

THE M. TIBIALIS POSTERIORIS IN THE HINDLIMB OF LIZARDS

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During the course of studies on lizard phylogeny (Hoyos, 1990), a muscle that has not been reported for any lizard was discovered in the hindlimb of *Cnemidophorus lemniscatus*. The purpose of this note is to describe the newly discovered muscle, and to report its presence in 29 lizard species representing ten families.

I examined eight iguanian species (sensu Frost & Etheridge, 1989), from the families Polychridae, Corytophanidae, Tropiduridae, Phrynosomatidae, Crotaphytidae and Hoplocercidae, one species from the family Gekkonidae, four species of Teiidae, one species of Scincidae, and 15 species of Gymnophthalmidae as follow.

Polychridae: *Phenacosaurus heterodermus* (10: ICN 6243-50, 6256, 6262); *Anolis apollinaris* (2: ICN 6253, 6255).

Iguanidae: *Iguana iguana* (2: ICN 6300-01).

Corytophanidae: *Basiliscus basiliscus* (4: ICN 6259-60; IND-R 0432, 3116).

Tropiduridae: *Tropidurus hispidus* (4 IND-R 2382, 2385, 2390, 2394); *Stenocercu. trachycephalus* (5: ICN 6252, 6258, 6261; IND-R 0262, 1097).

Crotaphytidae: *Crotaphytus collaris* (1: LM 698). Hoplocercidae: *Morunasaurus groi* (2: ICN 6105, 6108).

Gekkonidae: *Thecadactylus rapicaudus*

(4: ICN 6243, 6254; IND-R 0317, 2400).

Teiidae: *Cnemidophorus lemniscatus* (8: ICN 5536, 5538, 5546, 5548, 5551, 6257; IND-R 1181, 1185); *Ameiva ameiva* (3: ICN 4668, 4735; MNHN 1996.4631); *Kentropyx striatus* (2: IV 3505, 3609); *Kentropyx calcarata* (1: MNHN 1996.4629).

Gymnophthalmidae: *Prionodactylus vertebralis* (10: UV 272, 276, 5178, 5181, 8234; ICN 5708, 5719; IND-R 1550, 3950, 3954);

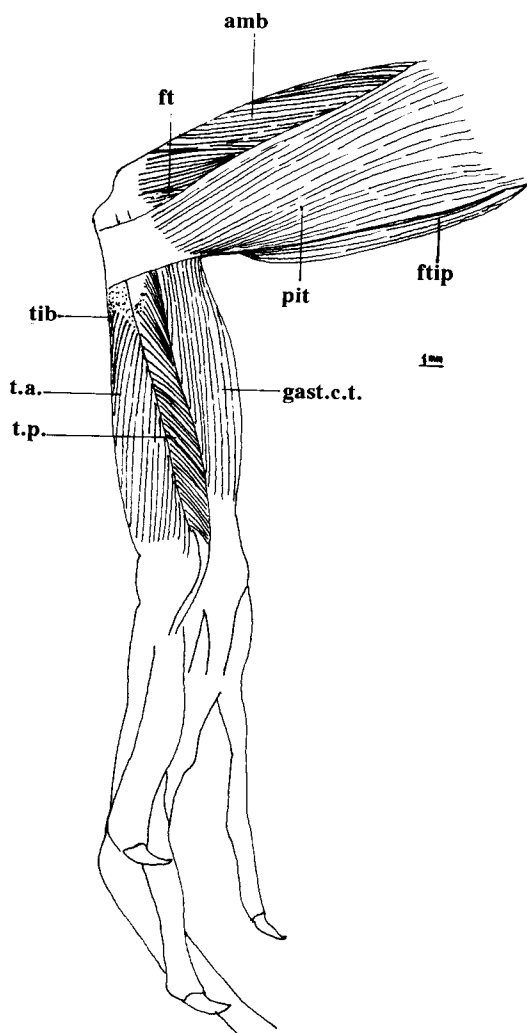


Figure 1. Superficial musculature of the left hindlimb of *Kentropyx calcarata* (MNHN 1996.4629), ventral aspect (amb.= m. ambiens; ft.= m. femorotibialis; ftip.= m. flexor tibialis internus posterioris; gast.c.t.= m. gastrocnemius caput tibialis; pit.= m. puboischiotibialis; t.a.= m. tibialis anterioris; tib.= tibia; t.p.= m. tibialis posterioris).

Prionodactylus argulus (4: CSJ 106, 563; IND-R 0227, 4171); *Echinosaura horrida* (2: CSJ 1054, 1055); *Leposoma southi* (3: UVC 5168, 8990, 8993); *Leposoma rugiceps* (2: ICN 637; IND-R 1171); *Ptychoglossus stenolepis* (1: UVC 7761); *Anadia bogotensis* (5: ICN 2178, 2987; JMH 174; MLS 824, 849); *Anadia pamplonensis* (1: MLS 33); *Anadia bitaeniata* (3: IV 0582, 2427, 4796); *Proctoporus striatus* I (7: ICN 2372, 2373, 2543; IND-R 1500, 2177, 3582; JMH 794); *Proctoporus simoterus* (1: CSJ 1047); *Tretioscincus bifasciatus* (2: ICN 5588; IND-R 1540); *Neusticurus ecleopus* (3: IND-R 0631; 2921; IV 0592); *Gymnophthalmus speciosus* (2: IND-R 3136; IV 4735); *Pholidobolus montium* (2: ICN 5603, 5609).

Scincidae: *Mabuya bistriata* (5: ICN 2400, 4322, 4325; MLS 189; MNHN 1996.4630).

These specimens are deposited in the museums corresponding to the abbreviations above:

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A Weigert's solution (Bock and Shear, 1972) was used to facilitate observation of muscles. The nomenclature of muscles used herein is that of Snyder (1954).

The muscle I am reporting is located posterior to the m. tibialis anterioris, and it arises anteriorly on the proximal head of the tibia, then inserts posteriorly by a narrow and long tendon on the proximal end of fifth metatarsal. This muscle covers the posterior

and deepest part of the leg (fig. 1). Because of its position relative to the m. tibialis anterioris, the new muscle is here named the m. tibialis posterioris.

Among the taxa studied, the m. tibialis posterioris was found only in the teiid species *Ameiva ameiva*, *Kentropyx striatus* and *K. calcarata* and the scincid species *Mabuya bistriata*, but this muscle was absent in 16 species of the family Gymnophthalmidae, the sister taxon of Teiidae (Estes *et al.*, 1988).

In most cladistic studies of lizards (e.g., Estes *et al.*, 1988; Frost & Etheridge, 1989; Presch, 1988) the leg musculature has not been used, and in the few studies dealing with lizard hindlimb musculature, whether descriptive (Schaeffer, 1941; Snyder, 1954) or phylogenetic (Sukhanov, 1976; Russell, 1988; Hoyos, 1990), the m. tibialis posterioris has not been reported.

The m. tibialis posterioris is not an unambiguous synapomorphy of Teiidae, because it is also present in one species of Scincidae. It may be a synapomorphy of Scincomorpha (sensu Presch, 1988), but it is absent in gymnophthalmids and it has not been reported in other families of this group, as can be shown from studies in Scincomorpha by Russell (1988), working with Lacertidae and other species of Scincidae (*Mabuya carinata*) and Teiidae (*Ameiva dorsalis*), and by Sukhanov (1976) who studied some species of Lacertidae and Scincidae (*Mabuya* sp.).

This discovery indicates that a careful survey of leg musculature in all lizard families may provide interesting new clues to their phylogenetic relationships.

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