Name:☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Class:☐ ☐ ☐ Date: _____

Chapter 37 Circulatory and Respiratory Systems

☐ Lab 20: A Test of Cardiovascular Fitness

☐ ☐ ☐ ☐ ☐ ☐

Data

Test	Pulse Rate (bpm)
Reclining pulse rate	
Pulse rate immediately after standing	
Standing pulse rate (after 2 minutes)	

Pulse Rates following the Step Test	No. of Beats	Pulse Rate (bpm)
Number of beats from 0-15 seconds		
Number of beats from 16-30 seconds		
Number of beats from 31-60 seconds		
Number of beats from 61-90 seconds		
Number of beats from 91-120 seconds		

Test	Systolic	Diastolic
Reclining blood pressure		
Blood pressure immediately after standing		
Standing blood pressure (after 2 min.)		

Now use the data you collected to assess a Fitness Score. Calculate the difference between the standing and reclining systolic blood pressures and enter that value here: _____ mm Hg

Did the systolic pressure rise or fall when the subject stood up? _____

Fitness Score Table	
Test #:	**Point Score:**
1.	
2.	
3.	
4.	
5a.	
5b.	
5c.	
Total:	

1. Assign the appropriate number of points based on your answers from the first page:
   3 points for a rise in systolic pressure of 8 mm Hg or more
   2 points for a rise in systolic pressure of 2-7 mm Hg
   1 point for no change in systolic pressure upon standing
   0 points for a fall of 2-5 mm Hg
   -1 point for a fall of 6 mm Hg or more
   Record this point value under Test 1 in the Fitness Score Table.

2. Assign the appropriate number of points below based on the subject's standing pulse rate (after 2 minutes):
   3 points for 60-80 bpm
   2 points for 81-90 bpm
   1 point for 91-110 bpm
   0 points for 111-130 bpm
   -1 point for 131-140 bpm
   Record this point value under Test 2 in the Fitness Score Table.

3. Assign the appropriate number of points below based on the subject's reclining pulse rate:
   3 points for 50-70 bpm
   2 points for 71-80 bpm
   1 point for 81-90 bpm
   0 points for 91-100 bpm
   -1 point for 101-110 bpm
   Record this point value under Test 3 in the Fitness Score Table.

4. Assign the appropriate number of points below based on the increase in pulse rate from reclining to standing that was recorded in Pulse Rate and Blood Pressure Table (the baroreceptor reflex): .....

Reclining pulse rate: ..... Pulse rate immediately after standing: .....

Record this point value under Test 4 in the Fitness Score Table.

Reclining Pulse Rate (bpm)	Increase in Pulse Rate upon Standing after Reclining (beats)				
	0-10	11-18	19-26	27-34	35-43
50-60	3	3	2	1	0
61-70	3	2	1	0	-1
71-80	3	2	0	-1	-2
81-90	2	1	-1	-2	-3
91-100	1	0	-2	-3	-3
101-110	0	-1	-3	-3	-3

5a. Assign the appropriate number of points below based on the length of time required for the subject's pulse rate to return to about the same level as the standing pulse rate for Test 2: .....

4 points for 0-30 seconds
3 points for 31-60 seconds
2 points for 61-90 seconds
1 point for greater than 91 seconds

Record this point value under Test 5a. in the Fitness Score Table.

Standing pulse rate (after 2 minutes): .....

Pulse Rates following the Step Test	No. of Beats	Pulse Rate (bpm)
Number of beats from 0-15 seconds		
Number of beats from 16-30 seconds		
Number of beats from 31-60 seconds		
Number of beats from 61-90 seconds		
Number of beats from 91-120 seconds		

5b. Calculate the difference between the subject's standing pulse rate (after 2 minutes): .....
and the pulse rate in the 0-15 second period: .....

Difference = ... bpm

Assign the appropriate number of points below based on the subject's pulse rate increase following exercise:

0 points for 1-10 beats above normal standing pulse rate
-1 point for 11 or greater beats above normal standing pulse rate

Record this point value under Test 5b. in the Fitness Score Table.

5c. Use the chart below to assign the appropriate number of points based on the subject's normal standing pulse rate (after 2 minutes) and the number of beats it increased following exercise (0-15 sec.):

Standing pulse rate (after 2 minutes): .....

Number of beats from 0-15 seconds: .....

Standing Pulse Rate (bpm)	Increase in Pulse Rate during the 0-15 sec. (beats)				
	0-10	11-20	21-30	31-40	> 40
60-70	3	3	2	1	0
71-80	3	2	1	0	-1
81-90	3	2	1	-1	-2
91-100	2	1	0	-2	-3
101-110	1	0	-1	-3	-3
111-120	1	-1	-2	-3	-3
121-130	0	-2	-3	-3	-3
131-140	0	-3	-3	-3	-3

Record this point value under Test 5c. in the Fitness Score Table.

Add the point values from the tests above in the Fitness Score Table to obtain the Fitness Score.

Compare the total points scored with the Index of Relative Cardiac Fitness below:

Index of Relative Cardiac Fitness

<=7 = Poor
8-13 = Fair
14-16 = Good
17-18 = Excellent

Analysis

1- Describe some possible damaging effects on the body due to chronic hypertension.

2- Why is blood pressure normally lower when a person is reclining than when standing?

3- In your own words, describe the baroreceptor reflex and discuss why it is important.