

Laboratory Animal Training or Training animal models in biomedical research



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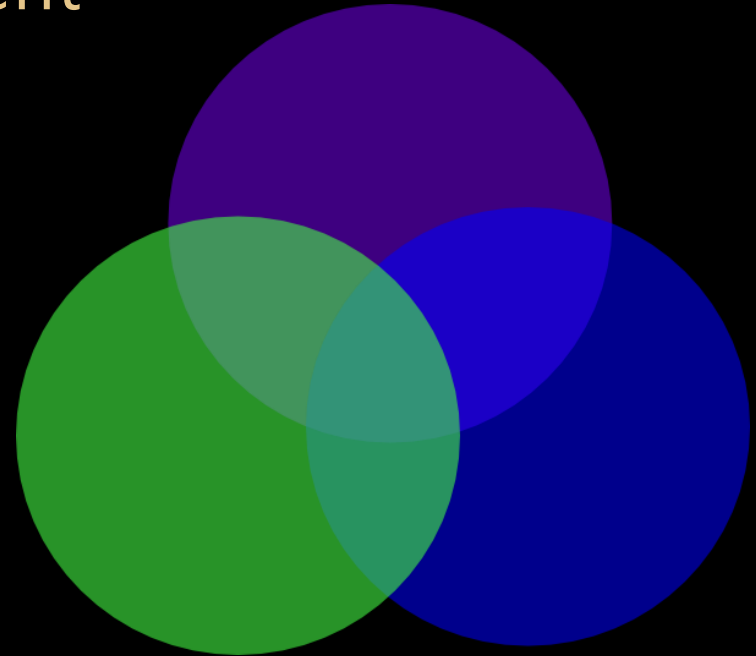
Lab Animals should be trained

- “Establishments **shall set up habituation and training programmes** suitable for the animals, the procedures and length of the project (EU directive 2010/63/EU; Annex III, 3.7)
- **Habituating animals** to routine husbandry or experimental procedures should be encouraged whenever possible as it may assist the animal to better cope with a captive environment by reducing stress associated with novel procedures or people... In most cases, **principles of operant conditioning may be employed during training sessions**, using progressive behavioral shaping, **to induce voluntary cooperation** with procedures (National Research Councils Guide for the care and use of laboratory animals 2011)

Training Lab Animals

- Better Animal welfare
- Better science
- Better working environment

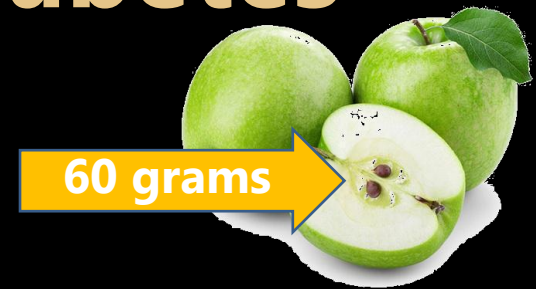
(Sørensen 2010)



Positive Reinforcement Training improves Animal Welfare and data quality

- Primates
 - Normalising various hematological and clinical parameters related to stress.
 - *Sørensen DB: Laboratory Animals 2010*
- Horses
 - PRT increases motivation to participate. Increases exploration and solutions-seeking (compared to NRT)
 - *McBride: Applied Animal Behaviour Science 2008*
- Mice
 - Decreased fear of humans in mice/human interactions
 - Less "depression-like" behavior in Morris water maze
 - *Leidinger C et al : J Vis Exp /JoVE 2017*

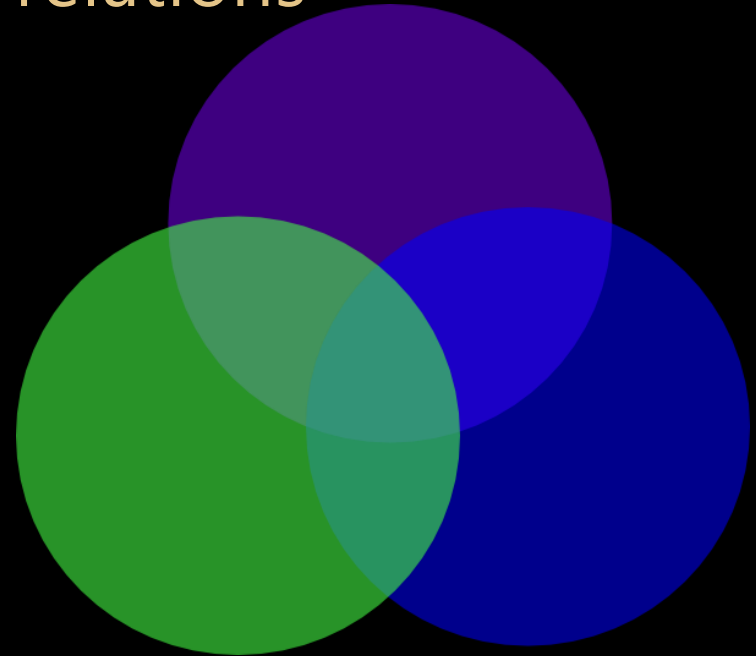
PRT will not negatively affect research data in diabetes models

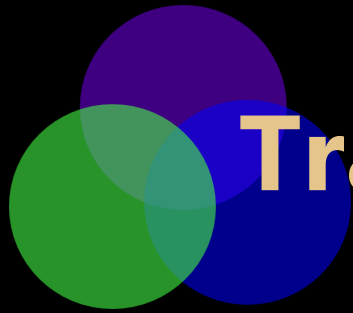


- Small amounts of food reinforcers do not affect key blood parameters in a pig model of diabetes
- The use of water instead of food reinforcers in food-expecting PRT pigs do not significantly affect key blood parameters
- *Jønholt et al – in prep*

Training Lab Animals

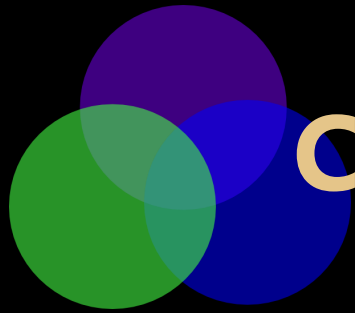
- Cooperation for research procedures
- Cognitive enrichment
- Improving human-animal relations



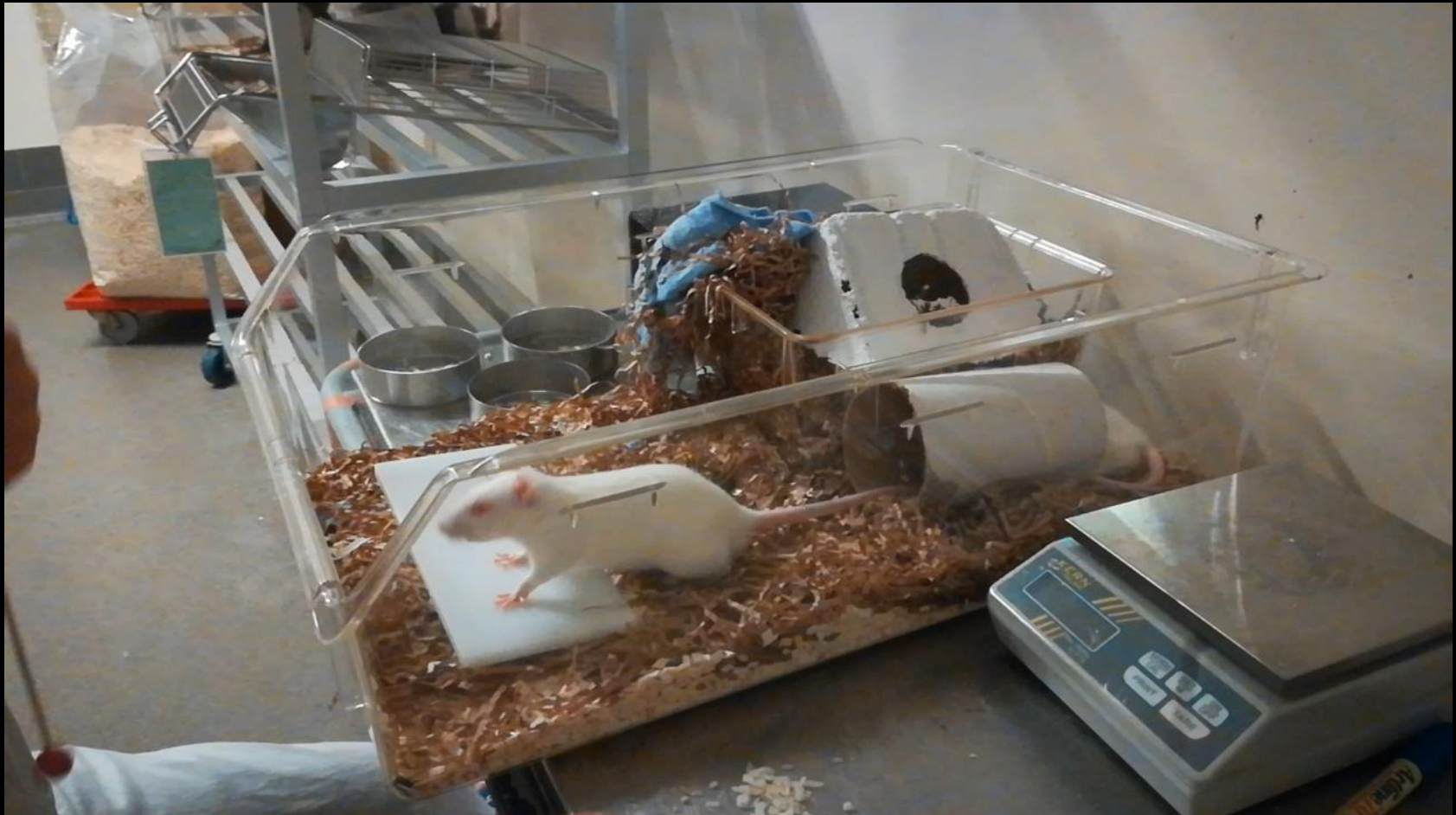


Training for procedures



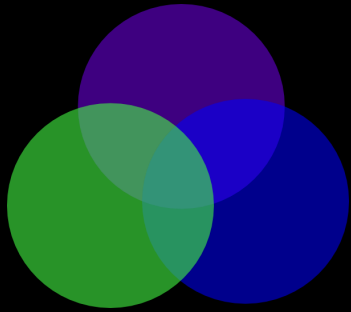


Cognitive enrichment



Human-Animal relationship





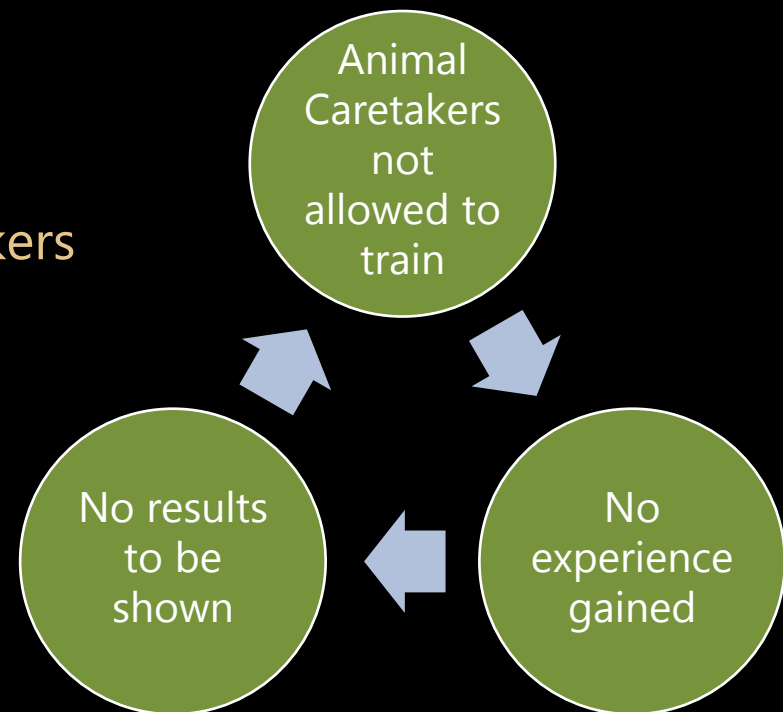
Karlo



The initial challenges

- **Researchers/Principal Investigators and facility managers**

- Ignorance and reluctance
 - Training takes time!
 - Effects on animals, data and caretakers
 - "If it ain't broke, don't fix it"
- Lack of concern for animal welfare
- Lack of additional funding



- **Documentation and argumentation is needed**

- Anecdotes should be allowed!

The practical challenges in lab animal training

- Time constraints
- Catheters, devices etc.

- Food restrictions

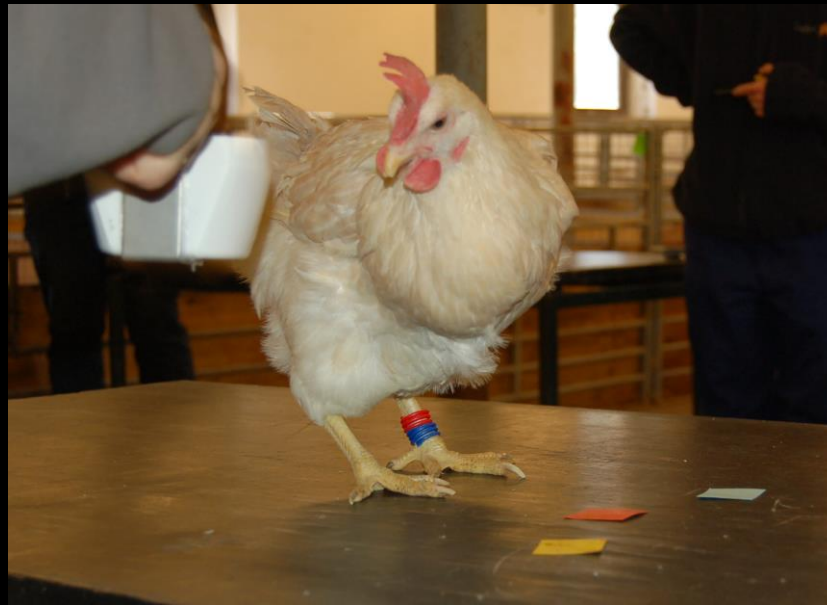


- Environmental constraints



Competent trainers are needed

- Training animal using operant techniques is simple, but not easy
- Animal training is a mechanical skill
 - Must be science-based



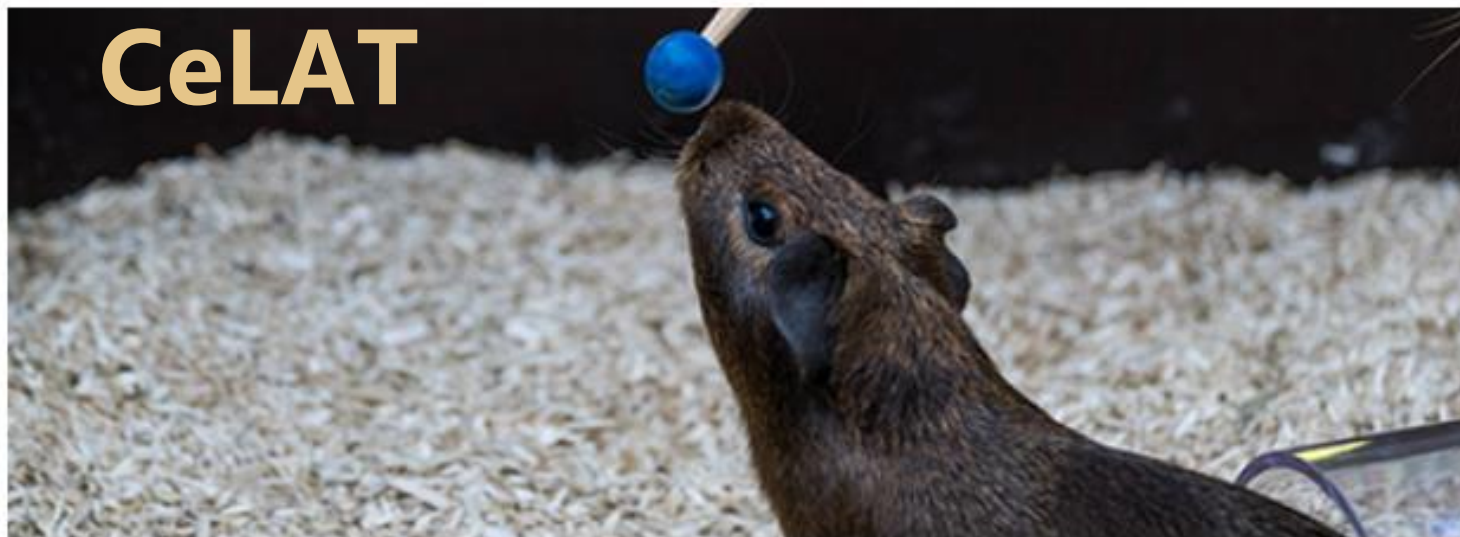
We need

- Colleague-to-colleague networks
- Basic and continuing education
 - Theory
 - Practice
 - Multi-species approach - Principles are all the same!!!
 - Creativity
 - Inspiration
- Interdisciplinary cooperation
 - Animal caretakers, Ethologists, Vets etc
 - Zoo-animals, pets, farm-animals, lab animals

Interdisciplinary approach



CeLAT



Centre for Laboratory Animal Training



Zoo



Pharmaceutical comp.



Academia

Thank you



Videos kindly provided by:

Copenhagen Zoo
Novo Nordisk A/S
Lundbeck A/S