the Eyhance group was 0.89°

No statistically significant difference found

Use of glasses

Figure 17



	No Glasses	Glasses
Alcon	10	33
Eyhance	26	15

Percentage of row total	No Glasses	Glasses
Alcon	23.26%	76.74%
Eyhance	63.41%	36.59%

Figure 17: Bar chart depicting glasses use in photopic conditions. (Chi-Square, Fisher's Exact Test P<0.001)

Conclusions

Preliminary data comparing the use of the Eyhance Toric IOL with the Alcon Toric IOL in a micro-monovision approach demonstrates:

Eyhance Toric Group: statistically significant improved binocular unaided reading vision

63% of Eyhance Toric patients were glasses independent in photopic conditions (needing only reading glasses in mesopic conditions)

No statistically significant differences found in: Toric IOL rotation, Contrast sensitivity, Stereoacuity, CatPROM & CATquest 9SF questionnaires.