

Why PRK is best for me...

What is the difference in the two procedures?

There are basically two laser refractive procedures to correct myopia (nearsighted), hyperopia (far-sighted) and astigmatism...LASIK and PRK. Both procedures are very safe and will give you the same results.

In **LASIK**, a flap of approximately 150 microns is cut. This flap, which when put back adds very little to the structural integrity of the cornea (it's biomechanics). The laser is then applied which removes tissue (a prescription is gently removed off the cornea) and so one is left with a bed of tissue at the end of the LASIK procedure. This bed **MUST** be at least 250 microns thick so that the cornea is biomechanically sound and can focus light. We like to leave more tissue so that a re-treatment, if necessary, can be done.

Advantages:

- Quick healing (driving vision the next day in most cases)
- Little chance of haze
- Re-treatments are easier
- Generally back to work or school within 48-hours
- Generally able to drive a car within 24-hours

Disadvantages:

- Uses more tissue
- Can have flap complications (occurrences are rare with good experienced surgeons)
- A slightly higher incident of re-treatment

In **PRK**, only the epithelium (thin surface layer) is removed (it has no structural integrity and grows back within days). Then the laser gently removes the prescription, as is done with LASIK procedure. In PRK we like to leave 350 microns at the end of the procedure. Epithelium (the surface skin of the cornea) can be removed by many methods. There is a natural plane between the epithelium and the underlying tissue and it is easily removed with a laser, alcohol, scraping, brushing it off etc. I have tried many different methods and presently find alcohol removal to be the easiest and most accurate, although any method is probably as good depending on the surgeon's experience. After the epithelium is removed, laser is applied and then a contact lens is placed on the cornea for 3 to 6 days to allow the epithelium to heal and keep the cornea comfortable (it protects the eye). One may or may not use a chemical agent to prevent hazing before the contact lens is put on. I personally use such an agent.

Advantages:

- Uses less tissue
- Allows patients who are non-candidates with LASIK to have a laser refractive treatment
- No flap created so no chance of flap complication
- Less than 1% chance of re-treatment
- Can resume all physical activities within 2-weeks

Disadvantages:

- Healing takes longer than LASIK (driving vision in 4 to 14 days)
- Slight risk of haze (little risk with modern laser and adjunctive chemical therapy)
- Delayed epithelial healing

Why is PRK best for me and not LASIK?

The average corneal thickness in a Caucasian is 543 microns (1/2 mm); it is less in persons of African decent (520 microns) and even less in Asians (490 -510 microns).

In order for the cornea to properly focus light it MUST maintain a certain structure and not be irregular. Removal of too much tissue can destroy its BIOMECHANICS and render it structurally unsound. This leads to loss of vision that cannot be corrected by glasses and usually not by contact lenses.

Example 1

Corneal thickness 500 microns
Flap thickness 150 microns
Laser tissue removal 50 microns

Corneal bed $500-150-50 = 300$ microns
OK for LASIK with plenty of tissue left over for retreatment.

Example 2

Corneal thickness 500 microns
Flap thickness 150 microns
Laser tissue removal 100 microns

Corneal bed $500-150-100 = 250$ microns
OK for LASIK with no tissue left over for retreatment - one time LASIK only

Example 3

Corneal thickness 500 microns
Flap thickness 150 microns
Laser tissue removal 150 microns
Corneal bed $500-150-150 = 200$ microns
Can not do LASIK - Rule of 250 micron bed

So why can I have PRK if I'm not a candidate for LASIK?

Look at Example 3
Corneal thickness 500 microns
Flap thickness 0 microns (we're doing PRK - no flap)
Laser tissue removal 150 microns
Corneal bed left over $500-150 = 350$ microns

What are some of the reasons for doing PRK?

- Scarring on the cornea that impairs vision - can be removed with PRK but will remain in the LASIK flap (the scar is not removed with LASIK).
- In corneas that are too thin for LASIK, PRK is an option.
- An area of epithelium that is poorly adhered to the underlying tissue and breaks down causing pain.
- The cornea has a problem (disease) for which removal of the tissue is indicated and PRK is the treatment for this.
- Certain occupations or hobbies, such as;
 - ◆ Boxing,
 - ◆ Martial Arts etc.
 - ◆ Any sport, where contact with the eye is a concern. One doesn't want a flap that can be moved or injured.

We do approximately 20% of our patients with PRK and find that the end result of the two procedures to be excellent.

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