JUMPING BEHAVIOR AND THE EFFECTS OF CAUDAL AUTOTOMY ON JUMPING PERFORMANCE IN A. CAROLINENSIS

Lauren A. Bonvini

The genus *Anolis* consists of approximately 300-400 species of relatively small insectivorous lizards, of which approximately half live on Caribbean islands and surrounding mainland\(^1\). *Anolis carolinensis*, commonly called Green Anoles, are small lizards found in the southeastern United States and are frequently kept in captivity as pets. The species belongs to the “trunk-crown” ecomorph and tends to thrive in arboreal habitats, but is also commonly found in urban areas\(^2\). Maximal locomotor performance in Anolis lizards has been studied extensively within and across species. Previous studies have correlated maximal sprint speeds or jumping distances to body and limb size, hindlimb movements and force production, and the environment in which the animal lives. Hindlimb length is correlated with jump distances in a number of species of anoles\(^3\). Since morphology and differences in the structural habitat can have effects on individual performance, individuals may alter their habitat use based on their maximal capabilities\(^4\). In the first portion of my research I aim to describe the locomotor behavior of undisturbed *A. carolinensis* individuals in two different experimental setups and determine whether behavioral differences are related to morphological traits or perch density.

Caudal autotomy, or tail-loss, is an anti-predator strategy in a variety of lizard species, including anoles, and presents immediate benefits to the animal, allowing for survival in an otherwise potentially fatal situation. However it is also accompanied by numerous costs. Aside from lost lipid stores and reduced social status, caudal autotomy may result in changes in locomotor ability. For example, sprint speed, climbing speed, and endurance are affected in different species of lizards\(^5\). *A. carolinensis* use jumping frequently as a form of locomotion, often have long tails, and have the ability to autotomize their tails as an anti-predator strategy. In the second portion of my research project, I am characterizing body movements and maximum jump distances in *A. carolinensis*, and analyzing the effects of tail loss on these parameters. Work to date suggests that prior to autotomy, lizards can jump maximal distances ranging from 20 cm – 39 cm, and hold their bodies nearly horizontally throughout a jump. Post-autotomy results will be presented for comparison.

---


