

Name:

OL Lab 4: Renal Physiology: Find the mode of action of a diuretic drug

Learning Objectives:

- Understand the morphological relationships between the kidney tubules and the circulatory system
- Analyze experimental data for calculating glomerular filtration rate
- Set up and perform a perfusion of renal tubules, including the calculation of liquid absorption rates
- Learn about the epithelial transport mechanism in the kidney tubules
- Use experimental data to assess the mode of action of a diuretic drug

Kidneys play a critical role in the filtration and reabsorption of essential substances that are required for the body. In this simulation, you will explore the anatomy of the kidney through 3D holograms and identify the physiological roles in maintaining homeostasis as well as the factors that influence urine regulation.

In this simulation, you will use the kidney from a dissected rat to study the mode of action of a new diuretic drug and learn the reabsorption process in the renal tubules. You will learn how to calculate the glomerular filtration rate or GFR and learn the hormones that influence urine output. At the end of the simulation, you should be able to correlate the relationship between renal and circulatory systems in controlling blood pressure.

Part 1: Complete Labster- Renal Physiology: Find the mode of action of a diuretic drug

Part 2: Report and Reflection

Purpose: Describe in your own words and in complete sentences, the purpose of this experiment.

To learn the reabsorption process of a diuretic drug in the renal tubules. I will learn how to calculate the glomerular filtration rate and how which hormones that influence urine output. I'll understand the correlate between renal and circulatory systems the regulate blood pressure. I'll have the opportunity to learn about the epithelial transport mechanism, the kidney tubules, and the factors that influence urine regulation. Ultimately, I have a better understanding of the kidney anatomy.

Observations: List 2 observations you have made in this simulation.

1. During the process I learned that diuretics help your kidneys release more sodium into your urine. Patient taking a diuretic would show lower than normal levels of ADH and/ or aldosterone.
2. Another observation that I made during the simulation is that the distal convolute tubule reabsorbs sodium and chloride ions and produces ammonium

Answer all the questions below: