THE EFFECTS OF A 12-WEEK JUMP ROPE EXERCISE PROGRAM ON ABDOMINAL ADIPOSITY, VASOACTIVE SUBSTANCES, INFLAMMATION & VASCULAR FUNCTION IN PREHYPERTENSIVE ADOLESCENT GIRLS

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BACKGROUND

• High blood pressure and abdominal obesity have been known to be associated with poor cardiovascular health in many populations, including children and adolescents.
• We have previously demonstrated that combined resistance and aerobic exercise (CRAE) training can be useful as a therapeutic treatment to improve high blood pressure, arterial stiffness, insulin resistance, and central adiposity in obese prehypertensive adolescent girls.
• CRAE training may not be the most optimal or easily accessible intervention, thus we sought to examine other exercise interventions, specifically jump rope (JR) training, and its effects on overall health and cardiovascular measurements. JR training was selected because it is an easily accessible exercise modality.

PURPOSE

• To examine the effects of a jump rope exercise program on central adiposity and percent body fat, nitric oxide (NO) bioavailability, and levels of endothelin-1 (ET-1), c-reactive protein (CRP), arterial stiffness, and blood pressure (BP) in adolescent girls with prehypertension.

METHODS

• 40 sedentary adolescent females (15±1 yrs) who were prehypertensive (SBP > 120 mmHg or DBP > 80 mmHg) with abdominal obesity (waist > 80 cm) were randomly assigned to a 12-week JR program or a sedentary control group.
• The exercise group performed JR training 5 days a week for 12 weeks.
• The sedentary control group came to the lab at the same frequency as the JR exercise group, but did not participate in exercise.
• Venous blood samples, vascular function measurements, waist circumference, and body composition were taken before and after 12 weeks at the same time in the morning (± 1 hour) after an overnight fast.
• A 2 x 2 repeated measures ANOVA was used. A probability of type 1 error less than 5% was considered significant (p< 0.05). Paired t-tests were used for post hoc comparisons.

RESULTS

• Our findings suggest that a 12-week jump rope exercise program can be a beneficial nonpharmacological exercise modality to improve cardiovascular health in adolescent girls with prehypertension.

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