

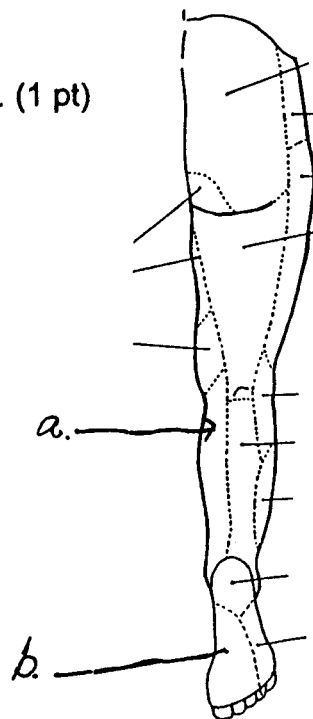
GROSS ANATOMY EXAMINATION I

August 29, 1997

PART I. Answer in the space provided. (18 pts)

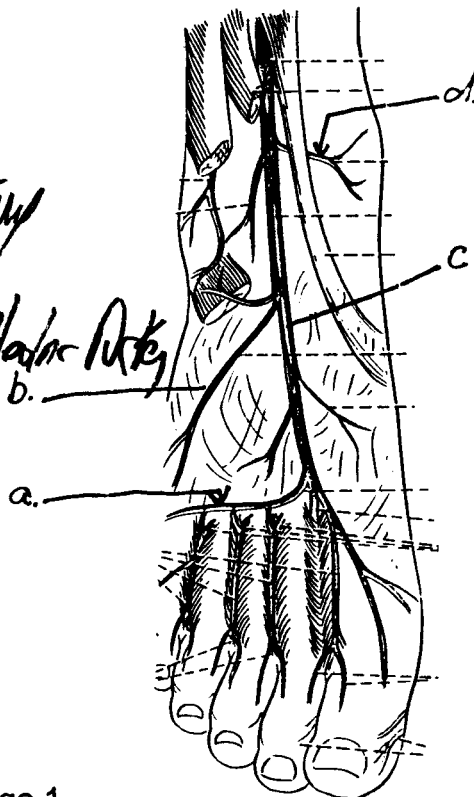
1. Identify the cutaneous innervation to the areas indicated. (1 pt)

- a. Saphenous Nerve
- b. Medial Plantar Nerve



2. Identify the arteries. (2 pts)

- a. Archie Artery
- b. Lateral Tarsal Artery
- c. Dorsalis Pedis
- d. Anterior Medial Malleolar Artery



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3. Identify the structures. (2 pts)

- a. Posterior Intercostal Artery
- b. Dorsal Rami (Posterior)
- c. Transversus Thoracis Muscle
- d. External Intercostal Nerve

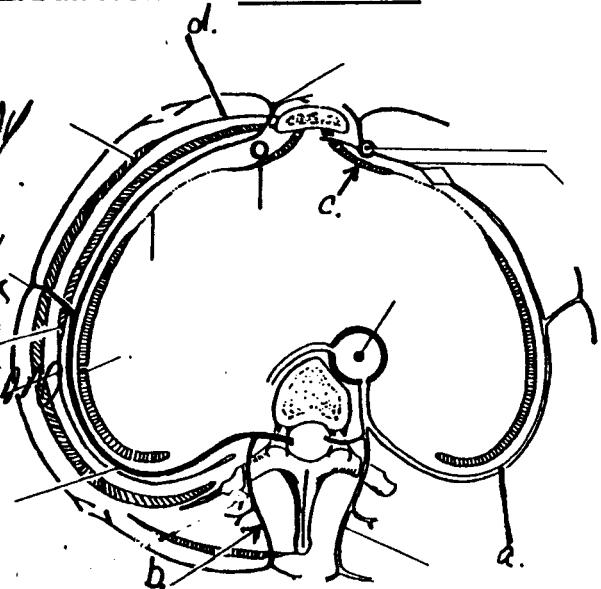
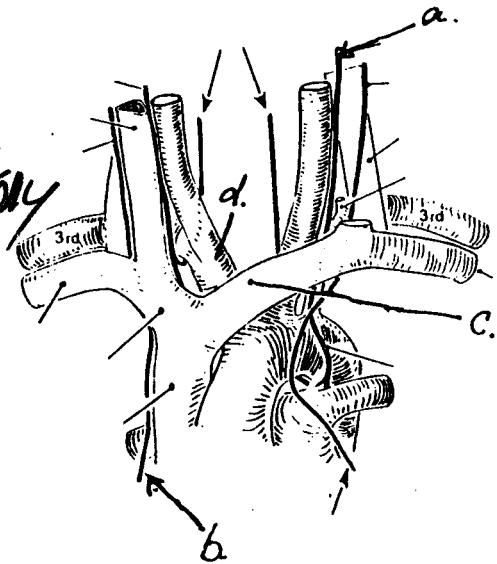


Figure 1.12. Schematic transverse section through thorax.

4. Identify the structures. (2 pts)

- a. Vagus Nerve
- b. Phrenic Nerve
- c. Left Brachiocephalic Vein
- d. Right Brachiocephalic Artery



5. Identify the structures. (1 pt)

- a. Left Ventricle
- b. Post. Interventricular Artery

b. Name this artery

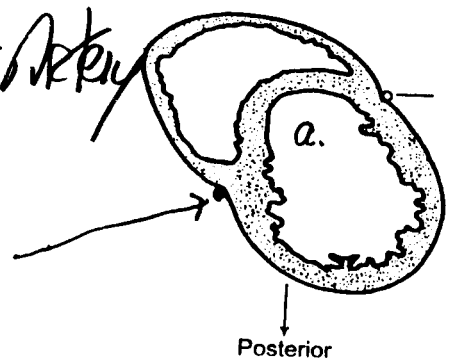
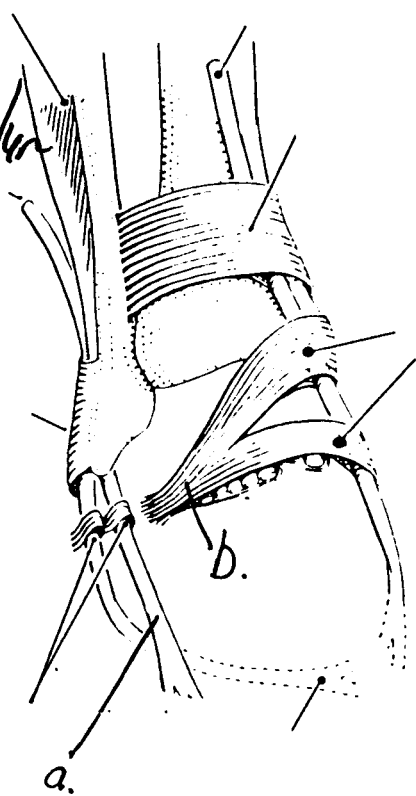


Figure 1. 34. Horizontal section through right and left ventricles.

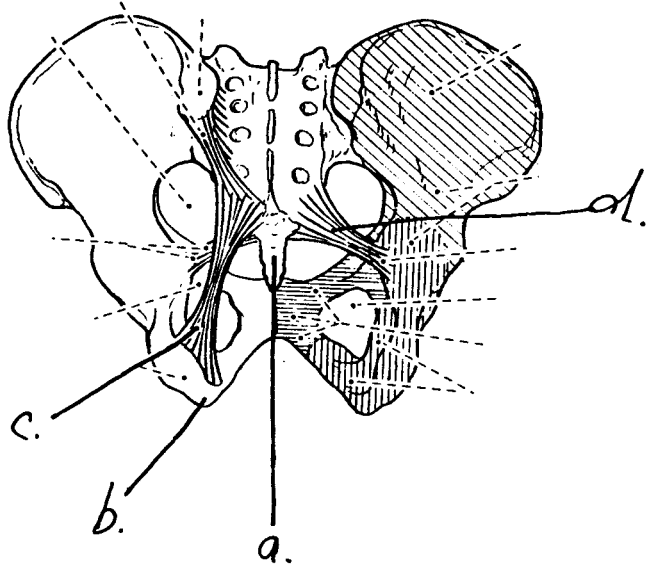
6. Identify the structures. (1 pt)

- a. Obonius Brevis Musc
- b. Inferior Extensor Rotator



7. Identify the structures. (2 pts)

- a. Coccyx
- b. Ischial Tuberosity
- c. Sacrospinous Ligament
- d. Sacrospinous Ligament



8. Identify the structures. (2 pts)

- a. Gracilis Muscle
- b. Semimembranosus Muscle
- c. Sciatic Nerve
- d. Vastus Lateralis Muscle

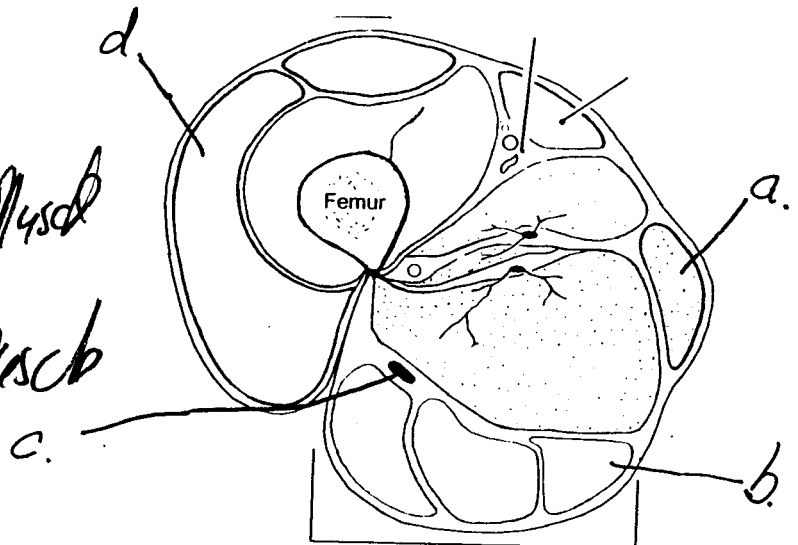
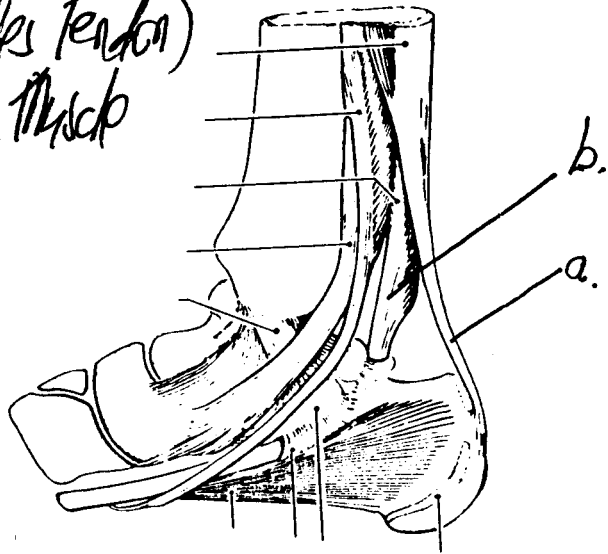


Figure 5.8. Transverse section of the right thigh

9. Identify the structures. (1 pt)

- a. Tendocalcaneus (Achilles Tendon)
- b. Fibre Hallucis Longus Muscle



10. Identify the arteries. (2 pt)

- a. Descending Branch of Circumflexa
- b. Anterior Tibial Recurrent
- c. Arteria genicularis
- d. Posterior Tibial

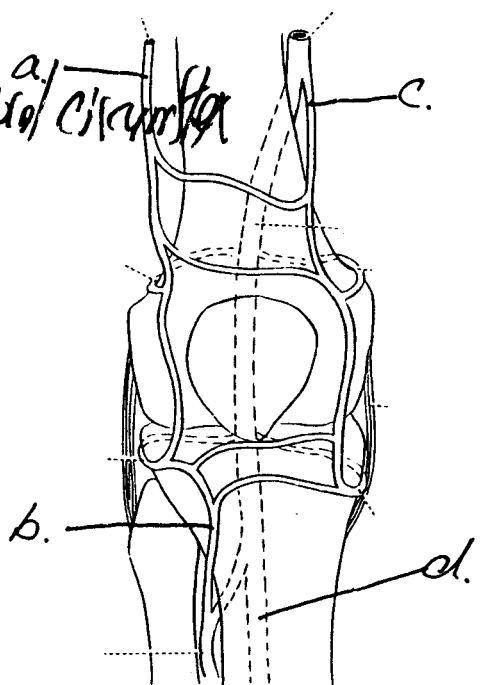
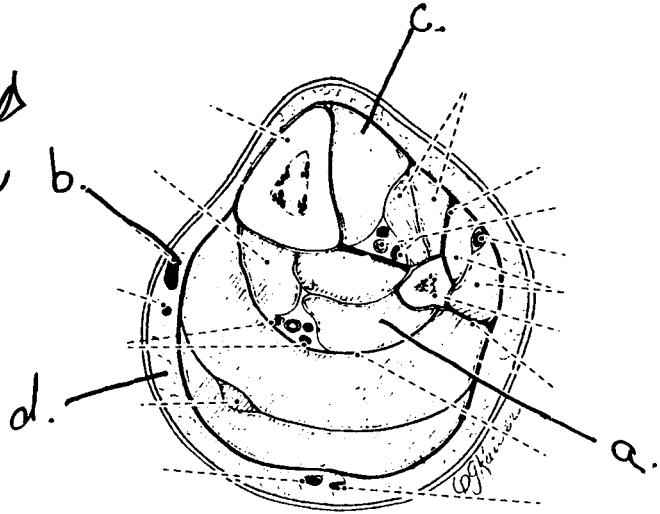


FIGURE 18-43. Diagram of the arteries that form an anastomosis around the knee joint and supply it; anterior view.

11. Identify the structures. (2 pts)

- a. Flexor Hallucis Longus
- b. Great Saphenous Vein
- c. Tibialis Anterior
- d. Deep Subcutaneous



Part II. Circle the correct answer. All, none, or some may apply. (30 pts)

1. Femoral hernias:

- a. Appear inferior and lateral to the pubic tubercle
- b. Descend into the thigh anterior to the inguinal ligament
- c. Have contents that are restricted laterally by the lacunar ligament
- d. Are located in the vascular lacuna

2. With regard to the thigh:

- a. The cribriform fascia is derived from the fascia lata
- b. The iliotibial tract is derived from the tela subcutanea
- c. The saphenous opening provides passage of the great saphenous vein to its termination in the popliteal vein
- d. The medial circumflex femoral artery passes to the back of the thigh between the pectineus and iliopsoas muscles

3. With respect to the gluteal region:

- a. The gluteus minimus serves to abduct the femur and rotate the thigh medialward
- b. The posterior femoral cutaneous nerve is located superior to the piriformis muscle
- c. Gluteal injections are given in the upper medial quadrant to avoid blood vessels and nerves
- d. The obturator externus passes through the lesser sciatic foramen

4. In regard to the thigh:

- a. Our definition of a hamstring muscle includes muscles originating from the ischial spine
- b. The ischial (posterior) component of the adductor magnus is supplied by the tibial portion of the sciatic nerve
- c. The nerve to the short head of the biceps femoris is the peroneal division of the sciatic nerve
- d. The peroneal division is located in the medial part of the sciatic nerve

5. In the leg:

- a. The popliteus muscle flexes the leg at the knee and rotates it laterally
- b. The popliteus muscle is innervated by the superficial peroneal nerve
- c. The flexor digitorum ^{longus} muscle takes origin from the fibula
- d. The circumflex fibular artery arises from the peroneal artery

6. In the foot:

- a. The extensor digitorum brevis muscle passes diagonally to the lateral four toes
- b. The medial plantar nerve innervates the quadratus plantae muscle
- c. A sesamoid bone is usually located in each head of the flexor hallucis brevis muscle
- d. The flexor digitorum brevis is innervated by the medial plantar nerve

7. Regarding the nervous system, which statement(s) is(are) correct:
- a. Each and every spinal nerve contains a white rami communicans in order to transmit a pre-ganglionic sympathetic nerve
 - b. Parietal pleura has sensations of touch and temperature
 - c. The dorsal root ganglion is a collection of cell bodies of efferent nerves
 - d. The diaphragm is skeletal muscle and is not innervated by the autonomic nervous system
8. With respect to the heart:
- a. The circumflex branch arises from the right coronary artery
 - b. The posterior interventricular artery provides blood to the anterior surface of the left ventricle
 - c. Chordae tendinae contract to maintain the atrioventricular valve when blood is transmitted from the atria to the ventricle
 - d. The SA node is located deep to the epicardium
9. With respect to the joints of the lower extremity:
- a. A syndesmosis is present between the tibia and fibular near the lateral condyle of the tibia
 - b. The anterior cruciate ligament is intracapsular but extrasynovial
 - c. The lateral meniscus is attached to the fibular collateral ligament
 - d. A portion of the popliteus muscle is extracapsular but intrasynovial

10. More questions about joints of the lower extremity:
- a. Inversion takes place at the subtalar joint
 - b. Eversion takes place at the transverse talar joint
 - c. Eversion sprains at the ankle are more common than inversion sprains
 - d. Dorsiflexion and plantar flexion take place at the talocrural joint
11. Formulating an inventory of structures in the thorax:
- a. There are 12 pair of external intercostal muscles
 - b. There are 12 intercostal spaces
 - c. There are 9 pair of posterior intercostal arteries arising from the thoracic aorta
 - d. The anterior intercostal nerves arise from the internal thoracic nerve
12. With respect to the mediastinum:
- a. The trachea is located in the superior mediastinum
 - b. The thymus lies in the anterior mediastinum
 - c. The phrenic nerves are situated in the middle mediastinum
 - d. The thoracic duct is located in the posterior mediastinum
13. With regard to the Angle of Louis (sternal angle):
- a. Receives the third rib
 - b. Marks the level of the 4th thoracic vertebrae
 - c. Overlies the bifurcation of the trachea
 - d. Defines the caudal border of the superior mediastinum

14. Structures which pass through the greater sciatic foramen:

- a. Pudendal nerve
- b. Obturator nerve and artery
- c. Superior gluteal nerve and artery
- d. Superior gemellus tendon

15. Concerning the great saphenous vein:

- a. Empties into the deep femoral vein
- b. Usually drains blood from the deep veins
- c. Begins at the dorsal venous arch
- d. Ascends anterior to the medial malleolus

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Part III. Answer in the space provided. (52 pts)

1. Serving as a resident in emergency medicine a patient is admitted with an aortic aneurysm that appears to impact on the left vagus nerve. Discuss the course of the left vagus nerve in the thorax, and mention how perturbation of this nerve might be manifested in clinical symptoms. (8 pts)

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2. Discuss the lines of gravity as it relates to the lower extremity, and the anatomy of relaxed standing. Include consideration of the stabilizing influences upon the hip, knee, and ankle joints, with particular reference to ligaments and muscles. (12 pts)

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3. A 40-year old female complains of being constantly tired. You suspect problems involving the pericardium. Discuss the anatomy of the pericardial sac, including mention of the layers, relationships, stabilization, vascularization, innervation, and lymphatic drainage. Comment on the clinical ramifications of excessive fluid in the pericardial cavity. (10 pts)

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4. As part of your responsibilities as a resident in pulmonary medicine, you are asked to give a concise report on the mechanisms of breathing. Discuss the mechanics of breathing. Include a discussion of joints, rib movements, innervation and vasculature, and mention how a pneumothorax will alter these mechanics. (10 pts)

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5. A 75-year old female patient complains of problems with walking. You suspect involvement of vessels in the adductor canal. Discuss the contents, boundaries (i.e., superior, inferior, medial, lateral, anterior, posterior), and relationships with respect to the adductor canal. (6 pts)

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6. A 37-year old chef complains of problems when standing for long periods of time. Indicate your knowledge of the lateral longitudinal arch (muscles, ligaments, bones, vessels) as you consider a strategy for treatment. (6 pts)