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## Preface

Every so often, a truly disruptive technology comes along that fundamentally changes the practice of medicine. In the subspecialty of ophthalmology, we have been blessed with many such notable advances over the past several decades, each of which has radically improved the ability of the profession to restore and maintain vision. Laser photocoagulation of diabetic retinopathy, scleral buckling, and vitrectomy surgery for retinal detachment, high-resolution OCT for retinal diagnostics and injectable drugs to treat macular degeneration are but several examples. The field of cataract surgery has witnessed remarkable progress through the development of intraocular lenses and small incision phacoemulsification, while the advent of excimer and Femtosecond lasers led to the birth and explosive growth of laser keratorefractive surgery. In the setting of increased awareness of and appreciation for the importance of excellent uncorrected visual acuity after cataract surgery, Presbyopia-correcting and toric IOLs have spawned a new discipline, refractive cataract surgery. The development of image-guided Femtosecond lasers as a precise cutting tool for both the cornea and lens has brought about a further merging of the fields of cataract and refractive surgery, which we refer to throughout this book as Refractive Laser Assisted Cataract Surgery or “ReLACS”

We believe that ReLACS will prove to be a positive, but also “disruptive,” advance for cataract surgery, as it will change not only the clinical outcomes but the ergonomics and economics of how cataract surgery is delivered in the twenty-first century. With an unparalleled capability to construct incisions within the cornea and lens, ReLACS has the potential to revolutionize cataract surgical technology and results, making possible a level of surgical precision not achievable by even the most skilled human hands. While all new “disruptive” technologies initially have their critics, the data already available from the early clinical use of ReLACS technology is compelling enough that the greater efficacy and, with time, greater safety benefits of this technology will become evident and widely accepted. Some examples of how ReLACS may change cataract surgery range from small advances like reduced diameter IOL injectors, allowing for smaller incisions, to more accurate refractive outcomes due to improved IOL effective lens position and precise, titratable correction of even small amounts of astigmatism. New IOL designs will become possible, perhaps someday resulting in attainment of the holy grail of cataract surgery, capsular refilling with a truly accommodating artificial lens polymer technology.

When assembling a textbook on a new topic in a fast-moving medical field, one often needs to fill an “information vacuum” that exists. There is inevitably a tension between taking time to compulsively assemble all that is known versus producing a more expedited product in a shorter period of time. While information rapidly emerges both inside and outside the channels of peer-reviewed literature, it can be difficult to find a single source overview that allows an orderly introduction to the subject matter.

It is impossible to remain absolutely current when referencing peer-reviewed publications in a textbook about a new technology that is being actively investigated and iterated: that is not our goal for this book. Nevertheless, we have tried to produce a comprehensively referenced text that summarizes the science behind the development of Femtosecond lasers for cataract surgery, the early results of their clinical use, and what the future may portend for this revolutionary technology. We hope that *Textbook of Refractive Laser Assisted Cataract Surgery (ReLACS)* will serve as a knowledge base that will allow the reader to make informed decisions about the use of lasers for refractive cataract surgery as new information emerges and the technology becomes routinely available to ophthalmic surgeons around the world.

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