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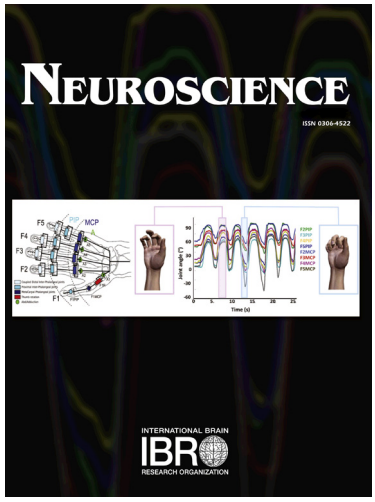

Introduction: Early Adversity and Brain Development

Susanne Brummelte

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Introduction: Early Adversity and Brain Development

Susanne Brummelte, Ph.D.

Department of Psychology, Wayne State University, Detroit, MI 48236,

sbrummelte@wayne.edu

Stress has long been known to have a significant effect on brain function in adults (McEwen et al., 2015, Sapolsky, 1996), but we are just starting to explore the multifaceted impact that stress and stress-related experiences can have on the developing brain. Though many studies have started to or are currently investigating this effect, consequences of adverse experiences during development are inherently more complex than adult consequences as they depend on the exact timing of the stressor as well as the type and duration of the stressful event. Thus, exposure to a specific stressor during prenatal, postnatal or adolescent development can each have a very different impact on the structure and function of the brain and neuroendocrine systems. For instance, prenatal stress or stress hormone exposure has been linked to increased depressive-like behavior later in life (Abe et al., 2007, Secoli and Teixeira, 1998, Brummelte et al., 2012b), while exposure to increased stress hormone levels during the postpartum period does not seem to influence depressive-like behavior in the forced swim test in adult rats (Brummelte et al., 2012b, Brummelte et al., 2006). Interestingly, exposure to low levels of the stress hormone corticosterone during the postpartum period (through maternal administration in the drinking water) may even have a beneficial effect on the offspring (Casolini et al., 2007, Petrella et al., 2014).