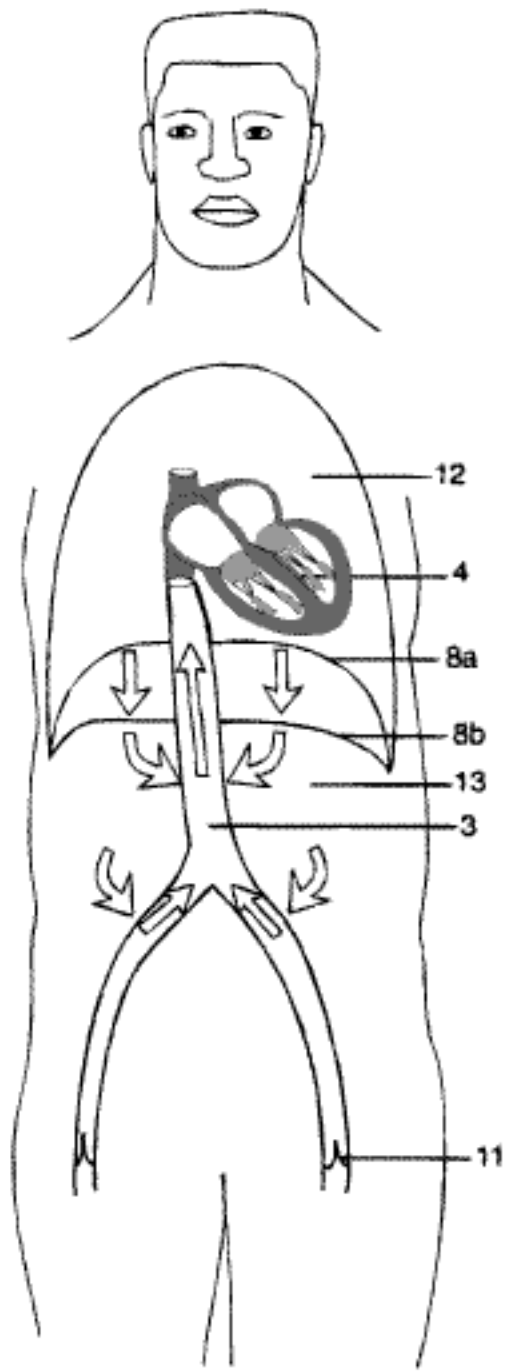


Vein pump in leg.



Vein pump in trunk.

- \_\_\_\_\_ 1. Blood drains from tissues into \_\_\_\_\_ .  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - a. Since the hydrostatic (fluid) pressure in tissues is low, can this pressure push blood back toward the heart?
  - b. To keep the blood from flowing back toward the capillaries, the veins in the limbs contain \_\_\_\_\_ .
- \_\_\_\_\_ 2. In figure 12.9a, muscle contraction squeezes the deep vein against the \_\_\_\_\_ .  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - a. This pressure forces the blood in the vein against the upper valve, causing it to \_\_\_\_\_ (open, close), and
  - b. against the lower valve, causing it to \_\_\_\_\_ (open, close).
  - c. Since the lower valve is closed, blood can only flow \_\_\_\_\_ .
- \_\_\_\_\_ 3. In figure 12.9a, muscle contraction squeezes the superficial vein against the \_\_\_\_\_ .
- \_\_\_\_\_ 4. Muscle contraction creates more pumping action against \_\_\_\_\_ (superficial, deep) veins.
- \_\_\_\_\_ 5. Are valves present in abdominal veins?
- \_\_\_\_\_ 6. When the diaphragm contracts, it pushes down on the \_\_\_\_\_ cavity.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - a. This causes the pressure in the abdominal cavity to \_\_\_\_\_ (increase, decrease) and the pressure in the thoracic cavity to \_\_\_\_\_ (increase, decrease).
  - b. This causes the pressure in the inferior vena cava to \_\_\_\_\_ (increase, decrease).
  - c. Therefore, blood in the inferior vena cava is forced toward the \_\_\_\_\_ .
- \_\_\_\_\_ 7. Blood in the abdominal veins is prevented from flowing back into the legs by \_\_\_\_\_ in the veins of the legs.