

Sceloporus Magister



Methods

- We collected *S. magister* (n=5) and *C. collaris* (n=7) from their natural habitat in Arizona
- We measured the jump distances of individuals of each species by placing the lizards on a raised platform in 1 meter trackway
- Lizards were motivated to jump off the platform and jumps were recorded via high-speed camera in dorsal view
- Lizards jumped off the platform for a total of 4 trials
- We used ImageJ software to measure the distance the lizards jumped.
- The longest jump for each individual was used for analyses.
- We compared the jump distances between each species using a t-test in R.

Figure 1.2: *C. collaris* on platform before encouragement



Tendon Morphology in Lizards

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Abstract

The relationship between tendons and locomotion is not well understood. So, in this experiment we are exploring the relationship between tendon morphology and jump performance in two species of lizards, *Sceloporus magister* and *Crotaphytus collaris*. We collected their jump distances by encouraging them to jump from a platform and we analyzed this data. We were able to see that *C. collaris* jumped significantly further than *S. magister*. So, our next step is to dissect these two species and examine their tendons to see if there is a correlation between jump distance and tendon morphology.

Introduction

Locomotion is important to the survival and reproduction of many animals. Most locomotion in animals is powered by muscle and the relationship between muscle and locomotion is fairly well understood. However, research shows that tendons also play an important role in locomotion, but how variation in tendon morphology affects locomotor performance is less well understood. Therefore, in this experiment we are exploring the relationship between tendon morphology and jump performance in two species of lizards, *Sceloporus magister* and *Crotaphytus collaris*. We chose to examine the tendons of these two species because they differ in habitat use which likely puts different demands on their muscles and tendons. *Sceloporus magister* is a generalist that lives on rocks, trees, and land. While *Crotaphytus collaris* is saxicolous, a rock specialist. The difference in habitat use allows us to examine the relationship between tendon morphology and jump performance.

Conclusion

From our results, we conclude that the *C. collaris* jumps significantly longer than *S. magister*. Our next step is to perform dissections on both *C. collaris* and *S. magister* to examine if there is a correlation between tendon morphology and jump performance. We will measure the length, mass, and cross-sectional area of multiple tendons involved in jumping.

Crotaphytus Collaris



Results

The mean jump distance for *C. collaris* is 49cm and the mean jump distance for *S. magister* is 29cm. Therefore we found that the *C. collaris* jumps significantly farther than the *S. magister* ($p=0.01$, Figure 1.1).

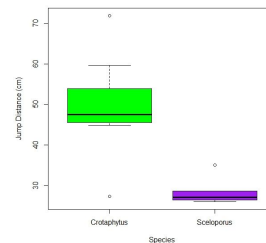


Figure 1.1: Mean maximum jump distance for *C. collaris* (n= 7) and *S. magister* (n=5).

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