The role of Meibomian Glands in Dry Eye Disease

What are Meibomian Glands?
- Small oil glands that line the upper and lower eyelids.
- Express oil onto the ocular surface when squeezed by the lids during blinking.
- The oil, known as Meibum has two functions:
  1) Increase the lubricity of the tear film.
  2) Slow evaporation of the tear film from the ocular surface.
- Issues with the Meibomian Glands have been estimated to be responsible for up to 86% of dry eye symptoms.

What are the symptoms of Meibomian Gland Dysfunction?
- Similar to Dry Eye Symptoms:
  - Crusting, itching, gritty and / or burning sensation.
  - Tearing, watering or vision that seems to go in and out of focus.
  - Foreign body sensation (e.g. feeling like an eye lash is in your eye).
  - Feeling like the eyes tire easily doing things like reading or watching TV.

Why does Meibomian Gland Dysfunction Occur?
- Clogged gland openings prevents oil from reaching ocular surface → dry eye symptoms.
  - Also causes dilated / tortuous gland structure → loss of gland function (reversible).
- Prolonged obstruction causes gland atrophy → permanent loss of gland function.

How do we diagnose Meibomian Gland Dysfunction?
- Directly visualize and assess glands using infrared imaging devices, such as the Meibox Meibomian Gland imaging system.
  - Why? Human eyes cannot see in the light spectrum needed to fully visualize glands.
  - Compare against patient history, tear osmolarity, and physician exam.

What are the treatments for Meibomian Gland Dysfunction?
- Mild to moderate MGD:
  - 1) At home heat therapy; 5-10 min heat at 102°F using a reusable heated mask.
  - 2) Use of MGD artificial tears (e.g. Retaine).
  - 3) If at home heat therapy ineffective, in office heated manual expression by doctor.
- Advanced MGD:
  - 1) All the above and masks / sealant goggles.
  - 2) Warm air humidifier.