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Vision Development in Children

A baby's vision goes through many changes during their first year of life. At each well-child visit, your pediatrician will check your infant's vision to monitor these changes and make sure their vision is developing as it should.

Knowing what to expect can help you watch and enjoy your child's visual development. If your baby was born prematurely, the vision development milestones we provide below are based on your baby's **due date**, not based on the date they were born.

Birth: adjusting to light and beginning to focus.

At birth, an infant is very sensitive to bright light. You may notice how small their pupils look, limiting how much light enters their eyes. A newborn baby can see something next to them with their peripheral (side) vision, but their central vision is still developing.

Within a couple of weeks, as their retinas develop, a baby's pupils widen and they can see light and dark ranges and patterns. Large shapes and bright colors may begin to attract their attention. A baby also may begin to focus on an object right in front of them.

At about one month, your baby may focus briefly on you but may still prefer brightly colored objects up to three feet away. Infants are able to see across a room even at birth but they are mostly interested in objects very close to them.

Two to four months old: focusing and tracking moving objects.

For their first two months, babies' eyes often do not work together very well. You might notice your baby's eyes appear to be crossed or they may seem to wander out to the sides. In most cases, this is normal and they will eventually correct themselves. However, if one of your baby's eyes constantly turns in toward their nose or outward away from the nose, talk with your pediatrician.

At about two months old, babies usually are able to follow a moving object with their eyes as their visual coordination improves. In fact, at around three months old, your baby may have enough eye and arm coordination to bat at a nearby moving object.

At three months old, your baby's eyes should work together to focus and track objects. If you do not notice this happening, talk with your pediatrician.

Five to eight months old: reaching, recognition and recall.

At around five months old, a baby's ability to see how far an object is from them (called depth perception) has developed more fully. They are seeing the world in three dimensions more completely, and this is evident as they get better at reaching for objects both near and far. They also have good color vision at this point, though not quite as fully developed as an adult's.

At this stage, a baby may recognize their parent across a room and smile at them, and they can see objects outside when looking through a window. They might even remember what an object is even if they only see part of it.

Babies generally start crawling at around eight months old, and this further enhances their eye-hand coordination.

Nine to twelve months: Gripping, grasping and on the go.

At about nine months old, babies can generally judge distance pretty well. This is about when they start to pull themselves up to stand. At around ten months old, babies can usually see and judge distance well enough to grasp something between their thumb and forefinger.

Usually by nine months, your baby's eyes are probably their final color, though it is not uncommon for you to see some slight changes later.

By twelve months old, most babies are crawling and trying to walk.

Vision Development in Preschool and School-aged Children

Focus, tracking, depth perception, and other aspects of vision continue to develop throughout early and middle childhood. Convergence, the ability of both eyes to focus on an object simultaneously, becomes more fully developed by about age seven; this is one reason any problems a child has with focusing or eye alignment should be treated before that age.

Most children are naturally somewhat farsighted (hyperopic) but can see well at other distances. More pronounced myopia (nearsightedness) and astigmatism are thought to be inherited. There is some evidence from recent studies in the United States and Australia that the amount of time school-aged children spend outdoors, in natural light, may have some impact on whether they develop mild myopia.

Steps to make sure your child's eyes and vision develop properly

Eye or vision problems can delay a child's development and impact school performance. It is important to detect these problems as early as possible so they can get the help they need to grow and learn properly.

Here are important steps parents can take to make sure their child's vision develops properly:

- Watch for any signs of eye and vision problems. They can include inward or outward turning eyes or significant delays in tracking moving objects. Closing or covering one eye, squinting, tilting of the head, or holding objects very close when focusing can all be signs of a vision problem. Bring them to your pediatrician's attention and schedule an eye exam.
- Not all vision problems have noticeable signs. Scheduling an annual comprehensive eye exam to check for problems focusing, eye muscle alignment issues, or underlying ocular pathologies can help to safeguard your child's ocular health and proper visual development. This is recommended starting at age 3, or sooner if vision problems are suspected.

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