

Exercise 32 Blood Vessels Eighth Edition

Objectives : 1 - 6

Microscopic Structure of the Blood Vessels

- know the structural layers and where they can be located
tunica interna, media and externa
- be able to distinguish between an artery and vein on a slide and know how they are different structurally
- figure 32.1 Generalized structure of arteries, etc will help
- plate 27 (pp. 733)

Major Systemic **Arteries** of the **Human Body**

- know only the following arteries listed below
- be able to identify, describe location, branching patterns, and region of the body supplied
- Label each of these on the Human Torso Model and Diagram (Review Sheet 32 in the manual):

Human

Upper Body

1. ascending aorta
2. aortic arch
3. descending aorta (thoracic aorta & abdominal aorta)
4. coronary arteries (off the ascending aorta)
5. brachiocephalic artery
6. common carotid artery L&R
7. subclavian artery L&R
8. internal carotid artery L&R*
9. external carotid artery L&R*
10. axillary artery L&R
11. brachial artery L&R

Lower Body

12. celiac trunk
13. left gastric artery
14. splenic artery
15. common hepatic artery
16. superior mesenteric artery
17. renal artery R&L
18. gonadal artery R&L (ovarian & testicular)
19. inferior mesenteric artery
20. lumbar arteries (4 pairs R&L)
21. common iliac artery R&L
22. external iliac artery R&L
23. femoral artery R&L
24. deep femoral artery R&L
25. internal iliac artery R&L

Major Systemic Veins of the Human Body

- know only the veins listed below
- be able to identify, describe location, branching patterns, and region of body drained
- Label each of these on the Human Torso Model and Diagram (Review Sheet 32 in the lab manual)

Upper Body

1. superior vena cava
2. inferior vena cava
3. right brachiocephalic vein (p.319)
4. left brachiocephalic vein
5. internal jugular vein L&R
6. subclavian vein L&R
7. external jugular vein L&R
8. axillary vein L&R
9. brachial vein L&R
10. cephalic vein L&R
11. basilic vein
12. median cubital vein
13. accessory cephalic vein
14. median antecubital vein (median v. of forearm)
15. azygous vein

Lower Body

16. common iliac vein L&R
17. internal iliac vein L&R
18. femoral vein L&R
19. great saphenous vein L&R
20. lumbar veins (several pairs L&R)
21. gonadal veins L&R
22. renal veins L&R
23. hepatic veins L&R**
24. hepatic portal vein **
25. inferior mesenteric vein**
26. splenic vein**
27. superior mesenteric vein**

**Be able to identify on a drawing only (Fig 32.13 Hepatic Portal Sys)

Special Circulatory Circuits

Azygos System (figure 32.11 Veins of Upper Limb)

- know the function in general terms –the veins involved and what it does (see definition p.353)

Pulmonary Circulation

- know this system- it is very important
- label figure 32.14 as instructed

Arterial Supply of the Brain and the Circle Willis

- know only the general function
- you will not have to identify this on a model

Hepatic Portal Circulation

- know the function of the hepatic portal system of the human
- be able to identify on a diagram (figure 32.13) hepatic portal vein, inferior mesenteric vein, splenic vein, superior mesenteric vein, and left gastric vein

Fetal Circulation

- know figure 32.14
- note how the blood bypasses the lungs in two ways
ductus arteriosus, foramen ovale
- note how this changes in the newborn baby
ligamentum arteriosum, fossa ovalis
- be able to identify the following and their function as it relates to a developing child:
 - umbilical arteries - umbilical vein
 - ductus arteriosus - ductus venosus
 - foramen ovale
- know which vessels carry oxygenated and which carry deoxygenated blood

Dissection of the Blood Vessels of the Cat

- Read Dissection Exercise 4 (back of manual) before beginning your dissection.
- We will dissect only the upper torso blood vessels (above the diaphragm) on the first dissection day, the lower torso blood vessels will be dissected on the second lab day. Finding all of the arteries and veins from the lists below on the diagrams on pages 780 and 782 will help you. You may wish to use a highlighter to mark them. Note that many arteries and veins are labeled in your book only on the left or right side even though they may occur on both sides.
- Figure D4.1 will help you in making your first incisions.
- Be very cautious when opening your cat not to damage the organs directly below the layer of muscle that you'll be cutting through.
- Identify the structures listed as **thoracic and abdominal cavity organs**, but do not remove or damage them. These will be studied later in the course. Figure D4.2

Major Systemic Arteries of the Cat

- know only the following arteries
- be able to identify, describe location, branching patterns, and region of the body supplied on the cat, cat model, and diagram (Figure D4.3)

Upper body

1. aorta
2. coronary arteries
3. right brachiocephalic artery
4. left subclavian artery, right subclavian artery
5. common carotid artery R&L
6. external carotid artery R&L
7. internal carotid artery R&L
8. internal mammary artery
9. axillary artery R&L
10. subscapular artery R&L
11. brachial artery R&L
12. descending (thoracic) aorta

Lower body

13. celiac trunk
 14. left gastric artery*
 15. splenic artery*
 16. hepatic artery*
 17. superior mesenteric artery
 18. adrenolumbar artery R&L
 19. renal artery R&L
 20. genital artery R&L (testicular and ovarian)
 21. inferior mesenteric artery
 22. iliolumbar artery R&L
 23. descending abdominal aorta
 24. external iliac artery R&L
 25. internal iliac artery
 26. R&L internal iliac arteries
 27. caudal artery
 28. femoral artery R&L
- * branches of the celiac trunk

Major Systemic Veins of the Cat

- be able to identify, describe location, branching patterns, and region of body drained on the cat, cat model and diagram (Figure D4.4)

Upper body

1. superior vena cava
2. azygos vein
3. internal thoracic(mammary) vein
4. brachiocephalic vein R&L
5. external jugular vein R&L
6. internal jugular vein R&L
7. subclavian vein R&L
8. axillary vein R&L
9. subscapular vein R&L

10. brachial vein R&L
11. inferior vena cava (post cava)

Lower body

12. hepatic vein
13. adrenolumbar vein R&L
14. renal vein R&L
15. genital vein R&L (testicular or ovarian)
16. iliolumbar vein R&L
17. common iliac vein R&L
18. internal iliac vein R&L
19. external iliac vein R&L
20. femoral vein R&L
21. great saphenous vein R&L

Hepatic Portal System of the Cat

-omit figure D4.6 pp. 743

Questions on Human and Cat Blood Vessel Anatomy

1. How many branches off of the aortic arch are there in the human?
What are they?
2. How many branches off of the aortic arch are there in the cat?
What are they?
3. Where does the right subclavian artery start in the cat?
4. Where do the subclavian arteries turn into the axillary arteries in the cat?
5. Where do the axillary arteries turn into the brachial arteries in the cat?
6. What are the 3 branches of the celiac trunk in the cat?
7. Which form a more symmetrical pattern in the upper body, the arteries or the veins?

Charts for Exercise 32

Images for Exercise 32

Human Arteries

Human Veins

Cat Arteries

Cat Veins

Venous system of the Cat

Arterial system of the Cat