

**SRI MUTHUKUMARAN MEDICAL COLLEGE HOSPITAL
AND RESEARCH INSTITUTE**

DEPARTMENT OF ANATOMY

GROSS SPOTTERS FOR I M.B.B.S

Lower Limb

DISCLAIMER

All the pictures in this Spotters are taken from the specimens available in the Department of Anatomy, Sri Muthukumaran Medical College Hospital and Research Institute, Chennai. This is strictly for study purpose by students only. Unauthorized copyright, publishing or broadcasting in any form is not permitted.

SPOTTER LL-1



- A. Identify the red starred structure
- B. Give its Nerve supply and Action.

ANSWER SPOTTER LL-1

A. Adductor longus

B. Nerve supply – Anterior division of obturator nerve

Action - Adduction of thigh

SPOTTER LL-2



- A. Identify the red starred structure
- B. Give its parts, Nerve supply and action.

ANSWER SPOTTER LL-2

A. Adductor magnus

B. Parts- Ischial and adductor part

Nerve supply- Adductor part- posterior division of obturator nerve

Ischial part- Tibial part of Sciatic nerve

Action- Upper part of adductor magnus- flexion of thigh

Lower part of adductor magnus- extension of hip and flexion of knee

SPOTTER LL-3



- A. Identify the red starred structure
- B. Give its Nerve supply and Action.

ANSWER SPOTTER LL-3

A. Gastrocnemius

B. Nerve supply- Tibial nerve

Action- Plantar flexion of foot

SPOTTER LL-4



- A. Identify the red starred structure
- B. Give its insertion, nerve supply and action.

ANSWER SPOTTER LL-4

A. Gracilis

B. Insertion: Upper part of medial surface of shaft of tibia

Nerve supply- anterior division of obturator nerve

Action- flexion and medial rotation of thigh

SPOTTER LL-5



- A. Identify the red starred structure
- B. Name the muscles attached to it and give its function.

ANSWER SPOTTER LL-5

A. Ilio-tibial tract

B. Muscles attached to it: Gluteus maximus and Tensor fascia lata

Function: 1. Stabilise the knee both in extension and partial flexion

2. In leaning forwards with slightly flexed knee, the tract is the main support of the knee against gravity.

SPOTTER LL-6



- A. Identify the pinned structure
- B. Give its nerve supply and Action.

ANSWER SPOTTER LL-6

- A. Adductor hallucis
- B. Nerve supply –Deep branch of lateral plantar nerve

Action- adduction of great toe towards second toe, maintains the transverse arch of foot

SPOTTER LL-7



- A. Identify the pinned structure
- B. Give its nerve supply and Action.

ANSWER SPOTTER LL-7

A. First lumbrical

B. Nerve supply – Medial plantar nerve

Action- Extension of interphalangeal joints

SPOTTER LL-8



- A. Identify the red starred structure
- B. Give its nerve supply and Action.
- C. Give its clinical importance.

ANSWER SPOTTER LL-8

A. Gluteus maximus

B. Nerve supply – inferior gluteal nerve (L5,S1,S2)

Action- Chief extensor of hip joint

Lateral rotation of thigh

Abduction of thigh

Stabilise the knee through iliotibial tract

C. Clinical Importance- Intramuscular injections in the anterosuperior quadrant of gluteal region

SPOTTER LL-9



- A. Identify the pinned structure
- B. Give its attachment.

ANSWER SPOTTER LL-9

A. Ligament of head of femur

B. Attachment

Apex- attached to fovea capitis

Base- Transverse ligament and margins of the acetabular ligament

SPOTTER LL-10



- A. Identify the red starred structure
- B. Give its attachment, nerve supply and action.

ANSWER SPOTTER LL-10

- A. Long head of biceps femoris
- B. Origin: Inferomedial impression of upper part of ischial tuberosity

Insertion: Head of fibula in front of apex or styloid process

Nerve supply: Tibial part of sciatic nerve

Action: Flexion of knee joint, Medial rotation of leg in semiflexed knee

SPOTTER LL-11



- A. Identify the pinned structure
- B. Give its Nerve supply and Action.

ANSWER SPOTTER LL-11

A. Pectineus

B. Nerve supply:

Anterior fibers- Femoral nerve

Posterior Fibers- Anterior division of obturator
nerve

Action: Flexion and adduction of thigh

SPOTTER LL-12



- A. Identify the pinned structure
- B. Give its attachment.
- C. Name the structure passing below it.

ANSWER SPOTTER LL-12

A. Superior peroneal retinaculum

B. Attachment

Anterior- posterior margin of lateral malleolus

Posterior- Lateral surface of calcaneum

C. Structures passing below it

Peroneus longus and peroneus brevis

SPOTTER LL-13



- A. Identify the pinned structure.
- B. Give its Nerve supply and Action.

ANSWER SPOTTER LL-13

A. Peroneus brevis

B. Nerve supply – superficial peroneal nerve

Action – Evertor of foot

SPOTTER LL-14



- A. Identify the red starred structure
- B. Give its insertion, nerve supply and action .

ANSWER SPOTTER LL-14

A. Peroneus longus

B. Insertion: Base of first metatarsal and medial cuneiform bone

Nerve supply – superficial peroneal nerve

Action – Evertor of foot

Maintains longitudinal and transverse arch of foot

SPOTTER LL-15



- A. Identify the pinned structure
- B. Give its attachment and function
- C. Give its morphology

ANSWER SPOTTER LL-15

A. Plantar aponeurosis

B. Attachment

Apex- medial tubercle of calcaneum

Base- divided into five processes near head of metatarsal bones.

Each process divides into superficial and deep slip. Superficial slip- attached to skin and deep skin blend with fibrous flexor sheath of toes

Function- 1. Fixes the skin of the sole

2. It protects deeper structures

3. Maintaining the longitudinal arches of foot

4. Gives origin to muscles of first layer of sole

C. Morphology- Separated part of plantaris muscle due to enlargement of heel

SPOTTER LL-16



- A. Identify the red starred structure
- B. Give its Nerve supply and Action.

ANSWER SPOTTER LL-16

A. Popliteus

B. Nerve supply – Tibial nerve

Action- Unlocking of knee joint by lateral rotation of femur on tibia prior to flexion

SPOTTER LL-17



- A. Identify the red starred structure.
- B. Give its attachment, nerve supply and action .

ANSWER SPOTTER LL-17

A. Rectus femoris

B. Origin: Straight head- Anterior inferior iliac spine

Reflected head- Groove above the margin of acetabulum

Insertion – base of patella

Nerve supply – Femoral nerve

Action- Extensor of knee joint and flexor of hip joint

SPOTTER LL-18



- A. Identify the red starred structure
- B. Give its attachment, nerve supply and action.

ANSWER SPOTTER LL-18

A. Sartorius

B. Origin: Anterior superior iliac spine and upper half of the notch below the spine

Insertion: Upper part of medial surface of shaft of tibia

Nerve supply – femoral nerve

Action- Abductor and lateral rotator of thigh

Flexion of knee joint

SPOTTER LL-19



- A. Identify the red starred structure
- B. Give its attachment, nerve supply and action.

ANSWER SPOTTER LL-19

A. Semimembranosus

B. Origin: Superolateral impression of upper part of ischial tuberosity

Insertion: posterior surface of medial condyle of tibia

Nerve supply: Tibial part of Sciatic nerve

Action: Chief flexor of knee

Medial rotation of leg in semiflexed knee

SPOTTER LL-20



- A. Identify the red starred structure
- B. Give its attachment, nerve supply and action.

ANSWER SPOTTER LL-20

A. Semitendinosus

B. Origin: Inferomedial impression of upper part of ischial tuberosity

Insertion: Upper part of medial surface of shaft of tibia

Nerve supply: Tibial part of Sciatic nerve

Action: Chief flexor of knee

Medial rotation of leg in semiflexed knee

SPOTTER LL-21



- A. Identify the red starred structure
- B. Give its attachment, nerve supply and action.

ANSWER SPOTTER LL-21

- A. Short head of biceps femoris
- B. Origin: lateral lip of linea aspera and upper two thirds of lateral supracondylar line

Insertion: Head of fibula in front of apex or styloid process

Nerve supply: Common peroneal part of Sciatic nerve

Action- Chief flexor of knee

Lateral rotator of leg in semiflexed knee

SPOTTER LL-22



- A. Identify the red starred structure.
- B. Give its Nerve supply and Action.

ANSWER SPOTTER LL-22

- A. Soleus (Peripheral heart)
- B. Nerve supply – Tibial nerve
Action – Plantar flexion of foot

SPOTTER LL-23



- A. Identify the red starred structure
- B. Give its components
- C. Give its attachment.

ANSWER SPOTTER LL-23

- A. Tendocalcaneus
- B. Components: Medial and lateral heads of gastrocnemius, soleus
- C. Attachment: Middle $1/3^{\text{rd}}$ of posterior surface of calcaneum

SPOTTER LL-24



- A. Identify the pinned structure
- B. Give its insertion, nerve supply and action.

ANSWER SPOTTER LL-24

- A. Tendon of flexor digitorum longus
- B. Insertion: plantar surface of base of distal phalanx of lateral four toes

Nerve supply: Tibial nerve

Action: Flexion of distal phalanx of lateral four toes

Plantar flexion of ankle joint

Supports medial and lateral longitudinal arch of foot

SPOTTER LL-25



- A. Identify the red starred structure
- B. Give its insertion, nerve supply and action.

ANSWER SPOTTER LL-25

- A. Tendon of flexor hallucis longus
- B. Insertion: plantar surface of base of distal phalanx of big toe

Nerve supply: Tibial nerve

Action: Flexion of distal phalanx of big toe

Plantar flexion of ankle joint

Supports medial longitudinal arch of foot

SPOTTER LL-26



- A. Identify the red starred structure
- B. Give its insertion, nerve supply and action.

ANSWER SPOTTER LL-26

A. Tensor fascia lata

B. Insertion: Iliotibial tract

Nerve supply: Superior gluteal
nerve(L4,L5,S1)

Action: Abduction and medial rotation of
thigh

SPOTTER LL-27



- A. Identify the red starred structure
- B. Give its attachment, nerve supply and action.

ANSWER SPOTTER LL-27

A. Tibialis anterior

B. Origin: Lateral condyle and upper 2/3rd of lateral surface of shaft of tibia

Insertion: Medial cuneiform and base of first metatarsal bone

Nerve Supply: Deep peroneal nerve

Action: Dorsiflexion of foot

Invertor of foot

Maintains medial longitudinal arch of foot

SPOTTER LL-28



- A. Identify the red starred structure
- B. Give its insertion, nerve supply and action.

ANSWER SPOTTER LL-28

- A. Tibialis posterior
- B. Insertion: Tuberosity of navicular bone and other tarsal bones except talus, base of 2nd, 3rd and 4th metatarsal bones

Nerve Supply: Tibial nerve

Action: Plantar flexion of ankle joint

Invertor of foot

Maintains medial longitudinal arch of foot

SPOTTER LL-29



- A. Identify the tied structure.
- B. What it is a branch of?
- C. Give its root value.
- D. Name the muscles supplied by it.

ANSWER SPOTTER LL-29

- A. Anterior division of obturator nerve
- B. It is a branch of lumbar plexus
- C. Root value: Ventral division of anterior primary rami of L2,L3,L4
- D. Muscles Supplied by it: Pectineus, adductor longus, Gracilis, Adductor brevis (if not supplied by posterior division)

SPOTTER LL-30



- A. Identify the tied structure.
- B. What it is a branch of ?
- C. Give its branches.
- D. What does it continues as?

ANSWER SPOTTER LL-30

- A. Anterior tibial artery
- B. It is a branch from popliteal artery at the lower border of popliteus
- C. Branches: 1. Muscular branches
2. Anterior tibial recurrent 3. Posterior tibial recurrent 4. Anterior medial malleolar
5. anterior lateral malleolar
- D. It continues as dorsalis pedis artery at the midway between two malleoli

SPOTTER LL-31



- A. Identify the tied structure
- B. What it is a branch of ?
- C. Give its root value.
- D. Give its terminal branches.
- E. Give its cutaneous branches.
- F. Name the muscles supplied by it.
- G. Give its applied aspect

ANSWER SPOTTER LL-31

- A. Common peroneal nerve
- B. It is a branch from Sciatic nerve given off at the superior angle of popliteal fossa
- C. Root value: Dorsal division of anterior primary rami of L4,L5,S1 and S2.
- D. Terminal branches: Superficial and deep peroneal nerve (at the lateral side of neck of fibula)
- E. Muscles supplied by it: Short head of biceps femoris
- F. Cutaneous branch: Lateral cutaneous nerve of calf and sural communicating nerve
- G. Applied aspect: Foot drop

SPOTTER LL-32



- A. Identify the tied structure.
- B. What it is a branch of?
- C. Name the muscles supplied by it.

ANSWER SPOTTER LL-32

- A. Deep peroneal nerve
- B. It is a branch from common peroneal nerve given off at the lateral side of neck of fibula
- C. Muscles supplied by it:
 - 1. Tibialis anterior
 - 2. Extensor digitorum longus
 - 3. Extensor hallucis longus
 - 4. Peroneus tertius

SPOTTER LL-33



- A. Identify the tied structure
- B. What it is a continuation of?
- C. Give its branches.
- D. Give its extent.
- E. What does it continue further as?

ANSWER SPOTTER LL-33

- A. Femoral artery
- B. It is a continuation of External iliac artery
- C. Branches: **Superficial branches** 1. Superficial circumflex iliac A. 2. Superficial external pudendal A. 3. Superficial epigastric A.
Deep Branches 1. Deep external Pudendal A. 2. Profunda Femoris A. 3. Muscular branches
- D. Extent : from mid inguinal point to the adductor hiatus
- E. It continues as popliteal artery

SPOTTER LL-34



- A. Identify the tied structure.
- B. What it is a branch of ?
- C. Give its root value.
- D. Name the muscles supplied by it.
- E. Give its cutaneous branches.

ANSWER SPOTTER LL-34

- A. Femoral nerve
- B. It is a branch from lumbar plexus
- C. Root value: Dorsal division of anterior primary rami of L2,L3,L4
- D. Muscles supplied by it:
 - Anterior division- Sartorius
 - Posterior division- Rectus femoris, vastus medialis, vastus lateralis and vastus intermedius
- E. Cutaneous branches
 - Anterior division – medial and intermediate cutaneous nerve of thigh
 - Posterior division- Saphenous nerve

SPOTTER LL-35



- A. Identify the tied structure.
- B. Give its formation .
- C. Give its termination.
- D. Give its tributaries.

ANSWER SPOTTER LL-35

- A. Popliteal vein
- B. Formation: It is a continuation of popliteal vein
- C. Termination: It continues as external iliac vein
- D. Tributaries:
 - 1. Great saphenous vein
 - 2. Profunda femoris vein, deep external pudendal and muscular veins
 - 3. Lateral and medial circumflex veins
 - 4. Descending genicular vein and muscular veins in the adductor canal

SPOTTER LL-36

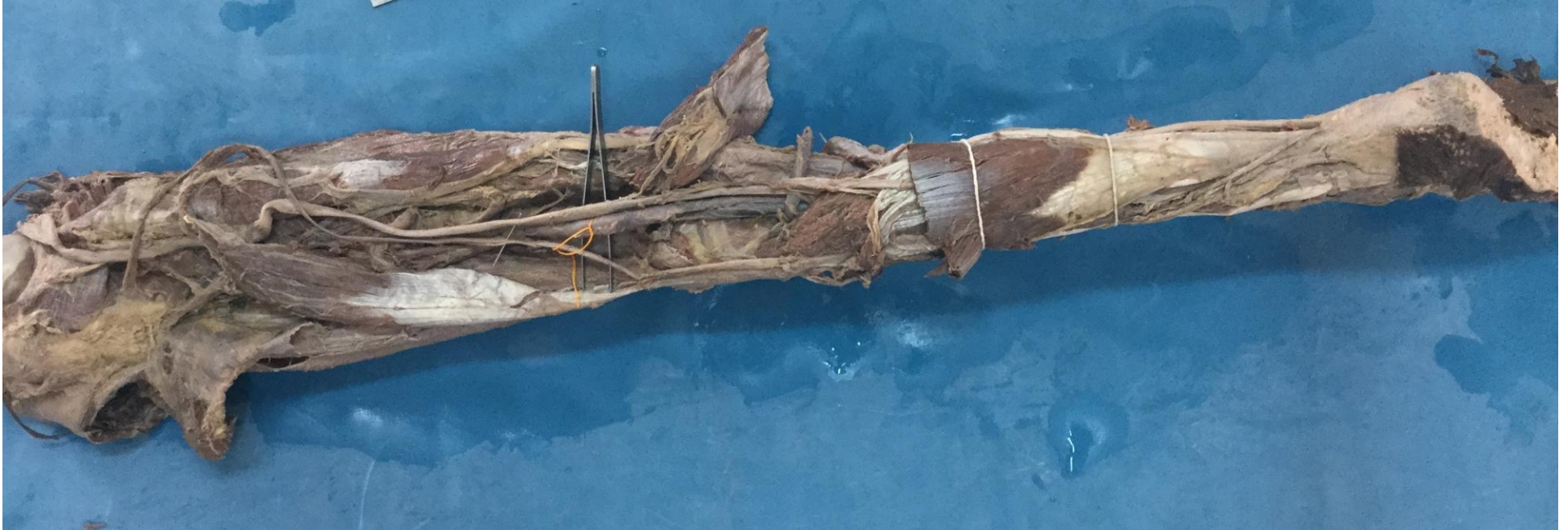


- A. Identify the tied structure.
- B. What is it a continuation of ?
- C. Give its extent.
- D. Give its branches.
- E. Give its applied aspect.

ANSWER SPOTTER LL-36

- A. Popliteal artery
- B. It is a continuation of femoral artery
- C. Extent – From the hiatus magnus to the lower border of popliteus
- D. Branches -1. Muscular branches
 - 2. Genicular branches- Middle genicular, Medial and lateral superior genicular, medial and lateral inferior genicular
 - 3. Cutaneous branches 4. **Terminal branches**- Anterior tibial and posterior tibial artery
- E. Blood pressure in the lower limb can be recorded.

SPOTTER LL-37



- A. Identify the tied structure.
- B. Give its formation .
- C. Give its termination.
- D. Give its tributaries.

ANSWER SPOTTER LL-37

- A. Popliteal vein
- B. Formation: anterior tibial and posterior tibial vein joins at the lower border of popliteus and forms popliteal vein
- C. Termination: Continues as femoral vein at hiatus magnus
- D. Tributaries:
 - 1. Small saphenous vein
 - 2. Veins Corresponding to the branches of popliteal artery

SPOTTER LL-38



- A. Identify the tied structure
- B. What is it a branch of?
- C. Give its root value.
- D. Name the muscles supplied by it

ANSWER SPOTTER LL-38

- A. Posterior division of obturator nerve
- B. It is a branch from lumbar plexus
- C. Root value: Ventral division of anterior primary rami of L2,L3 and L4
- D. Muscles Supplied by it: Obturator externus, Adductor magnus, Adductor brevis (if not supplied by anterior division)

SPOTTER LL-39



- A. Identify the tied structure
- B. What is it a branch of?
- C. Give its branches

ANSWER SPOTTER LL-39

- A. Posterior tibial artery
- B. It is a branch from popliteal artery given off at the lower border of popliteus
- C. Branches:
 - 1. Peroneal artery
 - 2. Muscular branches
 - 3. Nutrient artery to tibia
 - 4. Anastomotic branches – circumflex fibular A.
 - 5. **Terminal branches:** Medial plantar and lateral plantar artery

SPOTTER LL-40



- A. Identify the tied structure
- B. Name the muscles supplied by it
- C. Give its terminal branches

ANSWER SPOTTER LL-40

- A. Posterior tibial nerve
- B. Muscles supplied by it
 - 1. Tibialis posterior 2. Flexor digitorum longus
 - 3. Flexor hallucis longus 4. Deep part of soleus
- C. Terminal branches- Medial and lateral plantar nerve

SPOTTER LL-41



- A. Identify the tied structure
- B. Give its area of distribution.

ANSWER SPOTTER LL-41

- A. Saphenous nerve
- B. Area of supply – Skin of medial side of leg and medial border of foot upto ball of big toe

SPOTTER LL-42

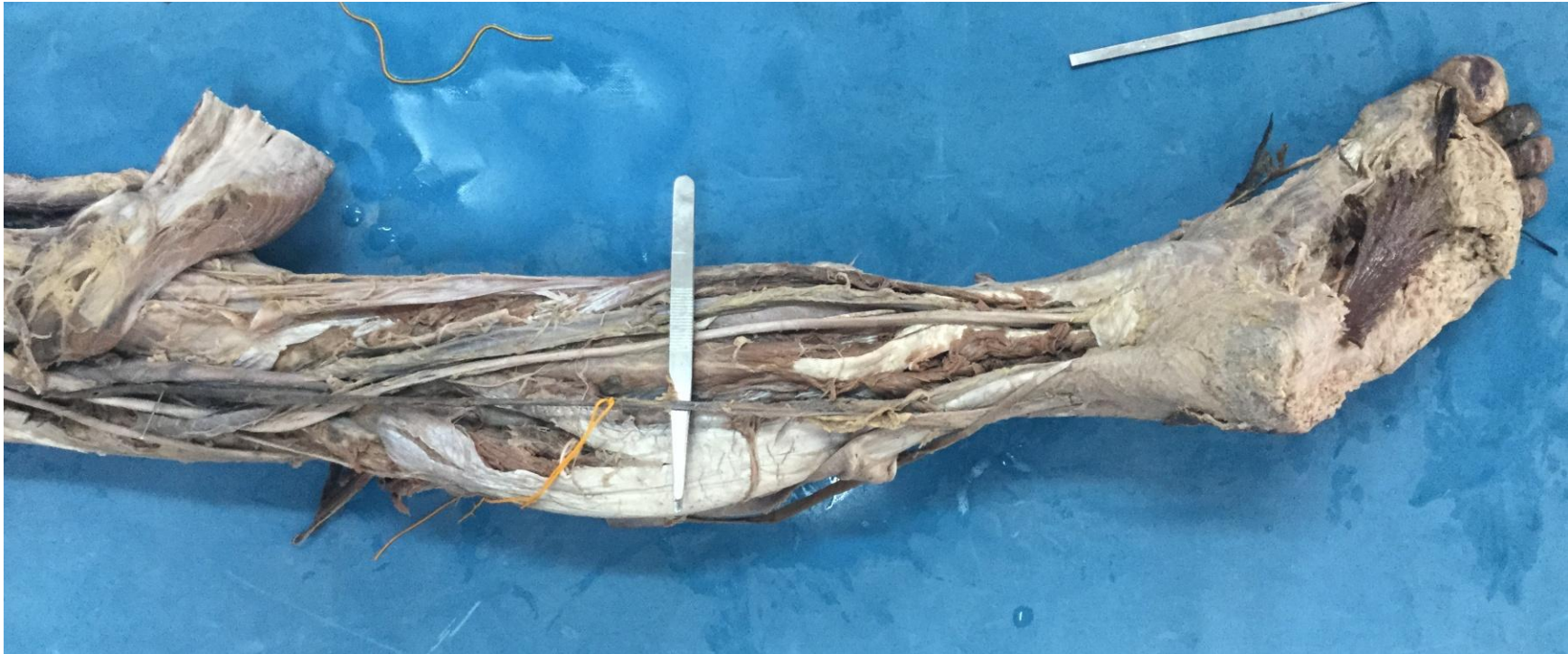


- A. Identify the tied structure.
- B. What is it a branch of?
- C. Give its root value.
- D. Give its terminal branches.
- E. Give its applied anatomy .

ANSWER SPOTTER LL-42

- A. Sciatic nerve
- B. It is a branch from sacral plexus
- C. Anterior primary rami of L4,L5, S1, S2 and S3 (both dorsal and ventral division).
- D. Terminal branches- tibial and common peroneal nerve (at the superior angle of popliteal fossa)
- E. Applied aspect: Sciatica

SPOTTER LL-43



- Identify the tied structure
- Give its formation.
- Give its termination.

ANSWER SPOTTER LL-43

- A. Short Saphenous vein
- B. Formation: Formed by the union of lateral marginal vein with lateral end of dorsal venous arch
- C. Termination: It drains into popliteal vein

SPOTTER LL-44



- A. Identify the tied structure
- B. What is it a branch of?
- C. Name the muscles supplied by it

ANSWER SPOTTER LL-44

- A. Superficial peroneal nerve
- B. It is a branch from Common peroneal nerve
(at the lateral side of neck of fibula)
- C. Muscles supplied by it: peroneus longus and
peroneus brevis

SPOTTER LL-45



- A. Identify the tied structure
- B. What is it a branch of?
- C. Give its root value.
- D. Name the muscles supplied by it.
- E. Give its cutaneous branch.

ANSWER SPOTTER LL-45

- A. Tibial nerve
- B. It is a branch from sciatic nerve (at the superior angle of popliteal fossa)
- C. Root value: ventral division of anterior primary rami of L4,L5,S1,S2 and S3.
- D. Muscles supplied by it: lateral and medial head of gastrocnemius, soleus, plantaris and popliteus
- E. Cutaneous branches: Sural nerve

SPOTTER LL-46



- A. Identify the pinned structure
- B. Give its attachment.
- C. Give its function.

ANSWER SPOTTER LL-46

- A. Anterior cruciate ligament
- B. Attachment: Posterior part of medial surface of lateral condyle of tibia
- C. Function: maintain anteroposterior stability of knee joint

SPOTTER LL-47



A. Give the cutaneous innervation of the shaded area

ANSWER SPOTTER LL-47

Cutaneous innervation of the shaded area

First interdigital cleft supplied by medial terminal branch of deep peroneal nerve

SPOTTER LL-48



- A. Identify the pinned structure.
- B. Name the structures passing through it
- C. Give its attachment.

ANSWER SPOTTER LL-48

- A. Flexor retinaculum
- B. Structures passing deep to it
 1. Tendon of tibialis posterior
 2. Tendon of Flexor digitorum longus
 3. Posterior tibial vessels
 4. Tibial nerve and its branches
 5. Tendon of Flexor hallucis longus
- C. Attachment
 - Anteriorly- Tip of medial malleolus
 - Posteriorly- medial tubercle of calcaneum

SPOTTER LL-49



- A. Identify the pinned structure
- B. Name the structures passing deep to it.

ANSWER SPOTTER LL-49

- A. Inferior extensor retinaculum
- B. Structures passing deep to it:
 - 1. Tibialis anterior
 - 2. Extensor hallucis longus
 - 3. Anterior tibial vessels
 - 4. Deep peroneal nerve
 - 5. Extensor digitorum longus
 - 6. Peroneus tertius

SPOTTER LL-50



- A. Identify the pinned structure
- B. Give its function.

ANSWER SPOTTER LL-50

A. Lateral meniscus

B. Functions:

1. Making the articular surfaces more congruent
2. Act as shock absorbers
3. Lubricates the joint cavity

SPOTTER LL-51



- A. Identify the pinned structure
- B. Give its attachment

ANSWER SPOTTER LL-51

A. Ligamentum patellae

B. Attachment

Above- Apex of patella

Below-Smooth, upper part of tibial tuberosity

SPOTTER LL-52



- A. Identify the pinned structure
- B. Give its function

ANSWER SPOTTER LL-52

A. Medial meniscus

B. Functions:

1. Making the articular surfaces more congruent
2. Act as shock absorbers
3. Lubricates the joint cavity

SPOTTER LL-53



- A. Identify the pinned structure
- B. Give its attachment
- C. Give its function .

ANSWER SPOTTER LL-53

- A. Posterior cruciate ligament
- B. Attachment: anterior part of lateral surface of medial condyle of tibia
- C. Function: maintain anteroposterior stability of knee joint

SPOTTER LL-54



- A. Identify the pinned structure
- B. Name the structures passing below it.
- C. Give its attachment.

ANSWER SPOTTER LL-54

- A. Superior extensor retinaculum
- B. Structures passing below it:
 - 1. Tibialis anterior
 - 2. Extensor hallucis longus
 - 3. Anterior tibial vessels
 - 4. Deep peroneal nerve
 - 5. Extensor digitorum longus
 - 6. Peroneus tertius
- C. Attachment
 - Medial- lower part of anterior border of tibia
 - lateral- Lower part of anterior border of fibula