Environmental enrichment and morphine addiction in mice

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Abstract

Whether environment factors can alter drug addiction remains an important issue. This study used environmental enrichment manipulations to test that morphine-induced conditioned preference was alleviated.

In the initial phase, all mice were given a standard environmental enrichment procedure for 21 days. Later, half mice were intraperitoneally injected with 20 mg/kg morphine and the others were intraperitoneally injected with normal saline. Moreover, the mice were placed in one compartment of the CPP box in the odd days for 30 min. In the even days, the mice were placed in another compartment of the CPP box with normal saline injections for 30 min. Finally, all mice were tested in the CPP box. The mice were allowed to freely choose any compartment of the CPP box for 15 min to measure the spent time in any compartments.

The results demonstrated that morphine induced conditioned place preference; moreover, EE manipulations might enhance the morphine-induced conditioned place preference. The immunohistochemical data are tested for the BDNF or p-TrkB expressions in the medial prefrontal cortex, the amygdala, and the hippocampus after morphine-induced CPP task. The present data could help us to understand the brain mechanisms of environmental enrichment for alternations in morphine addiction.

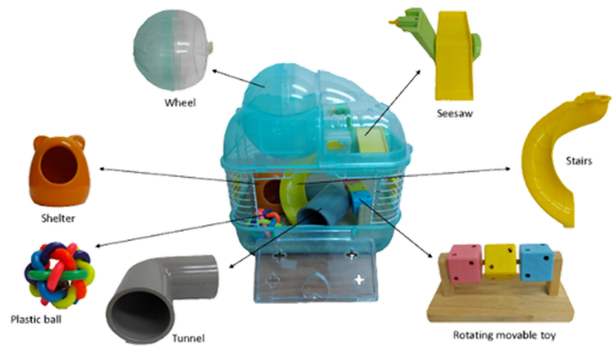
Keywords: drug addiction, conditioned place preference, morphine, environmental enrichment

Method

	Standard Housing ; SH	Environmental Enrichment ; EE
Saline	Standard Housing x Saline	Environmental Enrichment x Saline
Morphine	Standard Housing x Morphine	Environmental Enrichment x Morphine

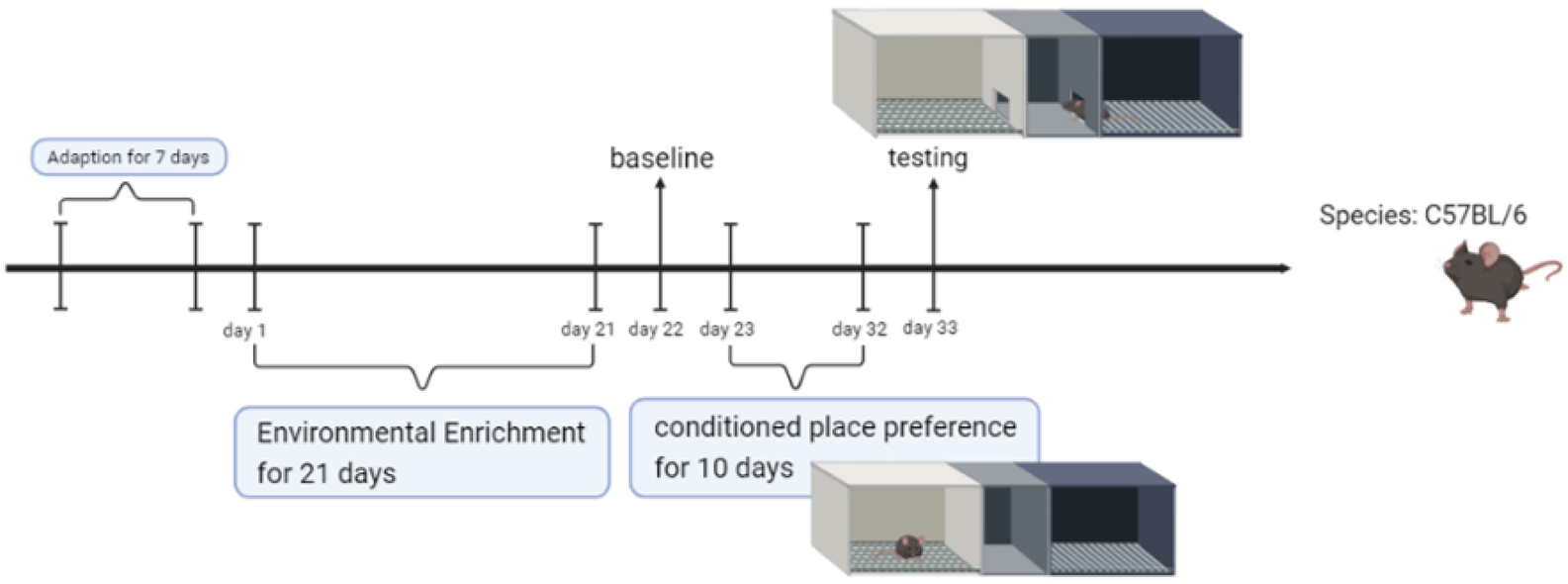
Dependent t- test for Baseline (Figure 1).
Dependent t- test for Testing (Figure 2).

Standard Housing

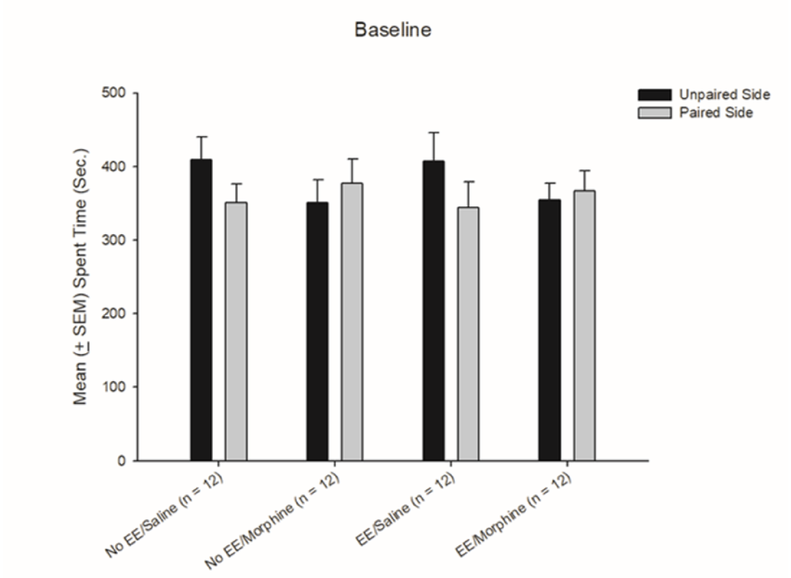


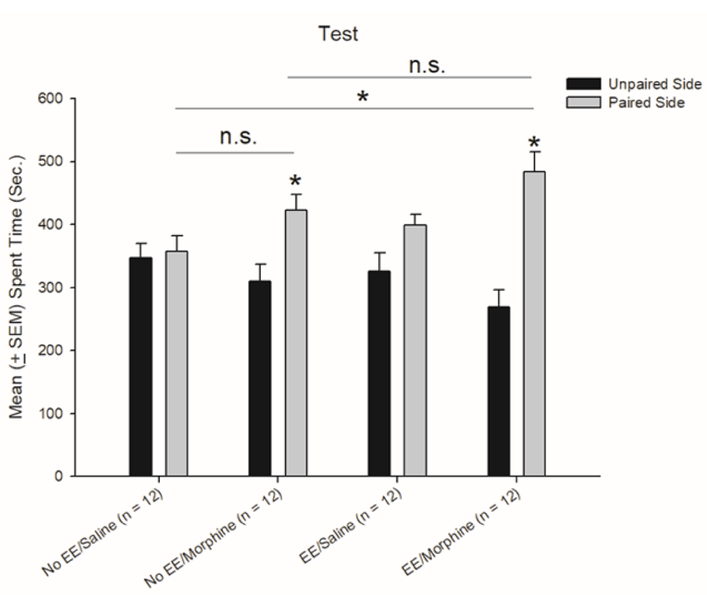
Environmental Enrichment

Procedure



Result





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