High Technology Cataract Surgery

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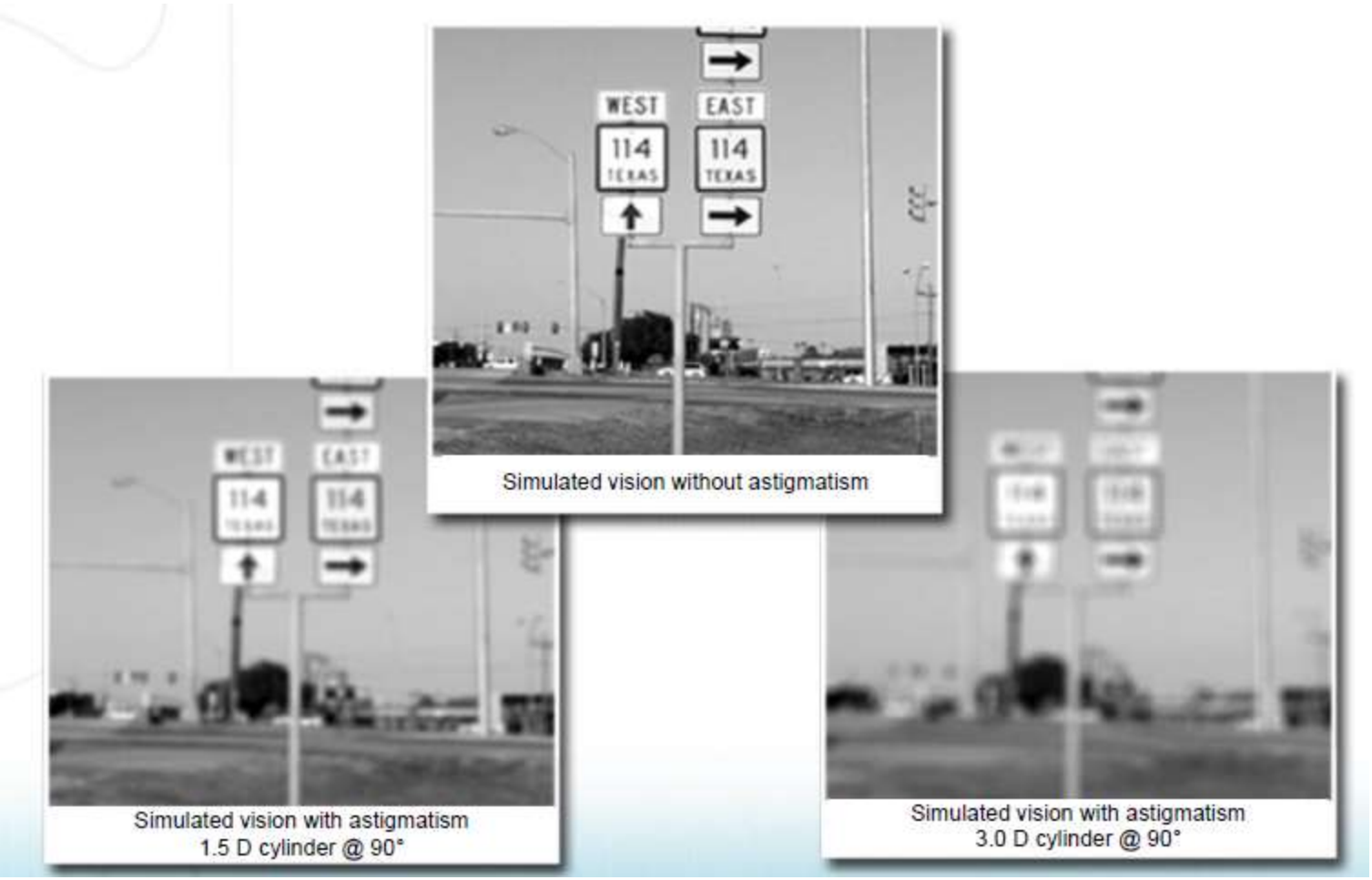
Financial Disclosure

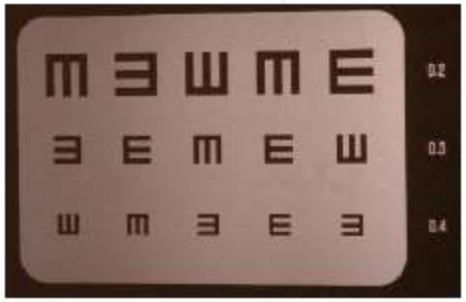
Speaker, Joseph Wilhelm, M.D. has a financial interest/agreement or affiliation with Lansing Ophthalmology, where he is a shareholder and employed as a retina specialist.

So What About Astigmatism?

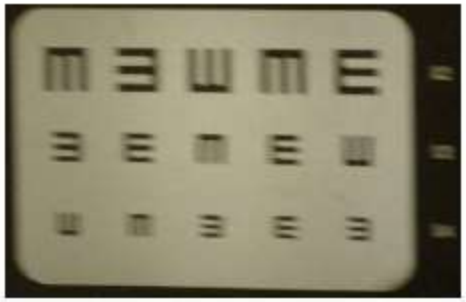
How do we treat it?



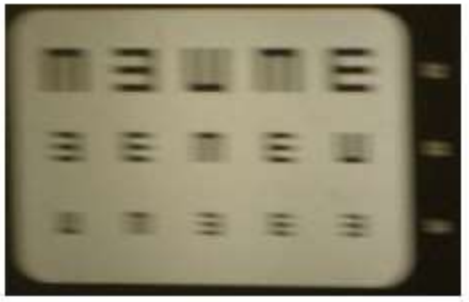
Quality of Vision is Deteriorated Considerably by Astigmatism



No astigmatism*



1.0 D astigmatism*



2.0 D astigmatism*

Toric IOL Benefits

The combined advantages of toricity and asphericity

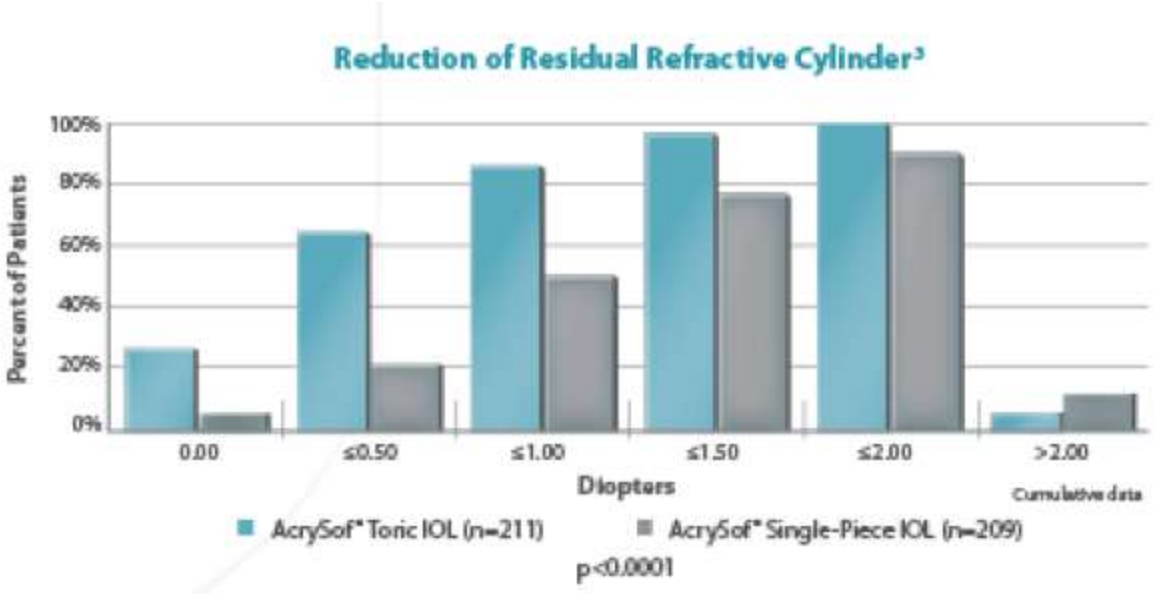
Toricity[1]

- Reduction of residual refractive cylinder
- Improved uncorrected distance visual acuity
- Increased spectacle-independent distance vision
- Rotational stability
- Wide range of cylinder powers

Asphericity[2]

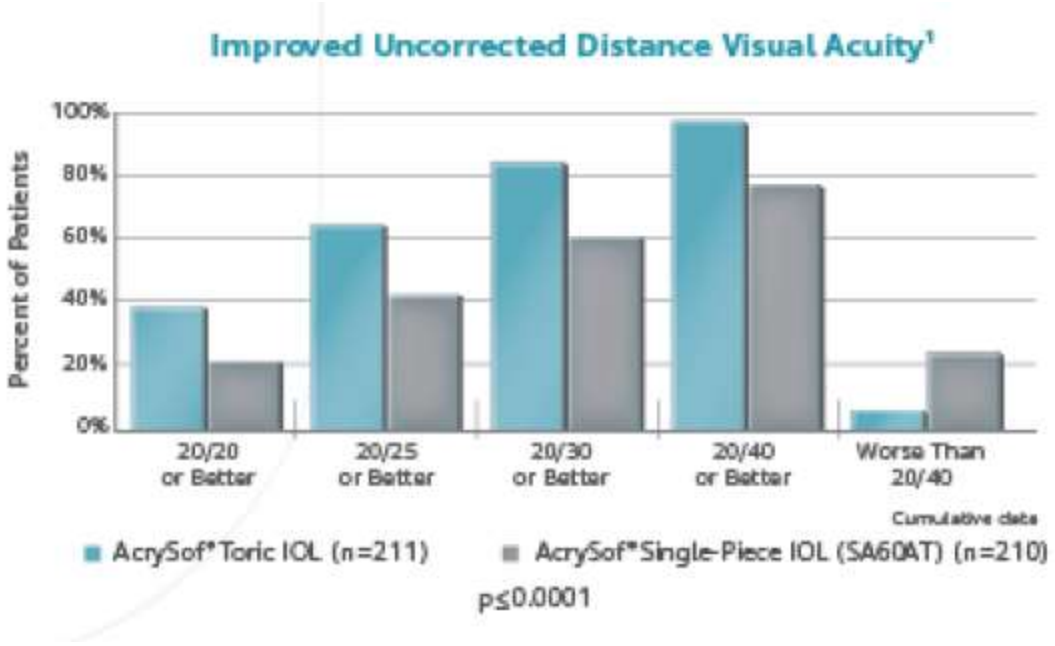
- Enhanced image quality
  - Reduction in spherical and total higher order aberrations (HOAs)
  - Increased contrast sensitivity under mesopic conditions
  - Improved functional vision
- Thinner edge profile

Reduction of Residual Refractive Cylinder



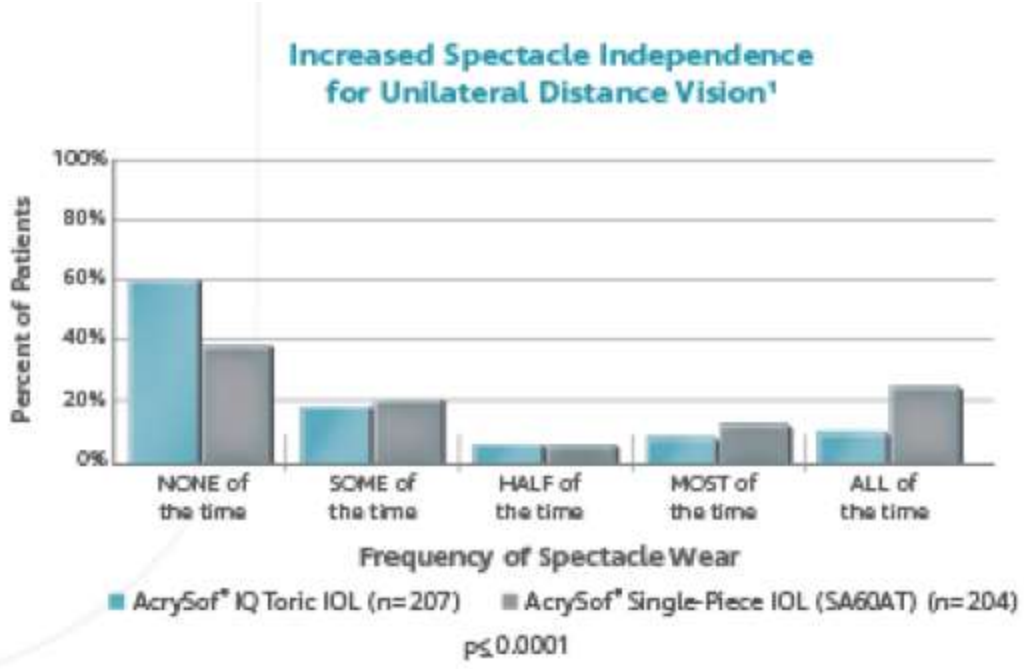
- 62% of patients achieved ≤0.50 diopters of residual refractive cylinder.[3]
- 87% of patients achieved ≤1.00 diopters of residual refractive cylinder.[3]

Improved Uncorrected Distance Visual Acuity



94% of patients implanted achieved uncorrected distance visual acuity of 20/40 or better.[1]

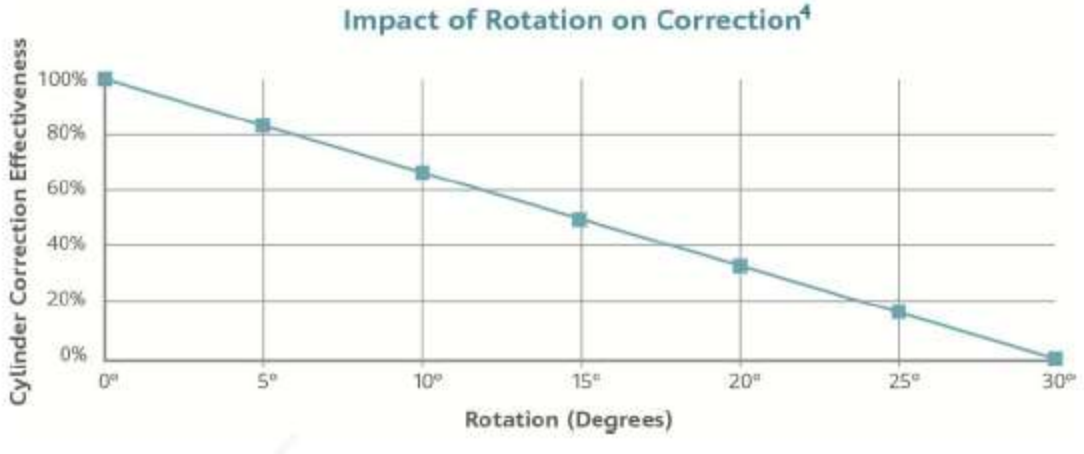
Increased Spectacle Independence for Unilateral Distance Vision



Approximately 60% of unilateral patients implanted achieved spectacle-independent distance vision.[1]

Rotational Stability

IOL rotation can have significant impact on astigmatism correction.[1]



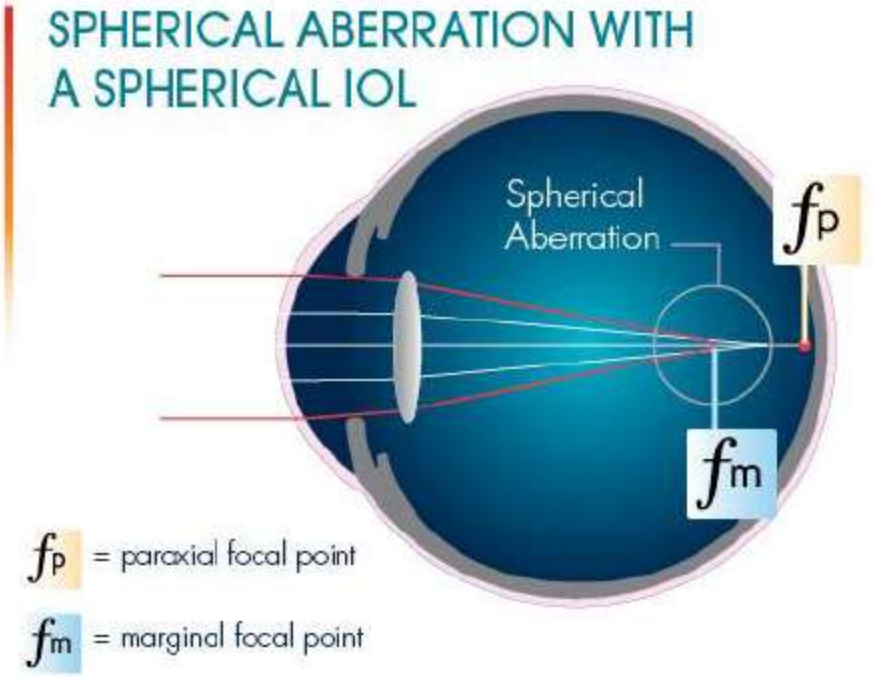
- Generally, for every degree of IOL rotation, 3.3% of lens cylinder power is lost.[1]
- A complete loss of cylinder power can occur with a rotation of >30°.[1]

The Benefits of Aspheric Optics

The Problem: Spherical Aberration

Light rays are over-refracted at the periphery of the optics.

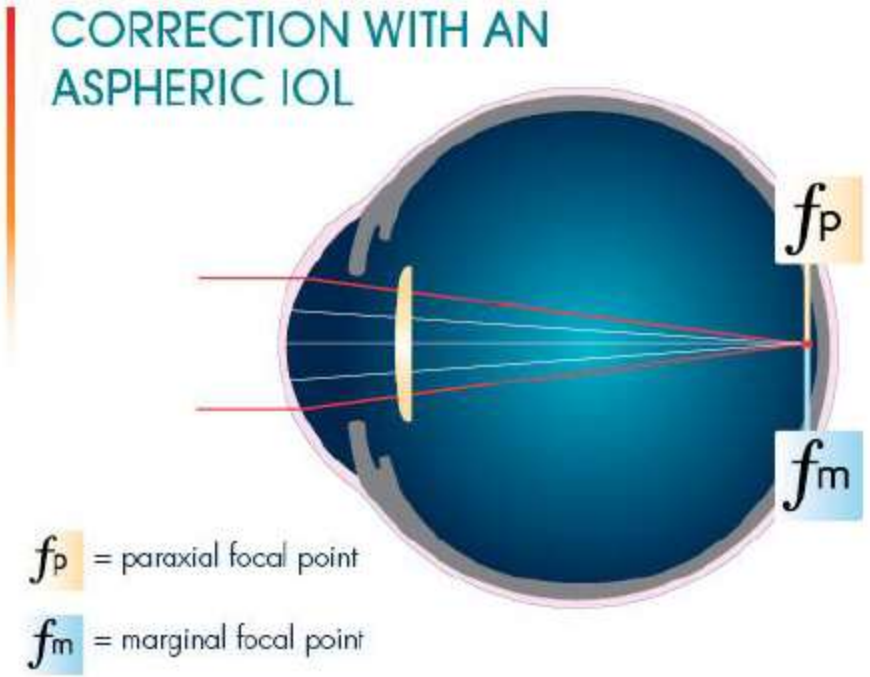
› This region of defocused light can reduce image quality.



The Solution: Aspheric Optics

Negative spherical aberration aligns the light rays to compensate for positive spherical aberration.

› This results in enhanced clarity and image quality.



Improved Functional Vision

The aspheric design of the IOL provides improved functional vision in **challenging, low-visibility enviroments**[2]:

- Allows patients to more quickly detect and identify objects
- Allows more time to react

Functional Vision Study

Patients were tested monocularly in a night driving simulator in simulated city and rural settings under normal glare and fog conditions.

- Patients with an IOL had an average increase of over 130 feet (versus the control lens) in which to stop after identifying a warning sign.[2]

Toric IOL Procedural Considerations and Surgical Planning

Procedural Considerations

- The surgeon performs a **standard cataract procedure** from capsulorhexis through phacoemulsification.

- The Toric IOL implantations requires only minor variations from the standard procedure:

1. IOL calculation
2. Marking of the eye
3. IOL alignment (on-axis)

IOL Calculation

Step 1:

-Surgeon determines required sherical power using preferred biometric method

Step II:

-Toric IOL Calculator determines:

- -The recommended IOL model
- -Optimal axis location of the IOL in the capsular bag

IOL Calculator

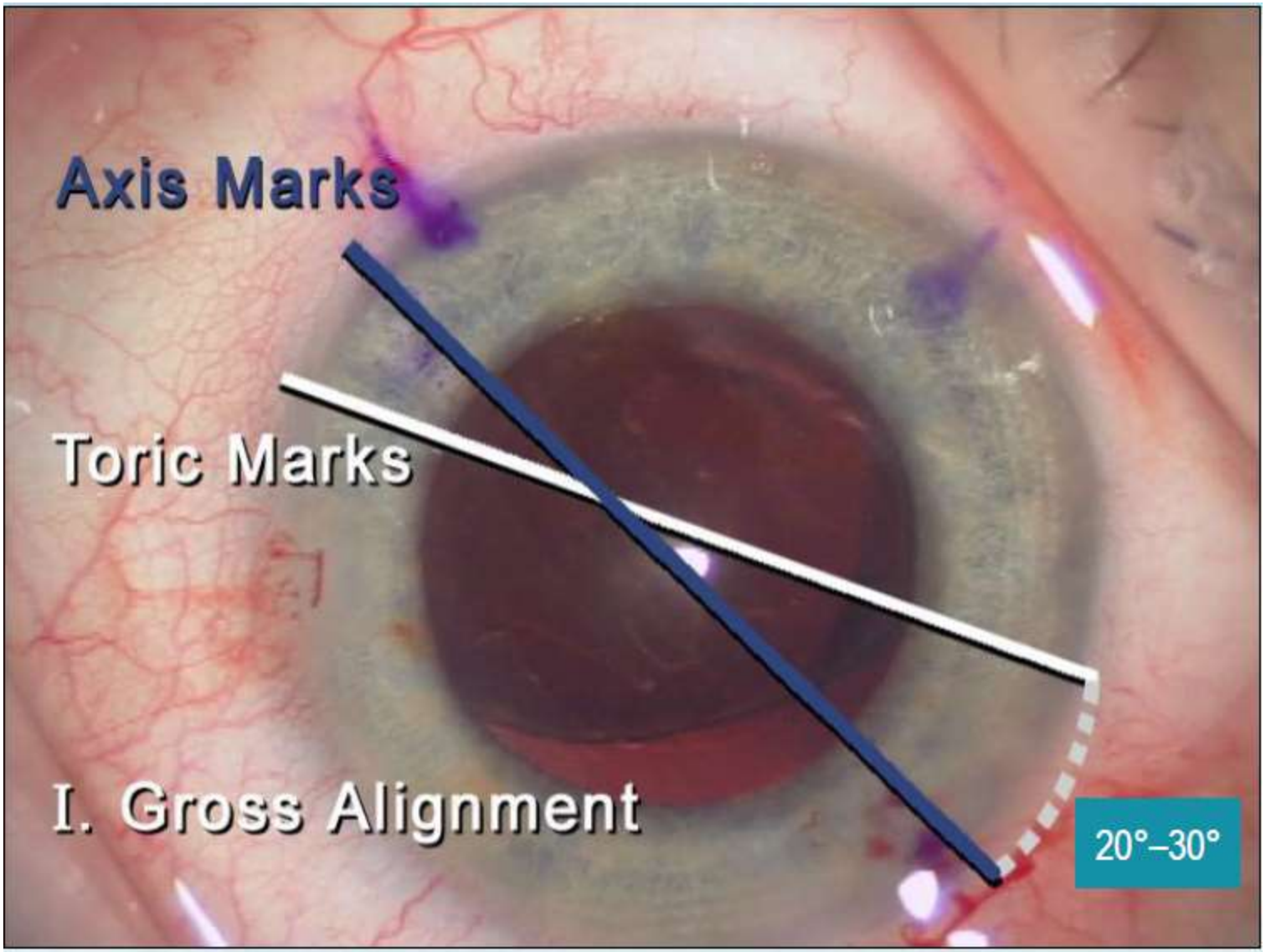
Makes precise surgical planning easy!

- **Intuitive Input**
  - Patient data
  - Keratometry
  - IOL spherical power
  - Surgically induced astigmatism
  - Incision location
- **Powerful Output**
  - Toric IOL recommendation
  - Axis placement
  - Anticipated residual astigmatism

IOL Alignment

Step I: Gross Alignment

- IOL alignment is made following lens implantation into the bag.
- While the lens is unfolding in the capsular bag, the surgeon rotates the IOL clockwise to approximately 20 to 30 degrees short of the desired position.


Axis Marks
Toric Marks
I. Gross Alignment
20°–30°

IOL Alignment

Step II: Stabilizing IOL During OVD Removal

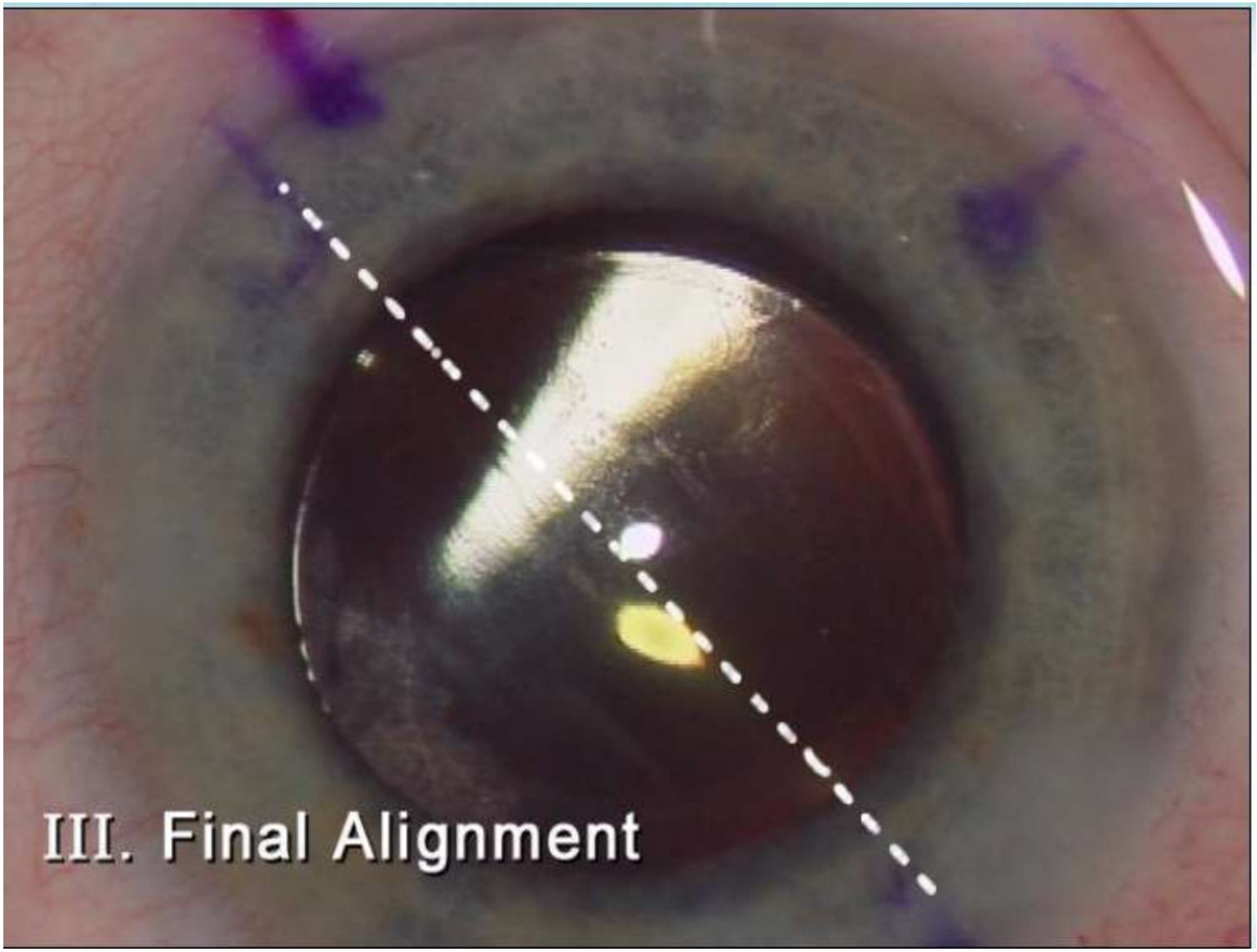
- Special care must be taken to prevent the IOL from rotating past its intended axis during OVD removal using:
  - A secondary instrument
  - Silicone I/A tip


II. Stabilize IOL During OVD Removal

IOL Alignment

Step III: Final Alignment

- The lens should be manipulated clockwise precisely onto the intended axis of alignment, as previously marked.
- There are several different tools and techniques available for viscoelastic removal and final alignment of the lens. Surgeons should use whatever technique they are most comfortable with.
- The IOL should be tapped down into the capsular bag to seat the lens in place.


III. Final Alignment

Cataract Surgery and the Shift to Advanced Technology IOLs

Agenda

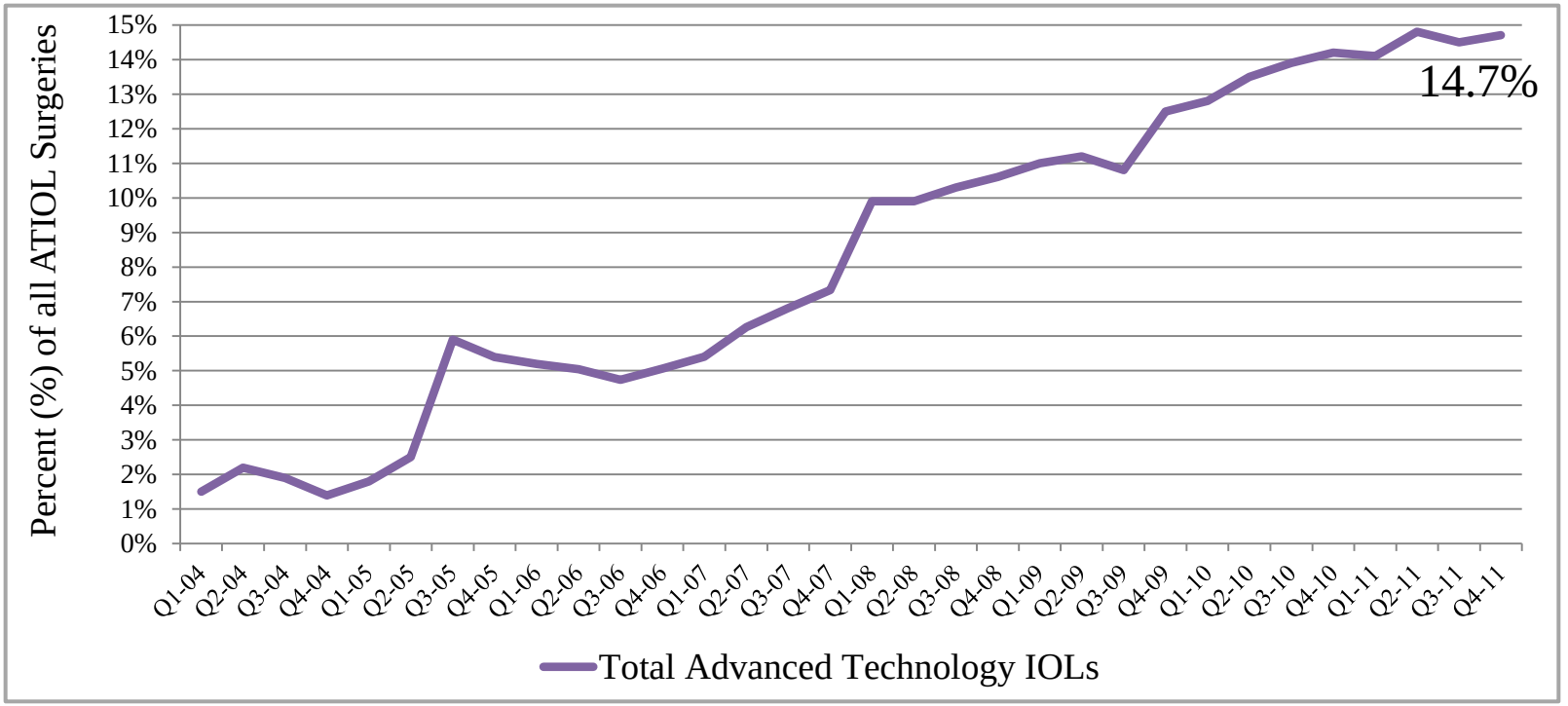
- The Cataract Surgery Market
- Understanding Today’s Cataract Patient
- Shifting Your Surgical Approach
- Recommending with Confidence

The Cataract Surgery Market

Cataract Procedures are Growing[1]

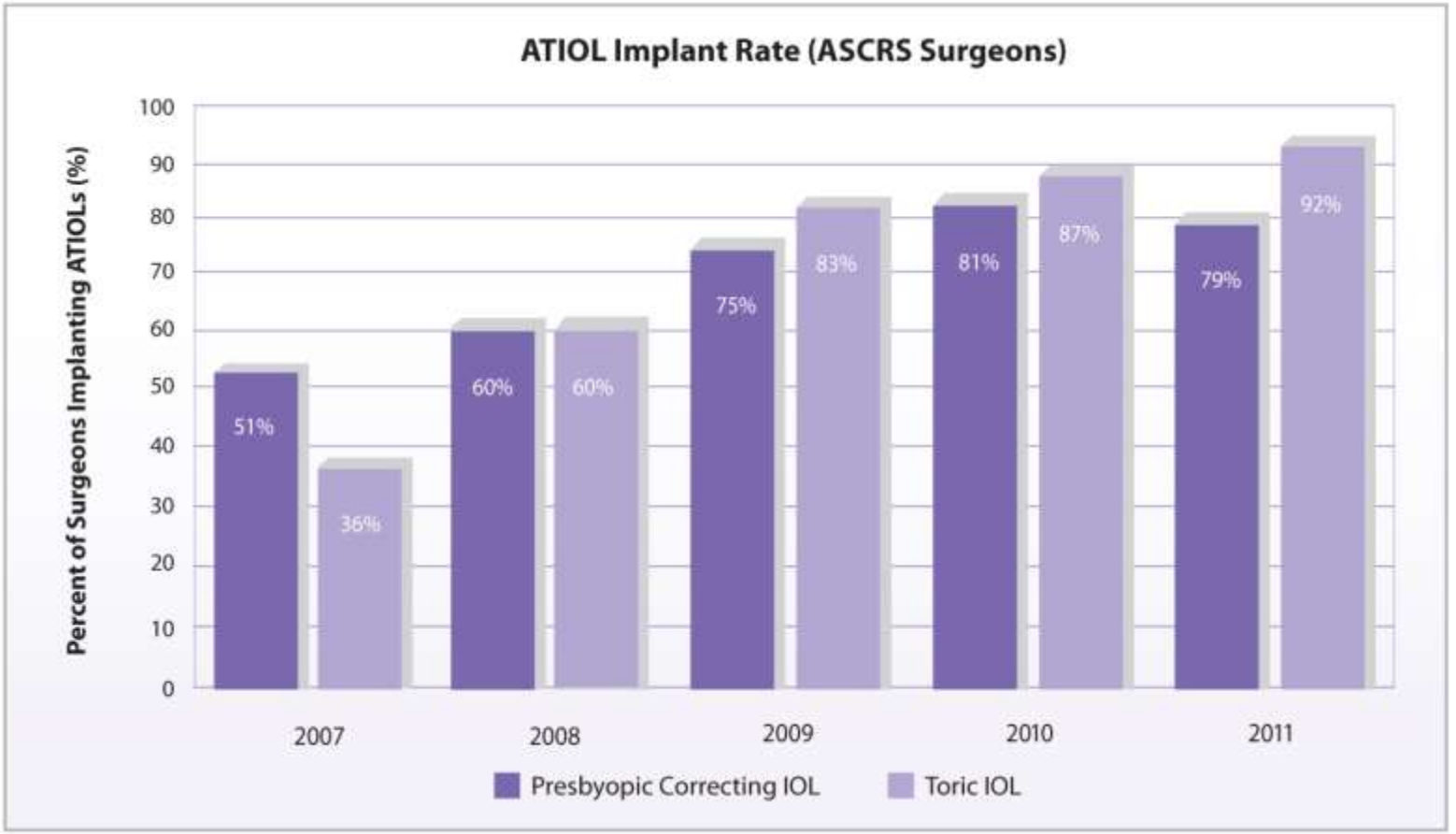
1. Market Scope, LLC.

2004-2011 Advanced Technology IOL Preference Share[1]



1. 4Q11 Market Scope Quarterly Cataract Update

More Surgeons are Implanting ATIOLs[1]



1. 2009 ASCRS/ESCRS Member Survey (Leaming Report).

Understanding Today's Cataract Patient

Start of the Baby Boom

Source: Centers for Disease Control and Prevention. Vital Statistics of the United States, 2003, Volume I, Natality. Table 1-1: Live births, birth rates, and fertility rates, by race: United States, 1909-2003. http://www.cdc.gov/nchs/products/vsus.htm

Rate of Baby Boomers Turning 65 Yrs. Old in the US

- 2.7 million per year
- 7,584 per day
- 316 per hour
- 5 per minute

Source: http://www.aarp.org/personal-growth/transitions/boomers_65/

Getting to Know Today's Cataract Patient

- Large, rapidly growing demographic (i.e., baby boomers)
- Educated, financially secure
- Increased life expectancy
- Longer working careers

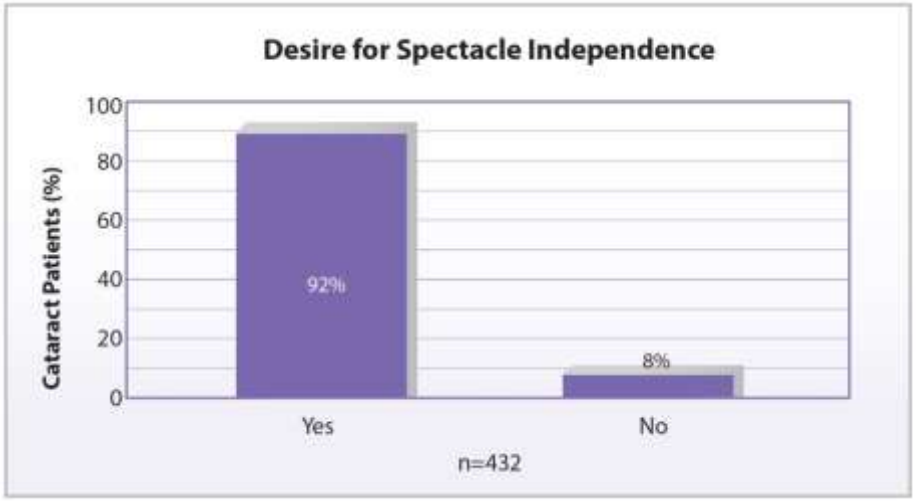
Getting to Know Today's Cataract Patient

- Are unwilling to compromise active lifestyle
- Embrace demand-driven healthcare
- Demand high quality vision (e.g., reading, distance, night)
- Have new requirements for intermediate vision (e.g., computers)

More Patients Want Reduced Spectacle Dependence

Cataract Patient Survey – Post Surgery[1]

For about $2,000 per eye, would you have taken advantage of new technology that could have helped **reduce your need for glasses?**



1. Chase Health Advance Financing Options Survey; Chasehealthadvance.com.

Types of multifocal IOL'S

- 1. Refractive

  Crystalens
- 2. Difractive

  Restore

  Technis

IOL's Under Investigation

When ciliary body relaxes lens becomes more Spherical in order to accommodate

1. Snychrony – 2 optics one in bag
2. Akkol – 2 optics in sulcus

Shifting Your Surgical Approach

Diagnostic Pearls

To ensure ideal multifocal IOL outcomes:

- Accurate biometry is critical to achieving refractive target
- Choose lens power based on intended placement, preference and experience
- Personalize lens constants using instrumentation, measurement technique and power calculation methods

Patient Selection Pearls

Appropriate multifocal IOL candidates should:

- Want spectacle independence
- Have 1.0 diopter or less of astigmatism
- Fit within the available IOL diopter range
- Qualify for bilateral implantation
- Have no contraindicated ocular pathology

Recommendation Pearls

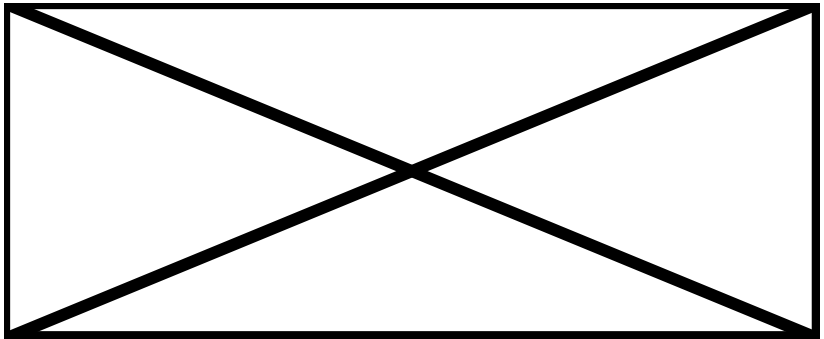
When recommending an ATIOL:

- Review the patient's lifestyle and wants
- Explain all of their IOL options
  - Presbyopia correction
  - Astigmatism correction
  - Monofocal correction
- Educate on benefits
- Set expectations appropriately

Laser Cataract Surgery

- 1. Increase capsulotomy consistency
- 2. Soften nucleus
- 3. Treat mild astigmatism with limbal relaxing incisions

Femtosecond Laser



Thank You