

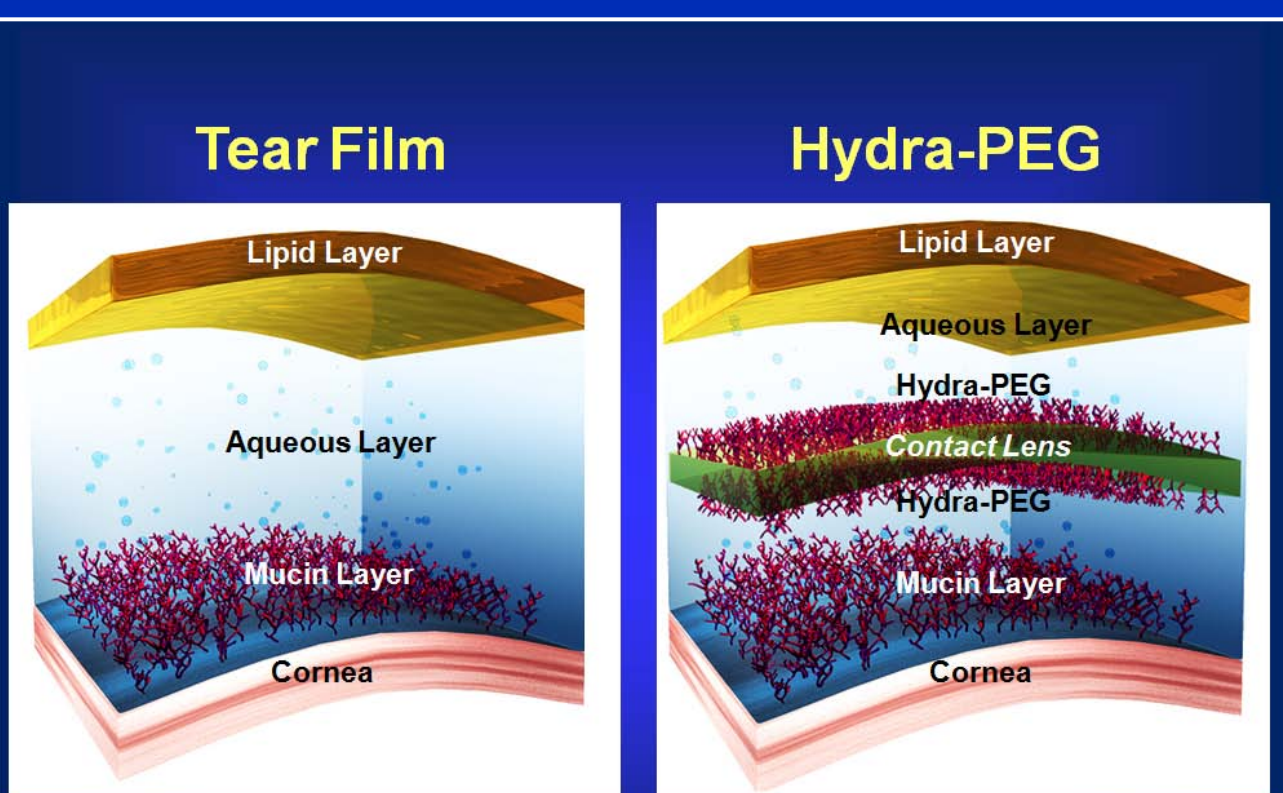
Hydra-PEG: A Solution to Contact Lens Discomfort?

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Introduction

“Dryness and Discomfort” are the primary reasons for soft contact lens drop-out amongst the millions of contact lens wearers worldwide. Lens surface properties (ie. the frictional properties of the material, wettability and deposition characteristics) have all been identified as being crucial to long-term contact lens comfort.

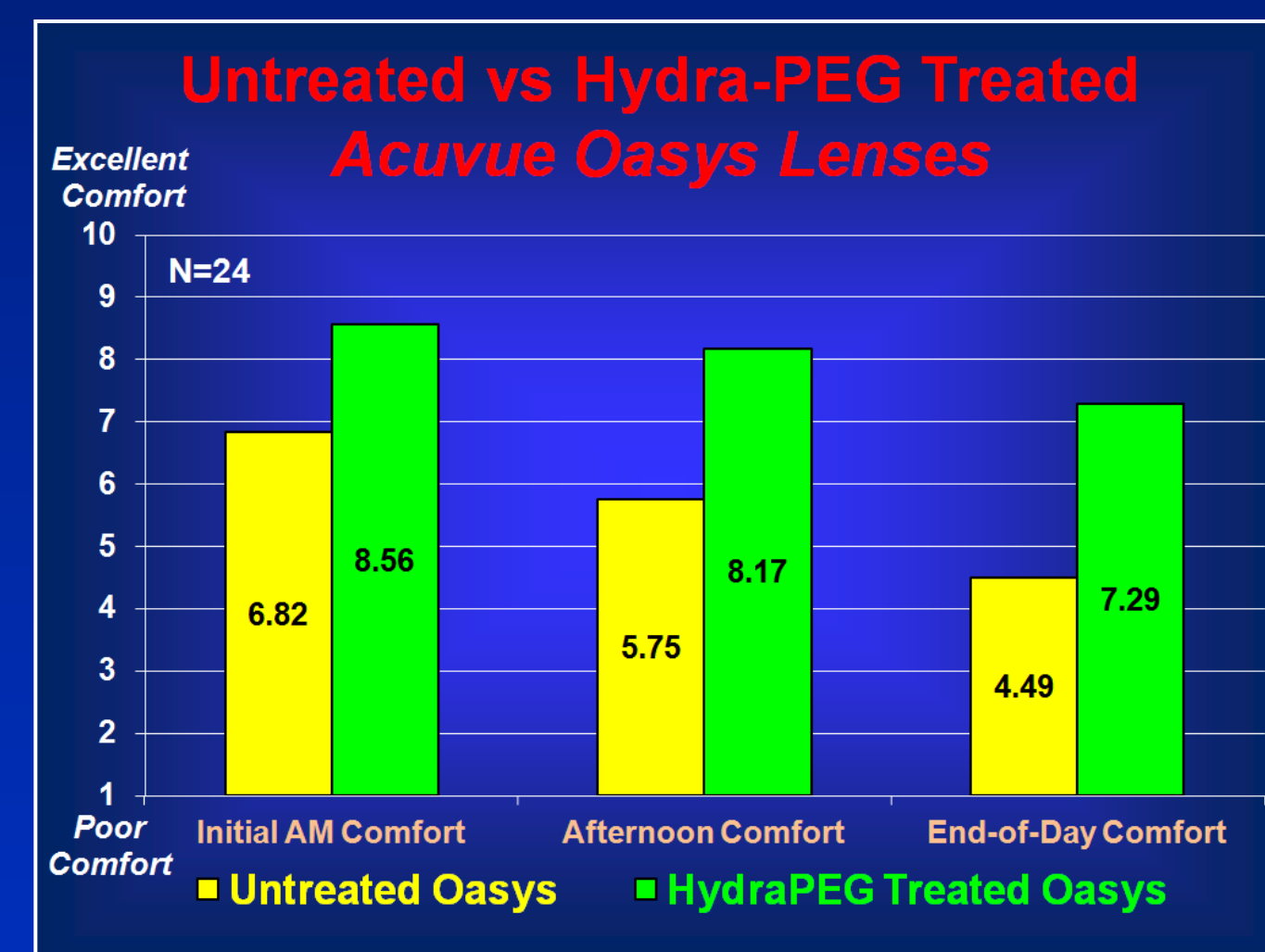
Modern silicone hydrogel lenses incorporate wetting agents (on the surface or within the polymer matrix) to improve the lens interaction with the tear film, ocular surface and eyelids. Hydra-PEG, is a new surface treatment from Ocular Dynamics (Menlo Park, CA), that encapsulates the core contact lens with a hydrophilic shell to improve surface wettability.



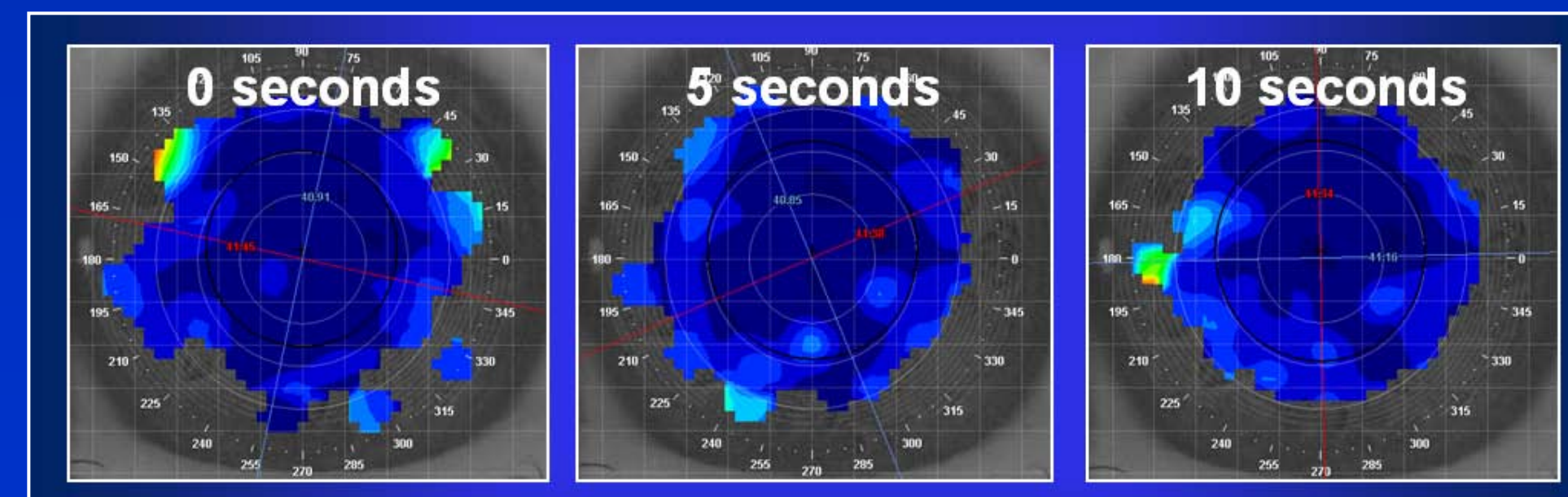
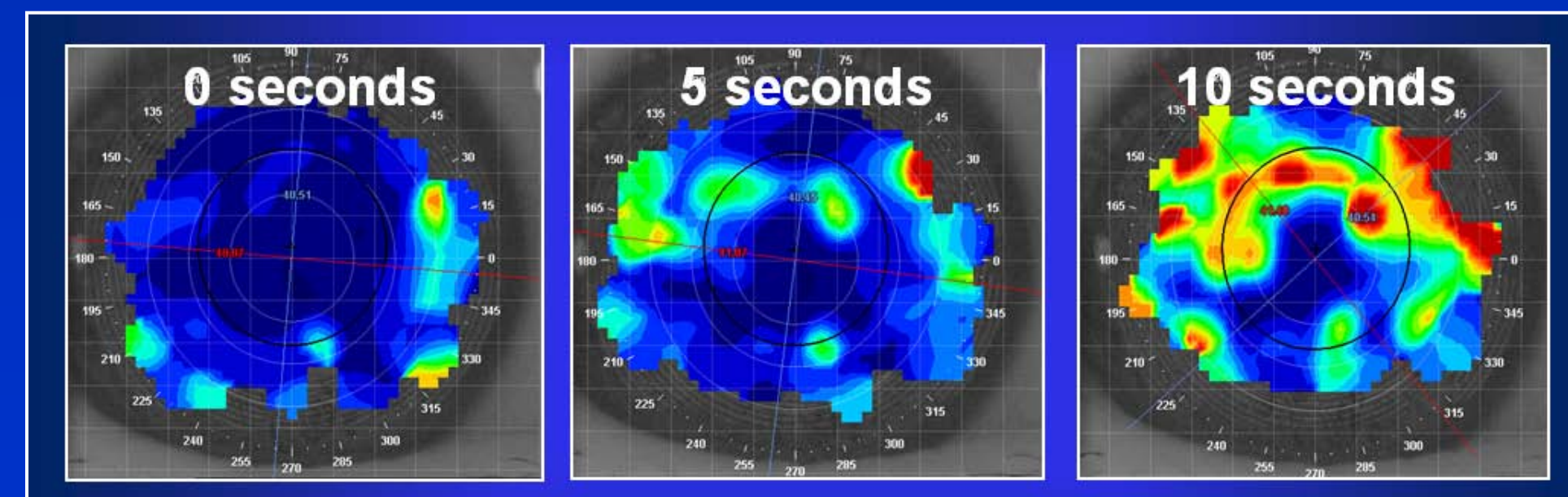
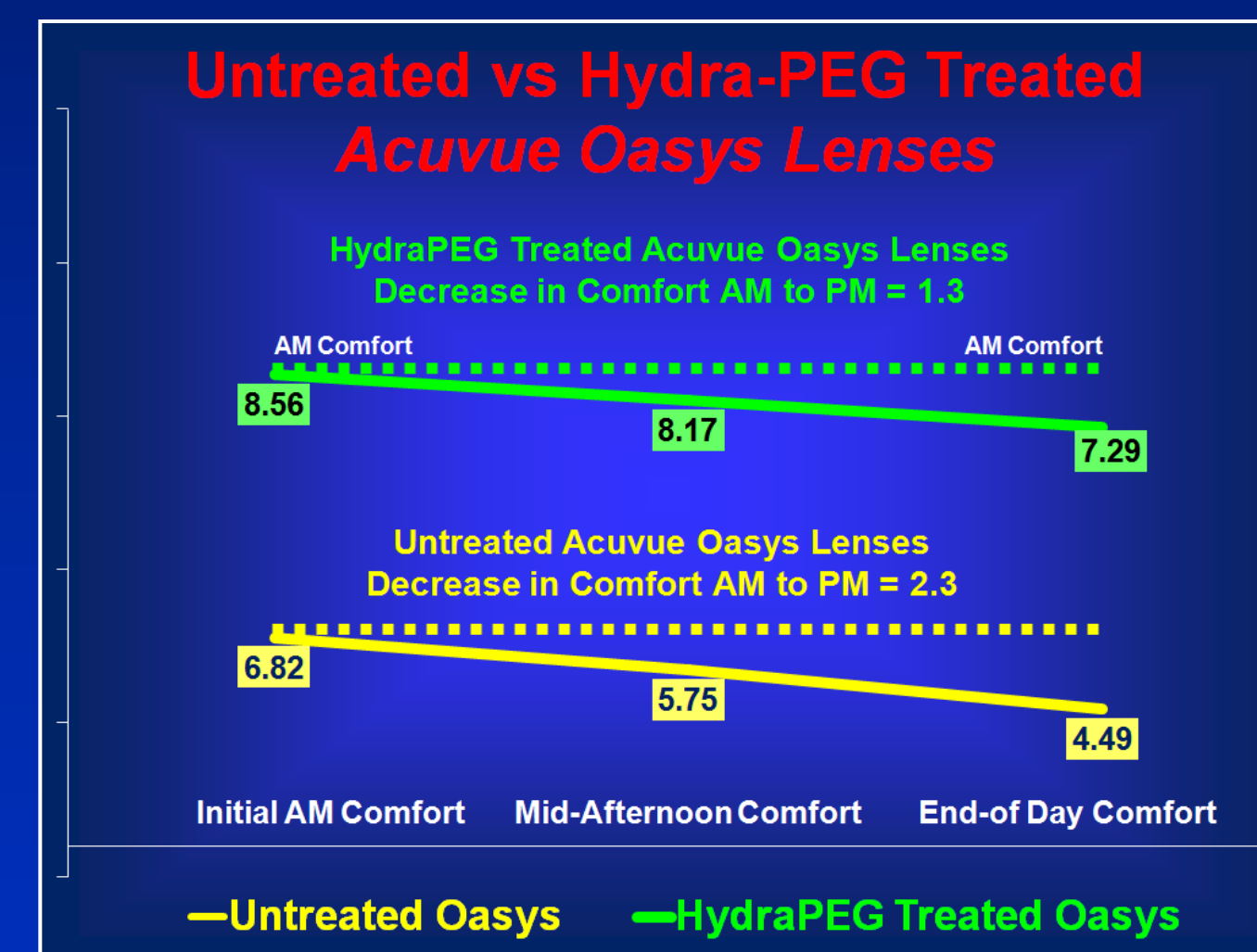
Today's silicone hydrogel lenses are surface treated or manufactured with wetting agents within the material matrix. Hydra-PEG is a 90% water surface polymer that creates a mucin-like hydrophilic surface to the contact lens.

Methods and Results

The 24 subjects that participated in this study (ages 22 to 29 years old) were habitual soft contact lens wearers selected for their self-reported symptoms of contact lens dryness and discomfort. The subjects were fitted with two different pairs of Acuvue Oasys, silicone hydrogel lenses. One pair of lenses was treated with Hydra-PEG and one pair was left untreated. The two sets of lenses were each worn daily for 7 consecutive days and disinfected at night with a hydrogen peroxide disinfection system. At the end of each 7 day wearing period, the subjects rated their lens wearing comfort (1 poor comfort 10 excellent comfort) at three time intervals: after morning lens application, midday, and again at the end-of-day.



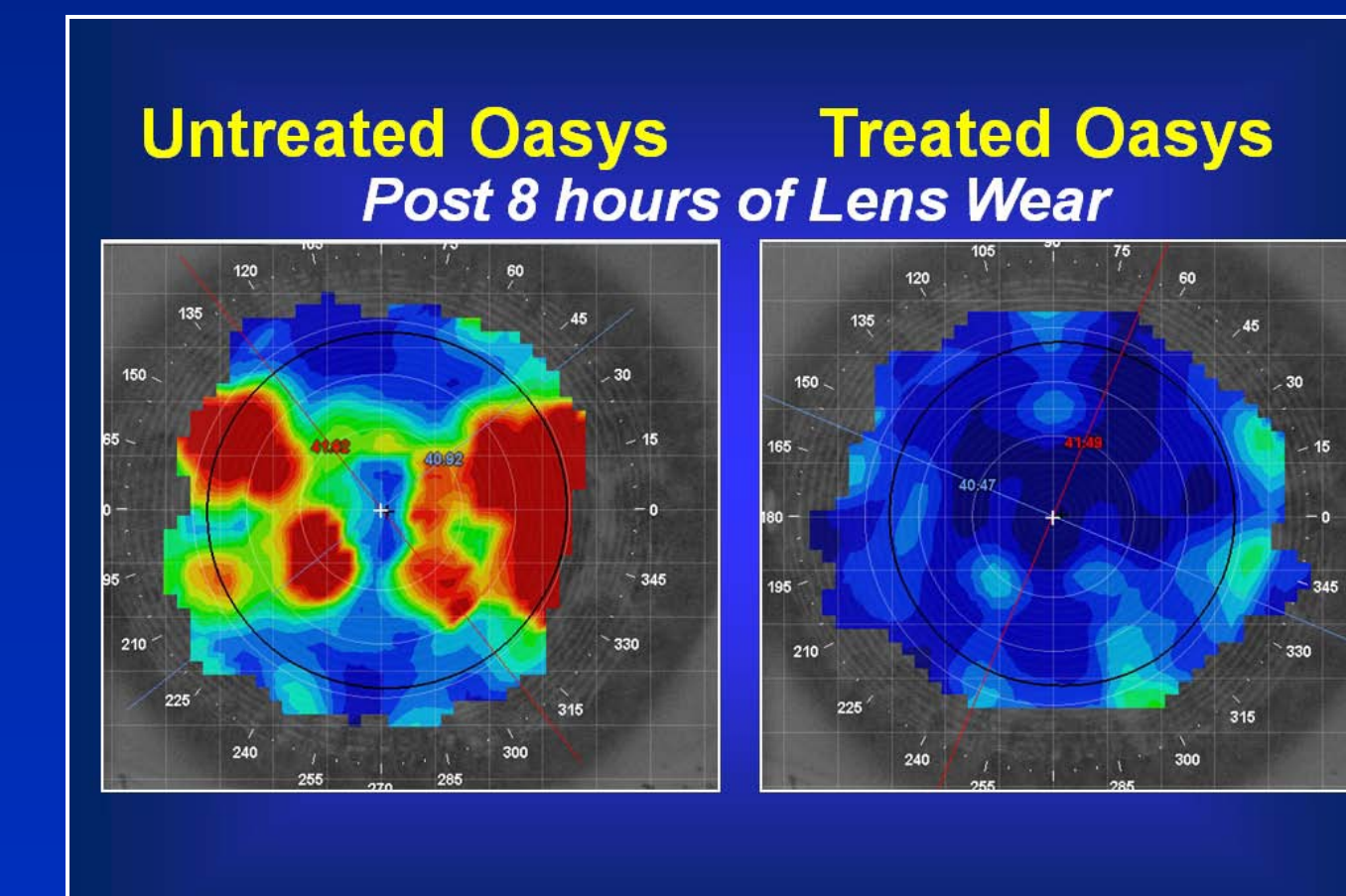
When using a 1 to 10 comfort scale, a 1 digit change in comfort is highly significant. In this study the Hydra-PEG treated lenses showed on average, a 2.8 differential in end-of-day comfort.



The Tear Film Quality module of the Medmont E300 topographer allows us to visualize a color coded map of the tear break up over the surface of contact lenses. The images on the left show the surface quality of a standard Acuvue Oasys lens following 8 hours of lens wear at 0 sec, 5 sec, and 10 sec after a blink. The images on the right are of the same patient with a Hydra-PEG treated Acuvue Oasys following 8 hours of lens wear.

Discussion

The active ingredient in Hydra-PEG is polyethylene glycol (PEG), a polymer that is used in wide-range medical applications such as ocular medications, wound care products, and oral suspensions. In this study, we found that lenses coated with Hydra-PEG exhibited increased patient comfort and improved surface properties when compared to their non-coated equivalent.



Conclusions

These data appear to indicate that the Hydra-PEG surface polymer has the potential to dramatically improve contact lens wearing comfort in individuals experiencing symptoms of lens dryness and discomfort with current silicone hydrogel lenses.

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