

Hindlimb Myology of the Honey Bear (*Potos flavus*)

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Abstract:

The kinkajou, *Potos flavus*, is a medium-sized mammal that resides in the tropical rainforests of the Americas. They are fully arboreal, have a prehensile tail, and can rotate their hind feet 180° to facilitate climbing. This study provides detailed information about the myology of the hindlimb of the kinkajou. The right hindlimb of a male kinkajou was dissected and documented using descriptions and photographs. These data were compared with the myology of the red panda, *Ailurus fulgens*, and ringtail, *Bassariscus astutus*. There was little variation between these three species. Some muscles, such as *M. popliteus*, *M. sartorius*, and *M. quadratus femoris*, were closer with the origin and insertion of the red panda, potentially due to the similarity in locomotion of the mammals. Other muscles, such as *M. obturator internus*, were more similar to the ringtail, likely reflecting phylogeny. *M. gracilis*, *M. fibularis longus*, and *M. extensor digitorum lateralis* were found to have similarities in insertion, origin, or both. These observations indicate that both function and phylogeny influence limb myology, as well as provide additional comparative data for locomotor and phylogenetic studies of carnivorans.

The Kinkajou



Photograph by San Diego Zoo

- An arboreal mammal that lives in the rainforests of the Americas
- Scientific name: *Potos flavus*
- From the Procyonidae family
- Related to raccoons, ringtails, and coatis
- Have prehensile tails
- Can turn their feet 180°
- Nickname: Honey Bear (due to the fact that they enjoy eating fresh honey from beehives)
- Nocturnal animals

Methods:



- Dissected a frozen, male kinkajou
- Identified the muscles of the right hindlimb
- Documented by description and photographs
- Compared attachment sites of the muscles to hindlimb documentation of the *Ailurus fulgens* (Red Panda) and *Bassariscus astutus* (Ringtail)

Results:



Figure 1:
1- Tibialis cranialis
2- Gracilis
3- Gastrocnemius
4- Sartorius

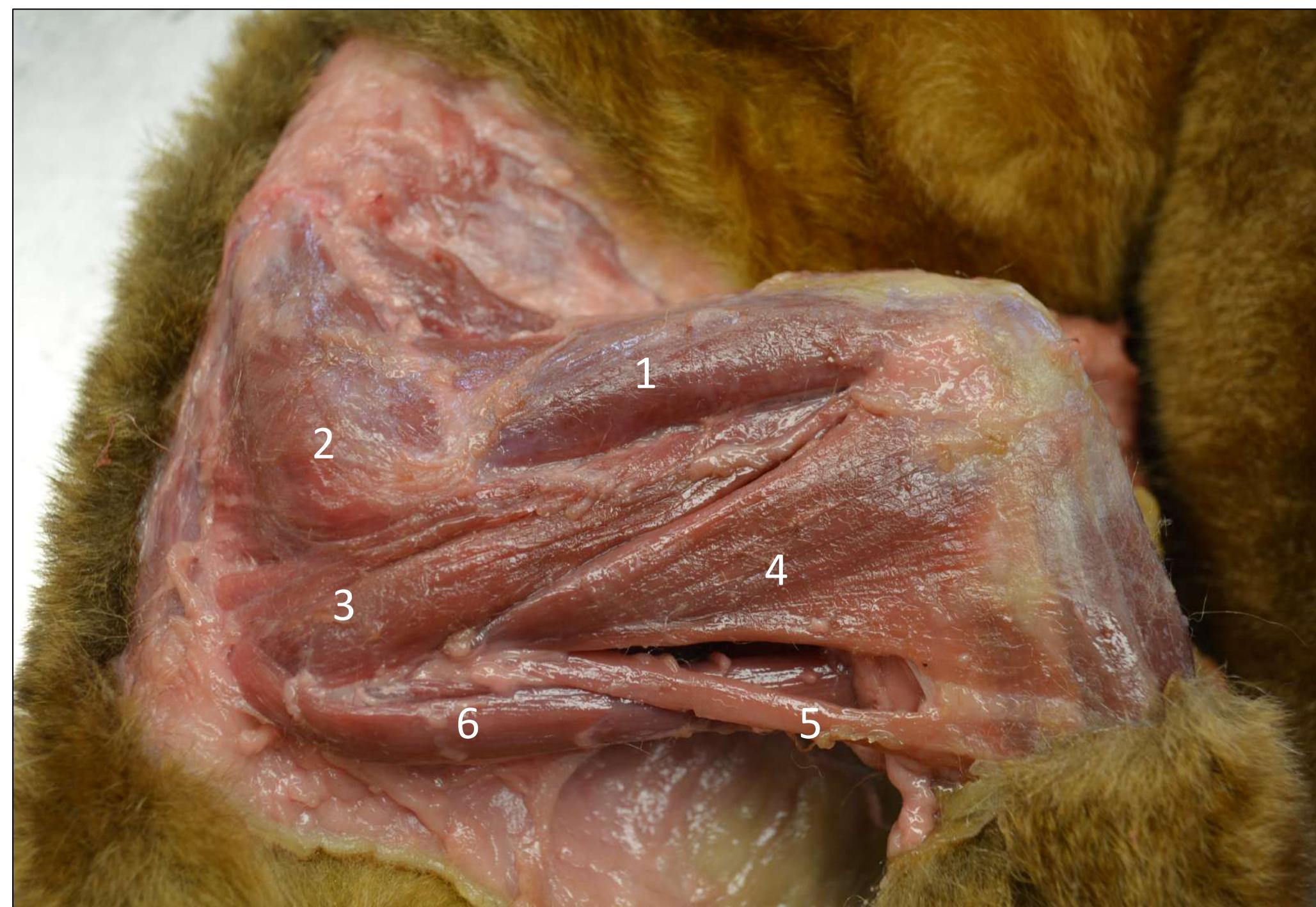


Figure 2:
1- Fibularis brevis
2- Fibularis longus
3- Tibialis cranialis
4- Sartorius
5- Extensor digitorum longus



Figure 3:
1- Quadriceps femoris
2- Gluteus superficialis
3- Femorococcygeus
4- Biceps femoris
5- Abductor cruris caudalis
6- Semitendinosus

Comparisons:

- *Gracilis*: Origin and insertion similar in all three species. Origin from the pubis and ischii, insertion on the tibial crest distal to the tuberosity.
- *Sartorius*: Origin and insertion similar to the red panda. Origin from the tuber coxae of the ilium, insertion fascia medial knee and medial distal to knee.
- *Fibularis longus*: Origin similar to red panda, insertion similar to both red panda and ringtail. Originates from the craniolateral aspect of the fibular head, insertion assumed to be on the lateral aspect of the first metatarsal.
- *Fibularis brevis*: Origin is similar to the ringtail, insertion similar to both red panda and ringtail. Originates from the craniolateral aspect of the fibular shaft, insertion assumed to be at the base of the 5th metatarsal.
- *Gastrocnemius*: Origin is different than red panda and ringtail. Medial head originates on medial supracondylar tuberosity, and lateral head originates on lateral supracondylar tuberosity. The insertion points are the same in all three species, the calcaneal tuberosity.
- *Gluteus superficialis*: Origin and insertion is different than the red panda and ringtail. Originates from the dorsal iliac crest and caudal vertebrae 1 and 2, inserts laterodistal aspect of the greater trochanter.

Conclusion:

- It was found that the kinkajou shares many similarities with the red panda and ringtail.
- Although, there are still commonalities between these three species.
- These observations indicate that both function and phylogeny influence limb myology.
- They provide additional comparative data for locomotor and phylogenetic studies of carnivorans.

Citations:

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- Photos by Dr. Heather Ahrens and Megan Demshar

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