What is strabismus?
Strabismus is any condition in which the eyes are not parallel. Whether one eye wanders or turns in or out, up or down, the condition that is often referred to as “crossed eyes” is medically called strabismus. Strabismus may be present all the time, or it may appear when the person is tired, ill, or concentrating on nearby objects. It may be obvious from birth, or it may become apparent later in life, even in adults.

It is not unusual for a newborn’s eyes to wander. The eye muscles are not well-coordinated at birth, but within a few weeks the infant learns to move both eyes together and the wandering disappears. If the condition does continue beyond early infancy, medical attention is necessary.

What is amblyopia?
If strabismus is present and the child does not receive medical treatment, as the child learns to see, the eye that is crossed sends a blurry image to the brain. The brain then rejects this blurry or doubled image, and soon, without knowing, the child stops using the weak eye. The result is that amblyopia or “lazy eye” often develops in the eye that is not being used, leaving the child nearly blind in that eye for life if the condition goes untreated.

Because most cases of strabismus and amblyopia can be treated successfully if diagnosed early, it is very important for parents to seek prompt medical attention.

Strabismus tends to run in families. Watch your child closely for signs if any other family member has had it. While some children are born with it, please keep in mind that others develop strabismus as they grow older. Occasionally, an eye disease makes eyes wander. In this case, strabismus is a helpful clue that a problem exists.

As a parent, trying to detect strabismus without a doctor’s help is not always an easy task. Taking your child to the pediatrician or family doctor for routine examinations can be extremely important in uncovering potential vision problems. And fortunately, it is never too early to have a child’s eyes examined thoroughly by a doctor who specializes in the diagnosis, care, and treatment of the eye. In fact, even infants can be tested successfully. But if you wait until your child enters school, it may be too late to correct strabismus.

The goals of treatment
If your child has been diagnosed as having strabismus, your eye doctor will prescribe a specific plan of treatment. The three main goals of treatment are:

- To preserve your child’s vision
- To straighten the eyes
- To make the eyes work together, if possible

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Reaching these goals may require years of treatment, but remember - your child’s vision is at stake. The doctor has tools with which to help your child - patching, glasses, exercises, and sometimes, surgery is required. None of these treatments will be successful without the most important tool - your help. By starting treatment early and making sure that your child follows it properly, you can take the first step to achieving and maintaining good vision for your child.

Vision problems differ for every child and each calls for a special course of treatment. Your doctor will explain which treatment option will best fit your child’s needs. Usually there is no quick or simple solution for treating amblyopia. But the goals of treatment are worth working for. With time, early treatment, and the full cooperation of both you and your child, it is likely that one or more of the treatment goals can be reached.

**Patching**

Not every case of strabismus results in amblyopia, but when it does, it must be treated in order to prevent a loss of vision. The most common and effective treatment for amblyopia is patching.

When a patch blocks the vision of the straight eye, the lazy eye is forced to work. The patch will be worn for a period of several weeks, and then the vision will be rechecked. The patch must be worn for a set amount of hours every day for progress to be achieved. Occasionally, long-term, part-time patching may be necessary. An adhesive-backed patch works best. These can be purchased at any drug store. Cloth patches and patches which attach to the lens of the glasses are too easy for a child to remove.

By the time a child has reached age 6 or 7, the pattern of amblyopia has usually been firmly set and patching is not usually successful. The earlier patching is started, the more effective it will be. The later it is started, the longer it will take to restore vision.

**What if my child doesn’t want to wear the patch?**

Naturally, many children will rebel and want to remove the patch. By using the patch, we have blocked the vision from their good eye, and they will have trouble seeing at first. This problem usually disappears as soon as the child gets used to wearing the patch. As a parent, you may be tempted to give in and allow the child to go without the patch, but remember that every time the patch is removed, effective treatment is delayed.

You can help to make sure your child will wear the patch by using your, and your child’s, imagination and decorating the patch. Allow your child to choose the image and help make the patch a sight to behold. Another motivation is the reward system. Most children love stickers. Create a chart and add a sticker at the end of each day when the patch was worn for the proper amount of time.

If your child is properly prepared, they will accept the patch without too much difficulty. But, if your child shows too much resistance, consult your eye specialist for further advice.

**Glasses**

Nearsightedness means that you can see near objects more clearly than distant ones. The eyeball is too long, causing light rays from distant objects to meet and focus before they reach the retina. This makes distant objects appear blurry. In astigmatism, the cornea is irregular in shape so that objects at all distances look blurred. Nearsightedness, astigmatism, or both, may appear along with strabismus.

Farsightedness, on the other hand, usually does not cause blurred vision in childhood, but may cause strabismus. When someone is farsighted, it means the eyeball is too short. Light rays from distant objects would normally be focused behind the retina, making near objects look blurry. However, the child’s eye can easily (and automatically) accommodate by changing the shape of its lens to focus light rays on the retina.

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When the child’s eye focuses on nearby objects, the eye must accommodate even more. In some children, the process is accompanied by a strong tendency for the eyes to turn in. These children will have crossed eyes all or part of the time.

Glasses are often prescribed to help straighten a child’s eyes. Giving the sharpest possible vision will make the treatment of strabismus easier. As light enters the eye, it is bent (refracted) by the cornea and lens to focus on the image (the point of focus) on the retina. The lens automatically changes shape to adjust the focus of far objects. This process is called accommodation.

How do glasses keep my child’s eyes from crossing?
In a farsighted child with crossed eyes, glasses are not prescribed to improve vision since eyesight is usually normal. Instead, they are given to relieve the eyes of the need to accommodate. The focusing is now done by glasses rather than by the eye muscles, and the eyes are allowed to straighten.

For a child with nearsightedness or astigmatism, glasses can both improve vision and increase the chances of overcoming amblyopia and achieving fusion.

If my child wears glasses, will patching or surgery be needed?
Sometimes glasses alone will successfully straighten eyes. Often, however, glasses will only partially straighten the eyes and surgery may still be needed. In the case of amblyopia, patching must be used as well as glasses.

If my child sees well without glasses, why do they have to be worn all the time?
Keep in mind, that glasses for the farsighted child are given to straighten the eyes, not improve vision. They must be worn full time to be effective.

When can my child stop wearing glasses?
As a child grows, the eye grows and develops, becoming longer and less farsighted. As this occurs, the glasses will need to become weaker as the years go by. Frequently, glasses are not needed by the time the child is a teenager. However, if glasses are prescribed to correct nearsightedness or astigmatism, they may always be needed to help the child focus.

Surgery
Strabismus surgery is often used along with glasses and patching to correct eye muscle coordination. It is a safe and simple operation. By adjusting the tension of the outer muscles on one or both eyes, the eyes can be straightened. If surgery is performed on an older child, the eyes can be made straight, but fusion will probably not be achieved.

What happens during surgery?
The ophthalmologist makes a tiny incision in the outer covering of the eye, where the muscles are attached. If the muscles need to be weakened, it will be moved further back (recession). If the muscles need to be strengthened, the doctor will remove a piece of muscle, reconnect the ends, and sew the muscles back in place (resection). (It is not necessary to remove the eyeball in order to repair the muscles.) The incision is closed with tiny stitches that will eventually be absorbed and that do not have to be removed.

On the day of surgery, your child will probably be given a relaxing medication to bring on drowsiness before entering the operating room. The anesthesiologist will make sure that he/she is safely asleep during the entire operation. After surgery, specially trained nurses will watch your child carefully. There should be little or no pain from the operation, although the anesthetic may cause some nausea. For a brief time, one or both eyes may be covered by a surgical patch.

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Your child will return home the same day. Your doctor may give you some ointment or drops to put in your child’s eyes for a few days. The eyes will be red where the muscles were adjusted, but this will disappear in about 2 weeks. Your child will return to his or her normal routine in one or two days. Be sure to follow all of your doctor’s postoperative instructions.

**Will more than one operation be necessary?**
Often times, one operation will be enough; however, the amount of correction that is just right for one child may be too much, or too little, for another. It is always possible that more than one operation may be needed.

**Why can’t my child have surgery instead of wearing glasses?**
Surgery is intended to correct only the amount of strabismus that glasses won’t take care of. Remember that your child’s eyes will be developing further, and that glasses for farsightedness will probably not be needed in a few years. If too much surgery is performed at a young age, by the time your child is a teenager, the eyes could begin to turn the opposite way.

**Will my child need glasses or patching after surgery?**
If glasses were needed before surgery, most likely they will still be needed after surgery. Surgery will help to straighten your child’s eyes, but is only one tool of treatment, not a complete cure. Your child will need to wear glasses until the course of treatment is completed. And sometimes patching for amblyopia is also necessary after surgery.

**What about eye exercises?**
Eye exercises (orthoptics) may be useful in certain cases of strabismus. They are intended to help the eyes move together and to encourage fusion. They are especially helpful in treating a child who eyes are almost straight or following a surgery. Orthoptics can also evaluate the potential for fusion before surgery and help “prepare” the eyes for fusion following surgery. These exercises are usually carried out under the supervision of an optometrist or a certified orthoptist.

**Can eye drops help improve visual acuity?**
Atropine is a dilating drop treatment that blurs the visual acuity in the good eye. This allows the child to use the lazy eye and strengthen the vision in it. The drops are used daily.

**Once surgery is completed and the eyes look straight... are we done?**
Please keep in mind, your child’s eyes may look straight after surgery, but they are still learning to see correctly. It is very important for your child to continue visiting the ophthalmologist until the full course of treatment is completed.

**Key Points to Remember:**
- Your child will not outgrow crossed or wandering eyes.
- Without proper treatment, strabismus can lead to amblyopia - a permanent loss of vision.
- It is never too early for a child to have an eye exam. The earlier treatment is started, the more likely it is that your child’s vision will be preserved.
- Surgery can be a safe and effective way to straighten the eyes.
- After surgery, your child needs to continue to visit the ophthalmologist until the full course of treatment is completed.
- With your help and your doctor’s help, your child can learn to see correctly.

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