'Hardwired' focus may explain eyesight problems for premature babies later in life

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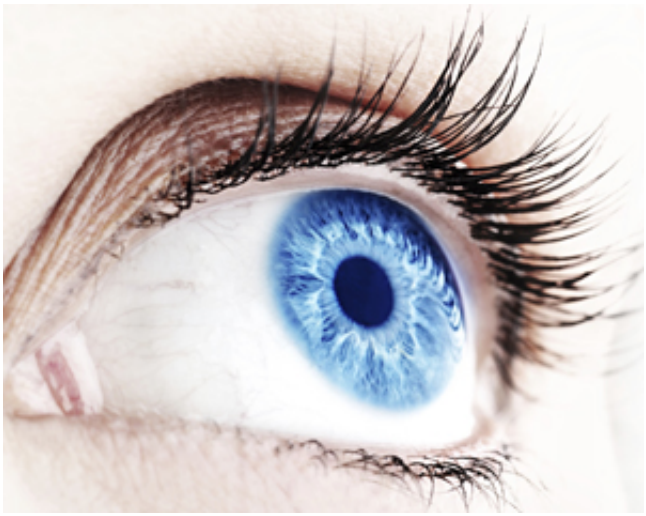

Babies born slightly earlier are more at risk of vision problems later in life due to subtle differences in their eye development, a new University of Reading study has found.

The team found that focus development of babies born even 4-9 weeks early is ingrained, becoming mature at the same time after their due date as if they were born full term. This means that they still have poorly controlled eyes at the time when 3D vision is developing. In full term babies, eye control is stable by this time.

This mismatch in two crucial factors needed for good eyesight in the future could explain their increased risk of developing squints or 'lazy eye'.

Slip through the net

Around 70,000 babies are born prematurely in the UK each year. It is well known that premature babies are more at risk of developing eye problems as well as other development issues. Very premature or very low birth weight babies are at risk of severe loss of vision from a condition called retinopathy of prematurity, so the tiniest babies are all monitored very carefully from birth.

But babies born even slightly early, who are otherwise developmentally normal, are also more likely to develop a squint later in childhood or need glasses, but it is not clear why. After comparing the focus of a group of babies born 4-9 weeks early (but otherwise developmentally normal), to a group of full-term babies, the researchers believe they have the answer.

Dr Anna Horwood who runs the University of Reading's Infant Vision Lab led the research. She said: "The NHS do a good job of keeping tabs on the health of babies born very prematurely. This is because they are at very high risk of illness. However the eye health of babies born slightly early sometimes slips through the net which is concerning. This group, despite looking completely healthy, still experience more eye problems than most but are not screened any more than normal.

"We examined the ability of slightly premature babies in keeping things clear and lining up their eyes properly on things they were looking at. To our surprise we found that this focus was 'hardwired', the speed of development the same as a baby that was born closer to the nine month mark. However this means they have more weeks of life with immature

eye control.

"This is important because eye control is normally adult-like well before 3D vision develops, at around three months old. Occasional squinting does not appear to be damaging to eyesight in the first few weeks of life, but once 3D vision emerges binocular vision is much more easily damaged. This means our study age group have uncoordinated eyes when they need them the most."

Help for parents

If untreated, eyesight problems in babies can lead to double vision or 'lazy eye' - both can affect a child's educational development. However it can be very challenging for parents to diagnose eyesight problems in babies.

Dr Horwood continued: "We might not be able to stop these problems developing but our results could help parents spot the warning signs earlier. All babies' eyes should be fully coordinated by four months after their birth, not their due date, and even modestly premature infants do have an increased risk of eye problems. Parents should ask their health visitor or doctor for a check if their baby hasn't stopped going occasionally cross-eyed by four months of age. That way they can receive the best supervision and treatment as soon as possible."

More information: "Convergence and Accommodation Development Is Preprogrammed in Premature Infants." *Investigative Ophthalmology & Visual Science* August 2015, Vol.56, 5370-5380. DOI: 10.1167/iovs.14-15358

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