Lesson 12 Data Report

PULMONARY FUNCTION I

Volumes and Capacities
Lesson 12

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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.

<table>
<thead>
<tr>
<th>Equations for Predicted Vital Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Volume Titles</th>
<th>Measurement (liters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tidal Volume (TV)</td>
<td></td>
</tr>
<tr>
<td>Inspiratory Reserve Volume (IRV)</td>
<td></td>
</tr>
<tr>
<td>Expiratory Reserve Volume (ERV)</td>
<td></td>
</tr>
<tr>
<td>Vital Capacity (VC)</td>
<td></td>
</tr>
</tbody>
</table>

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

Using data obtained above, calculate the following capacities:

Table 12.3

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Formula</th>
<th>Your Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspiratory (IC)</td>
<td>IC = TV + IRV</td>
<td></td>
</tr>
<tr>
<td>Expiratory (EC)</td>
<td>EC = TV + ERV</td>
<td></td>
</tr>
<tr>
<td>Functional Residual (FRC)</td>
<td>FRC = ERV + RV</td>
<td></td>
</tr>
<tr>
<td>Total Lung (TLC)</td>
<td>TLC = IRV + TV + ERV + RV</td>
<td></td>
</tr>
</tbody>
</table>

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
  - _______ liters predicted

\[ \text{Percentage} = \left( \frac{\text{Observed Vital Capacity}}{\text{Predicted Vital Capacity}} \right) \times 100 \]

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.

End of Lesson 12 Data Report