

Neuroplasticity reduced in teens born prematurely

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To examine motor cortex neuroplasticity, Julia B. Pitcher, Ph.D., from the University of Adelaide in Australia, and colleagues used a noninvasive transcranial [magnetic brain stimulation](#) technique to induce long-term depression-like neuroplasticity in adolescents who had been born early preterm (32 weeks or less), later preterm (33 to 37 weeks), or term (38 to 41 weeks).

The researchers found that, in response to brain stimulation, both preterm groups had reduced long-term depression-like neuroplasticity as well as low salivary cortisol levels. Compared with term-born young adults, term-born adolescents had enhanced [motor cortex](#) neuroplasticity.

"These findings provide a possible mechanistic link between the altered brain physiology of preterm birth and the subsequent associated behavioral deficits, particularly in learning and memory," Pitcher and colleagues conclude. "They also suggest that altered hypothalamic-pituitary-adrenal axis function due to preterm birth may be a significant modulator of this altered neuroplasticity."

More information: [Abstract](#)
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