

Strabismus & Amblyopia

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Strabismus & Amblyopia

Strabismus (strah-biz-mus) and amblyopia (am-ble-o-pe-ah) are not diseases but visual conditions that affect the function of a person's visual system (which is composed of the eyes, the brain and the connections between the two).

First...Strabismus

In strabismus, commonly known as crossed eyes or wall eyes, a person's eyes are not in alignment. One eye may turn in or out, up or down, or may wander in several directions. The symptoms of strabismus (such as eye turn) may always be present, or they may appear only when a person is tired, ill, or concentrating intensely on objects.

Next...Amblyopia

If the brain suppresses the signals from one eye long enough, a condition called amblyopia results. Amblyopia is called lazy eye because one eye stops functioning properly.

What Happens in Strabismus and Amblyopia?

First, it's important to understand a little about the visual systems. The eyes are held in place by tiny, very strong muscles tighten on one side and relax on the other, the eyes turn. The brain controls the movements of these muscles so that both eyes move together—left, right, straight ahead, up, down and all around. The brain must keep the two eyes moving together, so they can both focus and point at the same object at the same time. The eyes must work together or an unclear impression/perception results.

When a person looks at something, light enters the eye and the result of what is seen is focused on a special place at the back of the eye called the retina. Here, through a complicated chemical process, the light is turned into nerve signals that travel from both eyes to the brain. Once the signals are received, the brain joins them in a single image and identifies what is seen. The joining of each eye's perception (called fusion) is an important part of normal vision. Functional problems like strabismus and amblyopia affect the signals between the eyes and the brain. Confusion may result.

What Causes Strabismus

Strabismus has different causes. The condition is usually caused by poor eye teaming skills which include confusion in the signals traveling between the eyes and the brain. The “eye-brain connection” is not working properly. Developmental difficulties in a child may cause problems with eye “teaming,” which is the ability to point the eyes in the same direction.

When the two eyes work together, a person will have better overall visual skills. The younger the child, the easier it is to learn correct visual habits. Like walking or talking, these skills can be taught and developed at any age. Early detection and treatment of functional problems by an optometrist is important.

Strabismus can also be caused by trauma, fever, in rare cases a missing muscle, spastic muscle control, nystagmus, infections, paralysis, stroke or eye scarring.

How Does Strabismus Affect Vision?

If the eyes point in different directions (as in strabismus), each eye sends a different picture to the brain. This can sometimes, but not always, produce obvious confusing visual signals.

The brain, however, will eventually ignore or suppress messages from one eye in order to make sense of what is seen. A person may not be aware this is happening because suppression causes no pain. To the brain, it is as if one eye is closed. But the normal process of fusion (merging the two pictures from each eye into one) is disrupted. A number of functional visual difficulties can occur as a result of strabismus, but the only obvious symptom is eye turn.

How does Amblyopia Affect Daily Life?

Experts estimate the eyes gather 80 percent of all information received in a day, so any visual inefficiency has a major impact on a person’s functioning. Amblyopia can make it harder to read, catch a ball or park a car. Activities such as these may require extra effort and strain to compensate for visual limitations.

Because the two eyes do not work together, people with amblyopia may find it hard to use binoculars and microscopes, may need to turn their head to see certain things, may close one eye when reading. Because the eyes are not working at 100 percent efficiency, it may be difficult to work at a computer or do other close work for long periods or time. Like strabismus, the only obvious symptom of amblyopia may be eye turn.

How Are Strabismus and Amblyopia Detected?

At birth, a baby's eyes are not well-coordinated and may wander. Within a few weeks, however, an infant usually learns to move both eyes together and the wandering should disappear. If a child's eyes continue to drift, this can indicate a visual problem, such as strabismus or amblyopia.

Parents who notice an unusual eye turn or a wandering eye in a child should contact an optometrist. Sometimes, however, there are no visible clues. The eye turn may be so minimal or infrequent, that even parents and teachers miss strabismus or amblyopia in young children.

That's why it is important that parents schedule visual examinations for children with a behavioral optometrist at least by the age of 3 and yearly thereafter.

Can Strabismus and Amblyopia be Treated?

Both strabismus and amblyopia can be treated, depending on the severity of the problem. The eyes need to be retrained to gain greater coordination and control and taught to work as a team.

When detected, the training or "retraining" process (vision therapy) can begin at any age, even in infancy, by using systematic visual activities under the supervision of a behavioral optometrist. A behavioral optometrist might use lenses and prisms along with vision therapy activities to change visual habits. The treatment plan helps teach a person to trade inefficient visual habits for more effective ones. At times, patching one eye may be necessary in people with amblyopia.

The treatments for amblyopia and strabismus are similar and may be very complex and require a considerable amount of family and doctor participation. The person must learn to process and take meaning from the signals of the suppressed eye. Amblyopia and strabismus are best corrected by beginning treatment as soon as possible.

For more information on strabismus, amblyopia, vision therapy and other visual conditions, contact your behavioral optometrist.

Not all optometrists practice behavioral optometry. If you'd like to visit a behavioral optometrist, call or write OEP Foundation for a referral list in your area.

See your family doctor of optometry annually.