



Physiology
OF THE CARDIOVASCULAR SYSTEM

Venous return
&
Cardiac output

1. In normal conditions Venous return (preload) must be:

- A) *Equal to cardiac output*
- B) *Less than cardiac output*
- C) *Greater than cardiac output*

2. Excessive increase in heart rate:

- A) *Increase cardiac output*
- B) *Decrease cardiac output*

3. When a person moves from a supine position to a standing position, which of the following compensatory changes occurs?

- A) *Decreased heart rate*
- B) *Increased contractility*
- C) *Decreased total peripheral resistance (TPR)*
- D) *Decrease cardiac output*

4. If the ejection fraction increases there will be a decrease in ?

- A) *Cardiac output*
- B) *End-diastolic volume*
- C) *End-systolic volume*
- D) *Heart rate*

5. An increase in contractility is demonstrated on a frank-starling diagram by:

- A) *Increased cardiac output for a given end-diastolic volume*
- B) *Increased cardiac output for a given end-systolic volume*
- C) *Decreased cardiac output for a given end-diastolic volume*
- D) *Decreased cardiac output for a given end-systolic volume*

6. The tendency for edema to occur will be increased by?

- A) *Arteriolar constriction*
- B) *Increased venous pressure*
- C) *Increased plasma protein concentration*
- D) *Muscular activity*

7. The cardiac output of the right side of the heart is what percentage of the cardiac output of the left side of the heart?

- A) *25%*
- B) *50%*
- C) *75%*
- D) *100%*

8. A 24 year old woman present to the emergency department with severe diarrhea. When she is supine (lying down), her blood pressure is 90/60 mm Hg (decreased) and her heart rate was 100 beats/min (increased). When she is moved to a standing position, her heart rate further increases to 120 beats/min. which of the following accounts for the further increase in heart rate upon standing?

- A) *Decreased total peripheral resistance*
- B) *Increased vasoconstriction*
- C) *Increased contractility*
- D) *Increased afterload*
- E) *Decreased venous return*

Answers:

Q1: **A**

Q2: **B**

Q3: **B**

Q4: **C**

Q5: **A**

Q6: **B**

Q7: **D**

Q8: **E**