

# Multifocal IOLs



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**Multifocal IOLs**

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*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**



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# Foreword

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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 extrafeatures. 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.

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# Preface

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## 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 lose 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<sup>1-7</sup> 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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**Frank Joseph Goes**

# Contents

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## SECTION ONE: BASICS

1. **Optical Principles of Multifocal IOLs** ..... 3  
*Henk Weeber*
2. **Accommodative Lens Refilling** ..... 12  
*Steven A Koopmans, Thom Terwee, Theo van Kooten*
3. **How to Test Reading Improvement after Presbyopic Surgery?** ..... 18  
*Alois K Dexl, Günther Grabner*
4. **Importance of Reading Speed in Multifocal IOL Implantation** ..... 28  
*Werner W Hütz*
5. **Multifocal IOLs and Dynamic Vision** ..... 38  
*Carlos Vergés*
6. **Improvement of Visual Function with Training after Multifocal Intraocular Lens Implantation** ... 47  
*Hakan Kaymak, Ulrich Mester*

## SECTION TWO: HOW TO BRING THE CONCEPT TO THE PATIENT?

7. **Eyemaginations** ..... 57  
*Joe Boorady, Brad Soper*

## SECTION THREE: MULTIFOCAL AND ACCOMMODATIVE IOLs/OVERVIEW

8. **The Current Status of Multifocal IOLs** ..... 65  
*H Burkhard Dick*
9. **Current Status of Accommodative IOLs** ..... 75  
*I Howard Fine, Richard S Hoffman, Mark Packer*
10. **Clinical Results with the New Generation of Multifocal Intraocular Lenses** ..... 84  
*Ulrich Mester, Hakan Kaymak*

## SECTION FOUR: IOL POWER CALCULATION FOR MULTIFOCAL IOLs

11. **IOL Calculation for Multifocal IOLs** ..... 93  
*Wolfgang Haigis*
12. **IOL Power Calculation Formulas—An Update** ..... 100  
*Ashok Garg*

## SECTION FIVE: PATIENT SELECTION

13. **Premium Presbyopia—Correcting IOLs** ..... 115  
*Uday Devgan*
14. **Mixing and Matching IOLs: Options and Results** ..... 126  
*Elizabeth A Davis, Richard L Lindstrom*

**SECTION SIX: CLINICAL EXPERIENCE WITH DIFFERENT MULTIFOCAL IOLs**

15. Personal Experiences with the Single Optic 1 CU and the Synchrony Dual Optic Accommodative IOLs ..... 133  
*GU Auffarth*

16. First Experiences with the Rayner Aspheric, Toric, Multifocal Intraocular Lens (M-Flex-T) ..... 138  
*GU Auffarth*

17. Bilateral ReZoom Implantations: Personal Experience ..... 141  
*David R Hardten, Parag D Parekh, Mona Fahmy*

18. Multifocal IOLs in Children ..... 147  
*Keiki R Mehta, Cyres K Mehta, Zenobia K Mehta*

19. How to Proceed with Multifocals in Children? ..... 156  
*Roche Olivier*

**SECTION SEVEN: CUSTOMIZING MULTIFOCAL IOLs**

20. Male/Female Differences Regarding Patient Satisfaction after Implantation of Multifocal IOLs ..... 165  
*M Rau*

21. Mixing and Matching Customized Approach Tecnis-ReZoom ..... 171  
*Angel Lopez-Castro*

22. How to Obtain Patient Satisfaction Using ReZoom-Tecnis and Tecnis-Tecnis? ..... 183  
*Frank Joseph Goes*

**SECTION EIGHT: SURGICAL FINESSES**

23. AcriLISA with MICS ..... 201  
*Jorge L Alió, Bassam El Kady, Pawel Klonowski*

24. State of the Art Surgery for Multifocal IOL Implantation ..... 210  
*E Fabian, G Kneib, M Neunzig, U Seher, V Sipp, R Brandl*

25. Laser Enhancement after Multifocal IOL Implantation ..... 215  
*Michael C Knorz*

**SECTION NINE: FUTURE**

26. Phaco-Ersatz: Will it be there Tomorrow? ..... 221  
*Oliver Stachs, Rudolf F Guthoff*

*Index* ..... 233