

PURPOSE

To test and evaluate one's cardiovascular fitness, through the measurement of the pulse throughout exercise and recovery.

HYPOTHESIS

I do not believe my cardiovascular fitness is going to be very good, maybe average, because I do not train regularly or anything like that. I do not think I will be able to jog for the entirety of the given 12 minutes. Even during gym class runs, I manage to do the 800 meter run in under five minutes, but I'm still really out of breath when I finish the run. As well as, every time I run it seems to take a lot of time for my heartbeat to calm back down.

PROCEDURE

- Step 1. Sit down for 15 minutes, Do not move
- Step 2. Set timer for 10 seconds
- Step 3. Count heartbeats for 10 seconds
- Step 4. Multiply given heartbeats by 6 to get resting pulse, record observations
- Step 5. Stand up walk around for 10 minutes
- Step 6. Set timer for 10 seconds
- Step 7. Count heartbeats for 10 seconds
- Step 8. Multiply given heartbeats by 6 to get daily pulse, record observations
- Step 9. Run continuously for 12 minutes
- Step 10. Take heartbeats every 3 minutes for 10 seconds, record observations
- Step 11. Multiply given heartbeats by 6 to get to get exercise heart rate, record observations
- Step 12. Take heartbeats for 10 seconds, every 30 seconds for 5 minutes, record observations
- Step 13. Multiply given heartbeats by 6 to get to get recovery heart rate, record observations

RESULTS

CALCULATIONS

Target exercise HR = $0.70 (\text{Maximum HR} - \text{Resting HR}) + \text{Resting HR}$

units $163 = 0.70(205 - 65) + 65$
?

TABLES

Resting Heart Rate (Beats per Minute)	Daily Heart Rate (Beats per Minute)	Target Heart Rate (Beats per Minute)	Maximum Heart Rate (Beats per Minute)
65	108	163	205

Resting, Daily, Target, and Maximum Heart Rate

Heart Monitoring during 12 minutes every 3 minutes, Exercise Heart Rate

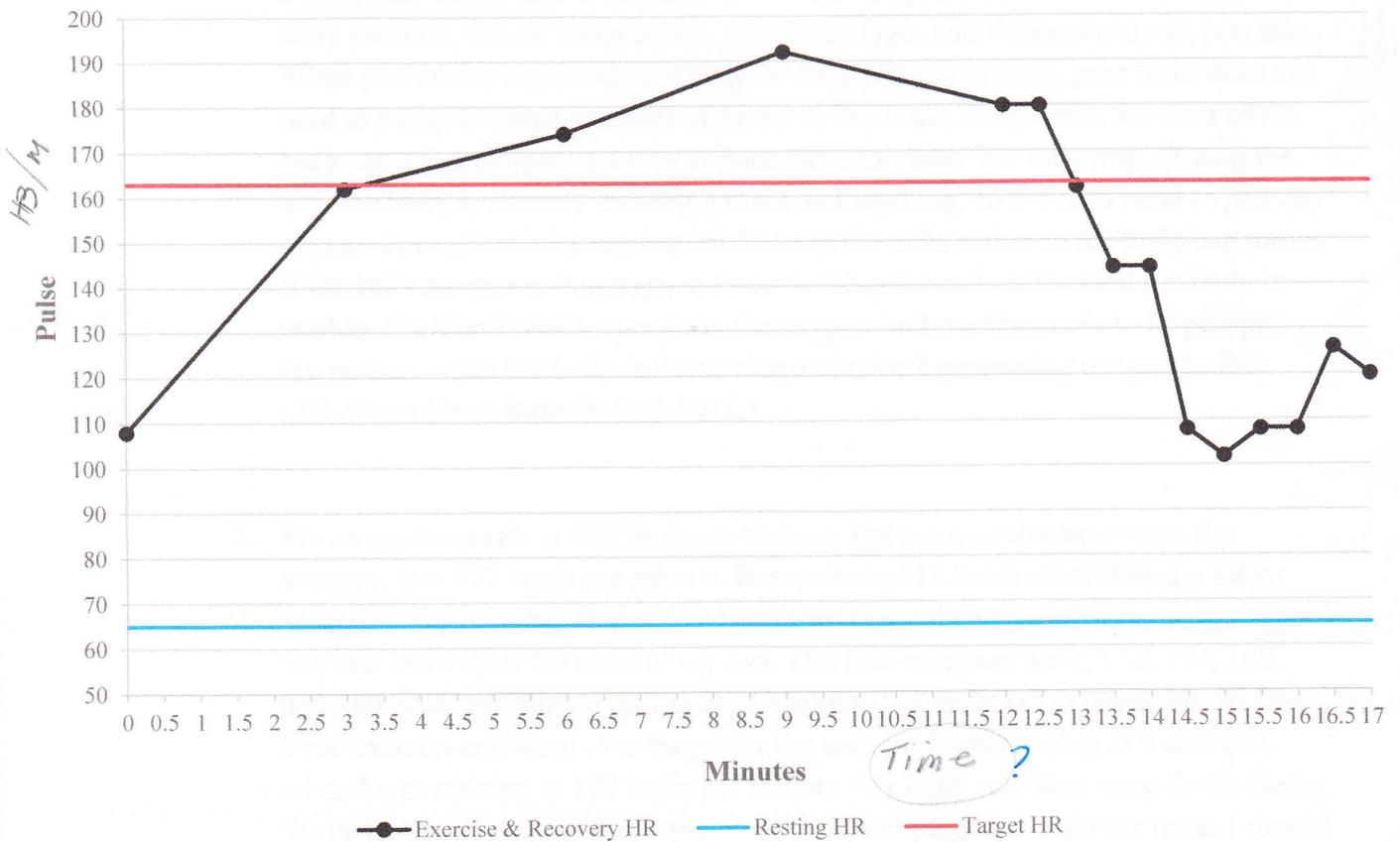
Time (mins)	0	3	6	9	12
Pulse					
Heartbeats per 10 seconds	18	27	29	32	30
Heartbeats per minute	108	162	174	192	180

Heart Monitoring during 5 minutes every 30 seconds, Recovery Times

Time (secs)	30	60	90	120	150	180	210	240	270	300
Pulse										
Heartbeats per 10 seconds	30	27	24	24	18	17	18	18	21	20
Heartbeats per minute	180	162	144	144	108	102	108	108	126	120

GRAPH

Heart Monitoring During 12 minute Jog and 5 minute Recovery



Excellent!!
sharp

DISCUSSION/ ANALYSIS

1. The mathematical difference between my resting heart rate and my daily heart rate is 43 beats. *per?*
2. The resting heart rate is lower than the daily heart rate because the resting heart rate represents the heart rate when the body is not moving, or in rest. While the daily heart rate is your day to day pulse, while you're walking, and sitting down during your day. Pulse is affected by several things like, your stress levels, your body position, the air temperature, your body type, and the medications, you take. When you are laying down or sitting for long periods of time, your heart does not need to pump extreme amounts of blood to the entire body since, the cells of the body are using oxygen at a slower pace since the body isn't moving. During the day, the body is actually moving around and working, so the cells need to process oxygen through cellular respiration, to keep the cells active so the body can move. If the cells are processing oxygen faster to keep the cells active and the body in motion, the blood which transports the oxygen to the cells, needs to be pumped faster, than when the body isn't moving and it isn't processing oxygen as fast. *Good*
(All About Heart Rate (Pulse). 2016,)
3. My target heart rate is 163 beats per minute, but my exercise heart rate, the average, was 177 beats per minute. Being around 14 beats more than my target heart rate, this number shows that I could not continuously run at my target heart rate and ran over it for most of my run. The four numbers were, 162, 174, 192, and 180 beats per minute during the 12 minute jog, only ran at target for the first three minutes and went over target for the rest, the highest being at 9 minutes, when I was running at 192 beats per minute. My heart rate then went down during the last three minutes, since I was more tired and jogged at a slower pace. I should have ran at my target for the entire run, but I was unable to slow down my heart rate, since it felt like I ran at the same pace for the first nine minute, but my heart rate kept going higher, until I slowed down at the end. (Target Heart Rates. 2015)
4. It took me 150 seconds or two minutes and a half to recover from my run, it took my heart two and a half minutes to go from 180 beats per minute at the end of my run, to my daily heart rate, 108 beats per minute, at the end of the two and a half minutes. Yet, at four and a half minutes, my heart beat hitched to 126 beats per minute, and then at five minute it was 120 beats per minute. This could probably have been brought on by the stress of not finding my heartbeat or not being able

to follow along with the whistles, since they were ringing every 30 seconds it felt much faster. This could also be that I did not count properly, since during the recovery, I noticed that if I laid my arm on my chest while I was trying to take my pulse on my neck, I felt both my heart beating and the artery on my neck, which sometimes confused me as I was counting.

CONCLUSION

It is hard to tell if my hypothesis was correct or not since I ran above target and my recovery time still did not pass five minutes. The average for my exercise heart rate was 177 beats per minute, the results being, for three minutes 162 beats per minutes, the for six minutes 174 beats per minute, for nine minutes 192 beats per minute, and finally for twelve minutes 180 beats per minute. The closest to my 163 beats per minute target heart rate, was 162 beats per minute at three minutes, also being my lowest heart rate during the twelve minute jog. The highest value during the twelve minute jog was 192 beats per minute, at nine minutes jogging, which then decreased to 180 beats per minute at minute twelve, since I had slowed down for those last three minutes. The average decreasing rate for my recovery was 12 beats, but sometimes the pulse stayed the same and even increased at one point during the fourth and fifth minute. It started at 180 beats per minute at 30 seconds, then 162 beats per minute at 60 seconds, 144 beats per minute for 90 seconds and 120 seconds, decreasing to 108 beats per minute, at 150 seconds going to my daily heart rate. It went even lower at 180 seconds at 102 beats per minute, then I went back to the daily heart rate for seconds 210 and 240. Then my pulse increased to 126 beats per minute, at 270 seconds, and went to 120 at 300 seconds.

It took me two minutes and a half to fully recover from the 12 minute jog, even though my pulse the increase at minute four and a half. At two minutes and a half or 150 seconds, it went down to what I had already measured was my daily heart rate, signaling the recovery ended. When reading an article by Smith, C. (2015), on the LiveStrong website, I discovered that to test cardiovascular fitness the average exercise heart rate is subtracted from the pulse at the 2 minute mark, but this is mostly used when looking for improvements in the recovery time, since during our lab we only tested it once, doing this would serve no purpose since I would have nothing to compare it to. In conclusion, my cardiovascular fitness is not as bad as was expected, since during my hypothesis I mentioned believing that I would not be able to jog the whole way through the 12 minutes, yet I was able to do it, though I jogged passed my target heart rate. Also, even though I was running, at the highest point, at almost 30 beats over my target heart rate, I did not take more than five minutes to recover, it only took my heart half of that time to recover to its normal 108 beat per minute of my daily heart rate.

good recovery!
Good incorporation of research
Well done!

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