

## Original Paper

# Effect of Monosodium glutamate on rat cerebellum

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## Abstract

**Background and Objective:** Monosodium glutamate (MSG) is used as a food additive. Several studies have reported the adverse effects of Monosodium glutamate on the testis and brain. This study was performed to determine the effect of Monosodium glutamate in rat cerebellum.

**Methods:** In this experimental study, 24 adult wistar rats randomly allocated into three groups including experiment A, experiment B and control (C). The animals in experiment A and B were received 3g and 6g of MSG thoroughly mixed with their feeds for 14 days, respectively. Animals in control group were received MSG free diet. Food and water for rats to be free in all of experimental time. The rats were sacrificed on fifteen day. The cerebellum dissected and fixed with formalin 10% buffer and stained with hematoxylin and eosin.

**Results:** Disorders and detachment were observed in Purkinje and granular cell layers. Neural cell distribution in granular layer reduced in the experimental groups. Cellular degenerative changes in the granular layer of the experimental B were more severe than experimental group A. The mean number of neuron of the granular layer in the experimental A, B and control groups were 2750, 2140 and 3150, respectively.

**Conclusion:** The consumption of monosodium glutamate dose dependly causes histopathological changes and reduces the number of the cerebellumllar neurons in adult rat.

**Keywords:** Cerebellum, Neuron, Monosodium glutamate, Rat

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