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Title

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Permalink

<https://escholarship.org/uc/item/31x7w8xb>

Journal

Future Neurology, 5(5)

ISSN

1479-6708

Authors

Sandman, Curt A

Davis, Elysia P

Publication Date

2010-09-01

DOI

10.2217/fnl.10.35

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Peer reviewed

Gestational stress influences cognition and behavior

Curt A Sandman & Elysia P Davis

Published Online: 21 Sep 2010 | <https://doi.org/10.2217/fnl.10.35>

The developmental origins of disease or fetal programming model predicts that early exposures to threat or adverse conditions have lifelong consequences that result in harmful outcomes for health. The vast majority of the studies in support of the programming model in human beings are retrospective and most rely on surrogate measures of early experience such as birth weight or preterm birth. Recently, a small number of prospective studies have been reported that have documented the developmental consequences of exposures to stressful intrauterine conditions. These studies of gestational stress have clearly shown that fetal exposures to psychosocial and/or biological markers of adversity have significant and largely negative consequences for fetal, infant and child neurological development. Fetal exposure to stress, especially early in gestation, results in delayed fetal maturation and impaired cognitive performance during infancy and results in decreased brain volume in areas associated with learning and memory in children. The accumulating evidence supports the conclusion that fetal exposure to stress profoundly influences the nervous system, with consequences that persist into childhood and perhaps beyond.

Keywords: anxiety • corticotrophic-releasing hormone • cortisol • developmental origins of disease • fetal development • fetal programming • infant development • pregnancy • prenatal stress • sex difference • stress