University Institutional Review Board
Approved Research Protocol

(Information identifying P.I name, Exact location and other identifiable information have been deleted as per clinicaltrials.gov guidelines)

Title of Study
Meibomian Gland Dysfunction management to relieve contact lens discomfort

Purpose:
The purpose of this study is to compare electronic debridement of the eyelid margin (BlephEx) to manual debridement of the eyelid margin as treatment options for patients intolerant to contact lens wear consequent to Meibomian gland dysfunction.

Research Design:

Subjects will be randomly assigned to two groups of thirty each. However, the groups will be balanced for age, gender and initial severity of contact lens intolerance. The two treatment groups will be:
1. BlephEx treatment - This is an established clinical treatment for MGD and blepharitis. Previous studies have been done using this treatment paradigm without any adverse events whatsoever. A topical anesthetic is first instilled in the eye to be treated. All patients in clinical practice report a burning sensation as soon as the topical anesthetic touches the eyeball. This burning sensation lasts a few seconds in almost all patients in clinical practice. Topical anesthetic will also be rubbed along the eyelid margin using a cotton Q-tip. The BlephEx procedure will then commence. This procedure involves using a rotating foam tip to debride and clean the eyelid margin. The tip will only come in contact with the eyelid margin. The tip will not touch the eyeball. The tip will run along one eyelid margin from left to right and then from right to left. This process will be repeated four times for each eyelid margin. The time duration required for treatment of one eyelid margin is about 45 seconds to one minute. Therefore, treating all eyelid margins will require about 5 minutes total. During this procedure, patients sometimes experience a "tickling" sensation. From our past studies and our clinical practice, patients do not report any pain during the BlephEx procedure.

2. Manual debridement treatment - This procedure has also been established as a treatment for MGD and Blepharitis in clinical practice and documented in the literature by other investigators. For this procedure, one drop of anesthetic will be instilled in the eye to be treated. As explained above, the anesthetic will generate a fleeting burning sensation. Anesthetic will then be also rubbed on to the eyelid margin using a cotton Q- tip. Following the anesthetic application, a blunt stainless steel spatula will be used to debride / clean the eyelid margin. The spatula will course from the left to right and the right to left of each eyelid margin. The procedure will be repeated four times for each eyelid margin. Similar to the BlephEx treatment, the manual debridement will also require about 5 minutes total duration to treat all four eyelid margins. During the manual debridement procedure, study subjects will not feel any pain. They may possibly feel a sensation of "touching" on the eyelid margin.

Subjects will be assigned a number. Personal data will be not be included in the database which will be maintained in Excel or comparable program on a password-protected computer in a locked office accessbile only to the Investigators.

This study will not collect refractive error data as specific refractive errors have not been shown to be associated with increased or decreased incidence of MGD and / or blepharitis.

The following tests will be performed at baseline (prior to treatment) as well as one month and two months post treatment:

1. Subjective symptom analysis (Ocular Surface Disease Index score – OSDI) and measurement of baseline distance and near visual acuity with Snellen Visual Acuity chart. The Snellen chart is preferred in this study as it is the most commonly used clinical measure of Visual Acuity.

2. Slit lamp biomicroscopy of the eyelids and lashes, including evaluation of the Meibomian glands along the eyelid margins.; Obtain photograph of the eyelid margins as well as the surface of the eye following instillation of Lissamine green dye.
3. Tear break-up time measurement – Tear break-up time is the time in seconds for the tear film to destabilize following one complete blink. This will be measured in two ways – a. Measured following instillation of fluorescein in the tear film; b. Measured photographically using the Oculus 5M Keratograph.
4. Meibography (analysis of the Meibomian glands) will be performed using the Oculus 5M keratograph (please briefly describe). The Oculus 5M keratograph will obtain an image of the eyelid, which demonstrates the number of Meibomian glands. This photograph will also show if there is any dropout of the glands.
5. MMP-9 Inflamadry – This is an in-office measure of the inflammatory marker MMP-9. It is a widely used test which samples a small quantity of tear fluid and determines the presence or absence of MMP-9.

Statistical Analysis:
Parametric within and between group analyses will be conducted to determine the efficacy of of treatment within and between groups. Non-parametric analyses will be utilized for dis-continuous questionnaire data.

Subject Consent to Take Part in a Study of

Meibomian Gland Dysfunction management to relieve contact lens discomfort

Details of the P.I contact information, location, etc have been removed per clinicaltrials.gov guidelines

Authorized Study Personnel:

Key Information: Your consent is being sought for a research study. The purpose is of the research is to determine and compare the benefits of two clinical procedures to improve the symptoms of contact lens intolerance secondary to Meibomian gland dysfunction (MGD). If you agree to participate in this study, the project will involve:

- **Procedures will include:** Testing to determine signs and symptoms of MGD. This will include two questionnaires, measuring your entering visual acuity and undergoing testing with a biomicroscope; a device use in standard eye exams to evaluate the eye. If you satisfy the inclusion criteria for our study, we will then obtain photos of your eyelid margins and your Meibomian glands. We will measure the stability of your tear fluid (called tear break-up time). We will also do a simple test to determine if you have a marker of inflammation (called MMP-9) in your tear fluid. Following these measurements, you will then either receive treatment with Bleph-Ex or with manual eyelid debridement to clean the eyelids and lashes. No matter which treatment you receive, you will be asked to return in one month as well as in two months following the treatment to re-evaluate your symptoms (using the questionnaires), measuring your visual acuity, undergo re-examination of your eyes using the biomicroscope, obtain photos of your eyelids and glands, measure your tear break-up time and measure the MMP-9 marker.
- A total of THREE (3) visits are required for this study
- These visits will take three (3) hours total (one hour per visit)
- There are minimal risks associated with this study: The Bleph-Ex procedure may elicit a mild tickling response due to the tip cleaning your eyelids. You may feel a mild sensation of “touch” during manual debridement. You will receive anesthetic drops to minimize any discomfort. These drops may cause a mild burning sensation for a few seconds.
- You will be paid $ (VISA gift card or a store gift card such as the Target store) for your participation upon completion of all three study visits. You will not be paid if you do not qualify for the study. You will not be paid if you do not complete all study visits if you elected to participate in this study.
- Your participation is voluntary and you may decide not to participate at any time. You are free to choose not to take part in the study or to stop taking part at any time. If you choose not to take part or to stop at any time, it will not affect your current or future status at UIW.
    - Our previous research has shown that lid margin debridement procedures consistently improve signs and symptoms of MGD. Therefore, this treatment may be very beneficial to your clinical condition.

Invitation: You are invited to volunteer as one of 60 (SIXTY) subjects in the research project named above. The information in this form is meant to help you decide whether or not to participate. If you have any questions, please ask.

Why are you being asked to be in this research study? You are being asked to be in this study because you wear contact lenses and also have a condition named Meibomian Gland Dysfunction (MGD). This condition alters the tear fluid in your eyes which consequently causes symptoms of irritation as well as discomfort during the use of contact lenses. You will be excluded from participating in this study if you are pregnant or breast-feeding at this current date.

What is the reason for doing this research study? The purpose of this study is to understand if clearing up (debriding) the margin of the eyelids will cause betterment in signs and symptoms associated with poorly functioning oil glands in the eyelids.

What will be done during this research study? During this study, you will undergo tests to document signs and symptoms of MGD. These tests include completing a 12-item questionnaire and an 8-item questionnaire, examining the front part of your eyes with a microscope, photographing the glands in your eyelids and measuring the presence of a marker of inflammation (MMP-9). All these tests will be performed in the first visit as well as in the second and third visit. The visits will be spaced a month apart. Each visit will last approximately one hour.
If selected for this study, you will undergo one of two treatment protocols for your condition (MGD). The treatment (either BlephEx or Manual eyelid debridement) will be done only on the first visit. No matter what treatment you receive, you will return at one month and two months following the initial visit.

This study is not part of your health care.

Precautions for Female Subjects: You should not participate in this study if you are currently pregnant or breast feeding. The safety of lid margin debridement has not been evaluated in pregnant or breast-feeding women. Please note that we will not be performing pregnancy testing If you are female before we commence the study.

How will my data/samples/images be used?

Photos of your eyelids and glands could be used for future research studies. You are given the option to choose whether you will allow your deidentified photos to be stored indefinitely for further analysis or other relevant research studies.

Will I be notified if my data/samples/images result(s) in an unexpected finding?
When photos of your eyelids and glands are collected and analyzed, there is a chance of finding something unexpected. There may be benefits to learning such results (such as early detection and treatment of other eyelid diseases), but there are risks as well (such as feeling worried about a finding for which no treatment may be needed).

In this study, you will be informed of any unexpected findings of possible clinical significance that may be discovered during review of images of your eyelids and glands. The results from the images we collect in this research are not the same as what you would receive as part of your health care. The images will be reviewed by an Optometrist who normally reads such results and they will inform us if there are any unexpected findings and we will provide you with this information so that you may discuss it with your primary care physician. If you believe you are having symptoms that may require care prior to receiving any information from this study, you should contact your primary care physician.

What are the possible risks of being in this study?
The Bleph-Ex procedure may elicit a mild tickling response due to the brush cleaning your eyelids. Similarly you may feel a mild tickling or itchy response during manual debridement. You will receive anesthetic drops to minimize any discomfort. These drops may cause a mild stinging sensation for only 30 seconds. It is possible that there could be other risks that cannot be known in advance.

What are the possible benefits to you? Based on previous research, we anticipate that the treatment you receive by participating in this study will help improve your MGD condition. However, it is possible you may not receive any benefits from being in this research study.

What are the possible benefits to other people? The benefits to science and/or society may include obtaining better treatment plans for patients suffering from Contact lens discomfort due to MGD.

What are the alternatives to being in this research study? If you choose not to participate in this study, you can elect to visit your eye doctor to receive other treatment options for MGD, such as topical eye ointments, etc.

What will being in this research study cost you? There is no cost to you to be in this research study.

Will you be compensated for being in this research study? You will be paid $ (VISA gift card or a store gift card such as the Target store) for your participation upon completion of all three study visits. You will not be paid if you do not qualify for the study. You will not be paid if you do not complete all study visits if you elected to participate in this study.
.

How will information about you be protected? Everything we learn about you in the study will be confidential. The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person, agency, or sponsor as required by law. If we publish with results of the study, you will not be identified in any way.

The data collected on computers will be stored electronically on a secure server and will only be seen by the research team during the study and for 3 years after the study is complete. Photographs of eyelids and glands will be securely stored electronically for an indefinite duration after the completion of the study.

What will happen if you decide not to be in this research study or decide to stop participating once you start? You can decide not to be in this research study, or you can stop being in this research study at any time, for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with the University. You will not lose any benefits to which you are entitled.

Deciding not to be in the study or deciding to withdraw will not affect your class standing or grades at the University.

Your participation in this research is in no way part of your university duties, and your refusal to participate will not in any way affect your employment with the university, or the benefits, privileges, or opportunities associated with your employment at the University.

If the researchers get any new information during this research study that may affect whether you would want to continue being in the study you will be informed promptly.
The researchers may also make the decision to remove you from the study, if:

- Your health changes and being in the study is no longer in your best interest;
- You do not follow the study protocol or no longer meet the requirements to be in the study; and/or
- The study is stopped by the sponsor, IRB or researchers.

What should you do if you have a problem or question during this research study? If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

If you have any questions now, feel free to ask us. If you have additional questions about your rights or wish to report a problem that may be related to the study, please contact the University Institutional Review Board office at xxx-xxx-xxxx.

Optional Study Elements
Consent for future use of data
Initial one of the following to indicate your choice:

_____I give permission for my deidentified images of my eyelids and glands to be used in the future for additional analysis or other relevant research studies. I understand that no additional informed consent for this use will be sought. I understand that my deidentified can be stored indefinitely.

_____I give my permission for my deidentified images of my eyelids and glands to be used for this research study only. I do not give permission for any future use beyond the scope of this research study. I understand that my eyelid and gland images will be destroyed within 3 year(s) after completion of this study.

Consent for use of contact information to be contacted about participation in other studies
Initial one of the following to indicate your choice:

_____I agree to allow the researchers to use my contact information collected during this study to contact me about participating in future research studies.

_____I do not agree to allow the researchers to use my contact information collected during this study to contact me about participating in future research studies.

Consent

Your signature indicates that you (1) consent to take part in this research study, (2) that you have read and understand the information given above, and (3) that the information above was explained to you, and you have been given the chance to discuss it and ask questions. You will be given a copy of this consent form to keep.

_____
Name of Participant

_____ _____
Signature of Participant Date

_____
Name of Principal Investigator/Designee

_____ _____
Signature of Principal Investigator/Designee Date