



BIOPAC
Systems, Inc.

Physiology Lessons
for use with the
Biopac Student Lab

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

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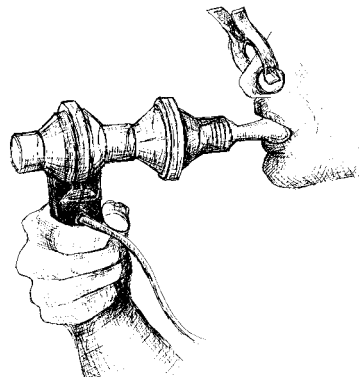
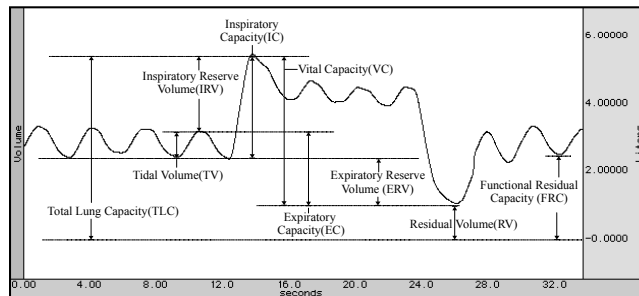
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Lesson 12 Data Report
PULMONARY FUNCTION I
Volumes and Capacities



Lesson 12

PULMONARY FUNCTION I
Volumes and Capacities

DATA REPORT

Student's Name: _____

Lab Section: _____

Date: _____

Subject Profile

Name _____

Height _____

Age _____

Weight _____

Gender: Male / Female

I. Volume Measurements

A. Predicted Vital Capacity

Use the equation below to calculate your predicted Vital Capacity.

Equations for Predicted Vital Capacity	
Male	$V.C. = 0.052H - 0.022A - 3.60$
Female	$V.C. = 0.041H - 0.018A - 2.69$

V.C. Vital Capacity in liters

H Height in centimeters

A Age in years

Work Space for calculating your predicted Vital Capacity:

Predicted Vital Capacity: _____ liters

B. Observed Volumes and Capacities**Table 12.2**

Volume Titles	Measurement (liters)
Tidal Volume (TV)	
Inspiratory Reserve Volume (IRV)	
Expiratory Reserve Volume (ERV)	
Vital Capacity (VC)	

Residual Volume (RV) used: _____ liters (Default is 1 liter.)

Using data obtained above, calculate the following capacities:

Table 12.3

Capacity	Formula	Your Calculation
Inspiratory (IC)	$IC = TV + IRV$	
Expiratory (EC)	$EC = TV + ERV$	
Functional Residual (FRC)	$FRC = ERV + RV$	
Total Lung (TLC)	$TLC = IRV + TV + ERV + RV$	

Compare the Subject's lung volumes with the average volumes presented in the Introduction:

Tidal Volume _____

Inspiratory reserve Volume _____

Expiratory Reserve Volume _____

C. Observed vs. Predicted Vital Capacity

What is the Subject's observed Vital Capacity to predicted Vital Capacity?

_____ liters observed

_____ x 100 = _____ %

_____ liters predicted

Note: Vital capacities are dependent on other factors besides age and height. Therefore, 80% of predicted values are still considered "normal."

II. QUESTIONS

D. Why does predicted vital capacity vary with height?

E. Explain how factors other than height might affect lung capacity.

F. How would the volume measurements change if data were collected after vigorous exercise?

G. What is the difference between volume measurements and capacities?

H. Define **Tidal Volume**.

I. Define **Inspiratory Reserve Volume**.

J. Define **Expiratory Reserve Volume**.

K. Define **Respiratory Volume**.

L. Define **Pulmonary Capacity**.

M. Name the **Pulmonary Capacities**.
