Step 1 - What is the HUMAN response to a long-term exercise bout?

A) Set up tables:
   - Column 2 Body Water (BODH2O)
   - Column 3 Body weight (WGHT)
   - Column 4 Arterial blood pressure (AP)
   - Column 5 Excretion of Sodium (EXNA)
   - Column 6 Plasma Sodium (PNA)
   - Column 7 cardiac output (COL)

B) Change the following variables
   - Exercise to 1.0 L/min. (light exercise that does not run up an O2DEBT).
   - Exercise duration (XERMIN) to 7 days.

C) Run the model for 4 days (4D) with printouts every 12 hours (12H).

D) Ask for “Your Patient’s Chart”

E) Continue the model for another 2 and a half days. Get his chart again. Note the cause of death.

'Eyeball' the pattern of the data assessing the water and salt loss situation.

Step 2 - Obtain more information on water & salt balance and the hormonal systems that attempt to regulate them during the ultra-marathon.

A) Set up the tables
   - Column 2 Body Water
   - Column 3 Water intake (H2OIN)
   - Column 4 Plasma osmolarity (POSM)
   - Column 5 Hematocrit (HCT)
   - Column 6 Aldosterone (ALDO)
   - Column 7 Antidiuretic Hormone (ADH)

B) Rerun the model exactly as in Step 1 (B through E) above.
Step 3 – Supplement your marathon runner with additional water intake.
A) Estimate, from the data on the first day of the marathon, the runner’s daily water loss.
B) Increase his intake of water in the food (FDH2O) to make up the daily water deficit.
   You must, at the same time, also increase his total food intake (FOOD) to 2 times normal.
C) Set up the exercise parameters and rerun the model for 6 and a half days.
   Characterize the improvement.

Assignment: Due by 5 PM Tuesday, May 1.
In one typed page or less briefly characterize:
   1) Water balance situation
   2) Salt balance situation
   3) Hormonal response
   4) Improvement you achieved

Possible additional work
   Clearly in addition to water loss, salt loss is also a major problem. Estimate the
daily salt loss by summing losses via urinary excretion of sodium with salt lost via sweat and bring the model back into salt balance by increasing the dietary sodium appropriately.