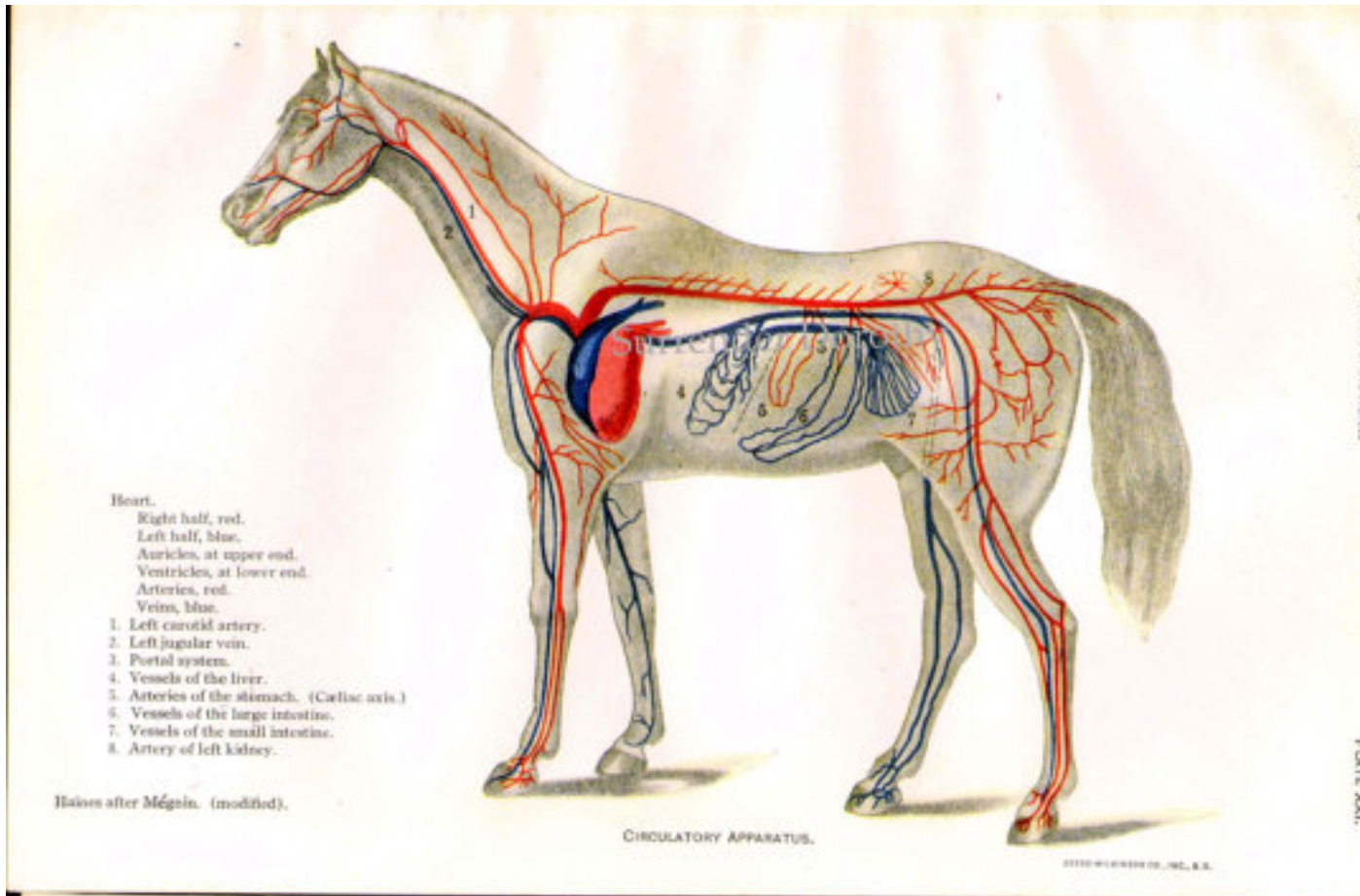


Circulatory System



<https://www.gutenberg.org/files/23403/23403-h/23403-h.htm>

The circulatory system is a system of the body that serves to help fight infection, distribute oxygen and other nutrients throughout the body, remove waste from cells and distribute heat. The circulatory system of horses, like any other mammal includes: the heart, capillaries, veins, venules, arteries, arterioles as well as the lungs to provide oxygen. In combination with the heart and nervous system, these vessels act as a fluid filled highway that gives the animal everything that it needs.

Blood itself is made up of mostly water, plasma, platelets and various types of white blood cells. Each special kind of cell serves its own function in order to keep the horse healthy. White blood cells help fight off bacteria and viruses that can make the horse sick. Plasma and platelets are used to clot the blood if the horse has a cut or open wound.

The heart itself is a very special organ that is the driving force of the circulatory system. It is made of its own specific type of muscle called cardiac muscle which is found nowhere else in the body. It is divided into 4 chambers. Blood is moved by the

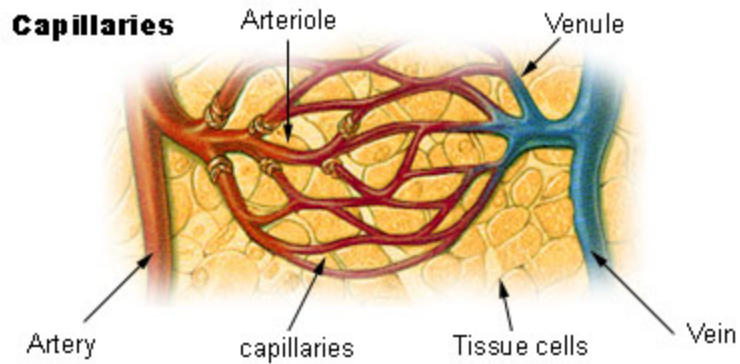
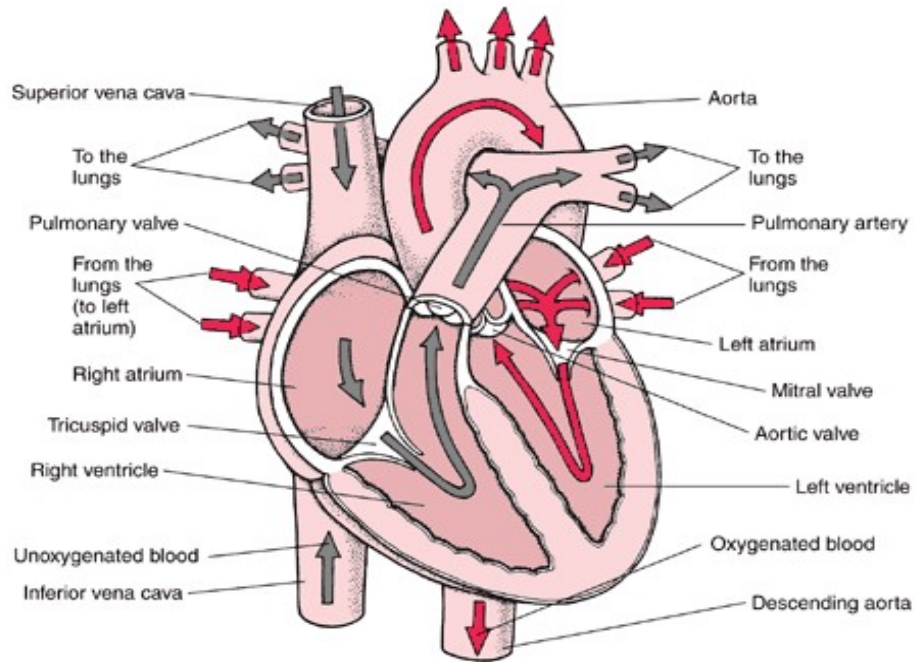
muscles of the heart contracting to squeeze it into each chamber and through the attached blood vessels.

Vessels are an important part of the system. Arteries are the largest and strongest of all blood carrying vessels in the body. They send blood away from the heart via high pressure, muscular contractions. Arteries receive oxygenated blood from the lungs and allow the heart to distribute it. The exception to this is that the pulmonary artery carries deoxygenated blood to the lungs. The further away the blood is from the heart, the smaller the vessels that carry it become. As the system branches away from the heart, arterioles which are smaller than arteries continue to carry the blood.

When the blood finally reaches the tissues, it is sent back with the oxygen and nutrients removed, but waste from tissues and major organs added. Capillaries are the site of oxygen exchange in the body where oxygen goes from the blood to the tissues.

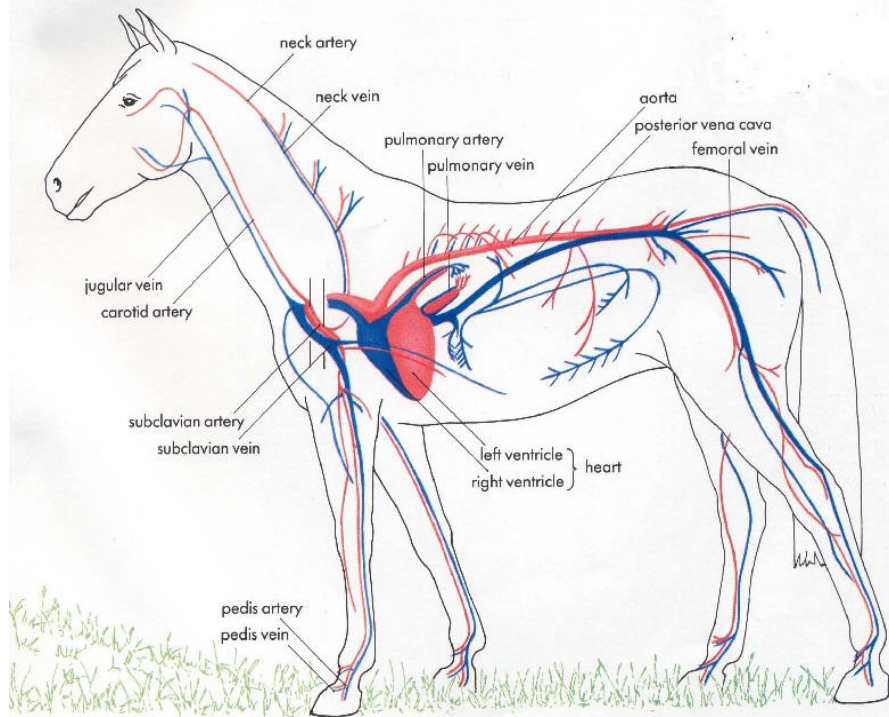
The veins, venules and capillaries are much smaller blood vessels that carry deoxygenated blood back to the heart for oxygenation and to the kidneys for filtration of waste products and toxins. The pulmonary veins, however, carry oxygenated blood out from the lungs to the left atrium. Muscle pressure in the legs help the veins carry the blood back up through the body. Circulation of blood is very important for the health of the horse, especially during exercise when the horse's body needs the most oxygen.

The right atrium is where deoxygenated blood enters the heart after cycling through the body. It is then pumped to the right ventricle so that it can go through the pulmonary artery. The pulmonary artery carries deoxygenated blood to the lungs. Oxygen diffuses in and carbon dioxide diffuses out through small sacs in the lungs called alveoli. Oxygenated blood returns to the heart via the pulmonary veins. Blood then travels into the left atrium, down to the left ventricle, and up through the aorta. The aorta is the largest artery because it sends blood off to the rest of the body. Between each section of the heart, there are flaps of tissue called valves that prevent blood from going in the opposite direction of normal flow. It also prevents deoxygenated and oxygenated blood from mixing. A faulty valve is a serious condition that can easily lead to performance issues in the horse.



At rest a horse's heart beats 45- 60 times in a minute, but anything can increase or decrease a heartbeat such as exercise, stress, weight and age. An abnormal heart rate is a good indicator that something may be wrong with the animal. During any visit by a veterinarian it should be checked. You can even feel a horse's pulse in the fetlock, mandibular or femoral artery. It is also good for you to check your horse's vital signs regularly in order to know what it normal for your horse.

Veins and arteries



The circulatory system allows us to draw blood from the horse to run tests. The contents of the blood can tell us a lot about the horse's current health and can detect problems like infections or hormonal issues. There are three primary places that this is done: the most common is the vein in the neck known as the jugular vein, a vein in the leg, and by scraping the buccal, or cheek region inside the horse's mouth.

In general the circulatory system is a complex one with many functions that all really help the horse. It's made of multiple small parts that work in concert with each other in order to keep the body functioning properly. The circulatory system is one that never takes a break. It definitely has the heaviest work load of all the systems because everything else in the body is dependent on what it supplies and removes with each pump of the heart. It keeps tissues functioning at peak position, distributes heat and maintains the health of the horse. Most importantly, the circulatory system helps keeps the horse alive! When it comes to body systems, there's nothing more that you could ask for.