Ready, Set, Run! Lowering the pressure in hypertension

Yovany Servin, David Gutierrez, Carolina Trejo, Raul Ortega, Diana Ayala

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Department of Kinesiology - The University of Texas at Arlington

Abstract

Introduction: Hypertension, commonly known as high blood pressure, is a state in which the arteries of the human body have elevated blood pressure. Like many other conditions, if not treated at an early stage, hypertension can cause severe damage to body organs, lead to critical illness such as kidney failure, aneurysm, heart failure, stroke or even a cause a myocardial infarction. **Purpose:** The aim of this experiment is to investigate the effects of high intensity interval training (HIIT) on lowering blood pressure in individuals at risk for hypertension. **Methods:** A sample of 4 college adults was chosen for this experiment, 2 males and 2 females between the ages of 18-24. Participants must meet the risk factors for hypertension. The method of exercise consisted of HIIT on the treadmill with 3 stages; first stage was a warm up for 2 minutes at 50% MHR, followed by the HIIT interval that consisted of bouts of 15 seconds at 80% MHR, followed by a minute rest, finally followed by a cool down for 3 minutes at 50% MHR. **Results:** Dependent *t-test* results indicates no significant difference in blood pressure, systolic -1.359(3)=.267, p>.05 and -1.718(3)=.184, p>.05 for diastolic. **Conclusion:** The results of this study concluded that there were no significant changes in blood pressure with HIIT.

BACKGROUND & PURPOSE

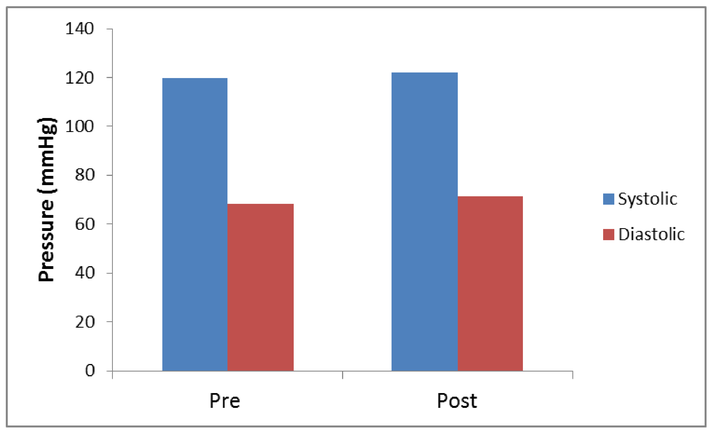
- Hypertension, commonly known as high blood pressure, is a state in which the arteries of the human body have elevated blood pressure. Like many other conditions, if not treated at an early stage, hypertension can cause severe damage to body organs, lead to critical illness such as kidney failure, aneurysm, heart failure, stroke or even a cause a myocardial infarction
- Recent studies indicate that exercise may benefit the majority of the population, but that hypertensive individuals do not always adapt to certain regimens. There are many physiological and cardiovascular effects and benefits through HIIT.
- The aim of this experiment is to investigate the effects of high intensity interval training (HIIT) on lowering blood pressure in individuals at risk for hypertension.

METHODS

- Instruments: Blood Pressure Cuff, Stethoscope, Heart Rate Monitor.
- A sample of 4 college adults was chosen for this experiment. The participants consisted of 2 females and 2 males between the ages of 18 and 24. This sample range was used since the typical age range of college students lies between 18-24. The participants must meet the risk factors for hypertension in order to be part of the experiment. The risk factors include hypertension in the family history, being overweight or obese, poor diet high in salts and/or not being physically active. The treatment will be administered 3 times a week for 2 weeks. The participants' blood pressure will be recorded before the treatment and then finally after the last session.
- The treatment administered will consist of aerobic high intensity interval training (HIIT) that will have 3 stages, the warm-up, the HIIT interval, and the cooldown. The first stage of HIIT will consist of a 2 minutes, 50% Max HR, warm-up on the treadmill. This will then be followed by a 15 minute interval that will consist of bouts of 15 secs, 80% Max HR, which will then be followed by a minute rest, 50% Max HR. Followed by the interval, the participants will cooldown for 3 minutes at 50% Max HR. The total time for the treatment will be 20 minutes per participant.

RESULTS

Dependent *t-test* results indicates no significant difference in blood pressure, systolic -1.359(3)=.267, p>.05 and -1.718(3)=.184, p>.05 for diastolic.



DISCUSSION & CONCLUSION

- Our hypothesis was that HIIT would lower blood pressure in individuals at risk for hypertension. We failed to reject the null hypothesis.
- Possible factors for the lack of significant change
  - Duration of the Study
  - Measurement Errors
- Studies
  - 10 week study using AIT found no significant change
  - 12 week study on middle-aged obese adults found significant change
  - 16 week study done on young females with family history of hypertension saw significant changes in blood pressure with HIIT
- Limitations
  - Lack of Dietary Intervention
  - Sample Size
  - Motivation

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