EFFECTS OF A PHYSICAL ACTIVITY INTERVENTION STUDY IN OBESE/OVERWEIGHT CHILDREN ADIPOSE TISSUE.

Lopes, Vítor P.; Vasques, C.; Gomes, D.; Correia, T.
Research Center in Sports Sciences, Health Sciences and Human Development (CIDESD)
Polytechnic Institute of Bragança – Portugal

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Vítor Pires Lopes
Escola Superior de Educação
Apartado 1101,
5301-856 Bragança
Portugal
e.mail: vplopes@ipb.pt

Abstract

Background

The worldwide increase of obesity in children claim for urgent measures in several instances. One of the keys measures is to increase the children habitual physical activity (PA). The propose of this study is to analyze the effects of an PA intervention program in the children adipose tissue.

Methods

24 obese/overweight children with 10.29±2.00 years of age (6.92 to 13.89) of both gender participated in a intervention PA program during 9 months. They were evaluated at the beginning, after 4 months, and at the end of the program in weight, height and skinfolds (triceps, subscapular, suprailiac, and calf). The changes were analysed in a hierarchical linear model with HLM 5 having the sum of skinfolds as dependent variable. Children were classified as obese / overweight according to the IOTF cut-off values (Cole et al., 2000).

Results

At baseline sum of skinfolds had an estimate mean value of 92.01 mm. The hierarchical linear model shows a significant and positive effect of the intervention program, that is, there was a decrease of 9.6 mm in the sum of skinfolds between which observations. Between the baseline and the second observation 30% changed from overweight to norm weight and 8.3% from obese to overweight. Between the second and the last observations only one child changed from obese to overweight.

Discussion

The results indicate a positive effect of the PA intervention program in the reduction of adipose tissue in obese/overweight children.

Introduction

Obesity is a widespread disease in developed countries. In Portugal it has been estimated that about 12% of adult population and 11% children (7 to 9 years old) are obese.

The high prevalence of overweight and obesity are of great concern in public health, and there are no effective strategies of prevent and treatment. The enhancement of habitual physical activity (PA) could be an important factor both in prevention and treatment.

The effectiveness of obesity prevention programs varies and is currently not well established. However, some trials were successful and have shown a positive effect of increases in physical activity in the prevention of obesity/overweight.

Purpose

The propose of this study is to analyze the effects of an after school physical activity intervention program in the children adipose tissue.

Physical Activity Intervention Program

The PA intervention program was schedule after school and had a duration of a school year (10 months). During every week-day children could participate in a session of 60-90 min of PA. Children could choose the number and in what days they want to participate. The number of days that each child participate in the program was registered.

The session were organized with a variety of games and sports activities.

Sample

The sample comprise 24 obese/overweight children with 10.29±2.00 years of age (6.92 to 13.89) of both gender.

Somatic Measures

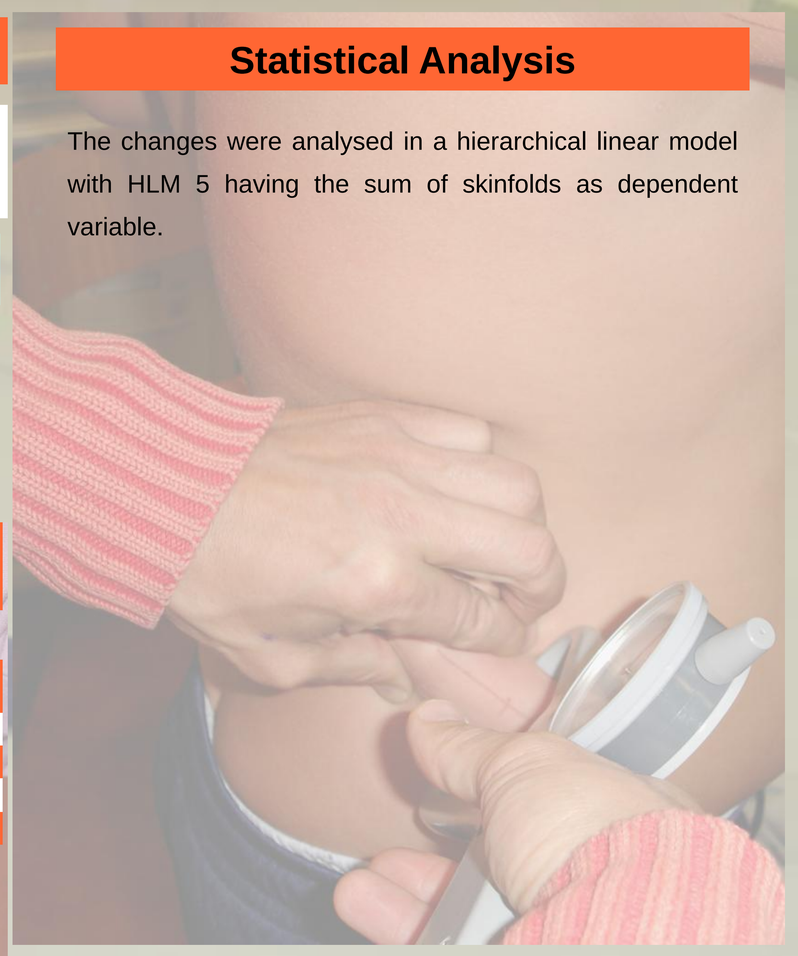
Stature, body mass and the triceps, subscapular, suprailiac, and calf skinfolds were measured. The body mass index (BMI) and sum of skinfolds were calculated.

Overweight and obesity were determined according to IOTF cut-off values for BMI[2].

Each child were evaluated at the beginning, after 4 months, and at the end of the program.

Statistical Analysis

The changes were analysed in a hierarchical linear model with HLM 5 having the sum of skinfolds as dependent variable.



Results

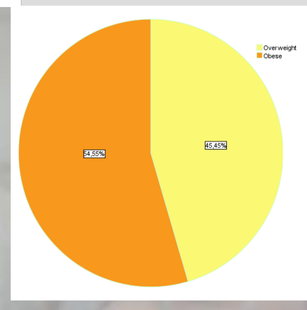
Means ± standard-deviations of skinfolds

Skinfold	1st Observation	2nd Observation	3rd Observation
triceps	22.62±4.70	18.89±5.14	18.89±4.66
subscapular	20.85±8.24	15.23±7.28	15.87±8.64
suprailiac	30.31±5.68	25.43±7.65	23.14±9.22
calf	24.61±5.38	21.61±5.90	19.28±6.29

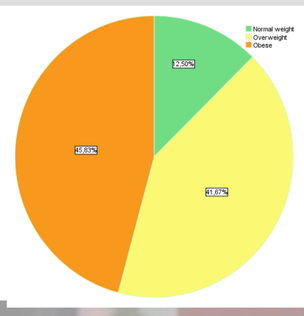
Between the baseline and the second observation 30% changed from overweight to normal weight and 8.3% from obese to overweight. Between the second and the last observations only one child changed from obese to overweight

Percentage of children in each weight category in each observation

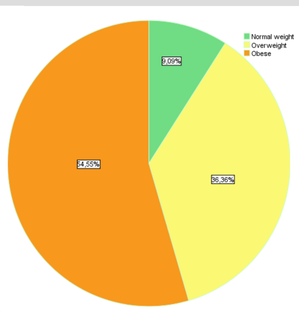
1st Observation



2nd Observation



3rd Observation



Conclusion

At baseline sum of skinfolds had an estimate mean value of 92.01 mm. The hierarchical linear model shows a significant and positive effect of the intervention program, that is, there was a decrease of 9.6 mm in the sum of skinfolds between which observations.

The results indicate a positive effect of the PA intervention program in the reduction of adipose tissue in obese/overweight children.