

## Refractive Error Definitions

### Myopia

"In a myopic eye, the light rays are passed through the cornea and lens, but the point at which they converge (focus) is in front of the retina, not on the retina. This configuration allows clear images of near objects but not those that are far away."<sup>1</sup>

### Hyperopia

"In a hyperopic eye, the light rays do not converge or focus by the time they reach the retina. Hyperopic patients can focus on more distant objects, but not images that are close at hand."<sup>1</sup>

### Astigmatism

"With astigmatism, the rays of light do not converge into a single point but form a line on the retina. There are various types of astigmatism including regular, mixed, and irregular astigmatism. Currently, excimer lasers in the U.S. are approved for treatment of regular and mixed astigmatism. Recent advances in technology now allow for the therapeutic treatment of induced irregular astigmatism. In the future, this application may be expanded to include all types of irregular astigmatism. Patients who believe they

have astigmatism should discuss this subject in further detail with their physician to gain a better understanding of the mechanisms in their case."<sup>1</sup>

### Presbyopia

Presbyopia occurs with age as a progressively diminished ability to focus on near objects.<sup>2</sup>

"Presbyopia affects people as they enter their 40s. Caused by changes within the eye's crystalline lens as one ages, presbyopia affects everyone, and eventually everyone will need to wear reading glasses or bifocals. Presbyopia is not affected by the laser treatment."<sup>1</sup> In other words, presbyopia **cannot** be corrected with the use of LASIK eye surgery at this time.

### Sources:

1. Eye Surgery Education Council (2003). Refractive errors [on-line]. Retrieved September 17, 2007. From <http://www.lasikinstitute.org/Refractive.html>.
2. Wikipedia (2007). Presbyopia [on-line]. Retrieved November 30, 2007. From <http://en.wikipedia.org/wiki/Presbyopia>.