

All about Your Eyes

EDITED BY

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A Practical Guide in Plain English from the
Physicians at the Duke University Eye Center

All about Your Eyes

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JENNIFER S. WEIZER, M.D., EDITORS

FOREWORD BY PAUL LEE, M.D., J.D.

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Foreword

PAUL LEE, M.D., J.D.

Amid the tumultuous changes in today's health care system, patients are often challenged to understand and participate effectively in their own care. Worries about insurance coverage, co-payments and deductibles, and other financial concerns often detract from a patient's ability to navigate the care system and work with his or her physician to obtain the best care available. It is not surprising to learn that older patients often have the most difficulty successfully utilizing the full range of available health care services.

For patients with eye diseases, this is of special concern. The likelihood of suffering from a major chronic eye disease rises with age and increases dramatically after the age of sixty-five. Indeed, nearly half of Medicare beneficiaries will have glaucoma, macular degeneration, diabetic retinopathy, or a combination of these conditions over the next few years. When we include cataract and associated conditions, it is clear that nearly every older American will at some point have to deal with eye conditions that could reduce his or her vision.

At the same time, increasing demands for care, and the resulting pressures on health care providers to see more patients, may mean that time for education and counseling will become increasingly precious. When the first wave of Baby Boomers reaches Medicare age in 2011, these forces may combine to create a "perfect storm" within our health care system. Because Baby Boomers are more likely to demand detailed information and to be more skeptical than past generations, physicians and other providers will be hard pressed to meet the needs of this growing number of patients, let alone more intense demands from each patient.

The signs of these forthcoming changes — and fortunately the solutions to these challenges — have been with us for quite a while.

Pioneers have pointed out the importance of “patient-centered care” and “integrative medicine.” Medical information accounts for one of the largest uses of the internet in the United States. Medical reporters are celebrities and household names. In studies of patients’ expectations, patients tell us that they want a competent physician who will talk to them.

It is in meeting this growing (and soon to be exploding) need that this book is so valuable. Drs. Sharon Fekrat and Jennifer Weizer have organized an important and highly useful volume designed to help those interested in eye health and eye diseases to better understand and participate in their own eye care. As such, the book provides critical information to a population often lacking in it and extends the ability of some of our country’s best eye doctors to reach patients, their families, and other interested readers in the United States and throughout the world.

The early chapters present a basic background on the eye and vision. The book proceeds to discuss common refractive vision problems that affect most people and then highlights those eye conditions identified as most important by the National Eye Institute and the World Health Organization. Where appropriate, the book teaches by specific disease; in other instances, it adopts a more generic approach to syndromes or presenting symptoms.

Readers will learn much about the most common and important eye conditions. But more importantly, this book demystifies eye diseases and will help patients and their families deal with visual impairment in the event that interventions are unsuccessful. By helping readers better understand and participate in their care, *All about Your Eyes* will help empower patients and those who care about them to better navigate the oncoming storms in our health care delivery system.

Introduction

JENNIFER S. WEIZER, M.D. · SHARON FEKRAT, M.D.

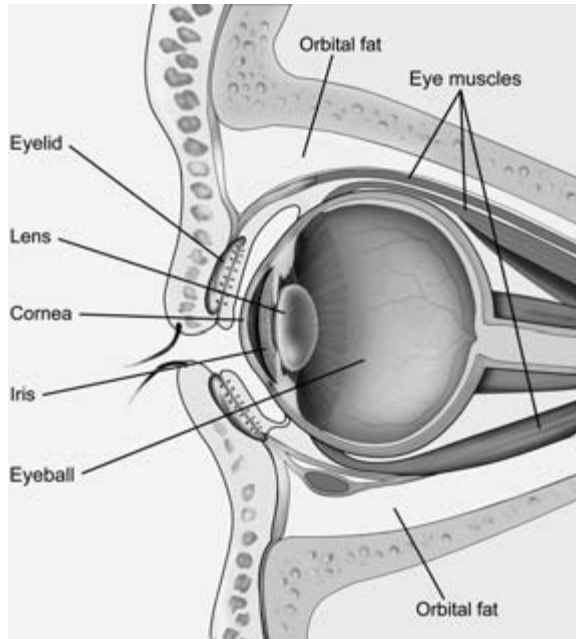
We came up with the idea for this book when we realized that our eye patients needed a reliable, easy-to-understand guide to eye care. Often in the eye doctor's office, the eye seems like a mysterious organ, and the unfamiliar words used to describe the eye and eye diseases can be difficult to understand. We have designed this reference text as a guide to the eyes and how they work, what can go wrong with them, and what to do about it.

Our first few chapters demystify the structure and function of the eyes, the eye exam, and what to expect from your eye doctor. We then describe various eye diseases, including common problems such as cataract, glaucoma, age-related macular degeneration, and diabetic retinopathy that affect a large part of the population. We also include chapters on up-to-date surgical techniques for eye problems, as well as chapters on refractive and cosmetic eye surgery. We have listed noncommercial websites for each chapter so that you may further explore the topics in this book. Because the book is intended for the nonmedical reader, it is written in easy-to-understand language and includes a glossary of technical terms.

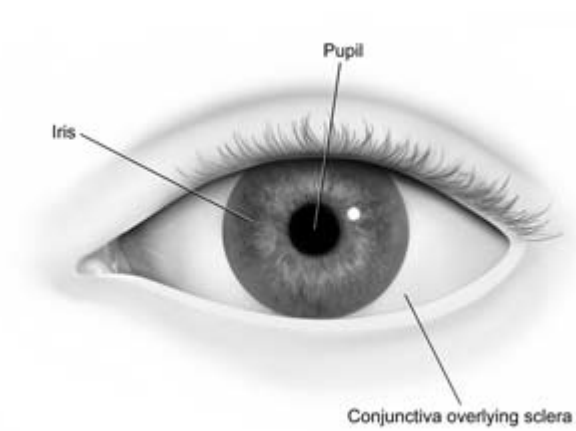
All about Your Eyes is intended not only for patients with eye diseases but for their family members, who can read it to gain an understanding of what their loved ones are experiencing. This book can also help people without known eye problems by explaining how healthy eyes work and describing the symptoms of eye diseases, so that they may perhaps be diagnosed sooner.

Although reading about your eyes can provide a useful understanding of the subject, this book is not designed as a substitute for seeing your eye doctor: medicine is far from a cookbook science. Only you and your eye doctor together can devise an individual approach that works best for you and your eyes.

All about Your Eyes



1 Side view of the eyeball behind the eyelids.



2 Front view of the eyeball.

1 • Anatomy of the Eye and How It Works

Eyelids

RAVI CHANDRASHEKHAR, M.D., MSEE

The eyelids act as a protective covering for the eyeball while helping to keep its surface lubricated. Eyelashes help trap debris and prevent unwanted materials from entering the eye, and the lids themselves block excess light and foreign objects. The eyelids distribute the tear film evenly during blinking, and tiny glands on the edges of the eyelids produce oil which slows evaporation of the tear film and helps lubricate the eye's surface.

The eyelids are composed of several layers. The outermost layer is the skin, followed by a layer of muscle and more supportive tissue and finally by the innermost conjunctiva. The eyelid muscles help open and close the eyelids while giving them tone and shape. The conjunctiva on the inside of the eyelids is continuous with the conjunctiva on the surface of the eyeball.

Conjunctiva

RAVI CHANDRASHEKHAR, M.D., MSEE

The conjunctiva is a thin, transparent mucous membrane that covers three parts of the eye. It lines the inner surfaces of the upper and lower eyelids. It helps form a barrier inside the eyelids that separates the front half of the eyeball from the back half (this space is called the fornix). Finally, the conjunctiva becomes even thinner and continues over the front surface of the eyeball up to the edge of the cornea known as the limbus.

The conjunctiva serves as the outer protective surface of the eyeball, and the conjunctiva that lines the eyelids provides a smooth interface with the conjunctiva on the surface of the eyeball to make