EFFECTS OF REGULAR EXERCISE VS SEDENTARY AFTER SCHOOL PROGRAM ON MOOD AND QUALITY OF LIFE OF OVERWEIGHT CHILDREN

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Introduction
- Exercise has improved mood and self-worth in several studies of adults and children.¹⁻³
- However, few studies utilized an attention control condition, or reported quality of life outcomes.
- Overweight children are at increased risk for depression, behavior problems, and poor quality of life (QOL).
- This study utilized a sedentary attention control condition and reports quality of life outcomes.

Methods
- N = 175 overweight children (87% black, 61% female, age 9.7 ± 0.9 yrs, 73% obese)
- Measures: Dual-energy x-ray absorptiometry, treadmill tests (VO₂ peak), Children’s Depression Inventory (CDI), Pediatric Quality of Life Inventory (Peds-QL), Pediatric Anger Expression Scale (PAES), and Self-Perception Profile for Children (Global Self-Worth). All measures were completed at baseline and posttest.
- PAES: a 15-item self-report inventory, which yields 3 factor analytically derived scales (Anger In, Anger Out, Anger Control; score range 5-15 for each scale; normative means range from 9.2-9.5, 8.9-9.7, and 9.9-10.1, respectively, for each scale) and an overall Anger Expression score.
- CDI: a 27-item self-report questionnaire designed to assess depressive symptoms in children and adolescents. A CDI total score ≥19 is the criterion for a positive screen in pediatric non-clinical populations.
- Interventions: Children were randomized to an aerobic exercise vs. sedentary (games and artistic activities) after-school program for 8 months. Heart rate monitors were worn daily in the exercise program. Teachers were rotated between conditions, and rewards for good behavior were similar.
- Intent-to-treat mixed models evaluated intervention effects.

Results

Manipulation Check:
- Children’s attendance to control and exercise sessions was similar (64 ± 30 vs 59 ± 28%, p>.25). In the exercise condition, heart rates were 161 ± 7 bpm, indicating vigorous activity. The exercise group lost more fat and gained more fitness than controls (-1.8 vs -0.8%, 2.7 vs 1.3 ml/kg/min, both p=.04).

Psychological Outcomes
- No group by time interaction was detected for Anger In, Anger Out, Anger Expression, Global Self-Worth or Peds-QL scale.
- There was a group by time by sex interaction on the CDI (p<.05) such that boys benefited from the sedentary intervention (-3.1 vs 0.5 in exercise, p=.03 in males only). Girls’ CDI scores decreased after exercise but this was not different from the change in controls (-2.0 vs -0.4 in control, p = .24).
- There was a group by time by sex interaction (p = .02) on the Anger Control scale from the PAES, such that males assigned to exercise reduced their anger control (-1.1 vs 0.6 in control condition, p<.01), with no changes in the girls (0.1, -0.5 respectively).

Conclusions
- Exercise intervention reduced fatness and improved fitness.
- Compared to a sedentary attention control group, exercise did not affect inwardly, openly, or overall anger expression, self-worth or quality of life.
- Some of the benefits in prior studies may be due to program elements other than exercise, such as adult attention.
- Structured sedentary programs that include games and artistic activities and interaction with adults and peers may be more beneficial to boys’ mood than exercise, perhaps because this is a type of activity boys typically have less access to.
- Reduced anger control might be an unwanted side effect of exercise intervention in boys, even where behavioral structure is present.

References

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