

# **Sympathetic innervation of the hindlimb arterial system in the giraffe (*Giraffa camelopardalis*)**

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## **Abstract:**

We report the distribution of sympathetic nerves in the hindlimb arterial system of the giraffe based on the histochemical demonstration of monoamines by the sucrose-potassium phosphate-glyoxylic acid method. It is noted that the hindlimb arterial system shows regional variations in its sympathetic innervation with regard to the density and the penetration of the nerves into the tunica media not hitherto described. The femoral and popliteal arteries showed a paucity of sympathetic innervation. Distally the dorsal pedal and great metatarsal arteries showed sparse sympathetic innervation characterized by a tendency toward exclusion of the nerves toward the outer layers of the tunica media. In contrast, the anterior (cranial) tibial artery in the leg revealed a relatively rich pattern of sympathetic innervation and a greater penetration of the nerves into the tunica media. The latter part of the arterial system showed a marked thickening of the tunica media and luminal narrowing, thus suggesting a "sphincteric" function. It is conceivable that this sphincter subserves a dual function, namely, to modulate blood flow to the distal parts of the limbs, and secondly to channel blood to the thigh and crural musculature. Pertinent to this is the fact that the presumptive sphincter occurs immediately after the crural muscular branches are given off.