V. DATA ANALYSIS

FAST TRACK Data Analysis

1. Enter the Review Saved Data mode.

- Note Channel Number (CH) designation:
  
<table>
<thead>
<tr>
<th>Channel</th>
<th>Displays</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 2</td>
<td>ECG</td>
</tr>
<tr>
<td>CH 41</td>
<td>Heart Rate</td>
</tr>
<tr>
<td>CH 42</td>
<td>EDA</td>
</tr>
</tbody>
</table>

- Note measurement box settings:
  
<table>
<thead>
<tr>
<th>Channel</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 41</td>
<td>Value</td>
</tr>
<tr>
<td>CH 42</td>
<td>Value</td>
</tr>
<tr>
<td>CH 41</td>
<td>Mean</td>
</tr>
<tr>
<td>CH 42</td>
<td>Mean</td>
</tr>
</tbody>
</table>

2. Set up your display window for optimal viewing of all Heart Rate and EDA data.

Detailed Explanation of Data Analysis Steps

If entering Review Saved Data mode from the Startup dialog or lessons menu, make sure to choose the correct file.

The measurement boxes are above the marker region in the data window. Each measurement has three sections: channel number, measurement type, and result. The first two sections are pull-down menus that are activated when you click them.

Brief definition of measurements:

- **Value**: Displays the amplitude value at the point selected by the I-beam cursor.
  - If an area is selected, displays the value of the endpoint based on the direction the cursor was dragged.
  - Single point Values will be shown when placing the Arrow cursor over the data while holding down the left mouse button.
- **Mean**: Displays the average value in the selected area.

The selected area is the area selected by the I-beam tool (including endpoints).

The ECG (CH 2) data can be hidden since it is not used in the measurements.

Useful tools for changing view:

- **Display menu**: Autoscale Horizontal, Autoscale Waveforms, Zoom Back, Zoom Forward
- **Scroll Bars**: Time (Horizontal); Amplitude (Vertical)
- **Cursor Tools**: Zoom Tool
- **Buttons**: Overlap, Split, Show Grid, Hide Grid, -, +
- **Hide/Show Channel**: Alt + click (Windows) or Option + click (Mac) the channel number box to toggle channel display.
To optimize the Heart Rate (BPM) vertical scale, zoom in on the valid portion of the Heart Rate (BPM) data, then select Display > Autoscale Waveforms.

3. Measure the maximum and minimum values for Heart Rate (BPM) during the Relaxation portion (first 90 seconds).

4. Measure the maximum and minimum values for EDA during the Relaxation portion.

Data Analysis continues…
5. Measure the maximum and minimum values for Heart Rate and EDA during the Arousal portion.

6. Select all Relaxation data, excluding the first few seconds and then record the Mean measurement for Heart Rate (BPM) and EDA.

7. Select all Arousal data, and then record the Mean measurement for Heart Rate (BPM) and EDA.

8. Answer the questions at the end of the Data Report.

9. Save or Print the data file.

10. Quit the program.

An electronically editable Data Report is located in the journal (following the lesson summary,) or immediately following this Data Analysis section. Your instructor will recommend the preferred format for your lab.

END OF LESSON 14
Complete the Lesson 14 Data Report that follows.
BIOFEEDBACK

- Relaxation and Arousal

DATA REPORT

Student’s Name: ____________________________
Lab Section: __________________________________________
Date: ____________________________

Subject Profile

Name: ____________________________ Height: ____________________________
Age: ____________________________ Gender: Male / Female Weight: ____________________________

I. Data and Calculations

A. Table 14.1

<table>
<thead>
<tr>
<th>Calculation</th>
<th>CH/Measurement</th>
<th>Relaxation Data</th>
<th>Arousal Data</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Heart Rate</td>
<td>41 Value</td>
<td></td>
<td></td>
<td>BPM</td>
</tr>
<tr>
<td>Max. Heart Rate</td>
<td>41 Value</td>
<td></td>
<td></td>
<td>BPM</td>
</tr>
<tr>
<td>Min. EDA</td>
<td>42 Value</td>
<td></td>
<td></td>
<td>microsiemens</td>
</tr>
<tr>
<td>Max. EDA</td>
<td>42 Value</td>
<td></td>
<td></td>
<td>microsiemens</td>
</tr>
<tr>
<td>Mean Heart Rate</td>
<td>41 Mean</td>
<td></td>
<td></td>
<td>BPM</td>
</tr>
<tr>
<td>Mean EDA</td>
<td>42 Mean</td>
<td></td>
<td></td>
<td>microsiemens</td>
</tr>
</tbody>
</table>

II. Questions

B. Based on the data from Table 14.1, did the effects of the parasympathetic nervous system change with biofeedback? Explain the physiological mechanisms causing the results.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

C. Describe a biofeedback program for stress management. Include details such as the physiological variable(s) you would measure, the transducers needed, and your criterion for a successful training program.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
D. Name the branches of the autonomic nervous system and explain their function.


E. Define Biofeedback and explain in general terms how it works.


F. What change, if any, did your EDA recording show when you were aroused? Relaxed?


G. Why is EDA a useful measure for biofeedback training?


III. OPTIONAL Active Learning Portion

A. Hypothesis

B. Materials

C. Method

D. Set Up

E. Experimental Results

End of Lesson 14 Data Report