

1-the vagus nerve = decrease

2-Sympathetic = increase

Blood flow velocity

- if way the blood (arteries and veins) go through is the same diameter so the velocity of the blood at any point is the SAME

- if the blood goes from wide to narrow it slows WHY?

The reason is that the no of the capillaries is enormous, it is about 7 billion and each one artery conveys blood to so many capillaries as result of that a dramatic DECREASE of velocity from arteries to capillaries as cap is 500 (0.1 cm/sec) slower than arteries (48 cm/sec)

-after passing through capillary the blood speed up as it enters the venules and veins which have smaller total cross section areas than capillaries

Blood pressure

- like any fluids, flows from the high pressure to low pressure. contraction of a heart VENTRICLE generates blood PRESSURE which exerts force in all direction
- The part of the force acting lengthwise on the artery to let the blood flows from the heart (the site of the highest pressure) to the body
- Another part of this force acting sideways stretches the artery
- After the ventricle systole the recoil (الارتداد) of the arterial walls has a critical role in the maintaining blood pressure so the blood flow throughout the cardiac cycle
- The narrow diameter of the vessels generates resistance to flow
- When it enters the vein, the resistance disappears

Changes of the blood pressure during the cardiac cycle

- The highest pressure is the SYSTOLE PRESSURE and it happens when the ventricular contraction stretches the arteries = 120 mm/Hg
- THE PRESSURE SURGE is caused due to the narrow openings of the arterioles distort the exit of the blood from the arteries
- In heart contraction the blood enters the arteries faster than it can leave and the vessels stretch cause of the rise in pressure
- The lowest pressure is the DIASTOLIC PRESSURE = 80 mm/Hg
- Because the arteries remain pressurized throughout the cardiac cycle blood flows into capillaries