



Ecologically relevant cooling early in life does not affect expression of neophobia in zebra finch chicks (*Taeniopygia guttata*)

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Introduction

- Young, altricial chicks depend heavily on their parents for warmth early in life. ¹
- When parents leave the nest, chicks are exposed to ambient temperatures, and their body temperatures can drop to suboptimal levels. ²
- Chicks secrete a stress hormone called corticosterone to cope with the cooling. ²
- If parents repeatedly leave the nest, chicks could be repeatedly exposed to corticosterone, which can have long-term, dampening effects on the stress response. ³
- Dampening of the stress response in early development can lead to reduced expression of neophobia (fear of novelty) later in life. ⁴

Research Question and Hypothesis

Do repeated bouts of cooling early in life affect expression of neophobia?



Yes, cooling will promote reduced expression of neophobia in the following behaviors: reduced latency to approach a novel object, more time spent close to the object, and greater total time on the perch with the object

Methods

Temperature Treatments

- After hatching, I randomly assigned zebra finch chicks to one of two temperature treatments – one set of chicks was cooled to temperatures that mimic those they experience when the mother is off the nest (Cool), and the other set was kept at normal brooding temperatures (Control)
- During their first week of life (between days 1-6), chicks underwent four 18-minute temperature treatments

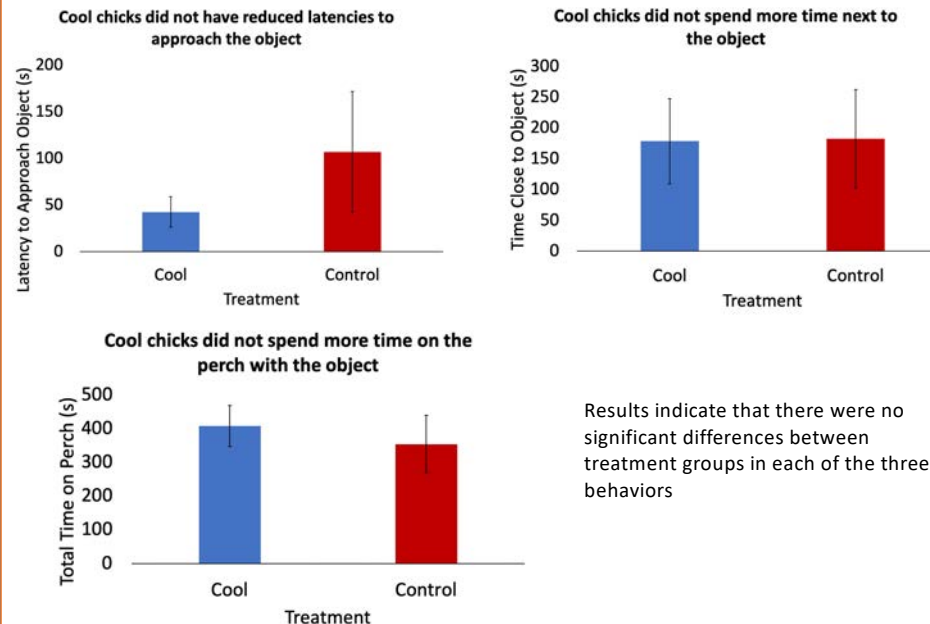
Neophobia Trials

- At 6 weeks of age, all chicks were tested individually for expression of neophobia
- Each bird was exposed to a novel object (green bow on a perch) and I measured latency to approach the object, time spent next to the object, and time on the perch

Conclusions

- Cool and Control chicks did not differ significantly in their responses to novelty
- Repeated cooling early in life did not lead to reduced neophobia
- Variation in nestling temperature, which is associated with variation in parental brooding behavior (how long and how often they sit on the chicks and warm them), may not affect the development of neophobia in zebra finch chicks

Results



Results indicate that there were no significant differences between treatment groups in each of the three behaviors

Literature Cited

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