# Lipiflow vs iLux Patient Acceptance and Comfort Study

NCT04454983

Study Protocol and Statistical Analysis Plan

IRB Approval October 14, 2019

Note: Statistical Analysis Plan on Page 4

**Participant Selection**

Adult patients with confirmed MGD in a single practice limited to dry eye meeting the following criteria.

Inclusion Criteria:
1. Subject can be of any gender or race
2. Subject must be 18 years of age or older at the time of informed consent
2. Subject must be able to understand and must sign an Informed Consent that has been approved by an IRB
3. Subject must have confirmed diagnosis of Meibomian Gland Dysfunction
4. Subject must agree to not wear contact lenses the day of the Study visit

Exclusion Criteria:
1. History of intraocular or oculoplastic surgery within 6 months of Screening visit
2. History of ocular injury or trauma, chemical burns, or limbal stem cell deficiency within 3 months of the Screening visit
3. Active ocular infection or active ocular inflammation (including allergic conjunctivitis, vernal or giant papillary conjunctivitis) at time of Screening visit
4. History of ocular surface abnormality that may compromise corneal integrity
5. History of treatment with LipiFlow or iLux in either eye in the last 6 months
6. Allergy to topical proparacaine eye drops

Total Number of Participants to be Enrolled:
The clinical site will enroll up to 42 subjects to ensure that 38 subjects have evaluable data for both treatments. With 38 evaluable subjects, this study will have 80% power to detect a half point difference between treatments on the 5-point Likert-style questionnaire, assuming within patient standard deviation of 0.75 points and at a significance level of 0.05.

**Study Design / Methods / Procedures**

This study is an open-label, single site, crossover trial comparing LipiFlow Thermal Pulsation System to the iLux System based on patient acceptance, comfort, and preference. The proposed sample size is 42 subjects allowing for 10% dropout during patient screening.

2 Visits: Screening visit and Study visit

Screening visit (approx. 30 min)
1. Obtain Informed Consent
2. Obtain Patient demographics
3. Verify Inclusion and Exclusion criteria
4. Schedule for Study visit
5. Randomize in a 1:1 ratio to receive bilateral treatment initially with either LipiFlow or iLux

Study visit (approx. 100 min)
1. Perform slit lamp evaluation to verify no abnormal clinical findings prior to treatment
2. Perform either bilateral Lipiflow or bilateral iLux per Screening visit randomization
3. Patient fills out 5 Point Likert Scale questionnaire about treatment received
4. Perform slit lamp evaluation to verify no abnormal clinical findings prior to treatment
5. Perform the other bilateral Lipiflow or bilateral iLux procedure ≥ 1-hour after first
6. Patient fills out 5 Point Likert Scale questionnaire about treatment received
7. Patient answers final Patient Preference Question

Treatments
Both procedures will be performed on both eyes on the same day at least one (1) hour apart.

1. Eye makeup shall be removed.
2. The device shall be prepared for use in accordance with the Instructions per User Manual for the device to which the subject is randomized.
3. Proparacaine eye drops will be instilled in both eyes.
4. Therapy will be delivered in accordance with the User Manual for the device to which the subject is randomized.
5. Throughout the treatment visit, subjects will be assessed for any adverse events.

Safety monitoring
1. Assess and record any adverse events that are observed or reported by the subject
2. Assess and record any treatment device deficiency

Randomization:
An envelope with 42 identical slips of paper with 21 labeled LipiFLow and 21 labeled iLux will be prepared prior to initiating the study for a 1:1 randomization ratio. After a subject has been

determined to meet entrance criteria and has signed the ICF, each subject will draw one slip of paper which will determine whether they receive either Lipiflow first or iLux first.

Criteria for subject withdrawal by investigator

Subjects may be withdrawn from study treatment at any time if, in the opinion of the Investigator, continued treatment poses a risk to the subject.

Statistical Analysis Plan

Descriptive statistics will be provided to summarize each treatment questionnaire response: N, mean, standard deviation, minimum, maximum, and median. Categorical or binary endpoints will be summarized by count and percentage. Other statistical tests of correlation, variance, or regression to be recommended by statistician and methods used will be reported in the final report.

Storage of Data

All study data will be stored at Phoenix Eye Care in a locked secure location with restricted access.

Data Confidentiality

Subjects will be assigned Subject numbers, which will only be identifiable by the investigator and study coordinator.

**Risk / Benefit assessment**

Risks

1- Eyelid irritation, redness, or inflammation
2- Ocular irritation, redness, or inflammation
3- Ocular symptoms – tearing, itching, redness, temporary visual blur

Prevention of Risks

All Lipiflow and iLux treatments will be performed by the same clinician who received training by each manufacturer's representatives. Both instruments have the current firmware available as of September 2019.

Adverse events

After each treatment and the subject having had an opportunity to spontaneously mention any problems, the Investigator should inquire about adverse events. All adverse events will be recorded on a separate adverse events form.

Benefits

1- Unblocking of inspissated meibomian glands
2- Improvement in dry eye symptoms – tearing, itching, redness

**Participant Recruitment and Informed Consent**

Recruiting
Subjects will be recruited from the Phoenix Eye Care patient population seen for dry eye evaluations.

Informed Consent (*Sterling IRB- Informed Consent Document Preparation service requested*)
Patients must have the study explained to them by a member of the study team, they must be provided enough time to consider their participation in the study and provided an opportunity to ask questions of the study team. Subjects must sign the most current version of an informed consent form (ICF) written and approved by an Institutional Review Board (IRB). All patients who sign an ICF are considered enrolled subjects in the study and will not undergo any study-specific assessments until after they have signed the ICF. Subjects may withdraw their consent to participate in the study at any time, for any reason. The study investigator may also withdraw subjects from the study at their discretion in order to protect the rights, safety, or welfare of the subject. All withdrawn subjects will be included in study analyses, but they will not be replaced. No missing data will be imputed.

Costs to Participants
Patients will receive treatments at no charge in exchange for participation in this study.

Compensation to Participants
No compensation will be offered for participation.

## References

Thornhill, Rob. 2019. *Comparison Between iLux™ and LipiFlow® in the Treatment of Meibomian Gland Dysfunction (NCT03055832).* Tear Film Innovations, Inc. May 30. Accessed September 27, 2019. https://clinicaltrials.gov/ct2/show/results/NCT03055832#wrapper.

## Lipiflow vs. iLux Patient Acceptance and Comfort Study Questionnaire

Subject Number: Gender: Date: Time:

Bilateral Procedure 1: (Circle One) Lipiflow iLux

Q1 - This was a comfortable procedure.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Q2 – I would have this procedure again.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Q3 – I would recommend this procedure to my friends or family.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Q4 - My perception of the study doctor changed because of this procedure.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| More Negative | Slightly More Negative | Unchanged | Slightly More Positive | More Positive |

Q5 - This was a Positive overall experience.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Subject Number: Gender: Date: Time:

Bilateral Procedure 2: (Circle One) Lipiflow iLux

Q1 - This was a comfortable procedure.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Q2 – I would have this procedure again.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Q3 – I would recommend this procedure to my friends or family.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

Q4 - My perception of the study doctor changed because of this procedure.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| More Negative | Slightly More Negative | Unchanged | Slightly More Positive | More Positive |

Q5 - This was a Positive overall experience.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |

**Final Question - Which procedure did you prefer?**

(circle one) Lipiflow iLux No Preference