Multifocal IOLs
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Editor
Frank Joseph Goes
Medical Director
Goes Eye Centre, W Klooslaan 6
B2050 Antwerp
Belgium

Honorary Co-Editors
H Burkhard Dick
Professor and Chairman, Director
Centre for Vision Science
Ruhr University Eye Hospital
In der Schornau 23 - 25
44892 Bochum
Germany

I Howard Fine
Clinical Professor of Ophthalmology
Oregon Health and Science University
Chief Consultant
Drs Fine, Hoffman and Packer, LIC
1550 - Oak St, Ste 5, Eugene, OR 97401, USA

Michael C Knorz
Medical Faculty Mannheim of the University of Heidelberg
Professor of Ophthalmology
Theodor Kutzer Ufer 1-3, 68167 Mannheim, Germany

Richard L Lindstrom
Adjunct Professor Emeritus, University of Minnesota Dept. of Ophthalmology
Founder and Attending Surgeon, Minnesota Eye Consultants
2811 Westwood Road, Wayzata, Minn. 55301, USA
This book is dedicated
to
my wife Rita who is my guide for the important decisions
in my professional career

— Dr Frank Joseph Goes

It is a great honor to serve as one of the honorary co-editors for this extraordinary book. Every author brings their extensive experience with multifocal IOLs to their contribution, making it a definitive work on the subject. With the increasingly important role that multifocal IOLs play in our practices, I am sure that you will find this book to be an excellent reference tool on the subject.

— H. Burkhard Dick

This book is dedicated
to
our patients who honour us by entrusting their vision to our surgical care, and who stimulate us to look for better techniques, technologies, and devices to further enhance our results

— Dr I Howard Fine

This book is dedicated
to
all my teachers who helped me to learn and refine the art of ophthalmic surgery

— Dr Michael C Knorz

I dedicated my small contribution to this book to my wife, Jaci Lindstrom, for her support and guidance.

— Richard L Lindstrom
Contributors

Alois K Dexl MD MSc
Assistant, Prim Univ
University Eye Clinic
Paracelsus Medical University Salzburg, Austria
Universitätsklinikum, St.Johanns-Spital
Müllner Hauptstrasse 48
A 5020 Salzburg
Phone: +43 662 4482 - 5788
Fax: +43 662 4482 - 3703
e-mail: a.dexl@salk.at

Angel Lopez-Castro MD
Laservision Madrid
Jose Ortega Y Gasset 56-dupl. Madrid 28006
Ph: +34914448230
Fax: +34913093289
e-mail: alopez@laservision.es

Ashok Garg MS PhD
Garg Eye Institute and Research Centre
Chairman and Medical Director
235, Model Town, Dabra Chowk
Hisar - 125005, (India)
Ph: 9896025180
91-1662-250305
e-mail: drashok_garg@yahoo.com

Brad Soper
Eyemaginations, Inc.
600 Washington Avenue, Suite 100
Towson, MD 21204, USA

Burkhard H Dick MD
Professor and Chairman, Director
Center for Vision Science
Ruhr University Eye Hospital
In der Schornau 23 - 25, 44892 Bochum
Germany
Phone: +49-234-299-3101
Fax: +49-234-299-3109
burkhard.dick@kk-bochum.de

Carlos Vergés MD PhD
Professor and Head Department of
Ophthalmology, CIMA
Universidad Politécnica de Cataluña, Spain

Cyres K Mehta MD MS
Mehta International Eye Institute
Sea Side, 147 Shahid Bhagat Singh Road
Colaba, Mumbai 400005, Maharashtra
Ph +91 22 22151303
Fax: +91 22 22150433
e-mail: admin@mehtaeyeinstitute.com
website http://www.mehtaeyeinstitute.com

David R Hardten MD
Minnesota Eye Consultants
Director of Fellowships and Refractive Surgery
710 E. 24th Street, Suite 100
Minneapolis, MN  55404
Ph: 612-813-3632
Fax: 612-813-3658
drhardten@mneye.com

Ekkehard Fabian Prof. Dr
AugenCentrum Rosenheim
83022 Rosenheim/Germany, Bahnhofstrasse 12
Ph: 0049 8031 38950-0
Fax: 0049 8031 38950-38
e-mail: Prof.Fabian@AugenCentrum.de

Elizabeth A Davis MD FACS
Frank Joseph Goes
W Klooslaan 6, B2050 Antwerp, Belgium
frank@goes.be
Tel:+32.3.2193925
Fax +32.3.2196667
www.goes.be

GU Auffarth MD
Vice-Chairman, Chief Surgeon
Dept. of Ophthalmology
University of Heidelberg, INF 400, 69120 Heidelberg
Tel:+49-6221-5636631
Fax:+49-6221-561726
Head:
International Vision Correction Research Centre
(IVCRC)
e-mail:ga@uni-hd.de
www.lasik-hd.de
Oliver Stachs PhD
University Eye Clinic Rostock
Doberaner Strasße 140, D-18057 Rostock, Germany
Ph: +49 0381-4948566
Fax: +49 0381-4948502
e-mail: oliver.stachs@med.uni-rostock.de

Olivier Roche MD
Hôpital Necker Enfants malades - APHP
Service d’ophtalmologie
149 rue de Sèvres, F-75013 PARIS
Ph: +33 (1) 44 49 45 03
Fax: +33 (1) 45 65 47 33
e-mail: Olivier.roche@nck.aphp.fr

Richard L Lindstrom MD
Adjunct Professor Emeritus, University of Minnesota
Dept. of Ophthalmology
Founder and Attending Surgeon
Minnesota Eye Consultants
2811 Westwood Road, Wayzata, Minn. 55301, USA
Ph: 952-567-6051
Fax: NR952-567-6182
e-mail: rllindstrom@mneye.com

Rudolf F Guthoff Professor MD
University Eye Clinic Rostock
Doberaner Strasse 140, D-18057 Rostock
Germany
Ph: +49 0381-4948501
Fax: +49 0381-4948502
e-mail: rudolf.guthoff@med.uni-rostock.de

Steven A Koopmans MD, PhD
Department of Ophthalmology, University Medical Center Groningen,
University of Groningen
POBox 30001, 9700 RB Groningen, The Netherlands
Ph: +31503612510
Fax: +31503611709
e-mail: s.a.koopmans@ohk.umcg.nl

Theo van Kooten
Department of Biomedical Engineering
University Medical Center Groningen
University of Groningen, P.O. Box 30001
9700 RB Groningen
t.g.van.kooten@med.umcg.nl

Thom Terwee
Applied Research
Advanced Medical Optics Groningen BV
Van Swietenlaan 5, 9728 NX Groningen
thom.terwee@amo-inc.com

Uday Devgan MD FACS
Maloney Vision Institute
Chief of Ophthalmology
Olive View-UCLA Medical Center
10921 Wilshire Blvd, Suite 900
Los Angeles, California 90024, USA
Ph: 1-310-208-3937
Fax: 1-310-208-0169
e-mail: DrDevgan@MaloneyVision.com

Ulrich Mester MD
Knappschaft’s Hospital
Department of Ophthalmology
An der Klinik 10, 66280, Sulzbach/Saar
Germany
Ph: 0049 (0) 6897 5741118
Fax: 0049 (0) 6897 5742139
e-mail: sek-augen@kksulzbach.de

Werner W Hütz MD
Augenklinik Bad Hersfeld
Klinikum Bad Hersfeld GmbH
36251 Bad Hersfeld Seilerweg 29, Germany
0049 6621 881468
0049 6621 881477
e-mail: Werner.huetz@klinikum-hef.de
WWW;KLINIKUM-hef.de

Wolfgang Haigis MS PhD
Assistant Professor
University Eye Clinic, Wuerzburg
11, Josef-Schneiderstrasse
D-97080 Wuerzburg, Germany
Ph: +49 931 201 20640
Fax: +49 931 201 20454
e-mail: w.haigis@augenklinik.uni-wuerzburg.de

Zenobia K Mehta OD FAO
Mehta International Eye Institute
Sea Side, 147 Shahid Bhagat Singh Road, Colaba
Mumbai - 400005, India
Multifocal IOLs have been in the market since late 1980s, when the first diffractive and refractive IOLs were introduced. At that time, cataract surgery was mostly performed without capsulorhexis and with ECCE instead of phacoemulsification. The early multifocals were made from PMMA and required 6-7 mm incisions. The initial results were promising but there were also a lot of problems—mostly due to these surgical techniques.

Since that time cataract surgery and MIOL implantation have changed dramatically. Cataract surgery had evolved in a quite safe procedure called refractive lens exchange. The different MIOLs have undergone extensive research and fine-tuning. All MIOLs are foldable, aspherical and well manufactured. More and more surgeons implant multifocal IOLs in their patients. Scientific knowledge has been accumulated in that how to select patients for IOL implantation (see several chapters in this book) and how to calculate the IOLs (Haigis).

Nowadays, multifocal IOLs are implanted in almost every age group. Several chapters in this book will be referred to in this regard. Different designs and concepts (diffractive/refractive) are offered by the various companies. The combination of different MIOLs with different working principles (Mix & Match, Custom/Match) is at the moment part of the individualization of lens application. Multifocals have clear advantages over accommodative IOLs. The distant and near focus is fixed and the patient knows what he can expect.

Even individual custom made implants with multifocal and toric components are now available and soon completely accessible. Multifocals are now really top products with more and more extra features. Patient selection still remains the main issue for successful result. This book will help the surgeon understand the different types of MIOL and which MIOL is the best in what situation.

The success of multifocal will not be in danger, as the accommodative IOLs are still not good enough to provide satisfactory near and distant vision. The editors of this book did a tremendous job to get an up-to-date overview on multifocals and future development.
HOW CAN WE IMPROVE THE REFRACTIVE STATUS OF THE EYE?

The time has come to reconsider the approach of “How can we improve the Eye” by taking the least amount of risk and by obtaining the highest degree of patient satisfaction. Since the major refractive component of the eye is situated in the lens, the latter approach seems to be the most appropriate.

WHY ONLY IN RECENT YEARS AND NOT BEFORE THAT TIME?

Because lens surgery in general and lens refractive surgery in particular has evolved a lot and has improved tremendously by

1. A more gentle approach for the patient with the introduction of topical anesthesia and outpatient surgery.
2. Reducing the risk of bad outcomes and complications to an absolute minimum since modern phacosurgery has evolved a lot using small incision surgery and better performing machines.

Patient expectations have also changed. The old approach of restoring eyesight is not sufficient any more in our spoiled western world. However during my recent trip to Bengaluru at the occasion of AIOS 2008 I learned that 20,000,000 Indian patients are on the waiting list for restoration of their eyesight—we should not forget that.

Our patients don’t want to loose physical capacities; they go on practising fitness till very old age, they follow nutritious diets, etc. The same thing happens with their visual function and with their accommodation at 70 years they want to see as good as they are 20 years old.

HOW ABOUT PHACO-ERSATZ?

We are not yet there, as will be discussed later on by Prof Guthoff and his group. At occasion of my first phacocourse in Geneva 20 years ago, Jean Marie Parel discussed Phaco Ersatz. Since then not much progress has been made resulting in the real accommodative lens is not yet available and will probably not come out before 5-10 years from now.

However much has changed inbetween and our present multifocal lenses have improved a lot. We are able to improve the lifestyle of our patients in an important way on condition that we use the right personalized approach for the right patient. It is our duty to bring the good and the bad news, to have an honest discussion with our patient and then to decide together with them, taking into consideration their wishes and the refractive condition of their eye.

NEW MULTIFOCAL IOLs

With the continuing improvement of surgical techniques along with the technical refinement of second-generation multifocal intraocular lenses (MIOL), refractive lens exchange (RLE) is becoming increasingly popular since it is an easy procedure and addresses both the aspects of a patient’s refractive errors and presbyopia. This approach is particularly attractive for eyes that are not suitable for corneal refractive surgery and in whom early peripheral lens opacities are present. However, there are some restrictions to this approach since some patients may have unrealistic expectations that cannot be met. The good candidates for the implantation of MIOLs are those with an open-minded and flexible personality who understand the need for postoperative visual adaptation, the eventual presence of unwanted optic effects such as halos and glare and the eventual need for laser enhancement afterwards.
New intraocular lenses that might advocate the increasing interest in RLE include the diffractive Tecnis ZM900 (Advances Medical Optics, AMO, Santa Ana, CA), the refractive ReZoom (AMO) and the apodized diffractive AcrySof ReStor (Alcon laboratories, Ft. Worth, TX). Recent clinical data have shown that with careful patient selection and accurate biometry these three MIOLs provide excellent functional vision 1-7 with less photic phenomena, less dependence on glasses and higher patient satisfaction than first generation MIOLs. However, each MIOL technology is unique and the patient’s needs and lifestyle should be taken into consideration when making a surgical decision.

I realize that the book will be far from complete or perfect since we all are humans and not God. I did what I could. We wanted to bring a diversified approach of this subject and included—patient selection, surgery complications, new lenses, future technologies, physical principles, etc.—different approaches. The deadline—which has changed several times—prevented us to include only two chapters.

We thank all the contributing authors and their staff and are convinced that all chapters have their intrinsic value.

I thank also my international colleagues for their support and for having accepted the honorary co-authorship for this book.

I thank also M/s Jaypee Brothers Medical Publishers (P) Ltd, New Delhi for the excellent job done. There was no sponsor of this book.

I dedicate this book to my wife and my four grandchildren-Stéphanie-William-Louise-Vincent.

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