

Starvation Doesn't (Seem to) Discourage Fruit Fly Battles

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Previous studies comparing deprivation and aggression are contradictory

Studies have found that the foraging gene¹, sweet taste receptors², and amount of food presented² could mediate the effect of food deprivation on aggression in *Drosophila melanogaster*, but overall results vary.

Our study focused more specifically on the types of aggressive behaviors exhibited by food-deprived versus satiated flies, and whether this difference is apparent in overall aggression levels.

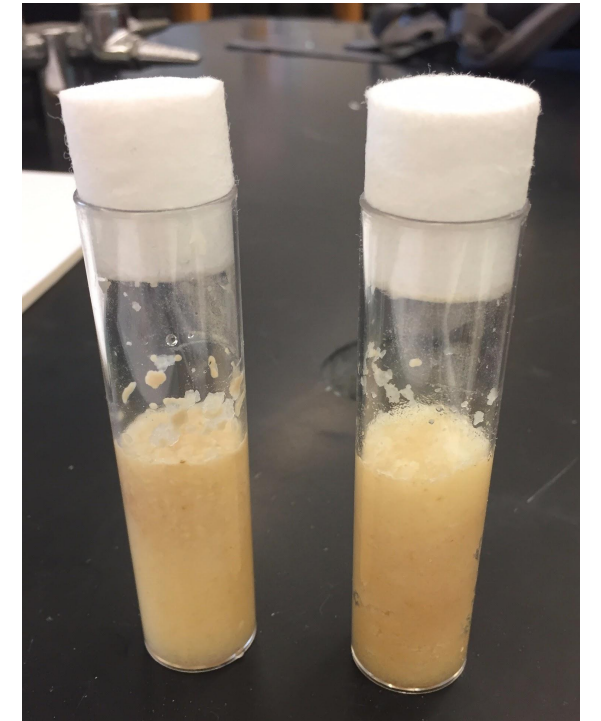


Are food-deprived flies more aggressive than satiated flies? Do they show different types of aggressive behaviors?

Only male flies were tested, with 28 total flies across two conditions: food-deprived and satiated.

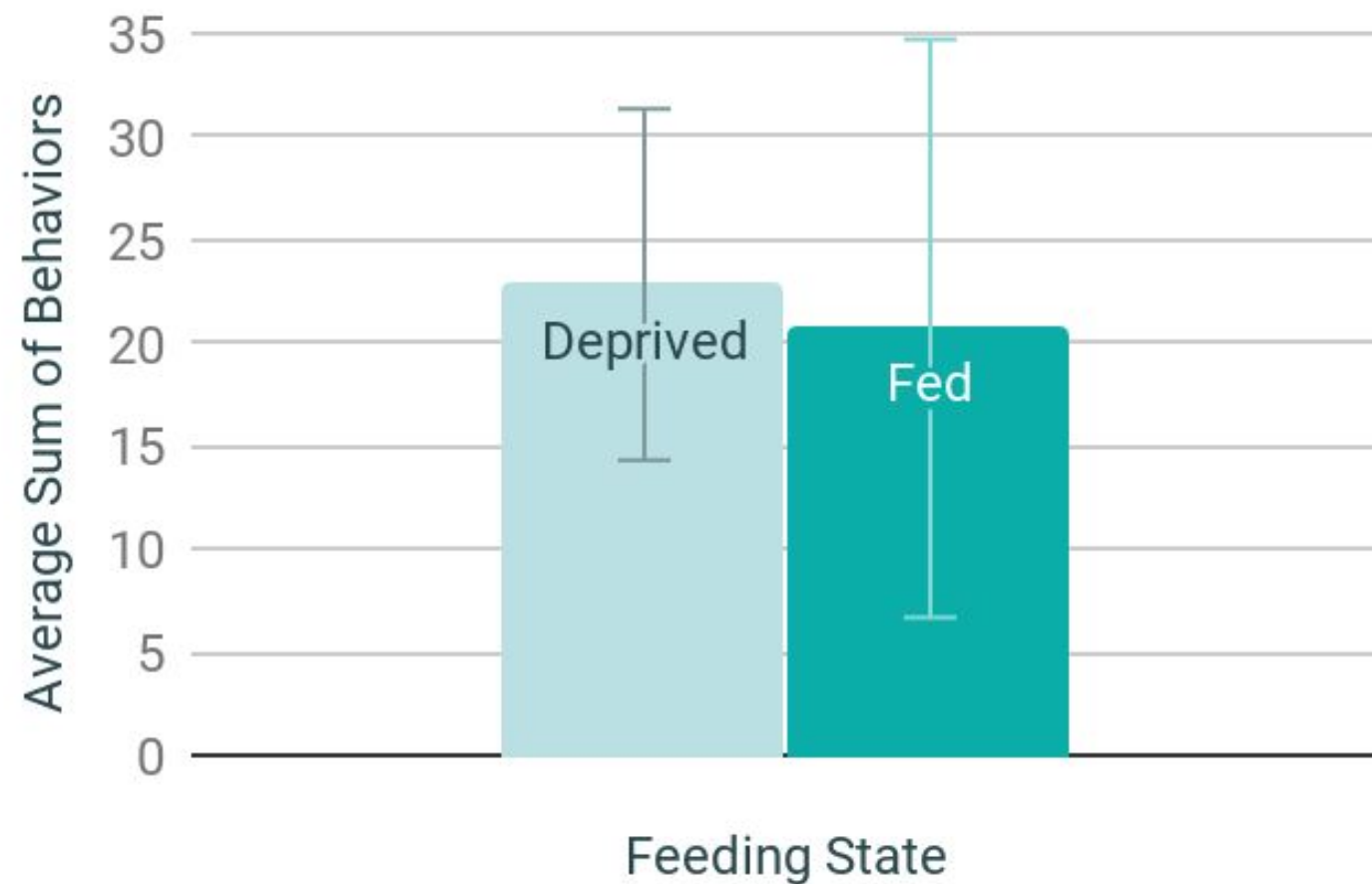
Food-deprived flies were housed individually in agar vials for hydration, while satiated flies were kept in vials of nutritious fly culture, for 24 hours total

Pairs of flies were observed under a microscope for 5 minutes in an enclosed “arena” with a small dab of food (yeast paste) in the center, and scored for behaviors.

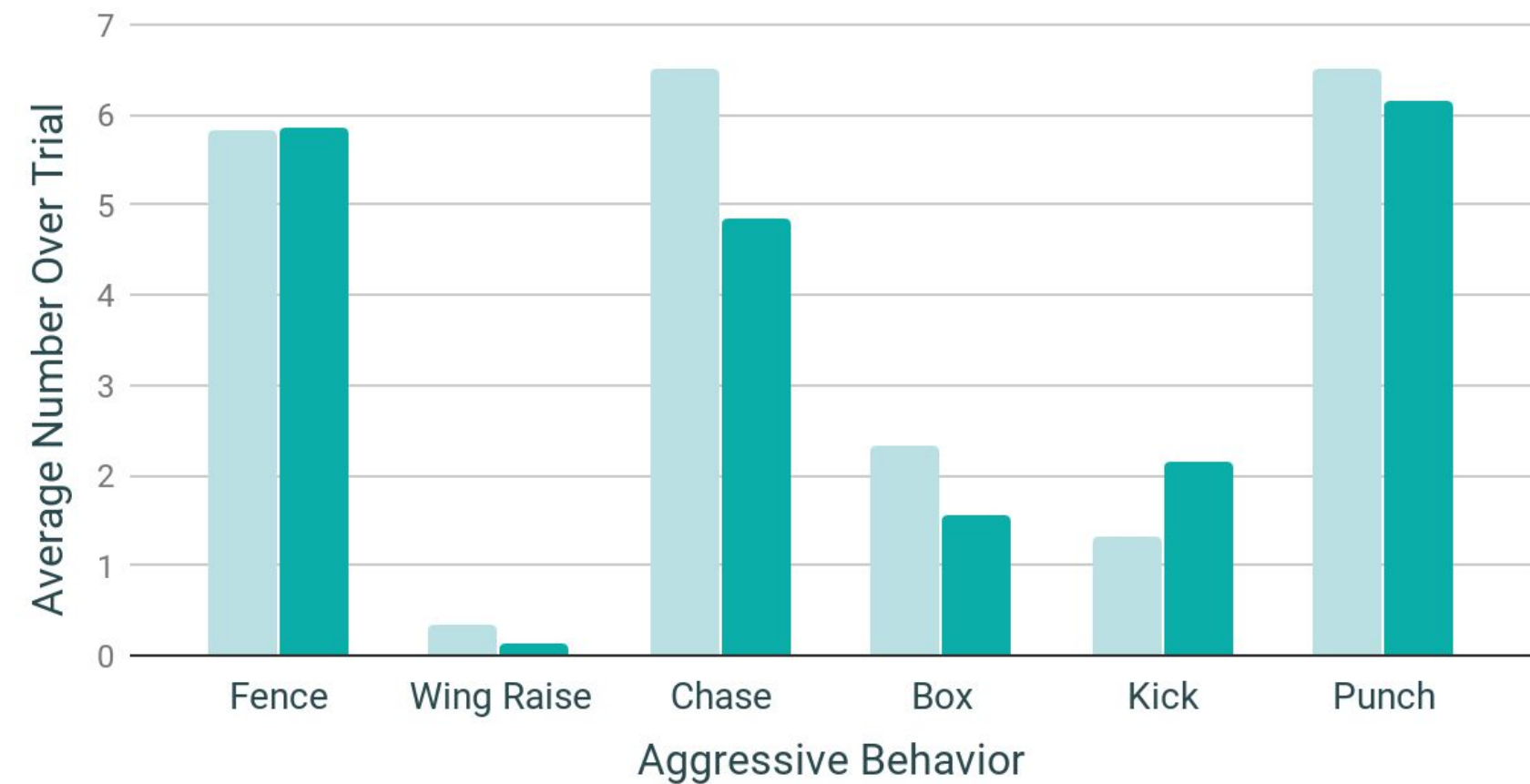


Food-deprived and satiated flies act similarly aggressive, overall and in regard to specific behaviors

Food-deprived and satiated flies exhibit about the same amount of aggression



Food-deprived and satiated flies perform similar numbers of aggressive behaviors



A power analysis revealed that we would have had to conduct **18,862** trials for the observed differences to be statistically significant.

*One trial from the food-deprived condition was excluded from the visualizations due to abnormal inactivity.

The results don't point to any major effects of feeding state on aggression, but there are other factors to consider

Future Directions:

- Vary the amount of food in the arena
- Use preferred food in arena, or more sugary versus fatty foods
- Look at foraging behavior (sitter versus rover phenotypes)
- Record and track movement or exploratory behavior



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