

The effects of weaning stress and maternal presence on kitten behavior and development.

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Mentors: Dr. Karen Vernau & Dr. Mikel Delgado

Hypothesis

Mother-reared kittens will display more stress-related behaviors than orphan-reared kittens during the weaning process.



Background

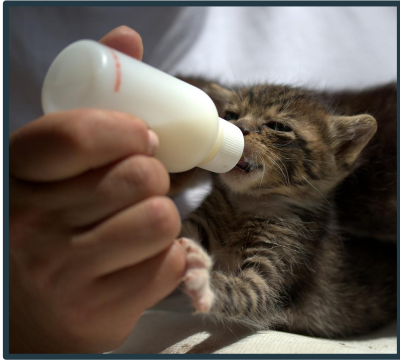


What is weaning? Good question!

- Transitioning young mammal from milk to solid food
- Sharpest drop in rate of parental investment
(Martin 1984a)
 - Dietary, behavioral, morphological,
& physiological changes
- Start: ~4 weeks of age. Finish: ~8-10 weeks of age.
- Why do we think MR will be more stressed than OR?



OR



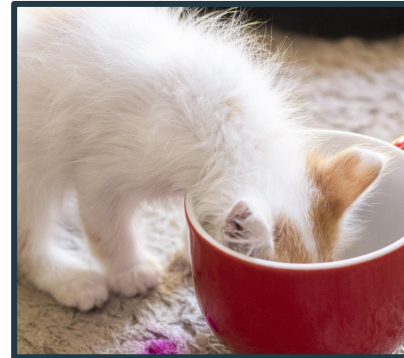
diet change



MR



diet change
+
relationship change



Previous Studies

- 2019 STAR project compared OR and MR kitten vocalizations & locomotion at 1 week and 3 weeks of age
 - OR kittens were more vocal and active at both time points
- Another study compared vocalizations and locomotor activity in weaning OR vs MR infant rhesus macaques.
 - Positive correlation between maternal rejection and # of vocalizations
 - No relationship between emotional distress and physiological stress resulting from nutrient deprivation

Orphaned Kittens



- Millions of feral kittens flood shelters every year: “Kitten Season”
- Vulnerable & need round-the-clock care that shelters cannot provide
 - High euthanasia rates (860,000) (ASPCA 2019).
- Kitten Season orphans overwhelm rescues → premature weaning
 - Early weaning → early independence (Tan 1975)
 - → Behavioral/Developmental problems (Ahola 2017)

The Foster Parent Experience

↑ Posted by u/puffinbluntz 4 years ago 📄
3
↓ **Help with weaning a 5 to 6 week old kitten that has no interest in solid foods.**

↑ Posted by u/queenbeepdx 2 years ago 📄
1
↓ **Hand-raising a now five week old kitten who seems reluctant to be weaned. Advice requested**

Advice

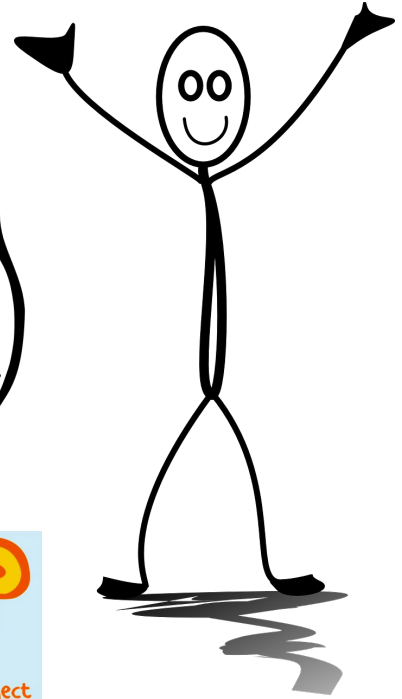
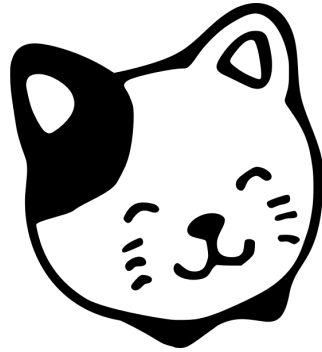
↑ Posted by u/Slumdunder 1 year ago 📄
2
↓ **8 week old kittens won't wean from mamma cat**

Discussion

↑ Posted by u/x-elixium 1 year ago 📄
9
↓ **Needing help for a kitten weaned too early!**



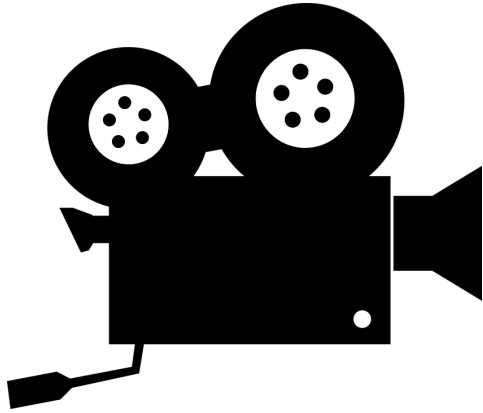
Additional Research Goals



Materials & Methods

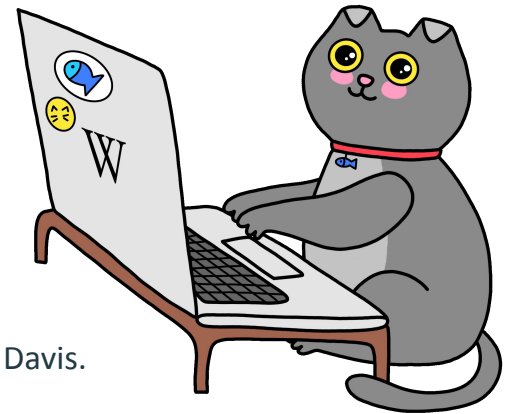


Original Plan



Pandemic-friendly alternative: Online Survey

1. Main survey to be taken daily throughout weaning process
2. Post-Survey (Feedback, foster experience)



All approved by the Institutional Review Board (IRB) of the University of California at Davis.

Participants

Are you fostering kittens that will begin weaning soon?
(Orphaned or with their mothers!)

If so, we need your help with our kitten weaning study!



 To sign up, scan the QR Code or visit <https://bit.ly/kittenweaning>



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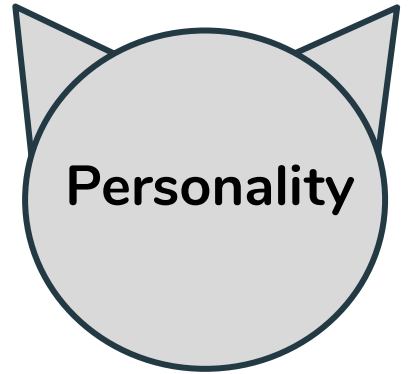
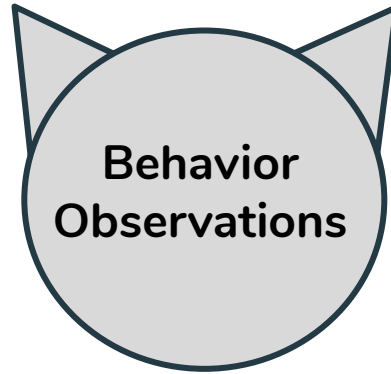
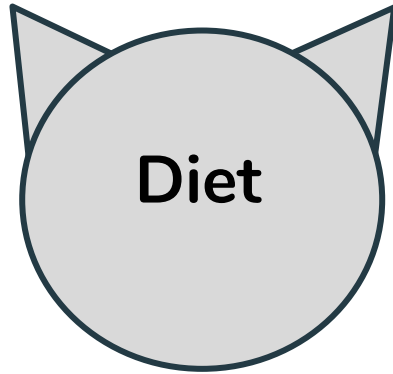
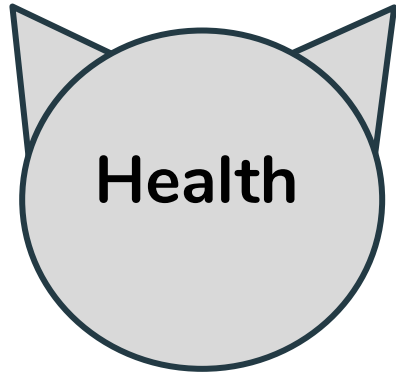


Shelters/Rescues

Social Media

Kitten Conference

Kitten Weaning Survey Questions



Data Analysis

- OpenRefine
- Excel/Google Sheets (Descriptive Data)
- Next: Statistical Analysis



Preliminary Results



Participants

Fosters

82 sign-ups → 78 qualified (appropriate kitten age, willingness to participate)

33 began the survey

→ 11 completed

→ 14 dropped after 1-2 entries

Kittens

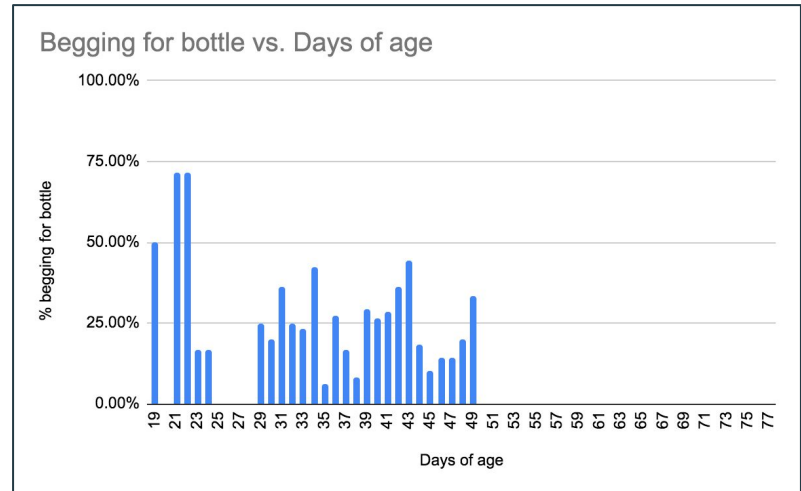
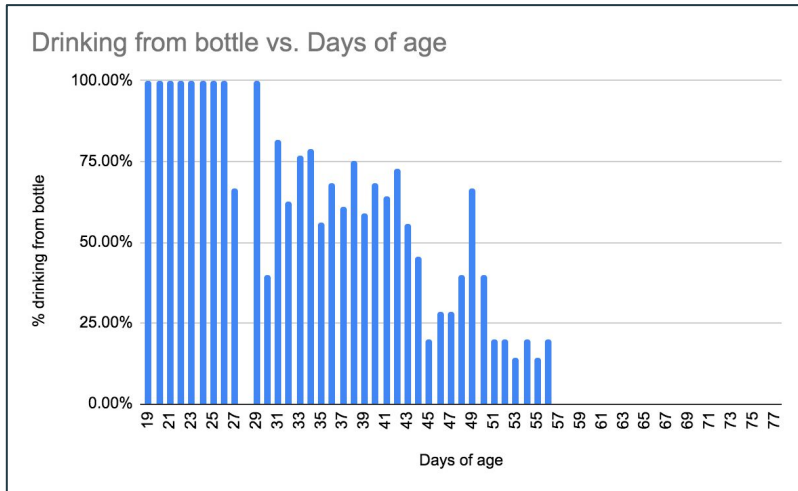
Total: 12 MR, 50 OR

Completed: 3 MR, 14 OR

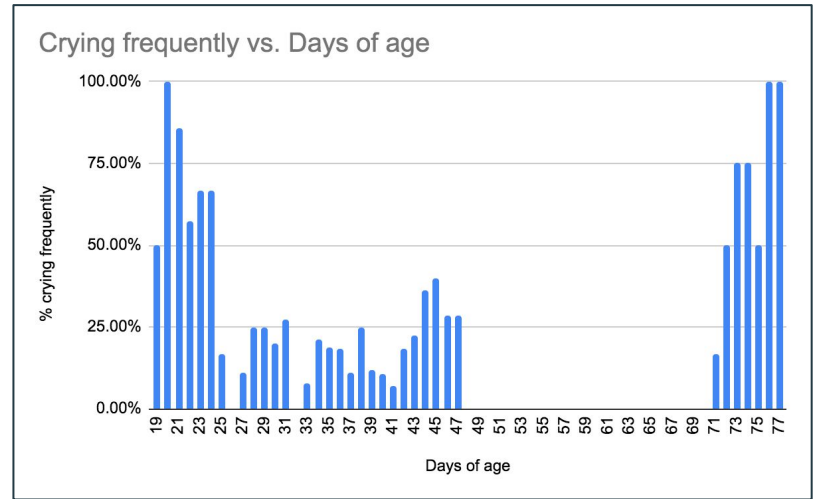
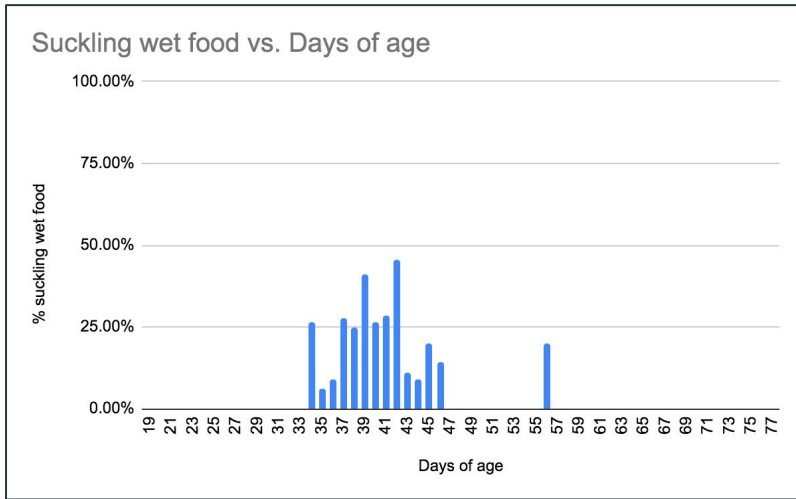
(37 female, 25 male)



Observations (OR + MR)



Observations (OR + MR)



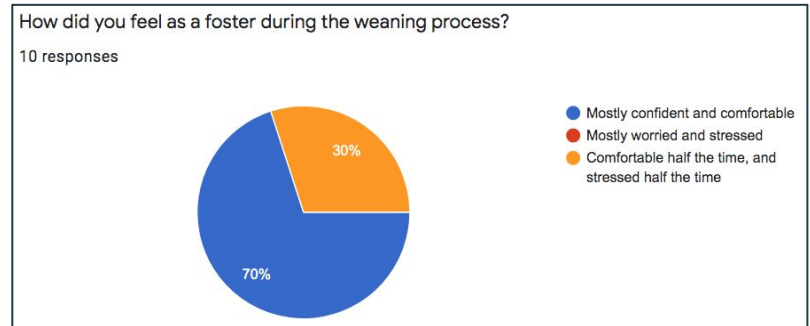
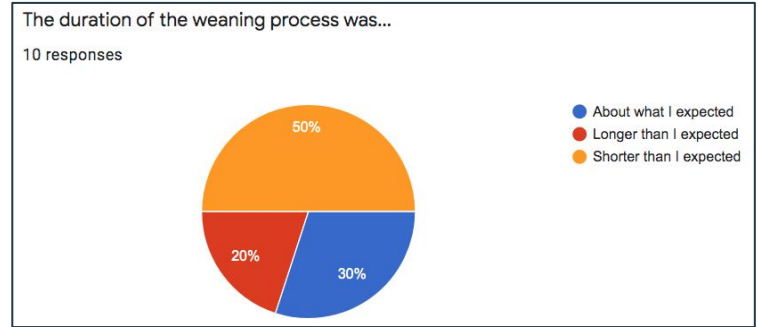
Post-survey responses

10 responses so far

9/10 were experienced fosters of weaning kittens

Mostly positive experience

Comments emphasized patience and understanding that every kitten is different



Discussion/Conclusion



Online Survey Concerns

**Confounding
Factors**

**Foster
Compliance**

**Human
Error**

Things to Consider

Ideal environments → less stress → less maternal aggression toward kittens
(Martin 1986)

Not enough MR yet to compare relative frequencies

Illness and other factors impact kitten's stress



Moving forward

- Continue collecting data this kitten season
- Statistical Analysis
- Carry out original plan?



Acknowledgments

Mentors:

Dr. Karen Vernau & Dr. Mikel Delgado

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References

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<https://www.asPCA.org/about-us/press-releases/kitten-season-sweeps-us-creating-tremendous-need-life-saving-foster-homes>

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**Any
Questions?**

Observations Collected

Diet, Food aggression, Begging, Chewing nipples, Water bowl, Formula dish , Bottle, Grabbing bottle, Searching, Messy eating, Messy then groom, Suckling littermates, Suckling other things, Suckling wet food, Biting hands, Frequent crying, Purring, Hissing, Inactive/not playful, Playing w people, Playing w siblings, Playing w toys, Withdrawn/quiet, Spending time alone

Personality: Shy/Confident, Needy/Independent, Active/Mellow, Aggressive/Gentle

MR: Meowing to e/o, K initiating play, M initiating play, K suckling M, M aggressive/nervous toward K, M grooming K, M growling, M leaving when K nurses, M blocking K from nursing

Health: Weight, concurrent medical problems/treatments, vomiting, elimination