Fitness Lab

Jacques UBER

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Date Performed:	October 30, 2013
Partners:	Jacques Uber
	n/a
Instructor:	Arick Rouhe

1 Introduction

We predict that if caffeine drinkers and non-caffeine drinkers are both exposed to a cardiovascular fitness test, then caffeine drinkers will take longer to recover to their resting heart rate than non-caffeine drinkers.

2 Methods

Five minutes before each experimental trial both of our test participants remained relatively inactive to achieve their resting heart rate. During the experiment we had participants take their resting heart rate with their middle and left fingers placed against an artery. We used a stopwatch and had participants record their beats per 30 seconds (later we would multiply this number by 2 to calculate beat/minute.)

During our trials we had both a caffeine drinker and a non-caffeine drinker perform the experiment in parallel on the same step, side-by-side. The step was (19 cm tall. The experiment was done with a cadence of 1 step/second.

At the beginning of each trial a group member, designated as the timer, started the stopwatch and said ”start” at the same time, the participants would then start stepping. At the end of each trial the timer would say ”stop” and stop the stopwatch at the same time.

During the part of the experiment when participants were stepping on the stair, they were encouraged to step in unison, landing their feet on the stair and down again at the same time. For the majority of the two participants stayed in sync.

After performing the experiment we traded results with four other groups to come up with our final data set.

3 Results

See Figure 2 on page 2 and Figure 1 on page 2.

Figure 1: Differences between resting heart rate and final heart rate

Condition	Group 0	Group 1	Group 2	Group 3	Group 4	Average
No Caffeine	100	22	14	20	28	36.8
Caffeine	80	54	48	6	96	56.8

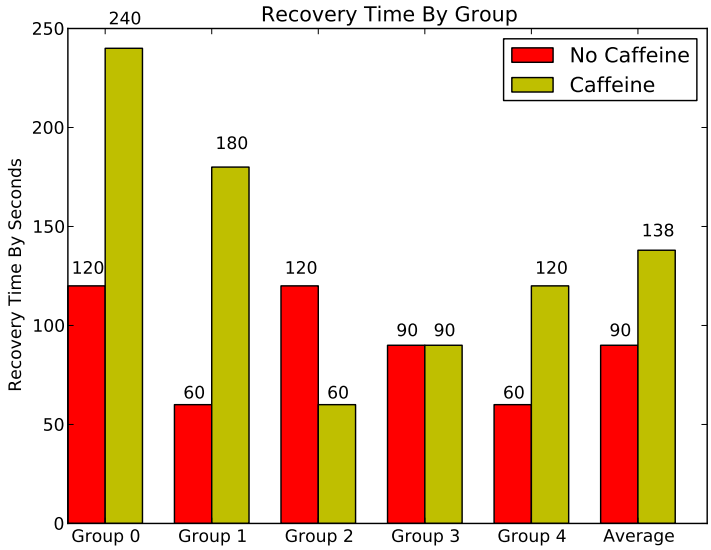

Figure 2: Data collected from all five groups displaying heart rate recovery time. The average recovery time is lower for non-caffeine drinkers compared to caffeine drinkers.

4 Conclusion

The data we collected supported our hypothesis and suggested that non-caffeine drinkers have a lower time to recovery that caffeine drinkers. Except for Group 2, non-caffeine drinkers had a quicker or equal time of recovery compared to caffeine drinkers.

The average recovery time for non-caffeine drinkers was 68 seconds less than the average recovery time for caffeine drinkers (See Figure 2 on page 2.)

While it does not directly support our hypothesis, it is interesting that the average difference between resting heart rate and final heart rate was less for non-caffeine drinkers (See figure 1 on page 2). In this experiment we cannot say whether relative difference between beginning and ending heart rate has any affect on recovery time, but this may be interesting subject for further research.

4.1 Experimental Error

While our data supports our hypothesis, we cannot ignore the possibility of experimental error. Our group collected data using the methods described in section 2, but we do not know if the rest of the groups we collected data from used the methods. For example, it is possible that other groups had different step cadences or that their steps were not 19 cm tall. Our group also used the same time measuring device for all of our trials and we cannot be certain that other groups' stopwatches measured time in the same ways ours did.