

NR283 Week 3: Homeostasis and Elimination Worksheet

Capillary Filtration

Hydrostatic Pressure is the (**Push / Pull**) Force and is driven by _____ blood volume_____ and _____ blood pressure_____. It is higher at the (**Arteriole / Venule**) end of the capillary. It will push fluid from the (**intravascular/interstitial**) space to the (**intravascular/interstitial**) space.

Osmotic Pressure is the (**Push/Pull**) force and is driven by _____ solutes_____. It is higher at the (**arteriole / venule**) end of the capillary. Decreased osmotic pressure is common in patients with

_____burns_____and _____malnutrition_____. The cause of edema is a shift of fluid from the (**intravascular/interstitial**) space to the (**intravascular/interstitial**) space.

Fluid Movement Principles

Explain increased capillary permeability. What can trigger increased capillary permeability?

Increased capillary permeability allows for substances to travel in and out of the capillaries. Inflammation can trigger increased capillary permeability.

Excessive fluid in the interstitial compartment is also known as Edema.

Fluid Imbalances

Explain why older adults and infants may be at a higher risk for dehydration

Older adults often feel less thirsty and have fewer nephrons, which reduces kidney function, increasing the likelihood of dehydration. Infants can't ask for or get fluids on their own, also increasing the likelihood of dehydration.

Complete the table below

Risk Factor	Hypervolemia	Hypovolemia
Chronic Kidney Disease	x	
Diarrhea		x
Hemorrhage		x
Congestive Heart Failure	x	
Excessive diuretics		x

Vomiting		x
Excessive use of IV Fluids	x	
Decreased secretion of Antidiuretic hormone	x	

Complete the table below. Each row may have more than one potential option

Manifestation	Hypervolemia	Hypovolemia
High blood pressure	x	
Strong, bounding pulses	x	
dizziness		x
tachypnea		x
tachycardia	x	
Skin tenting		x
Sunken eyes		x
Shortness of breath	x	
Crackles	x	

Describe the common cause of sodium imbalance.

Excessive vomiting, diarrhea, and/or sweating

Match the following manifestations to the correct electrolyte imbalance.

- | | |
|------------------------|------------------------------------|
| 1. Hypernatremia - F | a. Cardiac arrest and dysrhythmias |
| 2. Hypokalemia - E | b. Seizures and confusion |
| 3. Hyperkalemia - A | c. renal calculi |
| 4. Hypocalcemia - B | d. Tetany |
| 5. Hypercalcemia - C | e. muscle cramping |
| 6. Hypermagnesemia - D | f. lethargy |

Complete the table below. Each row may have more than one potential answer

Risk Factor	Hyper-volemia	Hypo-volemia	Hyper-natremia	Hypo-natremia	Hyper-kalemia	Hypo-kalemia
Chronic Kidney disease	x				x	
Diarrhea		x		x		x