Cup and tunnel handling of mice
Marie Petersen, Peter Lund Gade, Maria K. Kiersgaard, Helle Nordahl Hansen
Animal Unit Maa, Novo Nordisk A/S

Background:
The standard way of catching, lifting and handling mice has for decades been by the tail. I.e. grasping the animal by the tail, lifting it by the tail and generally holding the mouse by the tail at all times. This is stressful for the mouse, but the general understanding in the laboratory animal science society has been, that this was the only effective, safe (i.e. without being bitten) and fast way of catching and handling mice.
In 2010 the first article on cup and tunnel handling was published by Hurst and West (1). This and following articles (peer-reviewed) over the years demonstrated that catching, lifting and handling mice by either cup handling or tunnel handling is less stressful and more trust inspiring for the mice. The basic way to use these methods is by NOT catching and lifting the animals by the tail, but either handle it in a transparent plastic tube (tunnel handling) or on the palm of one’s hand.
The literature describes how tunnel or cup handled mice are less anxious and less stressed. Less anxious and less stressed animals will give more reliable scientific data, which is of the essence in the Novo Nordisk Way of doing business. It is also worth noticing, that this way of working, interacting and cooperating positively with the animals elicit more job satisfaction.
Furthermore, an internal study has demonstrated that tunnel handling of aged DIO mice reduces stress levels and is not more time consuming than tail handling.
Already in 2015, we began to look into tunnel and cup handling, however, without the correct education in these methods, we had to put it aside for some time.

Description of initiative
In 2017 a decision was taken at management level, that these methods should be implemented, beginning in 2018. A plan for change management was made. This plan took several things into account.
Employees had to change their way of thinking, as well as their way of acting. Time had to be dedicated to training and evaluating. Equipment (tunnels) had to be in place, and the employees had to be educated in both the theory as well as the practical aspect of the new methods before beginning the implementation.
The implementation began with animal caretakers, and was taken stepwise, with discussions and evaluation along the way. Later, in vivo pharmacology departments were involved, for all personnel who are working with mice to be educated, so the implementation could be complete.

Impact of initiative
The initiative is refinement, since the use of these new handling methods is minimizing anxiousness and stress associated with traditional tail handling of mice.
In 2018 app. 37.000 mice were used in Animal Unit Maa, in 2019 and for the future, mice numbers of this magnitude will be affected.

Perspectives:
Tunnel and cup handling of mice can be applied in any animal facility around the world. Training of personnel is essential and necessary, and if tunnel handling is desired, tunnels must be provided. Other than this, it is neither costly nor difficult to do. The general welfare of countless mice would be significantly improved, if this technique was implemented widely throughout the laboratory animal community.
After the implementation in our own facility, we have been advocating these methods in the laboratory animal community, which have resulted in invitations to help educating in and/or implementing the methods at several other rodent facilities in Denmark (currently 7 facilities).

References: