

## Chapter 2

# Deciding on Surgery

### Why you should have refractive surgery

All the refractive disorders that have been discussed – **myopia, hyperopia, astigmatism, and presbyopia** – can be corrected by prescription lenses. But many people dislike wearing glasses or contact lenses every day, and every year over one million people in the United States choose to have some type of refractive surgery. Most of these people are tired of being dependent on glasses or contact lenses, aren't you? Some of them are contact lens intolerant, which means they can no longer wear contact lenses without irritating their eyes.

There are many reasons to opt for refractive surgery, including the inconvenience of dealing with glasses or contact lenses. Your lifestyle will probably have the most influence on whether or not you decide to have this procedure. For instance, many professional athletes choose to have LASIK because it gives them a competitive edge.

All of the aforementioned optic disorders are treated by Dr. Chynn and his team at IWANT2020. Through the use of their advanced surgical procedures and reliable

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equipment, you will be under the best care in New York City. Our newly-upgraded VISX laser with autotracking technology is the best type of laser on the market and costs around \$500,000! Dr. Chynn is the only ophthalmologist in New City who had LASIK himself. As a result of his experience, he can provide you with optimal care and the best treatment your money can buy.

Below are some basic guidelines you should be aware of when making your decision. These will help you see if you are a good candidate for refractive surgery, and what you can expect from this procedure.

#### **Guideline 1: Are you the right age?**

The general age recommendation is for people who are between 18 and 55 years old. However, Dr. Chynn has successfully performed LASIK on patients who were as *young as 16* and as *old as 85*. The factors that determine whether you are the right age concern the general health and condition of your eyes. For example, even if you are the right age, some older people may have cataracts and this prohibits them from having LASIK.

On the other hand, younger patients, especially those in their late teens or early twenties, will most likely experience a gradual worsening of vision until they are about 30 years old. This is due to the fact that a person's eyes may continue growing in orbital length (front-to-back) until the age of 30. This is especially true for patients who engage in activities that require extensive close-up work, such as needlework, computer work, or heavy reading during college or graduate school.

This does not necessarily mean that these patients cannot undergo LASIK. Dr. Chynn is capable of compensating for this expected worsening of vision by *over-*

*correcting* the patient's eyes. Instead of aiming for a laser-corrected vision of 20/20, Dr. Chynn can adapt the surgery to produce a vision of 20/15. This means that the resulting vision is better than average, and allows for some deterioration without compromising the final result. Another option is to enhance the laser-corrected vision many years later simply by having LASIK again (this is called an *enhancement*).

### **Guideline 2: Is your vision correctable?**

The current LASIK procedure and the recently developed **wavefront-guided LASIK** will accommodate almost any prescription, whether it be myopic, hyperopic, or astigmatic. If your prescription has changed by more than 1.0 diopter in the past year, you may want to wait until your eyes have stabilized before considering surgical vision correction. However, it is very common for these patients to choose to have LASIK now, and either ask the surgeon for *over-correction*, or decide to have an *enhancement* later on when it becomes necessary.

Dr. Chynn had his own LASIK done in 1997. His pre-operative prescription was notated as [-7.50, 1.50 x 180, OU], meaning that he was severely nearsighted and moderately astigmatic in both eyes. He continues to have perfect 20/20 vision to this day. (**OU** = both eyes; **OD** = right eye; **OS** = left eye.)

The term **diopter** refers to the amount of refractive error in your eyes. A negative number indicates myopia, and a positive number indicates hyperopia. A greater diopter measurement signifies a more severe problem. LASIK has been used to treat people who have had up to 14 diopters of myopia and 6.0 diopters of astigmatism.

### **Guideline 3: Do you have healthy eyes?**

People who have glaucoma, dendritic corneal ulcers, severely dry eyes, keratoconus, aggressive keloid formation, corneal dystrophy, or other serious disorders or diseases are not eligible for refractive surgery.

To ensure that your eyes are healthy before your LASIK, soft contact lenses cannot be worn for two weeks prior to surgery, and hard contact lenses must be removed at least three weeks before surgery. This is important for the most optimal surgical results because contact lenses usually warp the cornea, and patients need to allow time for the cornea to regain its natural shape.

The curvature of the cornea is detected by a sophisticated computer called a **corneal topographer** (described in the next section), and your surgeon will not proceed with refractive surgery until the topographer detects a fairly symmetrical corneal surface.

Hard contact lenses need to be removed for a longer period of time than soft contact lenses because they tend to warp the cornea more severely. **Corneal warping** also depends on the fit of the contact lens and the length and duration of time for which the lenses were worn. It is strongly recommended that any patient who wears contact lenses not wear them for more than 8-12 hours a day, and it is especially advisable to remove them overnight.

### **What kind of tests will you need?**

You should be prepared for thorough pre-operative testing. Dr. Chynn and his team will take you through a complimentary, comprehensive 10-point eye exam to make sure you are a good candidate for refractive surgery and to make sure you get the surgical procedure that is best suited for your eyes.

## **Here is a description of what you can expect:**

### **1) Analysis of Old Prescription**

We will “read” your old eyeglass prescription to make sure it is static and consistent.

### **2) Auto-Refractor (AR)**

This machine measures the degree of hyperopia, myopia, and/or astigmatism in your eyes using infrared technology.

### **3) Corneal Topographer**

In this procedure, a computer creates an elevation map of your corneal surface. The main purpose of this test is to determine the frontal curvature of your eye and to ensure it is not wrapped. If you opt for the Wavefront procedure, an aberrometer is used to create a custom ablation profile prescription.

### **4) Slit-Lamp Examination (SLE)**

Also known as a biomicroscopy, this examination analyzes at the anterior (frontal) structures of your eye, including the eyelid, sclera, conjunctiva, iris, and cornea.

### **5) Ultrasonic Pachymeter**

This device is used to measure the thickness of your corneas. A minimum thickness is required for LASIK. If your corneas are too thin, you may be a good candidate for LASEK, an alternative procedure. The usual corneal thickness is about half a millimeter, or the width of 2 human hairs.

### **6) Tonometer**

In this procedure, we use an instrument that measures the intraocular pressure of the eye to make sure you do not have glaucoma. The normal intraocular pressure ranges from 11-21 mmHg, or about 1/50<sup>th</sup> of the atmospheric pressure around you.

### **7) Introduction to Monovision**

Simply put, monovision is correcting one eye for seeing things close up, while correcting the other eye for seeing things that are far away. Your brain will figure out when to use which eye and this procedure may be useful for pa-

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tients who want freedom from reading glasses at an older age.

### **8) Glare Testing**

This simple test measures the extent of pre-operative glare that you normally see around bright objects. It will only be performed if you tell us that you have significant pre-operative glare symptoms. You can take this test again post-operatively to quantitatively measure if your glare has worsened or remained the same. Some patients are more sensitive to *nighttime glare* after surgery simply because they are more concerned about any aberrations in their vision; however, most do not experience a significant measurable change.

### **9) Dry Eye Syndrome**

In order to test and diagnose for this, we will measure your tear production, evaporation rate, and quality of tear film. Oftentimes, artificial tears can correct this relatively minor problem.

### **10) Pupil size reading**

This reading is performed in a darkened room with a simple instrument called a pupillometer that measures the diameter of your pupils. People with large pupils tend to have a greater degree of higher-order aberrations, and they may be good candidates for the *Wavefront procedure* (see Chapter 5). Our new WaveScan machine for the VISX Star S4 laser with an IR4 upgrade has a built-in pupil-measurement system, so we automatically perform this test on each and every patient, and adjust the diameter of the WaveFront treatment to match your pupil size if necessary.