

# An Effective Intensive Exercise and Nutrition Program for Obese Latino School Age Children Provided in an Accessible and Culturally Sensitive Manner

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## Background

Childhood obesity is a currently recognized epidemic. Latino children are the second highest affected ethnic group and have unique barriers to most intervention programs.<sup>1</sup> To date published diet and exercise intervention programs have resulted in minimal to no improvement.<sup>2</sup> In an effort to offer an effective program for Latino children, a multidisciplinary team was brought together to develop a program, which was funded by a grant from the American Academy of Pediatrics Community Access to Child Health Program, to provide a needed service.<sup>3</sup> The program was IRB exempt.

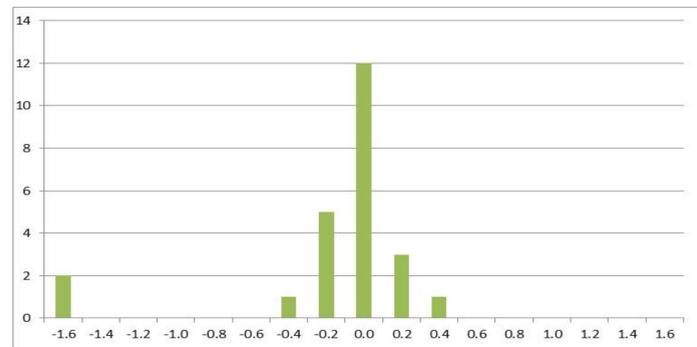


Chart 1. Distribution of 3-Month BMIP changes

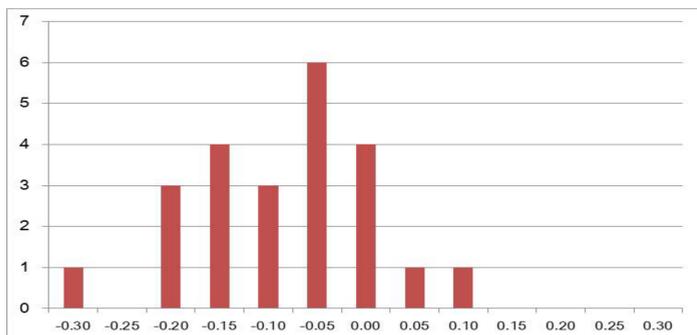


Chart 2. Distribution of 3-Month Z-Transformed BMIP changes.



## Methods

In an effort to offer a program for Latino children, a multidisciplinary team led by a pediatrician that included a behavioral health counselor and a personal trainer was formed. The program was named ANDALE: Actividad, Nutricion, Diversion para Latinos, and the Spanish language acronym was used with a branded logo. Participants were given sports incentives, such as caps, bags, water bottles and light fitness equipment to use at home. Snacks were provided to model healthy choices and portion sizes were discussed at every family meeting.

The program consisted of twice weekly exercise classes and monthly family meetings that ran for a four month period during the school year, from September to December 2013. It was designed to control weight in children 6 to 11 years of age of Latino descent living in or near Dover, NJ. Using Spanish language brochures, participants with a Body Mass Index (BMI) higher than the 85<sup>th</sup> percentile for age were recruited with priority being given to those classified as obese (BMI greater than the 95<sup>th</sup> percentile). Weigh-in data, consisting of weigh-in date, height (cm), weight (kg), date of birth, and gender, was collected at baseline and in calculated BMI and BMIP. Weigh-in procedures and calculations were repeated at 1, 2, and 3 month intervals, coinciding with the family meeting. Attendance and habit changes, based on parental self-report, were also recorded. Participants unable to attend a meeting were allowed to weigh in at a subsequent session.

The primary outcome was change in BMI percentile (BMIP) from baseline to conclusion of the program at 3 months. BMIP values at each time point were transformed to z-scores. Both transformed and untransformed values were analyzed as primary. Participants who had BMIP values at both baseline and 3 months were included. Mean changes were calculated, and a signed-rank test (5%, 2-sided) was performed. Regression analysis was performed to look for any relationship between 3-month BMIP changes and the number of meetings attended, number of fitness sessions attended, and number of habit changes made.

	Baseline	1 Month	2 Months	3 Months
Untransformed (%)	96.922	96.535	96.617	96.065
Z-Transformed	2.150	2.141	2.132	2.061

Table 1. Mean BMIP in Primary Population over Time

## Results

Of the 29 initial participants, 23 completed the entire program and were included in the primary and secondary regression analysis. 24 were included in the secondary BMIP analysis. Baseline BMIP had median of 98.5% and median age of 8.9 years. BMIP averaged 96.922 percentage points at baseline and 96.065 at 3 months, a reduction of 0.857 point. The signed-rank test showed to be statistically significant (P=0.0015). Similarly, the Z-transformed BMIP values averaged 2.150 at baseline and 2.061 at 3 months, a reduction of 0.090; the signed-rank test showed the reduction in Z-transformed BMIP to be statistically significant (P=0.0002). Table 1. Secondary outcomes, changes in BMIP from baseline to 1 month and to 2 months, resulted in no correlation. Regression of the 3-month BMIP changes against each of the participation and change-of-habit scores did not show any significant linear relationship (neither for untransformed nor z-transformed BMIP values).

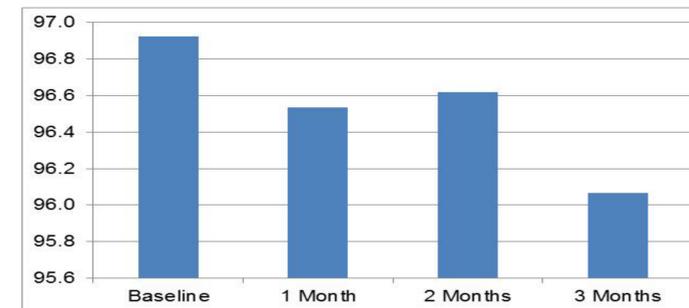


Chart 3. Mean Untransformed BMIP over Time



## Discussion/Conclusion

Participation in a structured program by a multidisciplinary team with fitness and information sessions for parents and children resulted in a small but statistically significant reduction in BMIP after 3 months. 79% of participants completed the program and participant satisfaction was excellent. Future research is needed with prospective matched controls and metabolic measures to determine if a multidisciplinary approach including a structured exercise program led by a personal trainer results in significant and sustained weight loss in this population.



Picture 3 Dr. Kotler teaching parent workshop

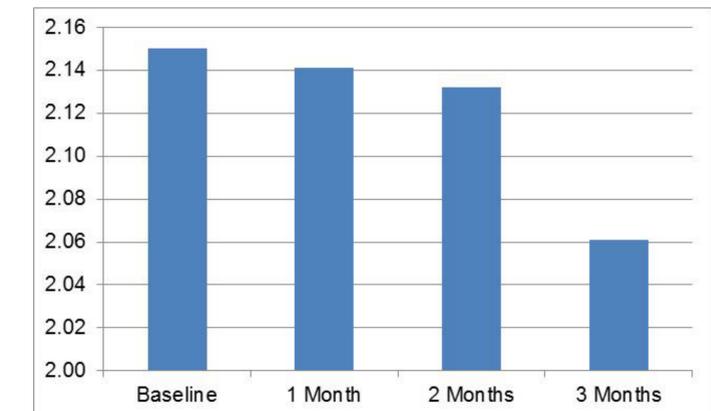


Chart 4 Mean Z-transformed BMIP over Time

## References

- James, Kathy S., et al. "Ways to Enhance Children's Activity and Nutrition [We Can!]: Hispanic Family Responses." *ICAN: Infant, Child & Adolescent Nutrition* 4 (2013): 394-97. *ICAN: Infant, Child & Adolescent Nutrition Online*. Web. 14 Mar. 2014. <http://can.sagepub.com/content/4/6/394.full.pdf.html>.
- Gee, Leslie, and W. Stewart Agras. "A Randomized Pilot Study of a Brief Outpatient Problem-Solving Intervention to Promote Healthy Eating and Activity Habits in Adolescents." *Clinical Pediatrics* 53 (2014): 293-96. *Clinical Pediatrics*. Web. 14 Mar. 2014. <http://cpj.sagepub.com/content/53/3/293.full.pdf.html>.
- Sarah, Barlow E. "Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report." *Pediatrics* 120.4 (2007): S164-S192. *Pediatrics, Official Journal of the American Academy of Pediatrics*. Web. 14 Mar. 2014. [http://pediatrics.aappublications.org/content/120/Supplement\\_4/S164.full.html](http://pediatrics.aappublications.org/content/120/Supplement_4/S164.full.html).