# PROSPECTIVE, CROSSOVER STUDY USING DRY EYE LUBRICANT **DROPS ON SYMPTOMATIC SILICONE HYDROGEL WEARERS.**

# INTRODUCTION

• Previous studies in contact lens wearers have shown minimum difference in benefit between rewetting drops and saline for symptomatic relief, lens dehydration [1, 2] and PLTF stability [3]. • By contrast, studies on dry eye patients (non-contact lens wearers)

have shown that lubricant use provided symptomatic relief [4, 5]

# PURPOSE

• To investigate the effect on lens wear (subjective comfort, lens variables, ocular physiology) of using a lubricant drop pre and post lens wear in silicone hydrogel contact lens wearers with moderate symptoms of discomfort.

# METHODS

- Single masked, randomised, controlled, 2-week crossover (n=36), dispensing clinical trial
- Previously adapted, symptomatic (reported regular use of rewetting drops during CL wear), daily wearers of silicone hydrogel contact lenses.

## Table 1: Subject data

Sex	28% M, 72%
Age (yrs)	39 ± 12
Lens wear experience	
-Acuvue® Advance <sup>™</sup> with Hydraclear <sup>™</sup> (Vistakon,	14%
J&J Vision Care, Jacksonville, FL)	
-Focus® Night and Day™ (CIBA Vision, Duluth, GA)	42%
-PureVision <sup>™</sup> (Bausch & Lomb, Rochester, NY )	44%

- The test solution was Systane<sup>™</sup> dry eye lubricant drops and the control unpreserved, unit dose saline.
- Lens wear was bilateral, DW, 2-weekly disposal of Acuvue® Advance™ with Hydraclear<sup>™</sup>. All subjects were issued with Opti-Free<sup>®</sup> Express<sup>®</sup> disinfection solution.
- Subjects were instructed to instil the relevant study solution 10-15 minutes prior to lens insertion and again after lens removal

## Figure 1: Study procedure

Subjective Responses



Lens fit/surface, vision and ocular physiology

# STATISTICAL METHODS

- Clinical, vision and subjective ratings were compared between the two solutions at each visit using paired t-tests.
- Categorical data were compared between the two solutions using Chi-Square test.
- Statistical significance was set at the 95% confidence level.

• With the use of test solution, there was decreased use of other rewetting drops during the day (p=0.006, Day 14) (Figure 2).

Figure 2: Use of other rewetting drops during the day





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80 69 70 52 » 50 Systane 40 31 30 <sup>
C</sup>Saline 30 19 20 10 Decreased No change Increased Use of other rewetting drops

• With the test solution, statistically significant reductions in perceived redness by the wearer (p=0.03, Figure 3) and observed limbal redness by the investigator (p=0.03, Figure 4) were found.

Figure 3: Perceived redness



Figure 4: Observed limbal redness



• Paired analysis across both phases showed less burning/stinging sensation (p=0.05) with the test solution compared to the control solution (Figure 5). **Figure 5:** Subj rating for both phases at Day 7/14



• Test solution use was more likely to be associated with the subjective impression of improved "all day" (Figure 6) and "end of day" (Figure 7) dryness sensation.



	Verieblee	NI	Systane		Saline		
	variables		Mean	SD	Mean	SD	p Value
Wetting/deposits (0-4, 0.1)	Front surface wetting	35	8.0	8.0	0.6	0.7	0.29
	Front surface deposits	35	1.0	0.8	0.8	0.7	0.37
	Back surface deposits / debris	35	0.7	0.6	0.6	0.6	0.54
Fitting (mm) (0-4, 0.1)	Overall fit acceptance	35	3.2	0.3	3.3	0.3	0.32
Corneal staining Mean (0-4, 0.1)	Extent	36	0.4	0.3	0.4	0.4	0.69
		00					0.40
Conjunctival staining Mean (0-4, 0.1)	Non lens induced	36	0.5	0.4	0.6	0.6	0.42
		20	4.0	0 5	4.0	0.0	0.40
Tarsal conjunctiva (0-4, 0.1)	Overall palpebral redness	30	1.2	0.5	1.3	0.0	0.40
	Overall palperbral roughness	30	0.9	0.6	1.1	0.7	0.27
	Monoquilor	74	0.01	0 11	0.00	0 1 /	0.71
Vision (logMAR units)	Rincoular	26				0.14	
	Dinocular	30	-0.07	0.07	-0.07	0.07	0.20



# Institute for **Eye Research**

Neither Agree Nor Disagree

## Fully Disagree

- Disagree
- Neither Agree Nor Disagree
- Fully Agree

# DISCUSSION

• The use of a viscous dry eye lubricant pre and post lens wear appears to improve lens wear comfort for this type of silicone hydrogel contact lens. The mechanism may be due to increased fluid volume, improved tear film stability or reduced interfacial friction. Although increased lubricant viscosity can prolong solution corneal contact time [6], this can also cause short-term visual blur [4]. No effect on vision was observed in this study possibly due to the use of the lubricant several minutes prior to lens insertion and following lens removal.

## CONCLUSIONS

- Use of Systane pre and post lens wear contributed to decreased use of other supplementary rewetting drops during the day.
- Compared to saline, this solution may reduce some signs and symptoms associated with discomfort during wear (in particular burning/ stinging sensation)
- When used with this type of silicone hydrogel lens, lubricant drop use was found to be safe and without detrimental effects on vision, lens fitting, deposits or corneal/conjunctival staining.

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