CHAPTER 1
INTRODUCTION

WHY READ THIS BOOK

The first Visual Field Digest was published in 1983 and has been used as a guide to perimetry and the Octopus perimeter by thousands of Octopus users ever since. This 7th edition is a slightly revised version of the 6th edition published in 2016. It contains updates on features developed since then (e.g., Grayscale of Corrected Comparisons) and updated references, but maintains the strong emphasis on the clinical application of perimetry. All key concepts are illustrated to facilitate understanding. This allows any reader to easily and quickly grasp the key information.

WHO SHOULD READ THIS BOOK

This book has been written for any current or future eye care professionals who perform or interpret visual field examinations as part of their diagnostic routine. This group not only includes clinicians in optometry and ophthalmology, but also visual field examiners who administer perimetric tests to patients.

A wide range of users will find useful information in this book. It has been created for students with limited knowledge in perimetry and therefore explains fundamentals in perimetry in an easy to understand manner. In addition, it has been composed for experienced eye care professionals and provides many practical tips and tricks to get even more out of their perimetric testing.

And last, it has been written for researchers and expert users of perimetry who are interested in the scientific background of perimetry and the Octopus perimeter.

While this book provides in-depth information about the design and use of the Octopus perimeters, it is also very useful reading for users of other perimeter brands, as the fundamental concepts of perimetry are comparable among perimeter brands and are illustrated in this book in an easy to understand way.
HOW TO READ THIS BOOK

To cater to the needs of readers with different experience levels as well as different learning styles, this book can be read in several ways.

For students and inexperienced users in perimetry, this book is structured in a way that, when read from beginning to end, it allows the content to be followed with minimal prior knowledge. For this reason, the book starts with fundamentals of perimetry such as, what the test does, how to administer the test and how to choose test parameters, before moving on to visual field interpretation and special topics like kinetic perimetry or function-specific perimetry. To tie the learning to real clinical situations, this book concludes with a case presentation section.

For more experienced users, individual chapters or sections in this book can also be read individually, as each chapter is structured in a way that it is self-explanatory, or if not, a clear reference to another chapter is given.

To find and understand key information quickly, all essential concepts are graphically illustrated to support a quick understanding of the concept. With more than 200 graphics available in this book, it is thus possible to grasp key information just by looking at the graphics and reading the captions.

If several choices or methods are compared, overview tables are provided for quick comparison between them. Sometimes, in-depth expert information
is of interest to some readers, but not crucial for good clinical practice. Such information is provided in a light blue box and can be read for interest but does not interfere with the flow of the book. The elements described above are shown in FIG 1-1.

CONTENT AT A GLANCE

In this section, a brief overview of the content of each chapter is presented.

CHAPTER 2 – WHAT IS PERIMETRY?

Chapter 2 provides essential information on perimetry as a technology which is valid for any perimeter brand. It shows how and why visual field testing is performed, provides a general introduction on how the data is displayed, and highlights common challenges associated with visual field testing.

CHAPTER 3 – HOW TO PERFORM PERIMETRY YOU CAN TRUST

Chapter 3 focuses on information relevant to visual field technicians and those people instructing them. It stresses the importance of the visual field technician in obtaining trustworthy visual field results and explains the essential steps of visual field testing. In a second part, common pitfalls in perimetry such as learning effects, fatigue effects, set-up errors and artifacts are presented, along with the procedures for avoiding these problems. How to detect whether a visual field is trustworthy is later presented in Chapter 8.

CHAPTER 4 – KEY EXAMINATION PARAMETERS

Chapter 4 focuses on fixed examination parameters and the key patient-specific parameters a clinician needs to decide about. Key questions to be answered regarding patient-specific test parameters are the following: 1) Static or kinetic perimetry? 2) Which stimulus type? 3) Which test pattern? 4) Which strategy? The idea is to provide an introduction to what these parameters are and how to make appropriate testing decisions. The key parameters will be described in depth in subsequent chapters.
CHAPTER 5 – SELECTING A TEST PATTERN

Chapter 5 presents all available test patterns on Octopus perimeters. The chapter is organized according to pathology or test (i.e., it starts with glaucoma, and continues with neuro-ophthalmic and retinal diseases). Performance evaluations such as driving and visual disability tests as well as ptosis test patterns are described towards the end of the chapter.

CHAPTER 6 – SELECTING A TEST STRATEGY

Chapter 6 presents all available test strategies on Octopus perimeters and shows that there is always a trade-off between test duration and accuracy in order to guide the clinician in selecting one of the various quantitative or qualitative test strategies.

CHAPTER 7 – OVERVIEW OF VISUAL FIELD REPRESENTATIONS

Chapter 7 introduces all visual field representations available on Octopus perimeters and shows their respective relationships. Further, each representation is explained in detail, including a clear definition of all the symbols used in each representation and further information about the design of the representation. For clinicians, this chapter can serve as a glossary.

CHAPTER 8 – CLINICAL INTERPRETATION OF A VISUAL FIELD

Chapter 8 is a key chapter in this book, guiding clinicians through visual field interpretation in an easy to follow workflow. It starts by showing six visual field examples and their respective representations across all stages of disease to provide a graphical reference on what visual field results look like in a given situation. The same cases are also provided as a poster that can be removed from the book as a reference in daily clinical practice. Further, this chapter highlights those representations most useful in answering specific clinical questions, and shows how to interpret these representations in clinical practice. Clinical examples are frequently provided to illustrate the benefits of each respective representation in a certain clinical situation.

CHAPTER 9 – INTERPRETATION OF VISUAL FIELD PROGRESSION

Chapter 9 focuses on the use of EyeSuite Progression Analysis to assess visual field progression. It explains the fundamentals of the trend analysis approach used to determine whether a visual field series is stable or not. Further, it shows the benefits and interpretation of the various trend representations, including Global Trend
Analysis, Cluster Trend Analysis and Polar Trend Analysis, which not only allow it to be determined whether a visual field series is progressing and at which rate, but also whether progression is diffuse or local, the area of the visual field in which progression is occurring and, in case of glaucoma, where to look for a spatial relationship with structural results.

CHAPTER 10 – NON-CONVENTIONAL PERIMETRY

Chapter 10 focuses on other stimulus types besides the standard Goldmann size III used in perimetry. The chapter starts with function-specific perimetry designed for early glaucoma detection and provides background information about Pulsar, SWAP and Flicker perimetry. The chapter then concludes with the benefits of using a larger stimulus V for low-vision patients.

CHAPTER 11 – KINETIC PERIMETRY

Chapter 11 focuses on kinetic perimetry. Similar to the static perimetry chapter, the basic examination parameters and when to choose each one are discussed. General approaches on how to perform kinetic perimetry are presented and illustrated in a real clinical case. Towards the end, the benefits of different levels of automation are also discussed.

CHAPTER 12 – TRANSITIONING TO A DIFFERENT PERIMETER MODEL

Chapter 12 focuses on specific challenges associated with transitioning from one perimeter model to another. It focuses both on the transition to a different Octopus model, as well as the transition from a Humphrey to an Octopus model. It highlights the importance of normative databases for minimizing the differences between perimeter models and shows the impact of patient-related fluctuation. To support a smooth transition from an HFA perimeter to an Octopus perimeter, guidance in relation to known HFA perimeter terminologies is provided on the selection of test parameters as well as the interpretation of the perimetric result.

CHAPTER 13 – CLINICAL CASES

To support the interpretation of visual field results in clinical practice, 23 clinical cases are presented, showing typical visual fields of patients with glaucoma, neuro-ophthalmic disease and retinal disease. All these cases contain key patient information, as well as visual field results and other relevant diagnostic results such as IOP, fundus images, OCT scans and MRIs.