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Whalen Abstract

*Use of Reduced Exertion High Intensity Interval Training for Health Benefits in College-Aged Students*

## **Background**

In the United States, there's a growing epidemic related to obesity. Secondary conditions related to obesity including hypertension, cardiovascular disease, and type two diabetes can be prevented or reversed with regular exercise (Haskell et al., 2007). Recommendations from the Centers for Disease Control suggest 30 minutes of exercise 5 days a week are needed to reap the health benefits. Unfortunately, the time commitment required to meet these recommendations is not ideal for a person's busy schedule. For this reason, high-intensity training (HIT) has been explored, as it requires a shorter duration of time and results in similar benefits to that of longer duration exercises (Cuddy et al., 2019). Studies looking at participants' mental health found that HIT workouts showed increased enjoyment to that of standard exercise (Heisz et al., 2016). However, HIT still takes a minimum of 15 minutes/day and utilizes fast-paced activity with little rest time (Cuddy et al., 2019). Reduced exertion high intensity training (REHIT) has shown beneficial effects on the body's cardiovascular and respiratory systems and only requires 10 minutes a day every other day (Nalçakan et al., 2017). This makes it appealing to those who find it hard to dedicate significant amounts of time to intense exercise. Interestingly, a study conducted by Songsorn et al. (2016) showed that although HIT and REHIT were different time durations, participants were still comparatively happier after completion of these training types compared to standard exercise. Our research aim looks at how REHIT programming can affect cardiorespiratory fitness (measured via  $VO_2max$ ), weight, and mental well-being as part of a larger study. We hypothesize that our REHIT protocol will positively impact  $VO_2max$ , psychology evaluation and weight.

## **Methods**

Male (n=12) and female (n= 6) college-aged students underwent testing before being randomly assigned to a REHIT group. Pre-testing included measures of vertical jump, resting heart rate, blood pressure, weight, and a graded exercise test (to measure  $VO_2max$ ). Following pre-testing subjects were randomly split into 3 different cycling groups, 1) 2x4% body weight (BW) resistance sprints for 15 seconds. 2) 2x4% BW resistance sprints for 20 seconds and 3) 2x5% BW resistance sprints for 20 seconds (control group). Each session included a warm-up with 160 seconds of rest between sprints. Each group attended 3 training sessions weekly with 24 hours rest in between sessions. After four weeks of REHIT training, each participant underwent post-test measures similar to those done before REHIT.

## **Results**

Pre-testing measures revealed the following:

Measures	Male (n=12;avg ± STD)	Female (n=6;avg ± STD)
Height (Inches)	72 ± 2.6	63 ± 7.4
Weight (pounds)	180 ± 20	151 ± 17
Maximal Oxygen Consumption <i>VO2 max</i> (ml/kg/min)	43 ± 9.7	29 ± 4.1
Psych Eval Scores	93 ± 18	73 ± 9

At the point of submission, data analyses were still ongoing.

## Discussion and Conclusion

We expect to see an increase in  $VO_2$ max and mental well-being with a decrease in weight. If these changes occur after REHIT intervention, it would suggest that this training style that is lower in duration/intensity than those previously investigated in the literature may be ideal for the average person who is looking to use exercise as a way to return to a healthy lifestyle and reduce the risk of chronic illness without having to commit large amounts of time or intensity to an exercise regimen.

## References

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