ESSAY ON DONALD R. KORB, O.D.

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With all the current advancements in dry eye disease diagnosis and treatment, it is important to acknowledge the pioneering work of Donald R. Korb, O.D. A prominent figure in optometry. Dr. Korb has greatly advanced the understanding and treatment of dry eye disease. His groundbreaking research on Meibomian gland dysfunction (MGD) has transformed how eye care professionals approach diagnosing and treating this widespread condition, ultimately enhancing the lives of millions worldwide.

Dr. Korb's interest in dry eye disease began in the 1970s when he observed that many contact lens wearers experienced discomfort due to dryness. Recognizing the importance of the Meibomian glands, which are responsible for producing the oily layer of the tear film, he focused his research on understanding their role in dry eye disease. Through meticulous observations and innovative studies, Dr. Korb demonstrated that dysfunction of these glands plays a crucial role in the development of evaporative dry eye and was the first to describe MGD in 1980.[1]

Dr. Korb's work has not only advanced the scientific understanding of dry eye disease but has also led to significant innovations in its treatment. One of Dr. Korb's most significant contributions was the development of the Meibomian gland evaluator (MGE), TearScience™ Inc., a simple yet effective tool used to assess the function of the Meibomian glands. This device allowed clinicians to diagnose MGD quickly and accurately by comparing gland secretion scores at different patient visits, tracking progression and treatment response both before and after treatment interventions leading to more targeted and effective treatments for patients. TearScience is now a part of Johnson & Johnson Vision.[2] Additionally, Dr. Korb's research helped to explain the complex interactions between the various components of the tear film, further advancing our current understanding of dry eye disease.

Dr. Korb was instrumental in the development of LipiFlow®, a device that uses thermal pulsation to treat MGD by clearing blocked Meibomian glands. LipiFlow applies safe and effective heat and pressure to the inner eyelid, near the Meibomian glands, using a unique heating element. The device carefully regulates the heat to prevent exceeding safe temperatures, ensuring that it reaches the meibum melting point to liquefy it without risks. Redundant sensors monitor and control the heat, contributing to LipiFlow's excellent safety record with no serious adverse events reported in pivotal trials.[3] This groundbreaking technology has revolutionized the management of MGD and has significantly improved outcomes for patients with evaporative dry eye.

Furthermore, Dr. Korb's research has highlighted the importance of a comprehensive approach to dry eye management, emphasizing the need to address both the underlying causes of the condition and the patient's symptoms.[1] His work has paved the way for a more personalized and effective approach to treating dry eye disease, improving the quality of life for countless individuals suffering from this chronic condition.

Additionally, he co-founded Corneal Sciences, Inc., (CSI) a company that dedicated over a decade to developing the initial thin membrane hydrogel (soft) contact lens. CSI were the first available ultrathin hydrogel contact lenses, made so to optimize ocular comfort and to adjust the lenses oxygen transmissibility to the physiological requirements of the cornea during daily wear. Dr. Korb provided the background and testing that ultimately resulted in this breakthrough development.[4] This innovative design revolutionized the field of soft lenses, setting new standards for thickness and form. Today, modern soft-lens disposables adhere to the guidelines and patents established by CSI, showcasing the lasting impact of its pioneering work in this area.

Dr. Korb has authored over 100 publications in refereed scientific journals. He has been awarded 50 U.S. patents. Moreover, he and his team were the first to identify several significant ocular conditions including "3 to 9 staining" in 1970, giant papillary conjunctivitis in 1977, corneal scarring associated with keratoconus in 1982, and lid wiper epitheliopathy in 2005.[1]

Anthony Adams, O.D., PhD, dean emeritus and professor of optometry and vision science, University of California, Berkeley provided a thorough and accurate description of Dr. Korb saying, "I think of Donald Korb as the model of the inquiring entrepreneurial practice optometrist who is always the innovative clinician researcher within his practice. He arguably has been responsible for more contact lens-related discovery and investigation of the basic mechanisms of dry eye and contact lenses over the years than any other O.D. in our profession. He has earned the reputation as one of a handful of the very best contact lens practitioners in the world and has been active in presenting his discoveries and observations for decades."[4]

Dr. Korb's innovative work in the field of dry eye disease and groundbreaking discoveries in the field of soft contact lenses had a profound impact on the way we understand, diagnose, and treat many ocular surface conditions. His contributions have not only advanced the field of optometry but have also improved the lives of millions of individuals worldwide who suffer from dry eye disease. Dr. Korb's dedication to advancing the field of optometry serves as an inspiration to future generations of researchers and clinicians, reminding us of the importance of curiosity, perseverance, and innovation in the pursuit of knowledge.

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