Experiment HP-5D: Cynicism/Hostility and the "Hot Reactor"

This lab is part 4 of a series of 4 labs. All labs can be done individually, but it is best to do them in this order:

1) Heart Rate, Blood Pressure, and Vagal Tone
2) Personality and Vagal Tone
3) Vigilance and Reaction Time
4) Hot Reactor

IWorx Sample Lab

Equipment Required

PC or Mac Computer

IXTA, USB cable, IXTA power supply

BP-220 or BP-220A Non-invasive blood pressure transducer – also used in the Hot Reactor lab

Black tygon tubing

PT-320 Pulse plethysmograph – also used in the Personaly & Vagal Tone, Vigilance-Reaction Time and Hot Reactor labs

RM-204 Respiration monitor – used in the Personality-Vagal Tone and Hot Reactor labs

RM-220 Nasal Cannula – used in the Personality-Vagal Tone and Hot Reactor labs

EM-220 Event Marker – used in the Vigilance-Reaction Time lab

Warning: *As explained above, this procedure involves stopping blood flow to the arm, which is potentially dangerous. Please take the following precautions.*

Precautions

1. Know what you are doing ahead of time.
2. Do not leave the cuff inflated for any prolonged period of time (>20 seconds).
3. The subject should flex and extend their fingers between experiments to maintain blood flow.
4. This experiment should be performed by healthy individuals who do not have a personal or family history of cardiovascular or respiratory problems. It is preferable to use more than one subject during the course of the lab session.

Blood Pressure and Pulse Transducers Setup

1. Locate the BP-220 or BP-220A non-invasive blood pressure (NIBP) transducer and PPG-320 pulse plethysmograph.
2. Plug the pulse sensor into the PT port.
3. **Automated Blood Pressure and Pulse Transducer Setup -**Find the automatic blood pressure monitor and blood pressure cuff.
    - Slide the gray connector on the tubing of the BP cuff into the port on the left side of the BP monitor.
    - Turn on the BP monitor using the On/Off switch on the right side of the monitor.
    - Choose AutoBP from the View menu on the toolbar.

4. Manual BP cuff - Plug the tubing connector of the BP-220 into channel A2.
    - Choose IXTA View from the View menu on the toolbar.

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Figure HP-6-S1: The BP-220 non-invasive blood pressure transducer and PPG-320 pulse sensor.

Calibration of the Manual Non-Invasive BP Transducer

Procedure

1. Lay the cuff of the BP-220 on the lab table and click on the Record button.
2. Click on the AutoScale button at the upper margin of the Pulse and Blood Pressure channels. Your recording should look like the image below.
3. Record data while the cuff is laying on the table for about 10 seconds.
4. Select Save As in the File menu, type a name for the file. Click on the Save button to save the data file.Record data while the cuff is laying on the table for about 10 seconds.

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Figure HP-6-S2: The PPG-320 pulse transducer and the BP-220 non-invasive blood pressure transducer connected to an IXTA.

Units Conversion

1. Scroll to the beginning of the calibration data for the BP-220 non-invasive blood pressure transducer.
2. Use the Display Time icons to adjust the Display Time of the Main window to show the 10 second set of data on the Main window at the same time.
3. Click the 2-Cursor icon so that two cursors appear on the Main window. Place one cursor on the beginning of the flat section of data and the second cursor on the flat section of data collected approximately 10 seconds later.

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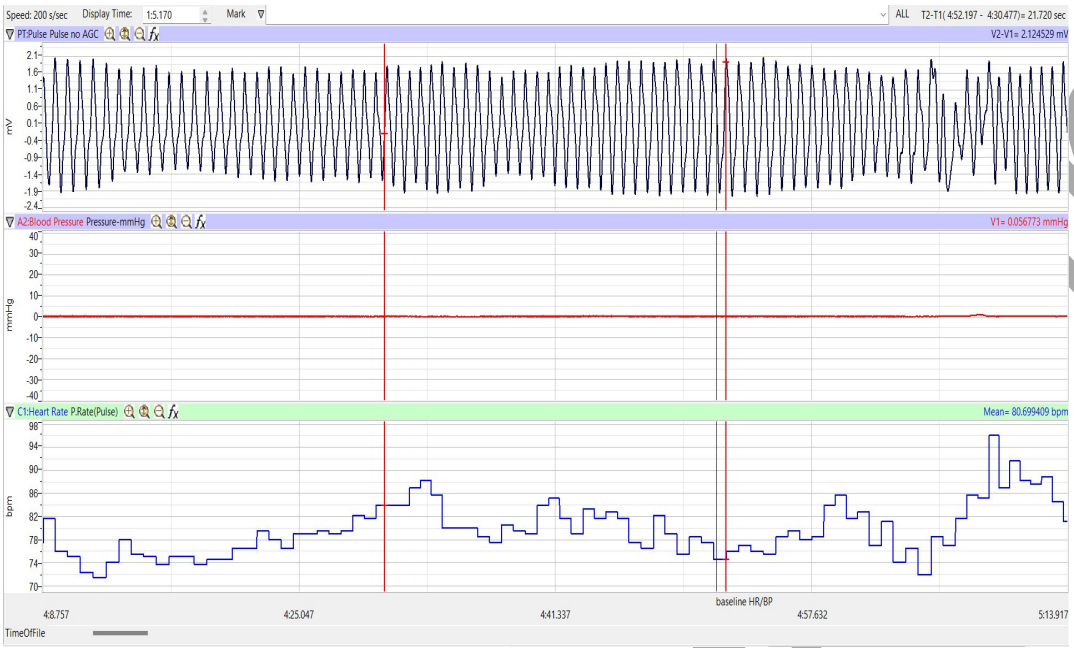

Figure HP-6-S4: The output of the BP-220 non-invasive blood pressure transducer displayed on the middle channel of the Main window. Pulse is shown on the top channel and heart rate on the bottom.

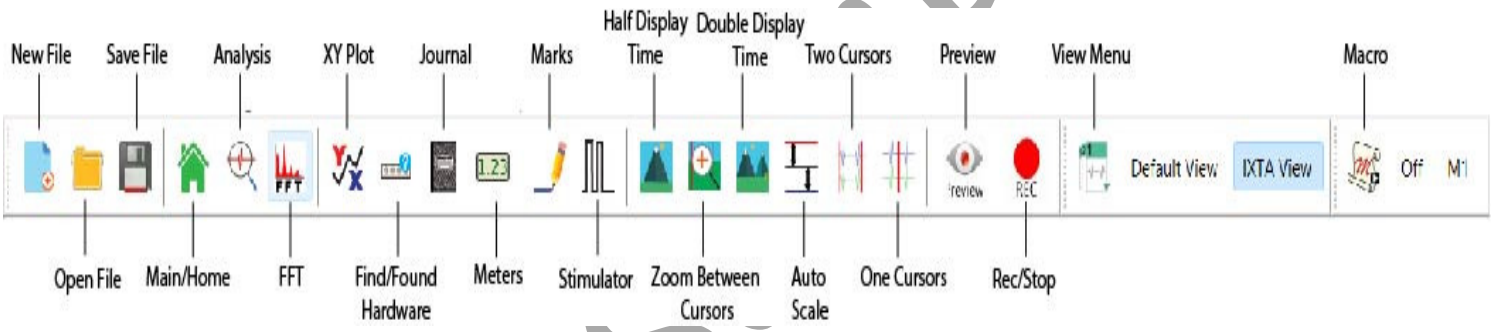

Figure HP-6-S5: The LabScribe toolbar.

4. Click V2-V1 to the right of the Blood Pressure channel. Select Set Offset.
5. Put a check mark in the box next to Apply units to all blocks. Enter "0" in the box at the top. Click OK

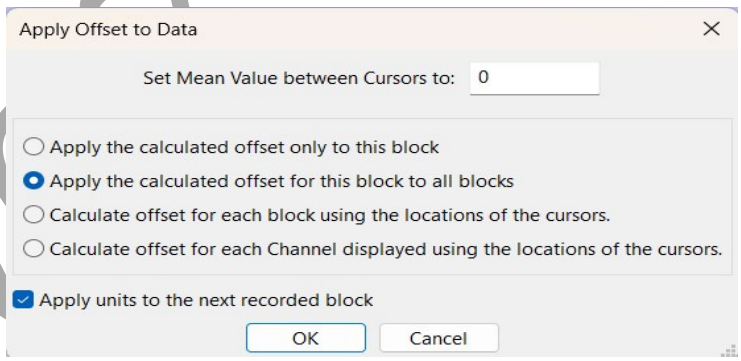

Figure HP-6-S6: The Units Offset dialogue window with the mean values set to "0".

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