Zootaxa 1205: 55–68 (2006)
www.mapress.com/zootaxa/
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ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

1205

Muscular characters in the phylogeny of *Liolaemus* (Squamata: Iguania: Liolaemidae): a reappraisal

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Abstract

Liolaemus is one of the most speciosus genera of lizards, having more than 200 species. It is composed of small to moderate-sized lizards that live throughout most of austral South America. Many groups whose phylogenetic relationships have been controversial compose the genus. The proposed phylogenetic relationships of these lizards have been based on data-sets from many sources. In all of the morphological data-sets, three myologycal characters have been considered particularly important:1) insertion of the m. *tibialis anticus* hypertrophied in association with the presence of a sharp, bladelike process of the tibia, 2) medial head of the m. *flexor tibialis internus* covered by a hypertrophied m. *puboisquitibialis*, and 3) presence of melanic pigment within the medial portion of the epimysium of the m. *pterygomandibularis.* Important taxonomic and anatomical questions about these characters remain: 1) Can the size of the m. *puboisquiotibilis* be scored with only two character states? 2) Is there a close relationship between the hypertrophied m. *flexor tibialis internus* and the patch of the enlarged proximal postfemoral scales? and 3) Are these muscular characters exclusive to some of the groups of *Liolaemus* that have been proposed? Focusing on these questions**,** we have conducted a taxonomic and anatomic review of these characters in 42 species representing all of the proposed groups of *Liolaemus*. The analyzed samples show that variations in the considered muscular characters are much more gradual than previously stated. The only exception is the insertion of the m. *tibialis anticus* hypertrophied in relation to a bladelike hypertrophy of the tibia, which characterizes the *montanus* group of E theridge (1995). These characters seem to have the same phylogenetic information as any other morphological character. Although the coding we used is more complex, it shows more precisely the subtlety of the change in the character states.

Key words: *Liolaemus*, cranial and limb myology characters, phylogeny

Accepted by S. Carranza: 10 Apr. 2006; published: 18 May 2006