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# Making Sense of your Baby's Five Senses: Sight

These amazing tools will help your little one understand the world around them. In this first instalment, find out how his sight develops as well as what you can do to boost his sense of sight.

WORDS CHRISTEL GERALYN GOMES



**Y**our newborn can see at birth, but his vision is so poor, that in the US, he would be considered legally blind. Unlike a baby's sense of hearing, which matures very quickly, sight develops slowly. In fact, a baby's vision only reaches adult levels around ages two to two-and-a-half, says Dr Zena Lim, Consultant Paediatric ophthalmologist and medical director at The Children's Eye & ENT Centre, and Focal Eye Centre.

## What Can Baby See At Birth?

Wondering how poor is poor? Well, at birth Baby's vision "is like a camera out of focus", says Dr Wendy Sinnathamby, specialist in paediatrics and consultant, Raffles Children's Centre. His vision is about 20/400, and everything looks blurry. If the numbers are confusing, this means is that a newborn's vision "is at least six to eight times worse than an adults", explains Dr Lim.

In other words, Baby can "only see about 8 to 15 inches away, but can make out light, shapes and movement. They prefer to look at faces", that's why your baby finds you fascinating when you hold him close. If it looks like baby is looking everywhere but your eyes, you may be right. They tend to "initially fixate on high contrast patterns such as their mum's hairline and are less attracted to subtler features such as their mothers' eyes", says Dr Inez Wong, senior consultant ophthalmologist and director, Paediatric Ophthalmology & Strabismus Service, Eagle Eye Centre.

## Development

The jump from being able to see almost nothing to seeing fairly clearly doesn't take the whole two-and-a-half to three years. Dr Lim says, "around three months, baby can see almost anything in his near field of vision and by six

months baby can see some distance across the room." After that, between the ages of one to two-and-a-half years, the visual system would have matured enough to a level nearly as good as normal adult vision, Dr Lim explains.

## Colour Vision

Your baby can see colours right from the start, although subtle differences in colour start becoming clear a little later. "Some four week olds, most eight week olds and all 12 week olds demonstrate colour vision," says Dr Wong. "Generally, starting at two months old and continuing through the fourth month, colour differences will become clearer to babies, and they will start to distinguish similar shades such as red and orange. As a result, they probably begin to show a preference for bright primary colors and more detailed and complicated designs and shapes," she adds.

## Depth Perception

Depth perception is the ability to judge how near or far an object is and is the result of using both eyes together in a coordinated way.

**If you've noticed baby reaching for something but missing it, that's a sign that baby's depth perception isn't fully developed.**

Some experts say depth perception begins as early as two months, while others pin it at five months.

A three-dimensional view of the world – the kind that we have as adults – comes later. "Our three-dimensional view of the world requires that the brain

interprets images from each eye in turn. This requires visual experience, good muscle coordination of the two eyes, and brain visual maturity", says Dr Lim. Adult levels of "stereopsis", also known as 3-D vision, "probably develops by one to two years of age, although sometimes difficult to demonstrate as clinically available tests require adequate comprehension and testing ability in very young kids."

## Focusing

Some parents worry when their child's eyes sometimes look misaligned or if one eye sometimes "wanders".

**Parents may also wonder if there's something wrong when Baby seems to squint or become cross-eyed when looking at something. Fret not, this is perfectly normal for the first two months.**

You can expect this to go away soon after his third month. Dr Sinnathamby tells us that by six to eight weeks of age, baby begins to start fixing and following so that there is less eye wandering or eye-crossing.

However, if you notice that the eye misalignment persists beyond three months of age, "this should be investigated and evaluated by your paediatrician or paediatric ophthalmologist", cautions Dr Lim.



## Vision Problems?

In general, our experts concur that vision problems in babies are rare, and Dr Wong adds that your paediatrician will screen your babies at birth to be sure that there are signs of normal eye development. They also check for vision or squint eye problems. From the ages of four to five years and up, the Health Promotion Board will screen your child and pick up on problems.

However, according to Dr Lim, there are certain situations in which Baby will need to see an eye doctor. These are:



**Prematurity:** Babies born premature may develop retinopathy of prematurity, and will need regular and follow up eye screenings



Babies with a family history of significant eye problems or hereditary eye conditions

On top of that, Dr Lim gives us a list of signs you can look out for that may suggest a problem:

1. **Excessive tearing** which may indicate blocked tear ducts
2. **Red or encrusted eye lids** which could be a sign of an eye infection
3. **“Wandering” or misaligned eyes** after three or four months which may signal a problem with eye muscle control
4. **Extreme sensitivity to light** which may indicate elevated pressure in the eye.
5. **Appearance of a white pupil** which may indicate the presence of an eye cancer or childhood cataract

If you pick up on any of these signs, be sure to take your child in for a checkup.

## What Mum Can Do

Mums commonly want to know what they can do to help with their child’s sight development and to stimulate vision. Dr Wong suggests that you hold toys or objects with high contrast – such as black and white toys – within 12 inches from their faces at birth.

Later on, colourful toys will do the trick too. “Having brightly coloured wall hangings or toys as opposed to pastel coloured ones will help as infants might not be able to differentiate pastel colours as well as bright colours,” says Dr Sinnathamby.

Of course, these are not rules set in stone. “While it is true that high-contrast patterns and objects are the most visible and attractive to babies, it is also known that they can distinguish subtler shades of gray, and colours. Therefore, a normal visual environment without black and white toys can in itself be rich and stimulating, and this means that anything pleasing to you is appropriate to decorate baby’s room and cot. Your baby should be given the opportunity to explore more subtle and perhaps more important objects like their parents’ faces, eyes, and his own hands and feet,” adds Dr Lim.

By two to three months, hanging mobiles and a baby-safe crib mirror at eye-level in his cot are good options. After, coloured picture books should be added.

Tablets, phones and television should definitely be avoided. “Myopia is a prevalent problem that has been found to be related to near activities and lack of outdoor activity or sunlight exposure,” cautions Dr Wong. Start your child on cultivating outdoor hobbies young. 

