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V. DATA ANALYSIS

FAST TRACK Data Analysis

1. Enter the **Review Saved Data** mode.

   - Note Channel Number (CH) designation:

Channel	*Displays*
CH 2	**ECG**
CH 41	**Heart Rate**
CH 42	**EDA**

   - Note measurement box settings:

Channel	*Measurement*
CH 41	**Value**
CH 42	**Value**
CH 41	**Mean**
CH 42	**Mean**

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

Data Analysis continues…

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.

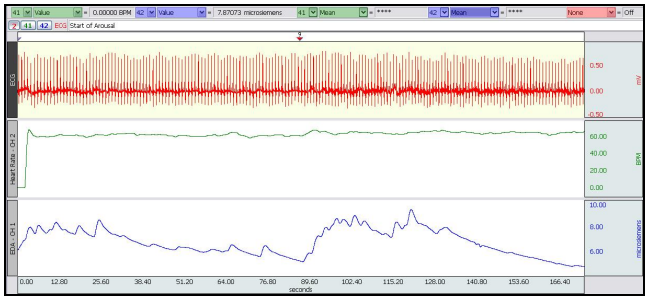

Fig. 14.9 Example data window

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 ñselected areaò 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.

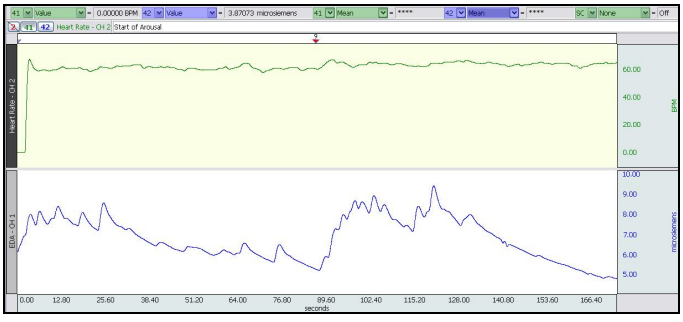

Fig. 14.10 ECG (CH 2) hidden

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: ñAlt + clickò (Windows) or ñOption + clickò (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.

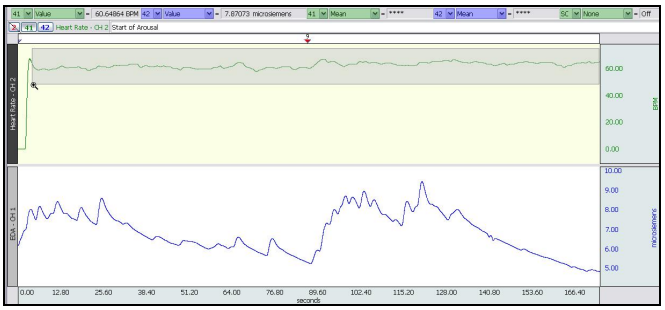

Fig. 14.11 Zoom In on valid Heart Rate data

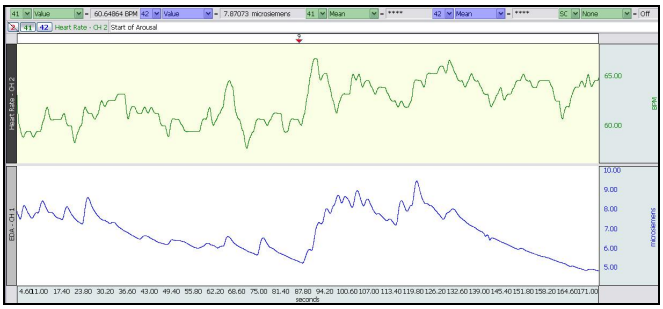

Fig. 14.12 After Display > Autoscale Waveforms

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

A

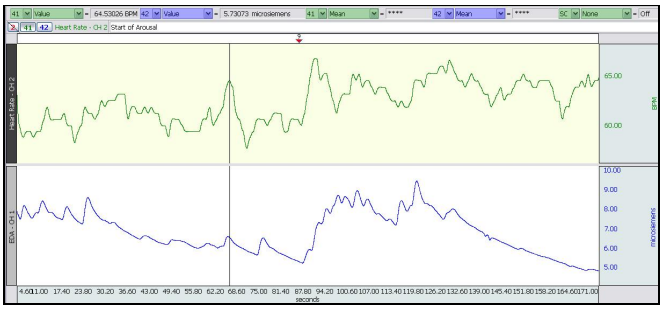

Fig. 14.13 Cursor placed at Maximum Heart Rate during Relaxation

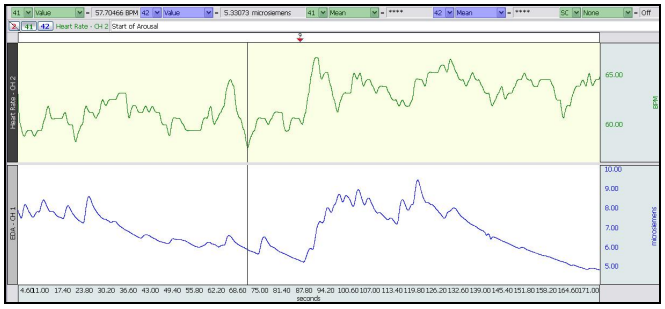

Fig. 14.14 Cursor placed at Minimal Heart Rate during Relaxation

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

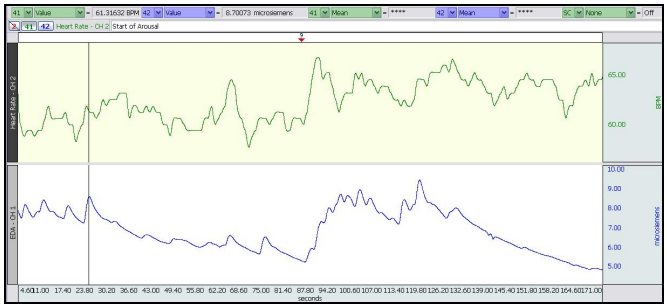

Fig. 14.15 Cursor placed at Maximum EDA during Relaxation

Data Analysis continues…

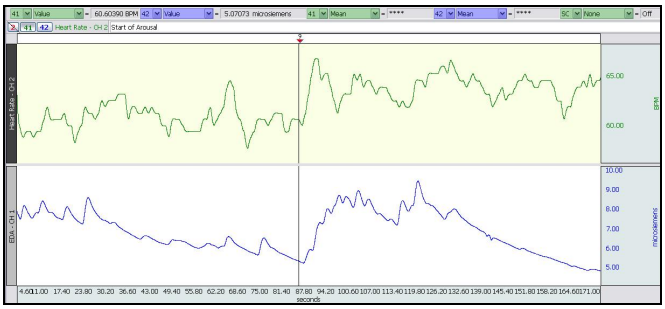

Fig. 14.16 Cursor placed at Minimal EDA during Relaxation

5. Measure the maximum and minimum values for Heart Rate and EDA during the Arousal portion.

   A

The ñStart of Arousalò is indicated by the event marker, approximately 90 seconds into the recording.

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

   A

Exclude the first few seconds as the Heart Rate was not valid.

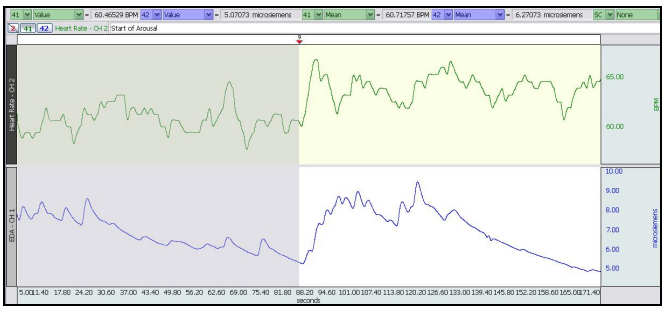

Fig. 14.17 Relaxation Interval for Mean measurements

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

   A

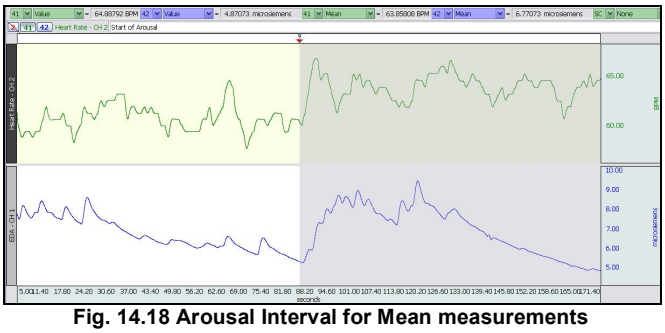

Fig. 14.18 Arousal Interval for Mean measurements

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 DATA ANALYSIS

END OF LESSON 14

Complete the Lesson 14 Data Report that follows.

BIOFEEDBACK

- *Relaxation and Arousal*

DATA REPORT

Studentôs Name: _____

Lab Section: _____

Date: _____

Subject Profile

Name:_____ Height:_____

Age:_____ Gender: Male / Female Weight:_____

I. Data and Calculations

A.

Table 14.1

Calculation	CH/Measurement	Relaxation Data	Arousal Data	Units
Min. Heart Rate	41 Value			BPM
Max. Heart Rate	41 Value			BPM
Min. EDA	42 Value			microsiemens
Max. EDA	42 Value			microsiemens
Mean Heart Rate	41 Mean			BPM
Mean EDA	42 Mean			microsiemens

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 ñstress management.ò 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