

Meibomian Gland Dysfunction (MGD) & Dry Eye Disease (DED)

The 3 layers of your tear film:

- 1) inner **mucus layer** 2) middle **aqueous water layer** wets the cornea & 3) outer **oil layer** to prevent tear evaporation

DED: more than **90% of patients** have it. Your eyes will feel **tire, dry, gritty, burning, blurry or watery** if any of these layers is abnormal. It is a **chronic progressive disease**. Like periodontal gum disease, you **cannot cure DED** & it will get worse without treatment. **DED** causes tear sodium hyper osmolarity and tear film instability, leading to progressive chronic inflammation & tissue damage.

Meibomian Gland Dysfunction (MGD), blocked meibomian glands & abnormal oil secretion creates an unstable tear film with excessive evaporation, eventually functional & structural damage, including MG drop out. **A New paradigm:** Multiple studies have shown that the major cause of DED is **NOT aqueous (water) but oil layer deficiency**. About **86%** of dry eye disease is **MGD induced evaporative DED**. In other words, **8 out of 10 patients**, especially those involved in **prolonged visual tasks**, will have this condition.

Diagnostic Testing: Tear Lab Osmolarity Test, Lipiview & Lipiview DMI (Dynamic Meibomian Gland Imaging)

- Tear Lab** quantitatively monitors tear chemistry. Your tears will be hyper osmotic in DED due to increased sodium concentration.
- Lipiview** measures tear lipid layer thickness & eye blinking pattern.
- Lipiview DMI** documents meibomian gland deterioration & drop-out.

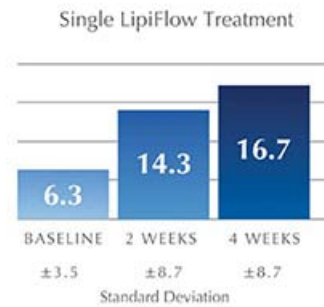
Treatment Protocol:

1. Lipiflow MGD Treatment

Chronic MGD leads to progressive meibomian gland drop out & lost of function.

LipiFlow® Thermal Pulsation Treatment for MGD is the only **FDA approved procedure that restores MG function**. It utilizes controlled vector heat pulsations to flush out & unclog congested meibomian glands, allowing them to resume its own natural production of lipid oils. Clinical trials of **LipiFlow®** have shown 87% of treated patients have significant improvements in both **meibomian gland structure, function and patient dry eye symptoms that last 1 to 2 years**.

Like periodontal disease, **MGD_DED is chronic & reoccurs**. Any treatment attempts to control but do **not cure MGD_DED** progression. Earlier treatment will have the best clinical success because MG drop out is not reversible.



Palliative Symptom Relief Protocol:

These procedures **target symptom relief in the short-term** but does not cure the root cause of most DED, which is MGD.

1. Hot Compresses

Help opens clogged meibomian glands, softens the oils, allowing the oil to flow to prevent tear evaporation.

Bruder Medical Hot Compress: **Microwave for 20-25 seconds** to heat up compress

Heat eyelids for 20 minutes (reheat every 5 min) _____ times per day for _____ weeks

After that, **repeat daily** _____ times per day to maintain eyelid health.



2. Eye Lid Scrubs

Clean debris & bacteria that collect on the eyelashes.

Clean Eye Lids with _____ Lid Wipes _____ times per day for _____ weeks

Rinse & Wipe Lids with warm water after. _____ times per day to maintain eyelid health.

3. Anti-Inflammatory Drops

Reduces inflammation of cornea for acute stages of DED. Need you doctor to monitor treatment effectiveness & rare eye pressure rises.

_____ times per day for _____ weeks

_____ times per day for _____ weeks



4. Artificial Tears

Supplements our natural tear production. *Non-preserved is best.* (wait 15 minutes after using anti-inflammatory drop)



_____ times per day for _____ weeks & as needed

5. Omega 3 Fish Oil Vitamin Supplements Daily

Help improve **MGD** & improve **cornea cell** health. Therapeutic effect takes about 3 to 9 months. **DHA and EPA** from oily fish (*sardines, anchovies & mackerel*) are the most useful. Our body better absorb omega 3 in its natural **triglyceride** form than **ethyl-ester** form

Systane Omega 3 Vitamin _____ tablets per day (about _____ mg per day)

6. Other Treatments

8 cups of water daily. Some may need **oral antibiotics, Restasis** anti-inflammatory tears & **punctal plugs**.

To learn more about **MGD & DED:** www.allaboutdryeye.com & www.lipiflow.com
YouTube / Facebook search: "Dr Albert Ng 2010 Eye Care Center"