

# Infants can remember emotional events: study

August 25 2010, By Laurie Stephens

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(PhysOrg.com) -- A new study led by a University of Toronto Scarborough psychologist shows that human infants can remember unusual emotional events.

Investigating the impact of relationship disruptions on stress regulation in [infants](#), researchers asked parents to briefly ignore their six-month-old infants during an experiment, which caused an elevation in infant stress hormones, said Dr. **David Haley**, a psychologist at the University of Toronto Scarborough and the lead investigator of the study.

To see whether infants would remember this episode of parental unresponsiveness, infants were re-exposed to the same context after 24 hours. Although parents did not ignore their infants on this second day of the experiment, the infants demonstrated an anticipatory stress response, as evidenced by an elevation in cortisol, a stress hormone. Overall levels of stress hormones were lower on the second day compared with the first day, however, suggesting that infants can anticipate the stressful event based on expectations about how their parents will treat them, but are able to adapt to the stressor.

“The capacity to adapt to changes in parenting may be an evolutionary advantage that contributes to the reciprocal nature of the parent-infant relationship in humans,” said Haley.

The results of the study are published on Aug. 25 in the Royal Society journal *Biology Letters*.

“What the new data make clear,” said Jay Belsky, director of the Institute for the Study of Children, Families and Social Issues at Birbeck University of London, “is that the infant does, indeed, remember in some manner how stressful life is and, in line with attachment theory, develops expectations about the future.”

Clyde Hertzman, director of the Human Early Learning Partnership (HELP) at the University of British Columbia, said the research helps explain the biological basis of bonding and attachment because it shows that children as young as six months have the capacity to remember stressful events in intimate contexts.

“Most important, it helps us to understand why social and emotional deprivation in the first year of life can have profound long-term impacts on child development and mental health,” said Hertzman.

Haley said researchers are only beginning to understand the basic mechanisms that enable human infants to anticipate, remember and adapt to unusual [emotional events](#) in an attachment context. It remains unknown whether the memories that trigger the anticipatory stress response are located in the mind or body.

“It isn't clear where or how the information is being retained,” said Megan Gunnar, professor of psychology of the Institute of Child Development at the University of Minnesota. Rather than suggesting that “the child can 'think' about yesterday,” she said, “I might shift more to the wisdom of the body (the child's stress system retains the experience).”

The study also suggested that behavioural and physiological components of the stress system are loosely coupled. Haley said that each component of the stress system “may adapt according to different schedules.

“The memories that activate each component of the anticipatory stress response may not be in sync, and specific memory cues may be needed to activate each component of the stress response. For example, the infant might have to sit in the chair again before his or her negative affect increases, whereas simply seeing the chair causes the release of [stress hormones](#).”

Haley is conducting further studies on the persistence and stability of the infant anticipatory [stress response](#).

Provided by University of Toronto

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