

## BLOOD VESSELS (Nelson text, pg. 250-253)

### ARTERIES

Arteries carry blood \_\_\_\_\_ the heart. They have \_\_\_\_\_ walls composed of distinct layers. The outer and inner layers are primarily \_\_\_\_\_ tissue while the middle layers are made of \_\_\_\_\_ tissue, fibers and elastic connective tissue. Every time the heart contracts, \_\_\_\_\_ surges from the heart and enters the \_\_\_\_\_. The arteries \_\_\_\_\_ to accommodate the blood. The \_\_\_\_\_ you can feel near your wrist and on either side of your neck is created by changes in the \_\_\_\_\_ of the arteries following heart contraction. Heart contractions are followed by a \_\_\_\_\_ phase. During this phase, \_\_\_\_\_ drops and elastic fibers in the walls of the artery recoil.

A birth defect or injury can cause the inner wall of the artery to bulge. Known as an \_\_\_\_\_, this condition is infrequent in young people but can lead to serious problems for those who have the condition. The weakened segment of the artery \_\_\_\_\_ as blood pulses through. A weakened artery in the \_\_\_\_\_ is one of the conditions that can lead to a \_\_\_\_\_.

Blood from the arteries passes into smaller arteries called \_\_\_\_\_. The diameter of arterioles is controlled by the \_\_\_\_\_ nerves from the \_\_\_\_\_ nervous system. A nerve impulse causes \_\_\_\_\_ in the arterioles to contract. This process is called \_\_\_\_\_ and it decreases blood flow to the \_\_\_\_\_. Relaxation of the muscle causes dilation and blood flow increases. This process, called \_\_\_\_\_, increases delivery of blood to tissues.

**EXAMINE FIG. 1 AND NOTE THE DIFFERENT SHAPES OF THE ARTERY (RIGHT) AND VEIN (LEFT)**

### FAT IN THE ARTERIES

As fat droplets grow into larger and larger blockages, they slowly close off the opening of the blood vessel. \_\_\_\_\_ and other minerals deposit on top of the lipid forming a net of \_\_\_\_\_. This condition is known as \_\_\_\_\_, the most common of a group of disorders known as \_\_\_\_\_. Blood \_\_\_\_\_ also form around the fat deposits. Inadequate amounts of blood and \_\_\_\_\_ are delivered to the heart muscle, resulting in \_\_\_\_\_.

**EXAMINE FIG. 2 AND NOTE THE DIFFERENCE IN THE ARTERY WITH ATHEROSCLEROSIS**

## **CAPILLARIES**

Capillaries, composed of a \_\_\_\_\_ layer of cells, are the sites of \_\_\_\_\_ and \_\_\_\_\_ exchange between \_\_\_\_\_ and body cells. No cell is further than \_\_\_\_\_ cells away from a capillary. The diameter is so small that \_\_\_\_\_ blood cells must pass in single file. Capillary walls are so thin that they may be easily damaged by \_\_\_\_\_ blood pressure or any \_\_\_\_\_ such as a punch. \_\_\_\_\_ occurs when blood rushes into spaces between tissues.

\_\_\_\_\_ diffuses from the blood into surrounding tissues through the thin walls of the \_\_\_\_\_ into the body cells. De-oxygenated blood collects in small veins called \_\_\_\_\_ and is carried back to the heart.

### **EXAMINE FIG. 3 AND NOTE THE RBC'S MOVING THROUGH A CAPILLARY**

## **VEINS**

Capillaries merge and become larger vessels, called \_\_\_\_\_. These merge into veins which have greater diameter. Blood pressure is \_\_\_\_\_ (low? high?) in the veins. This pressure is not enough to drive the blood back to the \_\_\_\_\_.

William \_\_\_\_\_ conducted experiments to determine how the blood gets back to the heart. He created bulges by pressing on the veins and discovered the existence of \_\_\_\_\_. The valves open in one direction, steering blood toward the heart. They do not allow blood back in the other direction. This keeps blood moving toward the heart and not back into the lower limbs.

\_\_\_\_\_ muscles also aid in venous blood flow. Venous pressure increases when the muscles \_\_\_\_\_. This helps push blood in veins back to the heart.

### **EXAMINE FIG. 4 AND NOTE THE OPENING AND CLOSING OF VENOUS VALVES**