

Accepted Manuscript

Title: Sex differences in the effects of adult short-term isolation rearing on contextual fear memory and extinction

Authors: Shingo Matsuda, Suguru Tohyama, Akihiro Mizutani

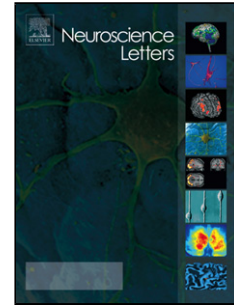
PII: S0304-3940(18)30636-0
DOI: <https://doi.org/10.1016/j.neulet.2018.09.030>
Reference: NSL 33819

To appear in: *Neuroscience Letters*

Received date: 19-5-2018
Revised date: 14-9-2018
Accepted date: 17-9-2018

Please cite this article as: Matsuda S, Tohyama S, Mizutani A, Sex differences in the effects of adult short-term isolation rearing on contextual fear memory and extinction, *Neuroscience Letters* (2018), <https://doi.org/10.1016/j.neulet.2018.09.030>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Sex differences in the effects of adult short-term isolation rearing on contextual fear memory and extinction

Shingo Matsuda^{1,2,3}, Suguru Tohyama¹, Akihiro Mizutani¹.

¹Department of Pharmacotherapeutics, Showa Pharmaceutical University, 3-3165 Higashi-tamagawagakuen, Machida, Tokyo 194-8543, Japan.

²Department of Cognitive Behavioral Physiology, Chiba University Graduate School of Medicine, 1-8-1 Inohana, Chiba, Chiba 260-8670, Japan.

³Department of Ultrastructural Research, National Institute of Neuroscience, National Center of Neurology and Psychiatry, 4-1-1 Ogawahigashi, Kodaira, Tokyo 187-8502, Japan.

Corresponding author: Matsuda S.

Phone: (+81)-42-721-1415. FAX: (+81)-42-721-1588

E-mail: smatsuda@ac.shoyaku.ac.jp

Highlights:

- One-week adult isolation rearing increased contextual fear memory in female mice.
- The isolation rearing did not affect contextual fear memory in males.
- The isolation rearing did not affect contextual fear extinction in either sex.

Abstract

Fear conditioning and extinction is a useful tool for understanding the pathogenesis of fear-related disorders including post-traumatic stress disorder (PTSD) and for developing treatments for them. To investigate the role of sub-brain regions or molecular mechanisms in fear conditioning and extinction, neuroscientists have been employing an optogenetic or *in vivo* recording technique, in which placement of an optical fiber or an electrode into the brain region of a free-moving mouse is essential. These methods require isolation rearing (at least one week) from the brain surgery to the behavioral test. Although such short-term adult rearing has been shown not to influence fear memory and extinction in males, the effect in females remains unclear. In the present study, we investigated the effect on fear memory and fear extinction of adult isolation rearing during the one week before contextual fear conditioning in both male and female mice. This short-term adult isolation rearing increased fear responses in the contextual fear memory test in females but not in males. On the other hand, the rearing

Download English Version:

<https://daneshyari.com/en/article/11033419>

Download Persian Version:

<https://daneshyari.com/article/11033419>

[Daneshyari.com](https://daneshyari.com)