Improving The Health and Fitness of Children Using an Active Play Method

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ABSTRACT

A study was conducted to determine the efficacy of a guided active play (GAP) program to elicit improvements in maximal oxygen consumption (VO_2 max) in children aged 8-12. The program ran for 8 weeks (1h/d;5d/wk) with health and fitness assessments taken pre- and post- intervention. Physical/Physiological maturity status were estimated from multiple linear regression equations linking anthropometric variables. VO_2 max improved by 4.3% for all children, with girls > boys. In general, a relationship was observed between physical/physiological maturity status and improvement in VO_2max. GAP programs have the ability to elicit improvements in VO_2 Max.

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Background

- Prevalence of childhood obesity is reaching epidemic levels
- Declining physical activity levels are associated with lower health and fitness
- Physical activity levels can be increased using laboratory and "boot camp" style interventions
- Influence of sex and physical/physiological maturity status relative to puberty

Objective

- Examine the efficacy of a guided active play program (GAP) in eliciting changes in maximal oxygen consumption (VO_2max) for children

Methodology

- Intervention:
  - Summer camp in local community center setting
  - 8 Weeks (1h/d;5d/wk),
  - Intensity set by games
  - 5 Children were guided by 1 Undergraduate Student
- Assessments:
  - VO_2max measured pre- and post- GAP
  - Physical/Physiological maturity status estimated from multiple linear regression equations linking anthropometric variables
- Study Participants:
  - N=69
  - 50% Overweight or Obese (≥85th Percentile) using BMI Classification

RESULTS/ DISCUSSION

Table 1: Maximum Oxygen Consumption Changes from Guided Active Play

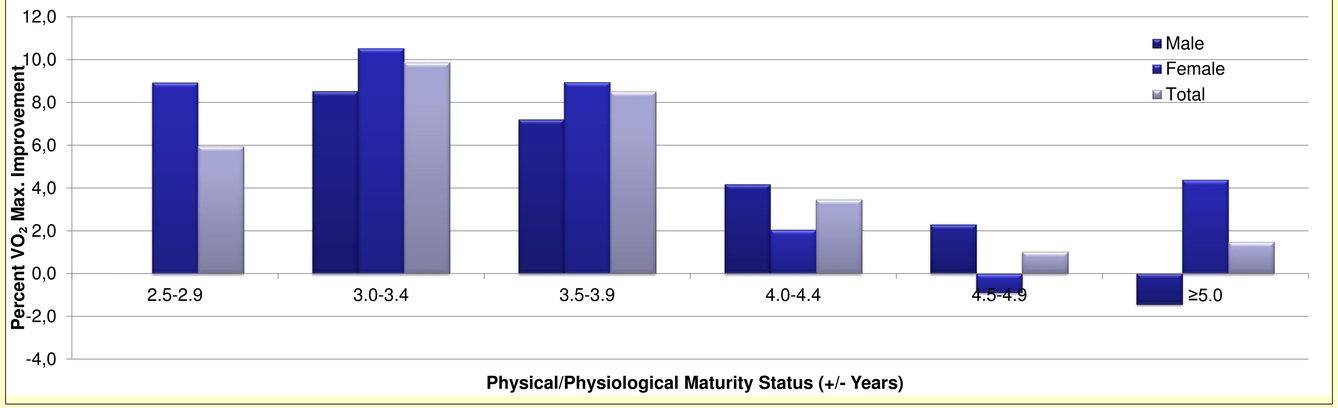
	Total	Males	Females
Percent Improvement VO_2 Max.	4.3 ±8.1	2.7 ±9.2	5.8 ±6.9

Table 2: Maximum Oxygen Consumption Changes from Literature

Initial peak $\dot{V}O_2$ (mL/kg/min)	Prepubertal	
	peak $\dot{V}O_2$ (mL/kg/min)	Δpeak $\dot{V}O_2$ (%) [range]
<50	44.7	5.9 [−7.6 to +20.5]

(Baquet et, al, 2003)

Figure 1 Percent VO_2 Max. Improvement vs Physical/Physiological Maturity Status



CONCLUSIONS

- Comparable improvements in VO_2max are attainable using GAP
  - 4.3% improvement
- Sex and physical/physiological maturity status were observed to be significant confounding variables