BIOH122 Session 21  
Hormonal Control of Blood Volume and Pressure

To complete this worksheet, select:

Module: Balancing Fluids  
Activity: Animations  
Title: Hormonal Control of Blood Volume and Pressure

Introduction

1. Identify the components of an endocrine feedback loop.

Antidiuretic Hormone (ADH)

2. What stimulates ADH secretion from the posterior pituitary?
b. Describe ADH affect on the following:

i. blood vessel wall smooth muscle - ____________________________

ii. nephron principle cells - ____________________________

iii. sweat glands - ____________________________

c. In summary, what homeostatic affect does ADH have on blood volume and pressure?

______________________________

Renin/Angiotensin

3. a. What stimulates renin secretion from the juxtaglomerular cells in kidney nephrons?

______________________________

______________________________

b. Renin promotes formation of angiotensin II. What affect does angiotensin II have on the following?

i. blood vessels - ____________________________

ii. adrenal cortex zona glomerulosa cells - ____________________________

What affect does aldosterone have on the nephron collecting duct reabsorption? ____________________________

______________________________

iii. proximal convoluted tubule - ____________________________

______________________________
c. In summary, what homeostatic affect does ADH have on blood volume and pressure? ____________

________________________________________

Aldosterone

4. You just studied that angiotensin II stimulates secretion of aldosterone from the zona glomerulosa cells of the adrenal cortex. Summarize aldosterone’s affect on reabsorption of ions and water.

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Atrial Natriuretic Peptide (ANP)

5. a. What stimulates ANP secretion from atrial cells of the heart?

b. What affect does ANP have on the following:
   i. smooth muscle in blood vessel walls - 
   ii. proximal convoluted tubule cells - 
   iii. glomerular mesangial cells - 

c. Summarize how ANP contributes to blood pressure and volume homeostasis.