

Difference Between Aorta and Vena Cava

www.differencebetween.com

Key Difference - Aorta vs Vena Cava

Circulatory system or the cardiovascular system is one of our main organ systems which transport [blood](#), gases, [hormones](#), nutrients throughout the body. [Heart](#), blood, and blood vessels are the main elements of the human cardiovascular system, and it is a closed system in which blood circulates only within the network of tubes which are blood vessels. Blood vessels carry blood to and from the heart to all parts of the body. Blood vessels consist three major types namely, [Arteries](#), [Capillaries](#), and Veins. Arteries carry oxygenated blood from the heart to all the other [tissues](#) of the body. Capillaries are the tiny blood vessels which facilitate the exchange of [oxygen](#), nutrients, and wastes between the blood and the tissues. Veins carry oxygen-depleted blood from the body tissues to the heart. Aorta and Vena Cava are two main blood vessels. Aorta is the main [artery](#) which carries oxygenated blood from the [left ventricle](#) of the heart to the tissues of the body. Vena cava are the two main veins which bring the oxygen poor blood to the right [atrium](#) of the heart from upper half and lower half of the body. The **key difference** between Aorta and Vena Cava is that **Aorta is an artery whereas Vena Cava are two large veins.**

What is Aorta?

Aorta is the largest artery in the human body. It carries oxygenated blood from the left ventricle of the heart into the other tissues, [organs](#), [muscles](#) and other parts of the body (whole body). Aorta valve starts from the left ventricle. When the heart pumps blood into the aorta, there are three leaflets which open and close to prevent the backflow of blood and direct one-way flow of blood.

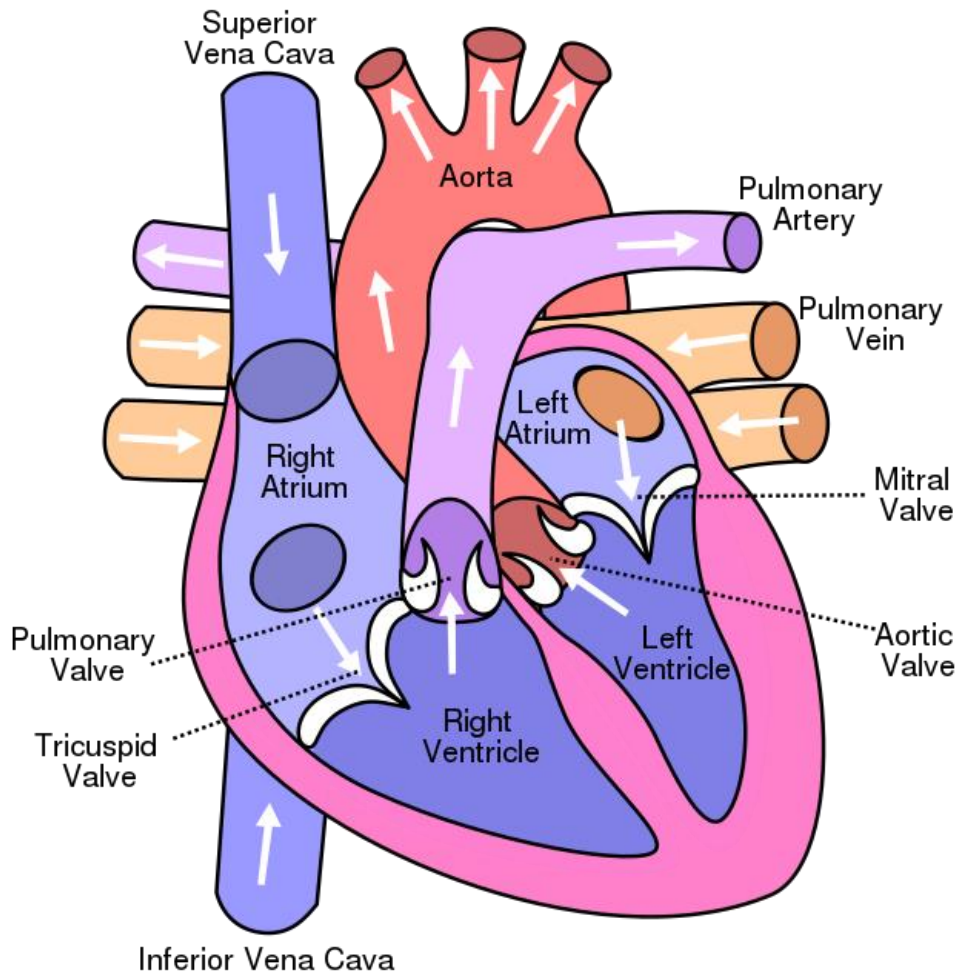


Figure 01: Heart

Aorta valve has a thicker wall comprised of several layers to withstand the [high blood pressure](#) which it carries. They are intima (the innermost layer), media (the middle layer) and adventitia (outer layer). The intima provides a smooth surface for blood. Media supports the aorta to expand and contract. Adventitia provides additional support and structure to the aorta.

What is Vena Cava?

Vena Cava refers to the large vein which delivers oxygen-poor or deoxygenated blood from the upper and lower halves of the body into the right side of the heart. There are two main veins which mainly bring deoxygenated blood to the heart. They are [superior vena cava and inferior vena cava](#). These two are also known as precava and postcava. Superior vena cava brings oxygen-depleted blood from head, neck, arms and upper body. Inferior vena cava brings oxygen-poor blood from a lower part of the body into the heart.

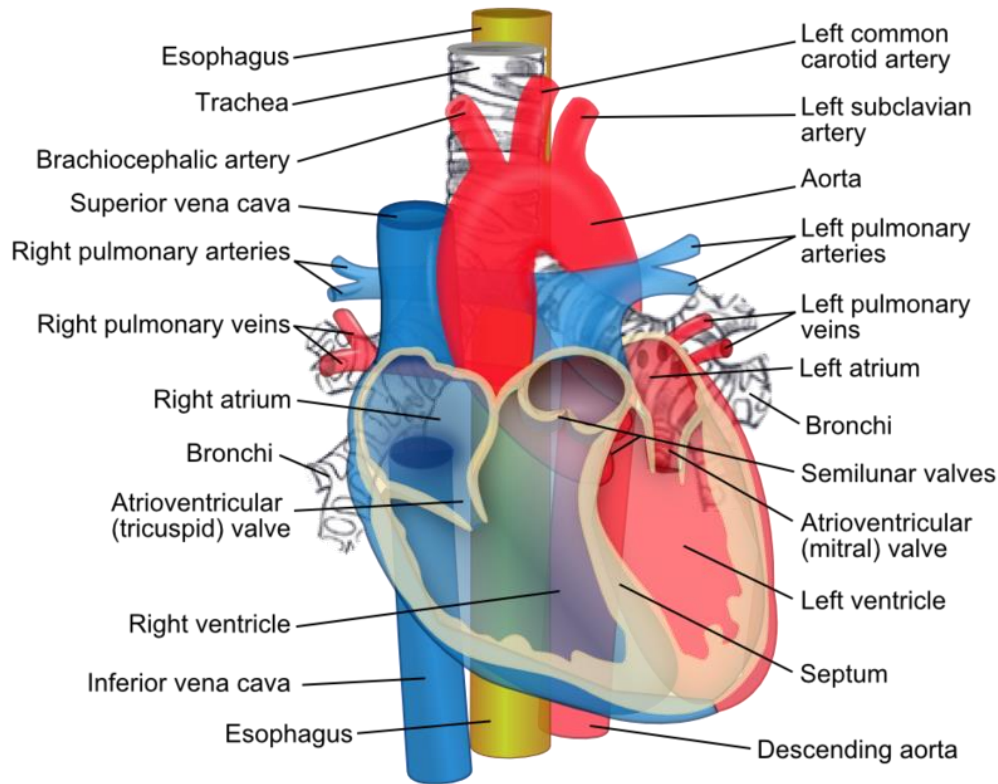


Figure 02: Vena Cava

Vena cava are large diameter tubes. The blood which carries by the vena cava is darker due to the absence of oxygen. The blood pressure of the vena cava is lower compared to the arteries.

What are the Similarities Between Aorta and Vena Cava?

- Aorta and Vena Cava are blood vessels.
- Both carry blood.
- Both function with the connection of heart.
- Both run throughout the body.
- Both are tube-like structures.

What is the Difference Between Aorta and Vena Cava?

Aorta vs Vena Cava	
Aorta is the largest artery in our body which carries oxygenated blood from the left ventricle of the heart towards the organs, muscles, and tissues.	Vena Cava are the main veins which deliver deoxygenated blood from the lower and upper halves of the body into the right atrium of the heart.
Blood Pressure	

In Aorta, there is a high blood pressure.	In Vena Cava, there is a low blood pressure.
Vessel Walls	
Aorta has thicker walls.	Vena Cava has thinner walls.
Vessel Lumen	
Aorta has a narrow lumen.	Vena Cava has a wider lumen.
Blood Composition	
The aorta carries oxygen-rich blood.	Vena Cava carries oxygen poor blood.
Carrying Blood to or from the Heart	
Aorta carries blood away from the heart.	Vena Cava carries blood towards the heart.
Muscular Tissue of the Vessel	
Aorta is more muscular than vena cava.	Vena Cava is less muscular than the aorta.
Connection with the Heart	
Aorta starts from the left ventricle of the heart.	Vena cava <u>is connected</u> to the right atrium of the heart.
Type of the Vessel	
Aorta is an artery.	Vena Cava is a vein.

Summary - Aorta vs Vena Cava

Arteries and veins are blood vessels which deliver oxygenated and deoxygenated blood from and to the heart respectively. Aorta is the main or the largest artery which carries oxygenated blood from the heart to the whole body. Vena cava is the large veins that bring deoxygenated blood from the body to the heart. There are two main vena cava; superior and inferior vena cava. Superior vena cava delivers deoxygenated blood from the upper half of the body to the heart while inferior vena cava delivers deoxygenated blood from the lower part of the body to the heart. The blood pressure of the aorta is high compared to the blood pressure of vena cava. This is the difference between the aorta and vena cava.

Reference:

- 1.The Editors of Encyclopædia Britannica. “Vena cava.” Encyclopædia Britannica, Encyclopædia Britannica, inc., 10 Oct. 2012. [Available here](#)
- 2.Hoffman, Matthew. “Picture of the Aorta.” WebMD, WebMD. [Available here](#)

Image Courtesy:

- 1.'Diagram of the human heart (cropped)'By Own work, [\(CC BY-SA 3.0\)](#) via [Commons Wikimedia](#)
- 2.'Relations of the aorta, trachea, esophagus and other heart structures'By ZooFari, [\(CC BY-SA 3.0\)](#) via [Commons Wikimedia](#)

How to Cite this Article?

APA: Difference Between Aorta and Vena Cava.(2017 December 18). Retrieved (date), from <http://differencebetween.com/difference-between-aorta-and-vs-vena-cava/>

MLA: "Difference Between Aorta and Vena Cava" Difference Between.Com. 18 December 2017. Web.

Chicago: “Difference Between Aorta and Vena Cava.” Difference Between.Com. <http://differencebetween.com/difference-between-aorta-and-vs-vena-cava/> accessed (accessed [date]).



Copyright © 2010-2017 Difference Between. All rights reserved