Guppy’s Sixth Sense
Effects of Predator Diet Based Chemical Cues on Inspection Behaviors in Guppies

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Design

Guppy
*Poecilia reticulata*: 16 males and 16 females

Predator
*Astatotilapia burtoni*: 3 wild-type males

Diets
1-2mL Guppy, Tetra, or Pellet

Main Findings

- Guppies inspect more frequently when exposed to a guppy-fed predator than to a non-guppy-fed predator
- Guppies exhibit attack cone avoidance regardless of predator diet
- Males show greater attack cone avoidance when exposed to a guppy-fed predator
- Females show greater attack cone avoidance when exposed to a tetra-fed predator
**Methods**

**Behaviors measured**
- Inspection
- Frequency
- Location
- Size

- Scan sampling
- 30 min trials with 1 min intervals

**Results**

**Inspection rates**

- Guppies exposed to guppy-fed cichlids had the highest inspection rate
  - **Males**: 1.43 insp/min
  - **Females**: 1.33 insp/min
Tail/Head Inspections

All guppies had more tail than head inspections.

More tail inspections by males when exposed to guppy-fed cichlids.

Inspection size

Female guppies had a larger mean inspection size when exposed to guppy-fed cichlid than to non guppy-fed cichlid.

Indistinguishable for males.
Conclusion

Guppies respond differentially to cichlids on different diets but these differences are inconsistent between the sexes.

Future Directions

- Replicate with larger sample size and more controlled conditions
- Measure stress-related hormone levels to study if there is a difference across treatments
- Replicate with different animal models to assess generalizability

References


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