

Preference versus Medalist:

Which should you use to fit a dry eye patient?

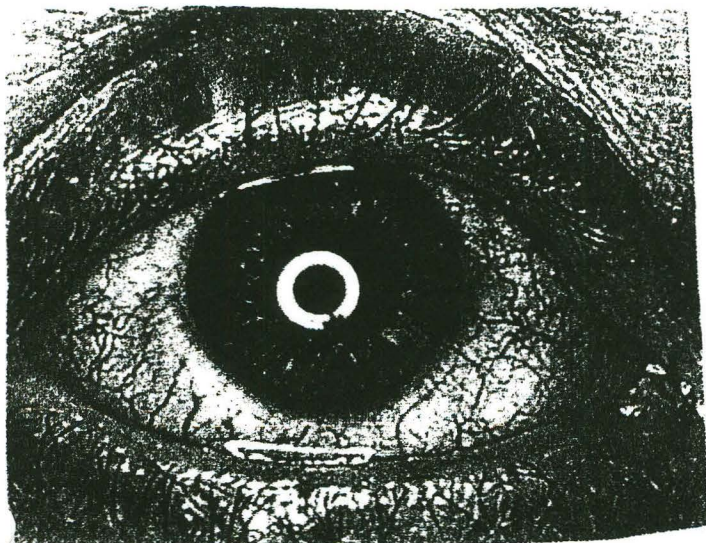
By: Heather Burgess and Philip VanderLugt

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Figure 1



Red Eye 2° Contact Lens

Abstract: The goal of our study was to see if either the Medalist or the preference offered an advantage to the dry eye patient. We used a double blind pilot study with six subjects. A modified McMonnies questionnaire was given to the patients to determine if they were dry eye patients. (Robboy) Tear thinning time (TTT) and visual acuity were measured over a two

week period to be used as our objective data. Subjective data was obtained through a daily questionnaire. We found that 50% of the patients preferred each lens for comfort, however, when visual acuity, handling, and comfort were evaluated 83% of the patients would choose the Preference over the Medalist. It was also found that in 83% of the patients the objective and subjective data contraindicated each other. This proves the known fact that comfort in dry eye patients often doesn't agree with objective findings. This makes the dry eye patient a unique challenge to the eye care professional.

Introduction: Tear film quality is an important part of the evaluation of any contact wearer, especially those who complain of dry eye. These patients often have a tear film deficiency. When a contact lens is placed in the eye, the precorneal tear film is divided into two new and distinct layers; the pre- and postlens tear films. Both of these layers must perform the normal functions of tear film as well as interact effectively with the contact lens. (Little) Figure two highlights these functions. Ten to twenty percent of

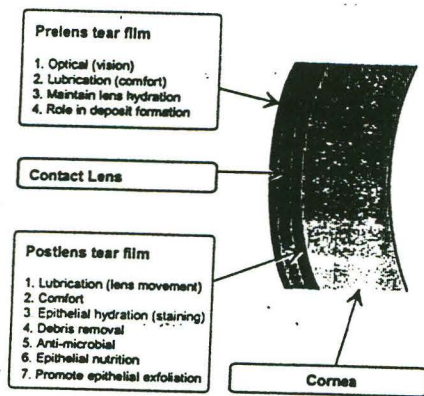


Figure 2

the general optometric patient population suffer from marginal dry eye. (Jurkus) This deficiency can make contact lens wear extremely difficult.

The origin of the dry eye can be due to a deficiency in any of the tears three layers; mucin, aqueous, or lipid. Together these layer make up a ten micro-meter barrier to the world. (Holly)

Reduced tear flow rate and deficient reformation of the tear film can cause a rise in tear osmolarity and therefore alter tear film stability and cause detrimental effects to the superficial corneal surface. (Patel) Some methods established to expose a tear film deficiency are, tear break-up time (TBUT), tear thinning time (TTT), corneal staining, and the schirmer test. The biggest clues usually come out in a thorough case history. (Basinger) Dry eye patients, contact lens wearers or not, may have complaints ranging from foreign body sensation, tearing, irritation, stringy mucous, transient blurring, and burning. Pain can occur in sever cases. Tear film deficiencies can not only bring discomfort to the patient, but also compromise the integrity of the patients cornea. (Hart) Often times a asymptomatic, marginal dry eye patient, will become symptomatic while wearing contact lenses.

Frequent replacement lenses of two, three, or four month replacement schedule have become a popular option for many contact lens patients. We wanted to see if

either the Preference or Medalist, two commonly used frequent replacement lenses, offered an advantage to the contact lens patient with dry eye complaints. The Preference lens is larger, has higher a water content, and has higher dK value. (Tyler's) Studies have not been conclusive whether water content effect tear stability.

Patients: Six women participated in this study. Their ages ranged from 23 to 50. These patients filled out a modified McMonnies survey (enc 1), a questionnaire that has been determined to be effective in identification of dry eye patients, which proved all to suffer from dry eye complaints. (Robboy) See figure one for this form. All the patients had an unremarkable ocular history. Allergies, medications, and medical problems were documented. All the participants were active in the optometry curriculum and therefore spent considerable time in the same environment.

Methods and Materials: Two different lenses were used in this study. They are both planned replacement soft contact lenses. These lenses are (Tyler's):

<u>Manufacturer</u>	<u>Base Curve</u>	<u>O.A.D.</u>	<u>O.Z.D.</u>	<u>c.t.</u>	<u>d.k.</u>	<u>%H2O</u>
Cooper Vision Preference	8.4/8.7	14.4	13.2	.03-.082	9.3	43%
Bausch & Lomb Medalist	8.4/8.7 9.0	14.0	8.0-10.0	.035	8.4	38.6%

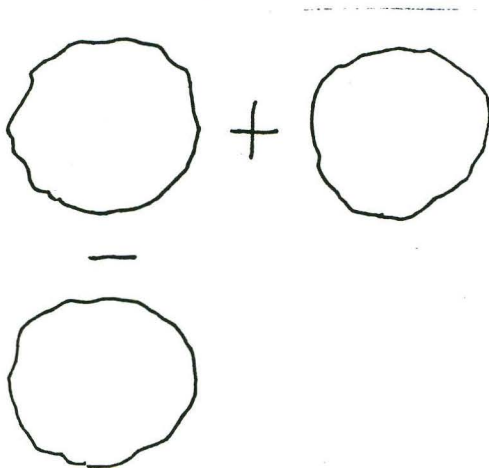
The Preference lens is made of tetrafilcon A and the Medalist of polymacon, both are Group I nonionic, low water content lenses.

All the patients in the study were fit by one examiner. They used the Quick Care system and were given the same wearing schedule. Each patient was given a packet with rewetting drops, to be used when necessary, but never within 15 minutes of measurement appointments. The packet also contained a wearing schedule, answers to commonly asked questions, and the daily questionnaires.

The tolerability of the lens was measured both objectively and subjectively. Each patient was given a questionnaire which they used to evaluate the comfort of their lenses on a daily basis. (enc 2) In this double blind study, each patient was given a different contact lens for each eye. The patients wore the lenses for two weeks. The first day they wore them five hours, and increased an hour each day until they were wearing them at least six to eight hours a day. Each patient had adequate space to document any deviation from this schedule on a daily basis. On the daily log sheet there was a variety of questions asked and also a place to list unusual or otherwise notable experiences or exposures.

Objectively, measurements of the tear thinning time were taken. Just prior to insertion at the initial fitting, a TTT was taken, along with a TBUT, a fluorescein stain evaluation, and visual acuities. The contacts were then inserted and a TTT and visual acuity were taken after two hours of wear. On day two the TTT and VA measurements were repeated. On day six of the study a TTT was taken

Figure 3



Keratometer Mires with TTT

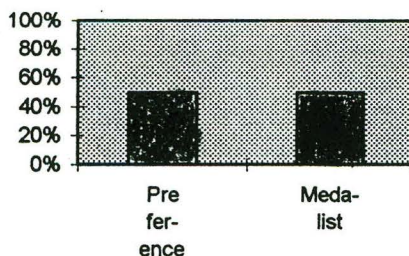
after six hours of wear followed by a TBUT measurement, fluorescein stain evaluation, and visual acuities. On day twelve of the study a TTT was taken after six hours and the visual acuities were also taken. On the final day, day fifteen, a TTT was taken after six hours of wear. The lenses were then removed and a TBUT acquired as well as

visual acuities and staining information. The TTT was always done by one examiner using a keratometer and a stopwatch. (Dombroski, Patel) The patient was instructed to blink normally and then to hold the eye open naturally without any lid retraction

mechanism. The time was measured until the bottom right mire initially starts to be distorted. (fig.3) The bottom mire becomes distorted when the first Purkinje image degrades due to a nonhomogenous thickness of the tear film surface caused by drying. Variability in TTT can be due to the fact that only the central 3mm of the corneal is being observed, and because the palpebral aperture and lid tension can vary in a particular patient. (Patel) Three consecutive measurements were taken and the values averaged for each measurement.

Results: All of the patients experienced aggravated dry eye symptoms during the course of the study. It is interesting that after wearing the contacts for two weeks, 67% of the patients would choose spectacles for correction over contacts. 50% of the

Lens Choice for Comfort



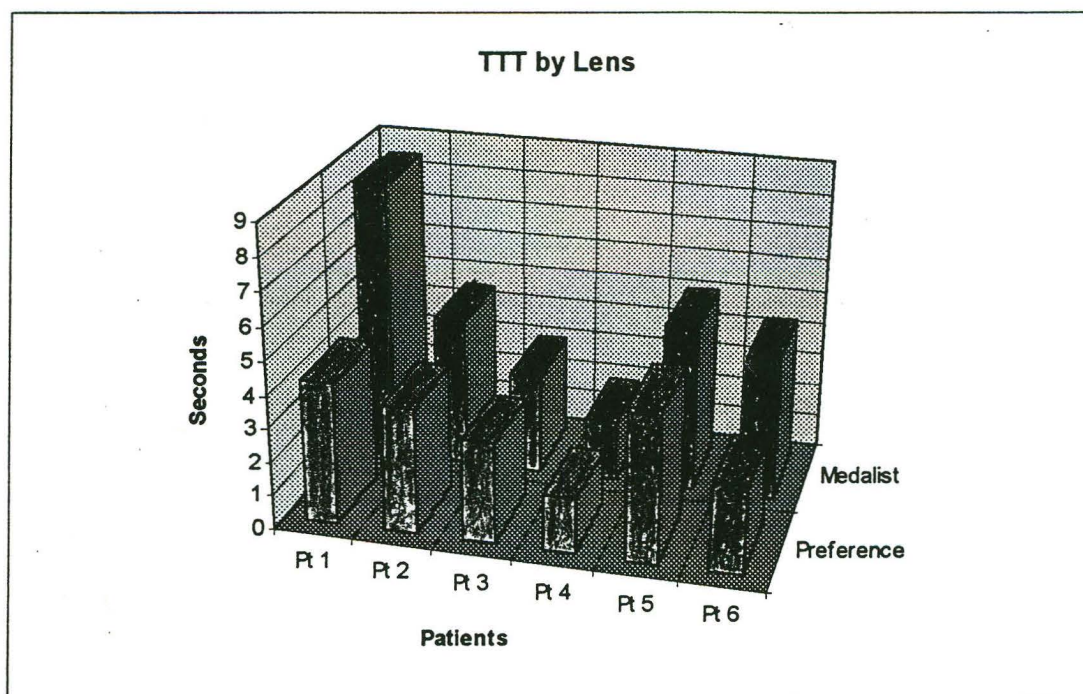
patients felt contacts were very uncomfortable, 33% felt contacts were wearable but not pleasant, and 17% only experienced discomfort while diving, watching television or using computer. Comfort was the factor for those patients who wouldn't chose

contacts for their correction. 50% of the patients preferred Medalist for comfort (chart 1) but when visual acuity, handling, and comfort were considered, 83% of the patients preferred the preference lens. Visual acuity was preferred with the preference lens in 33% of the patients. The other 67% found no difference in acuity between the two lenses. As a contact dries, which is accentuated in dry eye patients, the light is scattered acting as a veiling luminance which reduces the contrast of the retinal image with low contrast charts (Timberlake). By subjective findings (Table 2) the preference was the preferred lens overall although the comfort wasn't the only variable that entered into the decision.

Subject	Overall Contact Lens Choice	Comfort	VA	Handling
1	P	P	P	P
2	P	M	P	P
3	P	P	P	P
4	M	M	N/A	N/A
5	P	P	P	P
6	P	M	P	P

Objective findings also showed less drying with the preference lens (chart 3).

Acquired staining occurred with both lenses although at twice the rate with the Medalist lens. These findings are complicated because the lens with the larger TTT were not



always the preferred lens. The TTT appears, therefore, not to be a prediction for contact lens success. There was no predictable pattern found with the TTT. It rose and fell in each eye over time. This may be due to the fact that nearly all of the TTT's recorded are below the expected level for each lens. A TTT of less than 6.1 seconds is considered abnormal (Bassinger). The same results are true for the TBUT, all the values were below 10 seconds. It may be difficult to use these values as predictors for contact lens success when all the values are below expected levels.

Discussion: Subjective findings are the barometer for contact lens success when dealing with dry eye patients. Once it has been established that you have a dry eye patient you must rely on the patients perception of lens comfort. Our patients found the Preference and Medalist lenses to have approximately equal comfort, but when visual acuity and handling were factored in to the lens choice 87% would chose the Preference lens.

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Contact Lens Comfort Evaluation Form

Name: _____

Date: _____

OD

OS

Hours Worn: _____

Comfort /
Discomfort _____

Hours of
Comfort _____

Indicate Makeup
Usage

Number of
Lubricating
Drops Used

Unusual Exposures to Makeups, Medications or Environmental Substances

Where was most of the day spent while wearing the contact lenses? _____

Care system done

Contact Lens Patient Questionnaire

Patient's Last Name _____ First: _____

1. Age: _____

2. Sex: M F

3. How long have you had dry eyes? _____

4. Have you ever worn contact lenses? Yes / No What Type? _____

5. On an average day how many hours can you wear contact lenses before dry eye symptoms occur? _____

6. Do you use eye drops because of dry eye symptoms? Yes / No

How Often? _____

7. Do you regard your eyes as being unusually sensitive to cigarette smoke, smog, air conditioning, or central heating? Yes / No / Sometimes

8. Do you experience any of the following conditions?

Arthritis Yes / No

Dryness of Mucousal Membranes Yes / No

Skin problems Yes / No

Eye Irritation upon waking Yes / No

Ocular Symptoms:

Soreness Yes / No

Dryness Yes / No

Grittiness Yes / No

Burning Yes / No

Tearing Yes / No

9. Medications _____

10. General History _____

11. Ocular History _____

12. Allergies _____

13. Usual daily makeup use _____