



Astigmatism is "common" in children with vision problems

Refractive errors are one of the most common causes of visual problems in children. It is important, therefore, to be aware of what they are and how your child might present with them, so that you can get them the help that they need.



So, what are Refractive Errors and how does Astigmatism fit into the picture?

The eye is designed to take the light bouncing off an object, e.g. A flower, and bend it in such a way that it perfectly strikes the most sensitive part of the eye. This area is called

the **macula** and forms part of the **retina**.

The retina is a delicate layer of cells that lines the back of the eye. It is able to translate this precisely directed stream of light into signals that are then sent to the brain. The brain then creates a clear picture from these signals and the child **'sees'** a flower.

If the eye is **unable to bend the light accurately onto the macula**, clear messages will not be sent to the brain, and the image formed will not be of a beautiful flower **but of a fuzzy blur**.

The word used to describe how the various structures in the eye bend light, is the term **"refraction"**. When there is a problem with one or more of these structures, and **the light is not bent precisely**, the child is said to have a **"refractive error"**.

There are several different types of refractive errors.

These are: **far-sightedness, near-sightedness, the loss of near vision with age and astigmatism**.

Astigmatism can occur on its own or together with one of the other types of refractive errors.

The two important parts of anatomy in the eye that bend light are the **cornea (the clear, round window at the front of the eye) and the lens**.

If the cornea and or the lens are not shaped correctly or if there is damage to their substance, the light passing through them is scattered and the image that the brain 'sees' is fuzzy, regardless of how near or far the child is from the object. This is called astigmatism.

Many very young children have astigmatism **due to the very round shape of their corneas**. As they grow, their corneas grow too and, in most cases,, the astigmatism resolves. Roughly **9%** of these children, however, will still have some degree of astigmatism that will need treatment.

Signs to watch out for in your child



Complaints of a **decrease in vision** or of **blurry vision**.

Complaints of **tired eyes** or of **frequent headaches**.

Feeling **dizzy**.

Your child sits **too close to the TV** or holds a **book too close** to their face when reading.

They cover **one eye**.

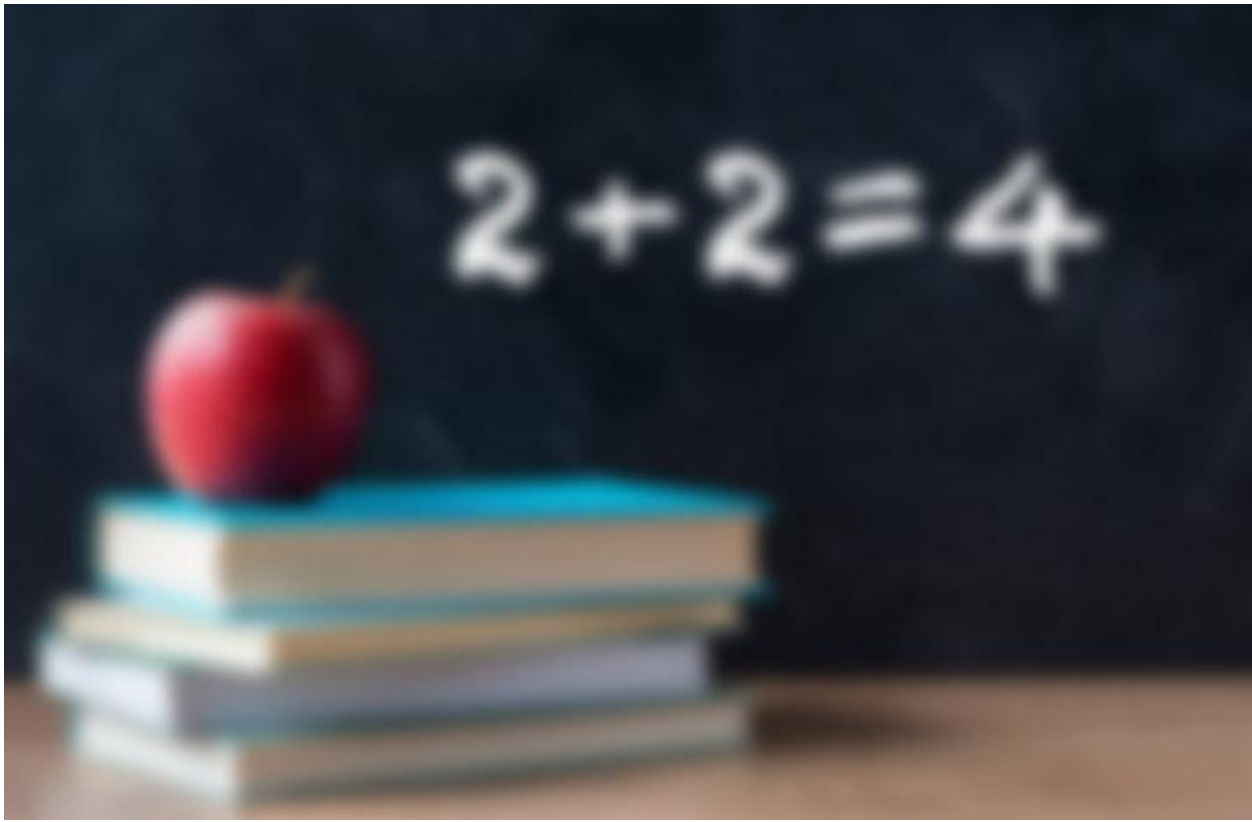
They **squint**.

They **tear up** or **rub** their eyes **frequently**.

They hold their **head to one side**. *This may be severe enough to cause scoliosis of the spine.*

They **avoid** games or activities with other children.

If left too long, they may simply stop trying to focus so that the discomfort of the eyestrain goes away.



Who should you see for assessment?

Children should have routine assessments at 6 months of age, at three years of age and then again at around 5 years of age or just before starting school.

This can be done by an **optometrist** or an **ophthalmologist**.

These assessments ensure that any '**hidden**' **problems** are picked up and treated before they limit the child's development.

If you notice any of the signs mentioned above at any other time during your child's growth, contact your nearest ophthalmologist for an appointment. Remember to book it at a time in the day when your child is alert and has had something to eat.



What tests will be done by my ophthalmologist?

The ophthalmologist will first establish just **how far your child can see**. In very young children, the doctor will use a specialised **torch** called a **retinoscope**. He or she may also hold up lenses in front of each of the child's eyes and then shine the light of the retinoscope through these lenses onto the eye to determine how far the child can see and **if a refractive error is present**.

In older children, **picture matching** is used to determine how far they can see and school going children identify different **sized letters of the alphabet**.

In older children, their ability to refract light accurately, is then tested. A device called a **phoropter** is used. Again, this is a painless procedure done in the doctor's rooms.

The child's eyes are then carefully examined. This will include **direct observation** by the doctor and the use of **various scanning equipment** that can create three dimensional images of the eye.

All the information from the various tests is combined and the cause, type and degree of severity of the astigmatism is established.

From here, **the treatment plan is created**.

How is astigmatism treated?

Most children with astigmatism are treated with **glasses and or contact lenses**. Should your child need correction, remember to make the process as positive as possible.

Focus on the benefits that the child will experience once they can see more clearly. Include them in **choosing** the frames. Ensure that the frames **fit** correctly. Any discomfort will discourage the child from wearing them.

As your child grows, the **shape of their eyes will change**. This means that the **prescription for the lenses will change too**. Frequent **follow ups** with the ophthalmologist is therefore very important.

In certain cases of astigmatism, surgery is required. If the cornea is the cause, its shape can be altered using, for example, a **specialised laser**. For severe cases, **part of or the entire cornea may need to be replaced**.

If the lens is the cause, this can be removed, and a **synthetic lens inserted**.

Most cases of astigmatism are easily diagnosed and treating them correctly will have a beneficial impact on your child's life.