

The Relationship Between Heat and the Activity of Lizards.

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Introduction



The lizard, *Diploderma splendidum* (丽纹龙蜥), also known as banana split mountain lizard, is usually found in southwestern China. Sex can be identified by observing the stripe on its back. If the stripe is a long stripe without spots on it, it's a male lizard. Instead, if there are spots between the stripe, it is a female lizard.

Background

Lizards are ectotherms that rely on energy from the outside (for example, the sunlight) to maintain body temperature. Endotherms such as mammals can maintain body temperature by themselves. Ectotherms do not need to produce their own energy, so their metabolic rates are much lower than endotherms. Due to their low metabolic needs, ectotherms have a significant advantage during the winter months as they can undergo long periods of inactivity.

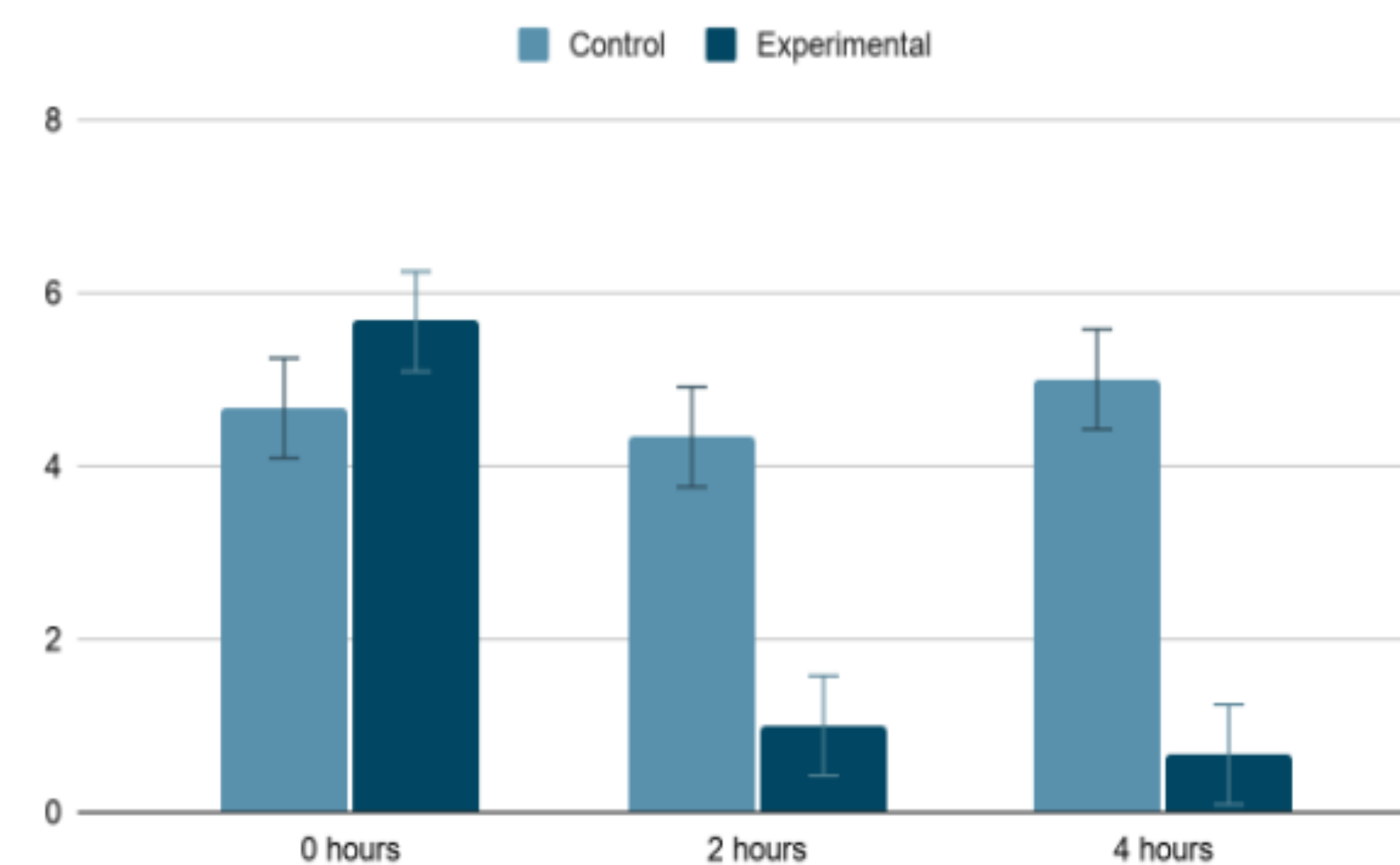
Metabolism is the process of processing food into usable energy. Glucose is a kind of substance that provides energy to organisms. In an environment with no oxygen, glucose changes into lactate. In an environment with oxygen, the glucose changes into acetyl-CoA, and eventually into carbon dioxide. In lizards, previous papers have found that as the temperature increases, the glucose turnover increases significantly and the lactate turnover decreases insignificantly. The low lactate turnover can benefit the lizards because they need to hibernate in the winter. I predict the lizards would eat more in a warmer environment, and they would eat less food in a cooler environment.

Results

heat	# of insects that have been eaten	water consumption	behavior
control	5	Yes	Very active
control	4	Yes	Very active
control	5	Yes	Very active

heat	# of insects that have been eaten	water consumption	behavior
0 hours	6	Yes	Very active
2 hours	1	No	Moving slowly
4 hours	0	No	Not moving

Insects Eaten



Conclusion

We conclude that heat influences the activity of lizards. The hypothesis that as the time away from heat increases, the more inactive they become, was supported. When heat was removed, the number of insects eaten by the lizard decreased. When heat was not removed, the number of insects eaten by the lizard remained approximately constant. Lizards may be less active when heat is taken away because the lizards may be preparing for hibernation. This is similar to the winter when the amount of sunlight decreases. In the future, it may be interesting to change the temperature and directly measure lactate and glucose levels in lizards.

References

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