

SEXUAL DIFFERENCES IN STRESS-RESPONSIVE BEHAVIOR AND RESILIENCE OF ADULT MICE EXPOSED TO MATERNAL SEPARATION DURING INFANCY.

Jose Munoz-Martin^{1,2}✉, Patricia Chaves-Peña¹, María Inmaculada Infantes-López^{1,2}, Víctor Martín-Aguilar³, Emma Zambrana-Infantes³, Cristina Ramírez³, Alejandro Zea-Doña¹, Carmen Pedraza^{2,3}✉, Margarita Pérez-Martín^{1,2}✉.

¹Departamento de Biología Celular, Genética y Fisiología, Universidad de Málaga, 29010 Málaga, Spain. ²Instituto de Investigación Biomédica de Málaga y Plataforma en Nanomedicina-IBIMA Plataforma Bionand, 29590 Málaga, Spain. ³Departamento de Psicobiología y Metodologías de las Ciencias del Comportamiento, Universidad de Málaga, 29010 Málaga, Spain.

✉ jmunozma@uma.es ; mdpedraza@uma.es ; marper@uma.es

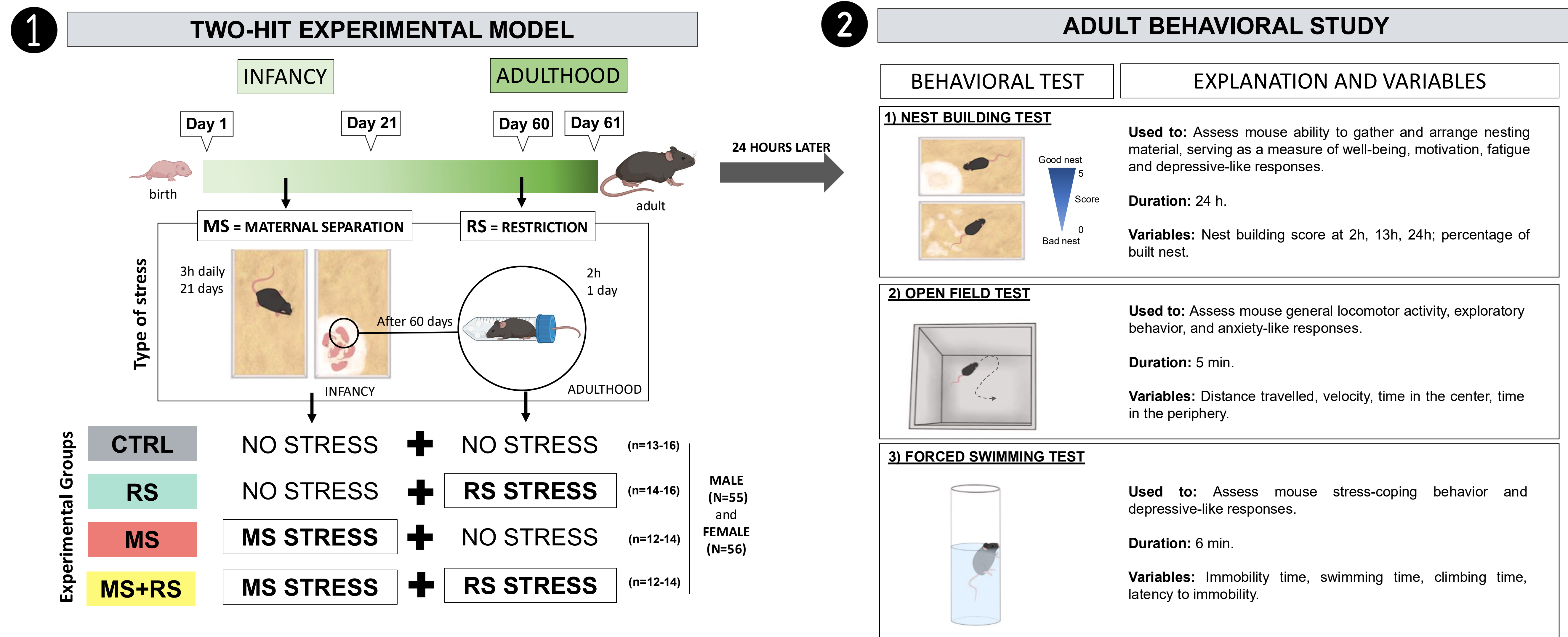
BACKGROUND

Humans who experience adversities like neglect or maltreatment during childhood are twice as likely to develop mental health disorders such as anxiety and depression in adulthood. Recently, the science behind “Early Life Adversity” has been implemented in animal models to understand the neurobiological mechanisms underlying the effects of early adversity on the brain and its influence in the vulnerability to adult stress. In rodents, maternal separation is an early-life adversity model that can mimic the long-term consequences in brain and behavior of people that suffered early adversities. For this reason, this work proposes a two-hit animal model (Infancy Stress + Adult Stress) to investigate how the possible alterations in the brain might alter normal behavior, leading to development of mental disorders later in life.

OBJECTIVE

The analysis of motivational, exploratory and stress-coping behavior between male and female mice subjected to a two-hit experimental model (Infancy Stress + Adult Stress).

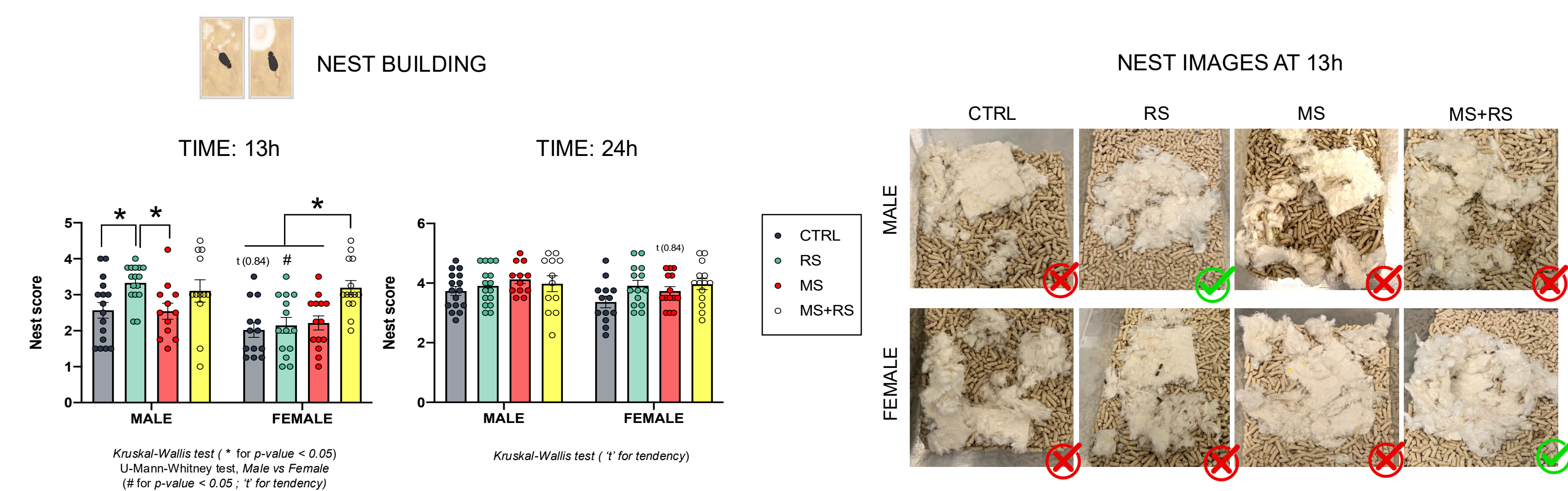
METHODS



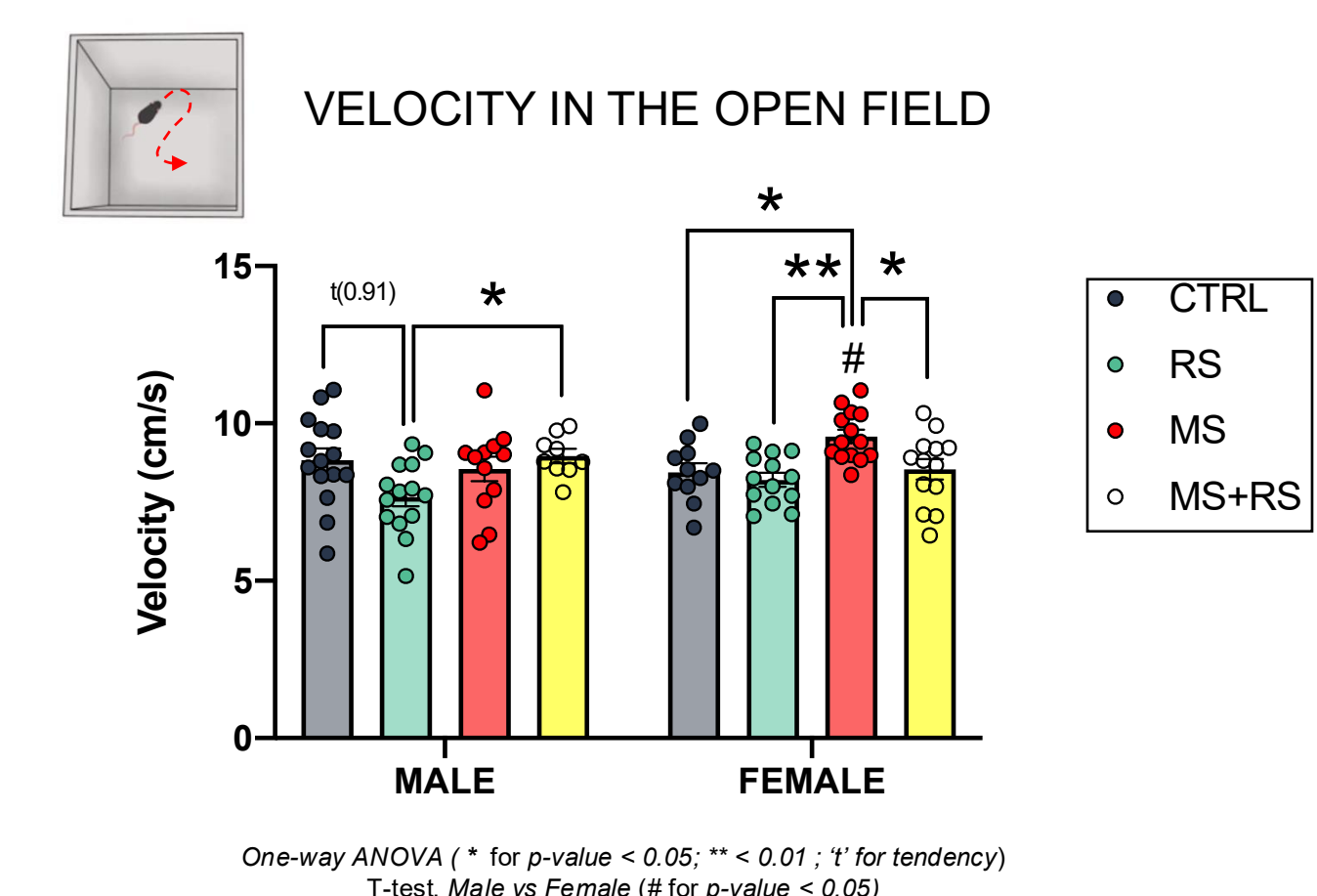
Icons designed by Andrea Nieto-Quero and Biorender

RESULTS

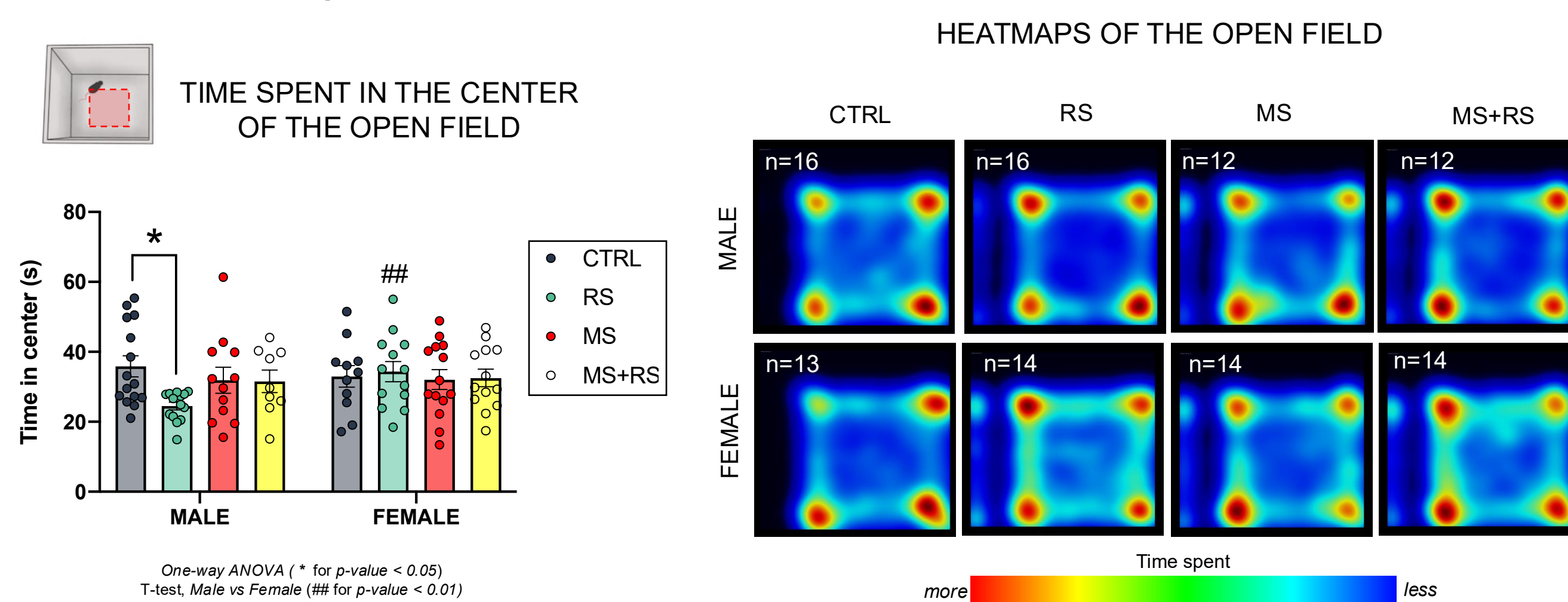
1. Increased nest building score at 13h in RS males and MS+RS females, but not 24h.
This sex- and time-specific effect may reflect differences in motivational drive and fatigue resistance between male and female mice.



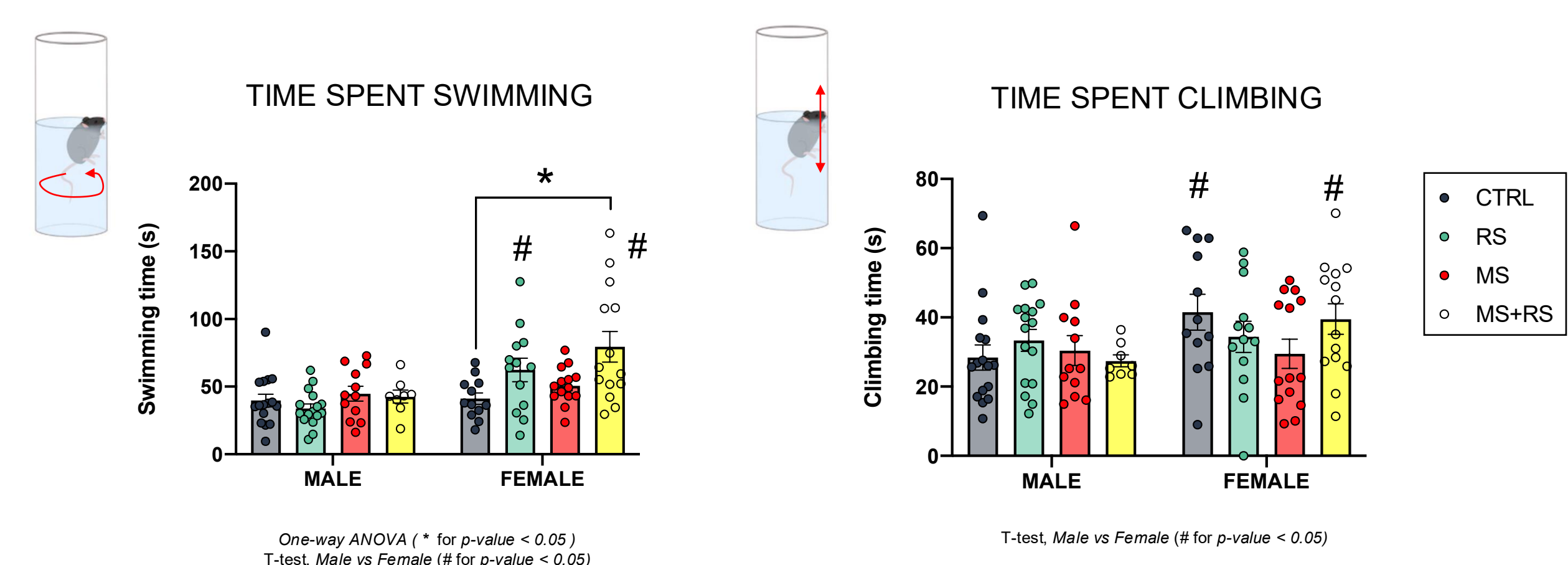
2. Increased Open Field velocity in females exposed to maternal separation but not in RS, MS+RS or males. This sex-specific difference might reveal a buffering effect of RS as a potential resilience mechanism in females but not males.



3. Reduced center time in the Open Field only in RS males but not MS, MS+RS or females. This result indicates increased anxiety-like behavior in RS males but not in MS and MS+RS males, suggesting male vulnerability to restraint stress but not females and a potential anxiolytic buffering effect of prior maternal separation.



4. Increased swimming time only in MS+RS females, not in males. This sex-specific enhancement in stress-coping behaviors might indicate how maternal separation during infancy promotes a long-term resilience effect in females.



CONCLUSION

These results reveal sex-specific behavioral responses to stress after being exposed to early life adversities. Particularly, females subjected to early stress might develop a resilience mechanism to cope with stress when adults. This could open the door to understanding the sexual basis regarding the susceptibility to stress-related disorders such as anxiety and depression.

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