Difference Between Vasoconstriction and Vasodilation

www.differencebetween.com

Key Difference – Vasoconstriction vs Vasodilation

Blood pressure is a good parameter of health which indicates the functions of respiratory rate, heart rate, oxygen saturation, body temperature etc. It is the force of blood flow through vessels, tissues, and organs. Normal resting blood pressure of a healthy person is 120/80 mmHg. The blocking of blood flow is known as resistance. There are several factors which affect the blood flow and blood pressure. One important factor is the diameter of the blood vessels. Vasodilation and vasoconstriction are significant factors affecting systemic blood pressure. They are related to changes in the diameter of the arteries. Vasoconstriction refers to the narrowing of the blood vessels. Vasodilation refers to the widening of the blood vessels. The key difference between vasoconstriction and vasodilation is that **vasoconstriction increases the resistance and decreases the blood flow** while **vasodilation decreases the resistance and increases the blood flow.**

What is Vasoconstriction?

Vasoconstriction refers to the process of narrowing the diameter of the blood vessels. The radius of the artery or arteriole is decreased due to vasoconstriction. This happens due to the constriction of the smooth muscles in the walls of arteries or arterioles. The lumen becomes narrower when the smooth muscles constrict. When lumen becomes narrow, the surface area, which contacts blood, decreases. Therefore, the blood pressure increases as a result of vasoconstriction. When the resistance of the arteries increases, the blood flow is reduced. In veins, venoconstriction enhances the blood flow. When vasoconstriction increases the blood pressure in veins, it enhances the blood movement through veins. Thus, venoconstriction increases the return of blood to the heart.

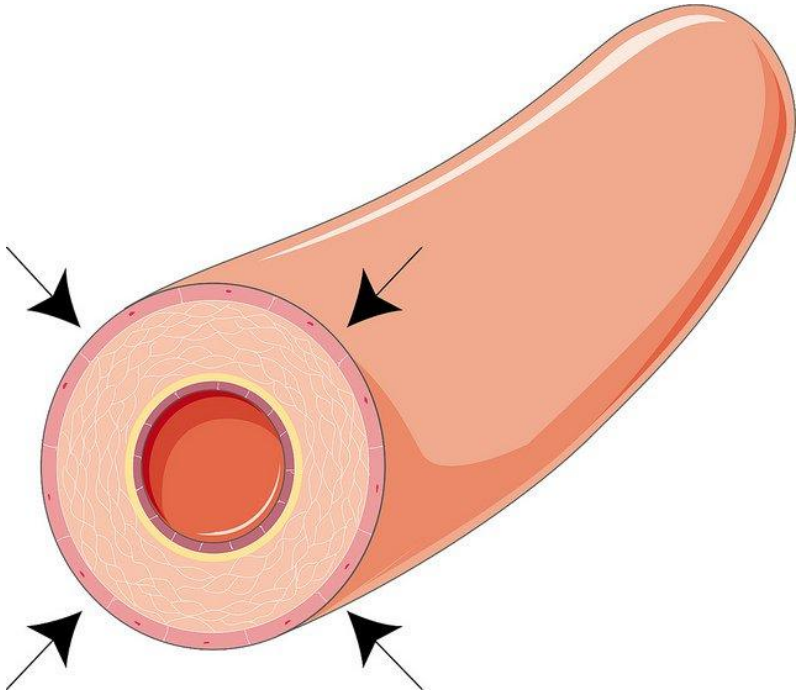

Figure 01: Vasoconstriction

Vasoconstriction has negative effects, causing heart diseases due to high blood pressure. People usually take medicine to make the muscles in the blood vessels relax.

What is Vasodilation?

Vasodiation is the widening of blood vessels. Vasodilation is the opposite process of vasoconstriction. As a result of vasodilation, smooth muscles of the blood vessel walls become relaxed. The internal diameter of blood vessels increases during the vasodilation. When blood vessel walls are dilated, the surface area of the lumen increases. Hence, the vascular resistance decreases. When resistance decreases, it enhances blood flow through the vessels. The blood pressure also decreases due to dilation of the blood vessels.

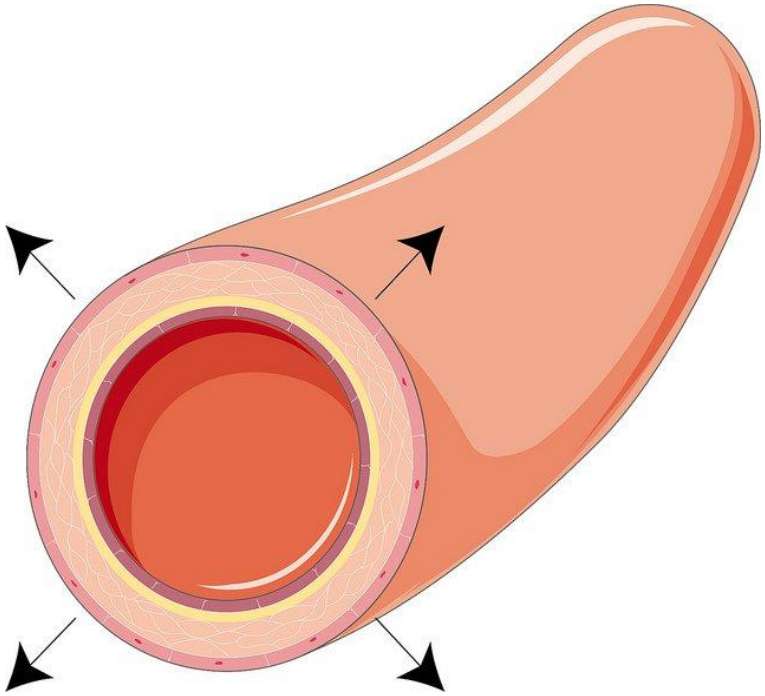

Figure 02: Vasodilation

Vasodilation is an important process which keeps the body functioning in normal conditions. The endogenous substances and drugs are able to cause vasodilation are known as vasodilators. Dilation of arteries and arterioles has a significant therapeutic value in decreasing arterial blood pressure and heart rate. Hence, chemical arterial dilators are commonly used to treat heart failure, systemic and pulmonary hypertension and angina.

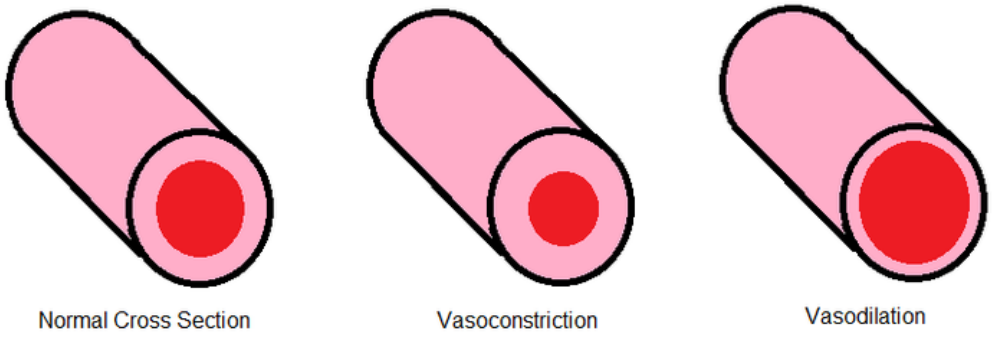

Figure 03: Vasodilation and Vasoconstriction

What is the difference between Vasoconstriction and Vasodilation?

Vasoconstriction vs Vasodilation	
Vasoconstriction refers to the narrowing of blood vessels.	Vasodilation refers to the widening of blood vessels.
Radius of Artery or arteriole	

Vasoconstriction reduces the radius.	Vasodilation increases the radius.
Vascular Resistance	
Vasoconstriction increases vascular resistance.	Vasodilation decreases vascular resistance.
Blood Pressure	
Vasoconstriction increases blood pressure.	Vasodilation decreases blood pressure.
Blood Flow	
Vasoconstriction reduces blood flow.	Vasodilation increases blood flow.

Summary – Vasoconstriction vs Vasodilation

Vasodilation refers to the widening of blood vessels while vasoconstriction refers to the narrowing of blood vessels. This is the main difference between vasoconstriction and vasodilation. These two processes affect the blood pressure and blood flow. During vasoconstriction, smooth muscles of the blood vessel walls constrict by reducing the internal diameter of the vessel. In oppose to that, vasodilation relaxes the smooth muscles of the blood vessel walls by increasing the internal diameter of the vessel.

References

1.”Vasodilation.” Wikipedia. Wikimedia Foundation, 10 July 2017. Web. Available here. 14 July 2017.
2.”NORMALBREATHING.com.” Vasodilation and Vasoconstriction. N.p., n.d. Web. Available here. 14 July 2017.

Image Courtesy:

1.” Vasoconstriction et vasodilatation 2″ by Servier Medical Art (CC-BY-2.0) via Flickr
2.”Vasoconstriction et vasodilatation 3″ by Servier Medical Art (CC-BY-2.0) via Flickr
3. “Vasoconstriction and Vasodilation” by Elizabeth2424 (CC-BY-SA-3.0) via Commons Wikimedia

How to Cite this Article?

APA: Difference Between Vasoconstriction and Vasodilation.(2017, July 22). Retrieved (date), from http://www.differencebetween.com/difference-between-vasoconstriction-and-vs-vasodilation/

MLA: "Difference Between Vasoconstriction and Vasodilation." Difference Between.Com. 22 July 2017. Web.