Research exercise: Retrospective Analysis of a 5-Week Summer Sports Program Indicates Health Improvements in 9-16 Year Olds

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INTRODUCTION

- During the past 3 decades, prevalence rates of childhood and adolescent obesity (which is defined as body mass index (BMI) above the 85th percentile for age and sex) have more than doubled in the United States1.
- The United States Department of Health and Human Services (USDHHS) recommends 60 or more minutes of physical activity per day.2 Studies have suggested that children are more prone to remain sedentary during the summer months due to lack of supervision3 that they would normally receive at home or in school.
- Summer camp programs are a viable opportunity for physical activity promotion. Camps also introduces children to new forms of physical activity that can continue to follow with the conclusion of the camp.4
- Obesity is a risk factor for cardiovascular diseases such as hypertension that can lead to greater all-cause mortality and increases in physical activity can reduce blood pressure in adults.1
- Thus, the purpose was to determine impact of 5 week summer camp on overall improvements in the anthropometric and cardiovascular health in participants ages 9-16 years old.

METHODS

Subjects
- Data were collected at the National Youth Sports Program hosted by Case Western Reserve Univ. in 2013 (n=217)
- Table. 1: Prior collected5 demographics from June 2013-July 2013.
- Majority of the campers reside in the city of Cleveland

Camp Structure
- 5 weeks, Monday-Friday, 5.5 hours per day
- Athletics: basketball, baseball, swimming, football, track and field, volleyball, and badminton
- Educational activities including: art, law and debate, nutrition, safety, and computer education during the camp.
- Fit walk
- Campers walked between campus locations ~1.1 miles each day

Data Collection
- Measurements were taken on registration and at the end of 5 week camp
- Trained staff
- 3rd and 4th year medical students, senior year nursing students, NVSP staff
- Height and weight data
- Calculation of BMI as weight/height²
- Systolic and Diastolic Blood Pressure
- Calculation of Mean Arterial Pressure as DP + 1/3(SP-DP)
- Statistics
- Independent student t-test
- p<0.05

RESULTS

CONCLUSIONS

- 36% of the sample of participants in NVSP were considered obese at the start of the camp. (n=98; p<.051).
- BMI was significantly reduced (23.2 ± 0.4 kg/m² vs 22.4 ± 0.3 kg/m²; p<.05) due to increases in height (1.55 ± 0.007 m vs 1.57 ± 0.007 m; p<.05) and a trend towards decreased body weight (56.1 ± 1.1 kg vs 55.8 ± 1.0 kg; p=0.07). Fig. 2-4
- Mean arterial pressure was significantly reduced due to lowered systolic blood pressure (107.9 ± 0.7 mmHg vs 103.1 ± 0.6 mmHg; p<0.05) and lowered diastolic blood pressure (67.9 ± 0.7 mmHg vs 63.0 ± 0.5 mmHg). Fig 5-7.
- Data analysis suggest beneficial impacts of NVSP

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REFERENCES