

UCSF BECKMAN VISION CENTER

LASIK BASICS: Learning the Differences between IntraLase™ Femtosecond Laser Technology and Microkeratome Technology

WHAT ARE THE STEPS OF LASIK?

The first step of LASIK is the creation of a thin, smooth flap consisting of the most superficial layers of the cornea. Once the flap is peeled back, laser treatment is applied to the cornea underneath the flap in order to precisely reshape the cornea into the desired contour. Finally, the flap is returned to its original position. It is critical that each step be performed with a high degree of accuracy, reproducibility, and safety in order to ensure the best possible results after LASIK.

WHAT ARE THE METHODS OF CREATING A LASIK FLAP?

There are presently two methods of incising the cornea to create a LASIK flap: using a microkeratome, which has been the standard method of flap creation for a number of years, and using a femtosecond laser (IntraLase™), which represents newer technology. The microkeratome is a hand-held motorized instrument that uses a turbine-drive blade that oscillates at a high frequency to make a controlled cut of a given depth within the cornea. The IntraLase Method™ uses a special laser, which is different from the one used to perform the subsequent corneal reshaping, in order to create a uniform, contiguous pattern of tiny ablations at a precise depth within the cornea. Because shaping the flap with a laser does not involve the use of a blade, LASIK performed with this method is sometimes termed "bladeless LASIK" or "all-laser LASIK."

IS ONE METHOD OF CREATING A FLAP PREFERABLE DEPENDING ON WHETHER A CONVENTIONAL LASIK TREATMENT OR A CUSTOM WAVEFRONT LASIK IS PERFORMED?

No. Either method of flap creation is compatible with both types of laser reshaping—conventional treatment and custom wavefront treatment.

WHICH METHOD OF CREATING A FLAP YIELDS BETTER RESULTS?

Both methods are considered "state-of-the-art" and can yield excellent results in experienced hands. There are a number of small studies that have reported that one method or the other may have advantages in terms of accuracy or speed of recovery, but taken as a whole, there is no clear-cut evidence at this time for the superiority of one technique over the other. There is also no consensus amongst LASIK experts as to the superiority of one technique over the other. At present, UCSF surgeons will continue to use and evaluate results of both methodologies until or unless one technique emerges as superior over the other.

FOR MOST PATIENTS, ISN'T FLAP CREATION USING A LASER SAFER THAN FLAP CREATION USING A MICROKERATOME?

Based on current evidence and given the excellent safety record of LASIK performed at UCSF, there is no evidence to suggest that one technique is clearly safer than the other for the vast majority of patients. In several large LASIK series reported prior to 2000, a significant proportion of complications following LASIK were attributed to faulty creation of the LASIK flap by a microkeratome. This complication rate has dropped significantly with the advent of newer and better microkeratome instrumentation. Presently, in the hands of experienced surgeons who are using "best in class" surgical equipment, the rate of microkeratome-related LASIK flap complications is exceptionally low. It should be noted that complications caused by laser flap creation, although rare, have also been reported. Presently, both methods of flap creation should be considered to be excellent techniques with a very low complication rate.

ARE THERE SELECTED INSTANCES IN WHICH LASER FLAP CREATION MAY BE SAFER THAN MICROKERATOME TECHNOLOGY?

Yes. In a small percentage of patients, flap creation using laser technology may have more clear-cut advantages over flap creation using microkeratome technology. These include patients with particularly thin corneas or eyes prone to corneal abrasion, as well as selected patients who have undergone previous LASIK and in whom the flap must be recut rather than relifted in order to perform a retreatment. Your surgeon will advise you if your medical situation warrants a decided preference for a particular technique of flap creation.

ARE THERE ADDED COSTS ASSOCIATED WITH INTRALASE™ FLAP TECHNOLOGY?

Yes. Because of added equipment costs and per procedure fees imposed by the IntraLase™ manufacturer, the costs for IntraLase™ flap creation are higher than those for microkeratome flap creation. Please consult with the office for further details regarding fee specifics.

HOW THEN SHOULD A PATIENT DECIDE ON ONE TECHNIQUE VERSUS THE OTHER?

For the majority of patients, both methods of flap creation can be considered comparable, and therefore surgeon and patient preference will be important factors in deciding the LASIK flap creation technique. Some patients may prefer the concept of the newer "bladeless LASIK" or "all-laser LASIK" techniques whereas others may prefer the lower cost and longer track record of microkeratome-based technology.

An individualized consultation with a UCSF LASIK surgeon is the ideal setting for discussing which of the various LASIK treatment options may be applicable and best for a given patient.

To schedule a consultation or to learn more about our services, please call **415-476-5698** or visit www.ucsfeye.net.