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New Insights Into the Lipid Layer of the Tear Film and Meibomian Glands.

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Abstract

Meibomian glands secrete lipids (meibum) that form the surface lipid layer of the tear film and thereby prevent excessive evaporation of tear fluid. Meibomian gland dysfunction is a major cause of evaporative dry eye, which is more prevalent than aqueous-deficient dry eye. Noninvasive meibography with infrared light and an infrared charge-coupled device camera can detect morphological changes of meibomian glands in both upper and lower eyelids, whereas tear interferometry allows qualitative and quantitative evaluations of the lipid layer of the tear film. Such assessment of meibomian gland morphology provides clinical information that contributes to the diagnosis of evaporative dry eye, whereas that of the lipid layer of the tear film allows the monitoring of meibomian gland function. In addition, the balance between the lipid and aqueous layers of the tear film revealed by tear interferometry has provided both support for the operation of a compensatory system that maintains tear film homeostasis as well as insight into the pathophysiology of dry eye.