

# Absent mothers can cause hyperactivity and anxiety later in life

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In mice, early weaning and separation from their mothers promotes long-lasting hyperactivity and anxiety . Researchers writing in the open access journal *BMC Neuroscience* describe the development of this new behavioral model, which they hope to use to investigate the long-term effects of early childhood neglect in people.

Arthur Simen and a team of researchers from Yale University School of Medicine, USA, tested their 'Maternal separation with early weaning' (MSEW) model in a group of 80 male mice. He said, "Childhood adversity, in the form of abuse and neglect, is prevalent throughout the world and poses a significant public health problem. Unfortunately, the underlying [molecular mechanisms](#) of the consequences of early life neglect remain largely unknown. To address this, we devised a method of maternal separation that combines several published protocols in order to increase the likelihood of observing a reliable behavioral effect while minimizing fatalities to the developing offspring".

During MSEW, mice undergo maternal separation for 4 hours per day on days 2-5 after birth, and 8 hours per day on days 6-16. They are weaned early, on day 17. The mice exposed to this treatment were found to be hyperactive and anxious, compared to control animals as determined by open field, forced swim and maze tests. However their body weight and metabolite levels were found to be unchanged revealing that nutritional deficiency was not the cause of the observed behavior. Speaking about the results, Simen said, "MSEW is a novel paradigm with excellent face validity that allows for in depth examination of the behavioral and

neurobiological effects of maternal separation".

**More information:** Maternal separation with early weaning: a novel mouse model of early life neglect Elizabeth D George, Kelly A Bordner, Hani M Elwafi and Arthur A Simen BMC Neuroscience (in press)

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