

The biomechanics of keratorefractive surgery

Nathaniel E. Knox Cartwright, MA MRCOphth Christopher C. Hull, PhD

References

1. Munnerlyn CR, Koons SJ, Marshall J. Photorefractive keratectomy: a technique for laser refractive surgery. *J Cataract Refract Surg* 1988;14(1):46-52.
2. Roberts C. The cornea is not a piece of plastic. *J Refract Surg* 2000;16(4):407-13.
3. Komai Y, Ushiki T. The three-dimensional organization of collagen fibrils in the human cornea and sclera. *Invest Ophthalmol Vis Sci* 1991;32(8):2244-58.
4. Aghamohammadzadeh H, Newton RH, Meek KM. X-ray scattering used to map the preferred collagen orientation in the human cornea and limbus. *Structure* 2004;12(2):249-56.
5. Boote C, Dennis S, Newton RH, et al. Collagen fibrils appear more closely packed in the prepupillary cornea: optical and biomechanical implications. *Invest Ophthalmol Vis Sci* 2003;44(7):2941-8.
6. Newton RH, Meek KM. Circumcorneal annulus of collagen fibrils in the human limbus. *Invest Ophthalmol Vis Sci* 1998;39(7):1125-34.
7. Wang H, Prendiville PL, McDonnell PJ, Chang WV. An ultrasonic technique for the measurement of the elastic moduli of human cornea. *J Biomech* 1996;29(12):1633-6.
8. Andreassen TT, Simonsen AH, Oxlund H. Biomechanical properties of keratoconus and normal corneas. *Exp Eye Res* 1980;31(4):435-41.
9. Hoeltzel DA, Altman P, Buzard K, Choe K. Strip extensometry for comparison of the mechanical response of bovine, rabbit, and human corneas. *J Biomech Eng* 1992;114(2):202-15.
10. Nash IS, Greene PR, Foster CS. Comparison of mechanical properties of keratoconus and normal corneas. *Exp Eye Res* 1982;35(5):413-23.
11. Nyquist GW. Rheology of the cornea: experimental techniques and results. *Exp Eye Res* 1968;7(2):183-8.
12. Smolek MK. Interlamellar cohesive strength in the vertical meridian of human eye bank corneas. *Invest Ophthalmol Vis Sci* 1993;34:2962-9.
13. Smolek MK, McCarey BE. Interlamellar adhesive strength in human eyebank corneas. *Invest Ophthalmol Vis Sci* 1990;31(6):1087-95.
14. Randleman JB, Dawson DG, Grossniklaus HE, et al. Depth-dependent cohesive tensile strength in human donor corneas: implications for refractive surgery. *J Refract Surg* 2008;24(1):S85-9.
15. Schmack I, Dawson DG, McCarey BE, et al. Cohesive tensile strength of human LASIK wounds with histologic, ultrastructural, and clinical correlations. *J Refract Surg* 2005;21(5):433-45.
16. Grabner G, Eilmsteiner R, Steindl C, et al. Dynamic corneal imaging. *J Cataract Refract Surg* 2005;31(1):163-74.
17. Luce DA. Determining in vivo biomechanical properties of the cornea with an ocular response analyzer. *J Cataract Refract Surg* 2005;31(1):156-62.

18. Dupps WJ, Roberts C, Schoessler JP. Peripheral lamellar relaxation: A mechanism of induced corneal flattening in PTK and PRK. *Invest Ophthalmol Vis Sci* 1995;36(suppl 4):S708.
19. Durrie DS, Slade SG, Marshall J. Wavefront-guided excimer laser ablation using photorefractive keratectomy and sub-Bowman's keratomileusis: a contralateral eye study. *J Refract Surg* 2008;24(1):S77-84.
20. Wollensak G, Spoerl E, Seiler T. Riboflavin/ultraviolet-a-induced collagen crosslinking for the treatment of keratoconus. *Am J Ophthalmol* 2003;135(5):620-7.