

Tips on Mouse Handling

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related to: Ghosal et al., Mouse handling limits the impact of stress on metabolic endpoints. *Physiol Behav* 2016

This is an interesting paper -thank you! We do not use the cup method but there are other things we do to minimize stress especially while measuring blood glucose/plasma insulin or conducting GTT, ITT. Cup method sounds good but the C57BL/6 strain is very wild (compared to other strains) and they tend to bite. Also, we order DIO mice from Jax which are older (~ 4-5 months) and aged mice tend to bite more and that biting hurts (I had many unfortunate experiences when I first started). And if the researchers gets bitten, this causes a bigger stress -first to the researcher and then the mice. On the other hand, ob/ob and db/db mice (although on C57Bl/6 background) do not bite and cup method works there. Also, the mice in our facility are used to be picked up by tail because that's the way our animal techs handle the mice while changing their cages at least once a week.

What we do to minimize stress while measuring blood glucose is as follows:

- 1- We try to measure blood glucose/do 4-5 h fasting on Thursdays or Fridays. Wednesday is the technician's working day in our room -there is a lot going on in the room (the racks are moved , the cages are changed, etc.) so it is not a good day. On Monday morning the technician checks the cages and the technician gives extra attention to cages which do not have food -not a good day. We also experienced that sometimes the technician works on Tuesdays -so it is also not the best day to fast the mice.
- 2- We take one cage at a time from the rack and transfer it to hood. First we quickly measure blood glucose by tail vein puncturing. We cut a very small piece of tail, not big (this is very stressful for the mice) and never use razor blade –always use scissors. We never use a strainer for blood glucose measurement!
- 3- After the blood glucose measurement of all mice, we collect blood for plasma insulin analysis. We cage 3 animals per cage, so the time between the first and the third mice is not that different. Another important thing is to be quick while drawing blood (less time for the stress hormones to kick in to change plasma insulin levels –it takes ~ 5-10 mins to see the surge in plasma insulin even after a glucose bolus).
- 4- If you have many mice (more than you can handle) always get help from someone else. Devram and I help each other for the big experiments.