Astigmatism

Factsheet

What is Astigmatism?
For normal undistorted vision, the cornea should be smooth and equally curved in all directions. When astigmatism is present, the cornea is warped and curves more in one direction than the other. In other words, the cornea is shaped more like a rugby ball than a football.

Normally, light enters the eye and is focused precisely on the retina. With astigmatism, the warped cornea causes the light rays to bend improperly. They are not refracted equally in all directions and one focus point on the retina is not attained. Some light rays are not focused on the retina but are focused in front of or behind the retina. The result of multiple focal points is distorted vision. Objects appear somewhat indistinct and slanted. Vision with astigmatism can be compared to what one sees when looking through a glass bottle, with images appearing too tall, too thin, too wide, or blurred.

Astigmatism is most often caused by a defect in the curvature of the cornea but may also occur from an unequal bending of light by the lens inside the eye. Astigmatism is usually inherited and may be present at birth. Astigmatism can occur in conjunction with nearsightedness or farsightedness and usually remains unchanged through life.

Astigmatism can also result from corneal scars or surgery. An eye surgery may cause the cornea to scar, changing the path of light as it enters the eye. Some patients experience surgically induced astigmatism after eye surgery. Tightly tied sutures can cause a slight wrinkling of the cornea. The patient will experience distorted vision or astigmatism until healing or loosening of the sutures relieves the problem.

What are the symptoms of astigmatism?

- Blurred vision
- Distorted vision
- Headaches
- Eye strain

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Astigmatism is diagnosed with a routine eye examination. A visual acuity test is performed to determine the focusing power of the eye at different distances. A process called refraction is used to measure the refractive error of the eye and determine the prescription for corrective lenses.

A small amount of astigmatism is common and does not need correction. However, in cases where the problem is more severe, glasses and contact lenses are used to correct vision. To correct astigmatism, glasses or contact lenses are ground to neutralise the defective curvature of the cornea. Hard or gas permeable contact lenses generally improve astigmatism better than soft contact lenses. In some cases, however, soft contact lenses may be helpful.

Astigmatism can also be corrected with refractive surgery. Radial keratotomy, corneal transplantation and laser surgery are procedures used to correct the path of light as it enters the eye. The cornea is reshaped to allow light to focus properly on the retina. With refractive surgery, the eye regains its proper focusing ability and astigmatism is corrected.

If you are experiencing blurred or distorted vision or other eye problems, you should obtain a complete eye examination.

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