Renal Vignettes

Diabetes Insipidus

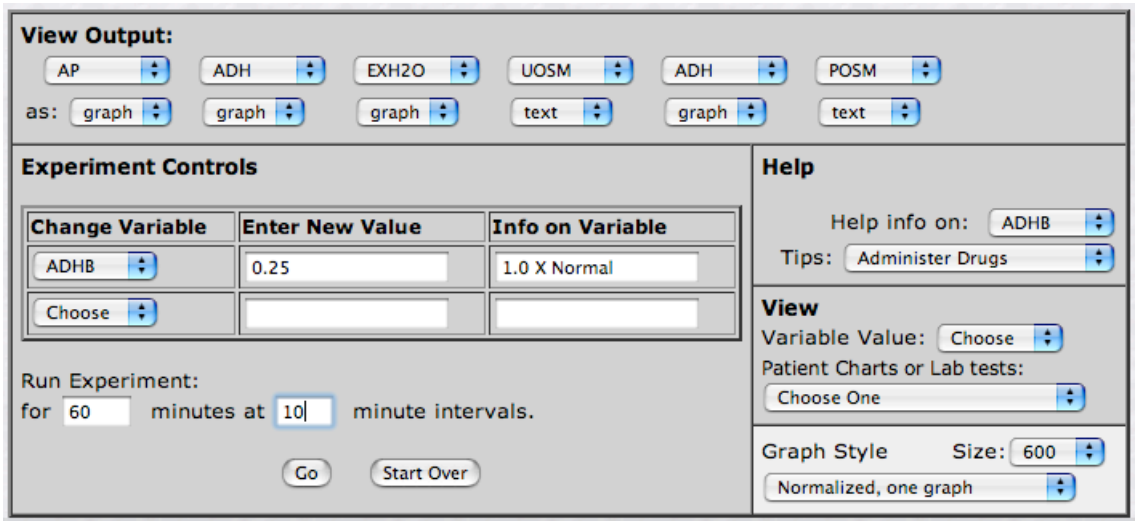
HUMAN vignettes are brief, highly targeted exercises aimed at reinforcing single basic physiological points. The student may then continue to explore by further modifying the experimental design as they wish.

ADH is clearly an crucial regulator of water elimination. Errors in ADH secretion might therefore be expected to result in inappropriate water regulation and the consequences of that regulation error.

Failure to produce adequate ADH, a “central” error, can results in diabetes insipidus with its consequent high urine volumes an water loss. Treatment (not available in HUMAN) can be with desmopressin, a synthetic analog that stimulates V2 receptors in the late DCT and CD. The diabetes could also be nephrogenic in origin with receptors not responding to the centrally released ADH.

In this experiment you block ADH secretion by lowering its basal level and follow its results in terms of water balance.

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.



What water balance effects do you observe? How, lacking desmopressin, might you counter the dehydration?