Visual Benefits of Photochromic Contact Lenses in Unexpected Situations
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Background
The data presented contains subjective and objective data from multiple clinical studies. All studies used a photochromic contact lens as the Test, and a non-photochromic contact lens as the Control. The subjective data is supplied by a meta-analysis of 2 similar clinical studies conducted within a year of each other. The study designs were both randomized, partially subject-masked, multi-visit, multi-site, 2 lenses x 3 period crossover, 2-week dispensing trials. Subjective questions were asked at every 2-week follow-up visit. The objective data is supplied by 2 similar clinical studies. The study designs were both randomized.

Method

The subjective results are based on 229 subjects that completed as cohort across both studies. The objective results are based on 60 cohort subjects in the first study and 54 cohort subjects in the second.

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Conclusion

The photochromic contact lens attenuates the effects of bright light, which is often associated with being outdoors in sunlight. Importantly, the results from several studies demonstrate that the performance of the photochromic lens extends into less obvious lighting environments where filtering some high energy visible light results in visual benefits indoors, at night, and on digital devices. All of these results were generated against the world's leading non-photochromic soft contact lens as the Control. The wearer of the Test lens can expect visual benefits both outdoors and indoors.

Disclosure
Background
To demonstrate that a photochromic Test contact lens is superior to a non-photochromic Control contact lens in environmental situations where one may not necessarily expect a visual benefit, such as indoors, at night, and with digital devices.

Method
The data presented contains subjective and objective data from multiple clinical studies. All studies used a photochromic contact lens as the Test, and a non-photochromic contact lens as the Control. The subjective data is supplied by a meta-analysis of 2 similar clinical studies conducted within a year of each other. The study designs were both randomized, partially subject-masked, multi-visit, multi-site, 2 lenses x 3 period crossover, 2-week dispensing trials. Subjective questions were asked at every 2-week follow-up visit. The objective data is supplied by 2 similar clinical studies. The study designs were both randomized.

Results

**Figure 1: Questionnaire Responses**
[e.g., Odds Ratio of 3.91 — subject is 3.91 times more likely report favorably for the Test lens than the Control lens]
Subjective and objective items pertaining more to being outdoors during the day were understandably in favor of the Test lens. For example, the Test lens was subjectively preferred nearly 6:1 for general outdoor use (Figure 1) and objectively provided 36% less disability glare (Figure 2). For reference, an outdoor benefit is shown in each figure.

**Figure 2: Psychometric Testing**
[Mean percent difference of Test - Control]

**Figure 3: Lens Preferences**
[Ratio: prefer test / prefer control]
More objectively, the inactivated photochromic Test lens provided 18% less light scatter, 18% smaller halo diameter, 22% smaller starburst diameter, 17% less disability glare, 26% less discomfort glare, and 17% better chromatic contrast than the non-photochromic Control lens (Figure 2). All of these objective tests were statistically significant (95% confidence).

Conclusion
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Disclosure
The authors are employed by Johnson & Johnson Vision.