

Renal Vignettes

Renal Response to Drinking 1L of H₂O

HUMAN vignettes are brief, highly targeted exercise aimed at reinforcing single basic physiological points. The student may then continue to explore by further modifying the experimental design as they wish.

We have just completed studying the *passive* distribution within the total body water, extracellular and intracellular compartments of osmolytes and water.

To obtain an overall feeling for the regulatory response to disturbances in body osmolarity and sodium we examine the response to drinking 1 Liter of pure H₂O. (Compare w/ Guyton Figure 28-1).

Below please find the experimental protocol to carry out this investigation. *Note well that you should understand each of the variables employed*; use Help info on: or from a Help screen pick the View summary of [all variables](#) link.

1) To set up simulating drinking pure water – we infuse 1000 ml of infusate containing ZERO CONCENTRATIONS of Na, K, bicarbonate and protein (see Infuse Electrolytes for more information).

2) After setting these concentrations to zero set up your experiment to run as below:

Change Variable	Enter New Value	Info on Variable
IFVOL	1000	ml
IFMIN	10	Minutes

Run Experiment:
for 180 minutes at 15 minute intervals.

Go Start Over

Help info on: UOSM
Tips: Infuse Electrolytes

View
Variable Value: Choose
Patient Charts or Lab tests: Choose One
Graph Style Size: 600
Normalized, one graph

Comment on the following aspects of the response: 1) urine concentration 2) urine volume 3) change in solute concentration 4) speed of response.