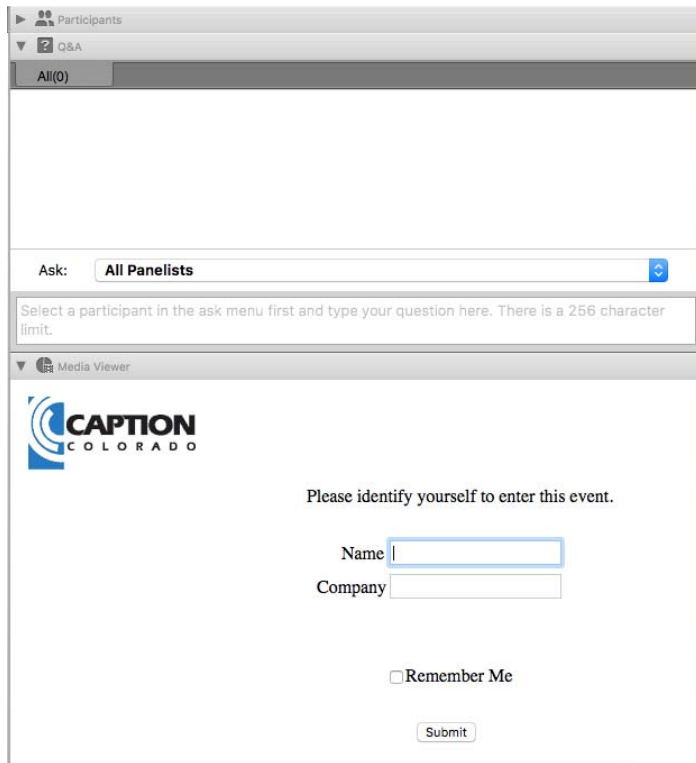


# The Family Life, Activity, Sun, Health, and Eating (FLASHE) Study: A resource for understanding cancer-prevention behaviors among dyads

Behavioral Research Program

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# Welcome



*Presenter*  
Laura Dwyer, PhD



*Moderator*  
Daniel Bornstein, PhD



*Discussant*  
Linda Nebeling, PhD, MPH, RD



*Discussant*  
April Oh, PhD, MPH



*Discussant*  
Frank Perna, EDD, PhD



*Discussant*  
Erin Hennessy, PhD, MPH

# Agenda

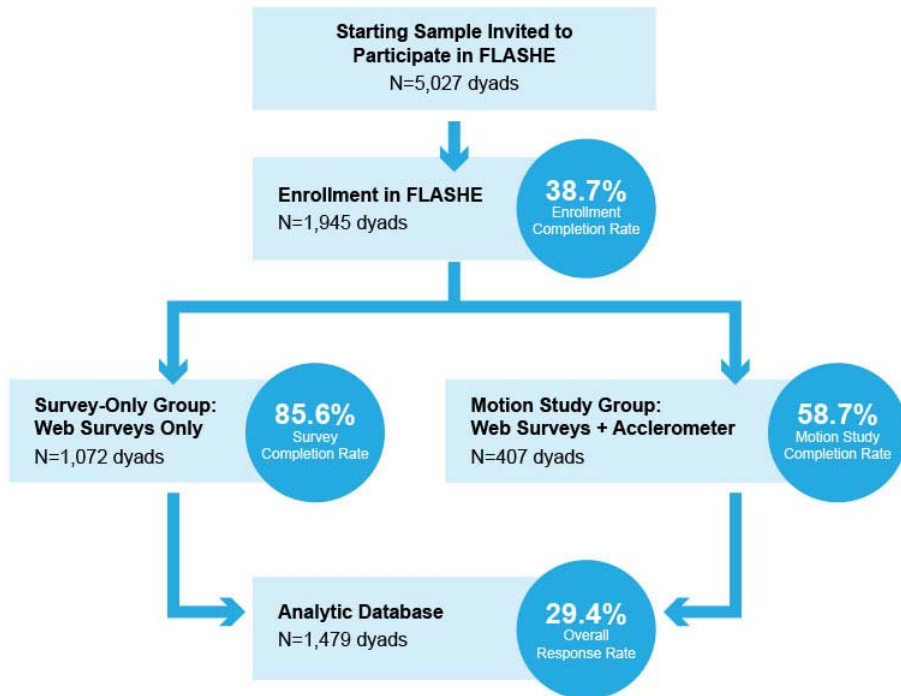
- FLASHE Methods and Participant Characteristics
- Survey Conceptual Model and Example Measures
- Highlighted FLASHE Findings
- Resources for Data Users
- Questions and Answers from the BRP FLASHE study team

## Introduction: What is FLASHE?

- A cross-sectional study in 2014 to assess correlates of cancer-preventive behaviors among parent-adolescent dyads
- The web-based study consisted of four surveys per dyad:
  - Diet-focused survey
  - Physical activity-focused survey
- Some dyads were assigned to an accelerometer protocol
- Data and associated resources are and will be available for public use

# FLASHE Methods

# FLASHE Study Design and Recruitment



- Sample sizes vary depending on the individual survey and type of analysis of interest (individual, dyadic).

Oh AY, et al. Recruitment, enrollment, and response of parent-adolescent dyads in the FLASHE study. *Am J Prev Med.* 2017; 56(6):849-855.

## Methods Overview: Surveys

All surveys were administered online. Each dyad member needed to complete their first survey before either dyad member received the second survey.

Diet Survey	<ul style="list-style-type: none"><li>• N dyads = 1,646</li></ul>
Physical Activity Survey	<ul style="list-style-type: none"><li>• N dyads = 1,644</li><li>• Included questions on sun safety, tanning, sleep, and tobacco use</li></ul>
Parenting & Demographic Module	<ul style="list-style-type: none"><li>• Appeared at the end of the first survey (survey order was randomly assigned)</li></ul>



# Methods Overview: Motion Study

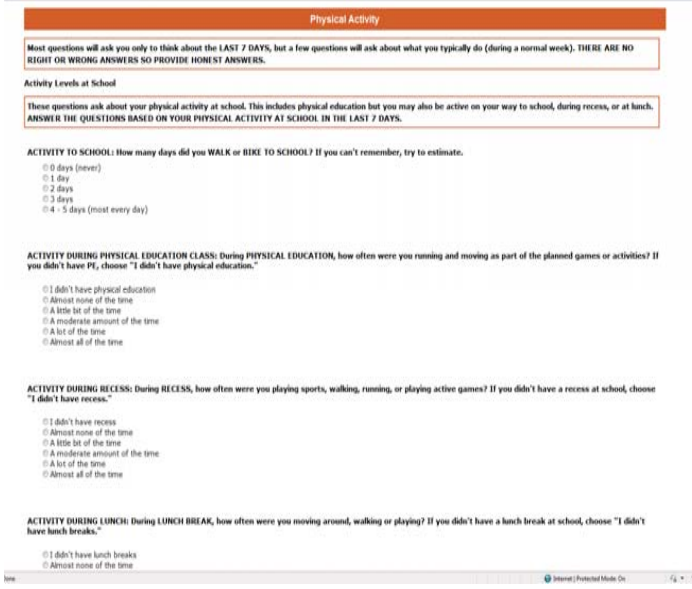
## 1. Actigraph GT3X+



## 2. Daily Activity Log



## 3. Youth Activity Profile



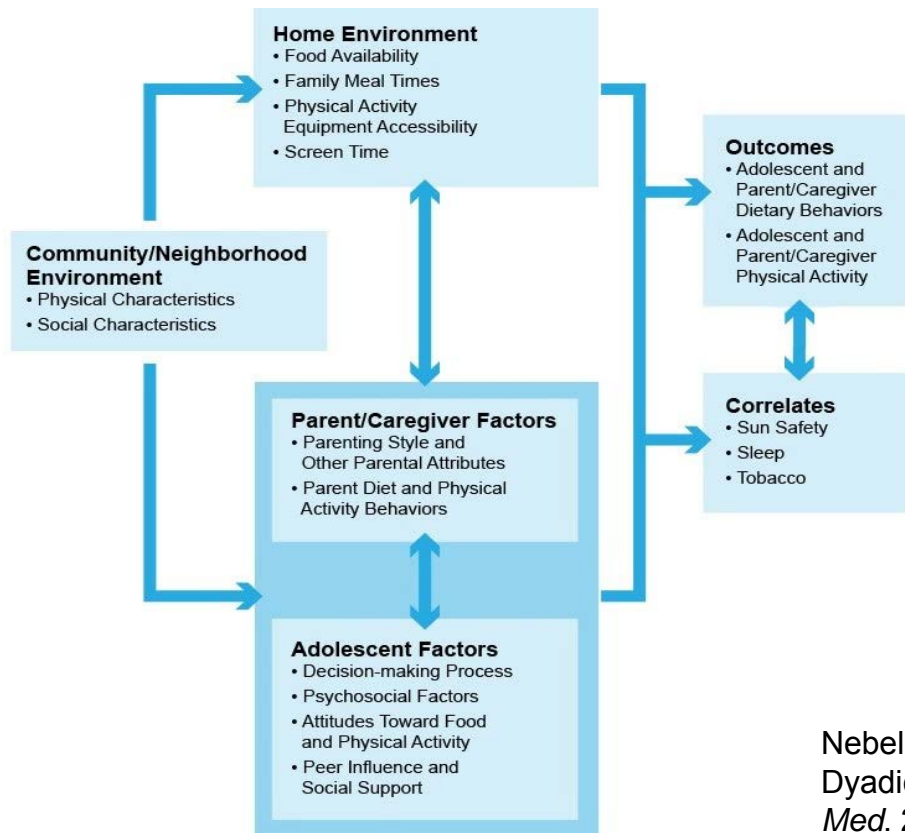
- N adolescents who wore the accelerometer: 509

## Characteristics of dyads who completed all 4 surveys (N = 1,573)

- 75% of parents and 50% of adolescents are female.
- 70% of parents and 64% of adolescents are non-Hispanic White. 16% of the sample is non-Hispanic Black. 7% of parents and 10% of adolescents are Hispanic.
- 47% of parents have a four-year college degree or higher, 72% own their home, and 65% are currently employed.
- 72% of parents are married, and 60% of dyads have at least one additional child in the household.

# FLASHE Conceptual Model and Survey Constructs

# FLASHE Conceptual Model



- Informed from literature reviews and input from scientific experts
- Survey items were cognitively tested.
- The same questions were asked of parents and adolescents, where possible.

Nebeling LC, et al. The FLASHE Study: Survey Development, Dyadic Perspectives, and Participant Characteristics. *Am J Prev Med.* 2017; 52(6):839-848.

# Survey Measures – Diet Behaviors

## Summary of Dietary Behaviors Measures

Dietary screener on foods and beverages capturing “usual” consumption with a recall of the past 7 days.

Example:

DURING THE PAST 7 DAYS, how many times did you eat FRUIT like apples, bananas, melon, etc.?

COUNT fresh, frozen, canned and dried fruit.

DON'T COUNT fruit juices.

- I did not eat fruit during the past 7 days
- 1 - 3 times in the past 7 days
- 4 - 6 times in the past 7 days
- 1 time per day
- 2 times per day
- 3 or more times per day

Variables were computed by Dr. Amy Yaroch and colleagues at the Gretchen Swanson Center for Nutrition, including daily intake frequency and estimated daily intake (e.g., cup equivalents of fruits & vegetables).

Smith TM, et al. Using secondary 24-hour dietary recall data to estimate daily dietary factor intake from the Family Life, Activity, Sun, Health, and Eating (FLASHE) Study dietary screener. *Am J Prev Med.* 2017; 52(6):856-862.

# Survey Measures – Physical Activity Behaviors

## Summary of Physical Activity Behavior Measures

Adolescents: Informed by motion study data, the Youth Activity Profile estimates minutes of MVPA. YAP variables were computed by Dr. Greg Welk and colleagues at Iowa State University.

Example:

ACTIVITY TO SCHOOL: How many days did you WALK or BIKE TO SCHOOL? If you can't remember, try to estimate.

- 0 days (never)
- 1 day
- 2 days
- 3 days
- 4 - 5 days (most every day)

Saint-Maurice PF, et al. Calibration and validation of the Youth Activity Profile: The FLASHE study. Am J Prev Med. 2017; 52(6):880-887.

Parents: IPAQ – short form: Assesses moderate intensity, vigorous intensity, and walking physical activity in the past 7 days to estimate minutes of MVPA.

Example:

How much time did you usually spend doing **MODERATE** physical activities on one of those days?

hours per day

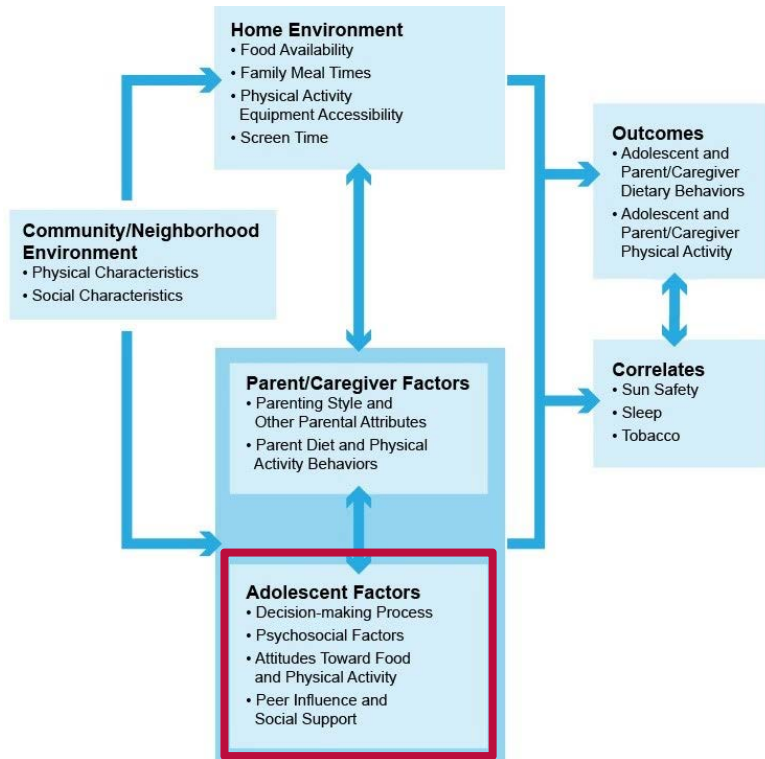
minutes per day

Don't know/Not sure

## Survey Measures – Other Behaviors

Behaviors	Summary of Measures
Sedentary Behavior	<ul style="list-style-type: none"><li>• Youth Activity Profile (adolescents) estimates minutes of sedentary time</li><li>• Electronic device usage</li></ul>
Sun Safety & Tanning	<ul style="list-style-type: none"><li>• Type and quality of sun protection; sun exposure; usage of indoor tanning beds</li></ul>
Tobacco Use	<ul style="list-style-type: none"><li>• Frequency of cigarette usage; quantity of cigarettes; use of cigarettes to help lose or gain weight during past month</li></ul>
Sleep	<ul style="list-style-type: none"><li>• Usual sleep and wake times on weekdays and weekends; sleep quality</li></ul>

# Example Survey Measures



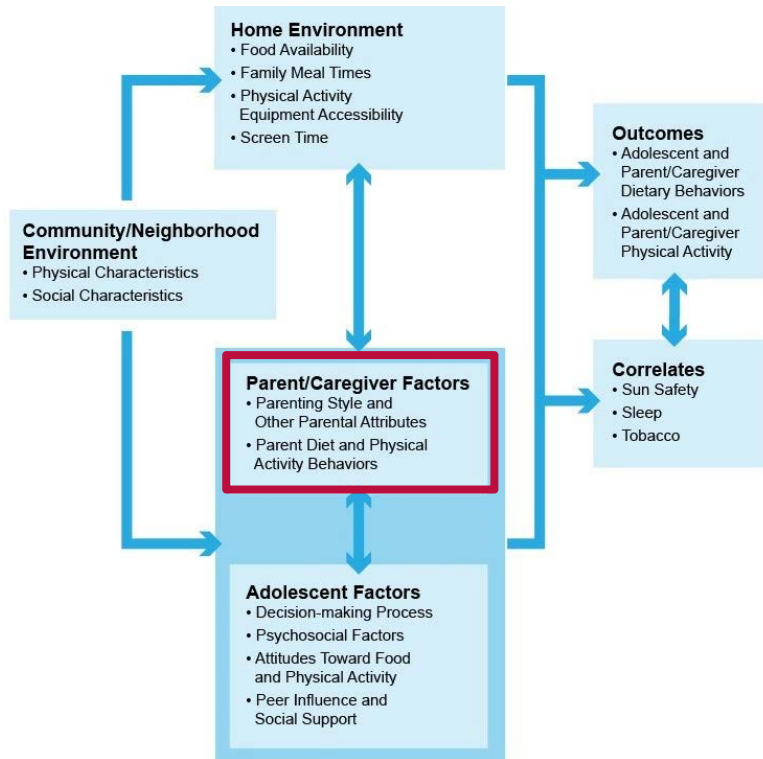
## Adolescent factors (examples):

- Autonomous and controlled motivation, barriers, and friend norms for diet and physical activity behaviors
- Perceptions of advertising for foods
- Attitudes toward being physically active

Full surveys and item source reference lists can be found on the FLASHE study webpage.



# Example Survey Measures

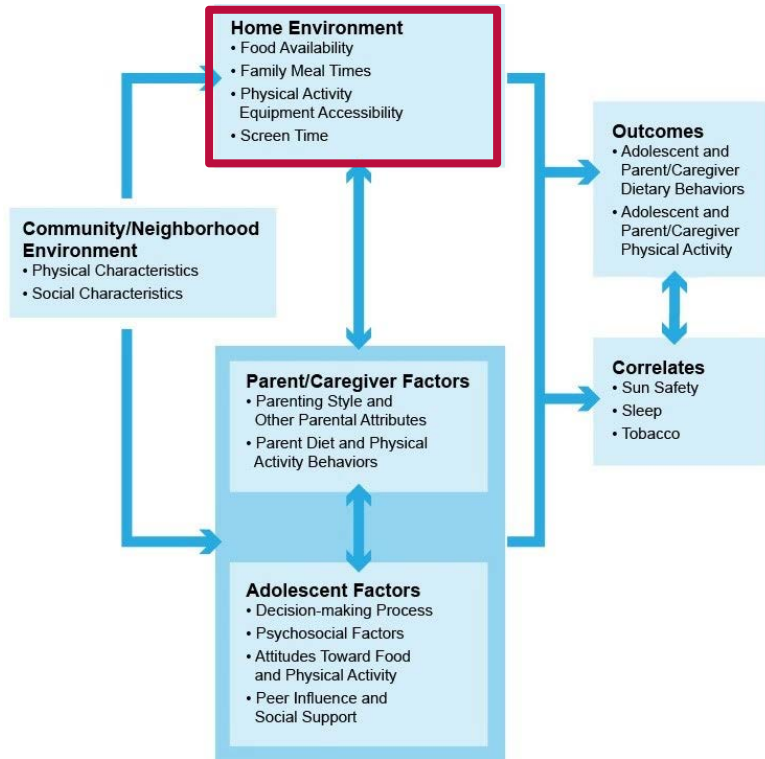


## Parent/caregiver factors (examples):

- Parenting style
- Parenting practices around FV consumption, junk food consumption, physical activity, and limiting screen time

Full surveys and item source reference lists can be found on the FLASHE study webpage.

# Example Survey Measures

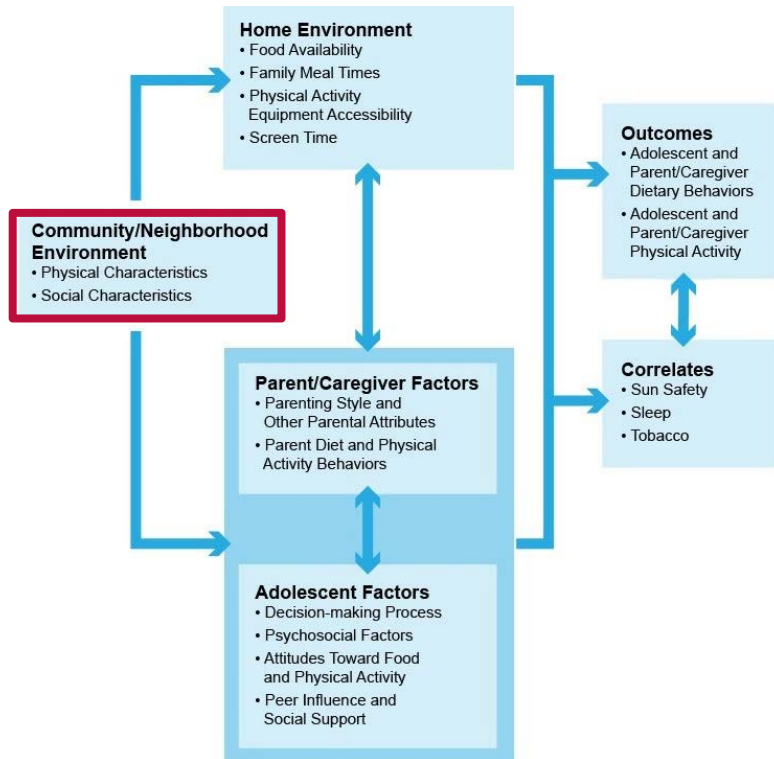


**Home environment (examples):**

- Availability of foods in the home
- Availability of physical activity equipment in the home
- Context of family meals

Full surveys and item source reference lists can be found on the FLASHE study webpage.

# Example Survey Measures



## Community/neighborhood environment (examples):

- Availability of food stores
- Accessibility of physical activity resources
- Social capital
- Crime

Full surveys and item source reference lists can be found on the FLASHE study webpage.

# Highlighted FLASHE Findings

## Individual Analyses (Parent or Adolescent)

- FLASHE offers opportunities to examine one individual dataset (e.g., parent diet data OR adolescent diet data).
- Example research questions can focus studying relationships in the study conceptual model or other pertinent research questions.
- The survey datasets available on the FLASHE webpage are uploaded individually, in SAS and SPSS, for individual data downloads.

## Example Individual Analyses (Parent or Adolescent)

### Adolescent diet survey

Non-Hispanic black adolescents were more like to consume one or more sugar-sweetened beverages per day than non-Hispanic White adolescents and were more susceptible to advertisements about foods.<sup>1</sup>

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### Adolescent physical activity survey

Associations between individual factors (friend norms/support, attitudes, and motivation) and MVPA were stronger when adolescents also reported neighborhoods supportive of physical activity (PA resources & nearby stores).<sup>2</sup>

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<sup>1</sup>Cervi MM et al. Susceptibility to food advertisements and sugar-sweetened beverage intake in non-Hispanic Black and non-Hispanic White adolescents. *J Community Health*. 2017. Online ahead of print.

<sup>2</sup>D'Angelo H et al. Adolescent physical activity: Moderation of individual factors by the neighborhood environment. *Am J Prev Med*. 2017; 56(6):888-894

## Example Dyadic Analyses (Parent and Adolescent)

- FLASHE data can be merged for analyses of parent-adolescent dyads.
- Example correlations between parents and adolescents on FLASHE survey items:

### Parent-adolescent correlations on select survey items

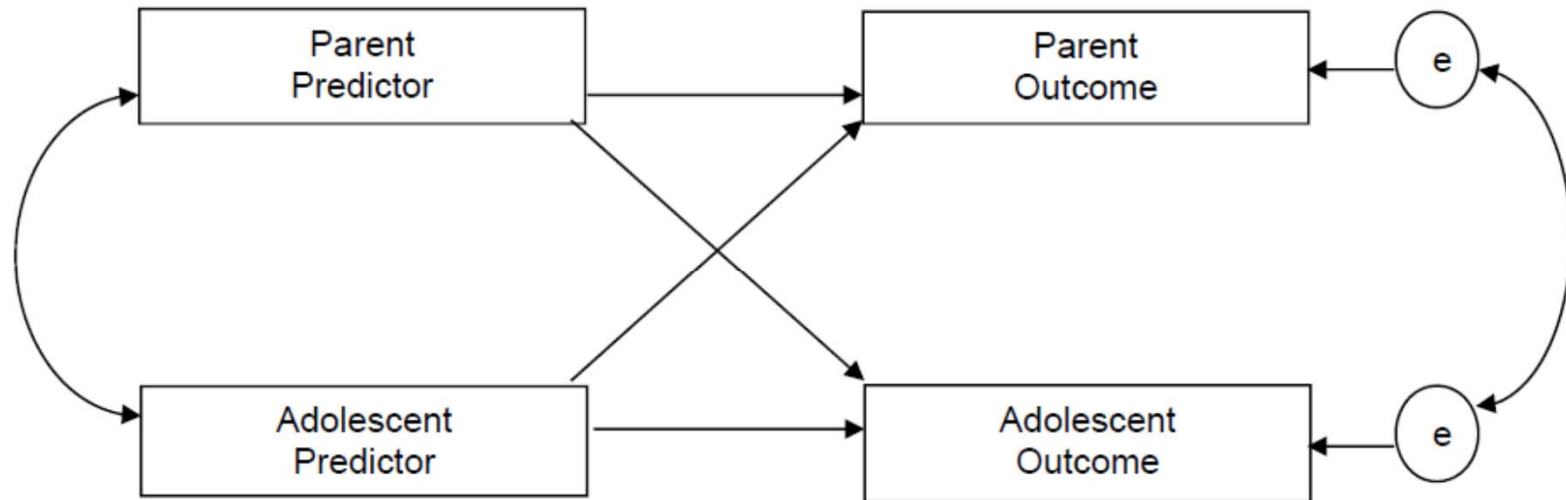
Correlations among parents and adolescents on select survey items from each level of the FLASHE conceptual model (external motivation, barriers to FV consumption, parent support, availability of FV in the home, crime, and daily frequency of FV consumption) were all statistically significant and ranged in value from 0.32 – 0.63.<sup>1</sup>

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<sup>1</sup>Nebeling LC et al. The FLASHE Study: Survey development, dyadic perspectives, and participant characteristics. Am J Prev Med. 2017;52(6):839-848.

## Example Dyadic Analyses (Parent and Adolescent)

- Actor-Partner Interdependence Models (Kenny, Kashy, & Cook, 2006)





## Example Dyadic Analyses (Parent and Adolescent)

### Analysis of motivation and fruit/vegetable consumption in dyads

Analyses showed actor and partner effects of autonomous motivation on fruit-vegetable intake frequency. These effects explained 22.6% of the correlation between parents and adolescents in FV intake frequency.<sup>1</sup>

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### Analysis of emotion suppression and eating behaviors in dyads

This study examined emotion suppression and eating behaviors among dyads and found that one's own emotion suppression as associated with both their own and their partners' emotional eating, fruit-vegetable intake, and intake of hedonic foods.<sup>2</sup>

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<sup>1</sup>Dwyer, Bolger, Laurenceau, et al. Autonomous motivation and fruit/vegetable intake in parent-adolescent dyads. *Am J Prev Med.* 2017;52(6):863-871.

<sup>2</sup>Ferrer, Green, Oh, et al. Emotion suppression, emotional eating, and eating behavior among parent-adolescent dyads. *Emotion.* 2017. Online ahead of print.

# FLASHE Data Use Resources

## Web Resources for Data Users

- FLASHE Webpage: [cancercontrol.cancer.gov/flashe](https://cancercontrol.cancer.gov/flashe)

Data Resource	Description
Survey datasets	Individual datasets or diet, physical activity, and demographic questions that can be merged for individual participants or dyads
Annotated surveys and codebook	Provide documentation of survey item wording and variable names and labels included in datasets
Construct tables	Provide number of items assessing each construct, and sources/references for those items
Methodology report	Written by Westat, Inc. to summarize the study recruitment and methods
Data users' guide	Describes computation and recoding of variables by Westat, Iowa State University, and the Gretchen Swanson Center for Nutrition; describes statistical weights developed by Westat and NCI (Benmei Liu)
FAQ	Frequently asked questions about the FLASHE study

## Web Resources for Data Users

- Dyadic Analysis Resource Page:  
<https://cancercontrol.cancer.gov/brp/hbrb/flashe-dyadic-analysis.aspx>

Data Resource	Description
Introductory webinar to dyadic analysis	Dr. Niall Bolger and Dr. Jean-Philippe Laurenceau provide an introduction to dyadic analysis, with application to the FLASHE study
Dyadic analysis users guide and sample code	Annotated code to guide data users through an example dyadic analysis with FLASHE data in SAS and MPlus

## AJPM June 2017 Theme Issue

- “The Family Life, Activity, Sun, Health, and Eating (FLASHE) Study: Insights into Cancer-Prevention Behaviors among Parent-Adolescent Dyads”
- Guest editors:
  - Leslie A. Lytle
  - Louise C. Mâsse

### June 2017 theme issue in the *American Journal of Preventive Medicine*:

A theme issue of the *American Journal of Preventive Medicine* features papers on the FLASHE study. Findings from the papers in this theme issue describe:

- The study development and conceptual model
- Characteristics of individuals and dyads who participated
- Recruitment, enrollment, and response rates
- Methods for estimating outcome variables (diet and physical activity behaviors) from survey and accelerometer data
- An example dyadic analysis and an example individual-level analysis using FLASHE survey data

Questions?

# Questions & Answers

- Discussants:



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Informatics Research Branch



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Branch



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Friedman School of Nutrition  
Science and Policy  
Tufts University

## *Thank you!*

- For questions about FLASHE, please contact: [nciflashe@nih.gov](mailto:nciflashe@nih.gov)
- To receive information about future FLASHE data releases, you may sign up for the NCI's Behavioral Research Program's Listserv: [cancercontrol.cancer.gov/brpsubscribe](http://cancercontrol.cancer.gov/brpsubscribe)
- Join us on Twitter: [@NCIBehaviors](https://twitter.com/NCIBehaviors)
- Today's webinar and list of Q&As (both leading up to and following the webinar) will be posted online: [cancercontrol.cancer.gov/brpwebinars](http://cancercontrol.cancer.gov/brpwebinars)



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