Fit 5 Kids TV Reduction Program for Latino Preschoolers:

A Cluster Randomized Controlled Trial

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Abstract

Introduction—Reducing Latino preschoolers' TV viewing is needed to reduce their risk of obesity and other chronic diseases. This study's objective was to evaluate the Fit 5 Kids (F5K) TV reduction program's impact on Latino preschooler's TV viewing.

Study design—Cluster RCT with randomization at the center level and N=160 participants.

Setting/participants—Latino children aged 3–5 years and their parents were recruited from six Head Start centers in Houston, Texas, in 2010–2012 with analyses in 2013–2014.

Intervention—F5K was culturally adapted for Latino preschoolers and the overall goal was to reduce TV viewing. Study staff taught F5K over 7–8 weeks during the regular Head Start day

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directly to intervention students. Control schools provided the usual Head Start curriculum, which did not specifically cover TV viewing.

Main outcome measures—Individual-level outcomes were measured prior to (Time 1) and immediately following (Time 2) the intervention. The primary outcome, TV viewing (minutes/day), was measured by validated 7-day TV diaries (parent-reported). Sedentary time was measured by accelerometers.

Results—Per the adjusted repeated measures linear mixed effects model for TV viewing (minutes/day), intervention children decreased from 76.2 (9.9) at Time 1 to 52.1 (10.0) at Time 2, whereas control children remained about the same from 84.2 (10.5) at Time 1 to 85.4 (10.5) at Time 2. The relative difference from Time 1 to Time 2 was –25.3 (95% CI= –45.2, –5.4) minutes for intervention versus control children (N=160, p=0.01). In a similar adjusted model, there was a relative decrease in sedentary time (minutes/day) from Time 1 to Time 2 favoring the intervention children (–9.5, 95% CI= –23.0, 4.1), although not significant at p<0.05.

Conclusions—F5K reduced Latino preschoolers' TV viewing by >25 minutes daily. These findings have implications for prevention of obesity, related disorders, and health equity.

Introduction

Excessive TV viewing has been associated with a greater risk of childhood obesity,[1–4] and adverse effects on children's fitness, self-esteem, psychosocial health, cognitive development, and academic achievement.[5,6] TV viewing occupies a large part of children's awake time[2,8] and studies have linked higher amounts of TV viewing with excessive adiposity among U.S. preschoolers.[2,9] Although mechanisms for this relationship remain unclear,[7] TV viewing may influence excessive weight gain by increasing dietary intake and decreasing physical activity.[1] TV viewing behaviors track from preschool into adolescence,[10] suggesting the importance of limiting TV viewing among preschoolers. The American Academy of Pediatrics recommends limiting TV and other screen media use to no more than 1–2 hours/day for children and adolescents aged 2 years and older.[11] Thus, interventions to reduce preschoolers' TV viewing are necessary, but a systematic review identified only a handful of trials that successfully reduced preschoolers' TV viewing.[12]

Latinos are the largest and fastest-growing ethnic minority in the U.S.[14] Given that Latino children watch more TV than their non-Latino white peers and are disproportionately affected by childhood obesity,[15,16] interventions to reduce TV viewing adapted for Latino preschoolers are urgently needed.[17] However, a systematic review identified few interventions that have successfully reduced Latino preschoolers' TV viewing.[12] To address this gap, this study's goal was to enroll Latino preschoolers for a short-term cluster RCT of the culturally adapted Fit 5 Kids (F5K) TV reduction curriculum, one of the few interventions that significantly reduced non-Latino preschoolers' TV viewing in the U.S.[18] The study's main hypothesis was that the culturally adapted F5K curriculum would reduce Latino preschoolers' TV viewing as compared with control preschoolers.

Methods

Participants

The federally funded Head Start program promotes school readiness among young children from low-income families.[19] Starting in September 2010 to December 2012, a convenience sample of six Head Start centers in the Houston-metro area that had at least one classroom with 75% Latino students were recruited and enrolled. Two to four centers were recruited prior to the start of each academic year from 2010 to 2012. Inclusion criteria for preschoolers were: enrollment in Head Start, age 3–5 years, and Latino or Hispanic ethnicity as per parent report. Children were excluded if they were previously enrolled in the present study, under medical supervision to gain weight, or had a sibling enrolled in the present study. This study was approved by the IRBs of Baylor College of Medicine and Seattle Children's Research Institute. Parents provided written informed consent for themselves and their preschooler prior to participation in any study procedures. Students in classrooms randomized to receive the intervention, but whose parents did not provide consent or were excluded owing to criteria above, were not assessed but given the option of staying in the classroom and receiving the intervention or temporarily moving to another classroom during the F5K curriculum.

Intervention

The intervention consisted of the culturally adapted F5K TV reduction curriculum, which was taught by the same study staff member (SJ) directly to the children in the classroom setting. Because the F5K curriculum was originally designed and tested among a mostly non-Latino white sample of preschoolers,[18] a cultural adaptation process was undertaken to increase intervention efficacy and relevance for this underserved, disadvantaged population,[20] as recommended by an expert panel.[17] The cultural adaptation process consisted of three phases:

1. qualitative interviews with parents to inform the curriculum[21];

2. forward- and back-translation of F5K with decentering, in which the source text itself could be modified if there were problematic phrases or to increase cultural sensitivity[22]; and

3. a "practice" trial of the curriculum in two Latino Head Start classrooms, which were not involved in the present cluster RCT, in which staff both taught the curriculum (SJ) and observed and noted lesson components that needed improvement or that were well received.

Investigators and staff, with input from Head Start teachers, then modified lesson plans informed by this process, resulting in the culturally adapted F5K curriculum. Examples of modifications include shortening lessons to fit within the Head Start allotted time periods and substitution of songs and poetry that were known by and relevant to local Latino families. Although TV viewing on a TV set remains the dominant form of watching TV programs among U.S. children,[15] the curriculum was adapted to include limiting watching TV programs on computers and other electronic devices.

The overall goal of F5K was to reduce preschoolers' TV viewing and encourage alternative activities such as active playtime or reading. F5K was informed by Social Cognitive Theory.[23–25] Given preschooler's limited cognitive development, this theory's constructs of modeling, production, retention, and reinforcement in observational learning were especially salient. For example, the curriculum allowed the children to observe and model the targeted behaviors (i.e., turning off the TV and doing alternative activities). Modeling was provided by the preschool teachers, aides, and classmates. Modeling capitalized on the first constituent process of observational learning, the attentional process.[24] The curriculum also provided children the opportunity to rehearse the modeled behavior(s) in the classroom, which facilities the production and retention processes.[24] Concurrent with the children's rehearsal of behaviors, the staff instructor gave feedback to the children, which reinforced successes and corrected deficiencies. Finally, reinforcement as provided by proximal cues and rewards was incorporated into the curriculum. Because preschoolers are motivated primarily by the immediate sensory and social effects of their actions,[24] the curriculum reinforced the children's learned behavior on reducing TV viewing by providing positive prompts or praise from the staff instructor during the children's behavior rehearsals in the classroom.

F5K was taught over 7–8 weeks and consisted of seven themes (Appendix Table 1), each composed of five to six lesson plans of 15–30 minutes organized around the theme (Appendix Figure 1). The lesson plans were drawn from four educational disciplines:

1. Language Arts;

2. Math;

3. Music and Movement, and

4. Arts and Crafts (Appendix Table 1).

F5K also included a parent newsletter sent home weekly to inform parents of the lessons and to provide optional home activities for the parents to complete with their preschoolers. For parents of limited Spanish or English proficiency, the directions and goals of the take-home materials were provided to them verbally by study staff when they picked up their children from the Head Start center.

Study Design

As the F5K curriculum was designed to be taught to students as a group in the classroom setting during the normal preschool day,[18] a cluster RCT design was used rather than an RCT with individual-level randomization. The cluster RCT of the culturally adapted F5K curriculum was conducted in 12 classrooms in six Head Start centers. Time 1 measurements were completed in the 1–2 weeks prior to starting the intervention. Time 2 measurements were obtained immediately after the 7–8-week intervention over 1–2 weeks. Owing to cost constraints, the same study staff member (SJ) delivered the intervention and helped another staff member lead data collection. Two to four classrooms were enrolled at the beginning of each Fall or Spring semester from 2010 to 2012. At the start of each academic semester, centers were randomized to intervention or control conditions and constituted a "wave" of the RCT. The academic years 2010–2011 and 2011–2012 each had two waves (Fall and

Spring) consisting of at least two to four classrooms of participants. The academic year 2012–2013 had one wave (Fall). Centers, rather than classrooms, were randomized to avoid having the same center with both intervention and control participants, which reduced the likelihood of contamination. Each center provided two classrooms, with each classroom within a particular center participating in a separate wave of the study. Random assignment of Head Start centers was accomplished using a random number generator in SAS, version 9.2 by the study statistician who was blinded to Head Start identifying information. Blinding of participants, school staff, study staff, and investigators was not possible after random assignment, because study staff delivered the behavioral intervention in Head Start classrooms and the F5K newsletter was sent home weekly to intervention parents. Control participants received the usual Head Start general curriculum taught by Head Start teachers, which did not specifically include lessons or materials on limiting TV viewing.

Measures

Outcome variables and covariates were obtained at the Head Start centers or participant homes (TV diaries) and pertained to the individual-level measurements. The primary outcome was TV viewing minutes/day, measured by 7-day TV diaries divided into 15-minute increments from 6AM to 12AM. Parents marked each 15-minute increment in which their child watched TV or videos. Total minutes of TV viewing were separately averaged for each 7-day period during Times 1 and 2. For field studies, TV diaries had the highest validity correlations with the criterion standard of direct observation.[26,27] Among a separate sample of Latino parent–preschooler dyads in Head Start from the Houston metro area, these same 7-day TV diaries had acceptable test–retest reliability measured 3–4 weeks apart (intraclass correlation coefficient [ICC]=0.82, $p<0.001$), and convergent validity with the TV Allowance electronic device (r=0.45–0.55, $p<0.001$) and ecologic momentary assessment (r =0.47–0.51, $p<0.001$).[28]

An exploratory outcome was sedentary time (minutes/day), measured by accelerometers (Actigraph GT1M, Ft. Walton Beach, FL) worn at the hip over 7 days each at Times 1 and 2 and recording in 15-second epochs. Accelerometers provide objective and valid estimates of children's physical activity and sedentary time.[29] Non-wear time was defined as 60 consecutive minutes of zero accelerometer counts, except for 1–2 minutes of counts between 0 and 100, as per Troiano et al.[30] Wear time was defined by subtracting non-wear time from 16 hours of daily awake time (i.e., data were excluded from 10PM to 6AM when preschoolers were likely asleep). Three or more hours of valid wear on 5 days was the minimum threshold for inclusion in analyses, because that criteria provided >70% reliability among preschoolers.[31,32] The cut-point for sedentary time was defined as <37.5 counts/15 seconds.[29]

Parents reported the sociodemographic characteristics of child age, gender, race/ethnicity, and household income. Proxy measures of parent and child acculturation[33,34] were collected and included: preferred language (Spanish only or Spanish more than English versus English and Spanish equally or English more than Spanish), years living in the U.S. (for parents, <15 years versus 15 years; for children, <4 years versus 4 years), and country of birth (non-U.S. including Puerto Rico versus U.S.). Higher acculturation scores were proxy measures

for greater acculturation to the mainstream U.S. culture. Parental perception of neighborhood disorder was measured at Time 1 using a previously validated eight-item survey,[35] which measured parents' perceptions of their neighborhood's violence, safety, drug traffic, and child victimization. The scale, in which higher scores indicate greater neighborhood disorder, has been positively associated with TV viewing among a U.S. preschool sample.[36] Among a previous sample of Latino preschoolers in Head Start from the Houston metro area, this same scale had good internal consistency (Cronbach's α=0.87), acceptable test–retest reliability 3–4 weeks apart (ICC=0.66, p<0.001), and was significantly and positively correlated with Latino preschoolers' BMI z-scores as hypothesized (β=0.30, p<0.01).[33] Self-efficacy is a central construct of Social Cognitive Theory,[24] which informed the design of the F5K intervention. Parental self-efficacy for limiting their preschooler's TV viewing was assessed using a 14-item scale adapted from a related subscale on parents' self-efficacy (competence) for vegetable parenting practices, defined as the specific behaviors that parents employ to influence their child's dietary vegetable intake.[37,38] The adaption of the present study's scale was informed by previous qualitative interviews with parents of Latino Head Start preschoolers in the Houston metro area and by an expert panel of investigators.[21] Parental and not child self-efficacy was assessed, given the limited cognitive abilities of preschoolers. Example questions included *How sure are you that you can*:

1.   *limit your child's TV watching to 2 hours or less daily*;

2.   *overcome problems in getting your child to watch TV for 2 hours or less daily*;

3.   *offer different activities for your child instead of TV*; and

4.   *get your child to eat dinner without watching TV*.

Responses included: *sure*=2, *somewhat sure*=1, and *not sure*=0. The self-efficacy scale's total range was 0 to 28; higher scores indicated higher self-efficacy. Trained research staff followed a standard protocol to measure children's standing height (cm) using a portable stadiometer (Seca model 214, Birmingham, UK) and body weight (kg) using a digital scale (Tanita model BWB-800S, Arlington Heights, IL). The average of two measures was used for analyses, unless there was a difference of >0.2 cm or 0.2 kg, which resulted in a third measurement and then the two closest values were averaged and used instead. From height and weight, BMI (kg/m^2) and BMI z-scores were determined per U.S. growth charts.[39]

Sample Size

At the time this project was proposed, the ICC for daily TV viewing was unknown for the Latino preschool population. Given 12 Head Start center classrooms, 12 children per classroom recruited at Time 1, and with expected attrition, a minimum of ten children/ classroom at follow-up, this final expected sample (N=12 classrooms and 120 children total) provided 80% power with α=0.05 to detect the main effect of 0.54 in SD units for daily TV viewing, assuming a cluster-related ICC of 0.01. If a cluster-related ICC of 0.1 is assumed, a main effect of 0.7 in SD units for daily TV viewing would be achieved.

Statistical Analysis

Analyses were conducted using Stata, version 12.0 in 2013–2014. Analyses consisted of a repeated measures linear mixed effects model using the xtmixed command to estimate the association between the intervention and average TV minutes/day, adjusting for covariates (age, gender, neighborhood disorder, parental acculturation, and parent self-efficacy).[40–42] When covariates were missing at one time point, information from the other time point was used. Household income was not included in the model because 30.1% of participants did not disclose these data; however, all participants met low-income criteria for the federal Head Start program,[19] which ensured a low-SES sample. Parent and child acculturation were correlated (data not shown), thus only parent acculturation was included in the model. The model included participant (child), classroom, and Head Start center as random effects. Preschoolers and their data (N=160) were nested within classrooms (N=12) that were nested within centers (N=6). The inclusion of participant as a random effect accounted for within-child correlation of measurements at Time 1 and Time 2.[40,42] Likewise, the inclusion of classroom and Head Start center as random effects accounted for within-classroom and within-center correlation of measurements at Time 1 and Time 2, respectively.[40,42] Intervention group, Time, and a group × Time interaction term were included as fixed effects to compare changes in the two groups over the study period. A separate but similar repeated measures linear mixed effects model estimated the association between the intervention and average sedentary time, adjusting for the same covariates listed above, and additionally adjusting for valid accelerometer wear time. Baseline differences in covariates between intervention and control groups were examined using Student's *t*-test and chi-square or Fisher's exact test. Mean (SD) or 95% CI is presented unless otherwise indicated. All analyses used a significance level of 0.05.

Results

Six centers were approached, enrolled in the study, and each had two classrooms randomized for separate, independent waves of the RCT. Participation of the second classroom from each center occurred only after participants from the first classroom finished the F5K curriculum. No classrooms or students within a center participated more than once. Of the total 211 children eligible for the study (i.e., children at the enrolled Head Start centers within a target classroom, regardless of ethnicity), 183 (86.7%) enrolled in the study, with 99 of 110 (90%) enrolled at the intervention schools and 84 of 101 (83.2%) enrolled at the control schools (Figure 1). The research team was not allowed to collect demographic data from parents who did not enroll/provide consent for the study. Some participants did not provide TV diary or covariate data (*n*=23 or 12.5% of enrolled; *n*=9 intervention and *n*=14 controls) at both Times 1 and 2 and were excluded from analyses. Participants with TV diary data for at least one time point were included in analyses. The final analytic sample was 160 of 211 or 75.8% of the entire eligible sample. All participants in the analytic sample were analyzed according to their particular school's random assignment to intervention or control conditions. No adverse events occurred in this study, including child BMI percentile changes >15 percentage points or a participant needing acute medical attention due to changes in TV viewing.

Table 1 lists participant characteristics and statistically significant differences between intervention and control groups. Intervention children had slightly lower neighborhood disorder scores than control children (12.1 [4.2] vs 14.0 [4.3], p=0.004), although this average difference of 1.9 points was below the clinically important threshold of 2–3 points reported by the original validation study.[35] There were no significant group differences (all p>0.05) in age, gender, race/ethnicity, child BMI z-scores or weight status categories, child or parent acculturation scores, and parent self-efficacy.

The ICC for clustering within centers for daily TV viewing was 0.076. For the adjusted linear mixed effects model (Table 2), intervention children decreased their adjusted mean (SE) daily minutes of TV viewing from 76.2 (9.9) at Time 1 to 52.1 (10.0) at Time 2, whereas control children's mean daily minutes of TV viewing remained about the same from 84.2 (10.5) at Time 1 to 85.4 (10.5) at Time 2. The group × Time interaction term estimated the relative difference for the decrease in mean daily TV viewing minutes from Time 1 to Time 2 to be −25.3 (95% CI= −45.2, −5.4) for the intervention versus the control children (p=0.01).

The ICC for clustering within centers for daily sedentary time was 0.014. For the adjusted linear mixed effects model examining sedentary time (Table 3), intervention children decreased their adjusted mean (SE) daily minutes of sedentary time from 409.3 (73.8) at Time 1 to 404.7 (84.6) at Time 2, whereas control children's mean daily minutes of sedentary time remained about the same from 412.0 (72.6) at Time 1 to 412.8 (75.1) at Time 2. The group × Time interaction term estimated the relative difference for the decrease in mean daily sedentary minutes from Time 1 to Time 2 to be −9.5 (95% CI= −23.0, 4.1) minutes for the intervention versus the control children (p=0.172).

Discussion

Limiting TV viewing is important for optimizing child obesity prevention, fitness, self-esteem, psychosocial health, cognitive development, and academic achievement.[5,6] This study is one of the first cluster RCTs to examine a TV reduction intervention among Latino preschoolers, which resulted in significant decreases to their TV viewing behaviors in the short term. Intervention children had a relative decrease of 25.3 fewer minutes/day or almost 3 fewer hours/week of TV viewing compared with controls. Importantly, this study used a 7-day TV diary previously validated among a Latino preschool sample[28] to measure the outcome variable at baseline and follow-up. In the previous RCT evaluating the F5K curriculum among a mostly non-Latino white sample (N=77), intervention children had 40.3 fewer minutes/day or 4.7 fewer hours/week of TV viewing compared with controls.[18] These differences in the efficacy of F5K for reducing TV viewing may reflect:

1. the cultural adaptation process used in the present study;

2. racial/ethnic (Latino versus non-Latino), geographic (Latino, Houston, and urban versus upstate, New York, and rural), or cohort (a decade separated the two studies) differences between the samples;

3. differences in the assessment of TV viewing (TV diaries versus direct recall questions);

4. differences in the analytic approach (linear mixed effects model versus ANCOVA); or

5. random differences or influences.

The relative decrease of 25.3 minutes/day of TV viewing among the intervention group compares favorably to other TV reduction interventions among preschoolers as reviewed,[12] and may reflect the importance of:

1. the cultural adaptation process for tailoring the intervention to the target population[17]; and

2. the validation of the outcome measures among the target population.[28]

Among four trials that attempted to reduce TV viewing among preschoolers,[12] only one (F5K)[18] was successful. Since that review, several other relevant trials have been published. For example, the Communities for Healthy Living Intervention conducted in upstate New York reported a reduction in TV viewing of 47.8 minutes/day comparing pre- to post-intervention (Fall 2010 to Spring 2011), although this study lacked a control group and analyses did not account for clustering by Head Start center.[43] The Healthy Habits Happy Homes RCT reported no significant overall differences in daily TV viewing (β= –0.54, p=0.12), although weekend TV viewing decreased by 1.06 hours (p=0.02).[44] Among a predominantly non-Latino white sample of children with well-educated parents in Seattle, a RCT of a TV reduction intervention led by case managers reported a significant decrease of 37 minutes/day of TV viewing.[45] The greater decrease in TV viewing in the Seattle-based study could be due to that study's exclusion of preschoolers who averaged <90 minutes/day of TV viewing or differences in racial/ethnic and sociodemographic characteristics between the samples.

The intervention group decreased their sedentary time by an estimated 4.3 minutes/day and the control group increased their sedentary time by 5.2 minutes/day, in the expected directions. However, these differences were not statistically significant. Further studies with larger samples are necessary to determine this potential relationship.

Limitations and Strengths

The small sample size precluded detecting a moderate difference in the outcomes (i.e., TV viewing and sedentary time), and precluded conducting analyses involving potential mediating behavioral variables (i.e., parent self-efficacy as a mediator for children's TV viewing). Household income data were missing from 30.1% of participants and this variable was dropped from analyses, although all met low-income criteria of the Head Start program. Times 1 and 2 were only 8 weeks apart, and it is unknown if changes to TV viewing would persist in the long term. This study was too brief to examine clinical outcomes such as BMI. This study has limited generalizability, although it also helps fill an important gap for studies among Latino children. Some participants (n=17 or 9.3% of enrolled) provided no TV viewing data at Times 1 and 2, and were dropped from analyses because imputation would be inappropriate. Finally, there likely was confusion among some participants for choosing race categories after already indicating "Latino/Hispanic" ethnicity. Anecdotally, some chose the "other" race category (and did not fill in a description) presumably because they

did not believe the listed racial categories were necessary or appropriate for them (e.g., white). Strengths of this study include the focus on Latinos who are an understudied but fast growing population in the U.S., the high participation rate of families (75.8% of all eligible students comprised the analytic sample), the use of the culturally adapted F5K curriculum, the 7-day TV diaries that were previously validated and shown to be superior to other field-based recall methods, the rigorous cluster RCT design, and analyses that took into account the clustering of behaviors by classrooms and centers.

Conclusions

The F5K curriculum, which was culturally adapted for and taught directly to Latino preschoolers during Head Start, significantly reduced children's TV viewing by more than 25 minutes/day. This study is one of the first cluster RCTs to demonstrate a significant reduction in Latino preschoolers' TV viewing. Though confirmation is necessary, including longer-term examination of TV viewing and health outcomes, F5K appears promising to reduce TV viewing among this at-risk population. Future studies with larger samples should employ both dietary intake methods and objective measures of physical activity to investigate behaviors associated with TV viewing. Further, if this study's findings are replicated over longer periods, the federal Head Start program should consider implementing the culturally adapted F5K to reduce Latino preschoolers' TV viewing.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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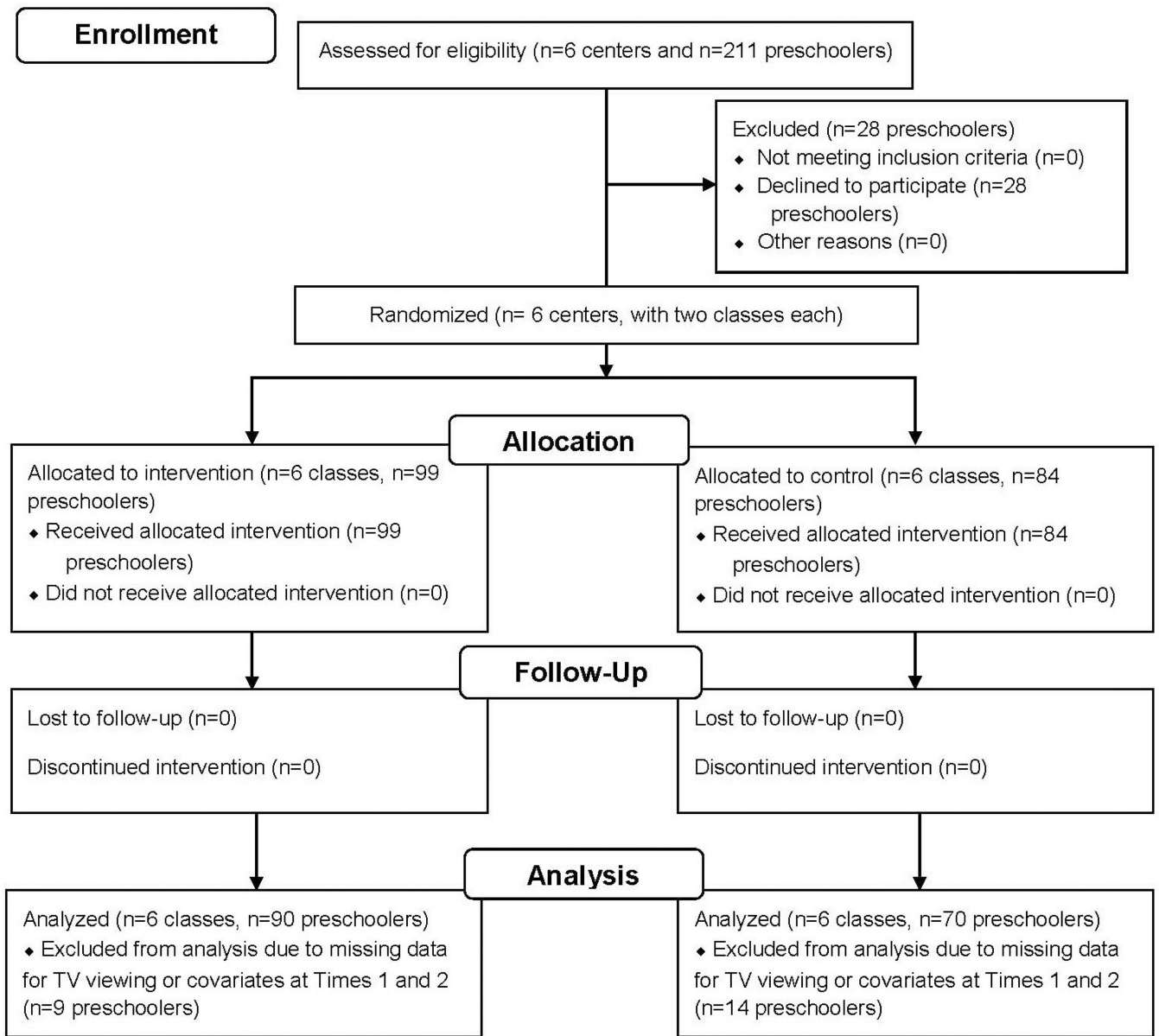
Figure 1.
Fit 5 Kids cluster RCT CONSORT flow diagram.

Table 1

Participant Characteristics from the Fit 5 Kids Trial, Stratified by Experimental Group

	Intervention n=90	Control n=70	
	N (%)	N (%)	Chi-square or Fisher's Exact test, *p*-value
Child gender			0.58
Male	49 (54)	35 (50)	
Female	41 (46)	35 (50)	
Child ethnicity			NA
Latino	90 (100)	70 (100)	
Non-Latino	0 (0)	0 (0)	
Child race			0.76
White	55 (65)	46 (73)	
Asian	1 (1)	0 (0)	
Latino black	0 (0)	0 (0)	
Native American	4 (5)	1 (2)	
Multi-Racial	1 (1)	0 (0)	
Other	23 (27)	16 (25)	
Child weight status			0.16
Normal	66 (73)	44 (63)	
Overweight	18 (20)	15 (21)	
Obese	6 (7)	11 (16)	
	Mean (SD)	Mean (SD)	T-test, *p*-value
Child age (years)	4.5 (0.5)	4.4 (0.6)	0.069
Neighborhood disorder score	**12.1 (4.2)**	**14.0 (4.2)**	0.004
Child BMI z-score	0.6 (1.1)	0.9 (1.3)	0.11
Child acculturation	2.2 (0.6)	2.0 (0.7)	0.10
Parent acculturation	0.9 (1.1)	1.0 (1.2)	0.63
Self-efficacy	1.7(0.3)	1.7 (0.3)	0.75

Note: Boldface indicates statistical significance (*p*<0.05). Missing data not included in tests of association.

Table 2

Repeated Measures Linear Mixed Effects Model for TV Viewing, n=160

	Coefficient	95% CI
Group		
Control	Reference	
Intervention	−8.0	−36.4, 20.4
Timepoint		
Time 1	Reference	
Time 2	1.2	−13.6, 16.1
Group×Time	**−25.3**	**−45.2, −5.4**
Age	17.8	−0.2, 35.8
Gender		
Male	Reference	
Female	−12.6	−28.7, 3.5
Neighborhood disorder	0.2	−1.5, 1.9
Parent acculturation	2.3	−4.9, 9.4
Parent self-efficacy	−18.0	−39.6, 3.6

Note: Boldface indicates statistical significance (p<0.05).

Table 3

Repeated Measures Linear Mixed Effects Model for Sedentary Time, n=148

	Coefficient	95% CI
Group		
Control	Reference	
Intervention	3.0	−10.6, 16.6
Timepoint		
Time 1	Reference	
Time 2	5.2	−4.9,15.3
Group×Time	−9.5	−23.0, 4.1
Age	−3.4	−14.3, 7.5
Gender		
Male	Reference	
Female	**16.8**	**6.0, 27.7**
Neighborhood disorder	0.3	−0.9,1.4
Parent acculturation	−0.2	−4.8,4.4
Parent self-efficacy	−5.7	−20.4,9.0
Accelerometer wear time (minutes)	**0.6**	**0.6,0.7**

Note: Boldface indicates statistical significance (*p*<0.05).