

Is it effective to promote physical activity in an integral program in children with abdominal obesity?



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Introduction and Aim

Physical activity (PA) is one of the treatments to promote weight loss in children with obesity. The WHO advises to perform moderate to vigorous (MV) PA during 60 minutes daily. It is necessary to measure the effect of increasing PA and adherence to therapy.

Our aim is to evaluate PA using accelerometry at the onset and after 8 weeks of treatment with nutritional intervention and increase in PA.

Patients, material and methods

122 children and adolescents (age 7-16 years) diagnosed with abdominal obesity (waist circumference >p90) were included in a randomized-controlled clinical trial (NCT 03147261). Anthropometrical data: weight, height, BMI, waist (W), hip (H) and fat mass percentage. Patients were randomized in 2 groups: control, treated with the conventional recommendations and intervention group, treated with moderate caloric restriction according to BMI. Both groups were instructed to increase their PA in 200 minutes per week. The PA was determined by 4-day accelerometry including the weekend (Actigraph GT3X accelerometer, Actlife software).

Results

Full accelerometer data were obtained from 106 patients (40 boys), mean age 11.31 (2.47SDS). PA was superior during the week than during the weekend ($p < 0.001$) and the contrary was observed in sedentary time ($p < 0.001$). At the beginning of the study 25% of children fulfilled the WHO recommendations (32% during the week and 16% during the weekend) and 28% at after 8 weeks. In the control group sedentary time increased ($p = 0.007$) and light PA (LPA) decreased ($p = 0.003$). The intervention group increased the MVPA ($p = 0.024$) and decrease the LPA ($p = 0.04$). In both groups a decrease ($p < 0.005$) in weight, BMI-SDS, W, W/H index and leptin and glucose serum levels, was observed. In the intervention group serum insulin levels and HOMA also decreased ($p < 0.05$).

Comparison between PA during the week and weekend

	Week	Weekend	p
METS	1.55 (0.20)	1.48 (0.20)	<0.001
CPM	607.17 (193.93)	519.68 (194.05)	<0.001
Sedentary PA(min)	986.97 (107.31)	1030.72 (112.70)	<0.001
LPA (min)	402.30 (101.59)	374.15 (103.24)	<0.001
MVPA (min)	48.04 (26.69)	34.92 (25.21)	<0.001
Steps (number)	10.832 (3470)	8.795 (3894)	<0.001

Conclusion

Objectively measurement of PA by accelerometry indicates that the intervention group improves the MVPA. The patients included in this study perform more PA during the week than during the weekend.

Acknowledgments: This study is funded by Merck Salud and Ordesa Laboratories.

