# Article information:

Rodent model of infant attachment learning and stress - Moriceau - 2010 - Developmental Psychobiology - Wiley Online Library
<https://onlinelibrary-wiley-com.libproxy.ucl.ac.uk/doi/full/10.1002/dev.20482>

# Article summary:

1. Infant rats have a sensitive period of preference learning for their mother's odor during the first 9 postnatal days, which overlaps with a stress hyporesponsive period (SHRP) when pups have a reduced corticosterone response to stressors.

2. Neural underpinnings responsible for sensitive-period learning include increased activity within the olfactory bulb and piriform "olfactory" cortex due to heightened release of norepinephrine from the locus coeruleus.

3. After PN10 and with the decline of the SHRP, stress-induced corticosterone release permits amygdala activation and facilitates learned odor aversions and fear, but odor preference and attenuated fear learning can be reestablished in PN10-15 pups if the mother is present.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article "Rodent model of infant attachment learning and stress" provides a comprehensive review of the neurobiology of infant odor learning in rats, with a focus on the unique role of the stress hormone corticosterone (CORT) in attachment learning. The article discusses how during the first 9 postnatal days, infants readily learn odor preferences while aversion and fear learning are attenuated. This sensitive period of preference learning overlaps with the stress hyporesponsive period (SHRP), when pups have a reduced CORT response to most stressors.

The article presents evidence that neural underpinnings responsible for sensitive-period learning include increased activity within the olfactory bulb and piriform “olfactory” cortex due to heightened release of norepinephrine from the locus coeruleus. After PN10 and with the decline of the SHRP, stress-induced CORT release permits amygdala activation and facilitates learned odor aversions and fear.

One potential bias in this article is its focus on rat models, which may not necessarily generalize to other species or humans. Additionally, while the article presents evidence for the role of CORT in attachment learning, it does not explore potential negative effects of chronic or excessive CORT exposure on development.

Overall, this article provides valuable insights into the neurobiology of infant attachment learning in rats but should be considered within its limitations as a rodent model study.

# Topics for further research:

* Negative effects of chronic corticosterone exposure on development
* Sensitive period learning in other species
* Neural mechanisms of fear learning in rats
* Role of norepinephrine in olfactory learning
* Developmental changes in amygdala function in rats
* Cross-species comparisons of infant attachment learning

# Report location:

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