



BIOPAC
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Physiology Lessons
for use with the
Biopac Student Lab

PC under Windows® 98SE, Me, 2000 Pro
or Macintosh® 8.6 – 9.1

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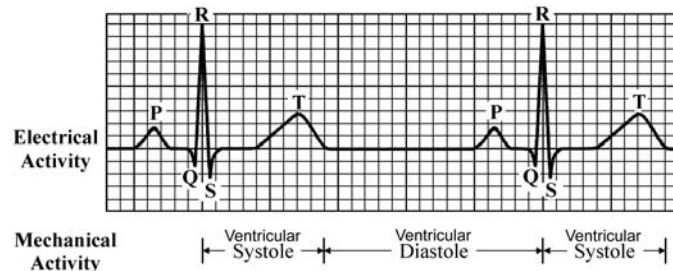
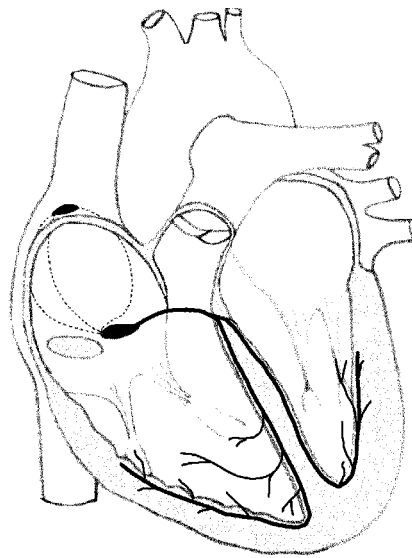
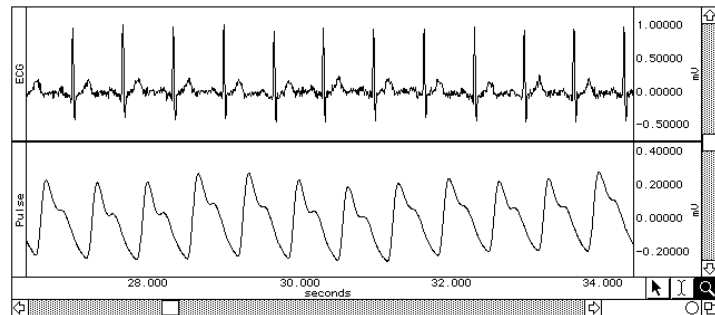
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Lesson 7 Data Report

ECG & PULSE

Mechanical Action of the Heart
Peripheral Pressure Pulse
Plethysmography



Lesson 7

ECG & Pulse

Mechanical Action of the Heart, Peripheral Pressure Pulse, and Plethysmography

DATA REPORT

Student's Name: _____

Lab Section: _____

Date: _____

I. Data and Calculations

Subject Profile

Name _____

Height _____

Age _____

Weight _____

Gender: Male or Female

A. Comparison of ECG with Pulse Plethysmogram (Segments 1-3)

Complete Table 7.1 with data from three cycles from each segment and calculate the Means.

Table 7.1

Condition	Measurement	Channel	Cycle 1	Cycle 2	Cycle 3	Mean
Arm Relaxed <i>Segment 1</i>	R-R Interval	ΔT CH 1				
	Heart Rate	BPM CH 1				
	Pulse Interval	ΔT CH 1				
	Pulse Rate	BPM CH 1				
Temp. Change <i>Segment 2</i>	R-R Interval	ΔT CH 1				
	Heart Rate	BPM CH 1				
	Pulse Interval	ΔT CH 1				
	Pulse Rate	BPM CH 1				
Arm Up <i>Segment 3</i>	R-R Interval	ΔT CH 1				
	Heart Rate	BPM CH 1				
	Pulse Interval	ΔT CH 1				
	Pulse Rate	BPM CH 1				

B. Relative Volume Changes (Segments 1-3)

Complete Table 7.2 with data from each recording segment.

Table 7.2

Measurement	Arm Resting <i>Segment 1</i>	Temperature <i>Segment 2</i>	Arm Up <i>Segment 3</i>
QRS Amplitude CH1 p-p			
Relative Pulse Amplitude (mV) CH 40 p-p			

C. Calculation of Pulse Speed

Distance between Subject's sternum and shoulder? _____ cm

Distance between Subject's shoulder and fingertip? _____ cm

Total distance? _____ cm

Data from Segment 1 of the recording (measure with I-beam)

Time between R-wave and Pulse peak? _____ secs

Speed? _____ cm/sec

Data from Segment 3 of the recording (measure with I-beam)

Time between R-wave and Pulse peak? _____ secs

Speed? _____ cm/sec

II. Questions

D. Referring to data in table 7.1, are the values of heart rate and pulse rate similar for each condition?

Yes/No

Explain why the values might differ or be similar.

E. Referring to Table 7.2 data, how much did the amplitude of the QRS complex change between conditions?

Extreme temp – Arm Resting? _____ mV

Arm up – Arm Resting? _____ mV

F. Referring to Table 7.2 data, how much did the pulse amplitude change between arm positions?

Extreme temp – Arm Resting? _____ mV

Arm up – Arm Resting? _____ mV

G. Referring to Table 7.2 data, does the amplitude of the QRS complex change with the pulse amplitudes? Why or why not?

H. Describe one mechanism that causes changes in blood volume to your fingertip.

I. Referring to data from section C of this report, how would you explain the difference in speed, if any?

J. Which components of the cardiac cycle (atrial systole and diastole, ventricular systole and diastole) are discernible in the pulse tracing?

K. Would you expect the calculated pulse wave velocities of other students to be very close if not the same as yours? Why or why not?

L. Explain any amplitude or frequency changes that occurred with arm position.
