Tried and true
Photorefractive keratectomy (PRK), is less widely ingrained in the popular consciousness than its close relation, LASIK. This is interesting, because PRK has several potential advantages that make it a useful alternative to the more widely known LASIK procedure. Whereas LASIK requires the creation of a flap of corneal stroma, which alters the tissue’s structural integrity, PRK utilises more superficial laser ablation, with less effect on the stromal tissue. This eliminates the risk of the corneal flap dislocation that can be experienced by patients who have undergone LASIK.

On the other hand, patients who undergo PRK might experience more pain and slower visual recovery in the postoperative period. Ideally, both doctor and patient will come to an agreement as to which procedure is most suitable. Indeed, “refractive surgeons must consider all of these techniques as a complete and varied armamentarium to satisfy the surgical needs of all the diverse clinical cases.”

A new text by Drs Lucio Buratto, Stephen Slade, Sebastiano Serrao and Marco Lombardo, aims to provide an overview of PRK in clinical practice. Entitled PRK: The Past, Present and Future of Surface Ablation and published by Slack Incorporated, the text is divided into Parts I and II.

Part I, written by the book’s primary authors, serves as an introduction to the corneal properties relevant to PRK. Chapter 1, “The Corneal Surface,” is an in-depth examination of corneal anatomy, epithelial renewal and remodelling of the epithelium and stroma after ablation by the excimer laser.

Chapter 2, “Optical & Mechanical Properties of the Cornea,” provides a detailed, technical explanation of optical aberrations and corneal biomechanics. What is the difference between lower- and higher-order aberrations? Monochromatic and polychromatic? And which biomechanical properties of the cornea are altered by photoablation? Chapter 3, “Photorefractive Keratectomy,” dives into the actual PRK procedure in its entirety: the dialogue with the refractive patient; the clinical history and preoperative examinations; evaluations for the various types of refractive error; and the surface ablation techniques themselves.

The patients must be seen postoperatively, so what about complications? How are they evaluated, categorised and most importantly, managed? Which can be expected to be temporary, and which are likely to be permanent without correction? Enhancement treatments are also discussed. Although “the percentage of eyes retreated following PRK has been reduced considerably over the past 10 years,” there is still a need for those eyes that end up overcorrected or undercorrected, which are relatively simple to correct, as well as those that experience refractive regression.

The chapters in Part I, written by invited specialists, approach specific concepts rather than PRK as a whole. These include PRK enhancement following previous radial keratotomy and LASIK, smoothing in refractive surgery and a guide to performing custom ablation. “The Athens protocol: same-day topography-guided partial PRK and cross-linking” describes a procedure for visual rehabilitation in patients with corneal ectasia. The last chapter covers surface ablation to enhance previous LASIK.

All in all, this 100-page book provides the reader with a good introduction to PRK, its effect on the corneal surface and the results that both physician and patient can expect after the procedure. Reading it is a good investment for residents during their corneal or refractive surgery rotation; corneal fellows who are interested in applying these procedures in clinical practice; general ophthalmologists, who are frequently asked about refractive procedures by their patients; and even refractive specialists who are interested in new insights into the corneal microstructure and biomechanics.

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PRK: THE PAST, PRESENT, AND FUTURE OF SURFACE ABLATION

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