

# New York Times

PERSONAL HEALTH

## Add Depth to Life, With Early Eye Exam

By [JANE E. BRODY](#)

My husband, Richard, now 72, was 11 when an eye examination at school revealed that the acuity in his left eye was a mere 20/200, far less than the 20/40 in his right eye.

Though glasses improved the vision in his left eye, they could not restore what he lost - depth perception gleaned from binocular vision - because this defect had not been found and corrected much sooner.

By the time Richard was 11, his brain had learned to ignore the blurry image from his left eye, and he was unable to coordinate the images from both eyes to form a view of the world that clearly shows how near or far objects are. As a result, he could never learn to catch or hit a ball, and he must concentrate hard to navigate highway exit ramps.

Richard was an early and avid reader who excelled in school, so no one suspected his eyes were not functioning normally. But without depth perception, he never would have made it as an airline pilot or interstate truck driver. Also, for unknown reasons, as an adult with amblyopia, Richard is at higher than normal risk of suffering an injury in his good eye and, in effect, becoming functionally blind.

### How Amblyopia Develops

The visual cortex of the brain develops rapidly in babies and young children until about age 6. Interference with the image that forms on the retina during this critical time can cause the brain to favor one eye over the other. The great disparity in acuity in Richard's eyes caused the visual cortex of his brain to rely only on the input from his right eye.

This condition - amblyopia, which is sometimes called lazy eye - can result from strabismus, crossed eyes that turn in or eyes that turn out. When eyes turn in, double vision results and the brain discards the image from one eye to "fix" the problem. When eyes turn out, the brain receives input from only one eye at a time and learns to favor the better eye.

An eye that drifts off center by just a degree is enough to cause amblyopia, but the untrained eye will not notice a disparity until one eye turns in or out by about five degrees.

Other causes of amblyopia include a significant difference in acuity between the eyes (Richard's problem), astigmatism in one eye, or severe visual blurring in both eyes caused

by nearsightedness or farsightedness. Occasionally, amblyopia is caused by other eye disorders like cataracts.

Despite the great increase in understanding and recognition of this condition since Richard was a child, even now the vision of far too many children remains impaired for life because amblyopia is not detected until it is too late.

Amblyopia is the most common cause of visual impairment in childhood, affecting 2 to 4 percent of children. According to the National Eye Institute, "Unless it is successfully treated in early childhood, amblyopia usually persists into adulthood."

Dr. David G. Hunter, an ophthalmologist at Children's Hospital Boston, recently noted in *The Journal of the American Medical Association* that "amblyopia is an important public health problem, causing unilateral vision loss in 2 percent to 4 percent of the population" and "may be the leading cause of monocular vision loss in children and adults up to age 70."

### **Early Detection Is Critical**

If a "lazy eye" is not detected and treated at a young age, the vision in that eye gets worse because it is not being used. Chances are, when Richard was a toddler, the acuity in his left eye was better than 20/200, but it lost ground through years of disuse.

Dr. Hunter's journal article concerned the results of a 49-center study sponsored by the National Eye Institute that sought to determine whether treatment of amblyopia after age 7 might be effective. The study found that some improvement in visual acuity was possible in the "lazy eye" up to age 12, and in some children up to age 17.

But, Dr. Hunter said, it is not yet known whether the improvement will last once treatment stops or whether the loss in depth perception can be reversed.

"The sooner amblyopia is detected and treated, the better," Dr. Hunter said in an interview. "Amblyopia gets less fixable with each passing year."

Ideally children's vision should be tested even before they can talk and identify letters on an eye chart. At the very least, during well-child visits, the primary care doctor should perform some basic tests on the eyes of infants and toddlers, he said. Do the child's eyes look straight and do they reflect light equally when a flashlight is shined on them?

"There needs to be a high index of suspicion in the pediatrician's office until we finish developing and evaluating instruments for use in a doctor's office that can measure whether a child's eyes are in focus," Dr. Hunter said.

Parents, too, can be on the alert for signs of amblyopia in young children. Do the child's eyes cross inward? (It's normal for a baby's eyes to drift out up to 3 months of age.) Does

the child tilt his head at a funny angle when trying to see something? Does the child squint to see clearly?

Also, Dr. Hunter said, "if an older sibling has been treated for amblyopia, the child should be examined by an eye specialist who is qualified to work with children."

The standard treatment for amblyopia is to block the vision temporarily in the stronger eye to force the child to use the weaker one. Two methods are commonly used: an adhesive patch worn over the stronger eye for two or more hours a day or the insertion of eyedrops of atropine, which blur the vision in the stronger eye for most of a day.

Of course, if visual acuity in the weaker eye is abnormal or astigmatism is present, this too must be corrected with glasses.