

Publication

Dynamic retinal vessel response to flicker in obesity: A methodological approach

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 4376359**Author(s)** Kotliar, Konstantin E.; Lanzl, Ines M.; Schmidt-Trucksäss, Arno; Sitnikova, Diana; Ali, Mohammad; Blume, Katharina; Halle, Martin; Hanssen, Henner**Author(s) at UniBasel** [Hanssen, Henner](#) ; [Schmidt-Trucksäss, Arno](#) ;**Year** 2011**Title** Dynamic retinal vessel response to flicker in obesity: A methodological approach**Journal** Microvascular research**Volume** 81**Number** 1**Pages / Article-Number** 123-8**Keywords** Obesity, Microcirculation, Retinal vessel reactivity, Flicker stimulation**Mesh terms** Adult; Arterioles, radiation effects; Blood Pressure, physiology; Body Mass Index; Female; Humans; Light; Male; Middle Aged; Obesity, physiopathology; Photostimulation, methods; Retinal Artery, pathology; Retinal Vein, pathology; Retinal Vessels, radiation effects; Vasodilation, radiation effects; Venules, radiation effects; Waist Circumference, physiology

Obesity and related metabolic disorders affect vascular endothelial function. The use of the Dynamic Vessel Analyzer (DVA) represents a modern methodological approach to analyze vascular function in the retinal microcirculation. Whether the dynamic reaction to flicker stimulation in retinal vessels is altered in obese subjects is investigated. Retinal vessel reactions to flicker stimulation were examined by DVA in 46 obese individuals (49.6±10.0years) and 46 age- and gender-matched healthy controls. The clinical examination included anthropometry, blood pressure measurements and blood sampling. Mean maximal arteriolar dilation in response to flicker was reduced in the obese group (3.2±1.8%) compared to controls (4.1±2.0%, $p<0.05$) and the time to maximal arteriolar dilation was prolonged (18.0±9.4s vs. 14.6±3.8s, $p=0.03$). In addition, mean maximal venular dilation was reduced in obese subjects (3.9±1.7% vs. 4.7±1.8%, $p<0.05$). Among the microvascular parameters, the most significant correlation with waist circumference was found for the "area under the reaction curve 50-80s after stimulation" in arterioles ($r=-0.40$; $p<0.001$). Functional retinal arteriolar reactivity to flicker stimulation differs between obese and healthy lean subjects. Time course analysis of retinal vessel response and its quantitative parameters can comprehensively characterize alterations of retinal vessel reactivity in metabolic disease.

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