

Introduction

- As new orthokeratology (Ortho-K) fitting software emerges onto the market, it is of interest to assess their usefulness in guiding eye care professionals (ECPs) with lens fit.
- To determine acceptable Ortho-K lens parameters in as few steps as possible is beneficial for ECPs and patients in order to help save chair time and provide a fast treatment success.
- The Visavy™ software (CooperVision Specialty Eyecare) can import topography images from different types of commercially available topographers, and then design the Paragon CRT® or CRT Dual Axis® orthokeratology lenses based on sagittal depth and horizontal visible iris diameter.

Purpose

- The goal of this study was to evaluate the performance of Paragon CRT® orthokeratology lenses when the initial lens parameter selection was assisted by the Visavy™ software.

Methods

- This was a prospective study which recruited participants 6-35 years of age who were fit with Paragon CRT® or Paragon CRT Dual Axis® Ortho-K lenses (CooperVision Specialty EyeCare).
- Topography images (Oculus Keratograph 5) were uploaded into the software and, together with additional entries for subjective refraction and white-to-white visible iris diameter, the software populated the initial lens parameters.
- Lens modifications for fit and/or vision were permitted at any of the following three timepoints: the dispense visit, after the first night or after 1 week of wear.
- Lenses were worn every night for 1 month.
- Visual acuity (LogMAR) was determined with subjective refraction at baseline and unaided after 1 month of Ortho-K wear.
- Subjective comfort was collected after the first lens application and after 1 month (0-10 scale, 10=very comfortable).
- Subjective vision clarity was collected via home ratings just after lens application on the first night and after 1 month (0-10 scale, 10=Sharp, clear/ very good vision).

Results

- 16 participants were included in the analysis [12 F: 4 M].
- Age 11.3 ± 3.2 years [range: 7 to 18 years]
- Mean refraction (n=32 eyes)
 - Sph -2.80 ± 1.38 DS [-1.00 to -5.75DS]
 - Cyl -0.56 ± 0.46 DC [0.00 to -1.25DC]
- Only 1 lens out of 32 eyes required a modification. The lens was changed after the first night due to corneal staining.

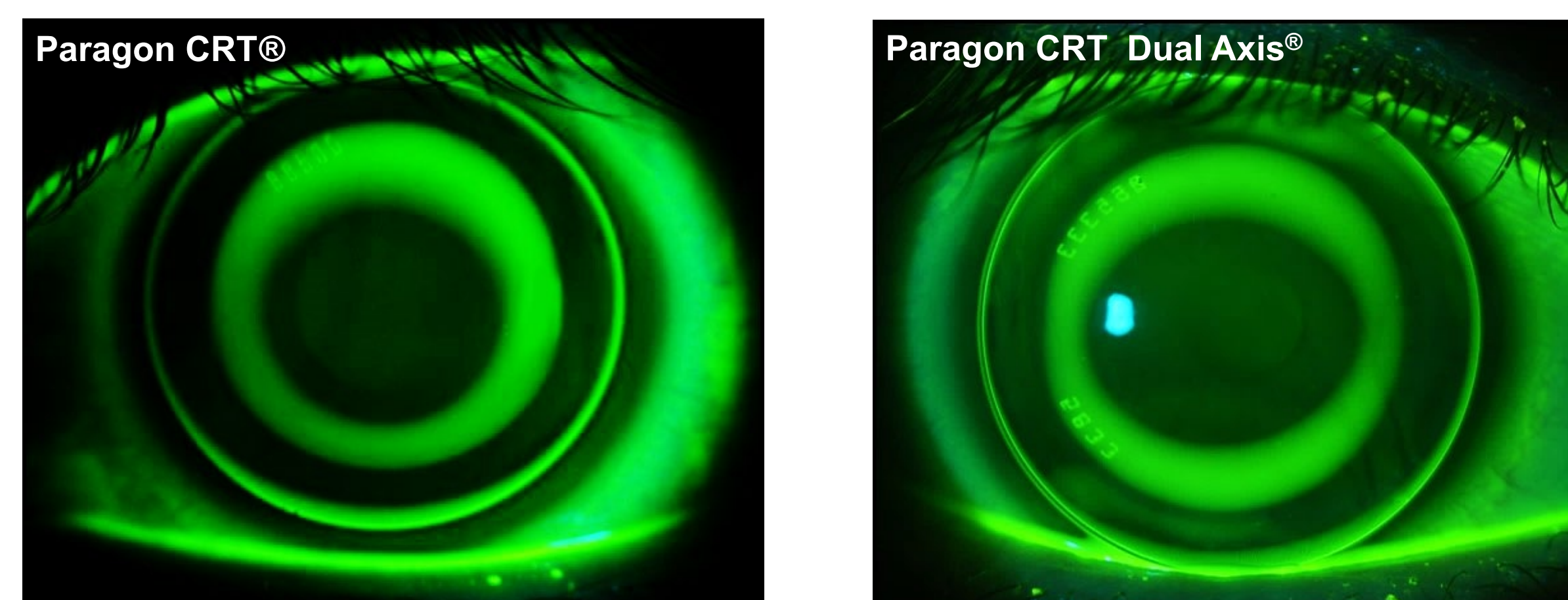


Figure 1: Example images of Paragon CRT® (left) and Paragon CRT Dual Axis® Ortho-K lens (right) fits.

Visual acuity after 1 month of wear (n=32 eyes)

- LogMAR visual acuity
 - Best-corrected at screening visit: $+0.00 \pm 0.01$ logMAR
 - Unaided after 1 month of Ortho-K wear: $+0.09 \pm 0.11$ logMAR

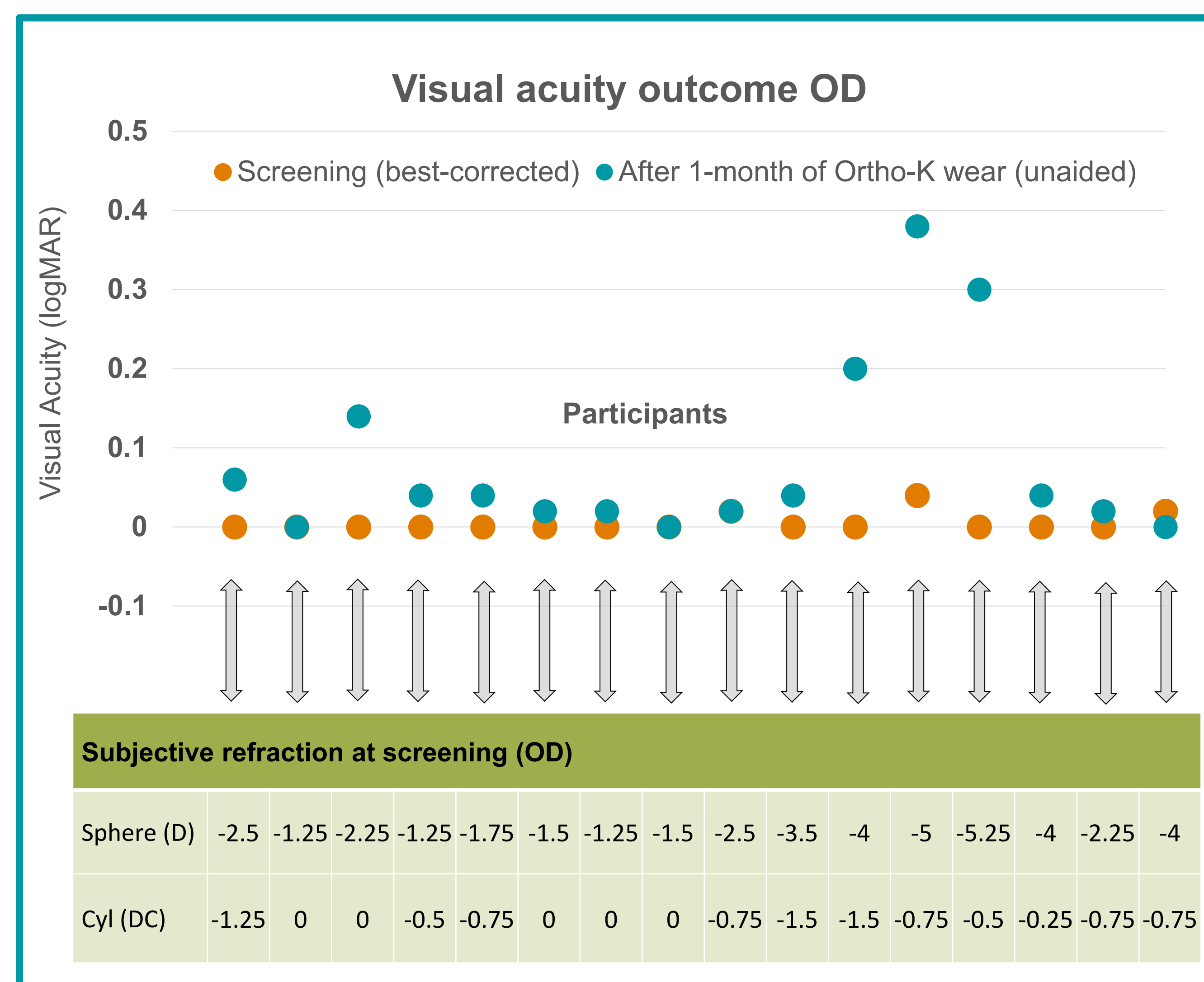


Figure 2: TOP: Visual acuity (logMAR) for OD at the screening visit (best-corrected) and after 1 month of Ortho-K wear (unaided). BOTTOM: Subjective refraction at screening (Diopters, n=16 eyes)

Results (continued)

- Participant ratings for vision clarity and lens comfort were collected after lens insertion on the first day and after 1 month of Ortho-K wear.

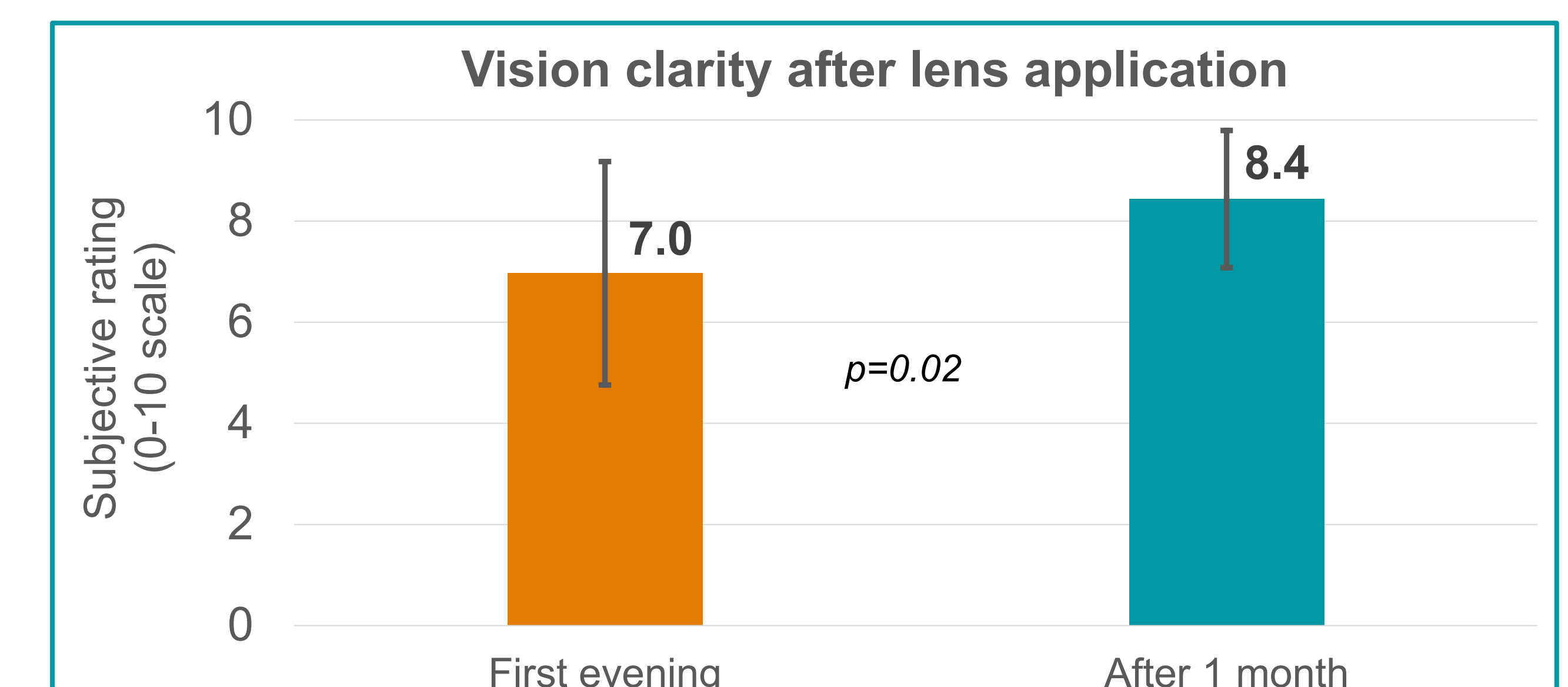


Figure 3: Vision clarity ratings (OU) after application prior to the first night and at 1 month of Ortho-K wear

0=Not at all sharp/ very bad vision, 10=Sharp, clear/ very good vision (n=16 participants)

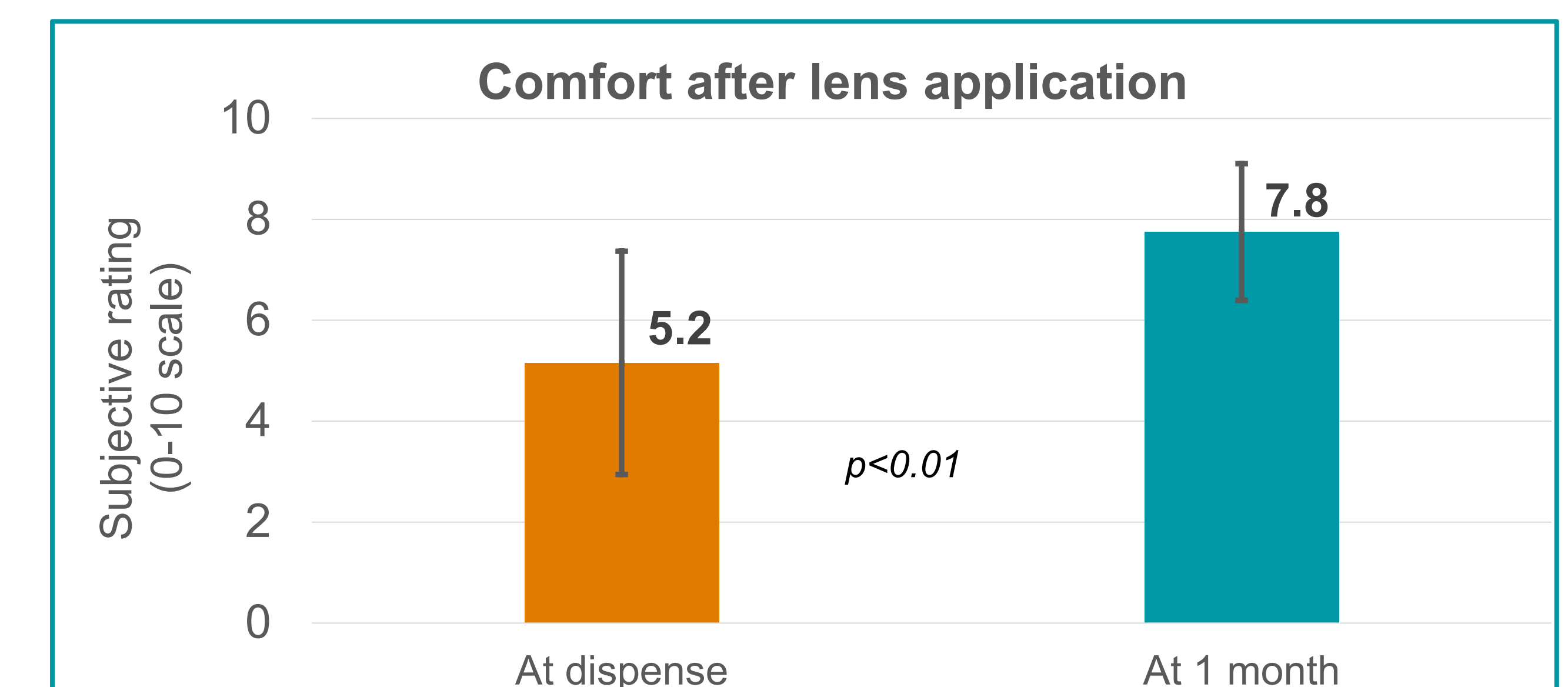


Figure 4: Comfort ratings after lens application (OU) at the dispense visit and at 1 month

0=Painful/ very uncomfortable, 10=Can't feel the lenses/ very comfortable (n=16 participants)

Conclusions

- The Visavy™ software helped determine acceptable lens parameters for the Paragon CRT® or Paragon CRT Dual Axis® Ortho-K lenses in 97% of eyes (31 of 32 eyes).
- The subjective response to vision clarity after lens insertion and lens wear comfort significantly increased after 1 month of wear.
- This high initial success rate has the potential to reduce chair time and assist ECPs to confidently and efficiently fit these lenses to their patients.

