

**Guyton:**

1\* A healthy 60-year-old woman with a 10-year history of hypertension stands up from a supine position. Which set of cardiovascular changes is most likely to occur in response to standing up from a supine position?

	Sympathetic Nerve Activity	Parasympathetic Nerve Activity	Heart Rate
A)	↑	↑	↑
B)	↑	↑	↓
C)	↑	↓	↓
D)	↑	↓	↑
E)	↓	↓	↓
F)	↓	↓	↑
G)	↓	↑	↑
H)	↓	↑	↓

Ans: D

2\* Which of the following would be expected to occur during a Cushing reaction caused by brain ischemia?

- A) Increase in parasympathetic activity
- B) Decrease in arterial pressure
- C) Decrease in heart rate
- D) Increase in sympathetic activity

Ans: D

3\* A 60-year-old woman has experienced dizziness for the past 6 months when getting out of bed in the morning and when standing up. Her mean arterial pressure is 130/90 mm Hg while lying down and 95/60 while sitting. Which set of physiological changes would be expected in response to moving from a supine to an upright position?

	Parasympathetic Nerve Activity	Plasma Renin Activity	Sympathetic Activity
A)	↑	↑	↑
B)	↑	↓	↑
C)	↑	↓	↓
D)	↑	↑	↓
E)	↓	↓	↓
F)	↓	↑	↓
G)	↓	↑	↑
H)	↓	↓	↑

Ans: G

4\* A 65-year-old man with a 10-year history of essential hypertension is being treated with an angiotensin- converting enzyme (ACE) inhibitor. Which set of changes would be expected to occur in response to the ACE inhibitor drug therapy?

	Plasma Renin Concentration	Total Peripheral Resistance	Renal Sodium Excretory Function
A)	↑	↑	↑
B)	↑	↑	↓
C)	↑	↓	↓
D)	↑	↓	↑
E)	↓	↓	↓
F)	↓	↓	↑
G)	↓	↑	↑
H)	↓	↑	↓

Ans: D

5\* A 55-year-old man with a history of normal health visits his physician for a checkup. The physical examination reveals that his blood pressure is 170/98 mm Hg. Further tests indicate that he has renovascular hypertension as a result of stenosis in the left kidney. Which set of findings would be expected in this man with renovascular hypertension?

	Total Peripheral Resistance	Plasma Renin Activity	Plasma Aldosterone Concentration
A)	↑	↑	↑
B)	↑	↓	↑
C)	↑	↓	↓
D)	↑	↑	↓
E)	↓	↓	↓
F)	↓	↑	↓
G)	↓	↑	↑
H)	↓	↓	↑

Ans: A

6\* A 50-year-old man has a 3-year history of hypertension. He reports fatigue and occasional muscle cramps. There is no family history of hypertension. The patient has not had any other significant medical problems in the past. Examination reveals a blood pressure of 168/104 mm Hg. Additional laboratory tests indicate that the patient has primary hyperaldosteronism. Which set of findings would be expected in this man with primary hyperaldosteronism hypertension?

	Extracellular Fluid Volume	Plasma Renin Activity	Plasma Potassium Concentration
A)	↑	↑	↑
B)	↑	↓	↑
C)	↑	↓	↓
D)	↑	↑	↓
E)	↓	↓	↓
F)	↓	↑	↓
G)	↓	↑	↑
H)	↓	↓	↑

Ans: C

7\* An ACE inhibitor is administered to a 65-year-old man with a 20-year history of hypertension. The drug lowered his arterial pressure and increased his plasma levels of renin and bradykinin. Which mechanism would best explain the decrease in arterial pressure?

- A) Inhibition of angiotensin I
- B) Decreased conversion of angiotensinogen to angiotensin I
- C) Increased plasma levels of bradykinin
- D) Increased plasma levels of renin
- E) Decreased formation of angiotensin II

Ans: E

8\* A balloon catheter is advanced from the superior vena cava into the heart and inflated to increase atrial pressure by 5 mm Hg. An increase in which of the following would be expected to occur in response to the elevated atrial pressure?

- A) Atrial natriuretic peptide
- B) Angiotensin II
- C) Aldosterone
- D) Renal sympathetic nerve activity

Ans: A

9\* Histamine is infused into the brachial artery. Which set of microcirculatory changes would be expected in the infused arm?

	Capillary Water Permeability	Capillary Hydrostatic Pressure	Capillary Filtration Rate
A)	↑	↑	↑
B)	↑	↑	↓
C)	↑	↓	↓
D)	↑	↓	↑
E)	↓	↓	↓
F)	↓	↓	↑
G)	↓	↑	↑
H)	↓	↑	↓

Ans: A

10\* The diameter of a precapillary arteriole is decreased in a muscle vascular bed. Which change in the microcirculation would be expected?

- A) Decreased capillary filtration rate
- B) Increased interstitial volume
- C) Increased lymph flow
- D) Increased capillary hydrostatic pressure
- E) Decreased arteriolar resistance

Ans : A

11\* 25. An increase in which of the following would tend to increase lymph flow?

- A) Hydraulic conductivity of the capillary wall
- B) Plasma colloid osmotic pressure
- C) Capillary hydrostatic pressure
- D) Arteriolar resistance
- E) A and C

Ans : E

12\* An increase in which of the following tends to decrease capillary filtration rate?

- A) Capillary hydrostatic pressure
- B) Plasma colloid osmotic pressure
- C) Interstitial colloid osmotic pressure
- D) Venous hydrostatic pressure
- E) Arteriolar diameter

Ans : B

13\* A decrease in which of the following tends to increase lymph flow?

- A) Capillary hydrostatic pressure
- B) Interstitial hydrostatic pressure
- C) Plasma colloid osmotic pressure
- D) Lymphatic pump activity
- E) Arteriolar diameter

Ans : C

14\* An increase in which of the following tends to increase capillary filtration rate?

- A) Capillary wall hydraulic conductivity
- B) Arteriolar resistance
- C) Plasma colloid osmotic pressure
- D) Interstitial hydrostatic pressure
- E) Plasma sodium concentration

Ans: A