Physiology Lessons
for use with the
Biopac Student Lab

PC under Windows® 98SE, Me, 2000 Pro
or Macintosh® 8.6 – 9.1

Manual Revision
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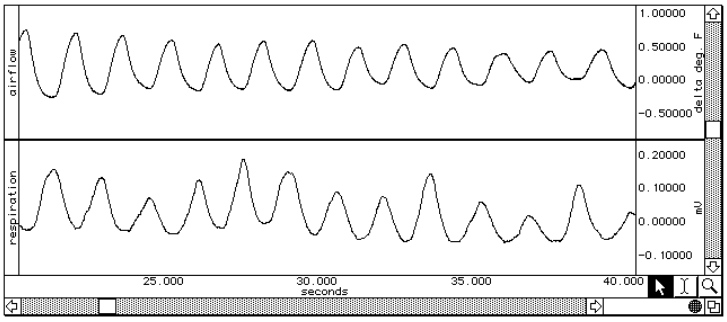
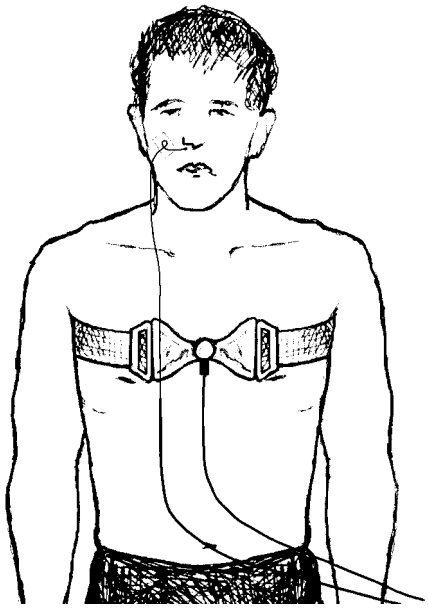
Lesson 8 Data Report

RESPIRATORY CYCLE I

Respiratory Rates
Relative Depths of Breathing
Regulation of Ventilation





Lesson 8

RESPIRATORY CYCLE I

DATA REPORT

Student's Name: _____

Lab Section: _____

Date: _____

I. Data and Calculations

Subject Profile

Name_____ Height_____

Age_____ Weight_____

Gender: Male / Female

A. Eupnea (Normal Breathing - Segment I)

Complete Table 8.1 with values for each cycle and calculate the Means.

Table 8.1

Rate	Measurement	CH. #	Cycle 1	Cycle 2	Cycle 3	Mean
Inspiration Duration	**ΔT**	CH 40				
Expiration Duration	**ΔT**	CH 40				
Total Duration	**ΔT**	CH 40				
Breathing Rate	**BPM**	CH 40				

B. Comparison of Ventilation Rates (Segments 2-4)

Complete Table 8.2 with measurements from CH 40 for three cycles of each segment and calculate the Means where indicated.

Table 8.2

Note: ΔT is cycle duration, BPM is breathing rate, and Cough has only one cycle

Measurement	**Hyperventilation** *Segment 2*		**Hypoventilation** *Segment 3*		**Cough** *Segment 4*		**Read Aloud** *Segment 4*	
	ΔT	**BPM**	**ΔT**	**BPM**	**ΔT**	**BPM**	**ΔT**	**BPM**
Cycle 1								
Cycle 2								
Cycle 3								
Mean								

C. Relative Ventilation Depths (Segments 1-4)

Table 8.3

Depth	**Cycle 1** p-p [CH 40]	**Cycle 2** p-p [CH 40]	**Cycle 3** p-p [CH 40]	**Mean** *Calculate*
Eupnea *Segment 1*				
Hyperventilation *Segment 2*				
Hypoventilation *Segment 3*				
Cough *Segment 4*				

D. Association of Respiratory Depth and Temperature (Segments 1-3)

Table 8.4

Measurement	**Channel**	**Eupnea** ***Segment 1***	**Hyperventilation** ***Segment 2***	**Hypoventilation** ***Segment 3***
Peak **Δ**Temp	CH 2 **p-p**			
ΔT between Max inspiration and Peak ΔTemp	CH 40 **ΔT**			

II. Questions

E. If the subject had held their breath immediately after hyperventilation and hypoventilation, would the subject hold their breath longer after hyperventilation or hypoventilation? Why?

F. After a brief period of hyperventilation, "apnea vera" occurs.

i. Define hyperventilation

ii. Define apnea vera.

iii. Describe the feedback loop causing apnea vera.

G. i. What changes occur in the body with hypoventilation?

ii. How does the body adjust rate and depth of ventilation to counteract the effects of hypoventilation?

H. In which part of the respiratory cycle is temperature:

Highest?_____ Lowest?_____

Explain why temperature varies with the respiratory cycle.

I. Describe or define cough in terms of modification of the breathing cycle.

J. What modifications of the breathing cycle occur when reading aloud? Why?

K. Refer to Table 8.1 data: During eupnea, did the subject inspire immediately after the end of expiration or was there a pause? Explain the stimulus and mechanism to initiate inspiration.

L. Referring to Table 8.3 data: Are there differences in the relative ventilation depths?

End of Lesson 8 Data Report