

Greetings from University of Massachusetts Boston



The Power of Play: Increasing Physical Activity and Reducing Cardiometabolic Risk in Inner City Youth Using Novel Interactive Gaming

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GoKids! Boston

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DISCLOSURE

**I have no actual or potential conflict of interest in relation to this program/
presentation.**

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The EXCEL Study:

An Academic-Community-Clinical Partnership



Children's Hospital
Boston



The Power of Play: Innovations in Getting Active Summit 2011

A Science Panel Proceedings Report From the American Heart Association

Debra A. Lieberman, PhD, Chair; Barbara Chamberlin, PhD; Ernie Medina, Jr, DrPH;
Barry A. Franklin, PhD, FAHA; Brigid McHugh Sanner, BS;
Dorothea K. Vafiadis, MS; on behalf of The Power of Play: Innovations in Getting Active Summit
Planning Committee*

Background—To examine the influence active-play video gaming (also referred to as exergaming, exertainment, and active gaming) might have on improving health-related skills, enhancing self-esteem and self-efficacy, promoting social support, and ultimately motivating positive changes in health behaviors, the American Heart Association convened The Power of Play: Innovations in Getting Active Summit. The summit, as well as a follow-up science panel, was hosted by the American Heart Association and Nintendo of America.

Methods and Results—The science panel discussed the current state of research on active-play video gaming and its potential to serve as a gateway experience that might motivate players to increase the amount and intensity of physical activity in their daily lives. The panel identified the need for continued research on the gateway concept and on other behavioral health outcomes that could result from active-play video games and considered how these games could potentially affect disparate populations.

Conclusions—The summit represented an exciting first step in convening healthcare providers, behavioral researchers, and professionals from the active-play video game industry to discuss the potential health benefits of active-play video games. Research is needed to improve understanding of processes of behavior change with active games. Future games and technologies may be designed with the goal to optimize physical activity participation, increase energy expenditure, and effectively address the abilities and interests of diverse and targeted populations. The summit helped the participants gain an understanding of what is known, identified gaps in current research, and supported a dialogue for continued collaboration. (*Circulation*. 2011;123:2507-2516.)

Key Words: AHA Conference Proceedings ■ exercise ■ exercise therapy ■ video games ■ behavioral medicine
■ health behavior ■ primary prevention

The EXCEL Study

- Purpose: To assess the feasibility and short-term impact of a supervised after-school physical activity intervention incorporating novel exercise technologies designed to increase physical activity and fitness and modify cardiometabolic risk factors.



METHODS

- Participant Recruitment & Eligibility
 - One inner city school in the BPS system participated.
 - Recruitment materials (informed consent/assent documents, health history, contact information) were sent home with eligible children & returned to school-based family coordinator.
 - Children were eligible if enrolled in 3rd-5th grade, English speaking, & able to attend afterschool intervention sessions.
 - Children were ineligible if they had health conditions prohibiting exercise or if they planned to move out of area or change schools in AY 2010-2011.

METHODS

Assessments conducted at baseline (1 wk prior to start) & at post-intervention:

Physical Activity: ActiGraph accelerometer (7 consecutive days)

Fitness (predicted VO_2 max) estimated -15 meter shuttle run

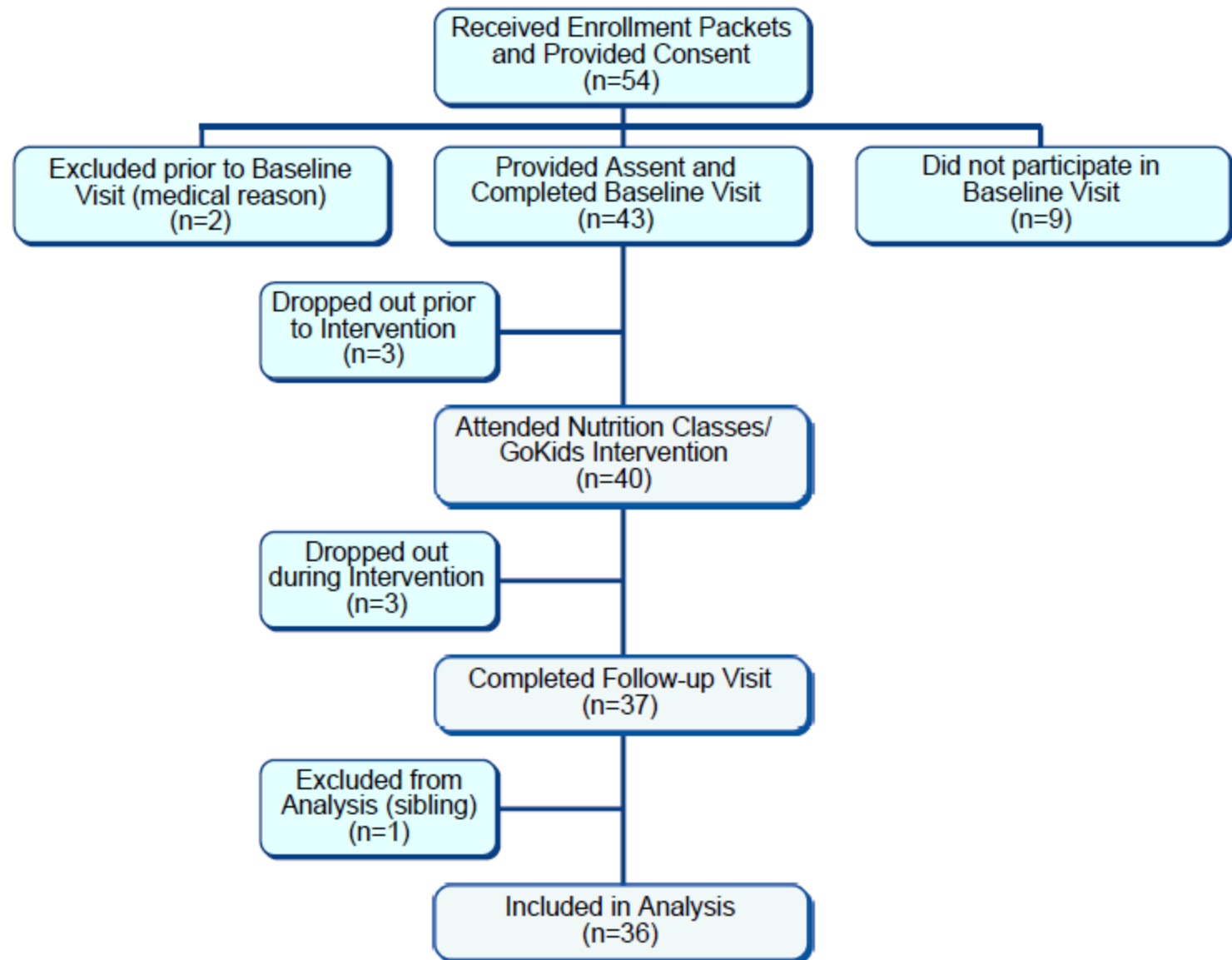
Lipids: nonfasting fingerstick

SBP & DBP: auscultated

Anthropometrics: BMI, WC, % BF (BIA)

Psychosocial & Health Behavior Measures (Self-Report)

Study Participant Flowchart



Sociodemographic Characteristics (N=36)

	Control (N=19)		Intervention (N=17)		P Value
Age years mean ± SD	9.89±0.95		9.43±0.91		0.14
	N	%	N	%	
Gender					
Male	9	47%	10	59%	0.53
Grade					
Third	5	26%	10	59%	0.16
Fourth	9	47%	6	35%	
Fifth	5	26%	2	12%	
Race					
White/Caucasian	6	31%	5	29%	1.0
Black/African American	9	47%	9	53%	
Asian	2	11%	1	6%	
Not specified	2	11%	2	12%	
Ethnicity					
Hispanic	9	47%	11	65%	0.34
Family					
Two parent	4	21%	7	41%	0.16
Single parent	13	68%	9	53%	
Other	2	11%	1	6%	
Medical Conditions					
Asthma	4	21%	3	18%	1.00
Allergies	4	21%	2	12%	0.66
Healthcare					
Doctor's Office	3	16%	0	0%	0.34
Hospital	3	16%	4	24%	
Community Health Center	13	68%	13	76%	
Parental Employment					
Employed (≥35 hours)	6	32%	6	35%	0.54
Employed (<35 hours)	1	5%	3	18%	
Student/not employed/other	11	58%	8	47%	
Parental Education					
Some high school	4	21%	4	24%	0.61
High school/GED	5	26%	5	29%	
1-4 years of college	9	47%	3	18%	
Other	1	5%	3	18%	
Free/Reduced School Lunch	14	74%	15	88%	1.0





Nutrition Component

Conducted in School by RD: 1
wk/10wks

Followed USDA Guidelines

Food-Based

Age & Developmentally

Appropriate

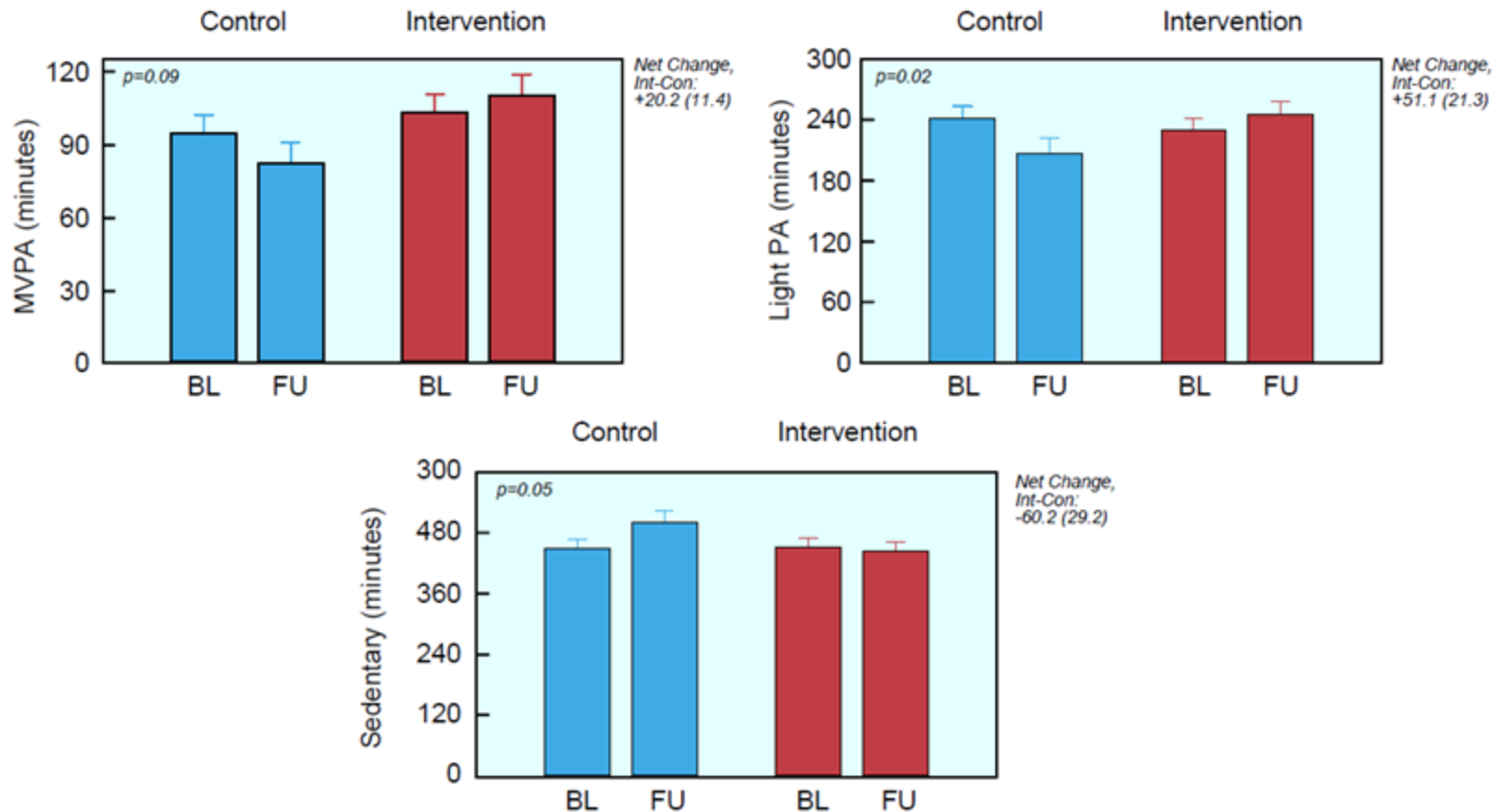
Summary of Results

*Light physical activity increased in the intervention group (16.1 +/- 13.9 mins/day) & decreased in control group (-35.0 +/- 14.9 mins); $p < .02$

* Sedentary activity decreased in intervention group (-9.1 +/- 20.0 mins/day) & increased in control group (51.1 +/- 21.4 mins/day; $p < .05$)

*No significant changes in TC, BP, WC or percent body fat were observed

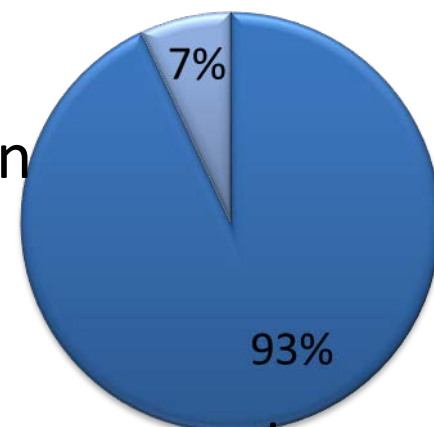
Mean Minutes Per Day of Moderate and Vigorous Physical Activity (MVPA), Light Physical Activity, and Sedentary Behaviors by Group Assignment and Baseline (BL) or Follow-up (FL) Measurement



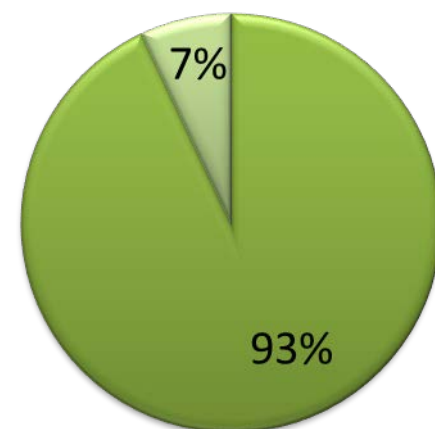
Summary of Results

- Acceptability:

93% (n=16) of children in EXCEL intervention rated the program as excellent



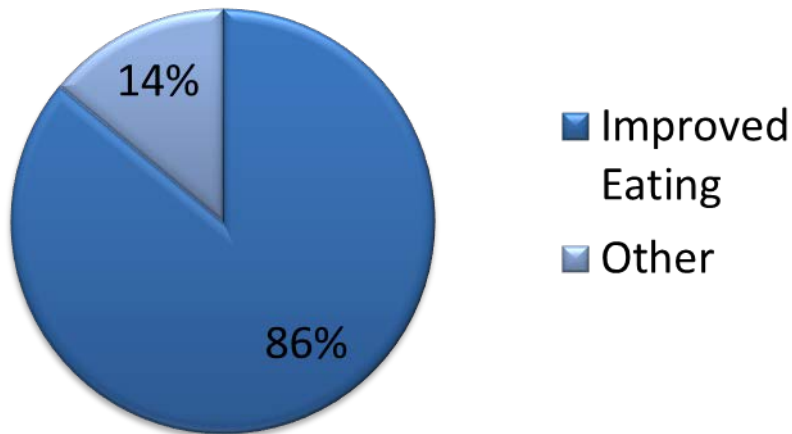
93% (n=16) of children in EXCEL intervention reported the program “made them want to exercise more”



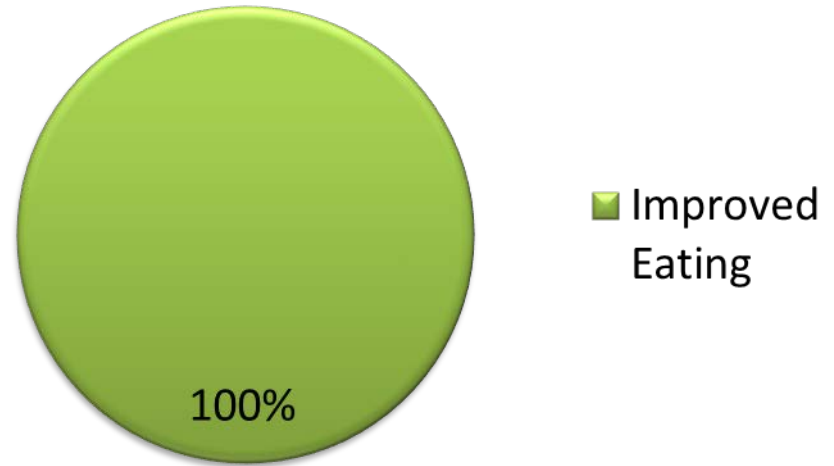
Summary of Results

- Acceptability:
 - 86% (n=15) of children in EXCEL intervention & 100% (n=19) of children in control group reported the nutrition intervention helped improve their eating

EXCEL Intervention group



Control Nutrition Group



Lessons Learned: Facilitating Factors

- Establishing & nurturing relationships, trust & shared goals with community/school partners
 - School officials identified health concerns /priorities:
 - Weight status; health behaviors
- Engaging & supporting school officials & other key personnel in protocol development & implementation



Lessons Learned: Facilitating Factors

- Communication between study team and community/school officials and key personnel
- Experience, expertise, qualifications credibility and professional demeanor of study team



Lessons Learned: Facilitating Factors

- Adaptability, flexibility, persistence and resourcefulness of study team



Lessons Learned: Facilitating Factors

- Providing timely transportation to and from Go Kids Boston to the school



Plans for the Future



- Expand project to include other schools
- Determine if increasing intensity and/or volume of activity, increasing the amount of exergaming and including parents in the nutrition and/or physical activity components of the project can better impact fitness and risk profiles



Questions?
Thank you!

Selected References and Resources

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Selected References and Resources

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- americanheart.org
- cdc.gov/nccdphp/dnpa
- cdc.gov/nccdphp/dash
- actionforhealthykids.org
- napnap.org
- sbm.org
- pcna.net
- <http://gokids-boston.org>
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