



National Centre  
for the Replacement  
Refinement & Reduction  
of Animals in Research

## Mouse handling poster: Terms of use

The NC3Rs has produced an A2-sized poster on non-aversive mouse handling methods for display in laboratory animal facility rooms and corridors to help raise awareness about the methods and familiarise staff with the correct technique, in conjunction with practical training.

For a full list of available posters and information on how to implement non-aversive mouse handling in your facility, please see our resource page: <https://www.nc3rs.org.uk/how-to-pick-up-a-mouse>.

## Print specifications

The proper use of this poster requires the photos to be clearly visible, as they demonstrate the correct handling technique. Therefore, it must be printed by a professional print service at the full A2 size.

This poster in this PDF has been set up to professional print standards and has crop and bleed marks added. Please use the print specification outlined below and the printer will trim the poster to the finished size.

- Finished Size: 594mm x 420mm (A2 portrait)
- Print specification: Full colour
- Paper specification (ideally): 170gsm silk

If you have any issues, or need the file in another format, please contact [enquiries@nc3rs.org.uk](mailto:enquiries@nc3rs.org.uk).

## Circulation and reproduction

The poster in this PDF should not be circulated without this covering page attached to it.

Any requests to reproduce this poster, or to include it in any publications or training materials, should be directed to [enquiries@nc3rs.org.uk](mailto:enquiries@nc3rs.org.uk). You should include how, why and where the poster will be used so that we can consider your case for approval. It is helpful to include any associated text, so we can see the context in which the poster will be put.

**Copyright:** The attached poster and the content within it are owned by the NC3Rs and its partners. The poster should not be adapted, and the content should not be sold or used to generate income.

# 抓取小鼠的新方法——是时候作出改变了

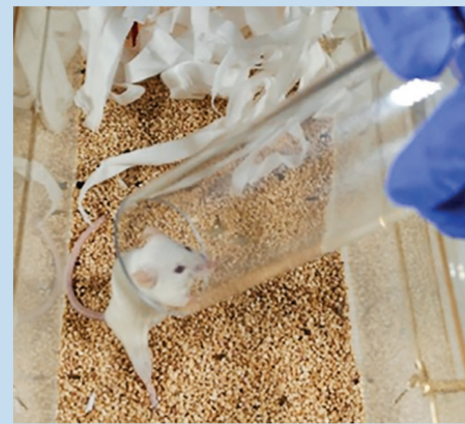
哺乳动物行为和进化小组, 约翰·沃特斯 (John Waters)、凯利·古韦亚 (Kelly Gouveia) 和简·L·赫斯特 (Jane L Hurst)。英国利物浦大学Leahurst校区, Neston CH64 7TE。

实验小鼠的抓取方式会影响它们在科学实验中的应激、长期焦虑和可靠性。提起小鼠尾巴会引起负面反应<sup>1-3</sup>。相反, 使用圆筒抓取, 或者用手捧起小鼠会大大减少应激和焦虑, 让小鼠更愿意主动配合<sup>1-3</sup>。下文为您简要说明这些方法。您应选择符合您当地生物安全法规的方法。

欲了解更多细节和建议, 请观看我们的免费视频教程 [www.nc3rs.org.uk/how-to-pick-up-a-mouse](http://www.nc3rs.org.uk/how-to-pick-up-a-mouse)。

## 圆筒式抓取

- 徒手引导小鼠进入圆筒
- 提起小鼠所在的圆筒
- 倾斜圆筒后端, 使出口贴近平面上方, 使小鼠从圆筒中倒退出来
- 小鼠能够很快适应圆筒式抓取
- 非常适合经验不足的操作人员
- 被咬的风险降到最低
- 易发现异常行为



## 手捧式抓取

- 用单手或双手将小鼠舀到手掌中
- 提起手掌, 离开笼子
- 小鼠坐在手上可以不受束缚
- 一旦小鼠熟悉了这种方法, 单手便可操作
- 小鼠需要较长时间适应手捧式抓取
- 需要具备一定技能的人员操作来防止小鼠跳跃, 但是可以改善动物与操作人员的关系



## 圆筒和手捧结合

- 用圆筒提起小鼠
- 倾斜圆筒后端, 使小鼠退到手掌中
- 小鼠应自愿停留在手上



## 良好抓取的技巧提示

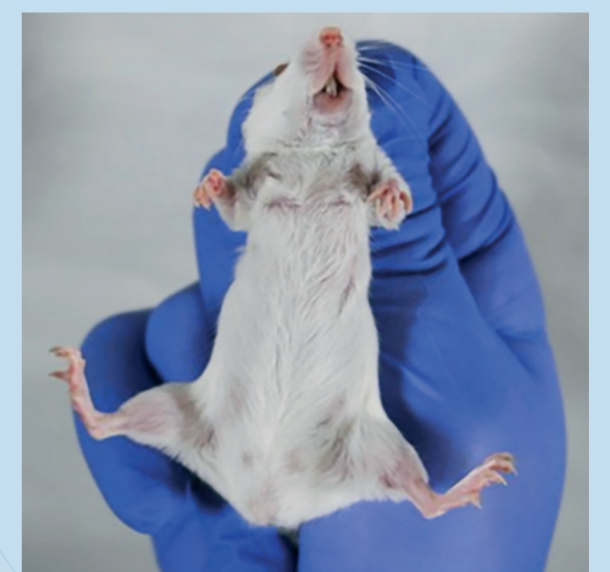
- 不要犹豫**
- 使用笼子边和空着的手引导小鼠快速进入圆筒——**不要用圆筒追逐小鼠**
- 不要**等待小鼠自觉进入; 要积极引导它
- 若操作技术良好, 小鼠会径直进入圆筒——熟能生巧!
- 熟悉圆筒的小鼠更容易进入圆筒
- 如果有条件, 可以在小鼠住的笼子里放置一个圆筒<sup>2</sup>
- 提起圆筒时, 小鼠会在圆筒中停留, 但移动时要盖住圆筒两端来保证小鼠安全
- 倾斜圆筒后端, 使小鼠倒退出圆筒, **不要**把小鼠晃出来
- 光滑透明、直径50毫米的塑料圆筒最为理想



- 没有经验的小鼠可能会试图跳出手心
- 双手轻轻包住小鼠几秒钟, 可以使小鼠熟悉手捧式抓取
- 欲了解更多细节, 请观看我们的视频教程

## 操作保定

- 尽可能避免抓取小鼠的尾巴
- 提起后, 小鼠便可通过尾巴进行保定, 例如交配时
- 根据科学流程需要, 小鼠还可以从颈背处进行保定
- 从尾巴或者颈背进行保定不会影响圆筒式和手捧式抓取的正面作用<sup>1</sup>**



## 益处

- 这种方法比用尾巴提起的传统方法显著减少了小鼠的焦虑<sup>1-3</sup>
- 必要时, 您仍然可以从小鼠尾巴或颈背进行手动保定<sup>1</sup>
- 小鼠表现出更可靠的行为反应<sup>3</sup>和生理反应<sup>4</sup>
- 小鼠只需要短暂的接触圆筒抓取, 便可习惯这种操作方法<sup>2,3</sup>
- 若操作熟练, 圆筒或手捧的方式可以像提其尾巴的方式一样快速地抓取小鼠。勤加练习便可熟能生巧, 而且这些方式大有裨益。



## 鸣谢

我们对安娜·罗杰斯以及哺乳动物行为和进化小组的其他成员提供的宝贵帮助表示感谢。本项研究由NC3Rs (英国国家3R动物研究中心)、BBSRC (英国生物技术与生物科学研究理事会) 和利物浦大学资助。

## 参考文献

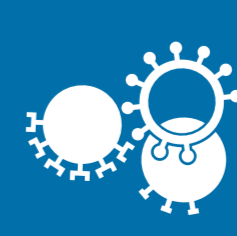
- Hurst JL & West RS (2010) *Nature Methods* 7:825-6.
- Gouveia K & Hurst JL (2013) *PLOS ONE* 8: e66401.
- Gouveia K & Hurst JL (2017) *Scientific Reports* 7:44999.
- Ghosal S et al. (2015) *Physiology & Behavior* 150:31-7.



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