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Preterm children's brains can catch up years later

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There's some good news for parents of preterm babies – latest research from the University of Adelaide shows that by the time they become teenagers, the brains of many preterm children can perform almost as well as those born at term.

A study conducted by the University's Robinson Research Institute has found that as long as the preterm child experiences no brain injury in early life, their cognitive abilities as a teenager can potentially be as good as their term-born peers.

However, the results of the study, published in this month's issue of *The Journal of Pediatrics*, also highlight that the quality of the home environment at the time of the child's birth plays an important role in their cognition later in life.

"Every year, 10% of Australian babies are born preterm, and many studies have shown that these children often have cognitive difficulties in childhood," says one of the lead authors of the study, Dr Julia Pitcher from the University of Adelaide's Robinson Research Institute.

"This new study has some positive news. We looked at the factors that determine cognitive abilities in early adolescence, and found that whether or not you were born preterm appears to play a relatively minor role. Of significantly more importance is the degree of social disadvantage you experienced in your early life after birth, although genetics is important," Dr Pitcher says.

The study, conducted by Research Officer Dr Luke Schneider, assessed the cognitive abilities of 145 preterm and term-born young people now aged over 12. He also assessed data on social disadvantage at the time of birth and at the time of the cognitive assessment.

"The results of our study provide further proof that those born at term tend to have better cognitive abilities – such as working memory, brain processing efficiency and general intellectual ability. But the postnatal environment seems to be playing an important role in whether or not a preterm child is able to overcome that initial risk of reduced brain development," Dr Schneider says.

"Reduced connectivity in the brain, associated with microstructural abnormalities from preterm birth, is likely contributing to the cognitive deficits in these children. But these abnormalities seem to be amenable to improvement depending on the environment the child grows up in, particularly as an infant, and might account for why some preterm children do better than others."

Dr Pitcher says: "What we don't yet know is how different factors in the home environment drive specific aspects of brain development. But early nutrition and enrichment through physical and intellectual stimulation are likely to have key roles."

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