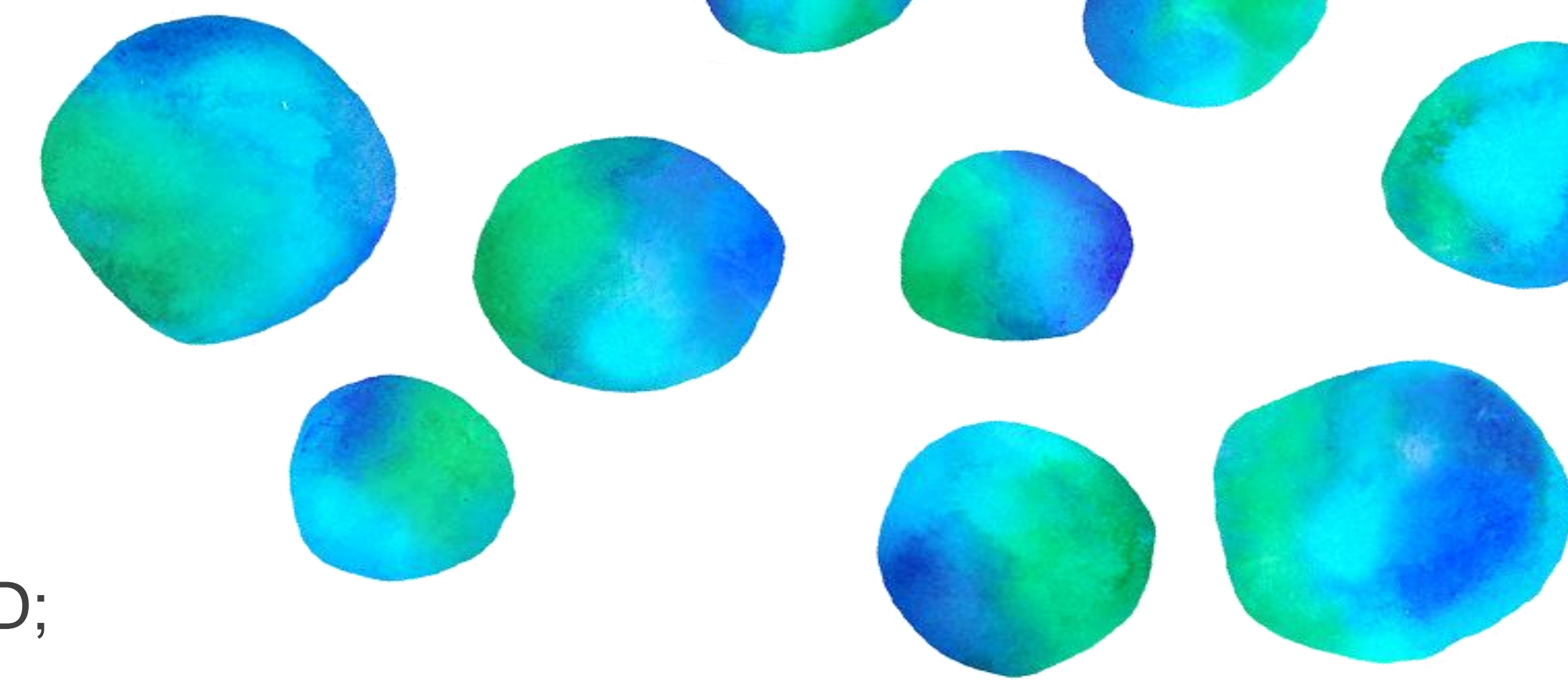


Subjective Assessments of Two Toric Silicone Hydrogel Contact Lenses After One Month of Daily Wear

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Introduction

Discontinuation or “dropout” from contact lens (CL) wear continues to trouble the contact lens industry. A recent publication indicated that 23% of those surveyed had discontinued contact lens wear permanently because of discomfort and dryness.¹

Another survey has shown that 25% of users who discontinued contact lens use cited discomfort as their reason for discontinuation.² This is similar to a study conducted by Weed et al³ who reported 27% discontinuation due to discomfort.

A recent global study about toric contact lens prescribing revealed that there had been a continuous increase in toric lens fits between 1996 and 2011.⁴ In light of these toric fitting trends and challenges of patients discontinuing lens wear due to discomfort and dryness, it is of interest to investigate two leading silicone hydrogel toric contact lenses with regard to vision, comfort, dryness and satisfaction.

Purpose

The aim of this study was to compare subjective vision, ocular comfort, dryness, surface sensation and satisfaction provided by two toric silicone hydrogel contact lenses using a subjective questionnaire.

Methods

- This was a 1-month, subject masked, randomized, bilateral, daily wear cross over study involving 60 habitual soft toric contact lens wearers with ages ranging from 19 to 40 years and astigmatism between 0.75 and 2.25D.
- Subjects randomly wore CooperVision Biofinity® toric (BT) or Alcon AIR OPTIX® for Astigmatism (AOA) lenses for 1-month each. Data was collected after 2 and 4 weeks of daily wear.
- Vision quality and stability were rated using a 0-100 scale (0 very poor, 100 excellent). For overall ratings a 0-10 scale was used.
- Overall surface sensation of moistness and smoothness was rated using a 5-point Likert scale (excellent, good, average, below average and poor).
- Overall satisfaction of comfort, dryness, handling, vision and lens fit were evaluated using a 4-point Likert scale (completely satisfied, somewhat satisfied, somewhat dissatisfied and completely dissatisfied).

Materials

	Biofinity toric	AIR OPTIX for Astigmatism
Material	comfilcon A	lotrafilcon B
Manufacturer	CooperVision®	Alcon
Water Content (%)	48%	33%
Base Curve (mm)	8.7	8.7
Diameter (mm)	14.5	14.5
Sphere Powers (D)	+8.00 to -10.00	+6.00 to -10.00
Cylinder Powers (D)	-0.75, -1.25, -1.75, -2.25	-0.75, -1.25, -1.75, -2.25
Axes	10° to 180° (10° steps)	10° to 180° (10° steps)

Results

Patient Demographics

- A total of sixty (60) habitual toric contact lens wearers were enrolled and completed the study.

Results

Patient Demographics (continued)

- Subjects’ habitual toric lenses included hydrogels and silicone hydrogel lenses in different wearing modalities (Figure 1).
- The mean age was 28.7 ± 7.6 (range 19 – 40) and there were 23 (38.3%) males and 37 (61.7%) females.
- The mean (± SD) manifest refraction was -1.31 ± 2.42 D (range + 4.50 to -7.00 D) for the sphere and -1.38 ± 0.55 D (range -0.75 to -2.25 D) for the cylinder.

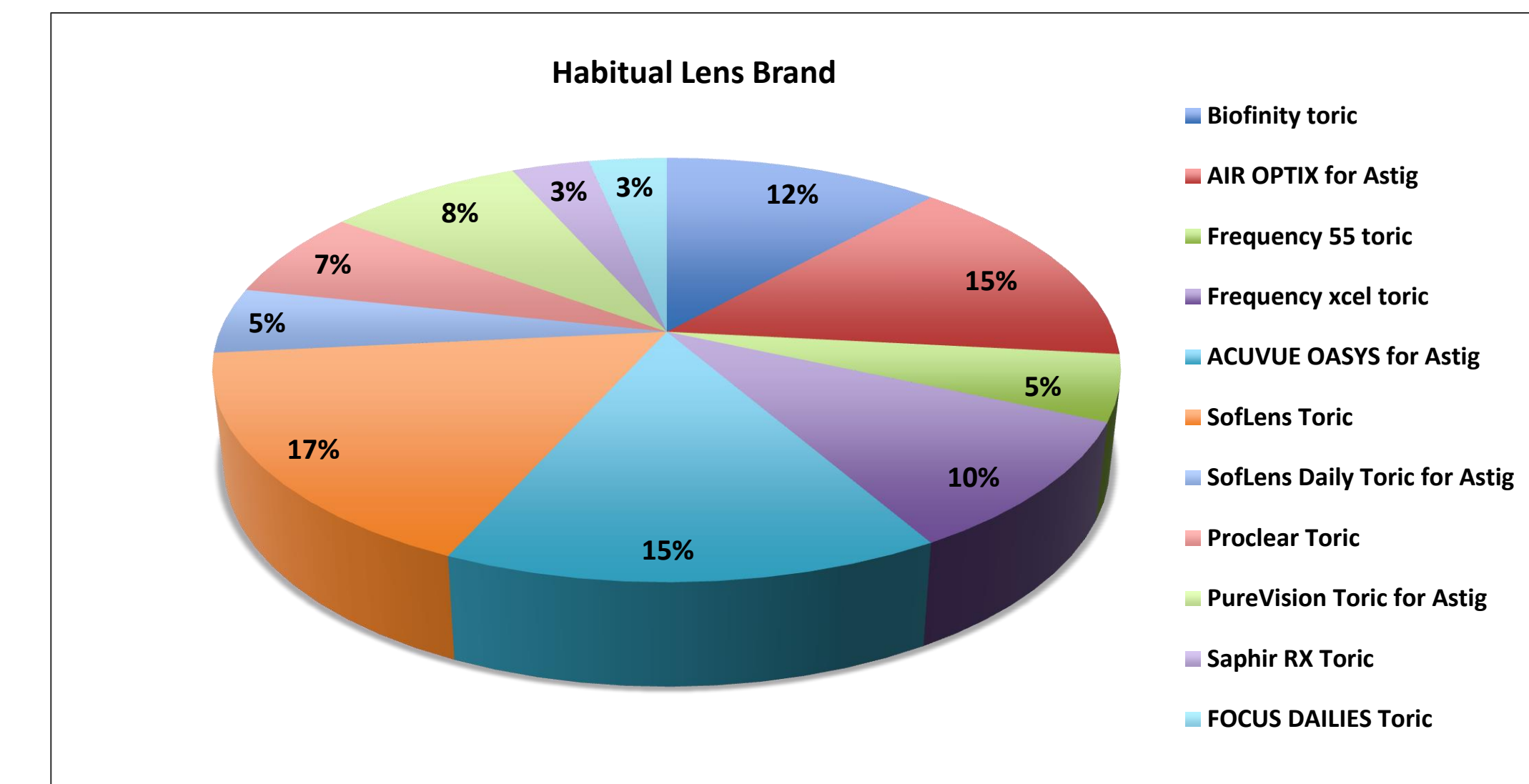


Figure 1. Distribution of study participants' habitual lenses

Vision

- BT subjective vision stability ratings during the day were significantly better than for AOA lenses at 4 weeks (87 vs. 82, p=0.005).
- BT subjective vision stability ratings at the end of day were superior than for AOA lenses at 4 weeks (86 vs. 80, p=0.009).
- BT subjective vision quality ratings during the day were significantly better than for AOA lenses at 4 weeks (88 vs. 82, p=0.009).
- BT subjective vision quality ratings at the end of day were superior than for AOA lenses at 4 weeks (86 vs. 80, p=0.01).
- BT lenses showed consistently higher ratings for vision quality and stability on insertion, during the day and end of day than AOA lenses at 2 weeks and 4 weeks. (Figure 2).

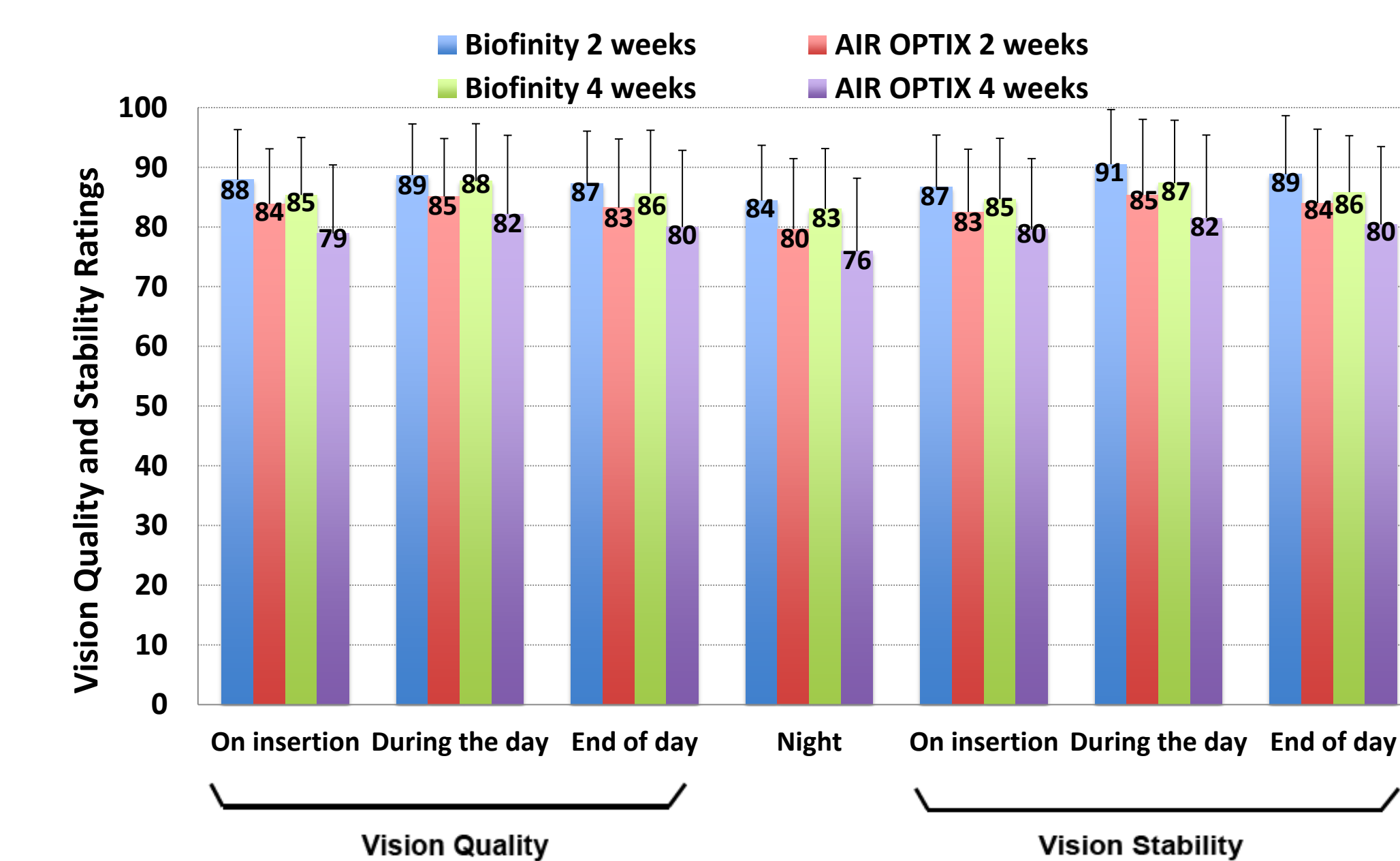


Figure 2. Subjective vision assessments (mean ± SD)

Surface

- At 4 weeks, for patients wearing the BT lenses “excellent” was the most frequent rating for smoothness (60%) compared to “average” when patients wore the AOA lenses (33%).

Results

Surface (continued)

- A higher proportion of subjects rated BT as excellent for moistness sensation than AOA lenses at 2 weeks (57% vs. 20%, p<0.001) and 4 weeks (60% vs. 18%, p<0.001). Figure 3.
- A higher proportion of subjects rated BT as excellent for smoothness sensation than AOA lenses at 2 weeks (48% vs. 27%, p<0.001) and 4 weeks (47% vs. 13%, p<0.001). Figure 4.

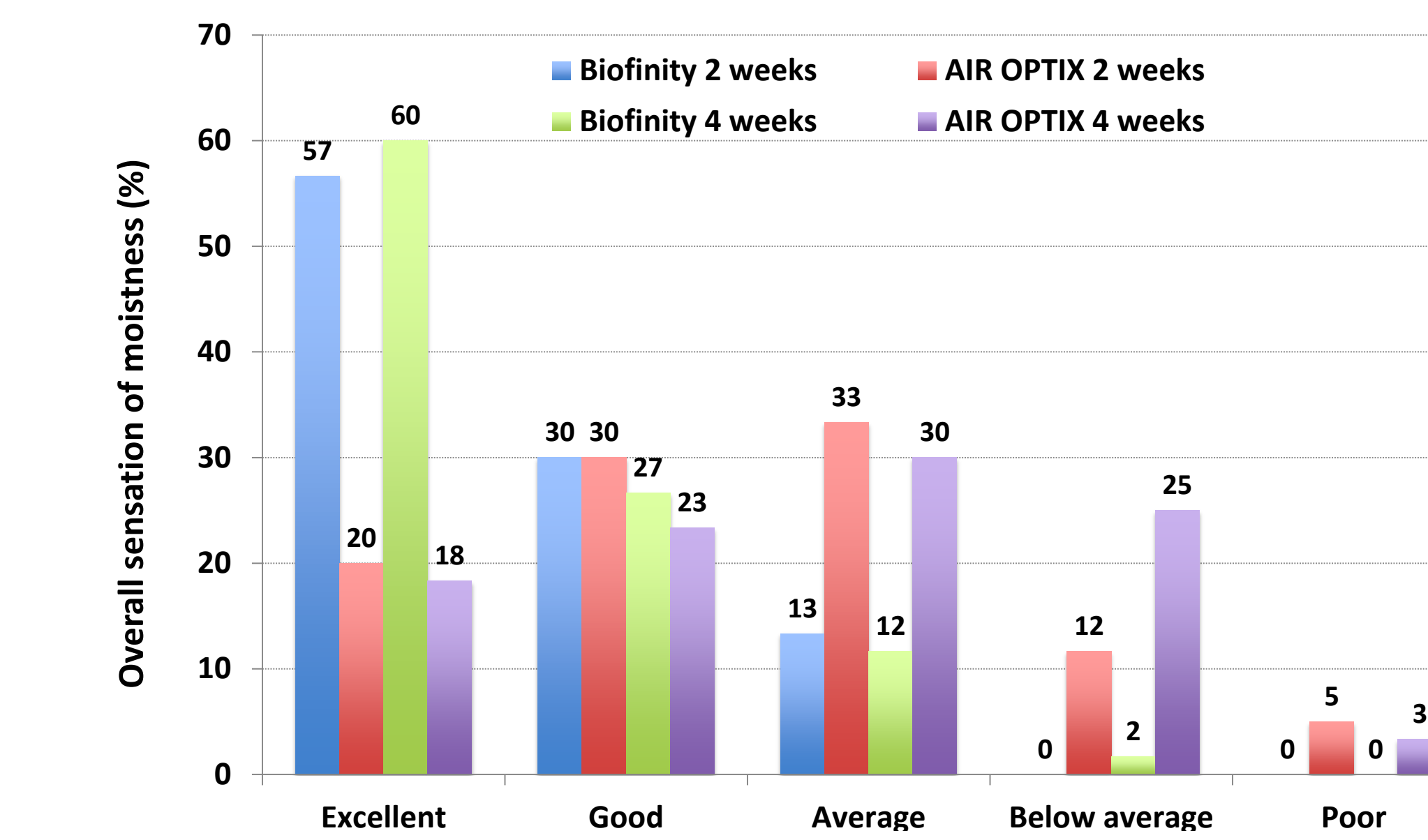


Figure 3. Overall sensation of moistness. Wearer's responses.

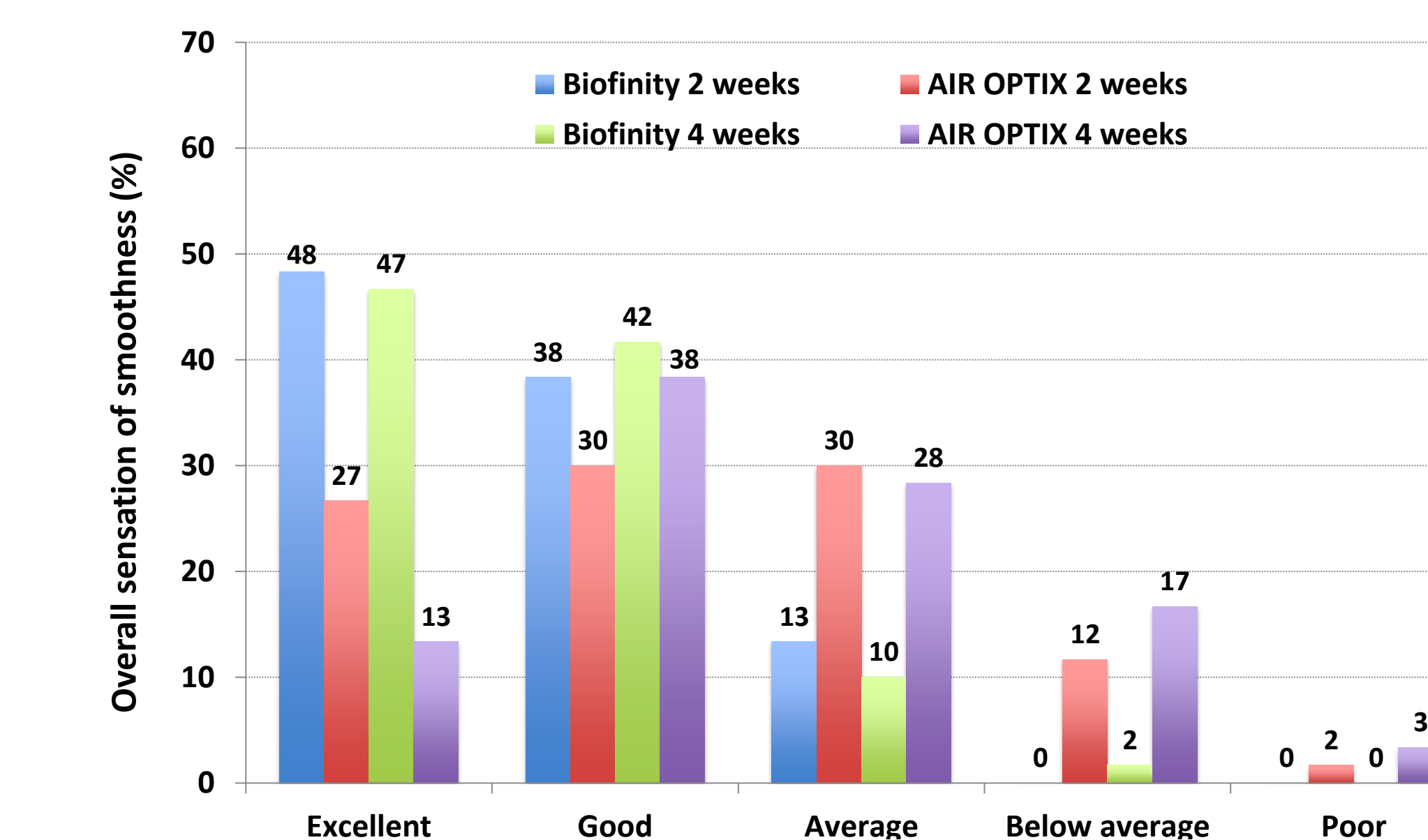


Figure 4. Overall sensation of smoothness. Wearer's responses.

Overall ratings

- Comfort ratings at insertion were better for BT than for AOA lenses at 2 weeks (8.7 vs. 7.7, p<0.001) and 4 weeks (8.6 vs. 7.1, p<0.001).
- Comfort ratings prior to removal were better for BT than for AOA lenses at 2 weeks (8.7 vs. 7.4, p<0.001) and 4 weeks (8.5 vs. 6.7, p<0.001).
- Overall comfort ratings were superior for BT than for AOA lenses at 2 weeks (8.8 vs. 7.6, p<0.001) and 4 weeks (8.6 vs. 6.9, p<0.001).
- Dryness ratings during the day were better for BT than for AOA lenses at 2 weeks (8.7 vs. 7.6, p<0.001) and 4 weeks (8.5 vs. 7.0, p<0.001).
- Dryness ratings prior to removal were superior for BT than for AOA lenses at 2 weeks (8.6 vs. 7.5, p<0.001) and 4 weeks (8.5 vs. 7.0, p<0.001).
- Overall dryness ratings were superior for BT than for AOA lenses at 2 weeks (8.7 vs. 7.5, p<0.001) and 4 weeks (8.6 vs. 7.0, p<0.001).
- Lens fit stability ratings were better for BT than for AOA lenses at 2 weeks (8.8 vs. 8.0, p<0.001) and 4 weeks (8.6 vs. 7.6, p<0.001).
- Vision satisfaction ratings were better for BT than for AOA lenses at 2 weeks (8.7 vs. 8.0) and 4 weeks (8.5 vs. 7.6, p<0.001). Figure 5.

Results

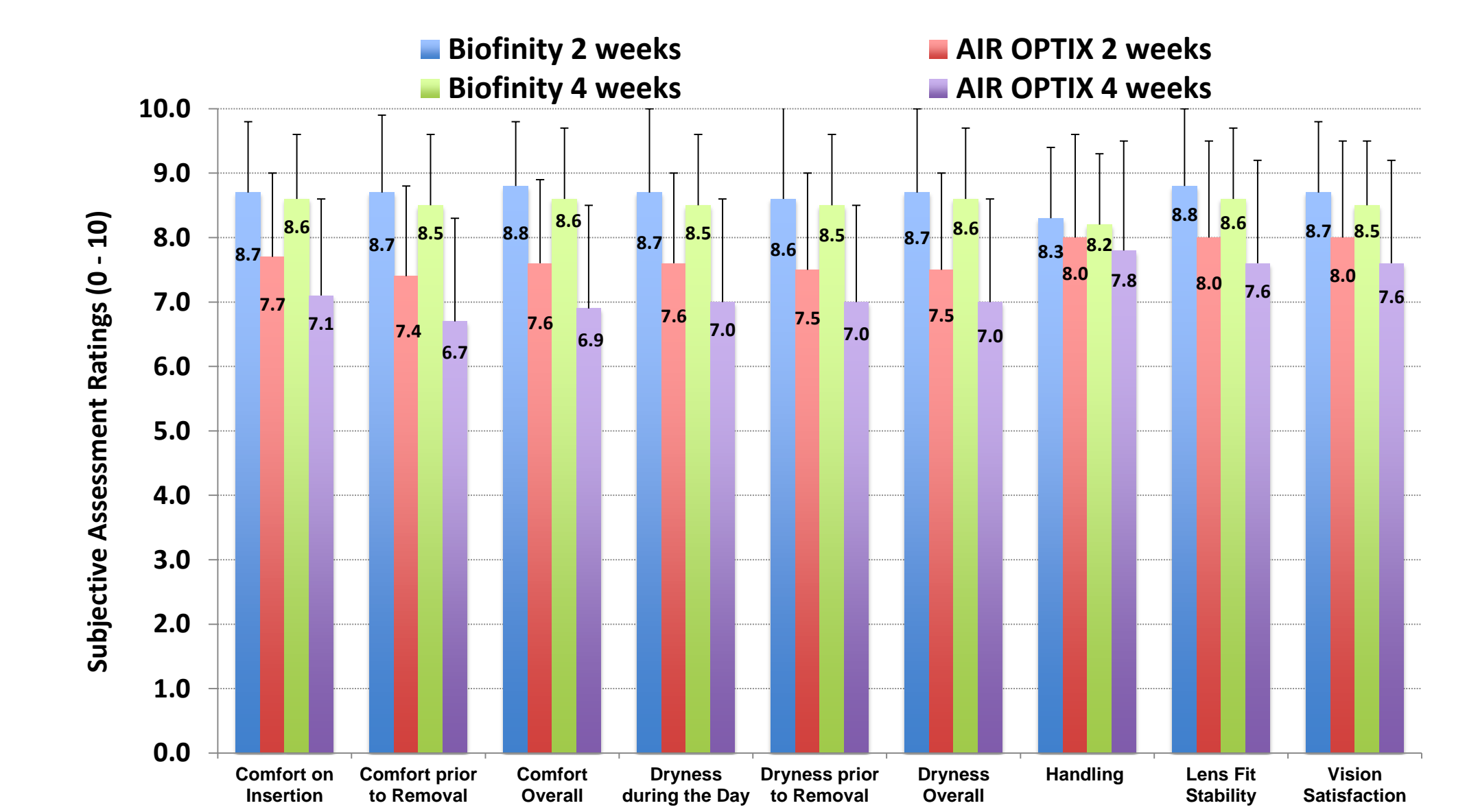


Figure 5. Subjective assessments (mean ± SD).

Satisfaction

- A higher proportion of subjects were completely satisfied with BT than AOA lenses for comfort (72% vs. 27%, p<0.001), dryness (77% vs. 23%, p<0.001), vision (63% vs. 35%, p<0.001), fit (70% vs. 35%, p<0.001) and overall (65% vs. 22%, p<0.001). Figure 6.

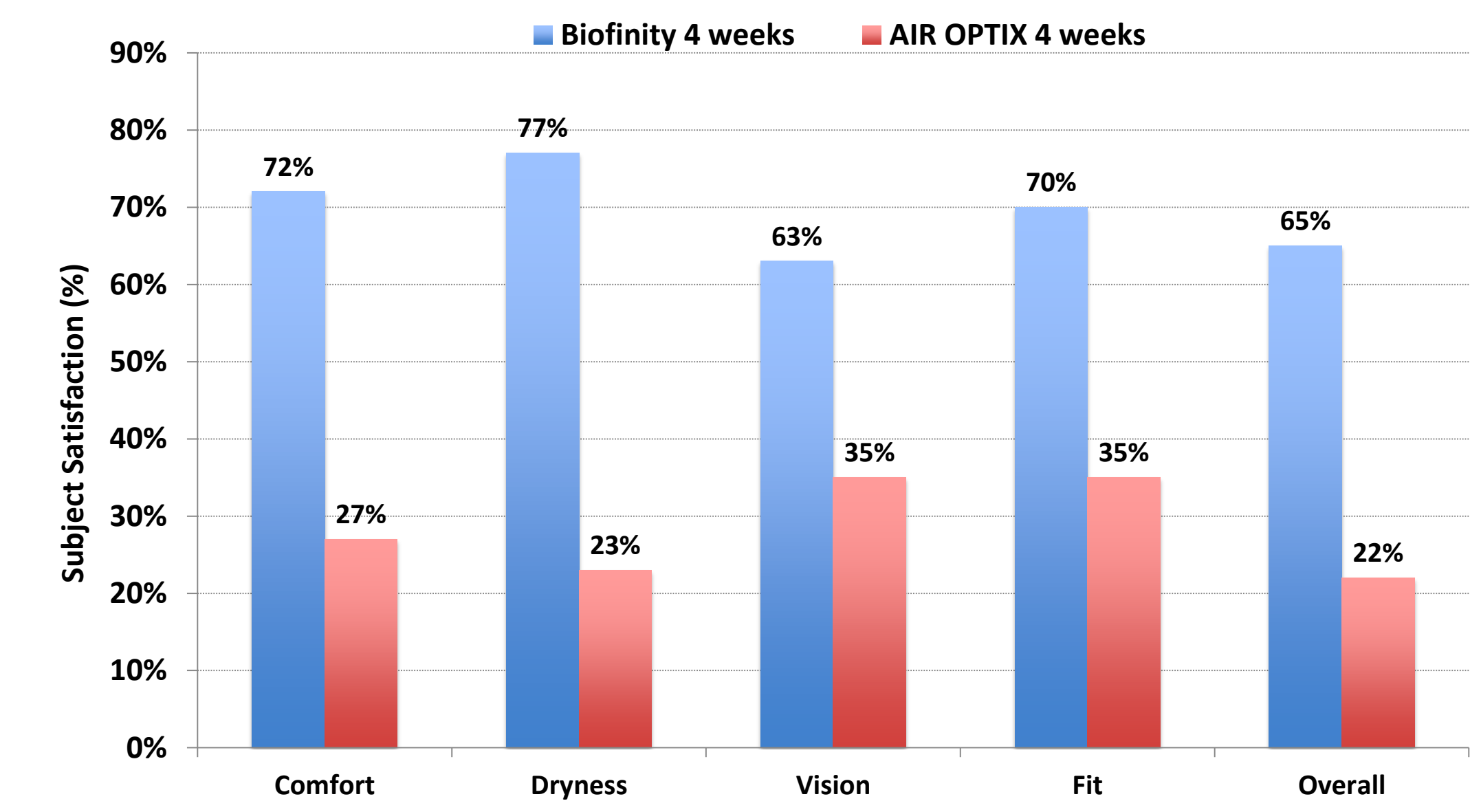


Figure 6. Subjective satisfaction at 1-month

Conclusion

- The study results showed significantly better clinical performance for BT lenses over AOA after 1-month of wear.

References

- Dumbleton K, Woods C, Jones L, Fonn D. The impact of Contemporary Contact Lenses on Contact Lens Discontinuation. *Eye Contact Lens* 2013; 39: 93–99.
- Saks A, Mack CJ, Rah MJ. Deriving sight and insight from the NSIGHT study: the vision. *Review of Optometry* 2011;8–11.
- Weed K, Fonn D, Potvin R. Discontinuation of contact lens wear. *Optometry and Vision Science* 1993;70(12s):140.
- Morgan PB, Efron N, Woods CA, The International Contact Lens Prescribing Survey Consortium. An international survey of toric contact lens prescribing. *Eye Contact Lens* 2013;39:132-7.

Acknowledgement

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