

Behavioral effects of postnatal stress in domestic chickens (*Gallus gallus*)

Marissa Soto, Mia Ericsson, Per Jensen
IFM Biology at Linköping University



Background & Aim

Exposure to early stress can result in physiological and behavioral effects later on in life. Early stress can affect the development of the hypothalamic-pituitary-axis thus, affecting how one may cope with stress in adulthood. Postnatal stress has also been shown to affect growth rates, reproduction and cognition.

The aim of this study was to investigate long-term behavioral effects from exposure to postnatal stress on the first day of life in domestic White Leghorns chickens (*Gallus gallus*). More specifically, this project aimed to assess their stress reactivity and fearfulness in adulthood.

Material & Methods

The hatchery stress group were hatched at a commercial hatchery where they were exposed to many potential stressors on post hatch day 1. The control group were hatched at Linköping University. All birds, including males and females, underwent a wide range of behavioral testing as adults.

Results

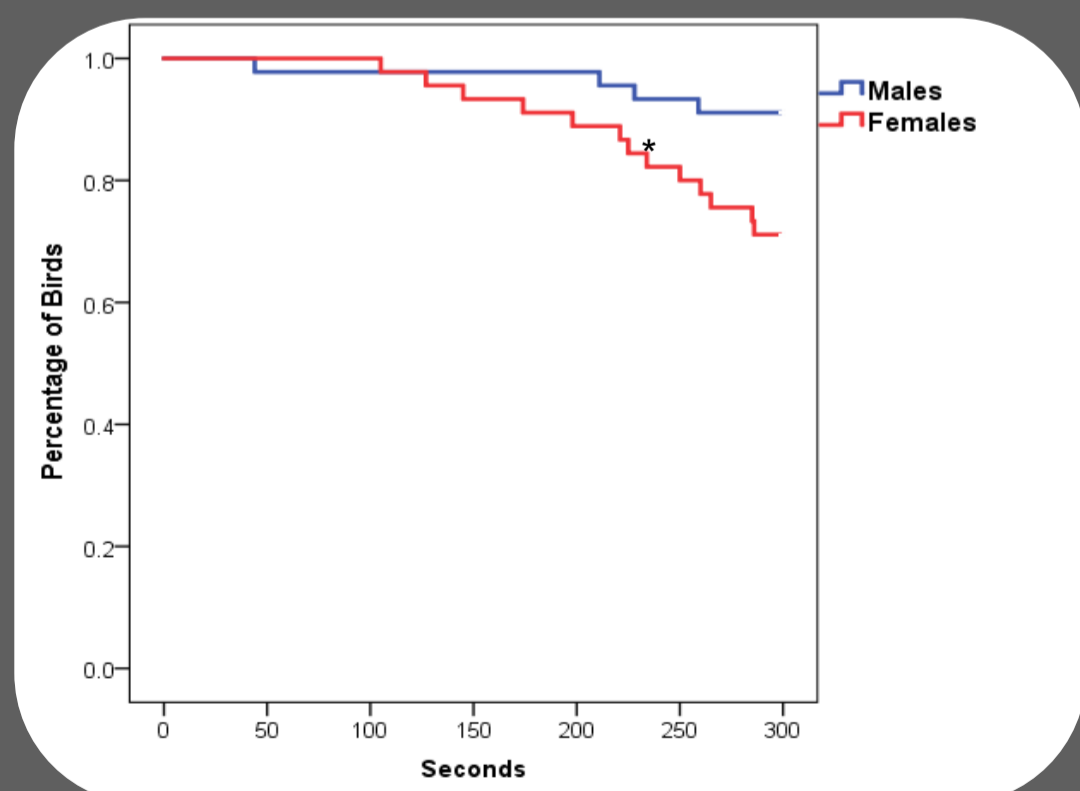
Emergence test: No treatment effects were found in the latency to emerge, although a sex effect was found.

Social regrouping test: No behavioral differences were found between treatments, but some differences were found when sexes were analyzed separately. Adding the stressor (social regrouping) affected several behaviors in all birds. Many behavioral sex differences were also found.

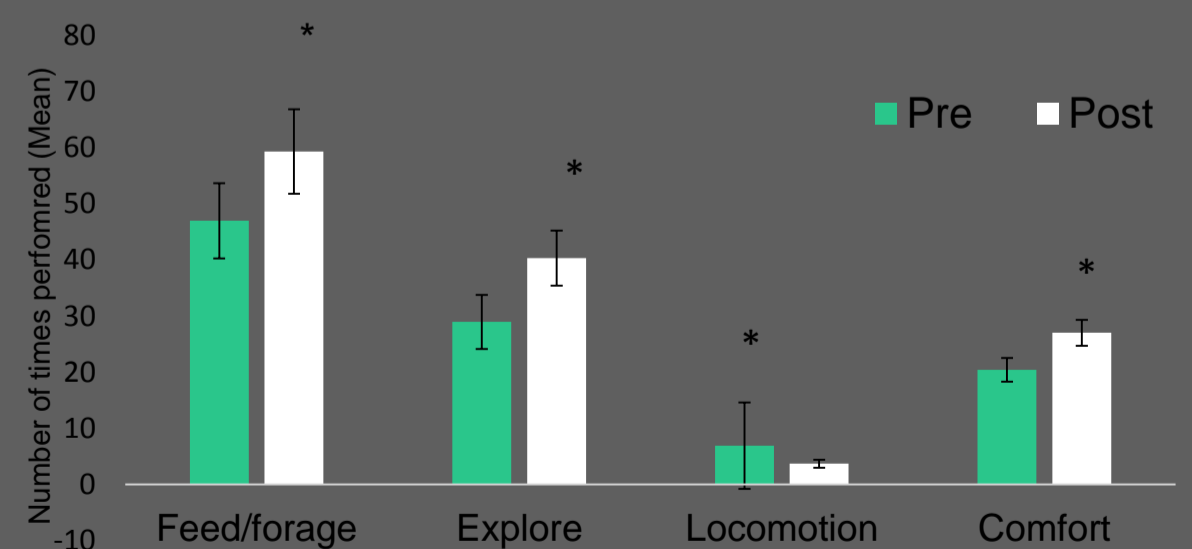
Novel object test: No differences were found between treatments, but some behavioral sex differences were found.



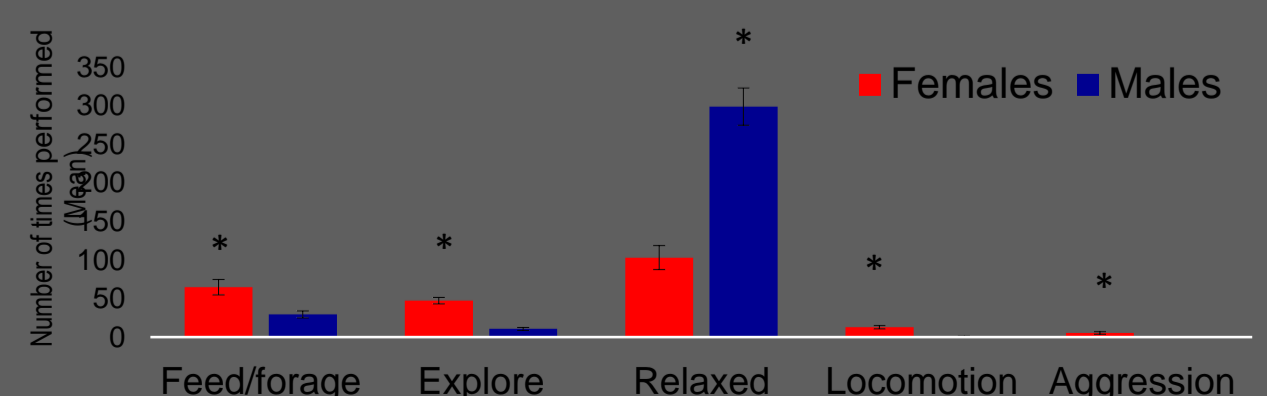
Behavioral tests, clockwise from top left: Emergence test, Novel object test, Social regrouping test



Survival Analysis Plot for emergence test. Females emerged significantly more times from the test box than males (* = P < 0.05).



Graph above shows that social regrouping affected many behaviors in all birds. Graph below shows behavioral differences between males and females before social regrouping took place (* = P < 0.05).



Conclusions

Exposure to postnatal stress on post hatch day 1 has no long-term behavioral effects. Social regrouping is disturbing for chickens and affects many of their behaviors. In general, female birds are more active and less fearful than males.