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LASIK and other vision correction surgery have now been performed for decades. Millions of people had their eyesight corrected. Incredible innovations in science and technology have given many people an opportunity to see well without glasses or contacts.

The past several years have brought further refinements to LASIK screening process. We can now perform extremely accurate assessment of each person's eyes to determine what procedure will give them the most perfect eyesight. During the past several years, we have also started using additional innovative treatment technologies. We can now safely and accurately correct vision of those who were previously ineligible for vision correction.

In addition, we now have extensive follow up data on hundreds of thousands of US Military personnel from all branches of the military who had their vision corrected with different procedures – LASIK, IntraLASIK, all-laser LASIK, PRK, and lens implants. The Department of Defense and NASA have approved vision correction surgery for those serving in nearly all the branches of the military, including the most elite units.

LASIK screening – the best of the best

Accurate screening with the most up-to-date technology is absolutely essential to the accurate assessment of each person's unique eye and vision features. Based on this assessment, correct procedure recommendation can be made. Matching the right procedure to the right patient is the most important first step toward achieving perfect eyesight. Every person who pursues vision correction treatment needs to find out what technology is being used in his or her screening process. This includes not only the name and maker of the hardware portion of the equipment, but also the software version. Testing and assessment done with out-of-date equipment and/or older versions of the software may result in inaccurate diagnosis. Inaccurate diagnosis may lead to incorrect procedure recommendation. For example, corneal mapping done with an outdated mapping technology may label normal corneal findings as



LASIK is approved for special elite military forces such as Navy Seals

abnormal. PRK may unnecessarily be recommended to patients who are perfect candidates for LASIK – a procedure with a much more rapid vision recovery.

Refraction – is the measurement of eye prescription. During the initial screening, this can be done either manually or automatically. Refraction determines if the eyes are nearsighted, farsighted, and/or have astigmatism. Depending on the amount of prescription either LASIK, PRK, or lens implant surgery is recommended.

Corneal mapping – is done to reveal how smooth and symmetric the cornea is. Based on the corneal appearance LASIK, PRK, or lens surgery is recommended. The mapping needs to be done with several technologies – the standard placedo disc topography and the more advanced Scheimflug image topography enhanced with the most up-to-date Belin/Ambrosio enhanced ectasia diagnostic software.

Corneal thickness – needs to be measured with several methods – Scheimflug image device and the Anterior Segment OCT. Patients with corneal thickness greater than 500 microns can typically have all-laser LASIK IntraLASIK with the 5th generation femtosecond iFS laser. Patients with corneal thickness below 500 microns may have either



Dr. Ella Faktorovich, the Director of Pacific Vision Institute, is doing all-laser LASIK with iFS laser. The entire procedure is visualized on the high-resolution video screen. Light adjustment is made based on whether procedure is performed on a light or a dark eye.

PRK or lens implant surgery.

During LASIK screening at Pacific Vision Institute, the doctors use Anterior Segment OCT to measure patient's corneal thickness and to see microscopic details of the front of the eye. This information is used to determine whether LASIK, PRK, or Lens Implant surgery is best for the patient.

Corneal biomechanics – is done to determine if the cornea is strong enough to undergo laser vision correction. This test is performed with an Ocular Response Analyzer and generates values called corneal resistance factor and corneal hysteresis. If these values are low, the cornea may be too weak for laser and the vision is best improved with lens implant.

Corneal microscopy and geometry – is done with an imaging device called Anterior Segment OCT. This is a mini-CT scan of the front of the eye and it shows in great magnification whether the front of the eye is healthy to undergo vision correction surgery.

Vision correction on the frontlines - what we learned from US Military

In today's army, air force, marines, and elite forces like navy seals, the biggest advantage in combat is to see the enemy before he sees you. Modern military surveillance technologies are capable of reading the license plate number on a vehicle 500 miles below. Night goggles can amplify the light of a star a thousand times and turn night into day. A pilot sitting in a control room in New Mexico can track down an enemy on the other side of the world and, if necessary, eliminate them. But these technologies are just extensions of a human eye and they are subject to its limitations.

Dr. Charles Reiley, a consulting surgeon to the Airforce Surgeon General states that incredible resources have been allocated by the US Military to study the safety and accu-

racy of current vision correction methods in combat personnel. Studies performed on hundreds of thousands of patients indicate that many patients achieve better vision without glasses and contact lenses than they had with them. The studies also show that night-time vision is actually better after laser vision correction than it was with glasses and contact lenses. "The most important weapon in the cockpit is the human," says Dr. Reiley. "To be able to offer them an upgrade in their vision so that they can see farther and see the bad guy sooner is priceless."

According to the studies performed by US Military, night-time vision is better after laser vision correction.

Commander Dr. Elizabeth Hofmeister, a Navy Flight Surgeon, says "In the military, we do not consider LASIK to be a cosmetic procedure. It is a warfighter gear issue. It may mean a difference between them living or dying on their job. It's that simple."

LASIK in the military is all-laser LASIK and it is performed with the latest generation femtosecond laser. Several femtosecond lasers used in all-laser LASIK are currently FDA approved. The best results are achieved with the 5th Generation iFS laser from Abbott Medical Optics. The most significant reason for the best results is the absolute smoothness of the area treated with laser. Perfect smoothness, combined with all the other necessary steps needed to carry out a flawless procedure, results in crystal clear vision.

Drs. Scott Barnes and David Tanzer have studied aviators under extreme conditions. They observe that patients' vision after surgery is often several lines better than 20/20.

All-laser LASIK results are the smoothest with the 5th generation iFS laser when compared with the older version of the laser, the 60kHz IntraLase FS laser and especially compared with the more primitive technology, the Ziemer FEMTO LDV laser.

Lens implants are a clear solution for some

Patients whose corneas are too thin or uneven for LASIK or PRK are better candidates for lens implant surgery. Extensive follow up is available from the US Military on how well these patients do after surgery. Better than 20/20 vision was achieved in 81% of these patients. 100% of the soldiers reported that they functioned and performed better after surgery than before both day and night.

Patients who are 45 years old and older may also benefit from lens implant surgery. Some lens implants can flex just like our own lenses do when we are young. With age, our lenses lose the ability to flex and we need reading glasses. Lens implant surgery with the new flexible lenses can restore our ability to read without glasses.