



# EXPLORING THE STRESS-DEPENDENT EFFECTS OF INTRANASAL MELANIN-CONCENTRATING HORMONE ADMINISTRATION ON ANXIETY-RELATED BEHAVIORS IN RATS

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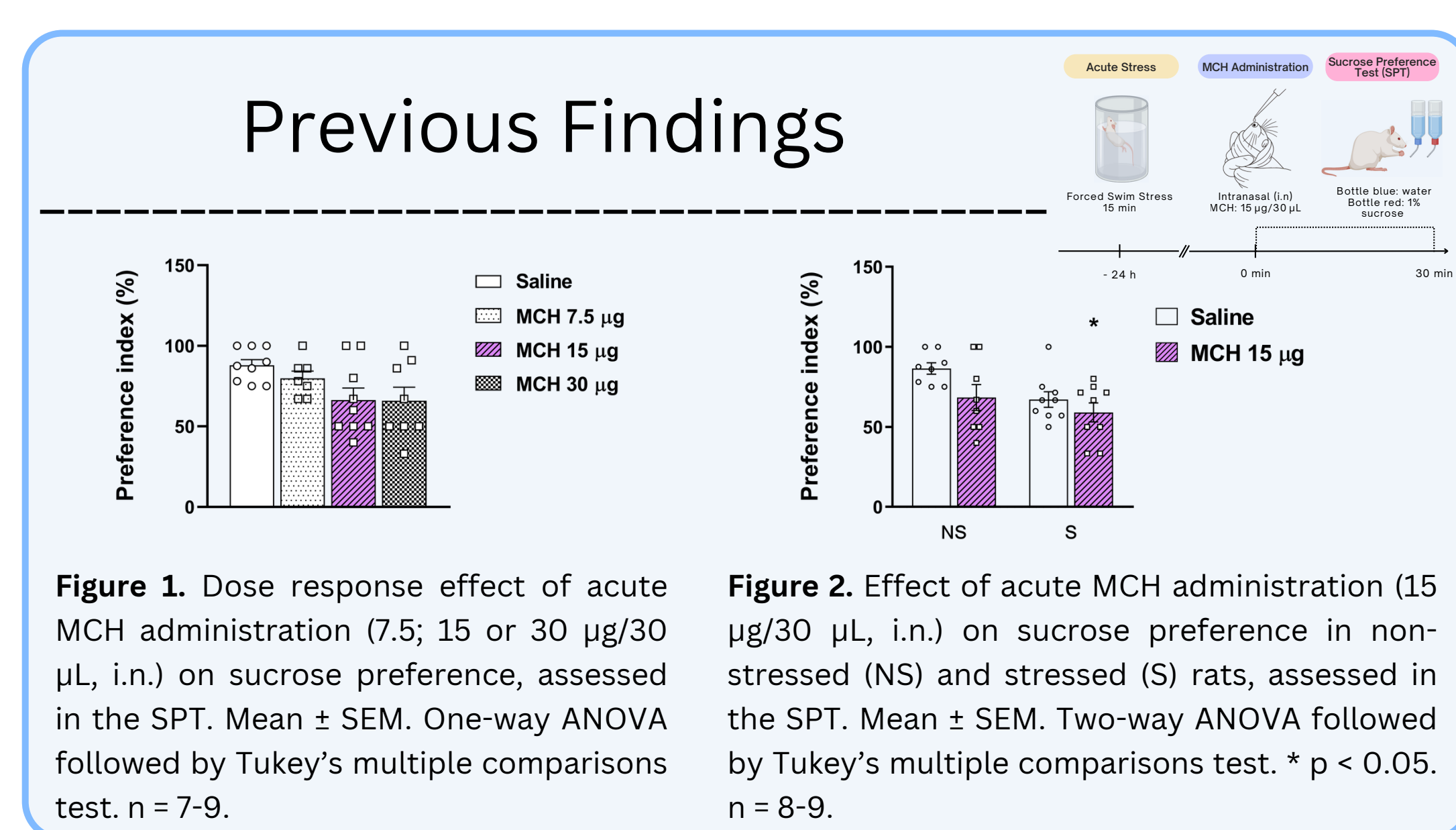
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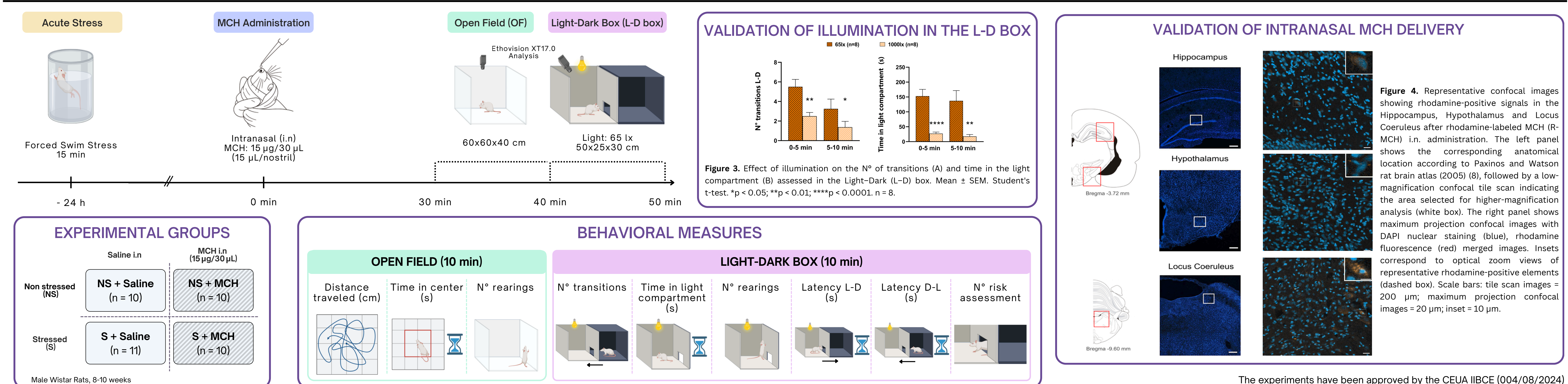
## INTRODUCTION

- Stress is a major risk factor for developing depression and anxiety disorders (1, 2) which are highly prevalent and frequently comorbid (3, 4).
- Anxiety disorders have been associated with a three- to fivefold increased risk of developing depression (1).
- The hypothalamic neuropeptide Melanin-Concentrating Hormone (MCH) has emerged as a modulator of emotional states and stress response, although their interaction is under study (5).
- We previously reported that MCH into Locus Coeruleus aggravated helpless behavior in stressed rats using the learned helplessness paradigm and also in the sucrose preference test (SPT; Figure 1), intranasal MCH administration induced an anhedonic response in stressed animals (Figure 2) (6, 7).
- Both results suggest an interaction between MCH and stress in depressive-like response, however the relationship between MCH, stress and anxiety responses remains unknown.

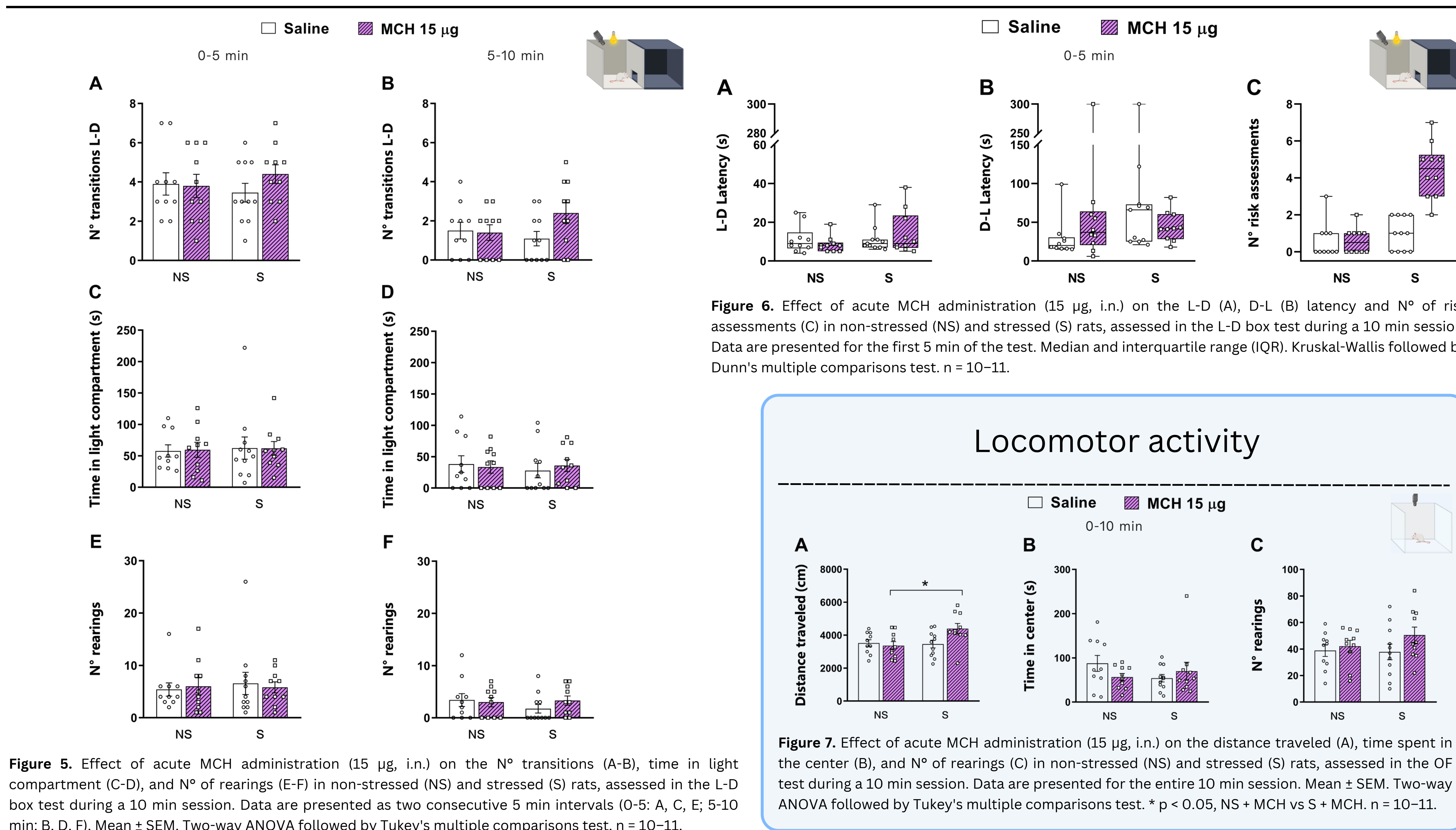
**Hypothesis:** In association with depressive-like response, we propose that MCH will induce an anxiogenic-like effect only in stressed animals.



## EXPERIMENTAL DESIGN



## RESULTS



## CONCLUSIONS

- Acute stress exposure did not modify the behavioral responses after MCH or saline, suggesting that other stress exposure conditions or behavioral model should be tested.
- Taking into account our previous results on anhedonic behavior, this response is not accompanied by anxiety in the present experimental conditions.
- Our findings suggest that MCH differentially modulates the affective states evaluated in SPT or L-D box, although additional experiments should be done to confirm it.

## ONGOING AND FUTURE DIRECTIONS

- To determine corticotropin-releasing factor (CRF) mRNA expression in the paraventricular nucleus of the hypothalamus and amygdala by RT-qPCR to investigate whether MCH-stress interactions recruit CRF underlying anhedonic-like behavior despite the absence of anxiety responses.
- To determine whether MCH modulation of anxiety-like behavior depends on the type, intensity, or timing of the stressor by evaluating alternative stress paradigms or post-stress intervals.

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