I congratulate the authors for this contribution to clinically applied ocular physiology. This field has been evolving rapidly during the past two decades, and this book offers a unique personal perspective on the numerous advances made for recording ocular blood flow and how we can interpret these findings. Several interesting books have been published in the area of ocular blood flow, but these are mainly compendia of research studies and reports made by leaders in the area and as such have targeted individuals or research groups with focused interest and capability in blood flow procedures. The present atlas is intended for a much wider readership.

The Atlas of Ocular Blood Flow by Harris et al. is divided into four chapters. The first chapter offers a well-presented overview of the vascular anatomy of the eye. It presents the pertinent information that a clinician or a student may need to quickly review the vascular systems of the eye. The authors provide new and beautiful illustrations of the intraocular circulation. The sequence of illustrations with shaded colors effectively reveals the structural relationship between the retina and its dual vasculature. However, the reason for introducing Latin and English nomenclature to identify well-known parts of the eye remains unclear.

The addition of histologic slides of specific neurovascular anatomy at the end of the first chapter nicely complements the gross anatomy and further clarifies what systems are being measured by blood flow technology.

The second chapter describes the key technologies used to measure blood flow in the principal vessels and vascular beds of the eye. This chapter is the most detailed in the book. Many new technologies have evolved to measure blood flow; one of the principal objectives of this book was to present them, and this has been done effectively. This chapter is divided into main sections labeled pulsatility measurement devices, laser devices, angiography, laser Doppler flowmetry, color Doppler imaging, and retinal vessel analyzer. Numerous photographs effectively reveal the principles described in the text and help the average reader better understand them. Although it is clear that knowledgeable researchers in the areas presented wrote this section of the book, the amount of space dedicated to elaborate each technique differs widely. Whereas many sections are detailed, others are described almost too briefly with few or no accompanying illustrations, such as the section on oculo-oscillodynamometry or the retinal vessel analyzer. The consequence is that the reader cannot get a clear understanding of how those instruments measure blood flow or develop an appreciation of the full potential of the technique. The section on laser Doppler flowmetry gives the false impression that it is an outdated technology. The Doppler principle is an integral part of the most recent blood flow measurement systems available from the ophthalmic market.

Chapter 3 presents clinical data on ocular blood flow measurements in selected ocular diseases. The text in this section covers mainly areas such as age-related macular degeneration, central serous retinopathy, diabetic retinopathy, and human immunodeficiency virus. Many color and black and white photographs highlighting important clinical vascular findings in these diseases and several others, such as presumed ocular histoplasmosis syndrome, hypertensive retinopathy, central retinal vein occlusion, and glaucoma, complement this section.

Finally, Chapter 4 presents a brief overview of future techniques to measure ocular blood flow. This chapter presents an overview of four techniques described as neuroretinal rim blood flow evaluation by a unique combination of the Heidelberg retina tomograph and flowmeter, laser speckle flowmetry for the measurement of retinal and optic nerve head blood flow, digital spectral retinal oximetry for measuring oxygen saturation noninvasively in the retina, and magnetic resonance oximetry, a technique offering an index of innerretinal oxygenation by measuring oxygenation of the posterior vitreous. All of these techniques require further development before routine clinical use, as pointed out by the authors in the introduction to this chapter.

Overall this book provides an interesting exposé of some of the existing techniques and a tantalizing look into future techniques to measure ocular blood flow. Despite the favored presentation of some techniques over others, I believe this atlas is a useful and timely addition to the vision literature. I recommend this book as a good orienting text for any researcher, clinician, or student in the area of ocular blood flow measurement and for those who would like to have a concise overview of the various techniques with their clinical applications.

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