Antipredator behavior of domestic guinea pigs

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Overall Goal/ Hypothesis

Objective: Test the reactions of domestic guinea pigs in the precedence of aerial and terrestrial predators

Hypothesis: Similar to wild cavies (feral ancestors of domestic guinea pigs), domestic guinea pigs can distinguish between several predators

Experiment

There are no data on antipredator response in domestic guinea pigs

Measured behavioral reactions of 27 adolescent guinea pigs to the presence of a dog, imitation of a bird of prey, and an unknown human for control.

Methods

- 27 Guinea Pigs were used, used coat color to differentiate
- 1 at a time placed in pen
- Exposed to stimulus (predator)
  - Dog - walked around cage
  - Bird - taxidermy bird held up above
  - Human- control, unknown human walked around same path as dog
- Exposed once a day for 3 days
- Fleeing recorded for duration, frequency
- Kruskal-Wallis test used to determine if data is significant

Results

Males Vs. Females	Kruskal-Wallis Test Differences for 3 predators	Meaning…
Duration of Fleeing	P=0.025, H= 5.01	Females fled longer
Frequency of Fleeing	P=0.024, H=5.08	Females fled more frequently

Significance Level
P<0.5

*H value must be higher than critical statistic, found by using online software

Results

Reaction to each stimulus Dog	Kruskal-Wallis Test	Meaning…
Reaction time	$p<0.001$, $H=50.95$	Reacted for shorter time
Frequency	$p<0.001$, $H=49.78$	Less frequently

Significance Level
$P<0.5$

Results

Reaction to each stimulus Human (control)	Kruskal-Wallis Test	Meaning…
Reaction time	$p<0.001$, $H=43.95$	Reacted for shorter time
Frequency	$p<0.001$, $H=36.99$	Less frequently

Significance Level
$P<0.5$

Results

Reaction to each stimulus Birds of Prey	Kruskal-Wallis Test	Meaning…
Reaction time	$p<0.001$, $H=15.38$	Reacted for longer time
Frequency	$p<0.001$, $H=13.13$	More frequently

Significance Level
$P<0.5$

Statistical test

Test: Kruskal-Wallis Test

- Why?
  - Ordinal data having more than 2 groups (nonparametric)
  - To see if there is a difference in duration and frequency of responses to predators

- Another test would not have been better - this research also used the Mann-Whitney U test to differentiate between males and females

Citations

Baklová, Aneta, Eva Baranyiová, and Hana Šimánková. "Antipredator behaviour of domestic Guinea pigs (Cavia porcellus)." *Acta Veterinaria Brno* 85.3 (2016): 293-301.