

Refinement

<https://doi.org/10.1038/s41684-025-01600-w>

How do mice prefer to be handled?

 Check for updates

Tail handling of laboratory mice has become increasingly criticized and the refinement principle of the 3Rs calls for the adoption of less aversive handling methods. Tunnel handling has emerged as a popular alternative to tail handling and is assumed to be less stressful. However, most supporting studies rely on handling protocols with high frequency and duration, often exceeding what is routinely practiced in animal facilities. These studies usually report and favor behavioral endpoints over physiological markers of stress, leaving important gaps in our understanding of the actual welfare impact of the handling methods. A study in *Scientific Reports* evaluated multiple stress biomarkers to further explore the actual welfare impact of tail or tunnel handling on mice.

In this study, the researchers test whether weekly tail or tunnel handling during cage

change produces different effects on mouse welfare. They evaluated both male and female mice from two commonly used strains, C57BL/6J (inbred) and CD-1 (outbred). To better control for familiarity, the tunnel used for handling was not present in their home cage. To better understand the impact, the team evaluated classical behavioral traits such as exploration, anxiety-related and social behavior as well as voluntary interaction with the handler, and physiological stress markers, including corticosterone levels and adrenal gland and thymus weight. Contrary to what has been reported in literature, the results in this study show no consistent pattern indicating that tunnel handling is less stressful than tail handling. While some significant differences were observed across tests and analyses when comparing groups, all together they vary

and do not show a clear advantage of either method. Behavioral outcomes were mostly comparable between handling types and physiological markers of acute and chronic stress did not differ. A few handling-related effects were observed in C57BL/6J mice compared to CD-1 mice, but the findings were not consistent enough to conclude strain-specific sensitivities.

These results challenge the current view that tunnel handling is better than tail handling and stress the importance of using experimental conditions comparable to routine husbandry practices.

Jorge Ferreira

Original reference: Meyer, N. et al. *Sci. Rep.* **15**, 21534 (2025)



Build your skills.

Boost your confidence and advance your scientific research with researcher training from *Nature Masterclasses*

Choose from live workshops, or learn at your own pace with the *Nature Masterclasses* on-demand platform. Gain insights and learn from Nature Portfolio journal Editors and industry experts.

Wherever you are on your research journey, we're here to help.

Access our free courses, plus free course samples and find out more at:

masterclasses.nature.com

 @Nature Masterclasses

03GAS / Image credit: Cavan Images