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The effects of the quantum on dry eye due to meibomian gland dysfunction

Rolando Toyos, Dustin C Briscoe and **Melissa Morrison Toyos**
Medical Director and Founder of Toyos Clinic, USA

Purpose: To present data on the effectiveness of a red light technology called the Quantum (or "Q") in treating evaporative dry eye due to meibomian gland dysfunction (MGD). The Q was developed as an at home therapy to directly affect the meibomian gland secretions in order to improve the condition.

Methods: This prospective study measured tear break up time (TBUT) with the Oculus Keratograph before and after treatment with the Q. Patients were selected based on dry eye symptoms, TBUT less than 10 sec, and clinical observation of MGD. Patients were instructed to place the Q over closed eyes for 3 minutes on each eye at least twice a week. Patients could not use the Q more than once a day. Fifty-two patients were included in the study and treatment times ranged from 1 to 12 months.

Results: TBUT data before and after treatment was achieved on 81 eyes. The mean TBUT before treatment was 3.62 sec with a standard deviation of 2.05. Values ranged from 0.9 sec to 8.54 sec. Mean TBUT post treatment was 5.87 sec with a standard deviation of 2.95. Values ranged from 1.5 sec to 16.19 sec. T-test results show the difference to be statistically significant ($P<0.001$). No statistical significance was found between right eyes (N=41) and left eyes (N=40) before treatment ($P=0.53$) or after treatment ($P=0.75$).

Conclusion: On average, at home, use of the Q shows a statistically significant improvement in TBUT. This prototype has been developed over several years and once ready for public distribution may be dispensed by physicians in treating evaporative dry eye due to MGD as an alternative to oral and topical medications.

Biography

Rolando Toyos is the Medical Director and Founder of Toyos Clinic. He received his Bachelor's degree and Master's degree from the University of California, Berkeley and Stanford University, respectively. He completed his Medical degree from the University of Illinois. He is Board Certified in Ophthalmology and specialized in cataract surgery, LASIK, glaucoma, and dry eye. He is one of the most experienced surgeons in the country, completing over 35,000 cataract surgeries, 20,000 glaucoma laser treatments and 25,000 LASIK surgeries. He was the first surgeon to combine Laser Cataract Surgery with AquaLase creating a new Laser for Cataract Surgery L4C procedure. He holds various patents including one for a light based technology used for the treatment of dry eye. He is the inventor of the procedure Intense Pulse Light (IPL) for dry eye disease.

rostar80@gmail.com

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