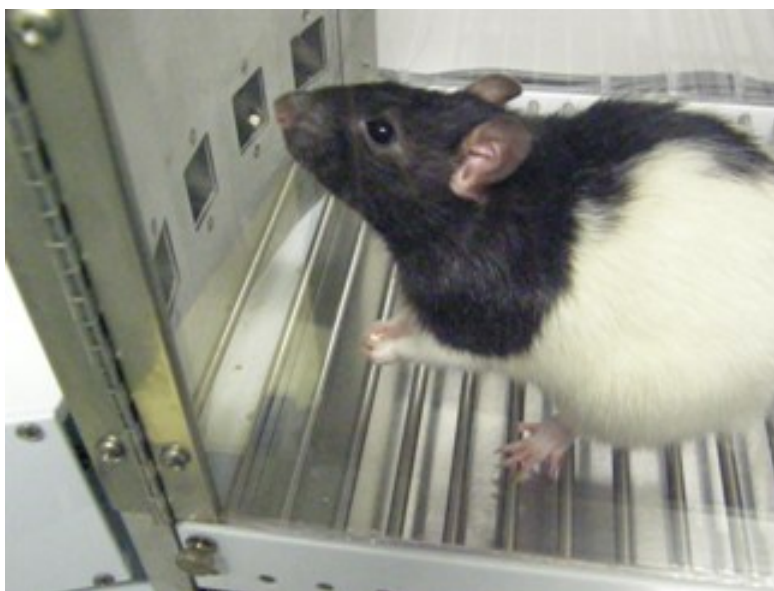


05/2014

The Attention Rats Give their Offspring Protects them Against Stress When they Are Adults



A study with rats shows that in a situation of environmental stress, the mother increases her maternal behaviour toward offspring, trying to compensate them for the stress received. As adults, these offspring have lower endocrine reactivity to stress, are more active facing stressful situations and show less interest in new situations. The results show interesting differences between males and females, which are less impulsive for example, and depending on the situations faced by the animals.

In humans, exposure in infancy to stress exerts long-term effects in behavior and in the central nervous system functioning, being one of the main risk factors to develop several psychopathologies. To further address preventive or therapeutic approaches, the development of valid animal models is very useful.

In rodents such as rats, pups stay with the mother until weaning, and the maternal behavior towards the pups has important consequences in the reactivity to stress and anxiety levels of the pups when they are adult.

Recently, Doctors Roser Nadal and Antonio Armario from Institut de Neurociències at the UAB just published a *Frontiers in Behavioral Neuroscience* paper by Doctor Silvia Fuentes et al., about some of the long-term effects of stress in infancy.

In this work, the stressor was basically the restriction for some days of the amount of bedding that the rats use to construct the nest in the home-cage. In this situation the mother increases maternal care towards the pups, like trying to “compensate” for the stress received. At adulthood, the offspring was studied at the level of behavior, cognition, and the endocrine reactivity towards new stressors by means of corticosterone and ACTH hormone levels. Males and females were evaluated because both genders differ in their reactivity towards stress.

Results were surprising because in some cases a better adaptation to further exposures towards stress at adulthood was found, suggesting that increased maternal care may “buffer” the “negative” effects of stress or that the exposure to a mild stressor at infancy may “prepare” for a better coping towards stress at adulthood.

Stressed offspring when adults have a lower endocrine reactivity to stress and adopt more active behavioral strategies in front of new stressful situations. Moreover, they showed a reduced interest for novel situations, as a possible marker of reduced “novelty-seeking”, a personality trait that may predispose to addiction.

Some of the “protective” effects are only found in females, being stressed females less impulsive at adulthood. However, in other cases, the treated animals behave in a “negative” way, showing a decrease in attentional capabilities in some tests and again only in females showing a compulsive-like behavior.

Results suggest that a proper maternal behavior may “compensate” for some of the “negative” effects of stress and that reactivity to stress is gender-dependent and it is affected by the context where behavior is evaluated.

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References

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