ziemer
OPHTHALMOLOGY

Z LASIK™

ULTIMATE PERFECTION IN LASER VISION CORRECTION.

What all Femtolaser procedures (Femto-LASIK) have in common

Femto-LASIK has been available for more than 5 years, and more than 2 million Femto-LASIK procedures have been performed successfully all over the world.

The major advantage of Femto-LASIK over conventional LASIK is that the entire vision correction treatment is performed by Laser. The use of a blade to make an initial cut into the cornea is no longer required. Working on your eye with a blade is a thought that makes many people uncomfortable, even though blade-LASIK is still today performed by many doctors and is also considered a safe and effective procedure.

What Femto-LASIK procedures are there?

Intra-LASIK or **i-LASIK™** is based of the first femtosecond laser that has been available for eye surgery. It was developed in the USA by Intralase Corporation and is in clinical use since 2003. Around the world, over 700 Intralase™ femtolasers are in use, and over 1 million i-LASIK treatments have been performed.

In 2006, the Switzerland-based company Ziemer Group has introduced a new femtolaser system, based on advanced technology. Femto-LASIK procedures performed with this new, advanced technology are known by the name **Z-LASIK™**. Worldwide over 100 Ziemer FEMTO LDV laser systems are in clinical use, and the Z-LASIK technology has proven its safety and effectiveness in close to 100'000 successful treatments.

Both i-LASIK and Z-LASIK are safe procedures that generate very good results. As with all surgical procedures, complications can occur. But complications in femto-LASIK treatments occur very infrequently, and experienced surgeons can manage complications so that permanent adverse effect on visual performance does not occur.

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If Z-LASIK is the technologically most advanced Femto-LASIK procedure; what are its advantages?

Reduced Pulse Energy:

Z-LASIK technology uses light pulses with much lower pulse energy. At the higher pulse energies used in i-LASIK, the intensity of the light sometimes causes an inflammation which may affect your vision and may cause some pain for a few days. Such inflammatory response can be treated with medication and will not cause a permanent harmful effect. However, in Z-LASIK no such adverse reactions have ever been reported.

Shorter Pulses; Faster Pulse Rate:

Ziemer technology uses an incredibly fast sequence of tiny light pulses to generate the smooth surface in the corneal tissue that is required for an optimal vision correction: Within the few seconds required to create the corneal flap, the Ziemer femtosecond laser will place an almost unimaginable number of 400 million tiny, closely spaced gas bubbles inside the cornea; 500 times more than the technology employed so far. With this approach, an even finer smoothness than what was possible before can be achieved.

Larger treatment zones:

With Z-LASIK, we can now create larger flaps and therefore apply the vision correction to a larger area on your cornea (i-LASIK: up to 9.2 mm diameter; Z-LASIK: up to 10mm). Your quality of vision, particularly at nighttime and in conditions of poor lighting or reduced contrast, is further improved by a small but important amount. Few patients have experienced halo effects (circular reflexions around light sources at nighttime) with i-LASIK; with Z-LASIK this undesirable phenomenon will be an even rarer occurrence.

Faster visual recovery:

Patients who have undergone i-LASIK are reporting that their vision has steadily improved over the first few weeks after the surgery. Typically, the optimum is reached after one to three months. With Z-LASIK, recovery is markedly faster: Most patients will see clearly 1 to 2 hours after the procedure, and on the next day your vision quality will already be close to the final optimum.

Total procedure time much shorter:

With the Premium Super Intra LASIK, the entire procedure at the Shinagawa Clinic is completed in 20 minutes. With Z-LASIK, we can bring the time down to a mere 10 minutes. This is because the two steps of the procedure (femtolaser flap creation, then excimer laser) have been integrated – there is no waiting time and no changing from one machine to another between the two steps.

Eliminating intra-procedural waiting time also helps us to achieve better visual quality and outcomes, because it allows us to better predict the response of the cornea to the treatment.

Time of eye contact is reduced by a factor of 2:

With our new femtolaser, the method of coupling the laser to your eye has been improved. The surgeon will hold the optics of the laser in front of your eye. It is no longer necessary to fixate the patient's head mechanically. This makes the entire process faster and less intimidating and unpleasant for the patient. And it also is better for the eye to keep the contact time as short as possible.

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Thinner flaps:

Due to its higher cutting precision, we can create thinner, more predictable flaps. Therefore, higher degrees of myopia, astigmatism and hyperopia can be treated with confidence. This makes the convenient, low-risk LASIK method available to more patients, versus the more invasive methods (e.g. phakic IOL implantation) that had to be used in the past.

Less inflammation:

i-LASIK has allowed us to make LASIK much safer and predictable than with the older, classical Mikrokeratome-LASIK (which uses a blade). Actually, more than 400'000 procedures have been performed at the Shinagawa Clinic without any complications that would have permanently harmed a patient's eye. However, sometimes patients experience an inflammatory response that may last a few days and cause red eyes and some pain. Such incidents have not been observed with Z-LASIK.

Reduced occurrence of Dry Eye syndrome:

"Dry Eye" is a minor side-effect of LASIK. It used to occur frequently to patients after classical Microkeratome-LASIK, but has to become a rare problem with i-LASIK (it is observed in 4% of all treated eyes). With the more gentle Z-LASIK, the incidence of Dry Eye is further reduced.

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