HEART RATE LAB

Sitting Pulse Rate (after resting for 1 minute)= 93 bpm
Resting Pulse Rate (sit without talking for 3 minutes of rest)= 68 bpm

Activity Heart Rate

Step up and down on a stair step for 3 minutes (30 steps per minute). Immediately after the 3 minutes, take your pulse and record it.

Activity Heart Rate= 151 bpm

Continue to take your pulse after every minute until your pulse is within 6 beats of your sitting pulse rate (recovery).

Pulse after 1 minute= 104
Pulse after 2 minutes= 110
Pulse after 3 minutes= 92
Pulse after 4 minutes= 98
Pulse after 5 minutes=

It took my heart 3 minutes to recover from this exercise.

PARTICIPATE IN A NUMBER OF DIFFERENT PHYSICAL ACTIVITIES FOR APPROXIMATLY 20 MINUTES- Be sure to set the watch to record before you begin- let the watch run for the entire length of your exercise

ACTIVITY	DURATION	INTENSITY LEVEL
Stationary Bike	10 mins.	Moderate
Elliptical	5 mins.	High
Treadmill: Walking	5 mins.	Low

How can you use your target heart rate?

You can use your target heart rate to know how hard to exercise to gain the most aerobic benefit from your workout. You can exercise within your target heart rate to either maintain or raise your aerobic fitness level. To raise your fitness level, you can work harder while exercising to raise your heart rate toward the upper end of your target heart rate range. If you have not been exercising

regularly, you may want to start at the low end of your target heart rate range and gradually exercise harder. A heart rate monitor shows your pulse rate continuously, so you see how exercise changes your heart rate. Then, you can work harder or easier to keep your heart working in your target heart rate range.

Target heart rate is only a guide. Each individual is different, so pay attention to how you feel, how hard you are breathing, how fast your heart is beating, and how much you feel the exertion in your muscles. If you have a heart condition or other chronic disease, talk to your doctor before you start an exercise program.

Source: McArdle WD, et al. (2007). Training for anaerobic and aerobic power. In Exercise Physiology, 6th ed., pp. 469–507. Philadelphia: Lippincott Williams and Wilkins.

What is Your Target Heart Rate Range?

Resting Heart Rate (RHR) = 66 bpm

This is your pulse at rest (the best time to get a true resting heart rate is first thing in the morning before you get out of bed).

Maximum Heart Rate (MHR) = 220- your age = 201 bpm

Heart Rate Reserve (HRR)= Maximum Heart Rate - Resting Heart Rate = 135 bpm

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Once you have your Heart Rate Reserve, you can calculate your training heart rate:

(Heart Rate Reserve*.85) + Resting Heart Rate = Upper end of the training zone

(Heart Rate Reserve *.50) + Resting Heart Rate = Lower end of the training zone

Target Heart Rate Range = 180.75 – 133.50 bmp

Visit the following website:
http://www.fitzones.com/members/Fitness/heartrate_zones.asp

Rate your fitness level (shape) according to the levels on the website.

My fitness level is a combination of zone 2 and zone 3. This is because I perform aerobic activity that allows me to burn stored glucose and fat. The majority of my workout is in my target heart rate zone, which is aerobic exercise. Aerobic exercise is zone 3.

Copy and Paste the Zone Information below.

AGE	RESTING HEART RATE	MAX. HEART RATE	LIGHT (50-60%) ZONE 1	EASY (60-70%) ZONE 2	Aerobic (70-80%) ZONE 3	Anaerobic (80-90%) ZONE 4	VO2 MAX (90-100%) ZONE 5
19	66	201	133-147	147-160	160-174	174-187	187-201
			Walking	Jogging	Running	Hard	

Which zones are most appropriate for you? Why?

Zone 2 and zone 3 are most appropriate for me. These zones allow me to work at the upper end of my target heart rate. By working in these zones I am getting the full benefits of my workout. This will allow for weight loss and cardiovascular exercise.

Based on your heart rate chart, you can now fill in the following table.

ACTIVITY	Actual Heart Rate Range	Minutes in Target Heart Rate Range	Fitness Zone
Stationary Bike	146-158	10	Zone 2
Elliptical	165-173	5	Zone 3
Treadmill: Walking	136-143	5	Zone 1

Total Duration of Physical Activity = 20 minutes

Total Time in Heart Rate Range for Entire Duration = 20 minutes

Visit the following website:
http://www.stevenscreek.com/goodies/hr.shtml
Copy and paste your Target Heart Rate Calculation table below.

Based on an age of 19 and using the formula 211 - Age/2

Maximum Heart Rate (Calculated) = 201.5

	% of Maximum		Heart Rate Reserve*	
Percent	60 sec.	10 sec.	60 sec.	10 sec.
100	201.5	33.6	201.5	33.6
95	191.4	31.9	194.7	32.5

90	181.3	30.2	187.9	31.3
85	171.3	28.5	181.2	30.2
80	161.2	26.9	174.4	29.1
75	151.1	25.2	167.6	27.9
70	141.0	23.5	160.8	26.8
65	131.0	21.8	154.1	25.7
60	120.9	20.1	147.3	24.5
55	110.8	18.5	140.5	23.4

* Percent of maximum, corrected for resting heart rate of 66

Questions:

(You must provide a credible citation for ALL answers except #7 and #8)

1. Define heart rate. Define pulse. Why is blood pressure different from heart rate?

Heart Rate- the number of beats per unit of time, usually per minute. Heart rate is based on the number of contractions of the ventricles.

Pulse- the rhythmic contraction and expansion of an artery due to the surge of blood from the beat of the heart.

Blood pressure is the pressure of the blood against the wall of the arteries. It is made up of two forces: the heart pumping blood and the force of the arteries as they resist flow. Heart rate is only made up of one force.

American Heart Association:
http://www.americanheart.org/presenter.jhtml?identifier=4473
http://www.americanheart.org/presenter.jhtml?identifier=4701

2. Is it desirable to have a low resting heart rate? Why or why not?

A normal resting heart rate is 60-90 bmp. Athletes tend to have lower resting heart rates, in the 40-60 bmp range. Generally it is good to have a lower heart rate because the heart has to work less to maintain the body at rest. However, too low of a heart rate can be dangerous. It can lead to bradycardia. Symptoms of bradycardia include weakness, loss of energy, and fainting.

NEMA: http://www.nemahealth.org/programs/healthcare/heart_rate_pulse.htm

3. If heart rate monitors were not available, how would you instruct an individual to properly check pulse rate?

1. Place tips of index, second, and third fingers on the palm side of wrist below the base of the thumb or on the lower neck on either side of the windpipe. Find the artery.

2. Press lightly with fingers until you feel the blood pulsing.

3. Use a watch to time 10 seconds, count the amount of beats.

4. Multiply the number of beats in 10 seconds by 6 to get beats per minute.

The Cleveland Clinic:
http://www.cchs.net/health/health-info/docs/0900/0984.asp?index=5508

4. What is a talk test? How does it relate to heart rate?

A talk test is an easy way to measure the intensity of exercise. Exercise should cause a person to deepen his or her breath, but he or she should still be able to talk comfortably. If a person is unable to speak during a workout, the exercise is too intense. If a person is able to speak without being winded at all, the intensity is too low. The talk test allows a person to see if he or she is working out in his or her comfort zone. Most likely, if a person is in his or her comfort zone he or she will be in the target heart rate zone. If a person is unable to talk, he or she is above the target heart rate zone. If a person can talk and is not winded he or she is not in the target heart rate zone.

Discovery:
http://health.discovery.com/centers/articles/articles.html?chrome=c32&article=LC_123&center=p10

Getting & Staying Active:
http://primusweb.com/fitnesspartner/library/activity/thr.htm

5. Will your target heart rate change over time? Why or why not?

Target heart rate will change over time. The formula for target heart rate is 220 – your age. So as you get older, you target heart rate will get lower. Also, as you exercise more often, you will be strengthening your heart. Therefore, you will be able to attain a higher target heart rate so that you will still receive the benefits of your workout.

NEMA: http://www.nemahealth.org/programs/healthcare/heart_rate_pulse.htm

6. How is recovery heart rate related to an individual's level of health/fitness?

Recovery heart rate is how quickly an individual is able to return to his or her resting heart rate after exercise. To calculate a recovery heart rate, an individual must take a heart rate right after exercising and then continue to take heart rates each minute until he or she reaches his or her resting heart rate. The faster an individual recovers the higher level of health/fitness he or she has.

NEMA: http://www.nemahealth.org/programs/healthcare/heart_rate_pulse.htm

7. What did you learn about yourself from this experiment?

From this experiment, I learned that most of the time I am working out in my target heart rate zone. This means that I am getting the full aerobic benefits of my workout. I also learned that I have a fit level of health/fitness based upon my recovery heart rate and the time it takes my body to recover after exercise.

8. Did you enjoy working with the heart rate monitors? Why or why not?

I enjoyed working with the heart rate monitors. I would like to try performing a full hour work out with the heart rate monitor to see how much time I spend in my target heart rate zone and how much time is spent at a maximum intensity. I think that working with the heart rate monitors motivates you to work out in your target heart rate zone to achieve the full benefits of the workout.

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