Experiment HP-29: Attractiveness Physiology

Equipment Required

PC or Mac Computer

IXTA, USB cable, power supply

iWire-B3G GSR amplifier and electrodes

PT-104 Pulse plethysmograph

TM-220 Temperature Sensor

RPD-400 4-Button Response Pad

Note: adding or removing sensors for this experiment is left open-ended. As many parameters as the hypothesis is looking at can be measured.

As an example – the iWire-B3G EEG electrodes can be added to record EEG as well.

Sensor Setup

Note: Connect the iWire-B3G for GSR to the IXTA prior to turning it on.

1. Locate the PT-104 pulse plethysmograph and plug it into Channel A5 of the IXTA.
    - Place the pulse sensor on the volar surface of the subject's thumb.
2. Locate the iWire-B3G and GSR electrodes.
    - Attach the GSR electrodes to the correct connectors on the iWire-B3G.
        - **Note – the GSR unit is precalibrated. No other calibration is needed.**
    - Attach the GSR electrodes to the pointer and ring finger of the subject's hand. Make sure the fingers are not too cold or too dry. Moisten them with saliva or GSR conductive paste.

Figure HP-29-S1: PT-104 pulse plethysmograph.

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3. Locate the TM-220 temperature sensor and plug the connector on the end into the channel labeled “Temp” on the front of the IXTA unit. The temperature sensor can be placed on the forehead or cheek. Carefully secure it in place with a small piece of paper tape.

Note: The TM-220 temperature probe is precalibrated and additional calibration is not necessary. Using the a 2-point calibration and the “Units Advanced” feature will allow you to calibrate if you would like to perform another calibration.

Figure HP-29-S2 The iWire-B3G ECG and Galvanic Skin Response amplifier. The purple and orange GSR electrodes are shown in this image (you may have received other colors).

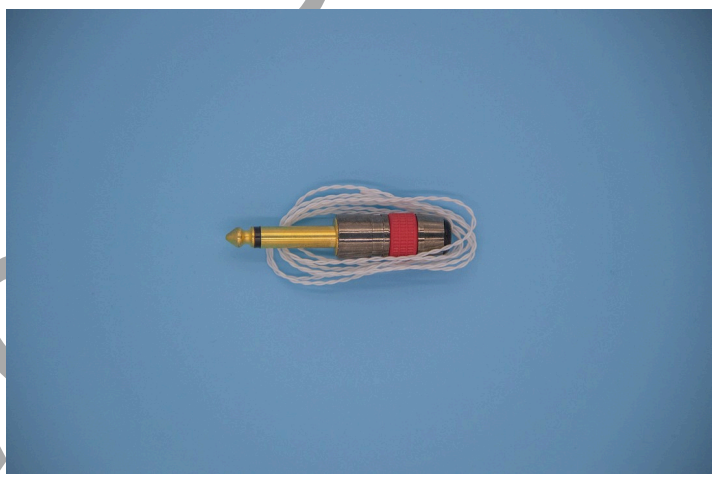

Figure HP-29-S3: TM-220 temperature probe.

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4. Connect the RPD-400 4-Button Response Pad to the back of the IX-TA.

Figure HP-29-S4: The RPD 4-button response pad.

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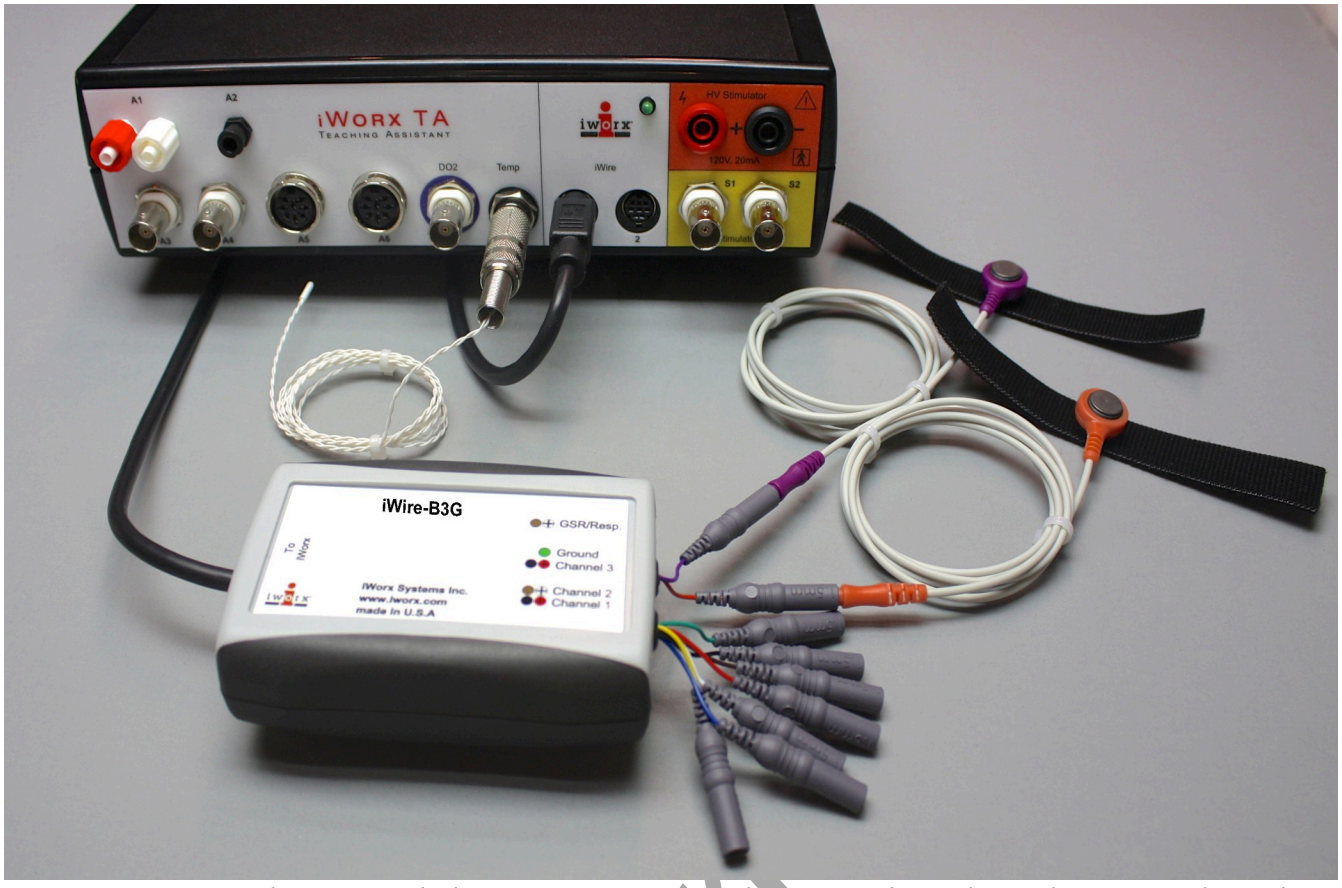

Figure HP-29-S6: The IXTA with the iWire-B3G-GSR and TM-220 plugged into the correct channels.

- *The iWire-B3G for GSR will be plugged into the iWire 1 port. Reuseable EEG button electrodes can be added to the B3G.*
- *The PT-104 will be plugged into channel 5 (not shown).*
- *The TM-220 will be plugged into channel A8 (temp).*

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Experiment HP-29: Attractiveness Physiology

Exercise 1: Measuring Galvanic Skin Response and Heart Rate Before and After Photographs

Aim: To measure the subject's skin conductance before and after looking at photos of male and female faces

Approximate Time: 30 minutes or more

Procedure – Part 1 - Baseline

1. Select one person from your group to be the subject. Ask the subject to go to the sink, wash their hands with soap and water, and dry them thoroughly. Washing the hands insures that surface oils or other substances, which might lower skin conduction, are removed. *Do not use alcohol to clean the fingers, alcohol dehydrates the skin.*
2. Place the pulse sensor on the non-dominant thumb or middle finger where the fingerprints are. Make sure the sensor is snug, but not overly tight.
3. Attach each GSR electrode to the volar surface of the distal finger segment of two non-adjacent fingers; the index and the ring fingers are the ones usually used. Attach the electrodes with the Velcro straps so that the straps are snug, but not overly tight. You will need to use a small amount of GSR conductive paste to lightly moisten the finger tips for good conduction.
4. The subject should rest their hand with the sensors attached comfortably. The GSR electrodes should be free from any extraneous pressure and the electrode cable should be hanging freely. Instruct the subject not to move the hand during the recording process; movement may introduce artifacts into the recording.
5. Click on the Record button. Type **Baseline** in the Mark box and click the mark button.
6. Record the subject's baseline skin conductance, heart rate and temperature. Since the GSR amplifier is already calibrated, the value displayed on the Skin Conductance Level channel is the baseline skin conductance level (SCL) of the subject.
7. Record for approximately one minute until the recording stabilizes.
8. Click Stop to halt the recording.
9. Select Save As in the File menu, type a name for the file. Click on the Save button to save the data file.

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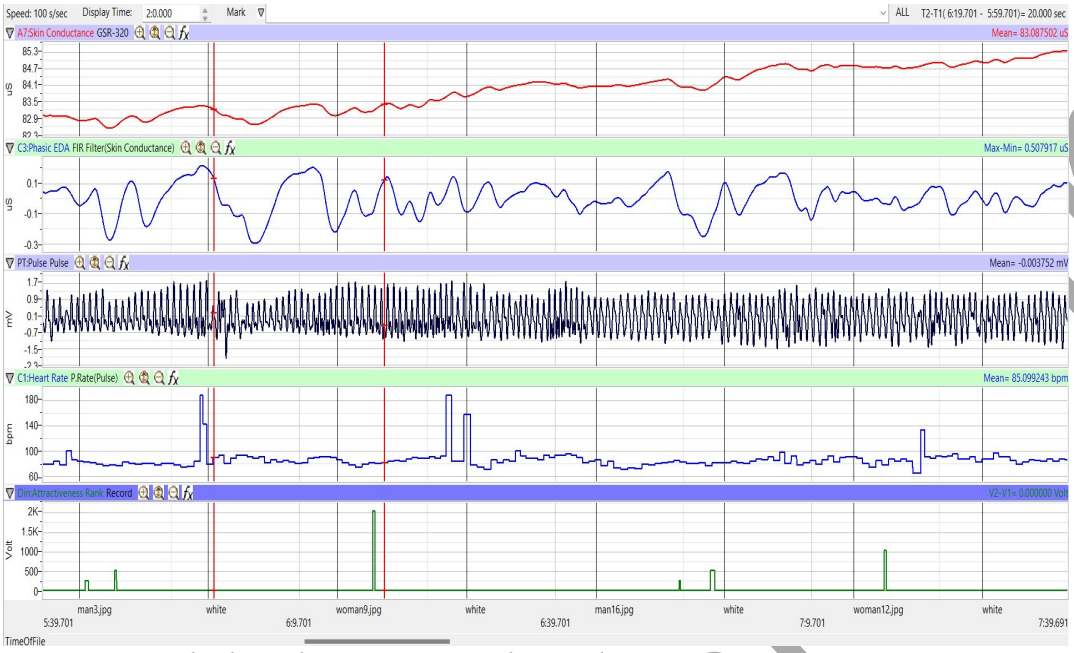

Figure HP-29-L1: Sample data showing GSR, pulse, and HR.

Procedure – Part 2 - Photographs

1. Click on the Record button and let the recording stabilize for approximately 30 seconds.
   - An image of a masculine or feminine face will be shown for 10 seconds.
   - During this time the subject should click the response pad to rank the physical attractiveness of the individual.
     - "A" meaning not very attractive to me
     - "B" meaning somewhat attractive to me
     - "C" meaning more attractive to me
     - "D" meaning most attractive to me
   - After 10 seconds, the screen will show a blank image for 15 seconds. During this time the subject should explain verbally why the person in the image was attractive or not. Take notes on this so you can discuss this later.
     - Did they have nice eyes, a good smile, nice skin?
     - What about the image made you attracted to the person?
2. Click **Photographs** in the Macros list to choose the images to be shown.
3. Continue recording until all 20 images are shown. Rank and take notes for each individual.
4. Click on the Save button to save the data file.
5. Repeat this exercise on other subjects in your lab group.

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Data Analysis - Baseline

1. Scroll through the data file and locate the recording of the subject's **baseline** skin conductance level (SCL), heart rate and temperature.
2. Use the Display Time icons to adjust the Display Time of the Main window to display the one minute recording of the subject's baseline SCL on the Main window. This section of data can also be selected by:
    - Placing the cursors on either side of the one minute recording of the subject's SCL, and
    - Clicking the Zoom between Cursors button on the LabScribe toolbar to expand or contract the one minute recording to the width of the Main window.
3. On the right hand margin of the Skin Conductance and Heart Rate channels the mathematical function, Mean, should appear. The values for each of the means is the baseline value for each of the parameters.

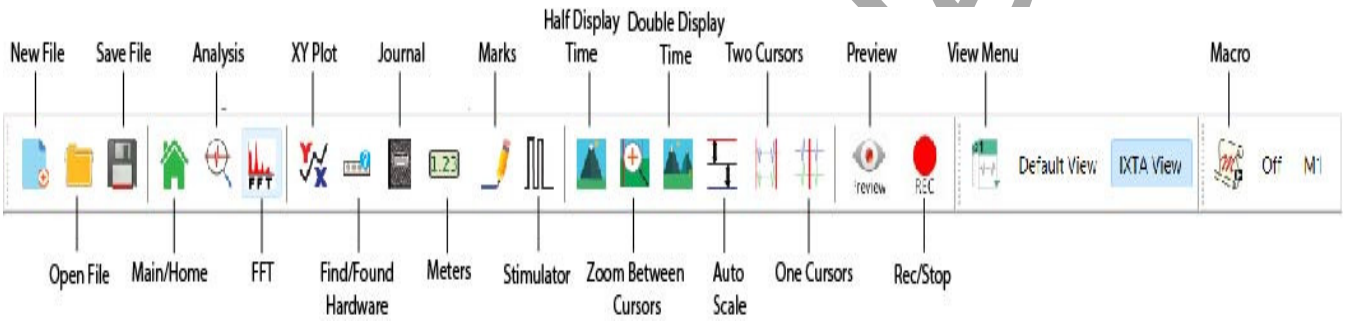

Figure HP-29-L2: The LabScribe toolbar.

4. The cursors should be placed on the margins of the one-minute recording. Once the cursors are placed in the correct positions for determining the mean baseline, the levels can be recorded in the on-line notebook of LabScribe by typing the name and value of the parameter directly into the Journal.

Data Analysis - Photographs

1. Return to the Main window and adjust your display time to 30 seconds by typing "30" into the Display time box. Click Enter.
2. For the **Photographs** of this lab, you will be using the small down arrow to the immediate right of the Mark button. Click on that arrow and you will see a drop down list of all the images that were shown to your subject.
3. Choose the first image shown. The recording will move immediately to when that image was shown on the screen.
4. Place your cursors so one is on the mark made by the computer when the photograph was shown, and place the 2nd cursor 10 seconds after the first. You will be looking at the 10 seconds of data while the subject was looking at the image.

Work Sample Lab

5. On the right hand margin of the Skin Conductance and Heart Rate channels the mathematical function, Mean, should appear. The values for each of the means is the reaction value for each of the parameters immediately following the image. Make note of the rank.
6. Repeat steps 1-5 for all the photographs.
7. Enter the means for the subject's baseline and the values for all the photographs in Table 1.

Table HP-29-L1: Baseline SCL and Heart Rate & SCL and Heart Rate after Imagery

Subject's Name	Rank (1-4)	Mean SCL (µS)	Mean Heart Rate (bpm)
Baseline			
Photograph 1			
Photograph 2			
Photograph 3			
Photograph 4			
Photograph 5			
Photograph 6			
Photograph 7			
Photograph 8			
Photograph 9			
Photograph 10			
Photograph 11			
Photograph 12			
Photograph 13			
Photograph 14			
Photograph 15			
Photograph 16			
Photograph 17			
Photograph 18			
Photograph 19			
Photograph 20			

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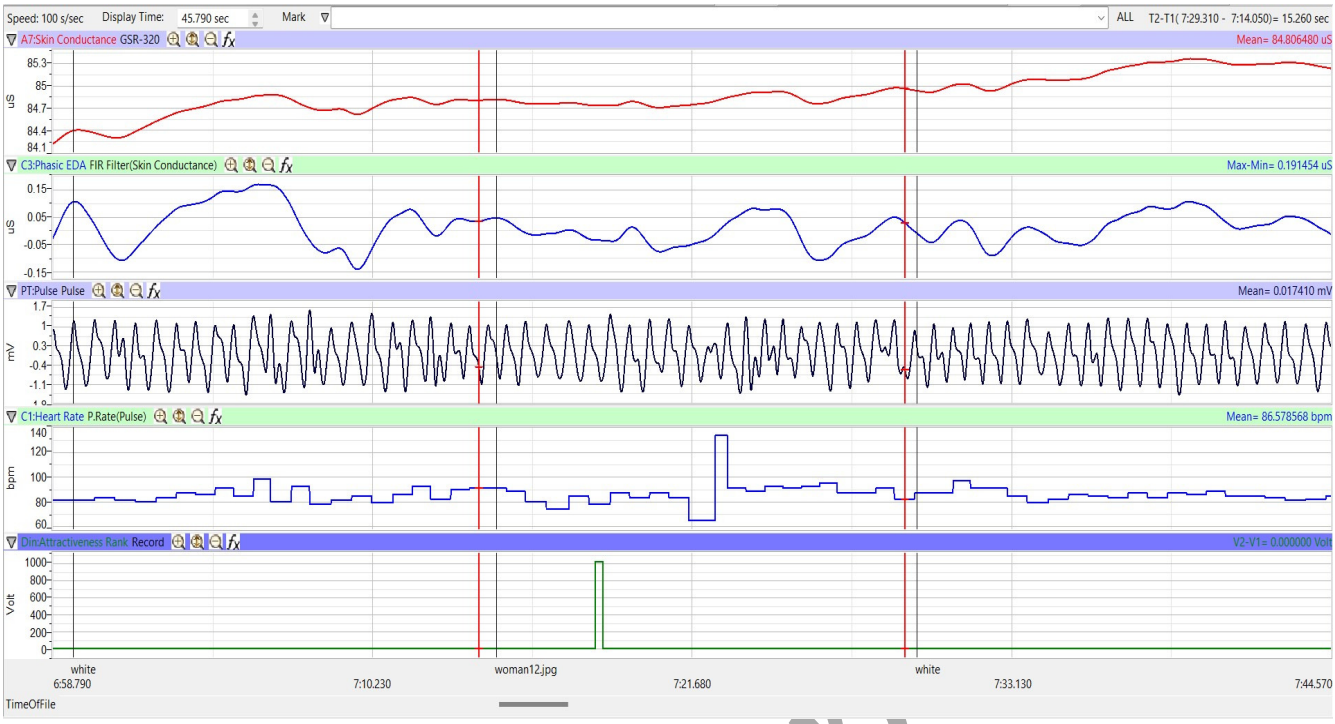

Figure HP-29-L3: Sample data showing mean skin conductance, heart rate and rank of the subject looking at photograph woman12.

Questions

1. Do all subjects find the same people attractive?
2. Is there one feature that stands out that makes a person attractive to you?
3. Is this feature the same for everyone?
4. What happens to the subject's mean HR, SCL and temperature when they see someone who is attractive? If there were no changes, what do you think should have happened?
5. Why do these parameters change?

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