**Study explores whether a bigger brain makes for a smarter child in babies born prematurely**

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**New research published this week suggests the growth rate of the brain’s cerebral cortex in babies born prematurely may predict how well they are able to think, speak, plan and pay attention later childhood.**

The cerebral cortex is the outer layer of the brain covering the cerebrum, and is responsible for cognitive functions, such as language, memory, attention and thought.

The research appears in the online issue of [Neurology](http://www.neurology.org/), the medical journal of the American Academy of Neurology.

"In babies born preterm, the more the cerebral cortex grows early in life the better children perform complex tasks when they reach six years old," said study author [Professor David Edwards](http://www1.imperial.ac.uk/medicine/people/david.edwards/), from the Institute of Clinical Sciences at Imperial College London.

"The period before a full- term birth is critical for brain development.

Problems occurring at this time have long-term consequences, and it appears that preterm birth affects brain growth."

The study looked at brain growth rates of 82 infants who were born before 30 weeks gestational age using MRI scans of their brain between 24-44 weeks.

Brain scans were collected repeatedly from immediately after the babies were born until their full-term due date.

Their cognitive abilities were tested at two years old and again at six years old.

The study found that the faster the rate of cerebral cortex growth in infancy, the higher their scores were on the developmental and intelligence tests as children.

A five to ten percent reduction in the surface area of the cerebral cortex at full-term age predicted approximately one standard deviation lower score on the intelligence tests in later childhood.

Motor skills did not appear to be impacted by the rate of cerebral cortex growth, and the overall brain size was not related to general cognitive ability.

"These findings show we should focus on the growth of specific regions of the brain like the cortex when trying to understand or diagnose potential problems in babies and fetuses," said Professor Edwards.

The study was supported by the Health Foundation, the Garfield Weston Foundation, Wellbeing of Women and the NIHR Imperial College Healthcare Comprehensive Biomedical Research Center.

## See also:

* [American Academy of Neurology](http://www.aan.com/go/home)

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* [Institute of Clinical Sciences](http://www3.imperial.ac.uk/medicine/divisions/cs/)