EXPERIMENT #14.   NEPHRECTOMY

Functional or actual loss of renal mass upsets normal homeo-stasis. Many different tissues and mechanisms are involved and very careful patient management is required. This can be simu-lated by decreasing renal mass (REMASS) from a normal value of 1. to a value of 0.0.

		Days after Nephrectomy			
Plasma concentrations:		Day 1	Day 2	Day 3	Day 4
Na^+	PNA	____	____	____	____
K^+	PK	____	____	____	____
Urea Nitrogen	BUN	____	____	____	____
Bicarbonate	BICARB	____	____	____	____
Protein	PPR	____	____	____	____
Osmolarity	POSM	____	____	____	____
Hematocrit	HCT	____	____	____	____
pH	PH	____	____	____	____

Give a detailed analysis of the disruption in plasma concentrations and acid/base balance.

Is there evidence of respiratory compensations?

Identify the hemodynamic changes.

		Control	4th Day Post-Nephr.	% Change
Arterial Pressure	AP	_____	_____	_____
Cardiac Output	CO	_____	_____	_____
Tot.Per.Resistance	TPR	_____	_____	_____
Red Cell Mass	RCM	_____	_____	_____
Plasma Volume	PV	_____	_____	_____
Interst.Fluid Vol.	IFV	_____	_____	_____
Body Water	BODH2O	_____	_____	_____

Will it help to restrict water intake? The parameter FDH2O can be reduced. Explain the result observed.

Extra: Establish an acceptable hemodialysis schedule. See the Appendix*for the relevant parameter names. Would you recommend any dietary changes?

* Variables List in web-HUMAN

Notes on the Use of HUMAN–80 Student Manual Experiments in *web*-HUMAN

Essentially all HUMAN-80 experiments run *perfectly* in *web*-HUMAN. Nevertheless, those using the HUMAN-80 experiments with the current *web*-HUMAN model should be aware of certain minor compatibility issues and limitations.

What is HUMAN–80?: There have been multiple past versions of the HUMAN model of which *web*-HUMAN and HUMAN–80 are but two. Human–80 was a version of the HUMAN model designed to run on desktop PC's. Although both versions of the model behave virtually identically *physiologically*, they obviously differ vastly in how the user interacts with them. This means that those parts of a HUMAN-80 experiment instruction sheet that are user-interface specific are not necessarily fully compatible with *web*-HUMAN.

Adapting HUMAN–80 Manual experiments to *web*-HUMAN:
Essentially all HUMAN-80 experiments run *perfectly* in *web*-HUMAN. Just follow Dr. Randall's instructions step by step.

 - wherever possible the text of these exercises has been edited or annotated to increase compatibility of the instructions with *web*-HUMAN. Thus references to commands that differ between the two versions have been updated either by editing or by indication with a commented superscripted symbol (* or #) .

 - experiment numbers in HUMAN-80 *DO NOT MATCH* those in those in *web*-HUMAN. To create your own tabular output format simply load web-HUMAN experiment #1 and follow Dr. Randall's instructions using View output: to create your own data tables.

 - users should note that HUMAN-80 had no graphic output, only tables. In *web*-HUMAN you can choose to graph by simply selecting <graph> instead of just <text> below each variable in the View output: table.

 - HUMAN-80 instructions sometimes ask for users to look at more than six variables. To do so simply rerun the experiment with the additional variables displayed or use the <View Variable> option to obtain a value for a variable that is not in the tables.