

TAIL REGENERATION INDUCES CHANGES IN THE DIGESTIVE EFFICIENCY OF A MEDITERRANEAN LIZARD

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Body condition changes and/or ecological interactions trigger appropriate adjustments in a suite of physiological traits such as digestion. The latter represents a measure of the successful survival of animals. Apparent digestive efficiency (ADE) is defined as the ability to absorb energy through food and depends on gastrointestinal motility, enzymatic activity and gut passage time (GPT).

Caudal autotomy is a typical defensive tactic among many lizard families. Regeneration follows rapidly and within a short period that varies depending on the species, the tail regains its initial length. Tail regeneration is an expensive procedure in terms of energy, that implies new energy allocation at the organism level, depriving thus resources from other functions such as body growth.

In this study we aimed to clarify if and how tail autotomy affects digestive efficiency in the Aegean wall lizard (*Podarcis erhardii*). We presumed that tail regeneration would induce shifts in ADE and GPT as a result of the increased energy requirements for tissue build-up. ADEs of the three major nutrient components (proteins, lipids and sugars) were examined in 30 individuals with intact tail in two phases: first, prior to tail shedding and second, post-autotomy. Caudal autotomy occurred following predation simulation in the lab. Two digestive features underwent significant modifications: ADE for proteins and GPT increased considerably. On the contrary, ADE^{lipids} and ADE^{sugars} remained stable. We believe that ADE^{proteins} augmentation should be attributed to the high demand for proteins in order to regenerate tail tissues. Higher GPT ensures the more effective energy absorbance from the digestive track.