

# LABORATORY CAGE OR PLAYGROUND?

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Our facility got in contact with a client who intended to do research in wildling mice. This strain is a C57BL/6J mouse crossed with a wild mouse and results in a wildling mouse with a wild microbiome. This study is focused on investigating whether animals with a wild microbiome could give more reliable outcomes in medical experiments as opposed to specific pathogen free (SPF) animals, since these wildlings have a similar immune system to humans. One of their questions was if it would be possible to give these wildlings a more enriched environment to encourage their natural behavior and to stimulate the immune system. To keep this stimulated the enriched environment is changed every two weeks.

Fun fact: PSP-ARC is one of the few facilities in The Netherlands that have isolators!

## ENRICHMENT IN THE ISOLATOR: AN EXTRA CHALLENGE

Contrary to a SPF mouse, these mice carry a variety of unknown micro-organisms. These animals are therefore seen as a possible threat to the SPF mice in our facility. Because of the wild microbiome of the wildlings and to prevent any unwanted spreading, these mice are housed in an isolator. This is a containment where the animals live in a completely closed off environment. The isolator is the perfect way to keep these types of animals, but working with this kind of housing can pose some serious difficulties. Just try to grab a paperclip with oven mitts and you will understand that changing the cage enrichment can be very challenging.

## CLIMBING AND CLAMBERING

When you think of cage enrichment, the first thing that comes to mind is a simple shelter. Our cage enrichment, however, provides room for some more exercise. The mice can use their running wheel and they also have the opportunity to climb in the enrichment hanging on the lid of the cage. This way, the mice tend to move more and there is more variety in their cage.



## SNACKS: ANOTHER FORM OF STIMULATION

Usually the lab mice only get standard laboratory diet. Food is a very good and easy way to stimulate their natural behavior. We try to hide the different types of "snacks" to encourage foraging, for example by hiding them in a folded paper toilet roll. We try to alternate between the snacks, so they do not get used to it. We vary between corn, sunflower seeds, peanuts and spray millet.

## OBSERVATIONS

While doing these cage enrichment changes every two weeks, some things have caught our eye:

- Once we started using cage enrichment, the mice started moving around more and for longer periods of time
- Later on, when we introduced the running wheels, mice stopped excessively grooming each other
- There has been barely any stereotypical behavior
- The mice remain active even at an older age. They appear fitter and slim



"The key component of an enrichment program is the animal staff, whose members must be motivated and educated." - Vera Baumann

## PREFERENCE

Elderly mice seem to avoid bedding material.

Young mice	Adult mice	Elderly mice
Use hanging cage enrichment for climbing	Use hanging cage enrichment for easy access to food	Use hanging cage enrichment for resting
Do not use toilet rolls with snacks	Toilet rolls with snacks are empty within 2 days	Toilet rolls with snacks are empty within an hour
Use running wheel continuously	Use running wheel frequently	Use running wheel to sleep on