



The human brain undergoes a remarkable transition *in utero*, but until recently scientists have had few tools to study how this process unfolds.

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## Pioneering study images activity in fetal brains

By [Greg Miller](#) | Jan. 9, 2017, 5:00 AM

Babies born prematurely are prone to problems later in life—they're more likely to develop autism or attention deficit hyperactivity disorder, and more likely to struggle in school. A new study that's among the first to investigate brain activity in human fetuses suggests that the underlying neurological issues may begin in the womb. The findings provide the first direct evidence of altered brain function in fetuses that go on to be born prematurely, and they might ultimately point to ways to remediate or even prevent such early injuries.

In the new study, published 9 January in *Scientific Reports*, developmental neuroscientist Moriah Thomason of Wayne State University School of Medicine in Detroit, Michigan, and colleagues report a difference in how certain brain regions communicate with each other in fetuses that were later born prematurely compared with fetuses that were carried to term. Although the findings are preliminary because the study was small, Thomason and other researchers say the work illustrates the potential (and the challenges) of the emerging field of fetal neuroimaging. "Harnessing the power of these advanced tools is offering us for the very first time the opportunity to explore the onset of neurologic insults that are happening in utero," says Catherine Limperopoulos, a pediatric neuroscientist at Children's National Medical Center in Washington, D.C.

Thomason and colleagues **used functional magnetic resonance imaging (fMRI) to investigate brain activity in 32 fetuses**. The pregnant mothers were participants in a larger, long-term study of brain development led by Thomason. "The majority have just normal pregnancies, but they're drawn from a low-resource population that's at greater risk of early delivery and developmental problems," she says. In the end, 14 of the fetuses were born prematurely.

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