

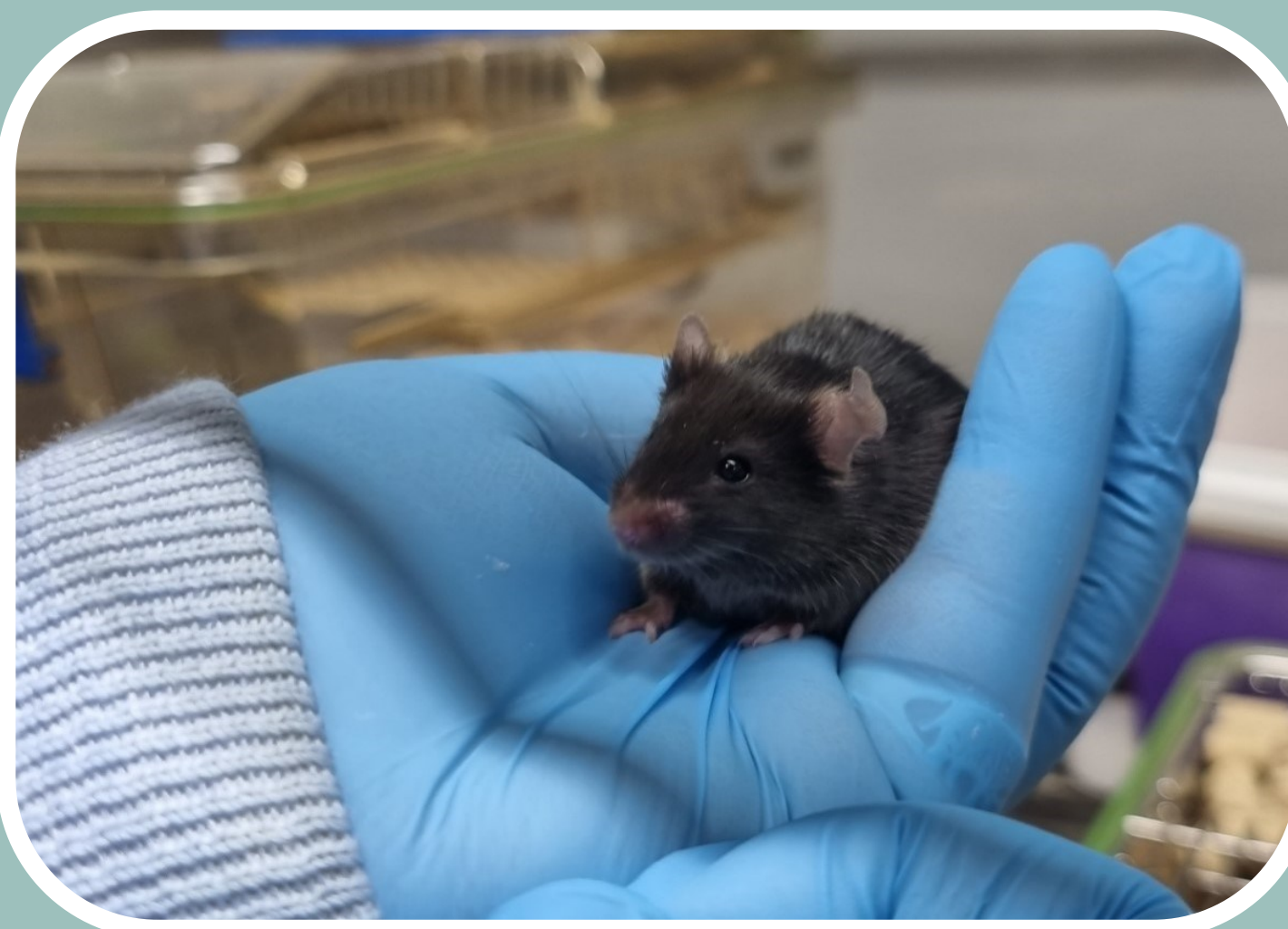


A GUIDE FOR JUNIOR TECHNICIANS: THE IMPORTANCE OF GIVING THE CORRECT AMOUNT OF NESTING IN A MOUSE IVC CAGE, AND THE BENEFITS OF AN ENRICHED CAGE

By Amber Stringer (Chief Animal Technician) & Lauren Pitcher (Animal Technician)

Abstract

During our experience of working on the breeding floor of the University of Cambridge’s Anne McLaren Building, we have recognised the importance of giving the correct amount of nesting and the benefits of additional enrichment. We work with over 100 Genetically Altered strains of mice; some of these have different activity levels and requirements. We have found that junior animal techs understand the importance of nesting quantities and providing enrichment, however, communicating to them the right amount/combination, is quite subjective. By creating an information poster, we hope that junior animal techs both in the AMB and other similar facilities, will have a concrete foundation to rely upon when trying to provide the best animal care.



Brown Nesting for IVC Cages

At AMB we use brown nesting for most of our cages. As with any nesting, it is important to add the right amount to the cage. Mice require brown nesting for warmth and a safe space but it is also vital that a full ‘tip-to-tail’ check can be completed on every mouse on AM checks. Nesting amount can affect the welfare of mice, our ability to check them, and the efficiency of AM checks.

TOO LITTLE

Mice are always visible but they lack the proper amount of nesting to build a substantial nest. Mice will likely be cold and on-edge without a safe space to retreat to. Although tip-to-tail checks are easily carried out, good welfare practices are lacking.

JUST RIGHT

Mice are mostly visible but have the nest to retreat to for warmth and safety. A tip-to-tail check is easily carried out with minimal coaxing. Mice are able to easily explore outside of their nest but also hide if needed.

TOO MUCH

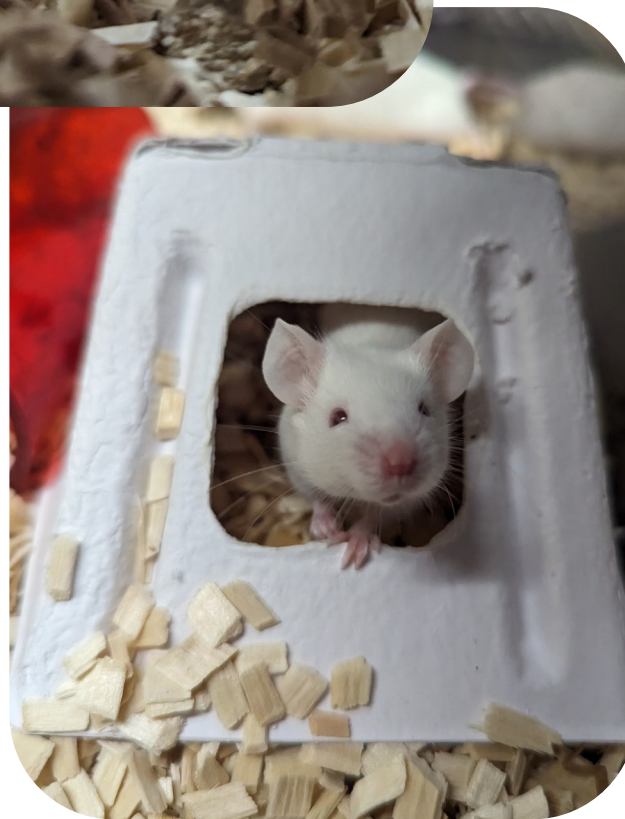
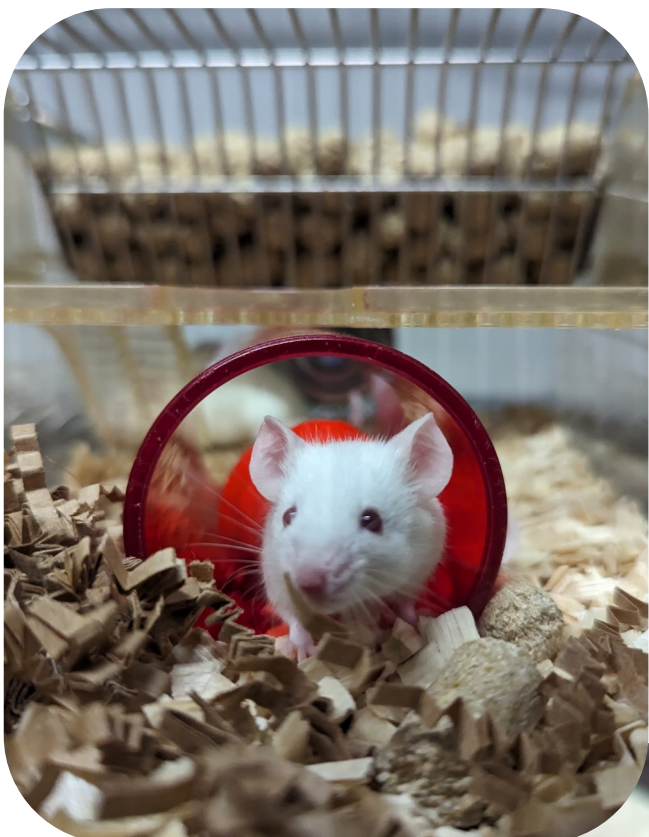
Mice are more hidden than visible which makes tip-to-tail checks difficult to do without opening the cage. Nesting only provides so much mental stimulation. Reduce nesting and add other enrichment to keep your mice entertained.



TOO LITTLE	TOO MUCH
Risk of total litter losses	Risk of missing health issues
Mice are unable to exhibit natural nest building behaviours	New litters missed
Increased fighting due to lack of sleeping areas	Prolongs time spent checking each cage

Enrichment

The best form of enrichment is other mice, but unfortunately singly housed animals cannot always be avoided. To help boost their welfare we provide extra enrichment. We also add extra enrichment in cages of mice that are hyperactive, seen fighting or over-grooming, as adding more enrichment can help reduce stress behaviours and provide distractions. It is important to ensure that, when adding extra resources, the mice still have enough space to move and are not at risk of getting injured.



Enrichment Rotation

We have created an enrichment rotation poster for our single males and sentinels on level 4 of AMB. This involves changing to a new enrichment item when they are cleaned out. By rotating enrichment we provide novelty, complexity and excitement.

1) SMART HOME

Provides additional shelter and gives mice something else to chew on and rip up. This is also helpful for anxious mice and sensitive breeders.



2) CARDBOARD TUBE

These provide multipurpose enrichment. Mice can hide as well as gnaw. These tubes are more compact and may make mice feel safer.



3) LOFTS

Lofts provide additional floor space and allow mice to create zones within the cage. It also allows mice to climb at various heights.



4) COMBINATION

This creates a more complex environment. Using a different combo each time encourages a range of behaviours and movements.



Conclusion:

This informational poster is based on a breeding floor, so what may work for breeding mice, may not work for mice on an experimental floor—for example. Every strain also has different requirements, i.e. mice that are very hyperactive may require softer, surgery nesting as opposed to brown nesting to prevent entanglement. This poster is more of a guide to aid in delivering the best care that we can offer. This includes balancing our need to perform daily health checks and husbandry procedures, whilst maintaining good welfare standards. We believe that enrichment rotation offers the best care for singly housed mice, as well as those with behavioural issues, and providing the appropriate levels of nesting allows mice to perform their natural behaviours without hindering our ability to care for them.