1

What is the good life for animals?

2

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"She got up, looked us straight in the eye. I don't know. It's almost as if she was thankful. Like she appreciated what we did. It's weird to say. It's a feeling we both felt… she chilled there for five minutes and trotted off and that was that."

"I have hunted moose all the time. But this scenario and perspective has given me a different view. It's hard to explain. It's a good feeling, a really good feeling… Locking eyes on her and being so close to her. It changed my perspective for sure."

Reggie Jackson, 37, Wildnest Lake, Saskatchewan

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Empathy

- Establishes concern and connection with another being
- Directs our interest and understanding of what is going on with another being
- Makes someone want to refrain from hurting and instead help another

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Belief in Animal Mind

- More concerned about animal welfare
- Behave more humanely towards animals and humans

(Broida J. et al.1993: Hills AM. 1995; Knight S. et al. 2004)

Research community needs people who believe in animal mind and have empathy

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People Matter

A key element to achieving good animal welfare is having caring people who work with animals

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Rat Project Aim

Test if exposure to well socialized rats, that demonstrate complex mental and behavioral capabilities, increases empathy of those working with research animals

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Educational Intervention

Goal: Use rats to help capitalize on features important to fostering empathy and BAM

- Mandatory class for researchers
- Students enrolled in class observed rats:

1. "Regular" (control)
2. "Superstar" (intervention/treatment)

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Educational Intervention

Intervention (**treatment**): observed 7 highly trained rats perform

Intervention Promoted:

- Feelings towards rats
- Direct experience
- Understanding of mental experiences

Regular Rats (**control**): no training

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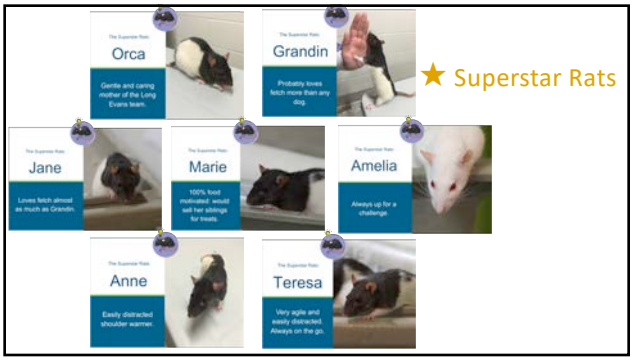

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Bee-Li Tan, Joyce Sato-Reinhold, Vivian Chew, Lara Kolody, Nevene Hammoud, Sarah Mcnamara, Venessa Wong, Andrea Walterhouse, Joanna Makowska, and Daniel Weary

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4 Phases:

① Socialization

② Training

③ Educational Intervention

④ Focus groups

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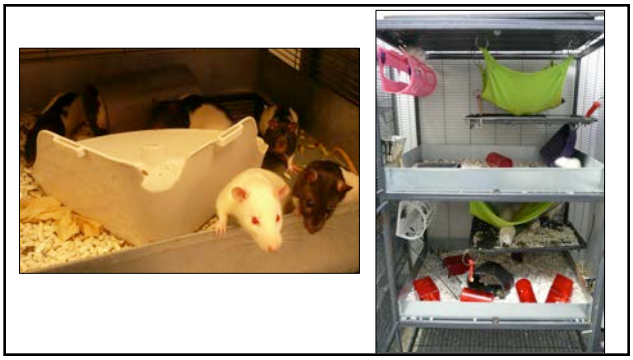

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Phase 2 – Training

- Clicker and target training began at 4 weeks of age
- Long-Evans rats trained best
- Females more focused than males after puberty

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Positive Reinforcement Training

- Goal to increase likelihood of desired behaviour
- Primary reinforcer – treat
- Secondary reinforcer (bridge) – clicker/sound

Steps:

1. Learn association between clicker and reward
2. Click when desired behavior performed (marks behaviour)
3. Reward = reinforce behaviour

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Positive Reinforcement Training- Benefits

- Relies on voluntary participation
- Animals engage in learning, try to learn new behaviours
- Animals remember what they have learned
- Animals develop confidence
- Animals are enthusiastic because they expect consequences to be pleasurable

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Example of training session

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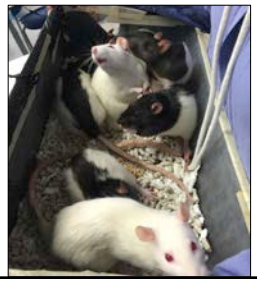
Phase 3 – Educational Intervention



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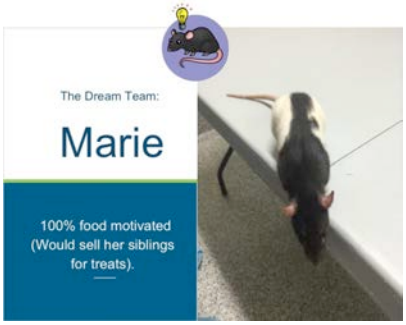

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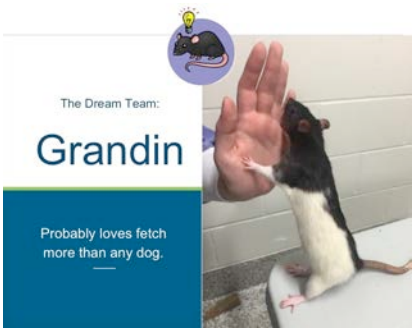

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Phase 4 – Focus Groups

- 8 focus groups (3-6 people per group)
- 3 control & 5 intervention groups
- 29 participants (25 researchers, 4 veterinary technicians)
- 20 females, 9 males
- Researchers: graduate students, post-docs
- Research areas: Neuroscience to immunology
- 50% with previous rat experience

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Phase 4 – Focus Group Questions

- 8 open-ended questions
- Recorded and transcribed

Questions:

- What was your experience when you handled the rats?
- Did you learn anything new about rats?
- Do you feel your experiences with rats in the class might influence how you care for and interact with your rats later?

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Phase 4 – Focus Group Analysis

- Qualitative analysis of transcripts
- Method: Constant comparison
  - Classified until emergent themes identified
- Quotes illustrate themes

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Evidence of Empathy/BAM

Rats are Amazing!

- All participants recounted a sense of "amazement" and "surprise" when they watched the rats perform

Rats are smart

"Yeah my dog can't do any of that." RA

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Evidence of Empathy/BAM

Rats have personalities

"I thought it was funny that they knew their names and they could respond to their names. It … made them … like they had their own separate little personalities, especially with the slide up there. So when I went to handle the rat, I was like "who is this?" I wanted to know, which is weird because in my lab it's just numbers." RK

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Evidence of Empathy/BAM

Rats are capable of experiencing emotions

"… they enjoy the handlers, … they enjoy the interaction… ." RR

"So now I know they would understand if I give them love. I feel like they would understand it, so I can actually make their lives better by giving them more attention." RM

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A Nudge in the Right Direction

- Participation in the intervention "reminded" students of their moral responsibilities to their research subjects

"… it's a really good way of reminding us students that these are animals, creatures. They are intelligent, … they aren't … just a tool. Treat them humanely, treat them correctly. I think it's just a good reminder and oh yeah, they are adorable." RE

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A Nudge in the Right Direction

"I think about them differently now. … "Y" and I just anesthetize rats and take their brain out. We actually got to see more of what they're capable of … I have a bit more respect … for them." RL

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Evidence of Empathy – Control groups

Control groups

- Few comments were related to the rats they met in the class except they found them cute
- Focus was on what they learned in class (technical)

"Yeah, I learned that thing that once I grab the rat outside the cage, I should turn around so that the rat may not get into the cage again. So that's something I learned new here." SD

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2. Witness to Human-Animal Relationship

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Witness to Human-Animal Relationship

Improved learning environment

- Reduced fear of being bitten while learning how to handle rats

"I saw how you were handling the rats and you were using your hands. … when I first saw them I was a little taken aback and then … I just noticed that you were comfortable with them and that made me feel like … they wouldn't bite." RL

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Witness to Human-Animal Relationship

Consequences of knowing your research animal

Participants imagined implementation in their own labs:

- Concerns about becoming "attached", "bonded" or "connected" to research subjects
- Emotional burden on researchers

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Witness to Human-Animal Relationship

"… as a researcher it would be a lot harder to sacrifice them. I think because usually they just have numbers, right? Them having names and you having that connection with them – I think I already have a hard time with the sacrifice – so I think it might make it even harder. But at least they lived a happy, fun little life, right?" RE

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Witness to Human-Animal Relationship

Blurring of the Boundaries

- Moral unease with blurring line between a "pet-like" research subject and traditional view of research animals
- Naming was not allowed in one facility because it fostered a personal relationship

"So our boss just said no one's naming anything. We're just doing it the research way." TJ

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3. Data Validity

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Data Validity

- Lack of consensus on how human-animal relationship affects data:
- **Positively** (e.g. reduced stress = better data):

"Even if we could just get them into the anaesthetization chamber a lot more easily. … it would reduce a lot of stress. … I mean even stress could sometimes influence research, experimental results." RM

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Witness to Human-Animal Relationship

- **Negatively** via bias

"That's also kind of important for us because we have to do blind study right. We shouldn't really know them [rats] at all because … that might compromise the study. … if you have a favorite one, then we may give them .. better treats or whatever." RY

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Conclusions

Intervention benefits:

- Shows promise for promoting empathy
- Reminds us of our moral obligations towards research animals
- Improves learning environment for handling
- Potential to impact large # of people

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Conclusions

Challenges:

- Need for explicit discussions regarding variety of variables impacting data and how to balance them with welfare
- Longer term benefits need to be evaluated
- Overcoming barriers within lab cultures

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Conclusions

Challenges related to the human-animal relationship:

- Considerations for supporting emotional well-being of those working with animals

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Conclusions

"And in my mind, I'm so happy that they got to hang out and have what I see as a more positive welfare-filled life than some of the other rats at the facility… . To me, the positive part of the relationship outweighs that feeling of grief every single time."

Nevene

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Student Reflection



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"I love that feeling when you first open the door and they go crazy in their cages, it's just a really nice feeling."
"After long periods of time working with them and they want to come jump on your arm, it's nice; you gain the trust of an animal. It's not like just you going 'I want to go play with you'. They are like 'I want to play with you!'"
"One of the biggest things I think you get from this is really getting to know your rats on a personal level. I know that is sort of the point of the whole training system, but I don't think you realize the extent of it until it's finally hands on."

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Sara's Conclusion

"Even the video that I have of them … I don't know how many people I have shown – just to show them how smart rats are... I'm so happy I have that video to be like – yeah look at how smart they are! Look at what they can do!"

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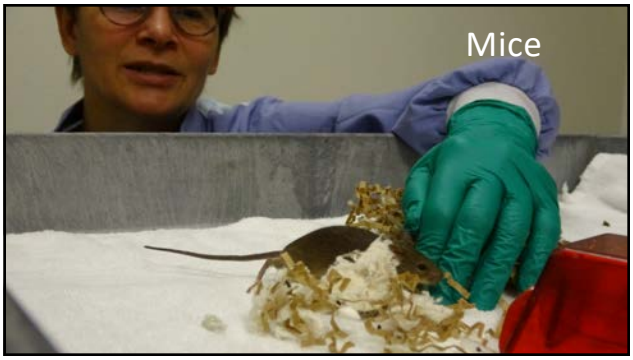

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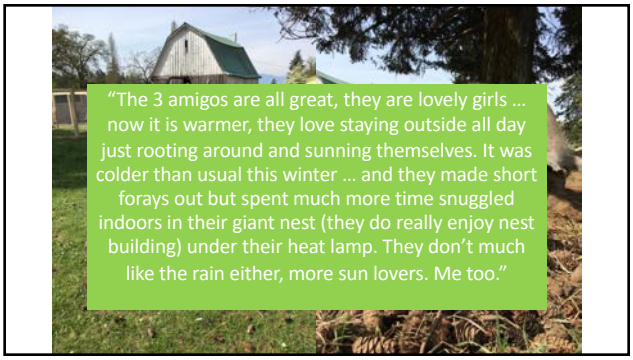

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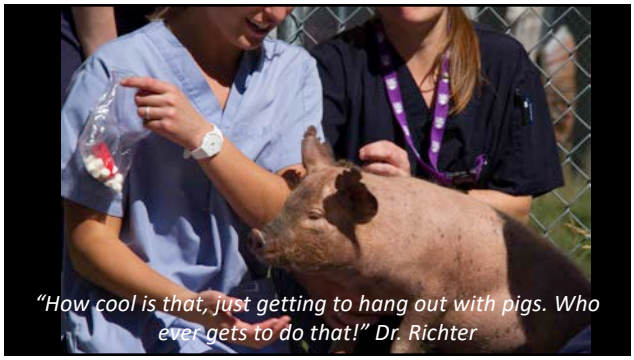

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Animal Agency

"Propensity of an animal to engage actively with the environment with the main purpose of gathering knowledge and enhancing its skills for future use" (Spinka 2010)

Are their consequences of limited agency?

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Captivity

- Basic needs are met
- Simple
- Monotonous
- Predictable

➢Maybe this is good? = Relax and get on with life

OR

➢Lack of challenge leaves them unprepared to deal with challenges when they arise? Stressful? Apathy? Boredom?

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Nigerian dwarf goats prefer to carry out cognitive task to obtain water (Langbein et al. 2009)

67

Pigs prefer making their own beds over having one provided to them (Arey 1991)

68

Standard 'shoebox' caging for rats & mice: Does it matter?

- It impairs learning abilities (Venable et al. 1998, Kempermann et al. 1997, Shrijver et al. 2004)
- It reduces hippocampal neurogenesis (Alvarez et al. 2014)
- It promotes depression-like during stress, accelerating hippocampal atrophy and promoting 'helplessness' (Huang et al. 2012; Fureix et al. 2016)
- It decreases resilience to everyday stressors (Meijer et al. 2006; Sharp et. al. 2005)
- Increases pain responses and sickness behaviour (Pham et al 2010)
- It slows down healing (Vitalo et al.; Bice et al. 2017)
- It makes rodents 'pessimistic' in judgment bias tasks (Burman et al 2008, Richter et al. 2012)
- It reduces sleep (Abou-Ismail et al. 2010)
- It can make rats and F mice more aggressive (Abou-Ismail et al. 2010 Hutchinson et al. 2012)
- It can shorten lifespan (Bice et al. 2017)

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THANK YOU

All the animals and people featured in this presentation

and

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