

## **17.Spectrometric measurements in the anterior eye vasculature of the albino rabbit--a study with the EMPHO I.**

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Intracapillary haemoglobin oxygenation (oxygen saturation) and haemoglobin concentration (corresponding with blood volume) were measured in different regions of the albino rabbit anterior eye segment using the Erlangen micro-lightguide spectrophotometer (EMPHO I). The tip of the microlightguide (active diameter 210 microns, cover diameter 0.5 mm) was placed in the vitreous by a goniometric mounting and controlled by a micromanipulator. After stepwise elevation of intraocular pressure (IOP) the haemoglobin oxygenation decreased slightly in the iris at an IOP-level of 60 mmHg, whereas in the three regions of the ciliary processes and in the peripheral choroid haemoglobin oxygenation did not decrease until values of 80 mmHg were applied. In contrast, haemoglobin concentration decreases when the IOP increases in all regions except in the pars plana where the haemoglobin concentration increased at 40 and 60 mmHg. The most pronounced reactive hyperaemia was found in the major ciliary processes. Quite passive changes of haemoglobin concentration were seen in the peripheral choroid. Effective regulatory mechanisms must exist which result in IOP-independent (20-60 mmHg) haemoglobin oxygenation, whereas pronounced changes in intracapillary haemoglobin concentration were observed. The decay of both parameters at IOP 80 mmHg is indicative of an exhaustion of their regulatory capacity. Epinephrine topically applied onto the conjunctival sac or injected into the common carotid artery led to a short-term decrease of haemoglobin concentration and, later, a hyperaemic response. A short-term haemoglobin deoxygenation was found especially in the major ciliary processes.

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