

This anatomical illustration shows a cross-section of a spinal cord segment. The central spinal cord is depicted in pink, with a butterfly-shaped gray matter core. The dorsal root of the spinal nerve is shown as a thick, pink structure exiting the dorsal aspect of the spinal cord. The dorsal root ganglion, a cluster of sensory neurons, is visible as a blue, bulbous structure on the dorsal root. The dorsal root joins the dorsal root ganglion and then the dorsal root of the spinal nerve. The spinal nerve is shown as a thick, pink structure exiting the spinal cord. The dorsal root ganglion is shown as a blue, bulbous structure on the dorsal root. The dorsal root joins the dorsal root ganglion and then the dorsal root of the spinal nerve. The spinal nerve is shown as a thick, pink structure exiting the spinal cord. The dorsal root ganglion is shown as a blue, bulbous structure on the dorsal root. The dorsal root joins the dorsal root ganglion and then the dorsal root of the spinal nerve. The spinal nerve is shown as a thick, pink structure exiting the spinal cord.

**nervi spinales**  
**"spinal sinirler"**

Ondokuz Mayıs Üniversitesi  
Veteriner Fakültesi

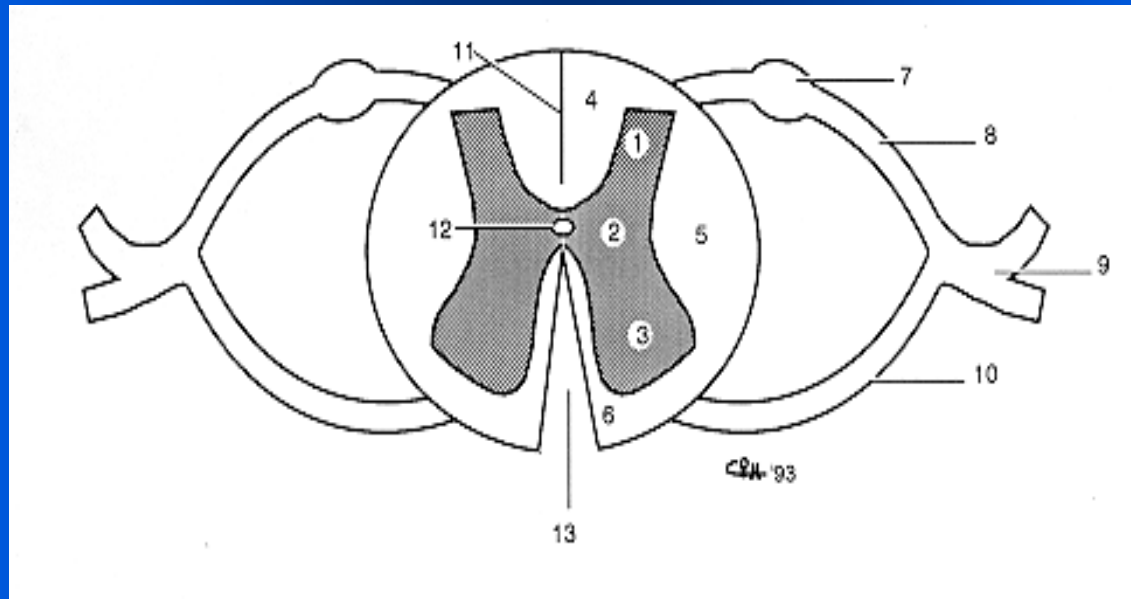
# Systema Nervosum Periphericum

## “çevresel sinir sistemi - ÇSS”

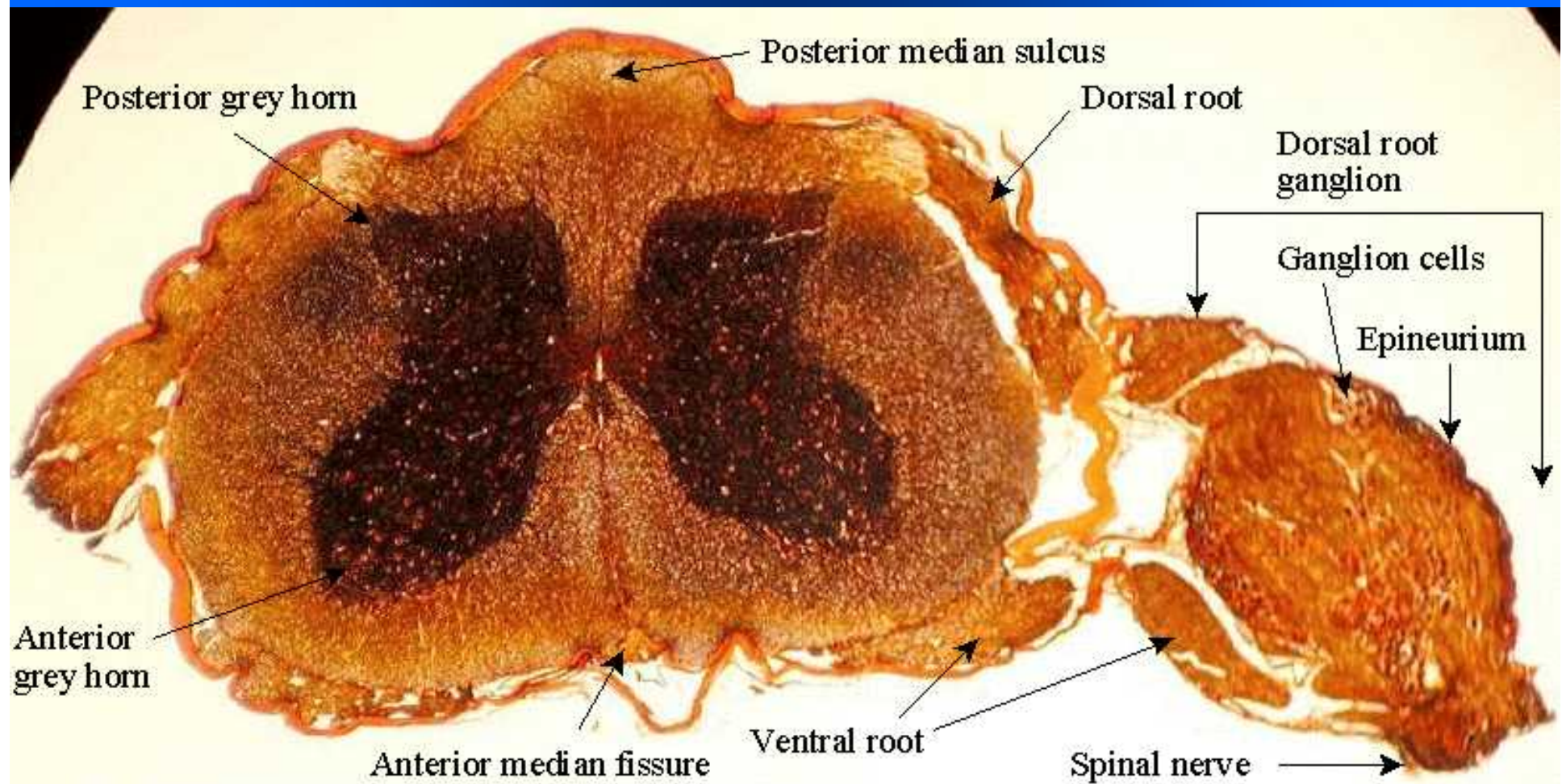
- Cranium ve columna vertebralis'den oluşan kemiksel muhafazanın dışında bulunur
- 48 çift periferik sinir
  - 12 çift kranial (nervi craniales)
  - 36 çift spinal (nervi spinales)
- Çok sayıda ganglion (mikroskobik ve makroskobik)
  - Kranial sinirlerde bulunan ganglionlar
  - Spinal ganglionlar (Dorsal kök ganglionları)
  - Otonomik ganglionlar
    - Vertebral ganglionlar (sempatik)
    - Praevertebral ganglionlar (parasempatik)

# kesitsel anatomi

- Spinal sinir, sensorik (duyusal) ve motor olarak bölümlenir; bunlar sırasıyla radix dorsalis ve radix ventralis olarak medulla spinalis ile ilişkidir
- Duyu sinirlerinin hücre gövdeleri dorsal kök ganglionunda (ggl. spinale) bulunur



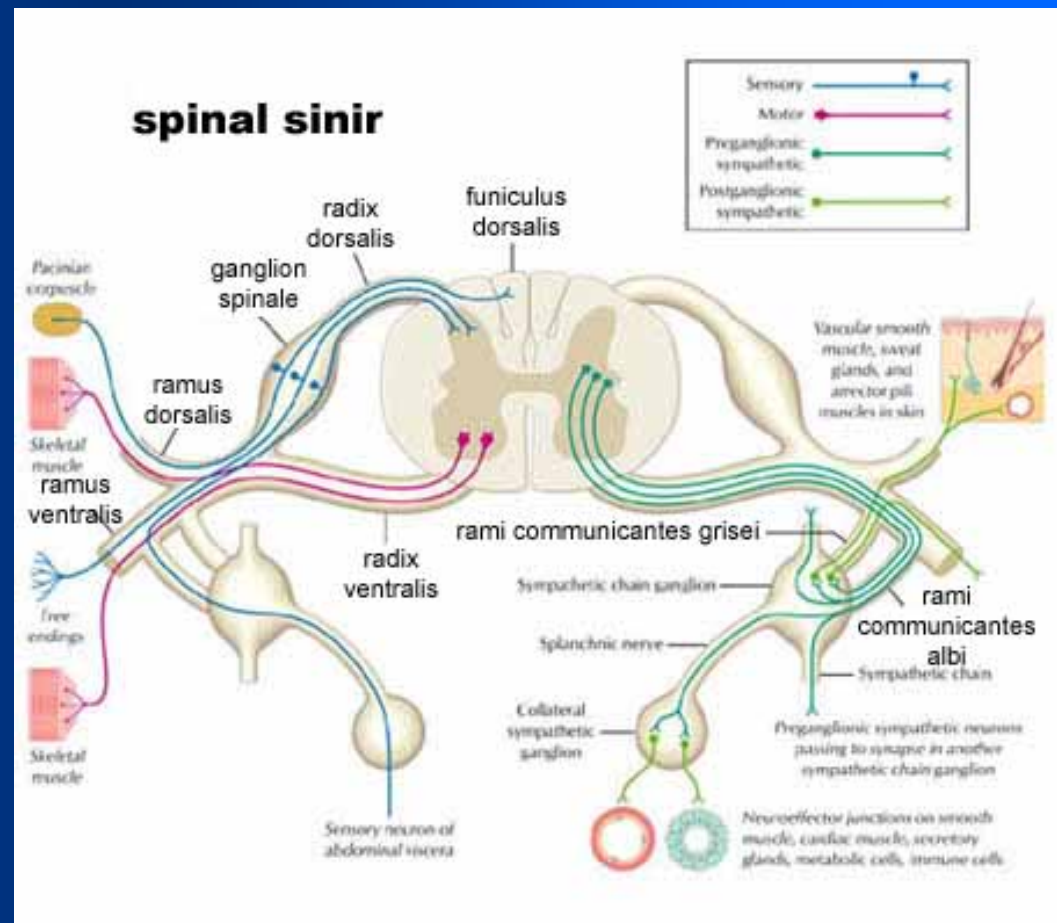
# kesitsel anatomi





# Radix dorsalis + radix ventralis = nervi spinalis

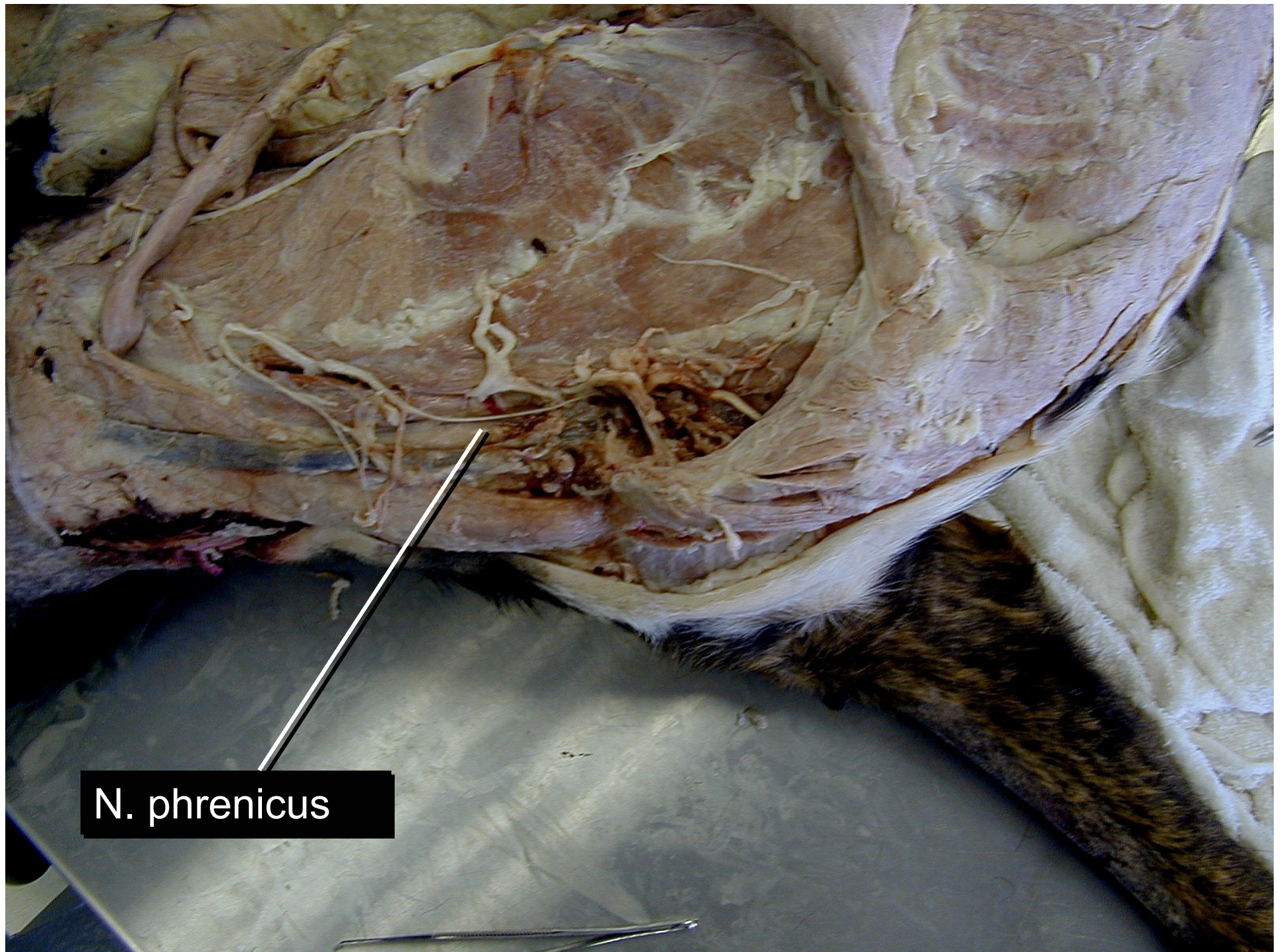
- Ramus meningeus
- Ramus dorsalis
- Ramus ventralis



# n. phrenicus

- C5 C6 C7'nin ventral kolları
- Motor ve duyu sinirlerinden oluşur
  - Rami pericardiaci





N. phrenicus



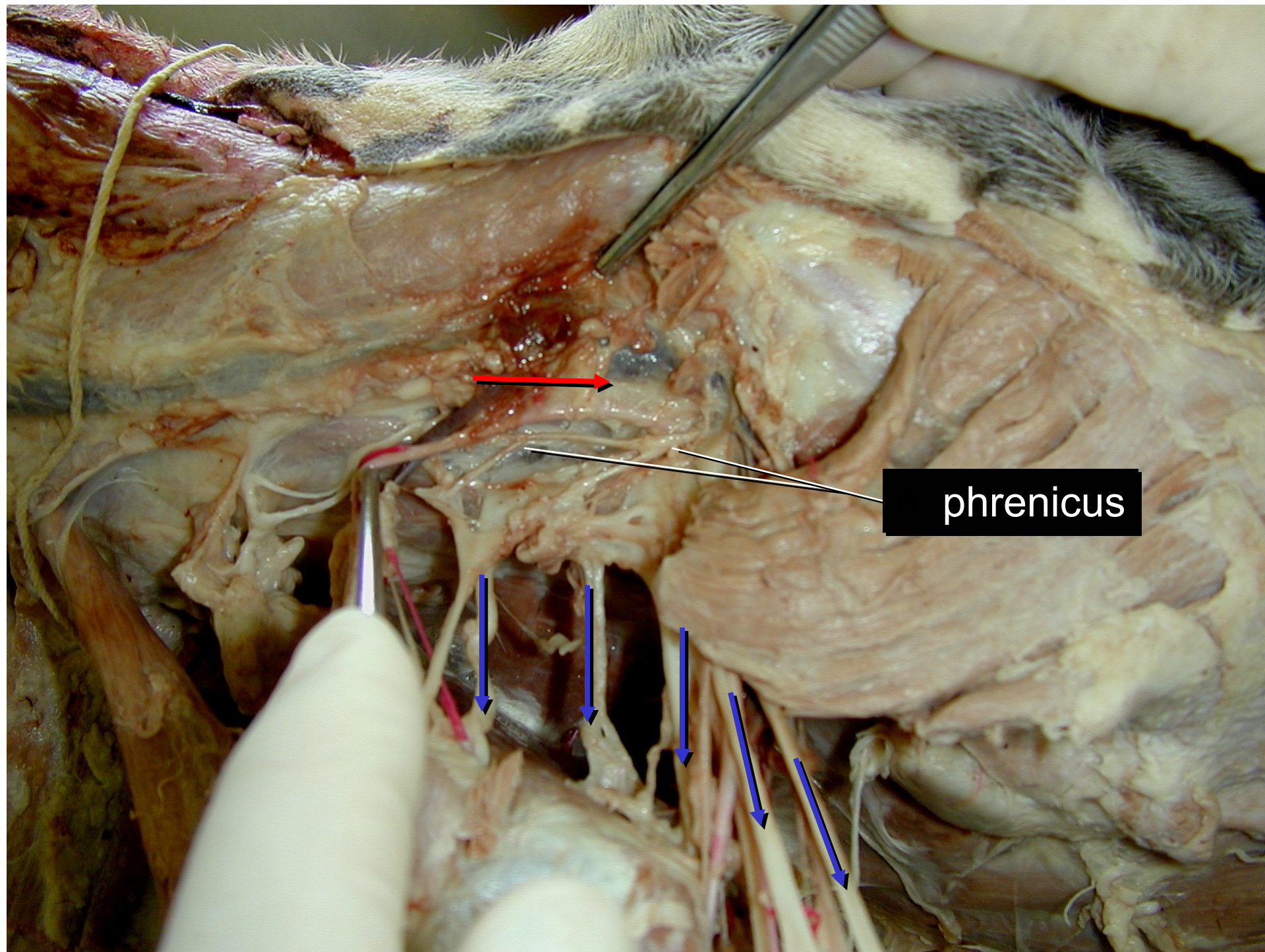


plexus brachialis

This anatomical photograph shows a surgical dissection of the brachial plexus and the phrenic nerve. The brachial plexus is visible as a complex network of white, branching nerve roots in the upper right portion of the image. The phrenic nerve is a single, long, and relatively thin nerve that runs diagonally from the lower left towards the center of the image. The surrounding tissue is a mix of pale, fatty connective tissue and darker, more vascularized muscle. Two white lines with black outlines point from the text labels to the respective structures: one points to the brachial plexus and the other points to the phrenic nerve.

n. phrenicus

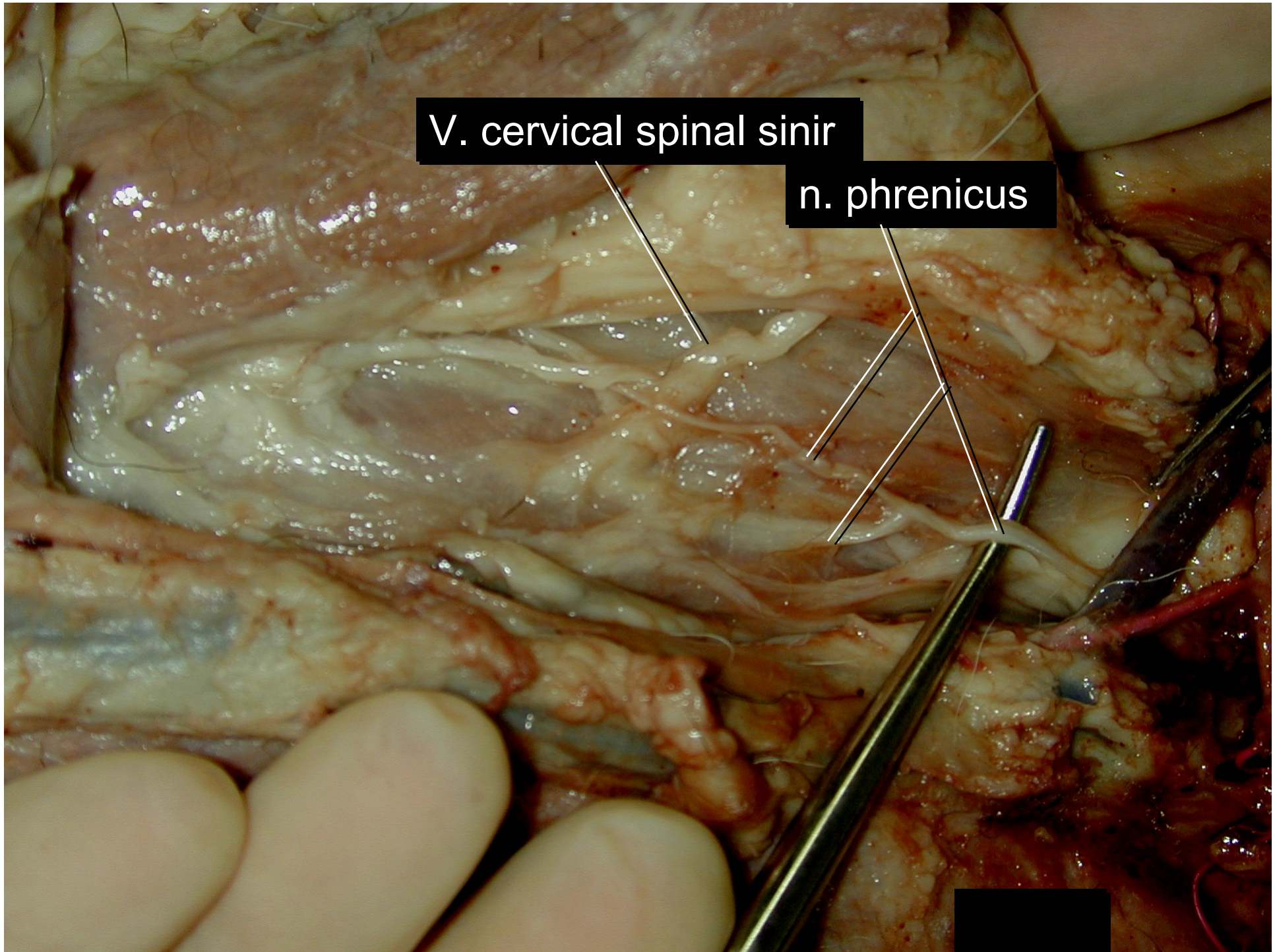




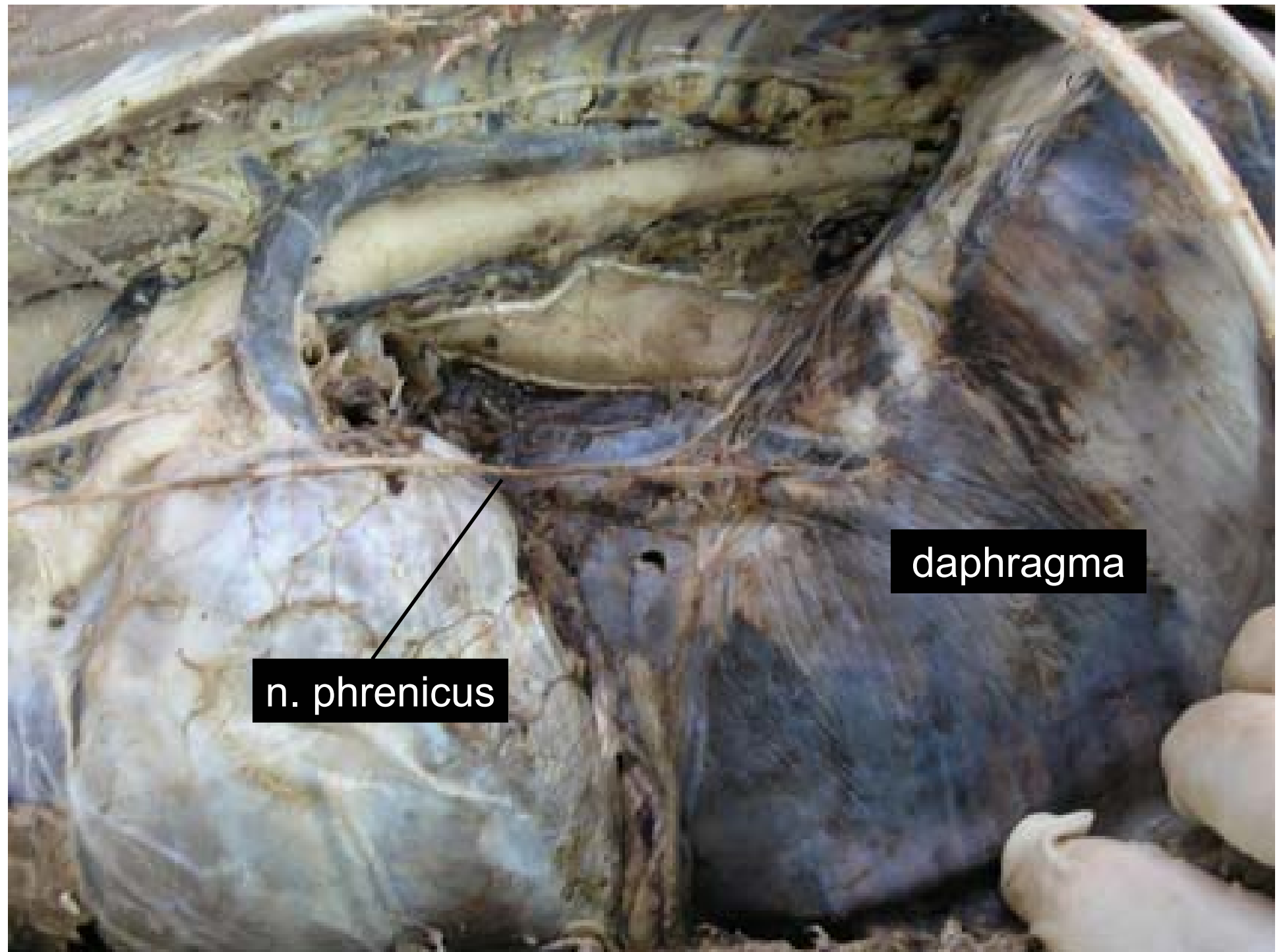


V. cervical spinal sinir

n. phrenicus







n. phrenicus

daphragma

# plexus brachialis

- Plexus brachialis'i C6 – T2 spinal sinirlerin ventral dalları şekillendirir
- Pleksusdan ayrılan kollar ön bacağın innervasyonunu sağlarlar
  - Nn. subscapulares C6-7
  - N. axillaris
  - Nn. pectorales craniales & caudales
  - N. suprascapularis C6
  - N. musculocutaneus C7
  - N. thoracicus lateralis C8 – T1
  - N. medianus & n. ulnaris C8 – T2
  - N. radialis C7 – T2

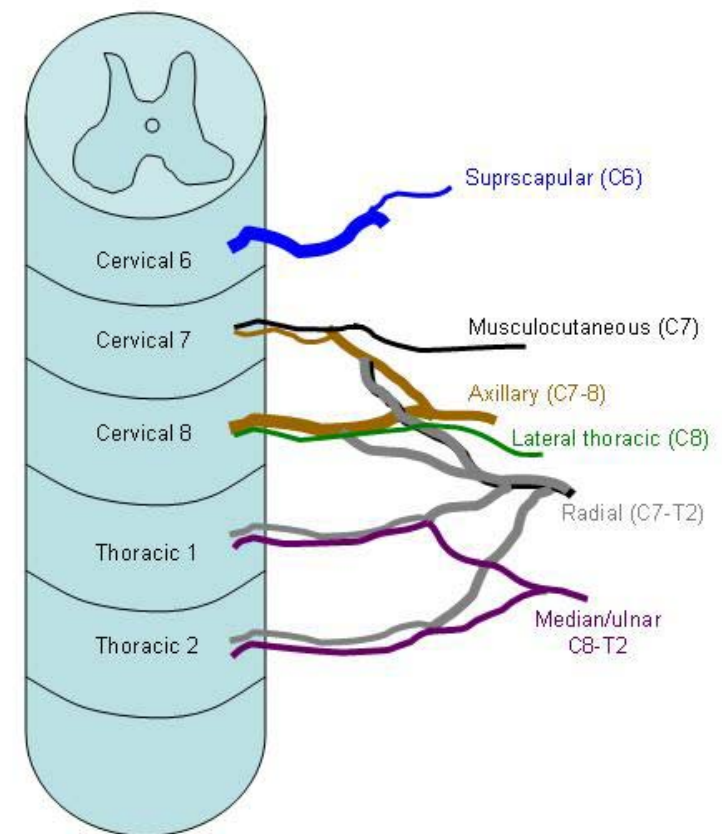


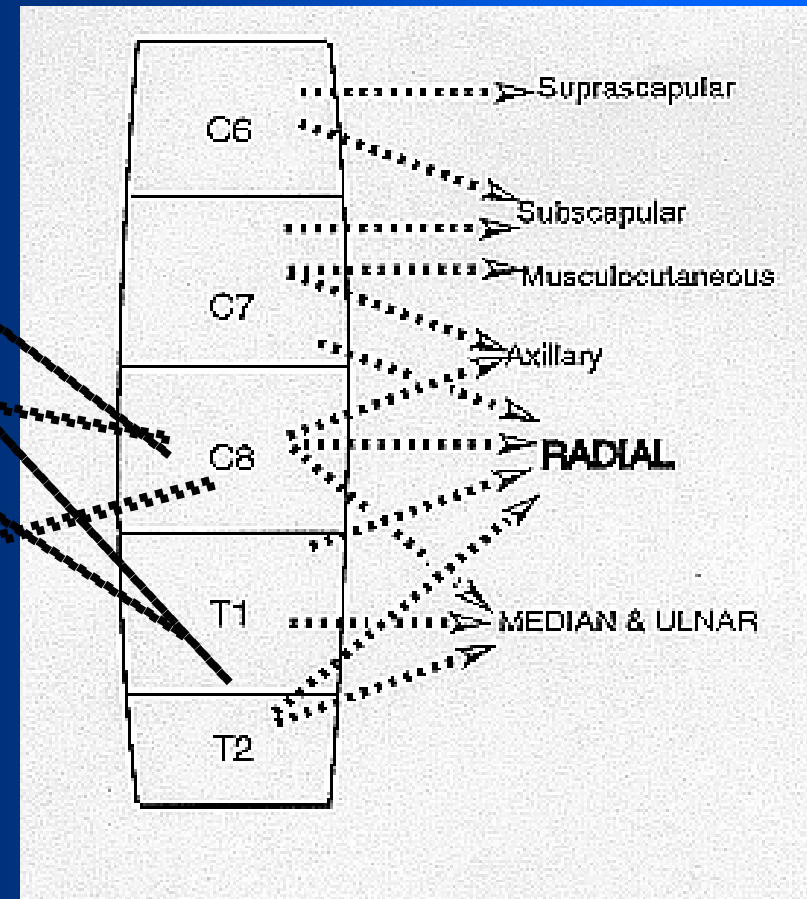
Fig. 6.3 Major contributions to important thoracic limb nerves via the cervical enlargement and brachial



N. thoracicus longus  
m. serratus ventralis

N. thoracicus lateralis  
m. cutaneus omobrachialis

N. thoracodorsalis  
m. latissimus dorsi



# plexus brachialis

- Nn. subscapulares C6-7
  - M. subscapularis
- Nn. pectorales craniales C7-C8
  - M. pectoralis superficialis
- Nn. pectorales caudales C8-T1
  - M. pectoralis profundus



# ön bacağın innervasyonu

- N. suprascapularis (C6)
  - M. supraspinatus ile m. infraspinatus
  - Art. humeri'nin lateral stabilizasyonunu sağlar

# ön bacağın innervasyonu

- N. musculocutaneus (C7)
  - Dirsek ekleminin fleksor kasları (m. biceps brachii ve diğerleri)
  - Ön bacağın medial kesiminin derisi

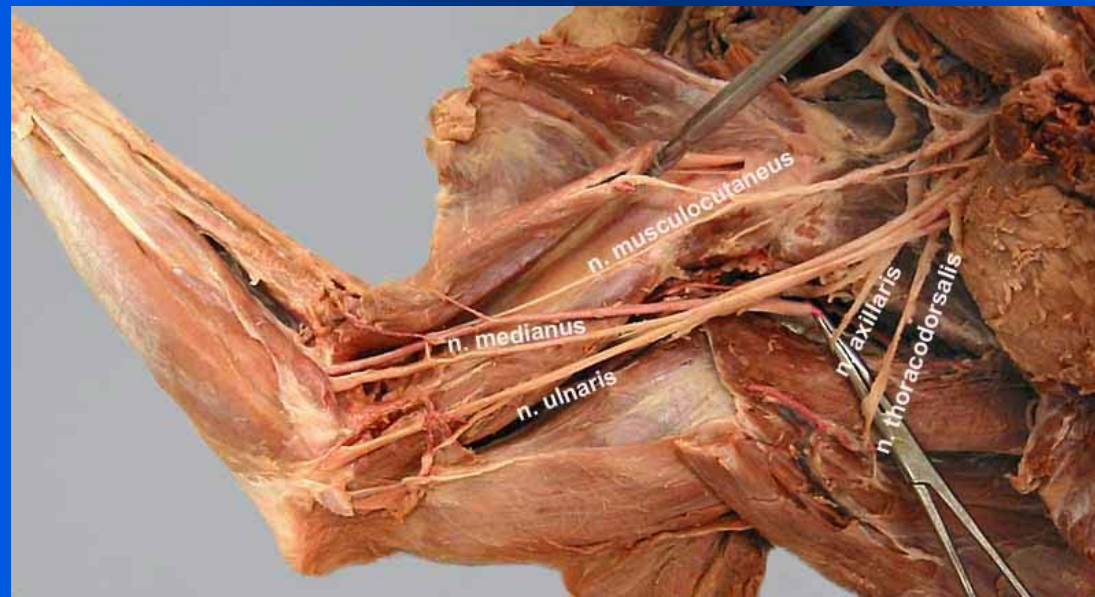
# plexus brachialis

- N. axillaris
  - M. teres major, m. teres minor ve m. deltoideus
  - Antebrachium'un ön ve dış yüzü derisi



# ön bacağın innervasyonu

- N. medianus & n. ulnaris (C8 – T2)
  - Antebrachium'un fleksor kasları
  - Ön bacağın ve ayağın caudal kesiminin derisi



# ön bacağın innervasyonu

- N. radialis (C7 – T2)
  - Ön bacağın EN ÖNEMLİ siniridir
  - Dirsek, bilek ve parmak eklemlerinin EKSTENSOR'udur
  - Ön bacak ve ayağın dorsal kesiminin derisi
    - Dirsek ekleminin ekstensiyonu, ön bacakların vücut ağırlığını desteklemesinde etkin rol oynar

# ön bacağın innervasyonu

- N. radialis
  - Proximal kesimindeki kollar ile dirsek ekleminin eksetensorlarını (m. triceps brachii)
  - Daha distalde ise (ramus profundus) antebrachium'un ekstensorlarını innerve eder



# ön bacağın innervasyonu

- N. radialis hasarında
  - Hasar sadece distaldeki kollarda ise
    - Hayvan vücut ağırlığını destekleyebilir ancak
  - Proksimal kesimdeki hasarlarda
    - Vücut ağırlığı desteklenmez, hayvan sekerek yürür
    - Ayağın dorsal kesimi ile antebrachium'un kranialindeki deri hissizdir

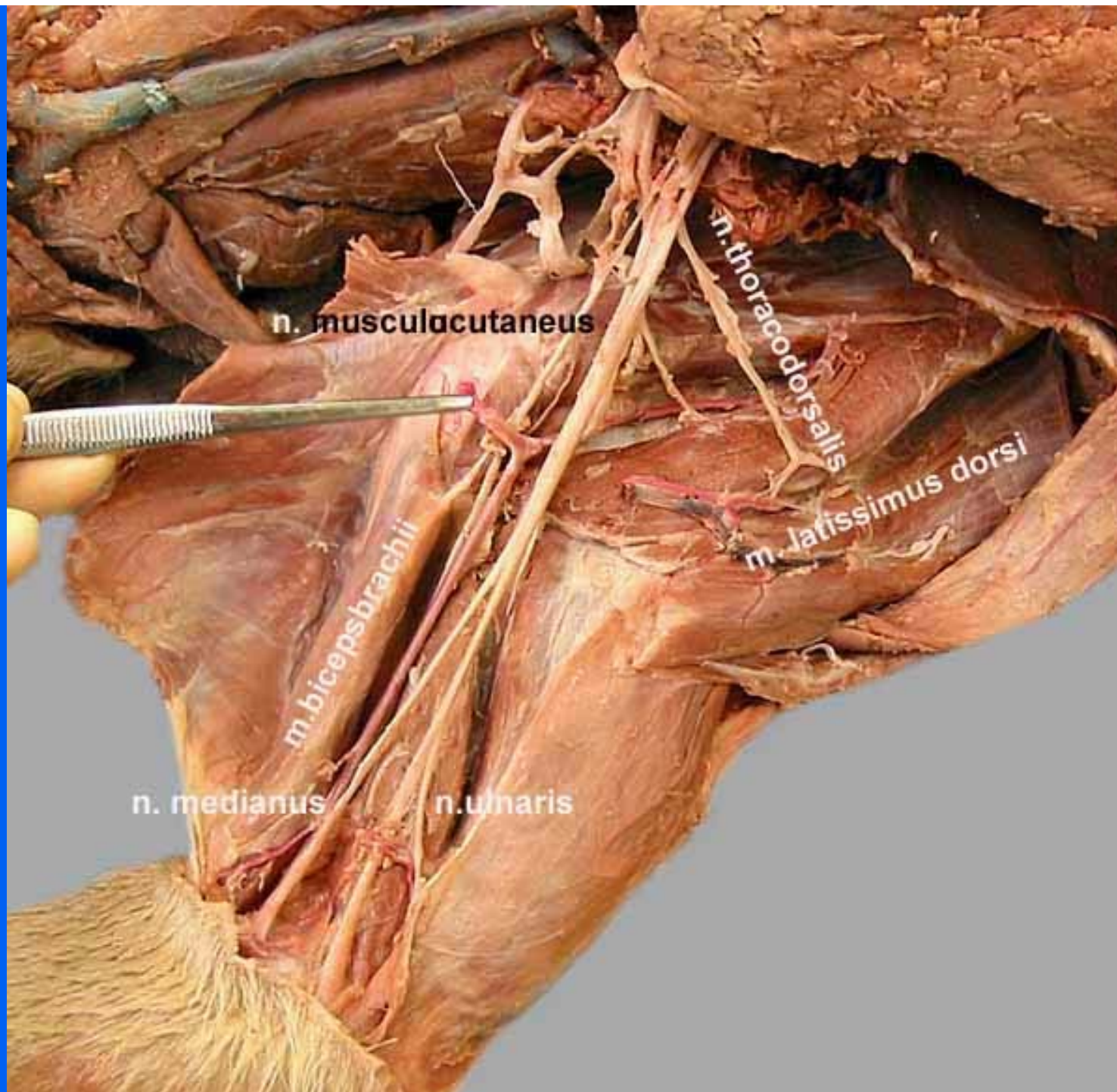
# ön bacağın innervasyonu

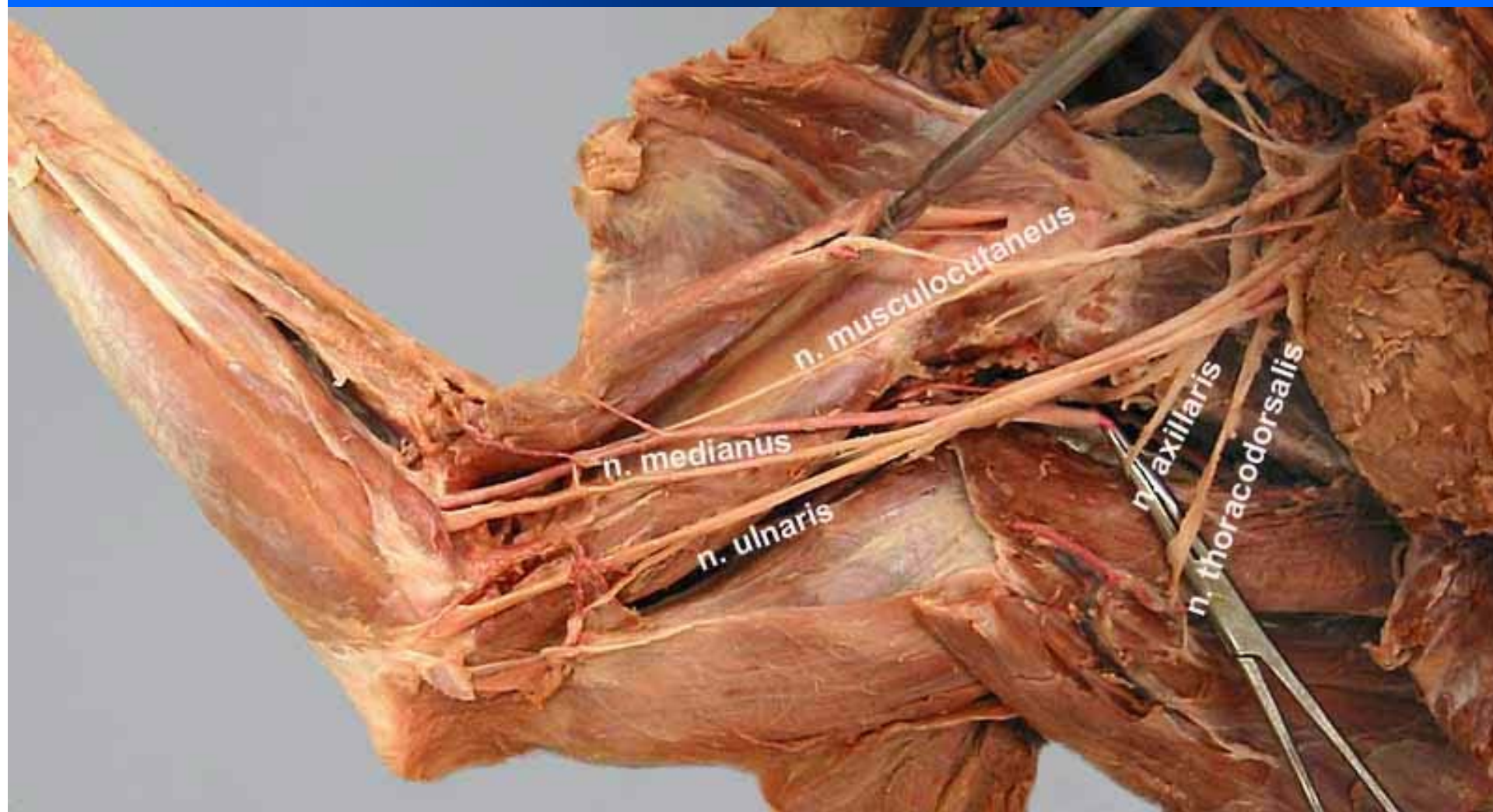


Fig 6.4 Dog to left has a low radial nerve injury and is knuckling but can support weight. Dog to right has a high radial nerve injury and cannot support weight in the limb- it limps and hops off the limb.



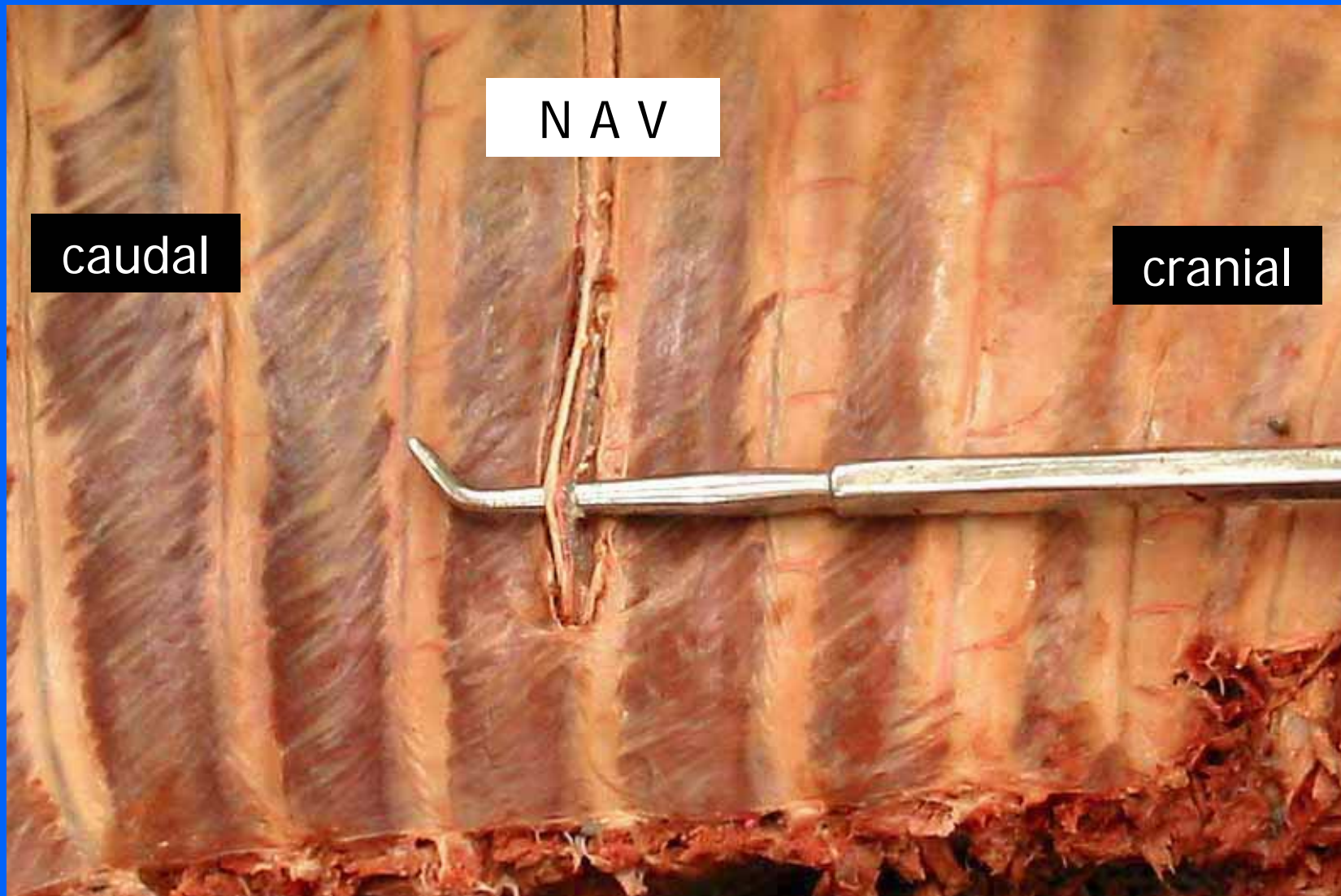








# torakal spinal sinirler





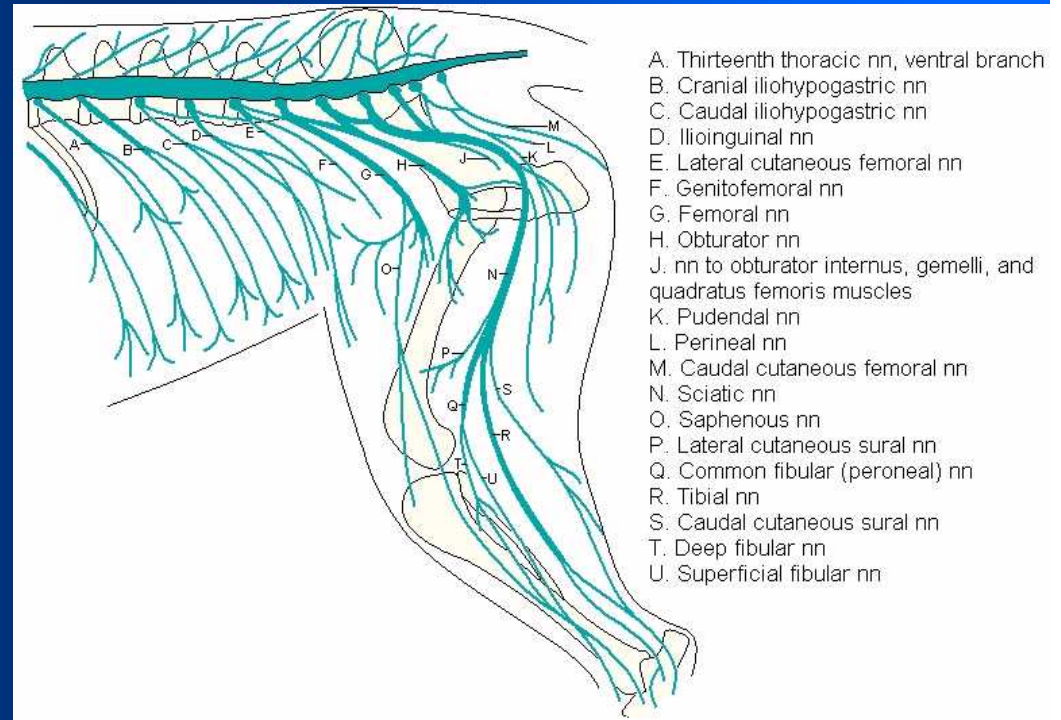
# Plexus lumbosacralis

plexus lumbalis + plexus sacralis

n. iliohypogastricus cranialis (car)  
n. iliohypogastricus caudalis (car)  
n. ilioinguinalis  
n. genitofemoralis  
n. cutaneus femoris lateralis  
n. femoralis  
n. obturatorius

n. gluteus cranialis  
n. gluteus caudalis  
n. cutaneus femoris caudalis  
n. pudendus  
nn. rectales caudales

n. ischiadicus



# n. iliohypogastricus [cranialis (car) L1]

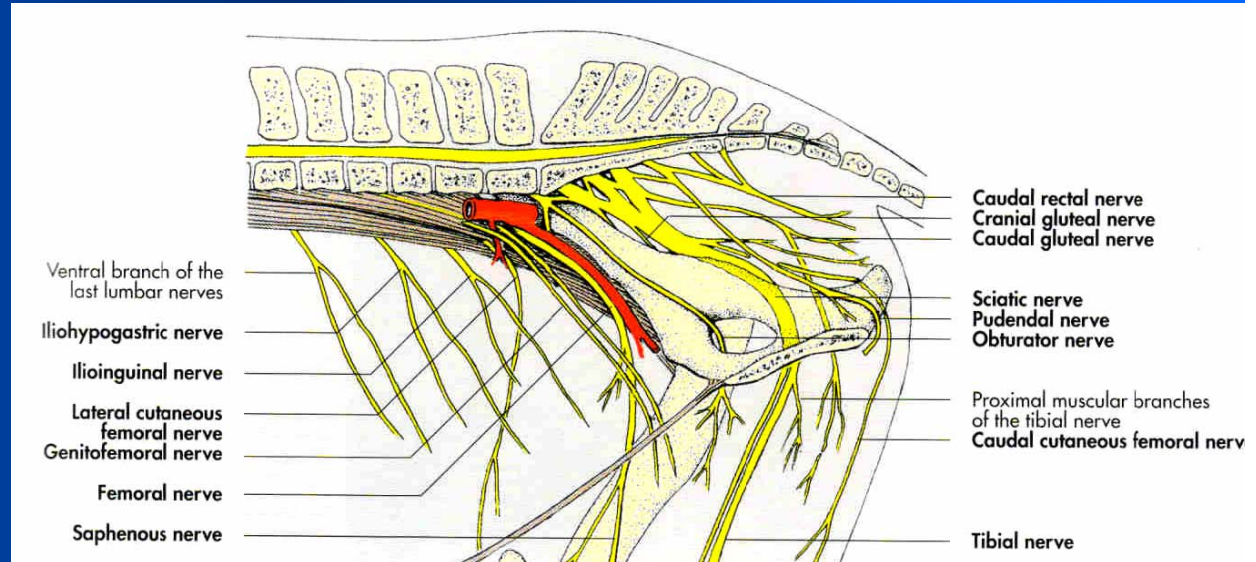
- Tipi:

- motor
- duyu

- İnnervasyon:

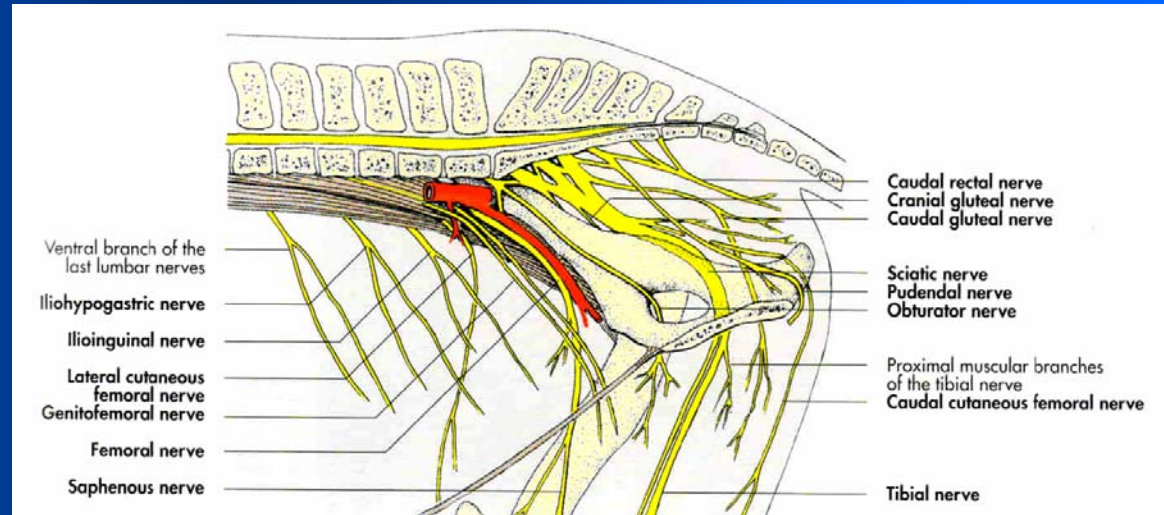
- karın kasları,
- periton, fossa paralumbalis derisi ile femur'un diz eklemine kadar cranioventral kesimi ile memenin cranial kesimi derisi ve preptium

– Not: n. iliohypogastricus caudalis (L2 – car)



# n. ilioinguinalis (L2)

- Tipi:
  - motor
  - duyu
- İnnervasyon:
  - karın kasları,
  - periton, fossa paralumbalis derisi ile femur'un diz eklemine kadar caudoventral kesimi ile memenin caudal kesimi derisi ve preptium



Not:

- dallanma ve seyri n. iliohypogastricus'a benzer, ancak daha caudal segmentler innervasyon alanını oluşturur
- Köpekte L3 tarafından oluşturulur



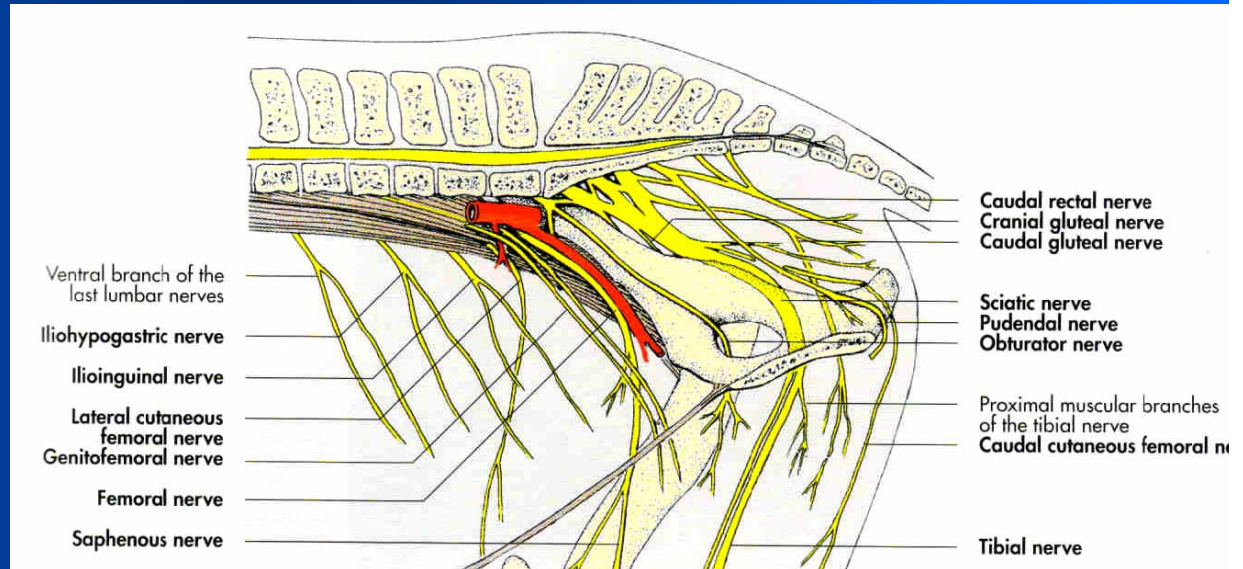
# n. genitofemoralis (L3)

- Tipi:

- motor
- duyu

- İnnervasyon:

- m. oblq. int. ab. ve m. crumaster'i
- femur'un medial kesimi derisi, erkekte funiculus spermaticus ve preputium, dişide meme deri ve dokusu



# n. cutaneus femoris lateralis (L3-L4)

- Tipi:
  - duyu
- İnnervasyon:
  - Femur'un ön, yan ve arka kesiminin deri ve fasyası

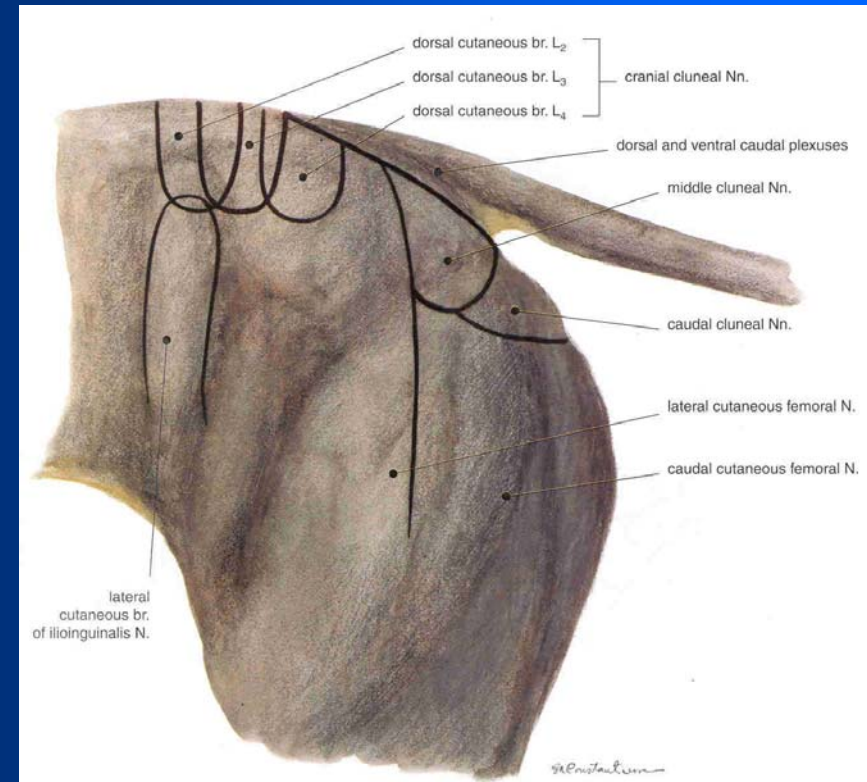
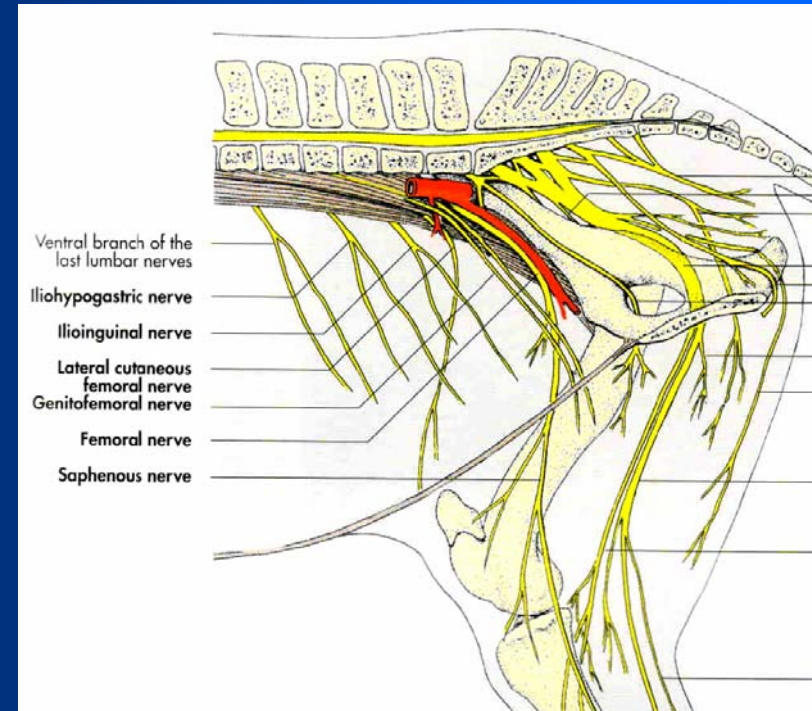


Fig. 1.68. Cutaneous innervation of the pelvis, lateral aspect—dog. Two nerves may share the same area. (Modified with permission from Evans, 1993, *Miller's Anatomy of the Dog*, 3rd ed. W. B. Saunders Co.)

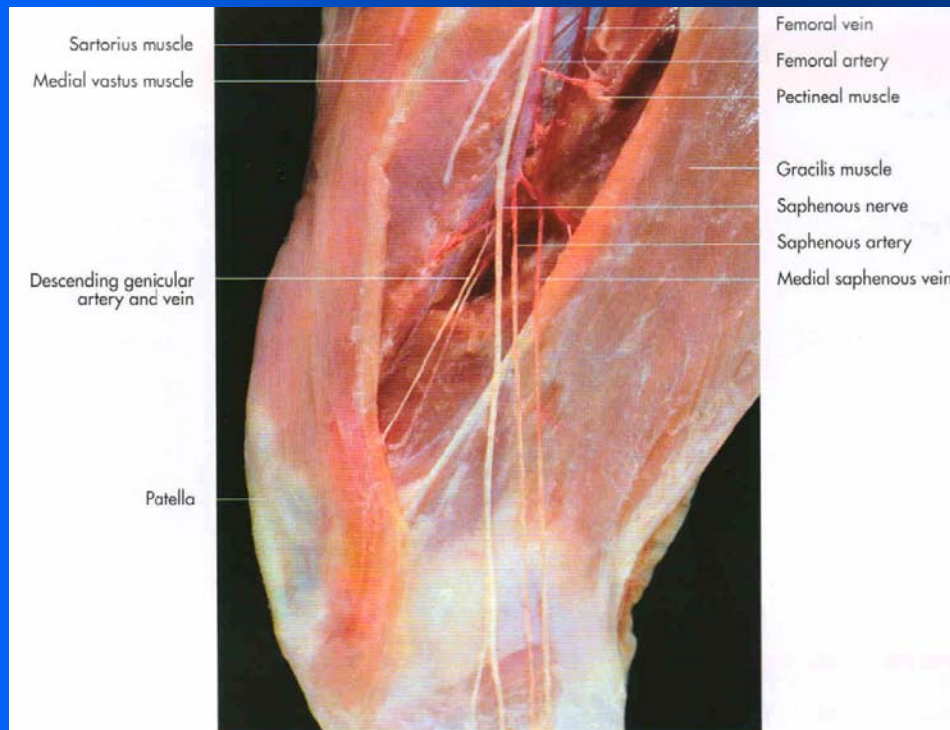
# n. femoralis (L4-L6)

- Tipi:
  - motor
  - duyu
- Innervasyon:
  - m. quadriceps femoris
  - art. genus'u, crus ve art. tarsi derisi
  - n. saphenus
- Klinik:
  - diz eklemi geremez ve tespit edemez, felçli bacağa yük bindiğinde tarsus ve genu eklemi çöker



# n. saphenus

- m. sartorius ile uyluğun medial kesiminin derisini uyarır





# n. obturatorius (L4-L6)

- Tipi:
  - motor
  - duyu
- İnnervasyon:
  - Uyluğun medialindeki kaslar
    - m. pectineus, m. gracilis, m. adductor, m. obturatorius ext. ve internus
  - art coxae
- Klinik:
  - Kaygan yüzeylerde bacaklar dışa açılır
  - Pelvis kırıklarında ve büyük baş hayvanlarda güç doğumlar sırasında

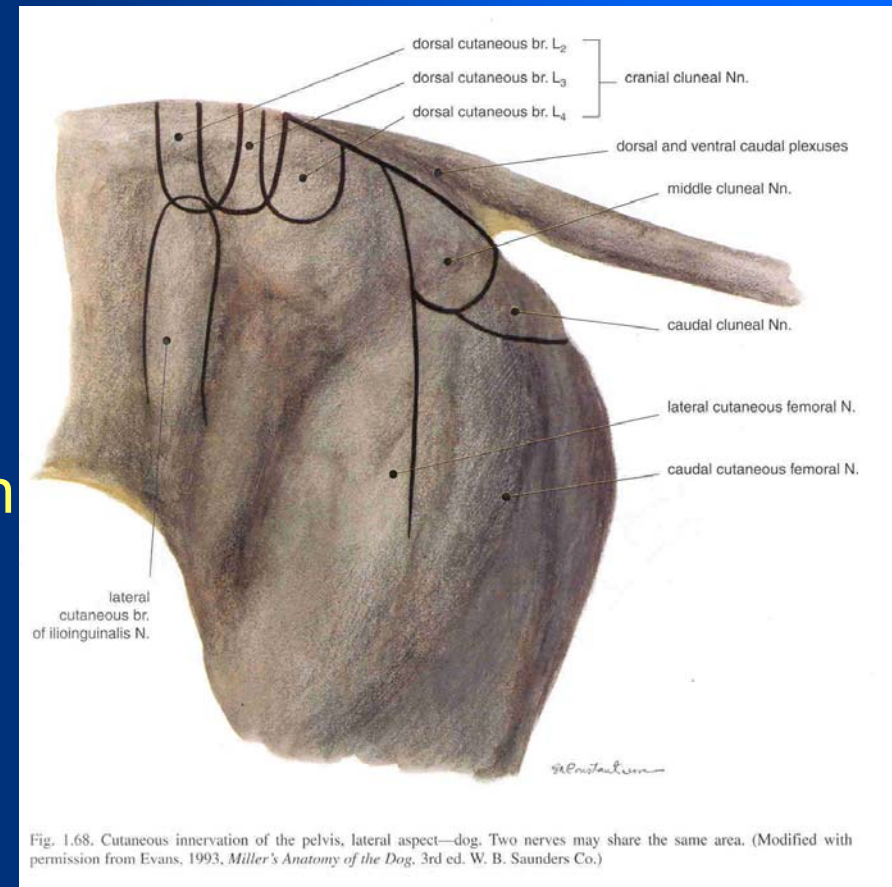


## n. gluteus cranialis & caudalis (L6-7 ve S2)

- Tipi:
  - motor
- İnnervasyon:
  - cranialis: m. gluteus medius ve profundus ile m. tensor fasciae latae
  - caudalis: m. gluteus spf., m. biceps femoris, m. semitendinosus, m. gluteobiceps (rum)

# n. cutaneus femoris caudalis (S1-S2)

- Tipi:
  - motor
  - duyu
- İnnervasyon:
  - m. semitendinosus
  - femur'un arka kesiminin deri ve fasyası



# n. pudendus (S2-3)

- Tipi:
  - motor
  - duyu
- İnnervasyon:
  - n. perinealis profundus:
    - m. levator ani, m. bulbospongiosus, m. ischiocavernosus ve m. sphincter urethrae
  - n. perinealis superficialis:
    - erkekte skrotum, dişide pudendum femininum
  - ramus preputialis et scrotalis:
    - perineal bölge ve anüs derisi
  - n. dorsalis penis
  - ramus mammarius
  - n. dorsalis clitoridis



# n. rectalis caudalis (S4-5)

- Tipi:
  - motor
  - duyu
- İnnervasyon:
  - m. sphincter ani
  - anus derisi

# n. ischiadicus (L6-7, S1-2)

- İnnervasyon:
  - m. biceps femoris,  
m. semitendinosus ve m.  
semimembranosus
- n. tibialis ve n. peroneus  
(fibularis) communis'e  
ayrılarak sonlanır



Middle gluteal muscle

Lateral vastus muscle

Sciatic nerve

Common fibular nerve

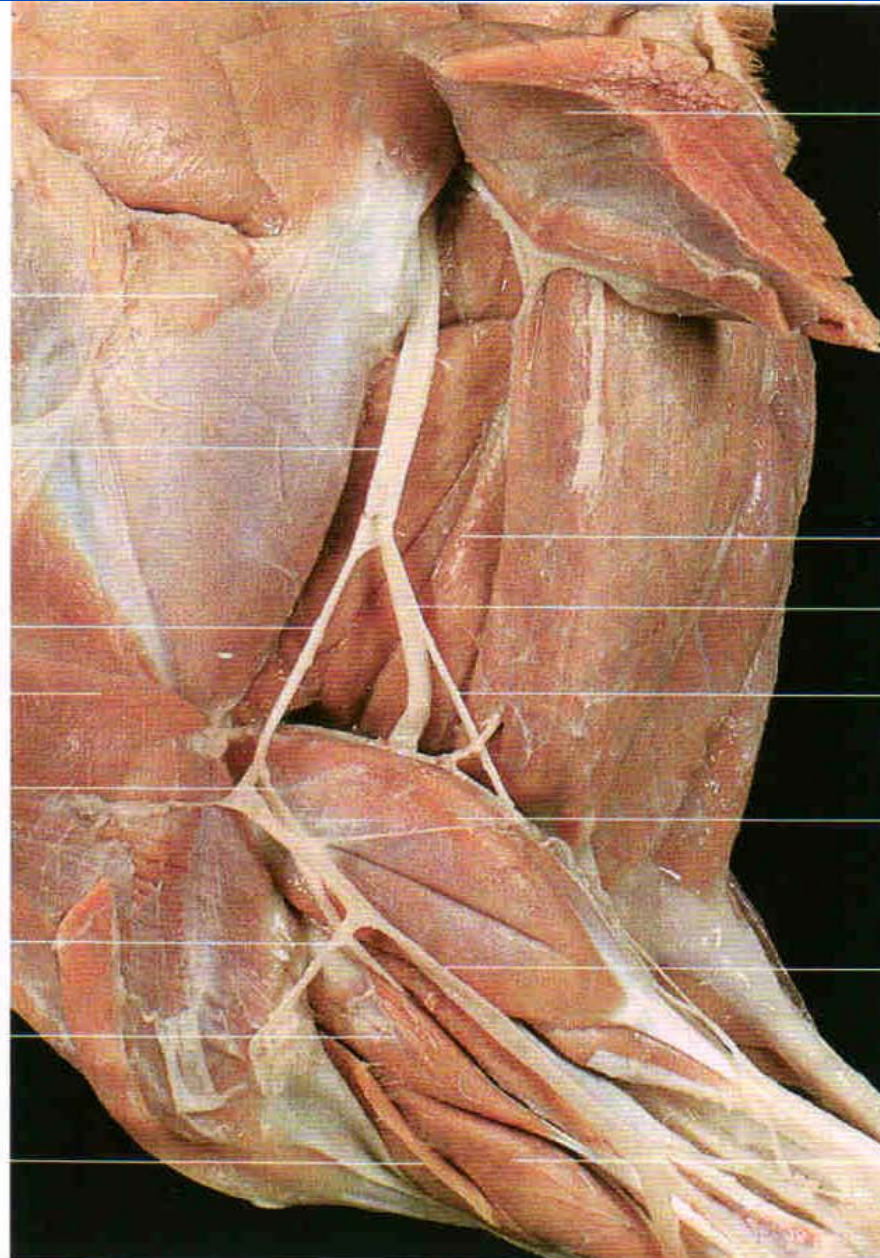
Biceps muscle of thigh (severed)

Superficial fibular nerve

Deep fibular nerve

Long fibular muscle

Cranial tibial muscle



Biceps muscle of the thigh (severed)

Semimembranous muscle

Tibial nerve

Caudal cutaneous sural nerve

Gastrocnemius muscle

Lateral saphenous vein

Long digital extensor muscle

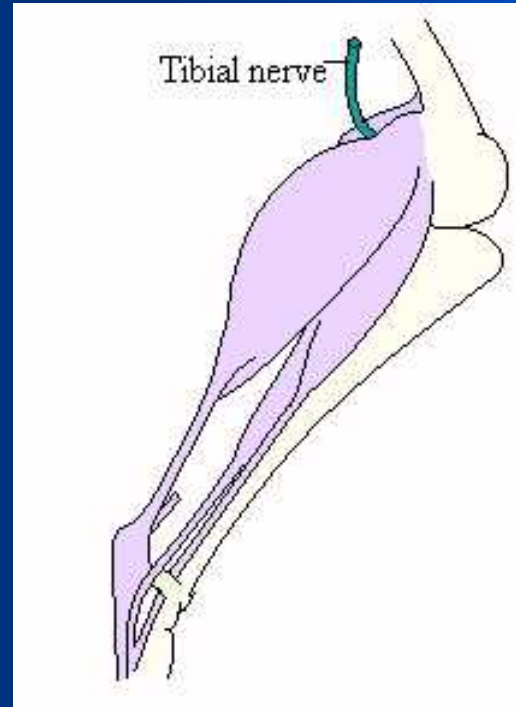
# n. ischiadicus (L6-7, S1-2)

- Klinik:
  - arka bacağın adduktor kasları (n. obturatorius innerve eder), femur'un kranial'indeki kaslar (n. femoralis ve gluteal kaslar (n. gluteus) dışında arka bacağın bütün kasları n. ischiadicus tarafından innerve edilir
  - hasarında:
    - art. tarsi stabil olmamasına rağmen vücut ağırlığı kısmen taşınabilir
    - etkilenen bacakta ayağın ve parmakların dorsal yüzü ile yere basılabilir
    - yürüme esnasında bacak sürünerek götürülme eğilimindedir



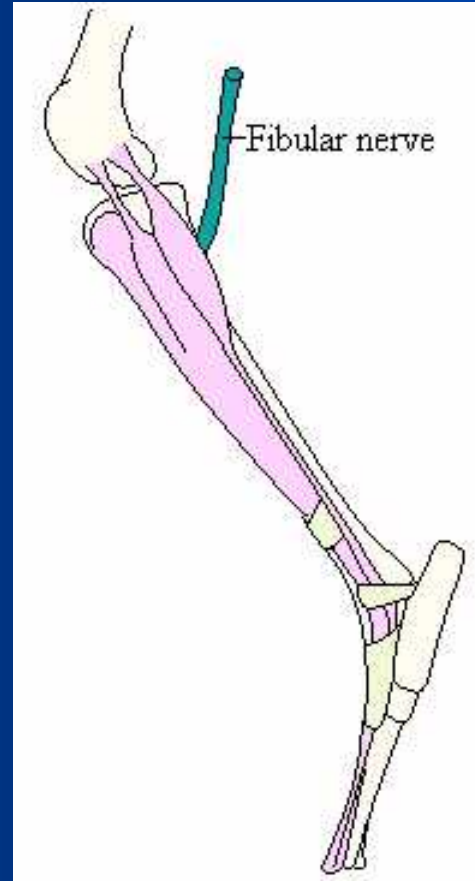
# n. tibialis

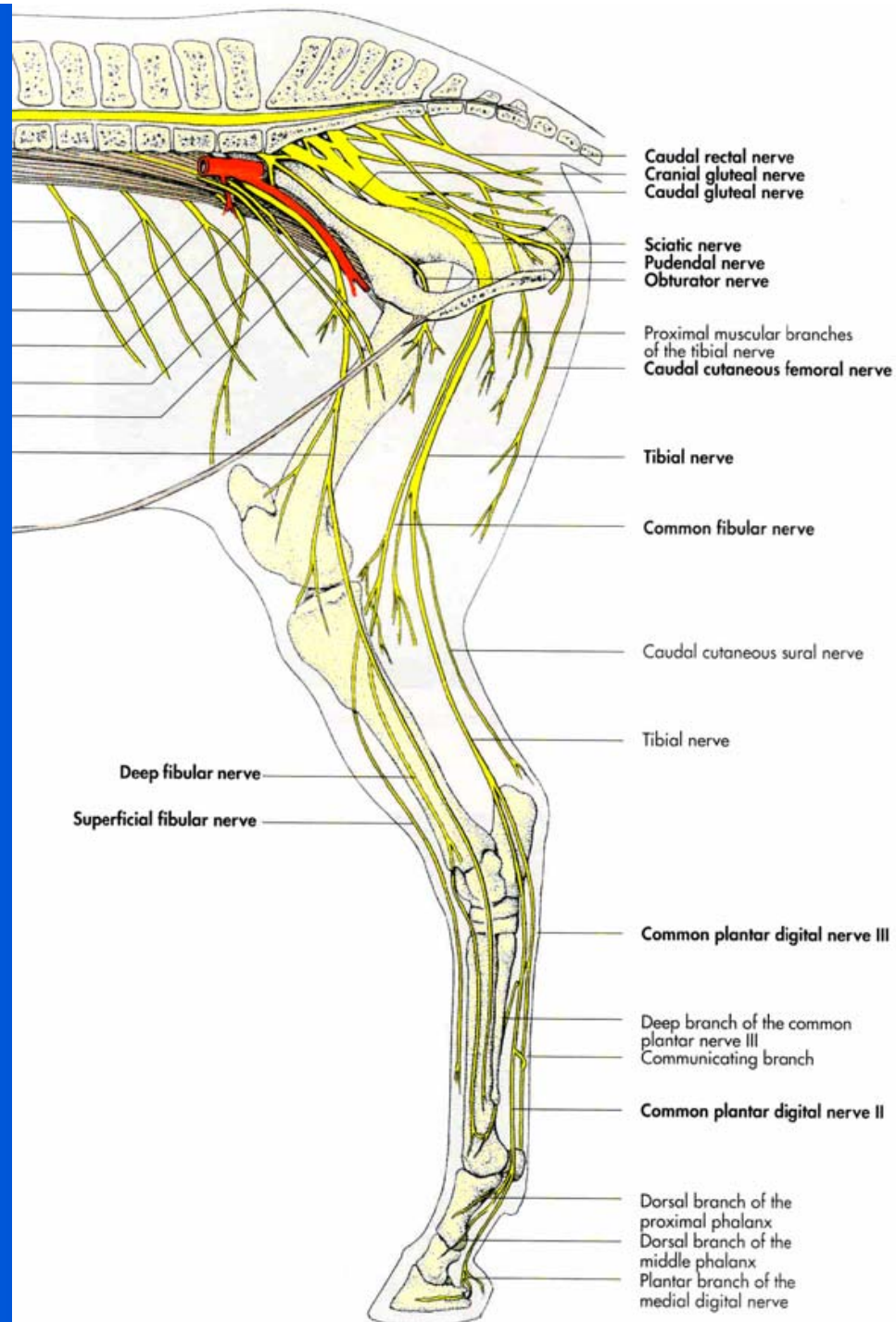
- İnnervasyon:
  - bilek ekleminin ektensorları ile parmak eklemlerinin fleksorları
- N. plantaris lateralis ve medialis iki uç dalıdır
- klinik:
  - tarsal eklemi aşırı bükülmüş olarak durur



# n. peroneus (fibularis) communis

- İnnervasyon:
  - bilek ekleminin fleksorları ile parmak eklemlerinin ektensorları
  - diz ekleminin lateral kesiminin derisi
- N. peroneus (fibularis) superficialis ve profundus'a ayrılarak sonlanır
- klinik:
  - tarsal eklem aşırı gergindir, aynı zamanda parmaklar fleksiyon halindedir





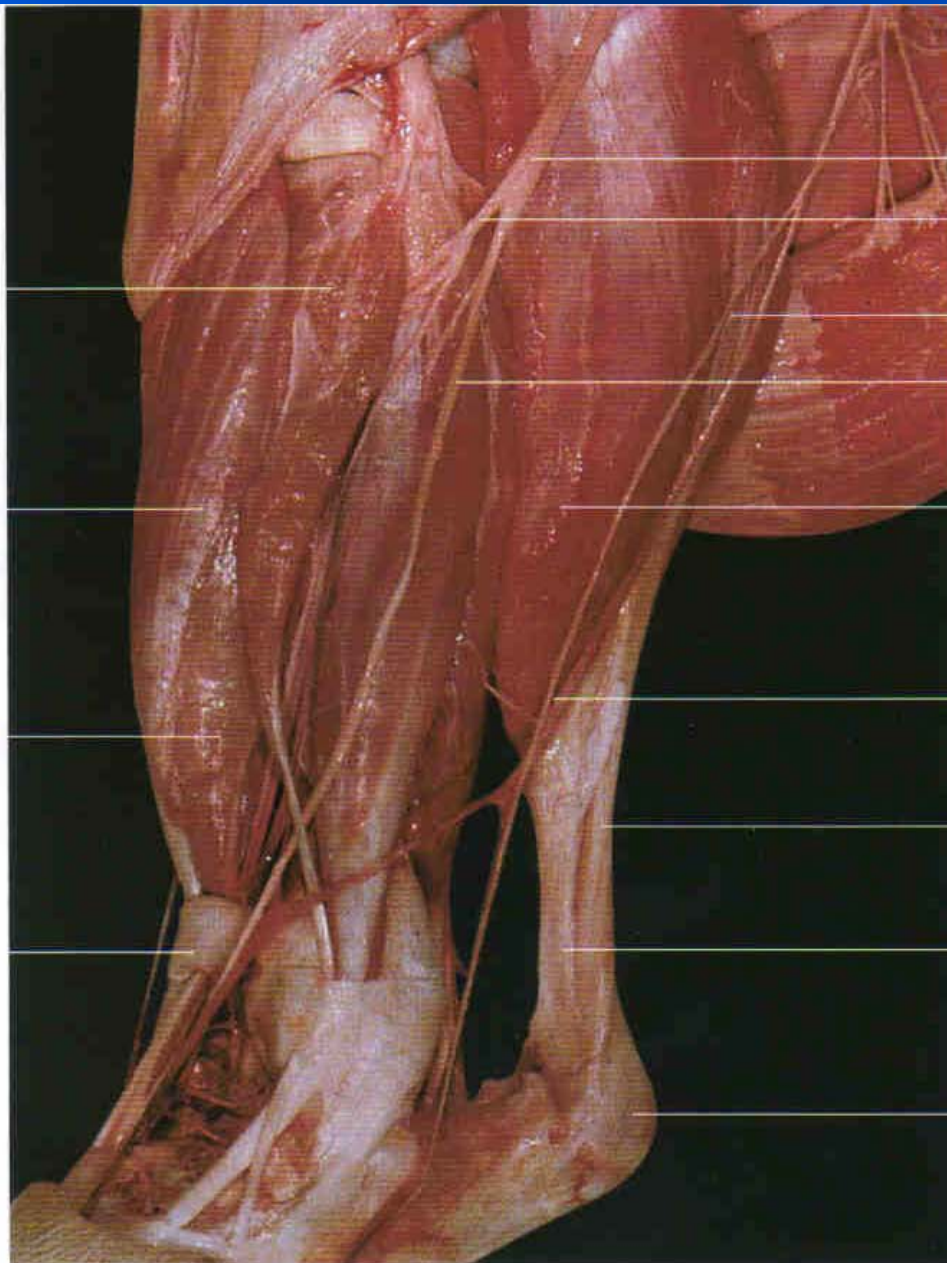


Long fibular muscle

Third fibular muscle

Long digital extensor muscle

Proximal transverse ligament



Common fibular nerve

Deep fibular nerve

Caudal cutaneous sural nerve

Superficial fibular nerve

Gastrocnemius muscle

Lateral saphenous vein

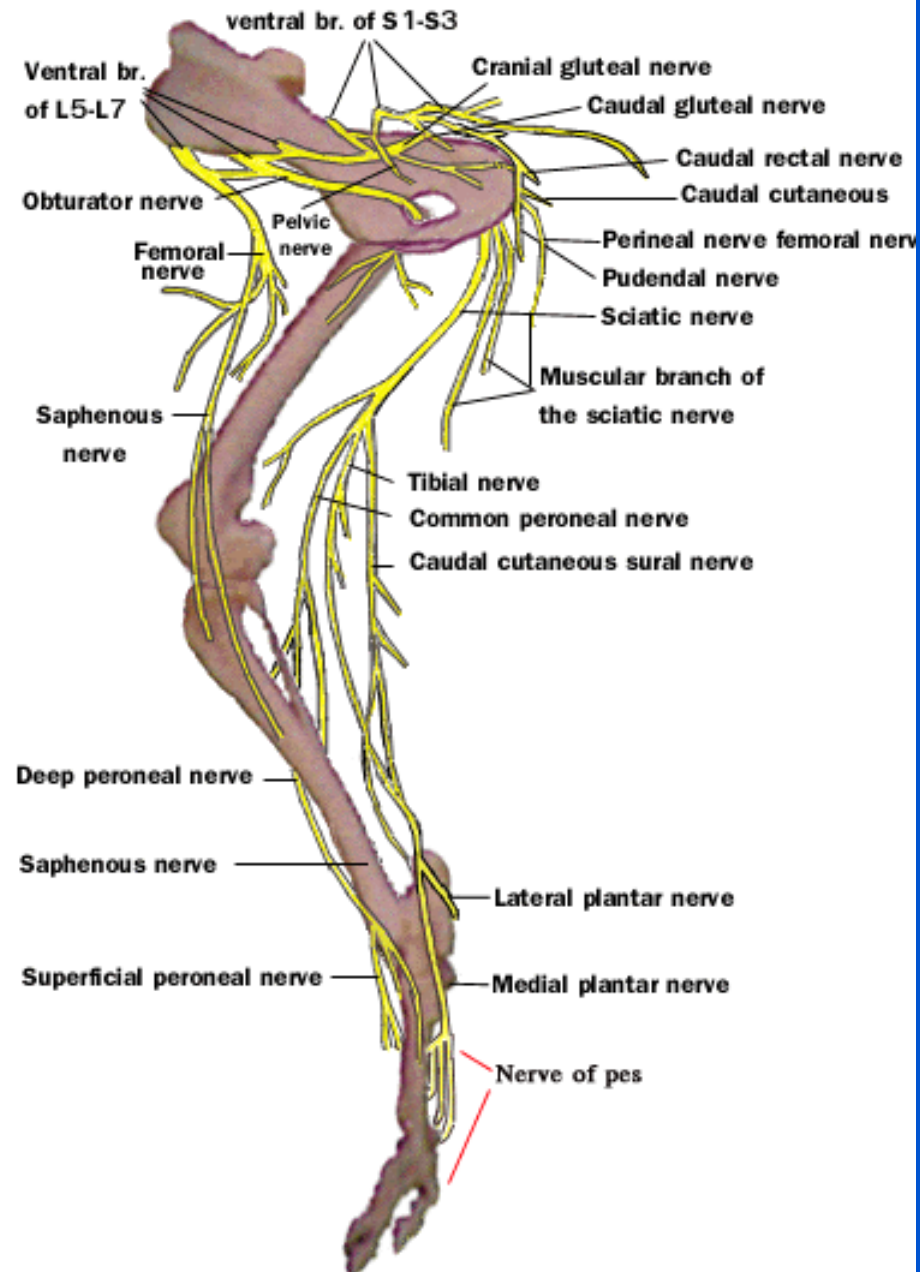
**Common calcaneon tendon**

Plantar tendon  
(Achilles tendon)

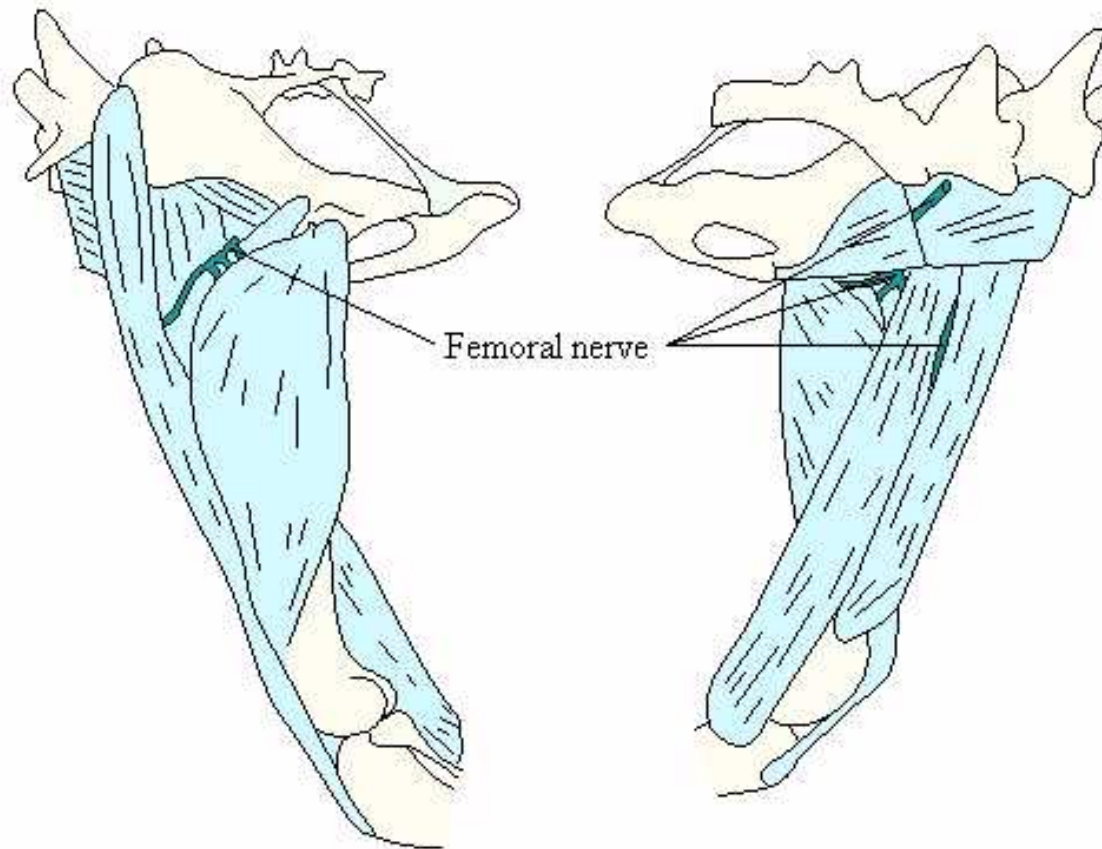
Tendon of the gastrocnemius muscle

Cap of the superficial  
digital flexor tendon

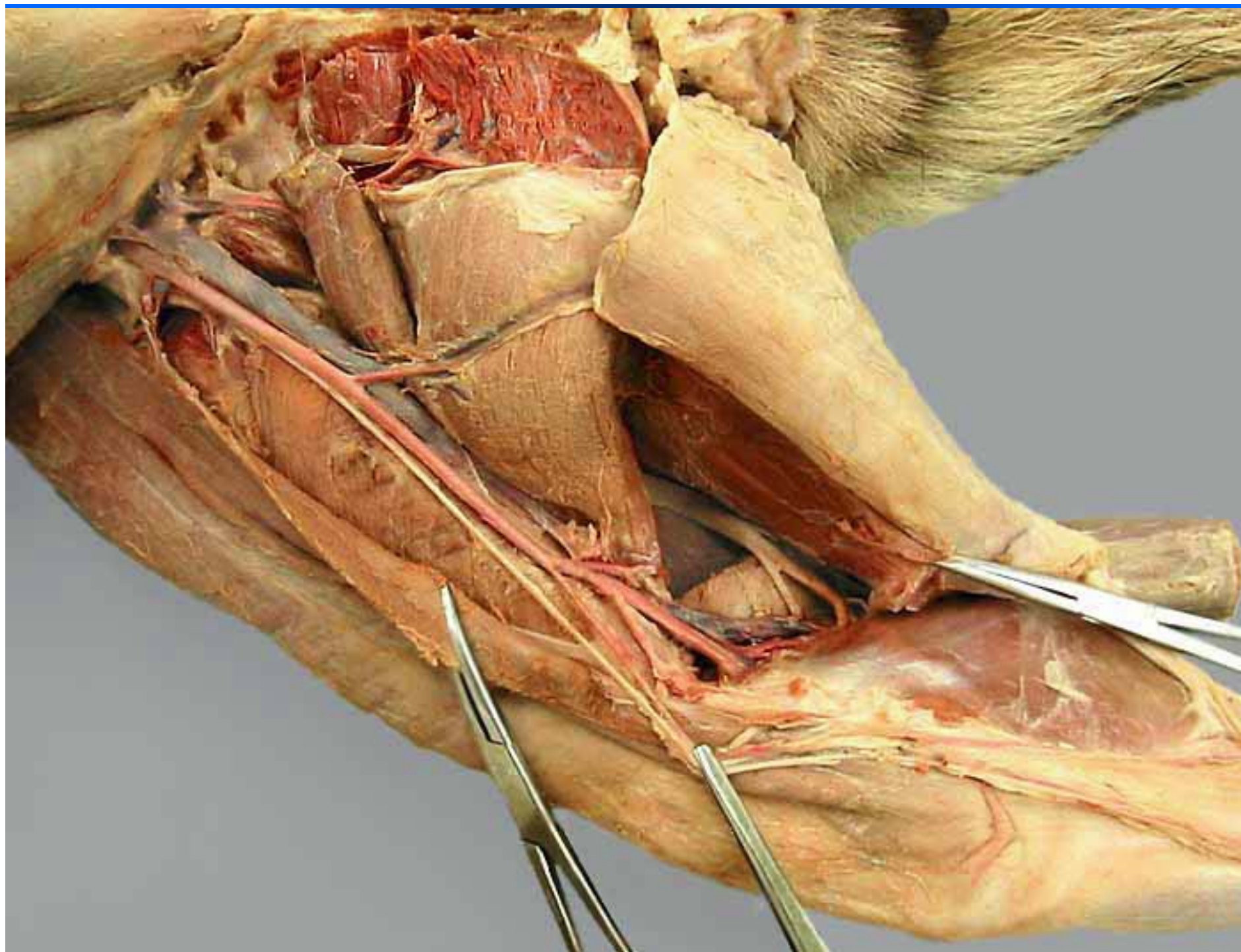




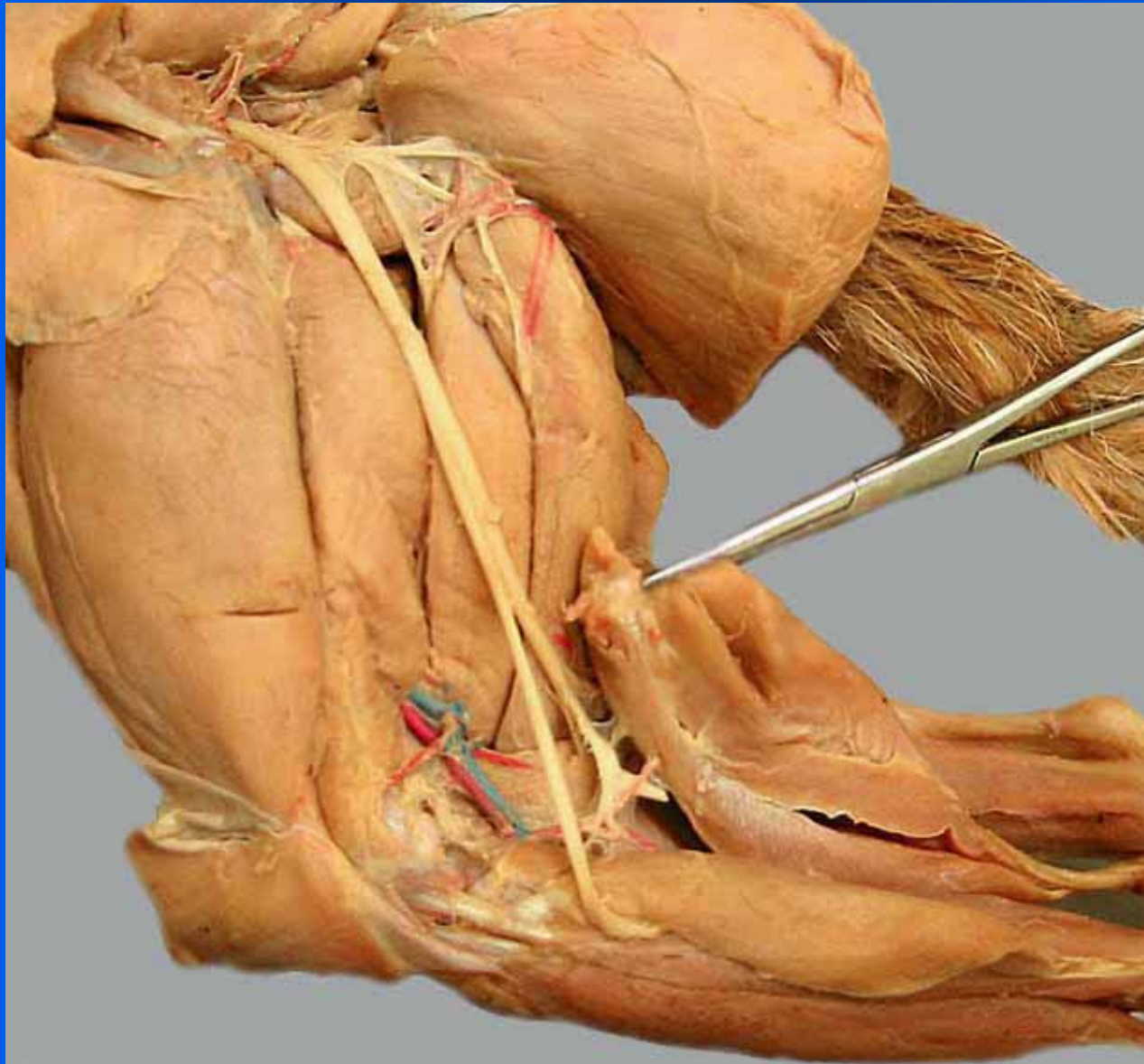
# n. femoralis







# n. ischiadicus



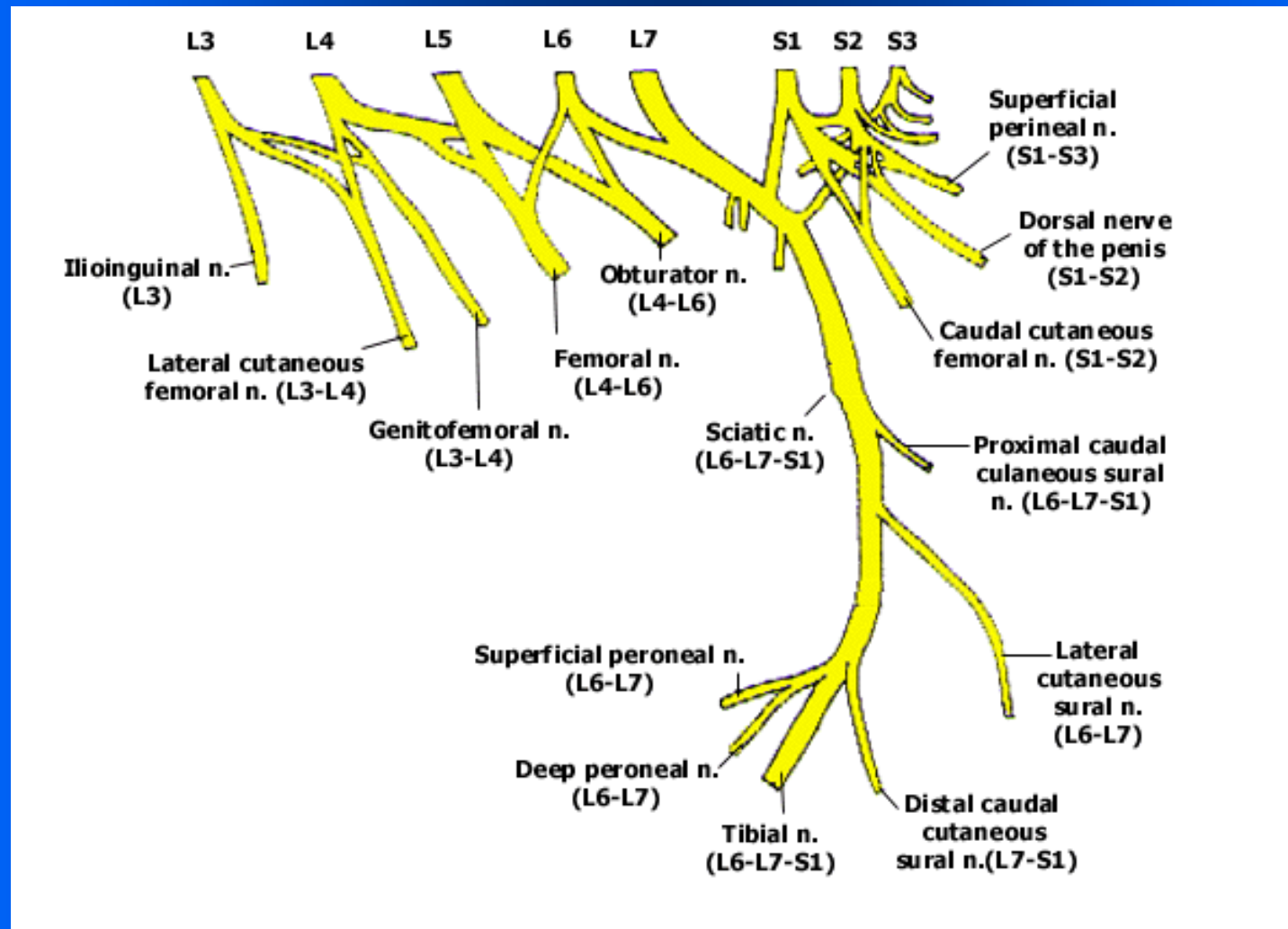




N. obturatorius (1) for. obturatum'da bulunan obturator kasları (2) delerek adduktor kasları (3) ve kalça eklemini uyarır. Plexus lumbosacralis, inc. ischiadica major'a (4) girerken görülmekte. Pelvik sinirler (7) olarak da adlandırılan S1 (5) ve S2 (6)'nin ventral kolları görülebilir.

- N.femoralis'in (8) başlangıcı a. femoralis'in yanında izlenebilir. N. iliohypogastricus (9), ggl. mesenterica caudalis'in (10) gerisinde görülebilir; a. iliaca externa (11) ve a. iliaca interna (12)

# Plexus lumbosacralis



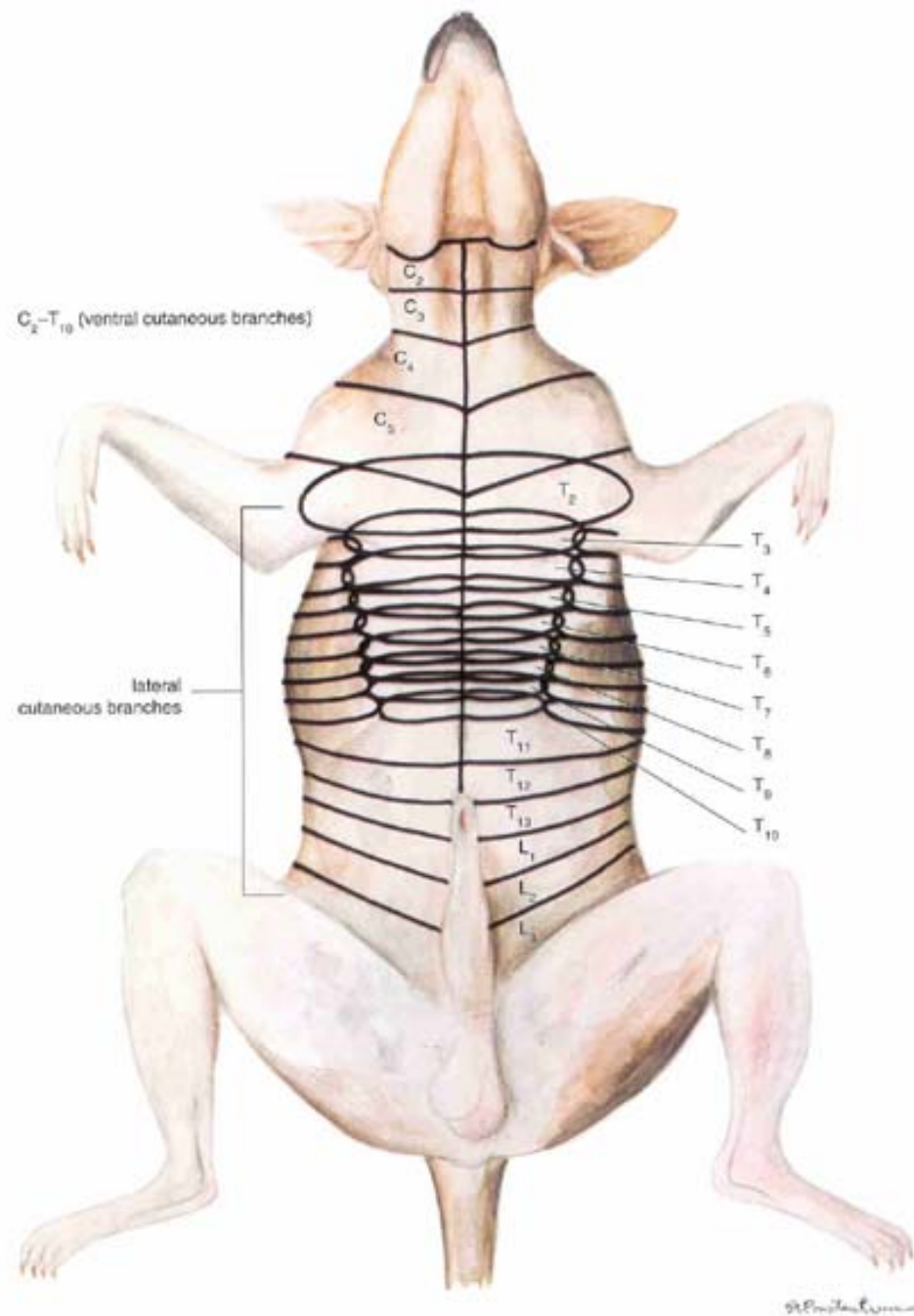


Fig. 1.57. Cutaneous innervation of the body, ventral aspect—dog. Two nerves may share the same area. (Modified with permission from Evans, 1993, *Miller's Anatomy of the Dog*, 3rd ed. W. B. Saunders Co.)

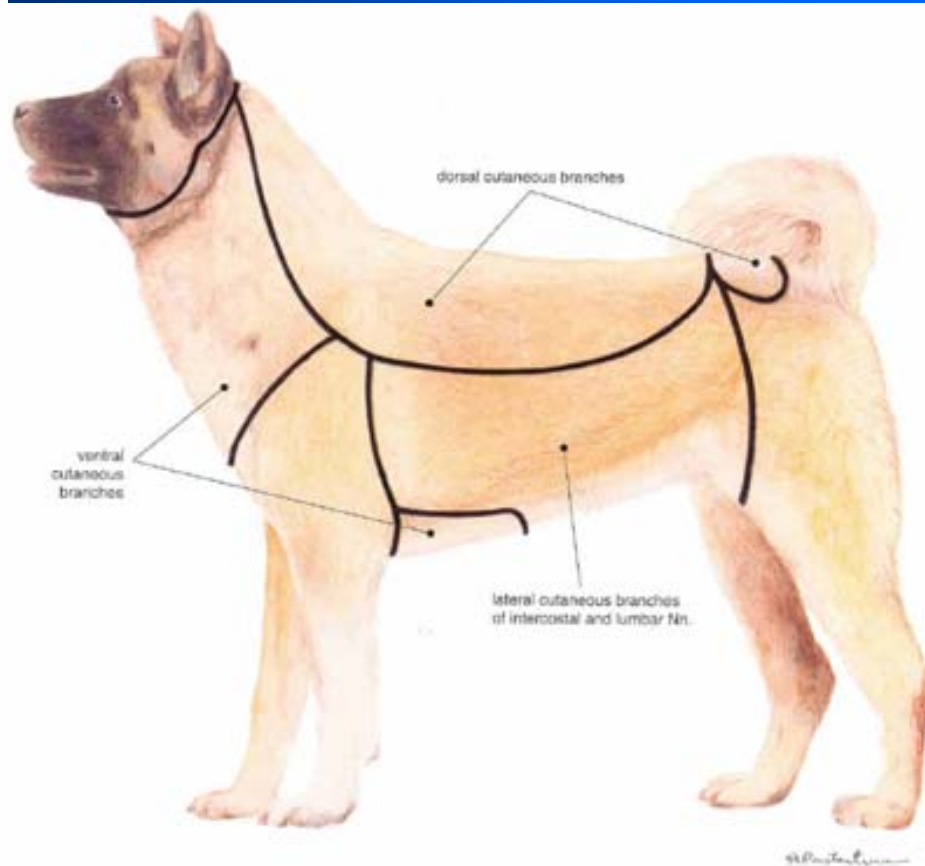
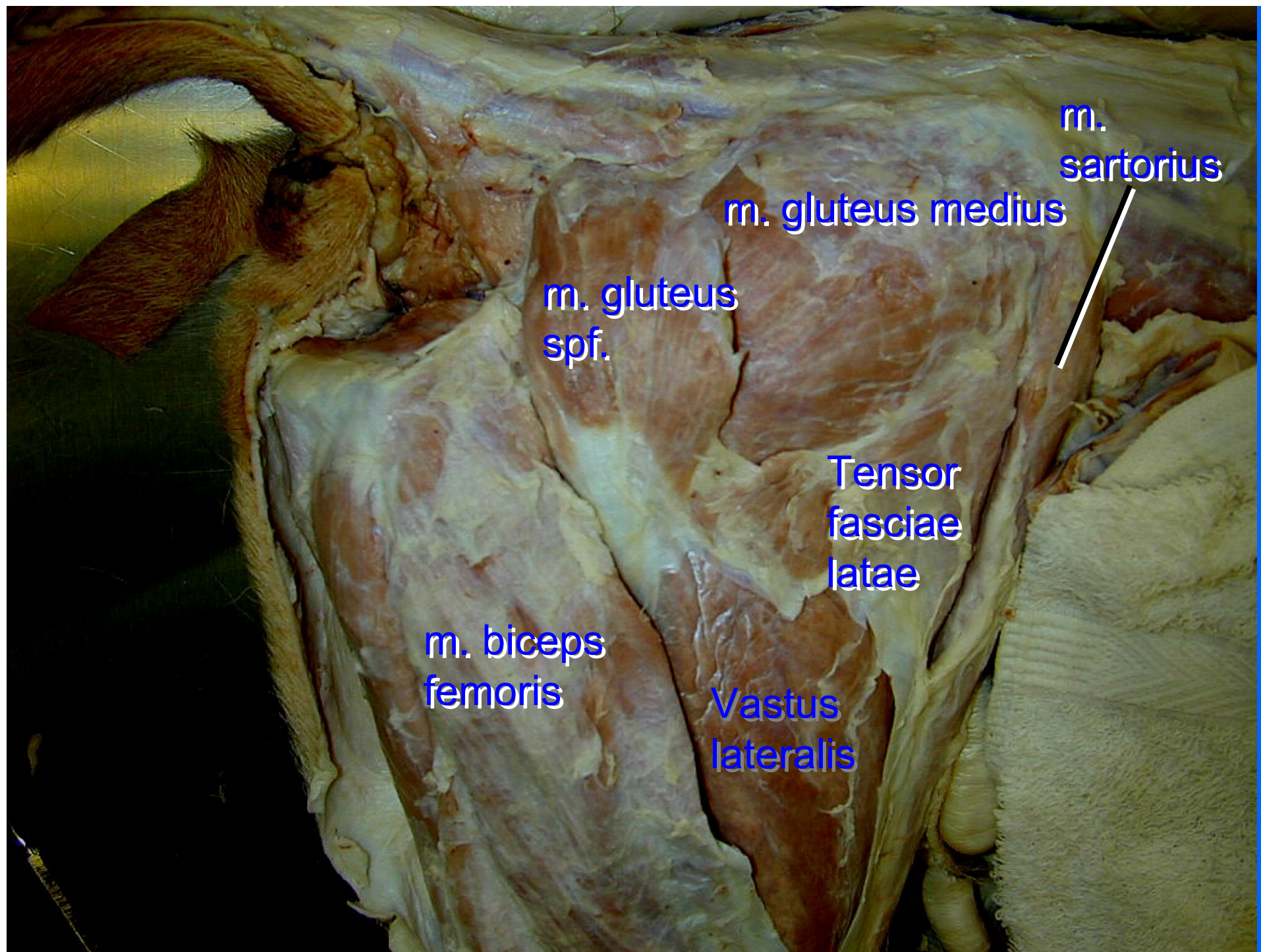


Fig. 1.56. Cutaneous innervation of the body, lateral aspect—dog. (Modified with permission from Evans, 1993, *Miller's Anatomy of the Dog*, 3rd ed. W. B. Saunders Co.)





m.  
sartorius

m. gluteus medius

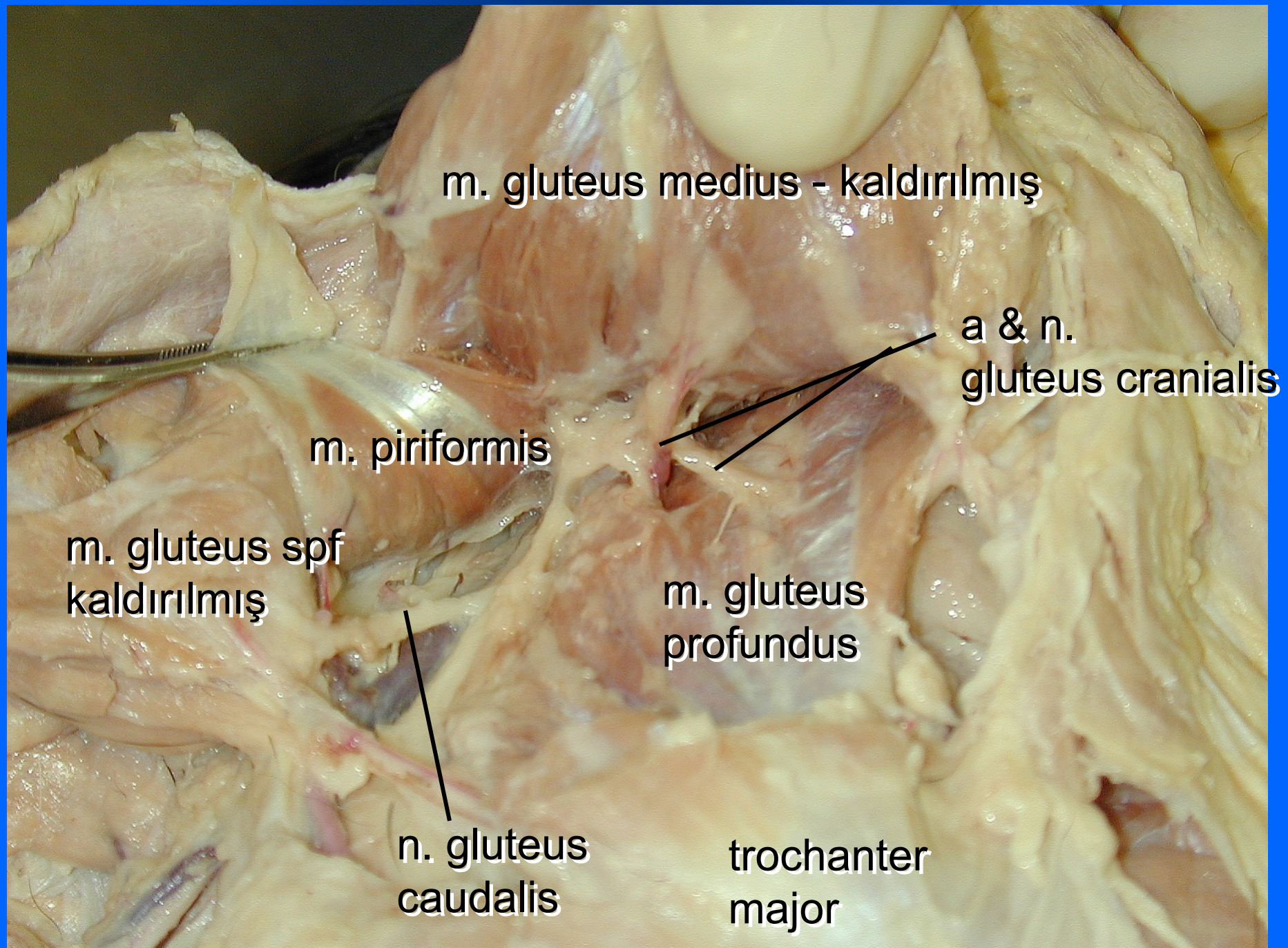
m. gluteus  
spf.

Tensor  
fasciae  
latae

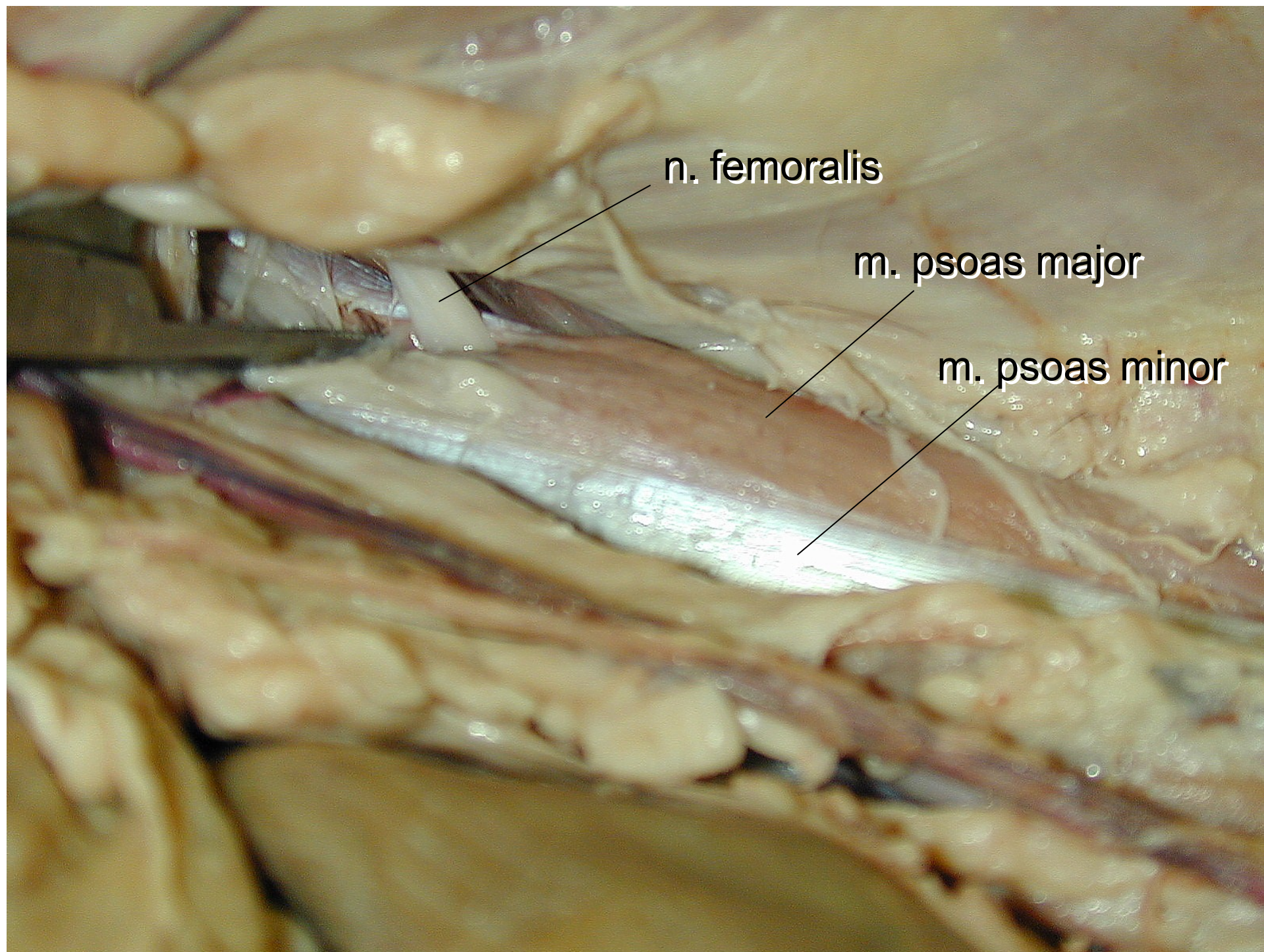
m. biceps  
femoris

Vastus  
lateralis







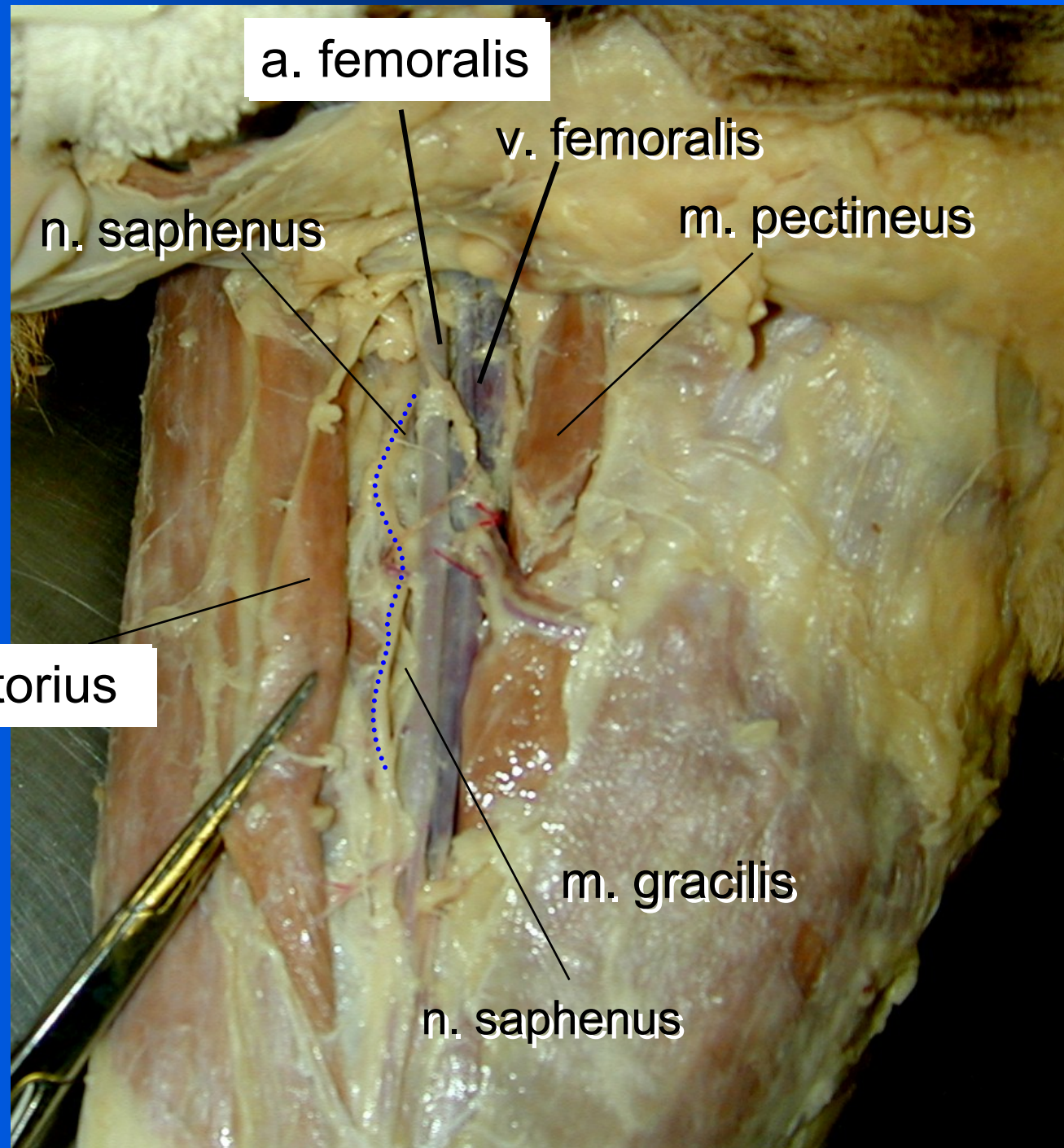


n. femoralis

m. psoas major

m. psoas minor





a. femoralis

v. femoralis

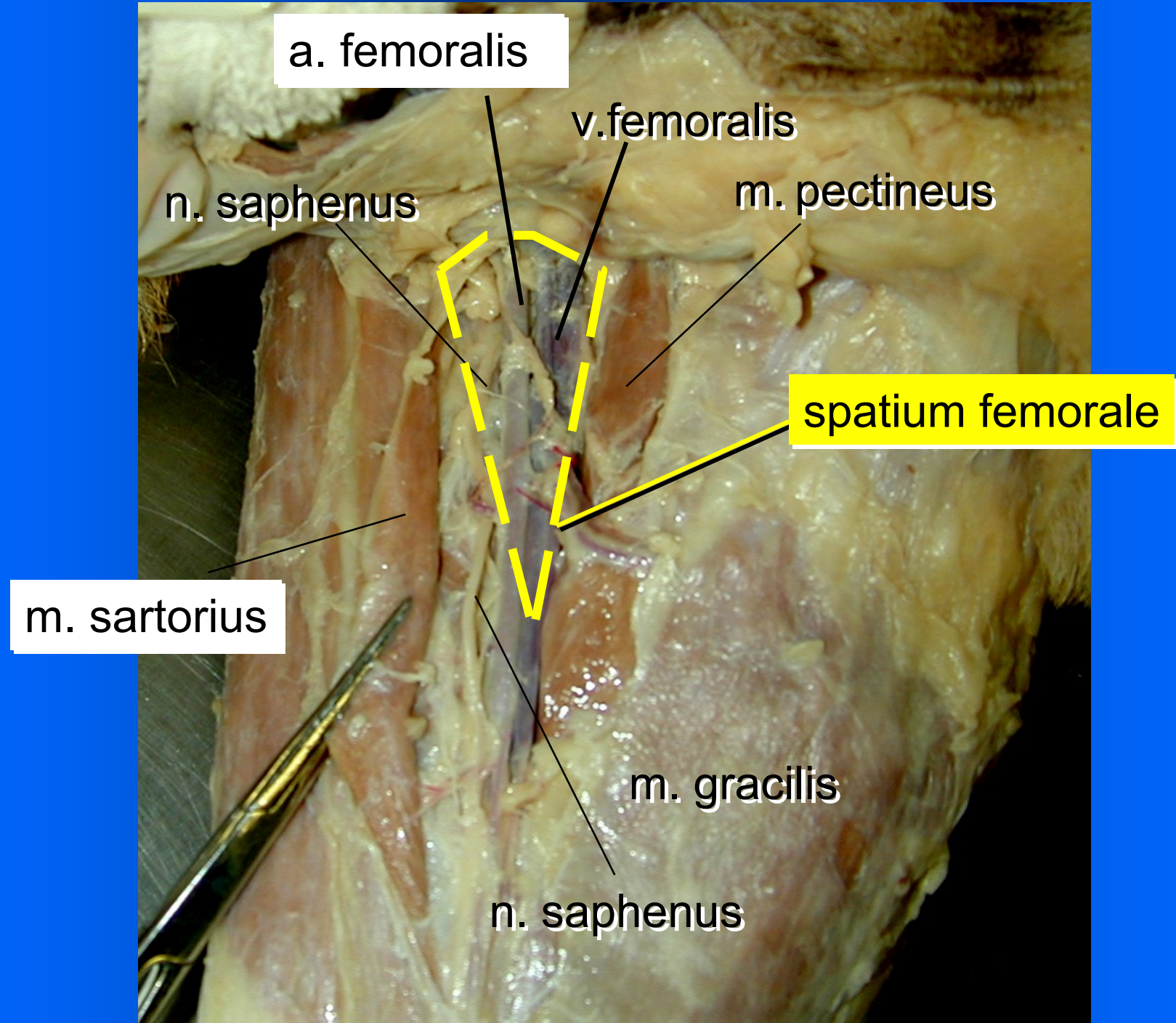
n. saphenus

m. pectineus

m. sartorius

m. gracilis

n. saphenus





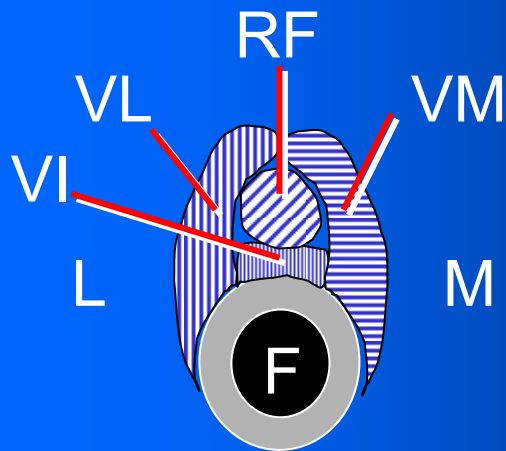
n. femoralis

Vastus lateralis

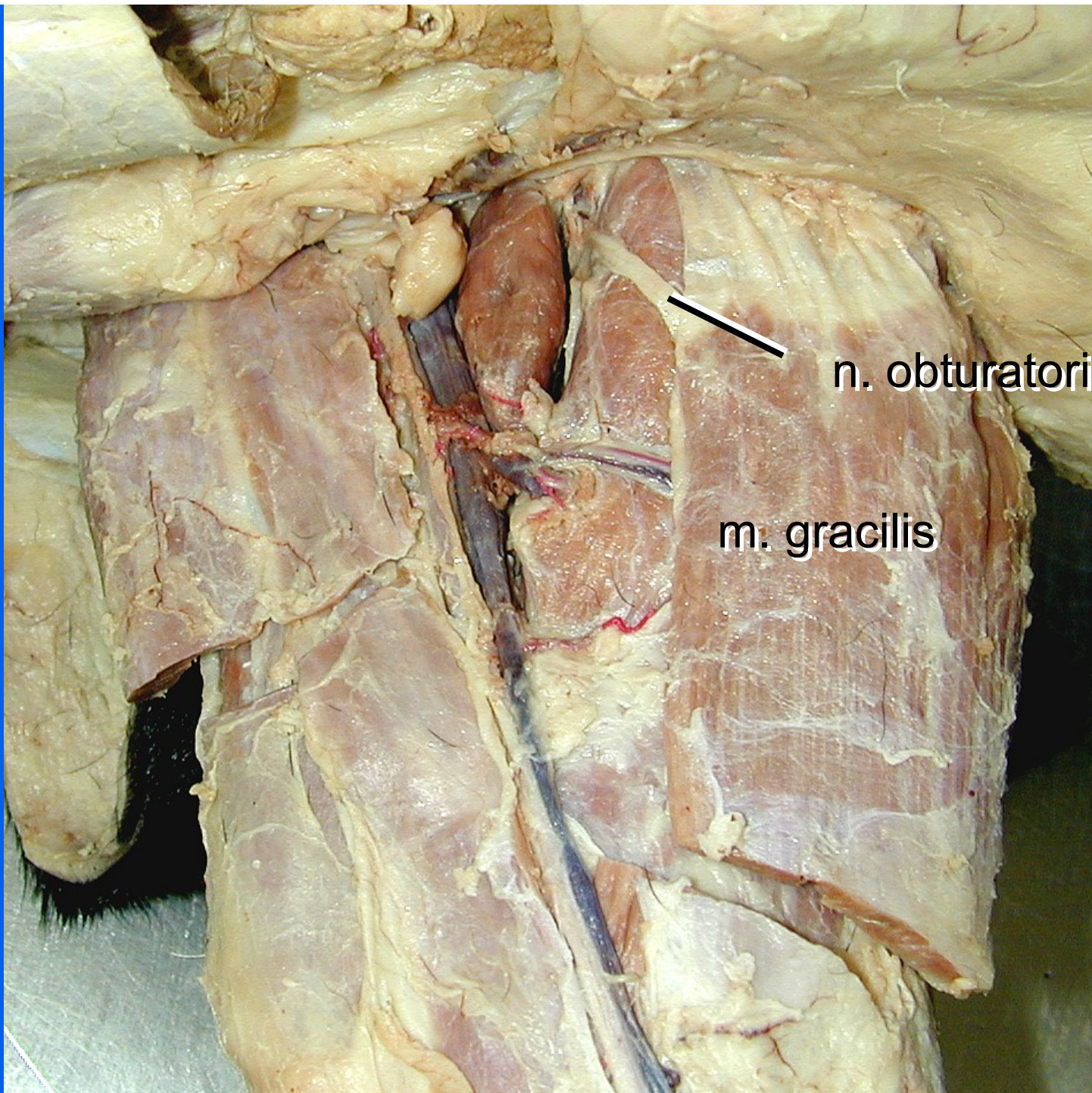
Vastus intermedius

Vastus medialis

Rectus femoris



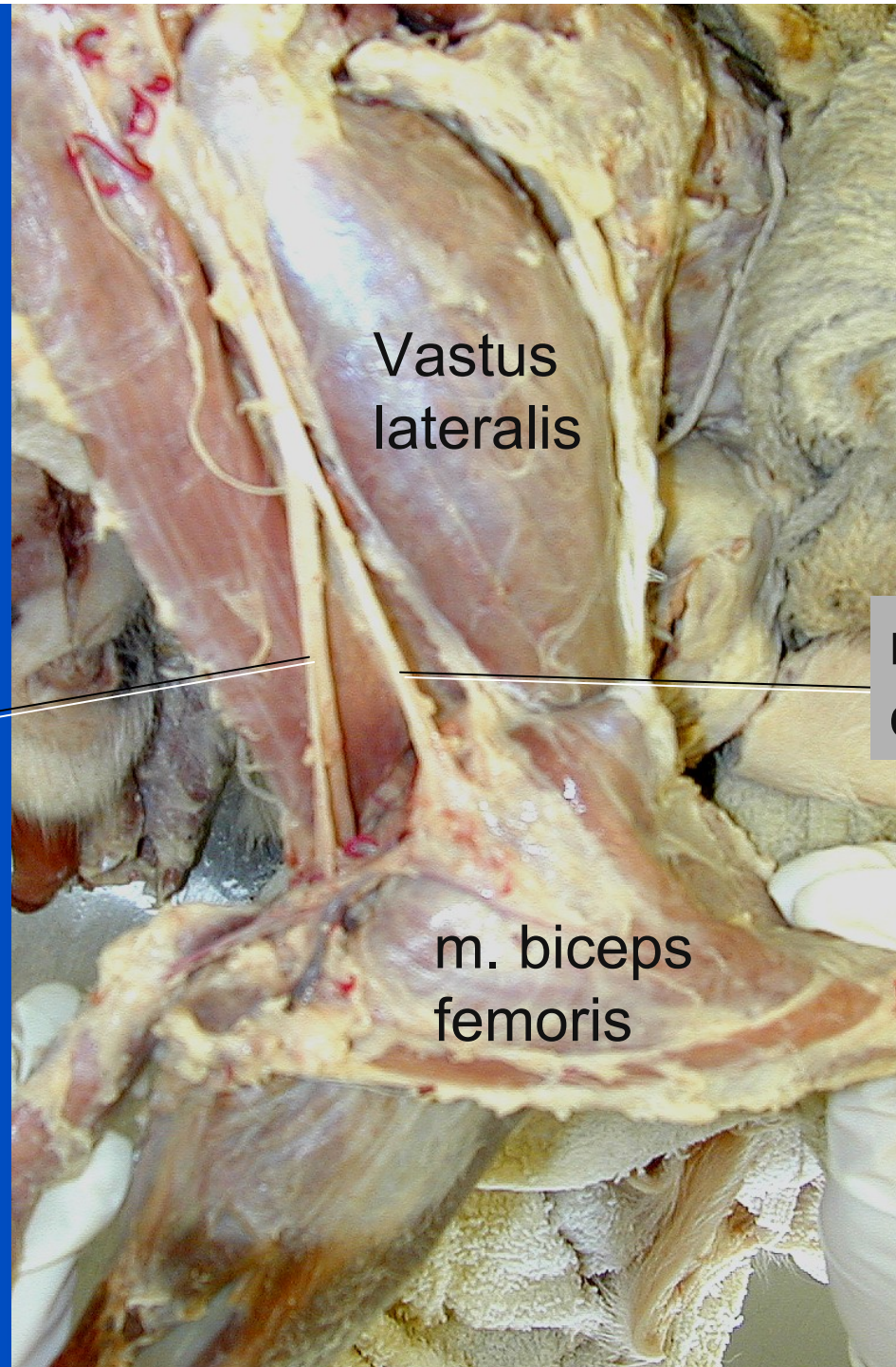




n. obturatorius

m. gracilis





Vastus  
lateralis

n. tibialis

n. peroneus  
communis

m. biceps  
femoris



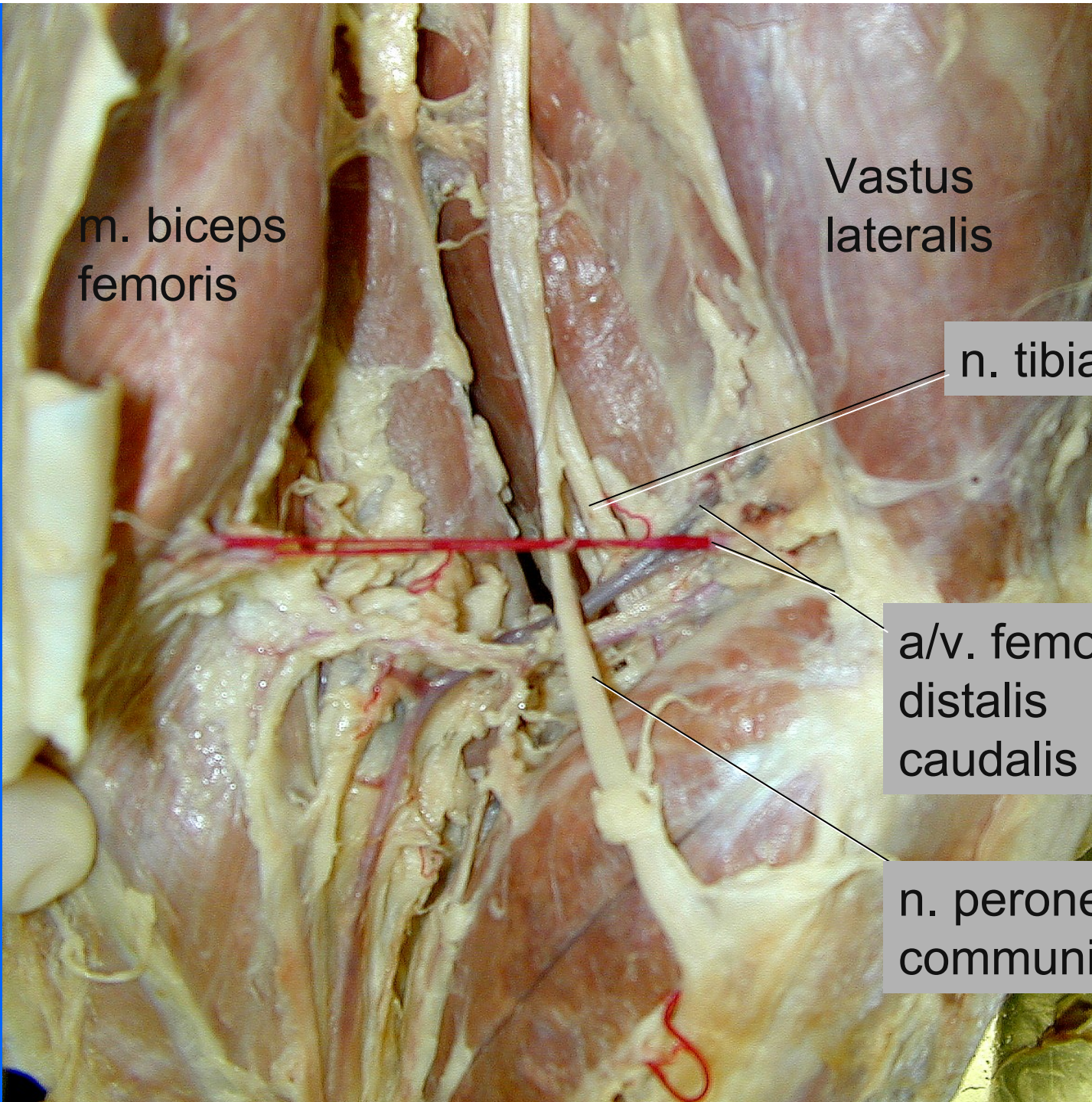
m. biceps  
femoris

Vastus  
lateralis

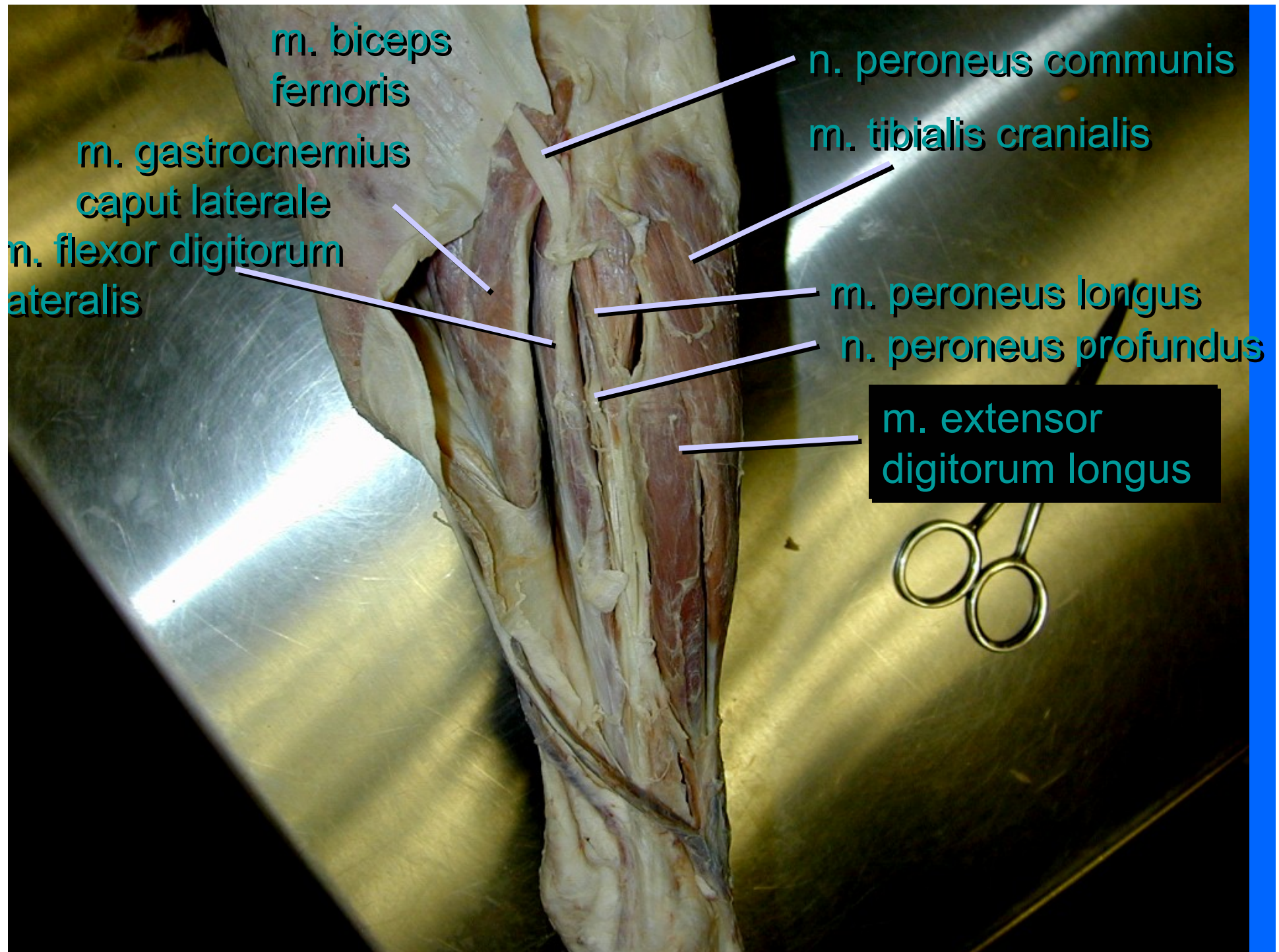
n. tibialis

a/v. femoris  
distalis  
caudalis

n. peroneus  
communis







m. biceps  
femoris

m. gastrocnemius  
caput laterale

m. flexor digitorum  
lateralis

n. peroneus communis

m. tibialis cranialis

m. peroneus longus

n. peroneus profundus

m. extensor  
digitorum longus

