

# Researchers find prenatal cocaine exposure may compromise neurocognitive development

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Researchers at Boston University School of Medicine (BUSM) have found that heavier intrauterine cocaine exposure (IUCE) is associated with mild compromise on selective areas of neurocognitive development during middle childhood. The BUSM study appears in the May issue of *Neurotoxicology and Teratology*.

BUSM researchers evaluated whether the level of IUCE or the interaction between IUCE and contextual variables was related during middle childhood to executive functioning as measured by two neuropsychological assessments. The Stroop Color-Word Test measures verbal inhibitory control while the Rey Osterrieth Organizational score evaluates skills such as planning, organization and perception.

BUSM researchers classified subjects as either unexposed, lighter, or heavier IUCE by positive maternal reports and/or biological assay. Examiners who did not know the children's history or group status assessed 143 children at 9 and 11 years of age (74 with IUCE and 69 demographically similar children without IUCE). After controlling for contextual variables including intrauterine exposures to other licit and illicit substances, level of IUCE was not significantly associated with either assessment scores. However, the heavier cocaine-exposed group of children had significantly lower Stroop scores compared to the combined lighter/unexposed group.

According to lead author Ruth Rose-Jacobs, Sc.D., assistant professor and research scientist at BUSM, "These research findings were present

even in the absence of major cognitive differences in the same cohort as previously measured by standardized instruments in late infancy and [early childhood](#). The emergence of these subtle IUCE effects suggests the possibility of neurocognitive "sleeper effects" of IUCE, which may become more apparent with the greater functional and cognitive demands of late middle childhood and preadolescence."

In addition, researchers stated that further longitudinal assessment would help to clarify whether the IUCE group differences observed in this study are due to immaturity, delays in development, or potentially persistent deficits.

Source: Boston University Medical Center

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