

1. Record Nr.	UNINA9910300202503321
Titolo	Corneal Biomechanics and Refractive Surgery // edited by Fabio A. Guarnieri
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2015
ISBN	1-4939-1767-6
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (151 p.)
Disciplina	610 610.28 617.7
Soggetti	Ophthalmology Biomedical engineering Medicine Biomedical Engineering and Bioengineering Biomedicine, general
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Contents; Contributors; Chapter 1: Introduction: Corneal Biomechanics and Refractive Surgery; 1 Refractive Surgery; 2 Biomedical Engineering; 3 Biomechanical Models for Refractive Surgery; 4 Chapter Organization; References; Chapter 2: Corneal Biomechanics; 1 Introduction; 2 The Cornea; 2.1 Anatomical and Physical Properties; 2.2 Histology of the Cornea; 2.3 Corneal Wound Healing; 3 Measurements of the Mechanical Parameters; 3.1 Extensibility of the Cornea; 3.2 Keratoconus Biomechanics; 3.3 Stromal and Descemet Membrane Extensibilities; 3.4 Bowman's Membrane Importance 3.5 Viscoelastic Parameters 4 Biomechanical Models; 5 Toward a Computer-Aided Design of the Refractive Surgery; 6 Data Acquisition; 6.1 Corneal Thickness; 6.2 Corneal-Limbal Ring; 6.3 Anterior Surface; 6.4 Intraocular Pressure; 6.5 Ocular Length and Depth of the Anterior Chamber; 6.6 Objective and Subjective Refraction; 7 Optical Model; 7.1 Generation of Incisions; 8 Mechanical Models; 8.1 Elastic Model; 8.2 Hyperelastic Model; 8.3 Viscoelastic Model; 9 Boundary Conditions; 10 Initial Conditions; 11 Summary; References; Chapter 3: Biomechanics of

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## Sommario/riassunto

This book presents a unique approach not found in any other text for those looking to improve the clinical results of refractive surgery by gaining a better understanding of corneal biomechanics and the instrumentation related to it. Written by leading experts in the field, this book provides authoritative coverage of the interactions of the cornea and the bioinstrumentation, such as corneal topography, pachymetry, aberrometers, tonometry and optical coherence tomography. Organized in an easy-to-read manner, Corneal Biomechanics and Refractive Surgery is designed for refractive surgeons and general ophthalmologists alike and describes the biomechanical role of the corneal tissue and how each part is affected in refractive surgery. Additionally, showing what the bioinstrumentation can measure, how models can improve understanding of the interaction between biomechanics, bioinstrumentation, and refractive surgery, and how these models and bioinstrumentation together can improve the refractive results, are also discussed.

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