Veins and Arteries

The Cat
Veins

Veins carry blood to the heart from the head, forelimbs, shoulder, and thoracic regions.

In your cat, veins will be injected blue, while arteries are red.

Your best tool for vessel dissection is your blunt probe.
The 2 Big Veins

- **Anterior Vena Cava**: Drains the head and chest directly to the heart.
- **Posterior Vena Cava**: Drains the lower body directly to the heart.
- Let’s look at branches off the Anterior Vena Cava
Major Branches (1)

Follow the Anterior Vena Cava from the heart, it will branch to form a “V” shape. These branches are called the **Innominate** or Brachiocephalic.

The Innominates are formed on each side by 2 veins; the **subclavian** from the shoulder and the **external jugular** from the neck.

The **internal jugular** vein drains into the external jugular vein.

The **axillary** vein drains the arm and becomes the subclavian vein.
Major Branches (2)

- **Internal Mammary vein** is on the ventral surface of the anterior vena cava and attaches to the sternum. It will be cut off and dangling.

- Push the right lung and the heart to the center (medially) and look behind the heart. You will see the **Azygous vein** connected to the anterior vena cava. It drains the back.

- Make a check list of these 9 veins.
Arteries-Anterior Region

- Arteries carry blood away from the heart.
- They always lie deeper than the veins and you’ll have to push the veins out of the way to view the arteries.
- The biggest artery in the body is the Aorta and it directly leaves the heart.
Aortic Branches (1)

- The Aorta leaves the heart and swings to the cat’s left side.
- It will give off two branches in the cat (three in the human).
- The first branch is the **Brachiocephalic**. Follow it up and it will divide into the **Right Subclavian**, the right subclavian will continue and become the **Right Axillary** artery.
- The brachiocephalic will also divide into the **Right and Left Common Carotid** to feed the brain with blood.
Aortic Branches (2)

The 2\textsuperscript{nd} branch off the aorta is the \textbf{Left Subclavian Artery}. Like the right subclavian, it will also become the \textbf{Left Axillary artery}.

Make a master list of these 8 arteries of the upper body.
Veins – Posterior Region (1)

- All the blood vessels below the heart empty into the Posterior Vena Cava (PVC). Find this large vessel below the heart.

- Follow it down to the kidneys. The kidneys have two veins that drain into the PVC. They are the **Adrenolumbar** and the large **Renal**.

- Go a little further and look for the **Right Spermatic** (Male) or **Right Ovarian** (female). These will enter the PVC directly. The Left side will enter the Renal first.
Veins – Posterior Region (2)

Continue down and right before the PVC branches to go into the legs you should find the **Iliolumbar veins**. There are 2 on both sides of the body.

As the PVC divides we now call the vein the **Common Iliac**. The common iliac will continue down to become the **External Iliac** and down the legs to become the **Femoral vein** draining the legs.

Before the common iliac becomes the external iliac look for a branch called the **Internal Iliac**.

Make a list of these 10 Veins (Counting the PVC)
Arteries – Posterior Region (1)

Push the lungs and heart out of the way and follow the aorta down the body. The aorta is now called the Descending aorta.

Follow the DA below the diaphragm as it enters the lower body. Look for the following branches.

Celiac: 1st large branch and feeds the stomach and liver with blood.

Superior Mesenteric: 2nd branch and feeds the small intestines with blood.

Adrenolumbar: right after the SM and small.
Arteries – Posterior Region (2)

- **Renal**: feeds the kidneys with blood.
- **Spermatic** (male) or **Ovarian** (female).
- Rising straight up from the DA down by the pelvis is the **Inferior Mesenteric**, that feeds the large intestines with blood.
- Just below the IA look for the 2 **Iliolumbar** arteries branching to either side.
- The DA will now branch to enter the legs. Each branch is now called the **External Iliac**.
Arteries – Posterior Region (3)

- The external iliac will continue down the legs to become the **Femoral artery**.
- Right in the middle of the branch that heads to the legs, look behind the “V” and the DA continues down but is small. It is now called the **Median Sacral**.
- Make a list of these 11 arteries (including the DA).
Homework (due next class)

1. Describe the differences between arteries and veins.
2. List and describe all the vessels associated with arteries and veins. (arteries, elastic arteries, arterioles, capillaries, veins, venules)
3. Look at pages 741 – 757 and see how our circulation compares with the cats.