

The Influence of the VERB Campaign on Children's Physical Activity in 2002 to 2006

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Regular physical activity has important and well-accepted benefits for the health of children, including optimal cardiovascular functioning, bone health, maintenance of normal weight, improved self-concept, and positive effects on academic performance.¹⁻⁷ Positive experiences with physical activity at a young age can lay the foundation for being regularly active throughout life; yet, the reality is that US children become less active as they grow through adolescence,⁸⁻¹⁰ and the pattern of reduced physical activity tends to continue into adulthood.^{11,12} Although the current expert recommendation is 60 minutes per day of moderate to vigorous physical activity for school-age children,¹³ many children fall short of this goal.¹⁴

In 2002, the Centers for Disease Control and Prevention (CDC) launched the VERB campaign to encourage children aged 9 to 13 years to be physically active every day.¹⁵ VERB used a social marketing approach to deliver a positive physical activity message through mass media, school and community promotions, the Internet, and partnerships with national organizations and local communities. Drawing on the theories of planned behavior¹⁶ and social cognitive theory,¹⁷ the campaign messages sought to promote the benefits of physical activity (it's social, fun, and cool), self-efficacy (try new activities, you don't have to be a pro to be active), and social influences (many of your peers are having fun being active). The campaign's advertising and promotions aimed to inspire children to be active, emphasizing free-time play in their backyards and neighborhood parks.

With a cumulative congressional appropriation of \$339 million, VERB used the sophisticated techniques of commercial marketers, including building the VERB brand,¹⁸ conducting extensive formative research,¹⁹ using professional actors, and buying media and promotional opportunities to ensure reaching a substantial proportion of the target audience. A largely consistent level of marketing activities was

Objectives. We evaluated physical activity outcomes for children exposed to VERB, a campaign to encourage physical activity in children, across campaign years 2002 to 2006.

Methods. We examined the associations between exposure to VERB and (1) physical activity sessions (free time and organized) and (2) psychosocial outcomes (outcome expectations, self-efficacy, and social influences) for 3 nationally representative cohorts of children. Outcomes among adolescents aged 13 to 17 years (cohort 1, baseline) and children aged 9 to 13 years from cohorts 2 and 3 were analyzed for dose-response effects. Propensity scoring was used to control for confounding influences.

Results. Awareness of VERB remained high across campaign years. In 2006, reports of children aged 10 to 13 years being active on the day before the survey increased significantly as exposure to the campaign increased. Psychosocial outcomes showed dose-response associations. Effects lessened as children aged out of the campaign target age range (cohort 1, baseline), but dose-response associations persisted in 2006 for outcome expectations and free-time physical activity.

Conclusions. VERB positively influenced children's physical activity outcomes. Campaign effects persisted as children grew into their adolescent years. (*Am J Public Health.* 2010;100:638-645. doi:10.2105/AJPH.2008.142968)

maintained from June 2002 through September 2006, when funding for the campaign ended. Paid television advertising, mainly on cable channels popular with children aged 9 to 13 years, was the primary message vehicle during all years; the national media buy delivered an estimated 119 gross rating points (GRPs) per week for television in the first year and about 108 GRPs per week in the second through fourth years of the campaign. GRPs measure the reach and frequency of advertising. Advertising in magazines targeted to this age group (e.g., *Sports Illustrated for Kids*, *Game Pro*, *ELLEgirl*) averaged 80 GRPs per month across the entire campaign.

School-directed efforts were implemented in VERB's second through fourth years, mainly through participation of schools nationwide in 1- to 3-week classroom-based activity promotions. VERB launched 4 major promotions, each reaching children in 2000 to 3000 elementary or middle schools. For example, VERB Crossover was a 3-week school program that guided children to combine basketball

with another activity, sport, or piece of equipment to create crossover combinations. The program kit included inflatable vinyl basketballs, teacher guides, parent letters, 2 posters, a dry erase, laminated bracket poster for competitions, a classroom interactive tool, award certificates, and prizes such as terry cloth wristbands and rubber band bracelets. The program also encouraged schools to apply for 20 grants of \$1000 each that were part of the promotion's incentives to schools. In addition, 6 community-based promotions were implemented, with 20 000 ready-to-use kits delivered to youth-serving recreational centers, community- and religion-based organizations, and schools that together were estimated to reach more than 1 million children.

During the spring and summer months, vans that were vehicle-wrapped with bright VERB logos canvassed US communities. Staff set up play areas and street games at the communities' recreational centers, camps, schools, festivals, and sporting events. VERB ads and partner

Web sites (e.g., Nickelodeon) drove traffic to the VERB Web site where children could choose virtual playmates, get virtual tutoring on sports skills like soccer and tennis moves, and record their physical activity to receive prizes and incentives. Visits to the VERB Web site increased over the 4 years; in the last year, more than 1 million children were registered on the site.

Partnerships with media outlets targeting children (e.g., Disney) increased the visibility and appeal of VERB and helped the campaign to extend its reach. National organizations (National Recreation and Parks Association, Girl Scouts) partnered with VERB to bring an “it’s cool, it’s fun” physical activity message to their constituents. Community-based partnerships such as the VERB Summer Scorecard in Lexington, Kentucky,²⁰ began to emerge in a few communities in the final 2 years of VERB, and about 20 communities hosted a VERB-related program.

Results from the first 2 years of the campaign have been reported in the literature^{21,22} and showed that the effects of the campaign after 2 years were considerably stronger than the effects found after year 1. After 1 year, evidence of significant association with VERB was limited to increases in free-time physical activity during the previous week among subpopulations, notably girls aged 9 to 13 years, and younger children aged 9 to 10 years. The expansion of significant effects after 2 years to the entire target population on 3 outcomes (free-time physical activity during the past week, physical activity on the day before the interview, and expectations about participating in physical activity) suggested that the second year of advertising was critical to sustaining the momentum of year 1 and producing more-widespread behavioral effects. In the present study, we report the results of the final evaluation of the campaign, which analyzed data from all years of the campaign. The following research questions framed the evaluation: (1) What was the level of campaign awareness among children aged 9 to 13 years, and how often did they see or hear VERB commercials? Did VERB maintain high brand awareness over the course of the campaign? (2) Was frequency of exposure to campaign messages associated with higher levels of physical

activity and more-positive attitudes toward activity among those aged 9 to 13 years? How did the results for 2006 compare with those for previous years? (3) Was frequency of exposure to campaign messages associated with higher levels of physical activity and more-positive attitudes toward activity among adolescents aged 13 to 17 years in 2006 who were in the 9 to 13 year target age range at campaign launch?

METHODS

The data were from the Youth Media Campaign Longitudinal Survey (YMCLS), a telephone survey of 3 nationally representative cohorts of children aged 9 to 13 years and their parents. The first cohort was interviewed in 2002. New cohorts were added in 2004 and 2006 because the children in the baseline cohort were aging out of the target age range for the campaign. With all cohorts, a list-assisted random-digit-dialed method was used to select a sample of households with telephones. A 1-minute screener was used to identify households with children aged 9 to 13 years. After consenting to participate and to have their child participate, parents completed a 12-minute interview that asked about demographics and assessed their attitudes and behaviors about their child’s physical activity. After the children gave their assent to participate, they were interviewed about their attitudes and behaviors toward physical activity. Overall response rates were calculated by multiplying the household screening rate by the parent interview completion rate by the child interview completion rate. Additional sampling and weighting information was reported previously.²³

Cohort 1 was interviewed in spring 2002 (baseline), before the start of the advertising campaign and annually thereafter. Eligibility screening was completed with 61% of the households. A parent completed an interview in 88% of the eligible households, as did 81% of their children, yielding 3114 parent–child dyads. The overall baseline response rate was 43% (the product of the completion rates for the screening, parent, and child interviews). In the subsequent years of 2003 through 2006, the number of parent–child dyads that completed interviews each year was 2729, 2256, 1946, and 1623, respectively. The overall

response rate after 5 waves of data collection was 23%.

Cohort 2, comprising 5177 child–parent dyads, was created in 2004. Eligibility screening was completed in 59% of households. Eighty five percent of parents and 88% of their children completed interviews, for an overall response rate of 44%. In 2005, 4283 child–parent dyads completed interviews. Participants were subsampled in 2006, and 76% of those dyads who remained in the sample completed interviews (n=2773). The overall response rate for the 3 waves, from 2004 to 2006, was 28%.

Cohort 3 was created in 2006 with a new sample of children. Eligibility screening was completed in 54% of households. Eighty percent of parents and 84% of their children (n=1200) completed interviews, for an overall response rate of 36%.

Each cohort was weighted to population totals for children aged 9 to 13 years in the initial year the survey was administered, after preliminary adjustments for differential probabilities of selection and nonresponse. Cohort 1 was weighted to Census 2000 totals (<http://factfinder.census.gov>), whereas the other 2 cohorts were weighted to Current Population Survey totals (<http://www.bls.gov/cps>). Within each cohort, adjustments were made for attrition in follow-up assessments.

The median item response rate for the YMCLS was over 99%. To facilitate weighting and analysis, items with missing data were fully imputed by using a combination of hot-deck procedures and regression modeling.^{23,24}

Measures

Awareness of the campaign was assessed by asking unprompted and then prompted recall questions. All children were asked, “Have you seen, read, or heard any messages or advertising for getting kids active?” Children who said yes were asked the name of the campaign. Those who responded “VERB” were categorized as having unprompted awareness. Children who could not recall the campaign name unprompted were asked whether they had heard of VERB. Children who said yes were categorized as having prompted awareness. Children who could not recall the campaign even after being prompted had no awareness. Next, children’s understanding of the VERB

message was measured by asking children with awareness the open-ended question, “What is VERB all about?” and “What ideas does VERB give you?”

Children who reported being aware of VERB, unprompted or prompted, were then asked how often they usually saw or heard a message or ad about VERB on television or radio. This measure of self-reported frequency of exposure used a 4-point scale ranging from less than once a week to about every day. To reduce social desirability bias, self-reports of VERB awareness and frequency of exposure to campaign advertisements were collected after responses to the physical activity and psychosocial items.

Other media campaign evaluations have used dose–response analyses, including those with self-reported doses of exposure²⁵ and those with objective measures of dosage through GRPs delivered.²⁶ Dose–response analyses have been recommended as a strategy for assessing campaign efficacy.²⁷ Supporting the validity of this scale, another VERB evaluation found a positive association between self-reported exposure and the level of advertising in selected communities.²⁸

The YMCLS measured 3 dimensions of children’s physical activity outside of school hours: free-time and organized physical activity in the previous 7 days and physical activity on the day before the interview. Activity levels over the previous 7 days were calculated by using number of “sessions.” Sessions were determined through a series of questions in which the children were asked to name all their physical activities in the previous 7 days outside of school hours. Children reported whether each activity mentioned was done during free time or with a coach, leader, or supervisor. Children then reported on how many of the previous 7 days the activity was performed, and free-time and organized sessions were calculated by summing the number of days for all activities of the given type. Because the distribution of free-time activity sessions was skewed, the median number of free-time sessions was used. For physical activity on the previous day, children were asked whether they had done any physical activities yesterday and, if the response was yes, to name the activities.

An independent study was conducted to determine the reliability and validity of the

YMCLS items for measuring physical activity among children aged 9 to 13 years. The results showed acceptable test–retest reliability on reports of physical activity and significant moderate correlations of those reports with detailed activity logs and data gathered with MTI Actigraph (MTI Health Services, Fort Walton Beach, FL).²⁹

The YMCLS included 3 scales that assessed psychosocial dimensions of physical activity: (1) outcome expectations—child’s beliefs about the benefits of participating in physical activities; (2) self-efficacy—child’s confidence to overcome barriers to engaging in physical activities; and (3) social influences—positive norms for physical activity held by peers. The internal consistency (Cronbach α) of the scales was 0.73, 0.66, and 0.70, respectively. Test–retest reliability (intraclass correlation coefficient) values for 1-week repeated measurements were 0.80, 0.75, and 0.68, respectively.³⁰ The scales were based on the literature on physical activity in children^{31,32} and were aligned with messages about physical activity that were in VERB advertising (e.g., physical activity is fun; anyone can do it, anytime, anywhere; peers and celebrities enjoy high-intensity, fun activities). The items assessing social influences were added to the survey in 2003 and those measuring self-efficacy in 2004. Each scale used a factor score with a mean of 10 and a standard deviation of 1.

The YMCLS also collected demographic information, such as children’s age, gender, race, ethnicity, household income, and educational attainment of the responding parent. The number of minutes the children watched television or played video or computer games was also captured.

Analysis

To assess VERB awareness in 2006, we used data from children aged 9 to 13 years who had not been previously interviewed (cohort 3; $n=1200$). To assess the frequency of exposure to VERB, a single analysis group comprising children aged 10 to 13 years from each of the cohorts was created ($n=2703$). Nine-year-olds were not represented in this analysis because most had turned 10 at follow-up. To assess the frequency of exposure as the target youth aged, data from the original baseline cohort were analyzed; these respondents ($n=1623$) had

been followed annually since 2002 and were aged 13 to 17 years in 2006.

For the frequency-of-exposure questions, we examined the dose–response relation between 5 levels of exposure (no VERB awareness and 4 levels of self-reported frequency of exposure) and physical activity outcomes. Confounder control for the analyses of children aged 10 to 13 years and adolescents aged 13 to 17 years was accomplished through propensity scores estimated by using ordinal logistic regression to identify variables predictive of exposure level. Propensity scores were implemented as weights that statistically adjusted the campaign exposure groups so that the groups were equivalent on all modeled variables except level of exposure. Raking was used to help achieve balance among the groups so that they differed only on exposure to VERB.^{33,34}

Different variables were permitted to enter the logistic regression propensity models for the different analyses. All children across cohorts who were aged 10 to 13 years when surveyed in years 2 to 4 were combined for each year’s analysis. Most children were drawn from the second and third cohorts, who were sampled after the launch of advertising. For these children, control for variables that might have been affected by VERB exposure could underestimate the true effects of the campaign. Consequently, only variables regarded as not amenable to influence by VERB, such as presence of cable television in the home and socioeconomic, educational, demographic, and geographic variables, were permitted to enter the propensity model. For analysis of the adolescents aged 13 to 17 years from cohort 1, all baseline variables were permitted to enter the propensity model so that after adjustments there was no association between children’s 2002 outcomes and their awareness level in 2006.²³

A gamma (γ) statistic was used to gauge the strength of the association between reported frequency of exposure to VERB and reported physical activity outcomes. All analyses were conducted with SAS version 9.1 (SAS Institute Inc, Cary, NC).

RESULTS

In 2006, 28% of children aged 9 to 13 years had unprompted recall of VERB, and 47%

recalled VERB after prompting, for a total awareness level of 75%. Total awareness of VERB among the target audience increased significantly from 2003 (year 1) to both later cohorts, as did unprompted recall of the campaign (Figure 1).

Physical Activity Outcomes for Children Aged 10 to 13 Years

In 2006, the children’s reports of physical activity on the day before the interview were significantly positively correlated with levels of campaign exposure. Higher percentages of children were physically active the day before the survey the more they saw the campaign, ranging from 62.4% with no campaign exposure to 68.4% for those who saw it every day ($\gamma=0.09$; $P<.05$; Table 1). The positive dose-response effects for previous-day physical activity were found across all 3 years, 2004, 2005, and 2006 (Table 2). Children’s reports of free-time physical activity showed a significant association with campaign exposure in 2004 and 2005 but not in 2006. Organized physical activity consistently failed to be significantly associated with campaign exposure.

Psychosocial Outcomes for Children Aged 10 to 13 Years

Significant dose-response associations were found in 2006 between exposure and the 3 psychosocial variables (Table 1). The more frequently children were exposed to the campaign, the more they believed in the benefits of being physically active (outcome expectations), their self-efficacy to be physically active, and social influences on their physical activity ($\gamma=0.12, 0.06, 0.07$, respectively; $P<.05$). These were consistent with previous years’ findings. In 2004, 2005, and 2006, the more that children saw the campaign, the more positive were their scale scores for outcome expectations, self-efficacy, and social influences (Table 2).

Physical Activity and Psychosocial Outcomes for Cohort 1 Adolescents

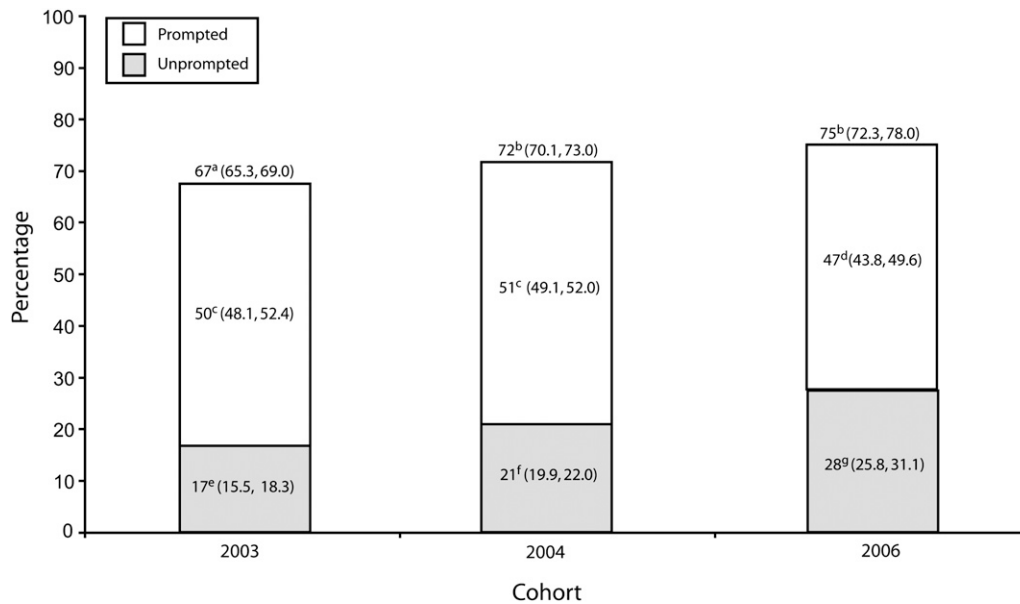
For the cohort 1 adolescents, those who were originally targeted by the campaign starting in 2002, positive dose-response associations were found for free-time physical activity and outcome expectations in 2006 (Table 3). As frequency of exposure to VERB increased, adolescents aged 13 to 17 years reported more

free-time physical activity sessions in the week before the survey, ranging from 2.02 sessions for those unexposed to the campaign to 4.9 sessions for those exposed every day ($\gamma=0.16$; $P<.05$). Likewise, as exposure increased, outcome expectations (beliefs about the consequences of physical activity) among adolescents aged 13 to 17 years grew more positive ($\gamma=0.13$; $P<.05$).

An analysis of the outcomes for cohort 1 after years 2, 3, and 4 showed fewer effects in the final year compared with earlier years; however, significant dose-response associations persisted for free-time physical activity and for expectations of the benefits of physical activity (Table 4). As with the other 2 cohorts, organized physical activity was not significantly associated with the campaign.

DISCUSSION

From June 2002 to September 2006, the VERB campaign marketed physical activity to children through advertising and promotions that portrayed physical activity as an appealing and easy way to have fun with friends. With funding of \$125 million in the first year, the



Note. Numbers in parentheses are 95% confidence intervals. Analysis of variance with α less than .05 is indicated by $b>a$, $c>d$, and $g>f>e$. The 2003 awareness level that was unadjusted for understanding was previously reported to be 74%.

FIGURE 1—Percentage of children aged 9 to 13 years aware of VERB when first asked about the campaign: Youth Media Campaign Longitudinal Survey, 2003 (cohort 1), 2004 (cohort 2), and 2006 (cohort 3).

TABLE 1—Associations Between Reported Frequency of Exposure to the VERB Campaign and Physical Activity Outcomes Among Children Aged 10 to 13 Years: 2006

	No Campaign Exposure	Exposed Less Than Once per Week	Exposed About Once per Week	Exposed Several Times per Week	Exposed Every Day	γ Statistic
Outcome expectations, mean (95% CI)	9.88 (9.707, 9.99)	10.09 (10.00, 10.19)	10.12 (10.04, 10.19)	10.18 (10.10, 10.26)	10.32 (10.25, 10.39)	0.12* (0.09, 0.16)
Self-efficacy, mean (95% CI)	10.02 (9.90, 10.14)	10.13 (10.02, 10.25)	10.23 (10.15, 10.31)	10.25 (10.17, 10.34)	10.24 (10.14, 10.34)	0.06* (0.02, 0.11)
Social influences, mean (95% CI)	9.96 (9.83, 10.09)	10.04 (9.91, 10.16)	10.12 (10.04, 10.19)	10.19 (10.10, 10.28)	10.26 (10.17, 10.35)	0.07* (0.03, 0.12)
No. weekly sessions of free-time physical activity, median (95% CI)	4.71 (4.01, 5.51)	3.44 (2.69, 4.28)	3.76 (3.10, 4.59)	4.62 (4.03, 5.26)	4.96 (4.50, 5.37)	0.03 (-0.01, 0.07)
Organized physical activity, ^a % (95% CI)	39.7 (34.6, 44.9)	45.9 (39.7, 52.1)	46.2 (41.4, 51.1)	45.5 (41.8, 49.2)	40.9 (35.8, 46.0)	0.01 (-0.1, 0.1)
Previous day physical activity, ^b % (95% CI)	62.4 (57.0, 67.8)	63.4 (58.0, 68.8)	64.2 (59.3, 69.1)	70.5 (66.1, 74.9)	68.4 (63.2, 73.7)	0.09* (0.0, 0.2)

Note. CI = confidence interval. Data are for children from all cohorts. The γ statistic describes the strength of the association between reported frequency of exposure to VERB and reported physical activity outcomes.

^aPercentage who engaged in any organized physical activity in the 7 days before the interview.

^bPercentage who engaged in any physical activity on the day before the interview.

* $P < .05$.

campaign built awareness of the VERB brand to a level of 67% among the target audience, laying the foundation for high campaign recognition and diffusion of the messages in the subsequent years of marketing activities. At the final assessment, overall awareness levels had increased. Furthermore, unprompted awareness, a more robust indicator of campaign penetration, had increased from 17% in the first year to 28% during the last year of the campaign. This sustained and increased level of awareness over 4 years indicates the success of the campaign in maintaining and nurturing

the VERB brand among children aged 9 to 13 years in the United States. Such findings offer promise for future health campaigns interested in establishing and maintaining a brand identity with a preteen age group.

For children aged 10 to 13 years, we found significant dose–response associations in all 3 years for the 3 psychosocial outcomes and for 1 of the behavioral outcomes, being physically active on the day before the interview. There was no campaign effect in 2006 on free-time physical activity despite significant dose–response associations in the 2 previous years.

The reasons for this lack of consistent findings over time are unclear, but the result may have been due to characteristics of the sample (because most 2006 respondents came from cohorts 2 and 3, some may have not recalled exposure to the campaign before their initial data collection) or contamination of the unexposed group by unreported exposure. Also, the marketing of physical activity by commercial entities may have diminished the impact of the VERB message. Examples would be McDonald's placement of pedometers in their Happy Meals and Nickelodeon's "Let's Just Play" promotion.

Following the original cohort of children as they aged out of the target population allowed us to assess how VERB was affecting adolescents aged 13 to 17 years who had potentially been exposed to the campaign longer than any other group of US children. In 2006, we found significant dose–response associations for 2 of 6 outcomes: 1 psychosocial (expectations of the benefits of physical activity) and 1 behavioral (sessions of free-time physical activity). These 2 outcomes had been significantly associated with the campaign since its second year. However, we found no significant dose–response associations for the other 3 outcomes that had shown effects in previous years. This was not a surprise because a weakening of effects might be expected for adolescents no longer in the demographic of the media buy. The finding that campaign effects were still

TABLE 2—Summary of the γ Statistic for VERB Dose–Response Outcomes Among Children 10 to 13 Years: 2004–2006

	2004	2005	2006
Outcome expectations scale, mean (95% CI)	0.07* (0.05, 0.10)	0.11* (0.07, 0.15)	0.12* (0.09, 0.16)
Self-efficacy scale, mean (95% CI)	0.05* (0.02, 0.08)	0.09* (0.05, 0.13)	0.06* (0.02, 0.11)
Social influences scale, mean (95% CI)	0.06* (0.04, 0.08)	0.05* (0.01, 0.08)	0.07* (0.03, 0.12)
No. weekly sessions of free-time physical activity, median (95% CI)	0.08* (0.05, 0.11)	0.07* (0.04, 0.11)	0.03 (-0.01, 0.07)
Organized physical activity, ^a % (95% CI)	0.04 (0.0, 0.1)	0.00 (-0.1, 0.1)	0.01 (-0.1, 0.1)
Previous day physical activity, ^b % (95% CI)	0.09* (0.0, 0.1)	0.11* (0.0, 0.2)	0.09* (0.0, 0.2)

Note. CI = confidence interval. Includes children from all cohorts. The year 2003 was excluded because the exposure measure was different from that used in 2004 to 2006.

^aPercentage who engaged in any organized physical activity in the 7 days before the interview.

^bPercentage who engaged in any physical activity on the day before the interview.

* $P < .05$, for trends tested with γ statistic.

TABLE 3—Associations Between Reported Frequency of Exposure to the VERB Campaign and Physical Activity Outcomes Among Adolescents Aged 13 to 17 Years (Cohort 1): 2006

	No Campaign Exposure	Exposed Less Than Once per Week	Exposed About Once per Week, (95% CI)	Exposed Several Times per Week, (95% CI)	Exposed Every Day, (95% CI)	γ Statistic
Outcome expectations scale, mean (95% CI)	9.90 (9.77, 10.02)	9.86 (9.77, 9.95)	10.09 (9.90, 10.27)	10.03 (9.85, 10.21)	10.28 (10.05, 10.52)	0.13* (0.04, 0.23)
Self-efficacy scale, mean (95% CI)	9.96 (9.84, 10.08)	9.98 (9.88, 10.07)	10.04 (9.84, 10.25)	10.05 (9.89, 10.21)	10.04 (9.77, 10.31)	0.04 (-0.05, 0.13)
Social influences scale, mean (95% CI)	9.81 (9.66, 9.97)	9.81 (9.72, 9.91)	9.89 (9.74, 10.04)	9.92 (9.78, 10.05)	9.88 (9.59, 10.17)	0.03 (-0.05, 0.11)
No. weekly sessions of free-time physical activity, median (95% CI)	2.02 (1.48, 2.61)	2.95 (2.34, 3.61)	3.30 (2.37, 4.11)	3.27 (2.24, 4.69)	4.90 (2.81, 6.78)	0.16* (0.07, 0.24)
Organized physical activity, ^a % (95% CI)	25.3 (20.7, 29.9)	34.6 (30.3, 38.9)	41.3 (34.1, 48.5)	38.9 (27.9, 50.0)	33.3 (21.6, 45.0)	0.09 (-0.03, 0.21)
Previous day physical activity, ^b % (95% CI)	47.6 (41.8, 53.5)	59.4 (54.2, 64.6)	62.0 (55.8, 68.1)	56.4 (49.3, 63.4)	67.8 (47.8, 87.8)	0.15 (-0.03, 0.33)

Note. CI = confidence interval.

^aPercentage who engaged in any organized physical activity in the 7 days before the interview.

^bPercentage who engaged in any physical activity on the day before the interview.

* $P < .05$, for trends tested with γ statistic.

present for some outcomes is encouraging. It is conceivable that adolescents might still be positively affected by VERB advertising on television shows that were being watched by adolescents, such as those on the Cartoon Network and the WB. Also, the findings suggest that some of the changes made in physical activity levels of children exposed to VERB were being sustained into their early adolescent years.

Over the 4 plus years of the VERB campaign, positive effects were found on physical

activity behavior and psychosocial variables.

After 1 year, effects were found in free-play physical activity in subpopulations, notably younger children and girls.²¹ These were followed in year 2 by expansion of effects to the entire target population for free-time physical activity, being physically active on the day before the interview, and expectations of the benefits of physical activity.²² The year 3 (2005) data showed the same significant findings from year 2. In the year 4 (2006) data, we saw that the

level of exposure to VERB was significantly associated with physical activity the day before the survey and with each of the psychosocial variables. Although not perfectly uniform across all cohorts, the findings suggest that the recognition of VERB among the targeted children remained very high during the campaign, and exposure to VERB produced modest positive changes in the children's opinions of being physically active and their reports of engaging in more physical activity behaviors. One consistent finding from the cohorts was the lack of effect on organized physical activity. However, this was not unexpected, because the campaign did not emphasize organized sports because of concerns that costs and accessibility were barriers for many children and families.

Limitations

Our study had several limitations. First, the data were self-reported and were subject to errors of recall. In addition, the first and second cohorts of children were interviewed more than once; previous cuing and social desirability could have led to overreporting of physical activity. Third, because true baseline measures were not available for all children aged 10 to 13 years, there were methodologic differences in controlling for confounders. The cumulative survey response rates in 2006 for the baseline and second cohorts were 23% over 5 years and 28% over 3 years,

TABLE 4—Summary of γ Test for VERB Dose-Response Outcomes Among Children Who Matured as the Campaign Progressed (Cohort 1): 2004-2006

	Aged 11-15 Years in 2004	Aged 12-16 Years in 2005	Aged 13-17 Years in 2006
Outcome expectations scale, mean (95% CI)	0.12* (0.07, 0.17)	0.16* (0.10, 0.22)	0.13* (0.04, 0.23)
Self-efficacy scale, mean (95% CI)	0.10* (0.06, 0.15)	0.10* (0.05, 0.14)	0.03 (-0.05, 0.11)
Social influences scale, mean (95% CI)	0.10* (0.1, 0.1)	0.11* (0.06, 0.17)	0.04 (-0.05, 0.13)
No. weekly sessions of free-time physical activity, median (95% CI)	0.09* (0.0, 0.1)	0.06* (0.00, 0.12)	0.16* (0.07, 0.24)
Organized physical activity, ^a % (95% CI)	0.02 (-0.05, 0.09)	0.03 (-0.1, 0.1)	0.09 (-0.0, 0.2)
Previous day physical activity, ^b % (95% CI)	0.19* (0.1, 0.3)	0.12* (0.0, 0.2)	0.15 (-0.0, 0.3)

Note. CI = confidence interval. The year 2003 was excluded because the exposure measure was different than that used in 2004 to 2006.

^aPercentage who engaged in any organized physical activity in the 7 days before the interview.

^bPercentage who engaged in any physical activity on the day before the interview.

* $P < .05$, for trends tested with γ statistic.

respectively. Nonresponse to the first interview and attrition among study cohorts could lead to biased survey estimates. The amount of bias depends on the extent to which those who responded to the study differ from those who did not. However, weighting adjustments were used to mitigate the effects of nonresponse in the YMCLS.

Conclusions

VERB was a national public health campaign that required substantial federal funding. Successfully competing with the barrage of marketing directed at and viewed daily by our young people required partnering with the private sector and communities to develop a health marketing strategy that successfully caught and kept the attention of our nation's children and that leveraged high brand awareness through the development and promotion of VERB activities in places that are important in children's lives (e.g., schools, community organizations, family and parents, commercially sponsored events, print materials, and Internet sites). As is true in commercial marketing, developing a media-driven national brand; maintaining an appealing message across geographic, economic, and racial/ethnic groups; and integrating media messages with community and school programs at a nationwide level requires considerable investment.

VERB set out to bring together public health and commercial marketing to surround children with positive health messages. Positive physical activity habits established in the tween years, it was hoped, would continue as the children became adolescents. Despite reductions in funding each year, the campaign delivered a sustained level of marketing activities that were popular with the targeted children and that achieved a high level of brand awareness. An increasing proportion of children had spontaneous recall of VERB over the 4 years. Furthermore, VERB produced positive gains in physical activity among children aware of the campaign (75% of the 21 million US children aged 9 to 13 years were VERB-aware). In addition, VERB continued to have a positive effect on children into their teen years.

We conclude that health messages can be successfully marketed to children by applying

the same savvy marketing strategies that are used to sell products to children. As in product marketing, when children are reached by an engaging message, their interest is piqued and their attitudes and behaviors can be affected if the choice for action is appealing and easy. Whereas the advertising made physical activity an appealing choice, by promoting physical activity and giving children ideas on how to "sample the product" in their backyards and playgrounds, the intention was for the choice to seem easy and more accessible. VERB's positive effects, although modest, are important when viewed in light of the millions of children whose health may be improved. ■

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Contributors

M.E. Huhman led the VERB evaluation and wrote major portions of the article. L.D. Potter led the implementation of the VERB evaluation and, with M.J. Nolin, oversaw the data collection and synthesized the interpretation of the study results. A. Piesse and D.R. Judkins conducted the analysis and guided the interpretation of the results. S.W. Banspach collaborated on all aspects of the VERB evaluation and provided scientific review of the study. F.L. Wong was director of the VERB campaign.

Human Participant Protection

This study was approved by the institutional review boards of the Centers for Disease Control and Prevention and Westat.

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