

Bachelorthesis / Masterthesis

Investigation of short-term choroidal thickness changes in response to defined LED light exposure

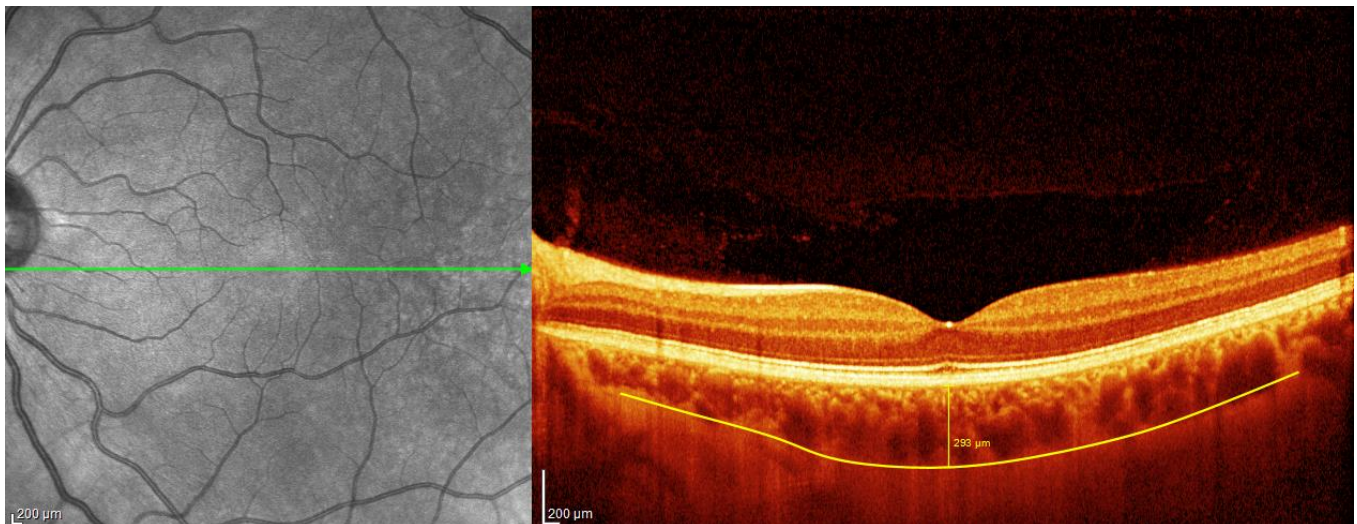


TECHNISCHE
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Adaptive Lichttechnische Systeme
und Visuelle Verarbeitung

Recent studies suggest that the choroid, the highly vascularized layer supplying the retinal photoreceptors, responds to light exposure with measurable thickness changes within minutes. These variations are considered a potential biomarker for the regulation of eye growth and are of particular relevance given the increasing global myopia prevalence. While the protective effect of natural outdoor light on myopia development is well documented, the influence of artificial LED light with defined spectral and temporal characteristics on choroidal response remains insufficiently understood. In a preceding thesis, initial measurements were conducted using a multi-channel LED stimulation system provided by the laboratory. Building on this work and in cooperation with the Department of Ophthalmology at Goethe University Frankfurt, the objective of this thesis is to determine whether a statistically significant choroidal thickness change occurs in response to defined LED light exposure. As part of the thesis, a literature review will be conducted to consolidate the current state of research. The existing stimulation setup will be evaluated and, if necessary, refined for use in a clinical environment. The core of the work consists of a controlled study at the university clinic, in which choroidal thickness is measured before and after defined light exposure protocols, and statistically analyzed to provide reliable evidence on short-term choroidal thickness modulation.



Are you interested? Please send us an informative e-mail with information about your specialist knowledge, semester and specialization. If you have a dedicated and independent way of working, we are looking for active participation in a publication.

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