



News Release

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Genes play key role in brain injury risk for premature babies

Premature babies' risk of brain injury is influenced by their genes, a new study suggests.

Researchers have identified a link between injury to the developing brain and common variation in genes associated with schizophrenia and the metabolism of fat.

The study builds on previous research, which has shown that being born prematurely – before 37 weeks – is a leading cause of learning and behavioural difficulties in childhood.

Around half of infants weighing less than 1500g at birth go on to experience difficulties in learning and attention at school age.

Scientists at the University of Edinburgh, Imperial College London and King's College London studied genetic samples and MRI scans of more than 80 premature infants at the time of discharge from hospital.

The tests and scans revealed that variation in the genetic code of genes known as ARVCF and FADS2 influenced the risk of brain injury on MRI in the babies.

Researchers say that future studies could look at how changes in these genes may bring about this risk of – or resilience – to brain injury.

Premature births account for 10 per cent of all births worldwide, according to experts.

Earlier research has shown that being born preterm is closely related to abnormal brain development and poor neurodevelopmental outcome.

However, scientists say that they do not fully understand the processes that lead to these problems in some infants.

Dr James Boardman, scientific director of the Jennifer Brown Research Laboratory at the Medical Research Council Centre for Reproductive Health at the University of Edinburgh, said: "Environmental factors such as degree of prematurity at birth and infection play a part, but, as our study has found, they are not the whole story and genetic factors have a role in conferring risk or resilience.

"We hope that our findings will lead to new understanding about the mechanisms that lead to brain injury and ultimately new neuroprotective treatment strategies for preterm babies."

The study, published in the journal *Pediatrics*, was funded by NIHR Imperial College Biomedical Research Centre.

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