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CORRECT YOUR VISION THE **LASER-TASTIC** WAY

WORDS LIM TECK CHOON
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Not everyone finds it comfortable or convenient to have to wear a pair of spectacles or contact lens in order to see properly. For these people, there is always the option of undergoing a laser vision correction procedure such as the well-known laser-assisted in situ keratomeilulus or LASIK procedure.

Advances in technology leads to constant improvements and innovations when it comes to laser vision correction, however, and over time, we see more sophisticated procedures that offer faster recovery, less damage to the cornea, and such.

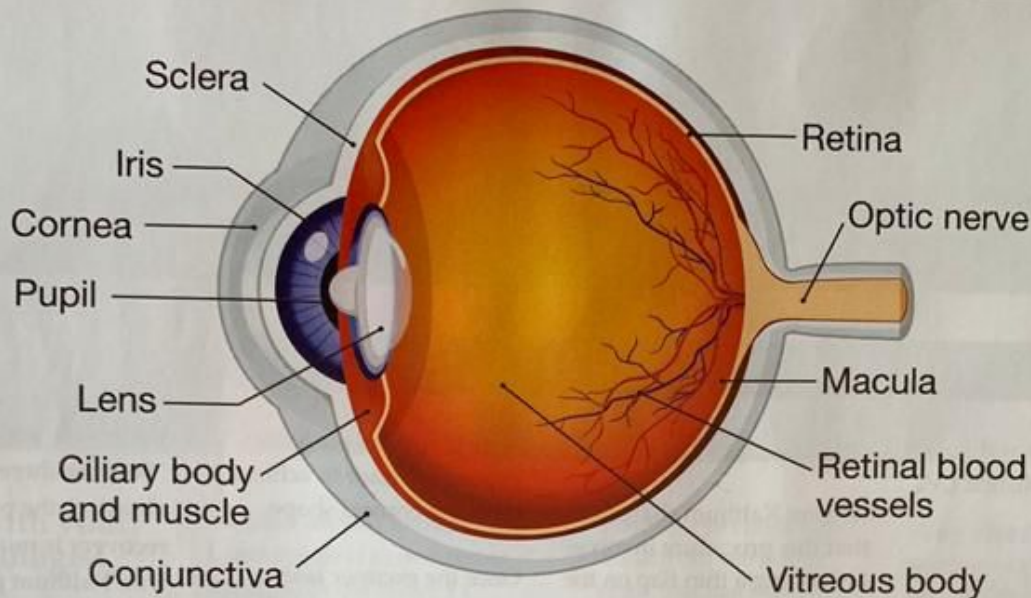
We are pleased to have consultant ophthalmologist Dr Umi Kalthum Mohd Nor share with us more on these improvements and advances.





Dr Umi Kalthum Md Noh
Consultant Ophthalmologist
Sunway Medical Centre

Figure 1. Here are the various components that make up our eye.



LET'S LOOK AT LASER VISION CORRECTION PROCEDURES IN GENERAL

When it comes to vision correction, the part of the eye that takes the spotlight is the **cornea**. When light passes through it, the cornea refracts the light to focus it onto a single point on our retina.

Dr Umi Kalthum explains that laser vision correction (LVC) is used to correct visual problems that arise due to the cornea being

unable to refract light to the retina in a normal manner. This problem, called refractive error, can be corrected by reshaping the cornea with the use of a laser.

Because LVC procedures only involve the corneal surface without entering the eyeball itself, these procedures are considered **non-invasive**.

Common conditions that can be corrected this way include **nearsightedness (myopia)** and **astigmatism**.

"All laser vision correction (LVC) procedures are done under local anesthesia," explains Dr Umi Kalthum, "This means that the patient is awake throughout the procedure."

Don't worry, though!

She shares that LVC is generally painless, and patients are quite comfortable throughout the procedure.

Furthermore, LVC procedures are carried out under fully sterile conditions, to minimize the risk of infections.

FIRST, THERE IS PHOTOREFRACTIVE KERATECTOMY (PRK)

This LVC procedure involves the creation of a small scratch (abrasion) on the outermost surface of the cornea. A laser then is applied onto the debrided

corneal surface to reshape the cornea.

Dr Umi Kalthum further explains that a bandage contact lens is applied

afterwards over the eye and left in place for 3 to 5 days until the abrasion has healed completely.

Generally, the patient will

have good vision after the cornea has healed. However, the patient's vision may take 3 to 6 months after the photorefractive keratectomy procedure to stabilize.



NEXT, LET'S TALK ABOUT FEMTO-LASIK

Femto-LASIK is a well-known and established LVC procedure.

The name femto-LASIK comes from the fact that this LASIK procedure utilizes the femtosecond laser. The use of femtosecond laser allows for LVC to be carried out with better precision. This leads to improved safety and better predictability of the surgical

outcome.

Dr Umi Kalthum shares that this procedure involves fashioning a thin flap on the outermost corneal surface using the femtosecond laser. This process is comfortable and pain-free for the patient.

The surgeon will then lift the flap to expose the corneal bed. Then a type of laser called the excimer

laser is applied onto the exposed surface to achieve the ideal corneal shape.

Once the excimer laser process is completed, flap is replaced back on its original position to cover the lasered surface. This will prevent any exposure—a reason why femto-LASIK is much more comfortable for patients compared to PRK.

Femto-LASIK is performed

widely for good reasons.

“Because there is no corneal abrasion, the patient’s recovery is much faster,” Dr Umi Kalthum points out. “Most patients will achieve as much as 95% of their potential vision by the next day. More importantly, they are much more comfortable during and after surgery, and their vision stabilizes faster, as early as 1 to 4 weeks after the surgery.”

THE NEWEST TECHNOLOGY: ReLEx SMILE

ReLEx is short for **refractive lenticule extraction** while **SMILE** stands for **small incision lenticule extraction**. Lenticule is a piece of corneal tissue, by the way.

According to Dr Umi Kalthum, ReLEx SMILE is the latest LVC technology. It is developed to correct myopia and astigmatism, and in many ways, it works in the same manner as LASIK, described earlier.

So, what’s different and

better when it comes to ReLEx SMILE?

Much smaller laser cut on the corneal surface. “To put it in perspective, the laser cut made during the ReLEx SMILE procedure is only one-fifth of that of LASIK,” says Dr Umi Kalthum.

Since the cut is so small, there is less risk of damage to the cornea.

The small size of the cut also means that it can heal faster. “This also reduces


the possibility of infection,” adds Dr Umi Kalthum.

This is a one-step procedure, requiring the use of only one machine. Compare this to femto-LASIK, which requires patients to undergo treatment involving 2 different machines. Hence, this procedure offers patients more comfort and a shorter treatment time.

Smaller wound and stronger cornea. The wound size is one-fifth of what is

done in femto-LASIK. This procedure eliminates totally any flap-related issues or complications, and patients have a stronger corneal structure post-surgery compared to femto-LASIK.

Better post-surgery experience. Dr Umi Kalthum points out there is a lower risk of dry eyes. Patients generally have a more comfortable post-operative experience immediately after ReLEx SMILE compared to femto-LASIK.



IS GOING FOR LVC THE RIGHT CHOICE FOR ME?

Discuss with your ophthalmologist first

As promising as the benefits of LVC may seem to be, it may not be the most appropriate solution for everyone that wishes to ditch their spectacles or contact lens.

Dr Umi Kalthum explains that the ophthalmologist will need to first assess the extent of the refractive error of the patient's eyes (with and without glasses) and

conduct several corneal scanning tests to determine the state of the patient's cornea.

What are the typical criteria that are deemed suitable for LVC?

- ✓ Someone whose cornea has good surface and shape as well as adequate thickness. A corneal map is necessary to ascertain this.
- ✓ There are no other

existing eye conditions aside from refractive error that has been stable for at least 6 months. However, Dr Umi Kalthum shares that patients with existing dry eyes may still be considered for ReLEx SMILE, as they tend to do better after undergoing that procedure.

- ✓ The person is able to lie down for about 20 to 30 minutes under local anesthesia.

Are there any potential side effects to take note of?

- Post-operative dry eyes, which will require the patient to use lubricants for a few weeks after surgery
- Glare, especially at night, but this tends to improve and become well-tolerated after a few weeks.
- As with any other form of surgery, infection is a possibility, although the risk is very small.

LIFE AFTER LVC

Eye drops will be a big part of the first week

Dr Umi Kalthum shares that during the first week after having undergone LVC, the patient will need to use a few different eye drops on a frequent basis.

"Subsequently, most patients (90-95%) will only need to lubricant eye drops

3 to 4 times per day," she adds.

Follow-ups with the ophthalmologist

"Patients that have undergone LVC will be followed-up on one day, one week, and one month after having done the procedure," says Dr Umi Kalthum. This is to ensure that recovery is going well.

Is the improved vision permanent?

"The improved vision, once it has stabilized, will last as long as there is no significant regression or development of other eye conditions which may affect vision," Dr Umi Kalthum points out.

Eye conditions that can affect improved vision

include cataract and age-related reading difficulty (presbyopia).

She also emphasizes that, contrary to some beliefs, LVC will not increase one's risk of developing cataract or presbyopia. Also, LVC will not affect the progression of these conditions.