

# Table of Contents

<b>Foreword</b>	vii
<b>About the editors</b>	xii
<b>About the authors</b>	xiii
<b>1. Definitions and concepts</b>	1
<i>Joel R. Palko, Jun Liu</i>	
<b>2. Ex vivo mechanical testing of the cornea</b>	25
<i>Hugh Morris, Jun Liu</i>	
<b>3. Laser interferometry</b>	39
<i>Abby Wilson, John Tyrer, John Marshall</i>	
<b>4. Comparison of porcine and human cornea and sclera mechanical behavior</b>	57
<i>Benjamin Cruz Perez, Jun Liu</i>	
<b>5. Ocular response analyzer</b>	67
<i>David Luce, David Taylor</i>	
<b>6. Measuring biomechanical properties <i>in vivo</i>: the Corvis® ST</b>	87
<i>Sven Reisdorf</i>	
<b>Corvis corrected IOP algorithm</b>	102
<i>Ahmed Elsheikh</i>	
<b>7. OCT with air puff stimulus</b>	111
<i>Susana Marcos, Carlos Dorronsoro, Karol Karnowski, Maciej Wojtkowski</i>	
<b>8. Ocular pulse elastography</b>	133
<i>Hong Chen, Elias R. Pavlatos, Jun Liu</i>	
<b>9. Brillouin microscopy</b>	147
<i>Giuliano Scarcelli, Seok Hyun Yun</i>	

## **10. Interpreting dynamic corneal response parameters of the Corvis ST**

165

*Cynthia J. Roberts, Ashraf M. Mahmoud, Kristen Ann V. Mendoza,  
Renato Ambrósio Jr.*

## **11. Corneal biomechanics: IOP measurement error and potential biomarker in glaucoma**

183

*Aachal Kotecha*

## **12. Incorporating corneal hysteresis in a glaucoma practice**

199

*Michael D. Greenwood, Justin A. Schweitzer, John P. Berdahl*

## **13. Corneal collagen cross-linking**

209

*Paolo Vinciguerra, Riccardo Vinciguerra, Cynthia J. Roberts*

## **14. Biomechanics in ectasia detection: ORA and Corvis ST**

219

*Renato Ambrósio Jr., Fernando Faria Correia, Isaac Ramos,  
Marcella Q. Salomão, Allan Luz, Bernard T. Lopes*

## **15. Comparison of corneal biomechanics after PRK, LASIK and small-incision lenticule extraction (SMILE)**

247

*Dan Z. Reinstein, Timothy J. Archer, Marine Gobbe, J. Bradley Randleman*

## **16. Interpreting corneal biomechanical parameters in refractive surgery**

269

*Naveen Mysore, William J. Dupps Jr.*

## **Index**

287

## **Index of Authors**

293

© 2018 Kugler Publications, Amsterdam, The Netherlands.  
All rights reserved. No part of this book may be reproduced in any  
form by print, photoprint, microfilm, or any other means without  
prior permission of the publisher.

Kugler Publications is an imprint of CRC Academic Publishing  
20538, 1000 NM Amsterdam, The Netherlands

Cover design by Willem Driebergen, Rijnsburg, The Netherlands