Tools for Assessing Home Obesogenic Environments: From Development to Real World Applications

SNEB Symposium

July 23, 2017, 12:45-2:15

Moderator

- Marilyn Townsend, PhD, RD

  University of California at Davis

Learning Objectives

- Participants will list 3 concepts to consider when developing obesity prevention tools.
- Participants will understand different methods of validation appropriate for obesity prevention tools.
- Participants will view 5 examples of ‘real world applications’ of valid obesity prevention tools.

Speakers

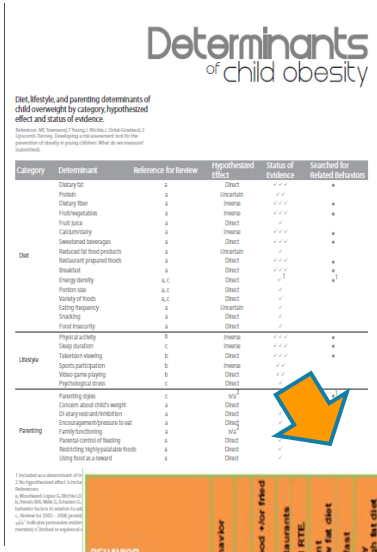
- Marilyn Townsend, University of California, Davis
- Karina Diaz Rios, University of California, Merced
- Lenna Ontai, University of California, Davis
- Louise Lanoue, University of California, Davis
- Mical Kay Shilts, CSU Sacramento
- Gregory Welk, Iowa State University

Healthy Kids overview

Marilyn Townsend

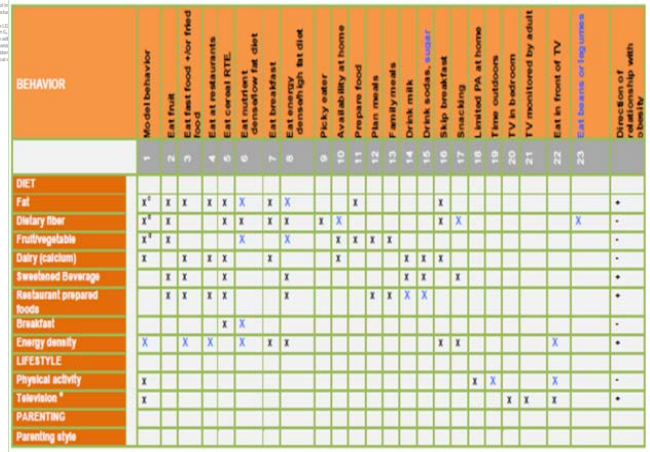
Foundation

Evidence analysis literature reviews



Cognitive interviews.
Face validity established.

Content validity established



Types of data in HK study

Subjective [i.e. parent report]

- 24-hour diet recalls for child 9 times
- 24-hour diet recalls for parent 3
- Food behavior checklist for parent 1
- Fruit & Vegetable Inventory 1
- Activity logs for sleep, PA, TV, video 9

Objective

- Measured heights, weights, waist, hip 4
- Body temperature, blood pressure 3
- Blood sample 3
- Videotaping the family meal 1

Healthy Kids valid tools*

Name	target	Validation method
Healthy Kids	3-5 years old	BMI, blood values
My Child at Meal Time	3-5 years old	Videotaping dinner
Focus on Veggies	3-5 years old	Recalls, blood values
Focus on Sweet Drinks	2-5 years old	Recalls, parent behaviors, blood values
Focus on Activity	3-5 years old	Activity logs
Focus on Fats & Sweets	3-5 years old	Recalls
My Veggies	Adult	Recalls

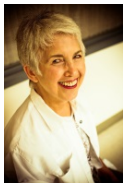
*for low-come families, federal nutrition programs

Features of new tools

- Easy to administer in a group setting for the educator
- Self-administered by the participant
- Low-literacy with Readability Indices grades 1-2
- Low respondent burden
- Multiple types of validation with different types of data

Healthy Kids Research Team

UC Davis Leadership



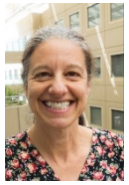
Marilyn Townsend, PhD, RD

Mical Shilts, PhD

Lenna Ontai, PhD

Katie Panarella, MS MPH

Karina Diaz Rios, PhD, RD



Louise Lanoue, PhD

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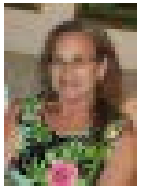
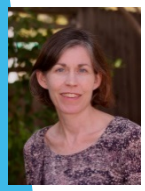


Leslie Woodhouse, PhD



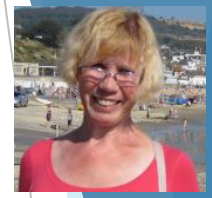
Ellen Bonnel, PhD

Setti Shahab-Ferdows, PhD

UC Davis Medical School

Dennis Styne, MD
Pediatric Endocrinologist

UC Davis Statistics



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Lynn-Kai-Chao
Kathi Sylva

Collaborating Agencies

SETA Head Start of Sacramento, CA
Yolo County Head Start
Yolo and Sacramento County WIC
WellSpace Health

Healthy Kids Funding

- USDA National Institute of Food and Agriculture, Human Nutrition and Obesity – NIFA 2015-68001-23280, AFRI 2010-85215-20658 and National Research Initiative 2009-55215-05019. University of California Cooperative Extension.

Healthy Kids papers

- Ontai L, Ritchie L, Williams ST, Young T, Townsend MS. Guiding family-based obesity prevention efforts in low-income children in the United States: Part 1– What determinants do we target? *Intl J Child Adolescent Health*. 2009; Vol 2 (1): 19-30.
- Townsend MS, Young T, Ontai L, Ritchie L, Williams ST. Guiding family-based obesity prevention efforts in low-income children in the United States: Part 2 –What behaviors do we measure? *Intl J Child Adoles Health*. 2009; Vol 2 (1): 31-48.
- Townsend MA, Shilts MK, Styne DM, Drake C, Lanoue L, Woodhouse L, Allen LH. Vegetable behavioral tool demonstrates validity with MyPlate vegetable cups and carotenoid and inflammatory biomarkers. Appetite. 2016 Dec 1;107:628-638. doi: 10.1016/j.appet.2016.09.002. Epub 2016 Sep 4.
- Shilts MK, Sitnick SL, Ontai L, Townsend MS. (2013) Guided Goal Setting: A behavior change strategy adapted to the needs of low-income parents of young children participating in Cooperative Extension programs. *Forum For Family & Consumer Issues*. Spring, Vol. 18 (1). http://ncsu.edu/ffci/publications/2013/v18-n1-2013-spring/shilts-sitnick-ontai-townsend.php
- Shilts MK, Johns MC, Lamp C, Schneider C, Townsend MS. (2015). A Picture Is Worth a Thousand Words: Customizing MyPlate for Low-Literate, Low-Income Families in 4 Steps. J Nutr Educ Behav. 47(4)394–396.
- Townsend MS, Shilts MK, Sylva K, Davidson C, Leavens, Sitnick S, Ontai L. (2014) Obesity Risk for Young Children: Development and initial validation of an assessment tool participants of USDA programs. *Forum For Family & Consum Issues*. 19(3).
- Ontai L, Sitnick S, Shilts MK, Townsend MS.(2016) My Child at Mealtime: A Visually Enhanced Self-Assessment of Feeding Styles for Low-Income Parents of Preschoolers. Appetite. 99:76-81.
- Sitnick SL, Ontai L, Townsend MS. What Parents Really Think about Their Feeding Practices and Behaviors: Lessons Learned from the Development of a Parental Feeding Assessment Tool. *J Human Sciences & Extension*. 2014; 2 (2): 84-92.
- Sutter C, Ontai L, Shilts MS, Lanoue LL, Townsend MS. Associations between school readiness, obesity-related biomarkers and inflammation in low-income preschoolers within the Healthy Kids Study. Submitted.

Introductions

- Dr. Diaz Rios will now share with you how we adapted this Healthy Kids tool with low-income Spanish speakers.
- Dr. Ontai will then follow with results for the parenting behaviors tool, My Child at Mealtime
- Dr. Lanoue will share analyses from the blood values.
- Dr. Shilts will focus on their real world applications.
- Dr. Welk will share a new tool for 6-12 year olds and real world applications.

Cultural Adaptation

Karina Díaz Rios, PhD, RD

CE Specialist in Nutrition

UCMERCED
UNIVERSITY OF CALIFORNIA

University of California
Agriculture and Natural Resources

Learning Objectives

Audience:
Cultural Background

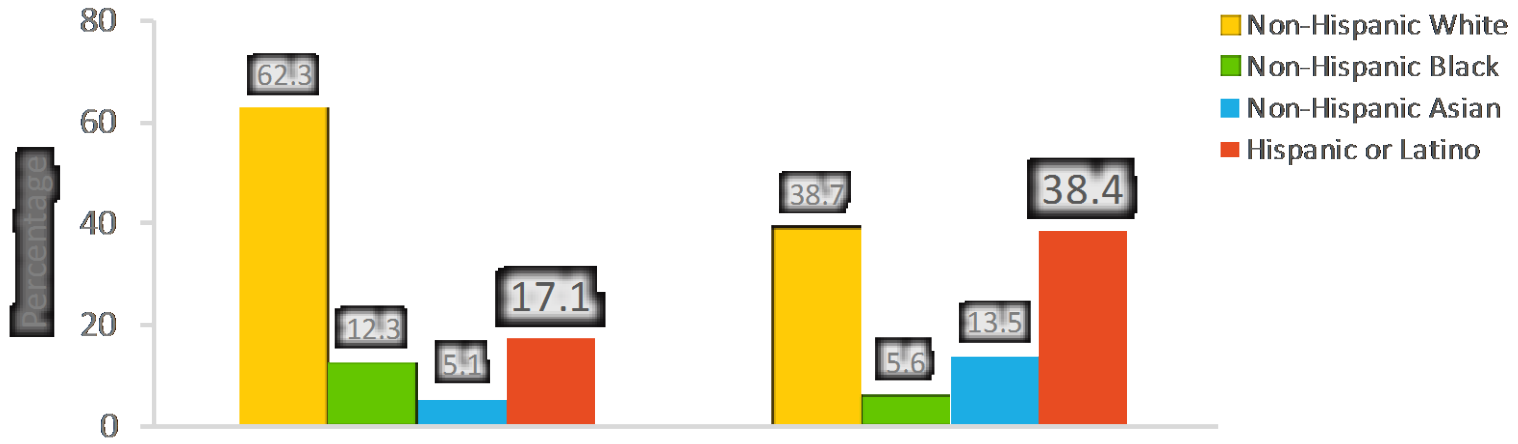
List 3 concepts to consider when developing obesity prevention tools

Face Validity
Content Validity

Understand different methods of validation appropriate for obesity prevention tools

- View 5 examples of 'real world applications' of valid obesity prevention tools

Race / Ethnicity Distribution



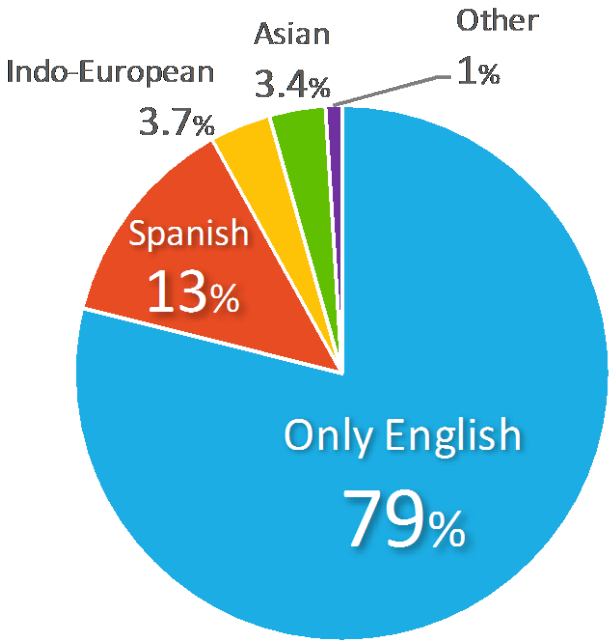
Country of Origin

64%	Mexican	83%
16%	Caribbean	9%
9%	Central American	2%

U.S. Census Bureau, 2011-2015, American Community Survey 5-Year Estimates

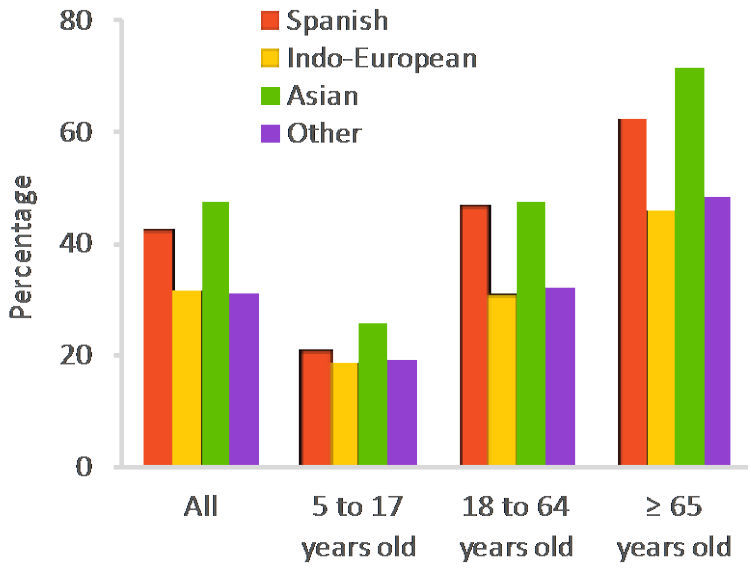
Language Spoken at Home

in the U.S.



Ability to Speak English

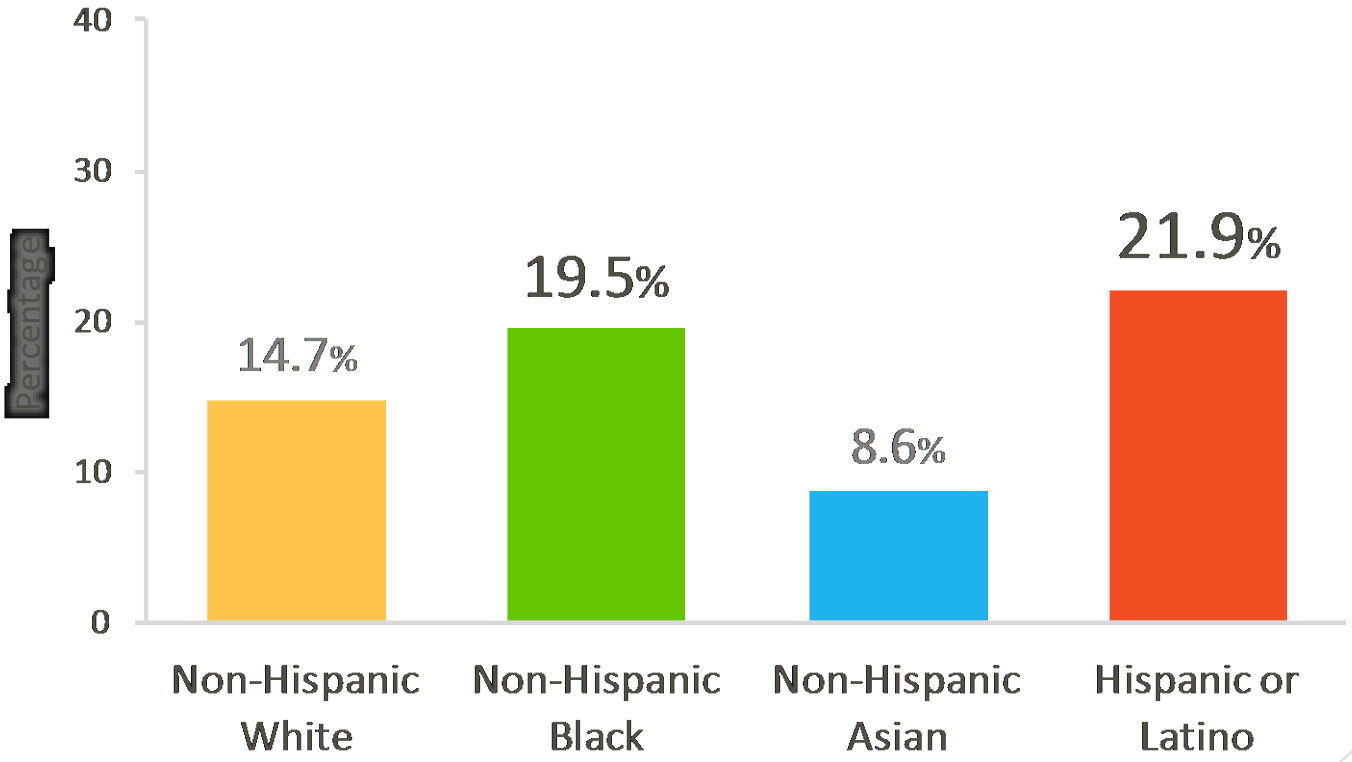
less than very well



U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

Childhood Obesity Prevalence

Youth aged 2-19 years (2011-2014)



Ogden CL, et al. NCHS Data Brief. 2015;(219):1-8

Adaptation Process

1 forward translation

Native speakers, bilingual, bicultural researchers

2 equivalence verification

Examination by subject-matter experts for conceptual integrity assurance. Involves back-translation

3 cognitive interviewing

Appraisal of respondents' comprehension & congruence with intended meaning

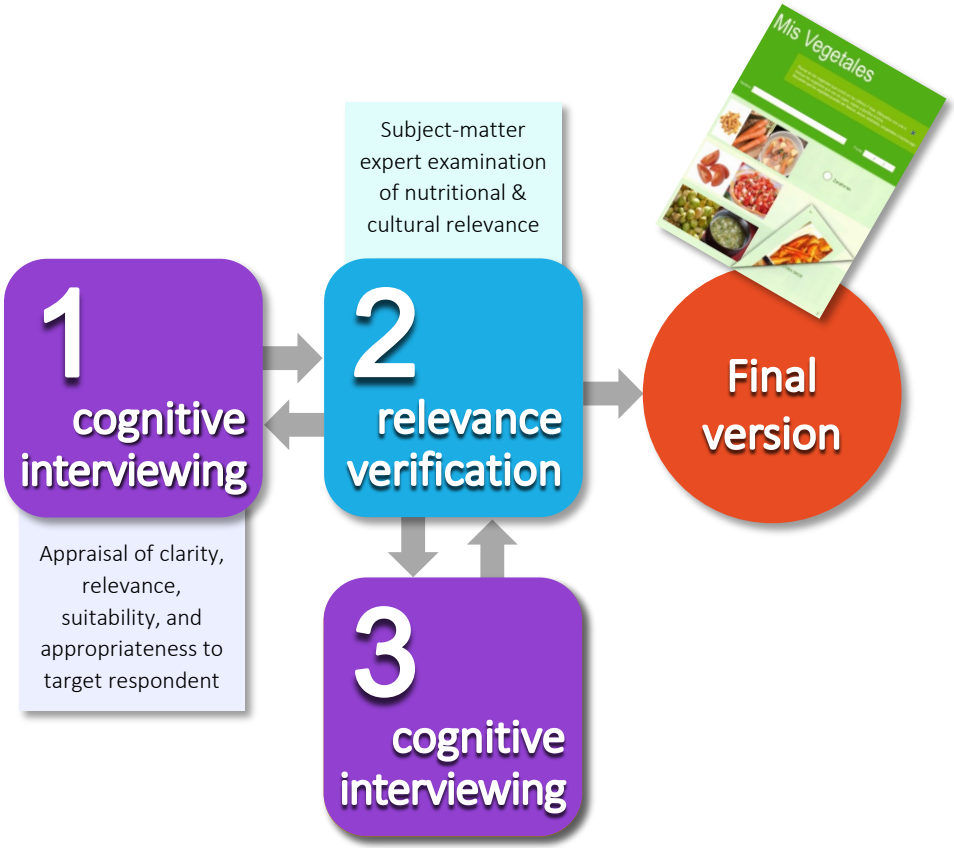
Final versions

[interview domains]

How would you respond to this question?	**Comprehension** ability to respond/react to item
Can you please read the question aloud?	**Clarity** of words and syntax
What does this scenario look like in your household?	**Relevance** real-life situations connection
Are there any words you would change?	**Appropriateness** of language & meaning
Does the photo represent the question asked?	**Visuals** suitability & usefulness
Does the Spanish version ask the same as the English version?	**Bilingual** equivalence of versions

Diaz Rios LK, et al. *J Nutr Educ Behav*. 2016;48(7):S117

Adaptation Process



[interview domains]

Can you tell me what food is represented in this picture?	Clarity
Do you eat this vegetable?	Relevance
Is the vegetable well represented by these pictures?	Suitability
What pictures would better represent this vegetable?	Appropriateness

Examples

I buy fruit

Yo Compro frutas

○ casi nunca ○ a veces ○ con frecuencia ○ con mucha frecuencia ○ siempre

I eat fruit ☐ times a day

Yo Como frutas ☐ veces al día

Examples

"Yes, he eats fruit"

I eat fruit ____ times a day

Yo como frutas ____ veces al día

Comprehension

Examples

Snack

Bocadillo

Refrigerio

Merienda

Entre comidas

Aperitivo

...

My child eats a snack at about the same time everyday

Mi niño(a) se come un snack casi a la misma hora todos los días

○ nunca / rara vez

○ a veces

○ seguido

○ muy seguido

Appropriateness

Examples

I plan my meals

Planeo mis comidas

○ nunca / rara vez ○ a veces ○ seguido ○ muy seguido

"I don't like to freeze things"

Planeo mis comidas

○ nunca / rara vez ○ a veces ○ seguido ○ muy seguido

Relevance

Examples

I eat out ☐ times a week

Como fuera ☐ veces a la semana

¿Cuántas veces a la semana come fuera?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 o más

¿Cuántas veces al mes come fuera?

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 o más

"We only eat out once or twice a month"

Comprehension

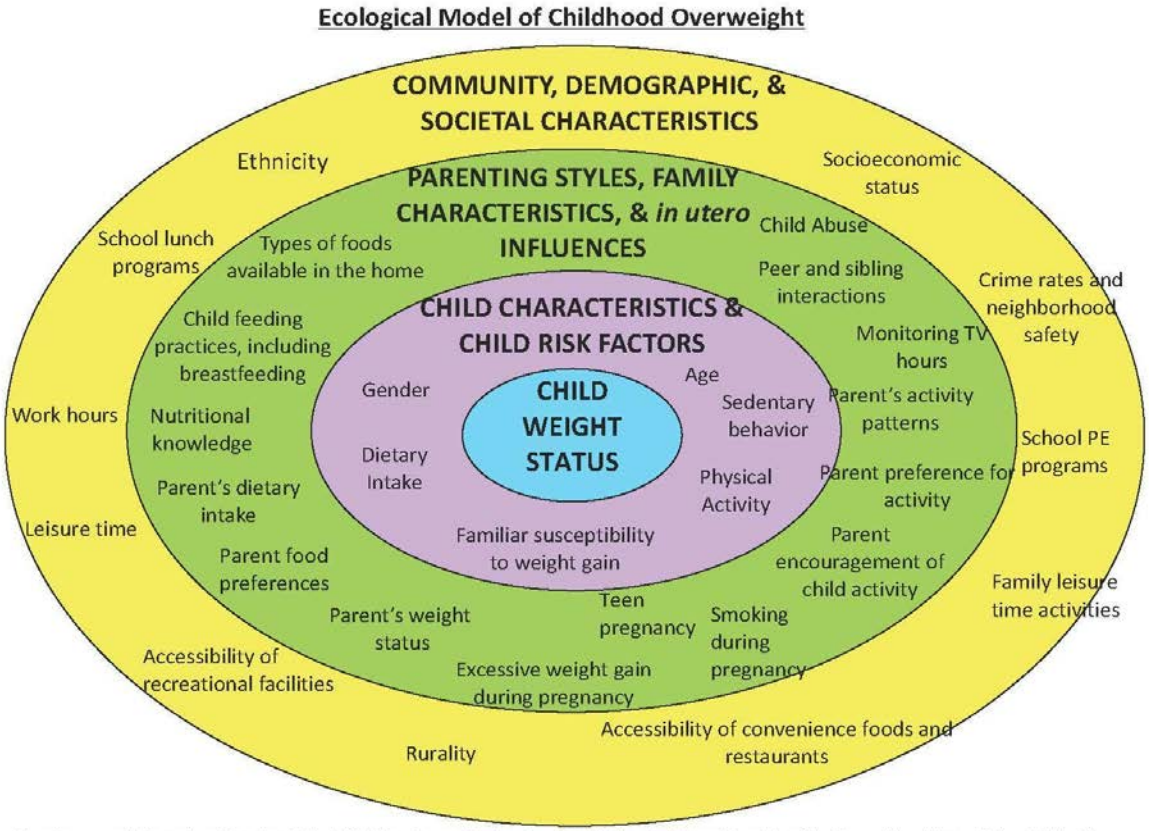
Relevance

Validating Parent Responses with Observed Behaviors at Mealtime

Lenna Ontai, PhD

University of California, Davis

Child Obesity



Based on expanded version of Davison & Birch (2001), enhanced by Reed et al, 2011. Obesity in Rural Youth: Looking Beyond Nutrition and Physical Activity. JNE Vol.43, No. 5, Pg. 403.

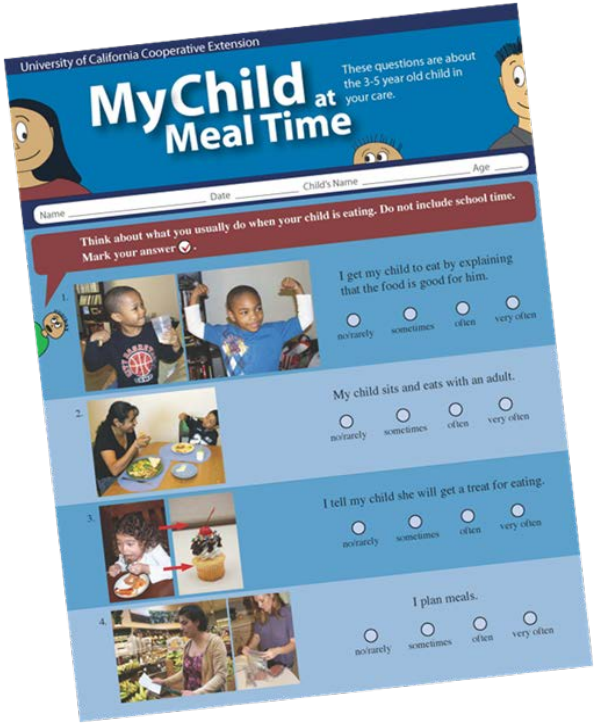
PARENTING AND CHILD OBESITY

- Evidence of intervention viability
  - A 2011 review[1] identified 7 intervention studies.
  - A 2015 review[2] identified an additional 8
  - Evidence across the majority of studies for a moderate effect of parenting interventions to prevent obesity risk.
  - Better results when parenting education is delivered with lifestyle education
  - Some evidence that approach works best with young children
    - Parents have a lot of control
    - Children's dietary preferences not set (ages 3 to 8)

[1]Gerards et al. (2011). Interventions addressing general parenting to prevent or treat childhood obesity. Intl J Ped Obesity, 6, e28-e45.
[1]Gerards & Kremers (2015). The role of food parenting skills and the home food environment in children's weight gain and obesity. Curr Obes Rep, 4, 30-36

MEALTIME BEHAVIOR

MEALTIME BEHAVIORS


University of California Cooperative Extension

My Child at Meal Time

These questions are about the 3-5 year old child in your care.

Name _____ Date _____ Child's Name _____ Age _____

Think about what you usually do when your child is eating. Do not include school time.
Mark your answer ●.

1. I get my child to eat by explaining that the food is good for him.
○ no/rarely ○ sometimes ○ often ○ very often

2. My child sits and eats with an adult.
○ no/rarely ○ sometimes ○ often ○ very often

3. I tell my child she will get a treat for eating.
○ no/rarely ○ sometimes ○ often ○ very often

4. I plan meals.
○ no/rarely ○ sometimes ○ often ○ very often


10. I get my child to eat by making food fun.
○ no/rarely ○ sometimes ○ often ○ very often

2.4 avg Flesh-Kincaid
27 items
Average time to complete: 5 mins
Parent-Centered & Child-Centered Scores

MEALTIME BEHAVIORS

- 60 families with a preschool aged child
  - Recruited through WIC and Head Start
- Completed the My Child at Mealtime tool
- Completed the Parenting Dimensions Inventory (measure of general parenting quality)
- Videotaped mealtime at their home
  - Routine mealtime that happens regularly
  - Most of the family members participate on a regular basis throughout the week

Mealtime Behaviors

- Coded behaviors
  - Child Centered Behaviors:
    - Eating with child
    - Positive statements
    - Assisting with eating
  - Parent Centered Behaviors:
    - Physical manipulation
    - Verbal directives/demands to eat
    - Bargaining

Mealtime Behaviors

- Child Centered Behaviors:
  - Eating with child
  - Positive statements
  - Assisting with eating

Mealtime Behaviors

- Parent Centered Behaviors:
  - Physical manipulation

Mealtime Behaviors

- Parent Centered Behaviors:
  - Verbal directives/demands to eat
  - Bargaining

DO THEY DO WHAT THEY SAY?

Associations with observed parent behaviors during mealtime (N=60)

Parent Centered Items	Physical manipulation	Verbal directive/demand	Bargaining
I tell my child she will get a treat for eating.	.243	**.303***	**.379****
I remind my child to keep eating her food.	**.304***	**.287***	**.277***
I tell my child he will get in trouble for not eating.	.037	.192	**.335****
I struggle with my child to get her to eat.	.048	**.260***	.219
I warn my child he will not get a treat if he does not eat.	.242	.247	**.301***
I hand-feed my child to get her to eat.	**.259***	.047	**.289***
I say to my child, “Hurry up and eat your food.”	.140	.082	-.097
I tell my child that she needs to eat an item on her plate.	-.008	-.009	.159
I tell my child I do not like that he is not eating.	.084	.083	**.331****
I tell my child that I will reward her for eating with TV, playtime, or videogames.	.057	.231	.234
My child skips meals.	.041	.003	-.136
I beg my child to eat his food.	-.036	-.076	.168

DO THEY DO WHAT THEY SAY?

Associations with observed parent behaviors during mealtime (N=60)

Child Centered Items	Positive Statement	Eating with Child	Assisting with Eating
I get my child to eat by explaining that the food is good for him.	.087	.066	-.1791
My child sits and eats with an adult.	-.216	-.008	.132
I plan meals.	**-.296***	-.100	**-.298***
I ask my child to try a little bit of a new food.	.088	.006	-.020
I prepare at least one food that I know my child will eat.	.077	.116	-.154
I praise my child for eating.	-.039	-.220	-.198
I help my child with eating.	.022	.086	-.035
I get my child to eat by making food fun.	.166	-.067	-.080
My child eats a snack at about the same time everyday.	-.025	.021	-.041
My child eats dinner about the same time everyday.	-.121	-.251	.029
I say good things about the food my child is eating.	-.187	-.067	-.079
I ask my child to pick from foods already cooked.	-.077	-.244	-.072
I ask my child questions about the food she is eating.	-.209	-.045	-.062
I let my child serve himself.	.003	-.059	.078

DO THEY DO WHAT THEY SAY?

	My Child at Mealtime	
	Parent Centered	Child Centered
Observed Parent Centered Behaviors	.258*	-.214
Observed Child Centered Behaviors	.130	.074
Nurturance	-.108	.440***
Inconsistency	.547***	-.048

- Constellations of observed behaviors corresponded to the My Child at Mealtime scores for parent-centered feeding.
- Self-reports of general parenting corresponded to their My Child at Mealtime scores

CONCLUSIONS

- Parent responses to MCMT items correspond to their use of parent-centered behaviors during mealtimes.
- Positive parent feeding behaviors are more difficult to capture during a single mealtime.
- Observations of mealtimes are valuable tools to help understand how these behaviors may operate during feeding interactions.
- MCMT can be a valuable resource for programs aiming to build parenting skills to improve the mealtime environment.

Using Biomarkers to Validate Healthy Kids Obesity Assessment Tools

Louise Lanoue, Ph.D.

Department of Nutrition/University of California, Davis

Learning Objectives

At the end of the session,

- the participant will list 3 concepts to consider when developing obesity prevention tools.
- the participant will understand different methods of validation appropriate for obesity prevention tools.
- the participant will view 5 examples of ‘real world applications’ of valid obesity prevention tools.

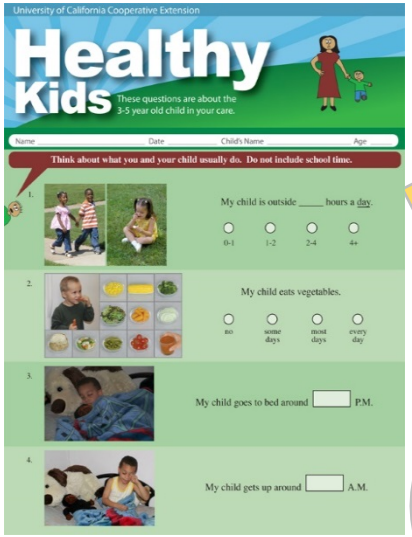
Why Biomarkers?

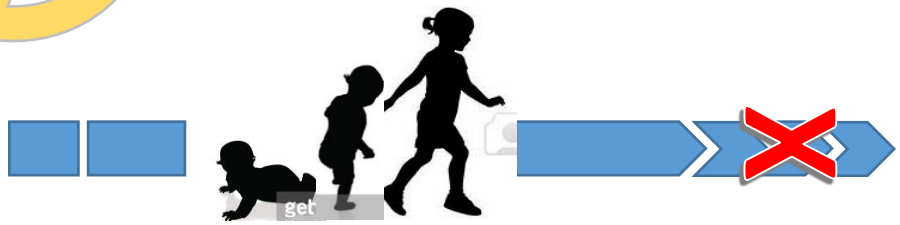
Income
Housing
Community

Education
Culture-Ethnicity
Resources

HOUSEHOLD-PARENTING

OBESITY DETERMINANTS & BEHAVIORS





GENES - GENDER

BIOMARKERS

TYPE 2 DIABETES
HEART DISEASES
CANCER - ETC

Why Biomarkers?

ADVANTAGES:

COMPARED TO SELF-REPORT ASSESSMENTS (24h recall, FFQ etc) THAT CAN BE SUBJECTIVE & BIAS, BIOMARKERS (& ANTHROPOMETRICS) ARE OBJECTIVE MEASUREMENTS

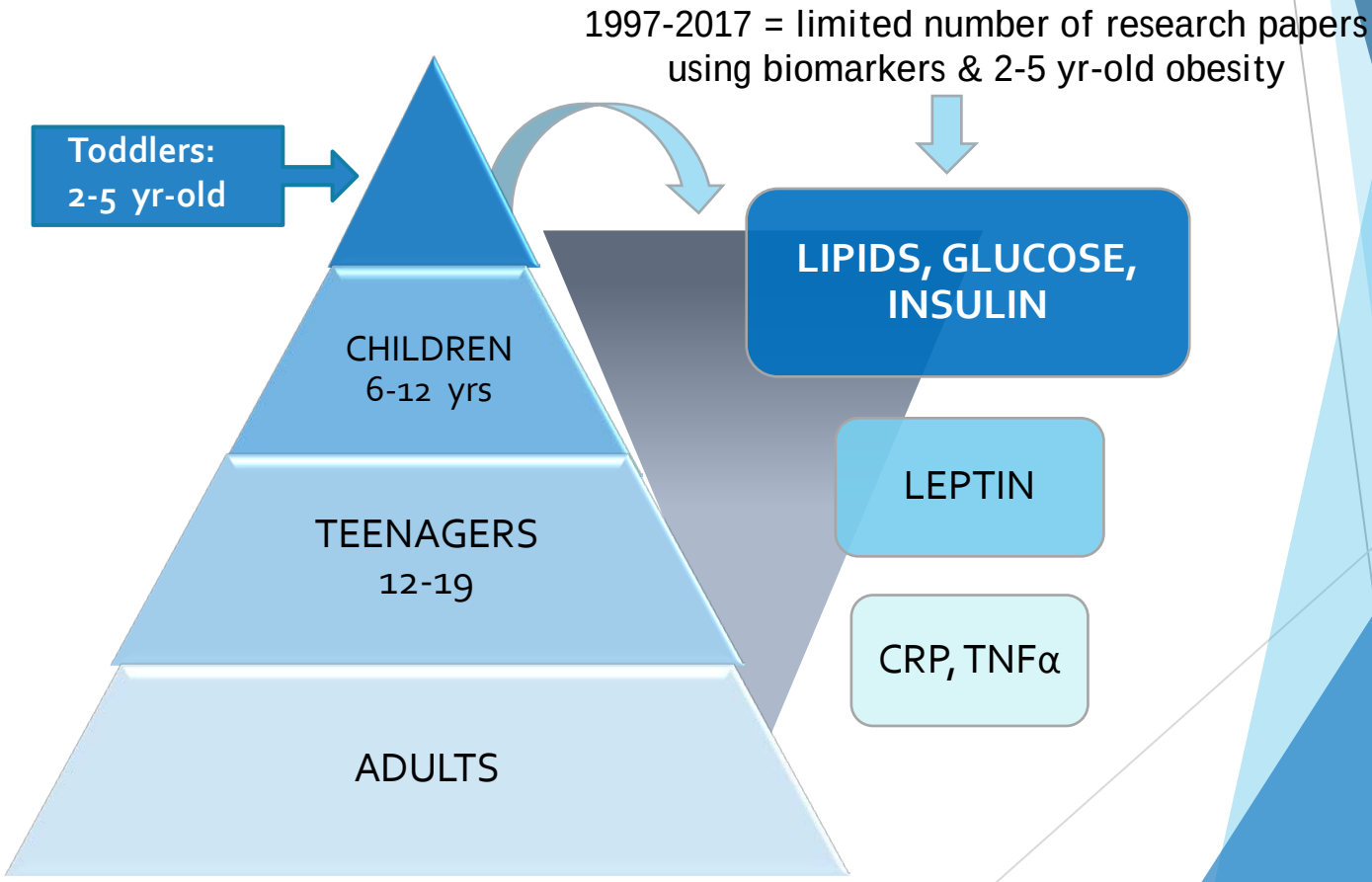
LIMITATIONS:

BIOMARKERS' COLLECTION & ANALYSES ARE COMPLEX; REQUIRE COLLABORATORS & MONEY

Biomarkers of obesity in 2-5 yr old

Scientific literature of 2-5 yr old & obesity:

- Anthropometric data most often reported
- Few studies include biomarkers
- Few biomarkers reported



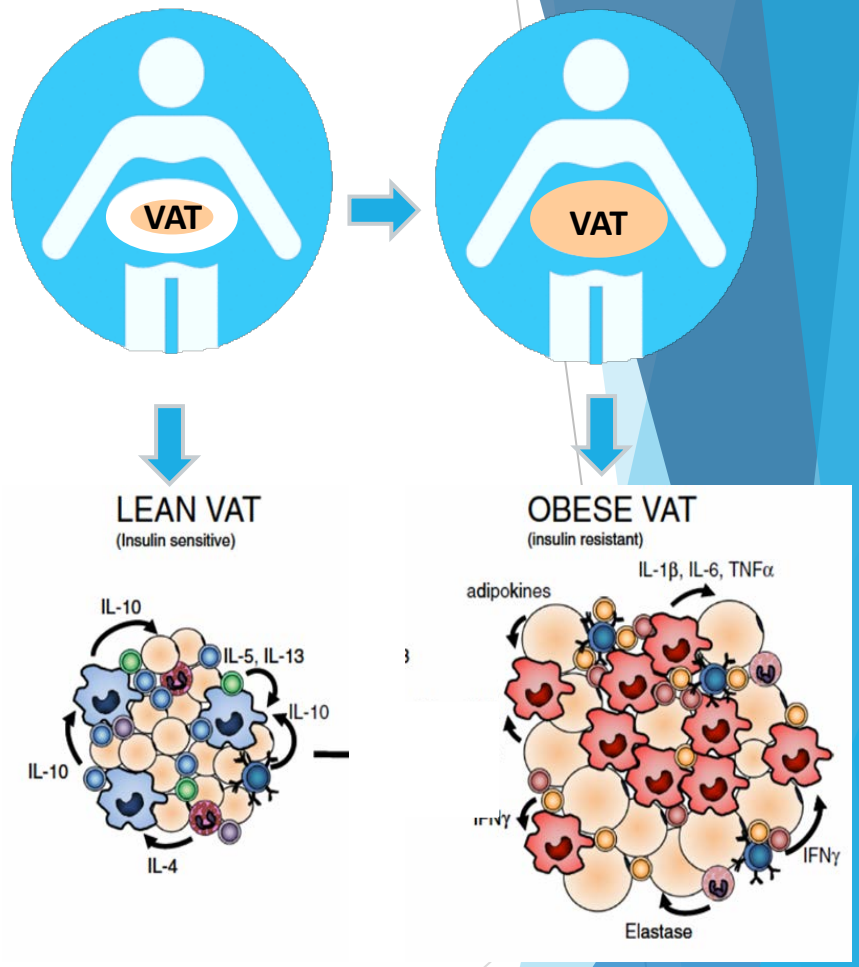
Obesity can result in inflammation

Obesity is characterized by the accumulation of fat in the abdominal cavity (visceral adipose tissue (VAT).

VAT is composed of fat cells but also includes reactive immune cells.

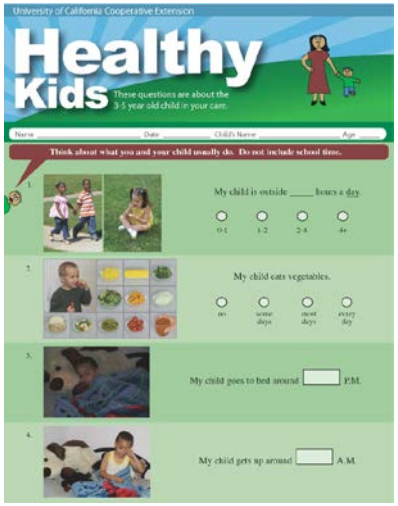
Obesity = Excess VAT = Excess reactive cells = Increased production and secretion of compounds (adipokines) in blood.

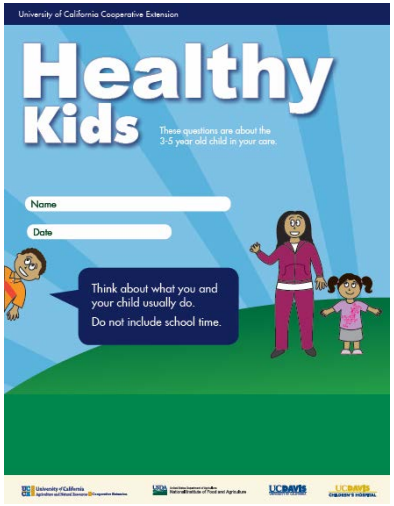
Some of these adipokines have inflammatory properties and can predispose to other metabolic diseases such as diabetes.



Children obesity & biomarkers : few studies have measured these adipokines

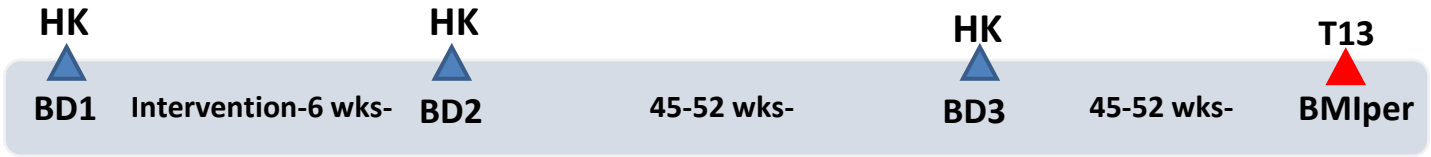
Biomarkers in the Healthy Kids Study





Healthy Kids Study Timeline

- Target Participants:
  - 144 Parent/child pairs from WIC & Head Start
  - Ethnically diverse (2-5yr)
- Data Collected:
  - 13 time points/~2yrs
  - Self-Reported (food/sleep/screen/activity) + Healthy Kids (HK)
  - Anthropometrics (4)
  - Blood draws (BD) (3)



- Biomarkers:
  - > 25 blood biomarkers
  - Grouped into 6 indices:
    - PRO-INFLAMMATORY
    - ANTI-INFLAMMATORY
    - LIPIDS
    - METABOLIC
    - FAT
    - CAROTENE

Biomarkers Analyses

Blood samples

USDA-WHNRC

- Adipokines
  Adiponectin/Leptin
  Insulin
  → Multiplex Immunoassay
- Vitamin A (retinol)
  Carotenoids
  Vitamin E (tocopherols)
  → HPLC

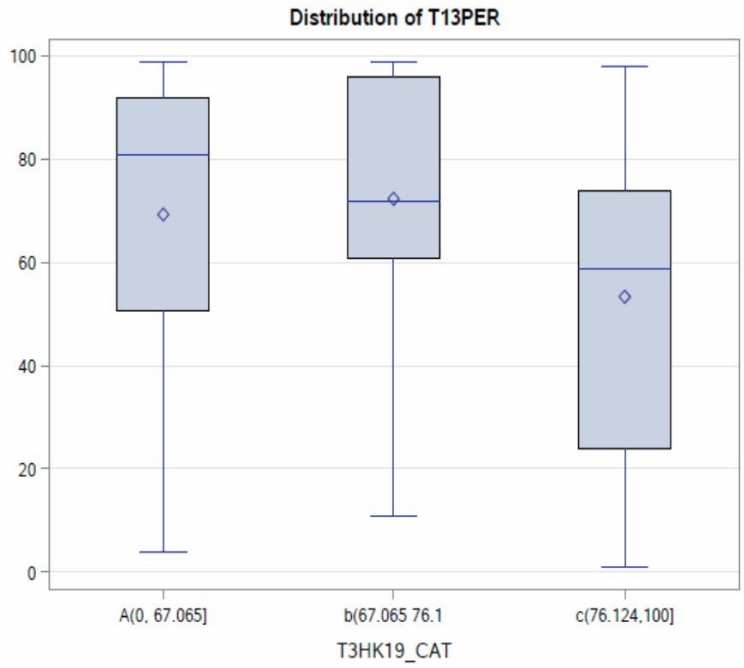
UCD-Med Center

- Lipid Panel
  Glucose
  → Enzymatic assay

Validation…Healthy Kids

Predictive validity = ability to predict BMI.

A better score at baseline predicts children with lower BMI-for-age percentile 2 years later [p=.02].



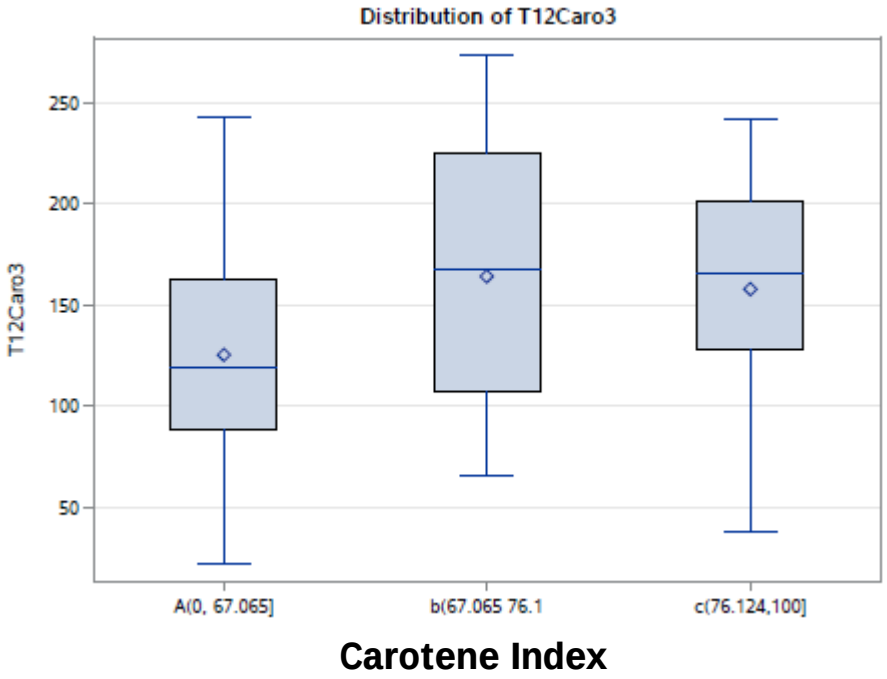
BMI-for-age percentiles (CDC)

Reliability, r=.79
Readability, grade 1-2

Validation…Healthy Kids

Predictive validity = ability to predict health.

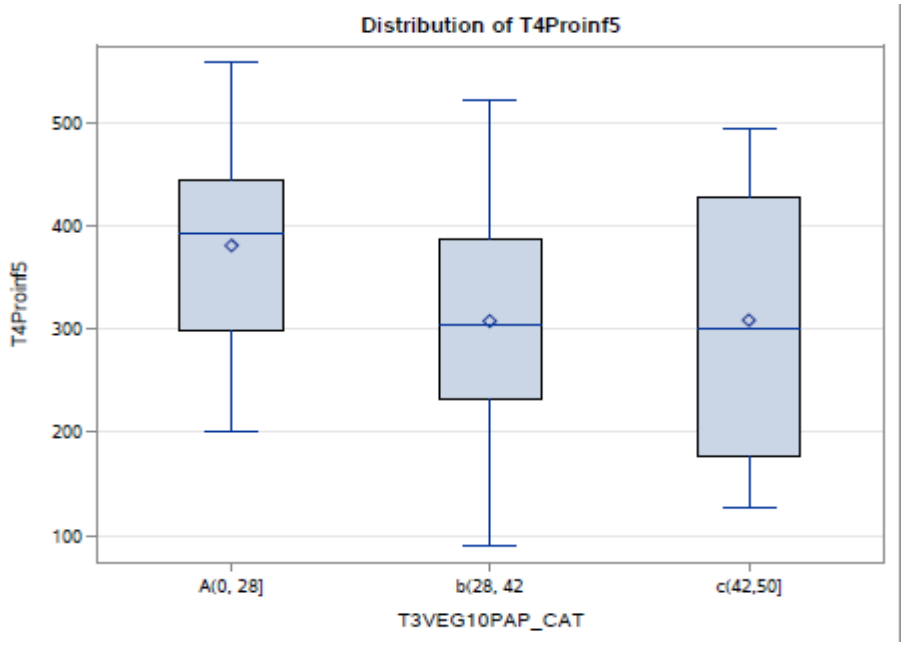
A better score at baseline predicts children with better Vitamin A status 1 year later [p=.0008].



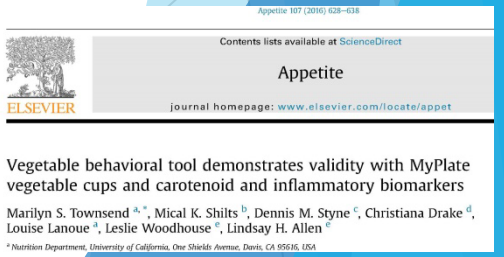
Validation…Focus on Veggies

Indicative validity = Focus on Veggies is a powerful indicator of kids' health as validated by concurrent biomarkers & diet recalls.

Higher scores on Focus on Veggies: children with less inflammation [p= .034].



Higher scores on Focus on Veggies: better dietary recall: greater cup equivalents [p<.05]; more vitamin A [p<.001], more B-carotene [p<.001] & other nutrients.


Appetite 107 (2016) 628–638
Contents lists available at ScienceDirect
Appetite
journal homepage: www.elsevier.com/locate/appet
ELSEVIER

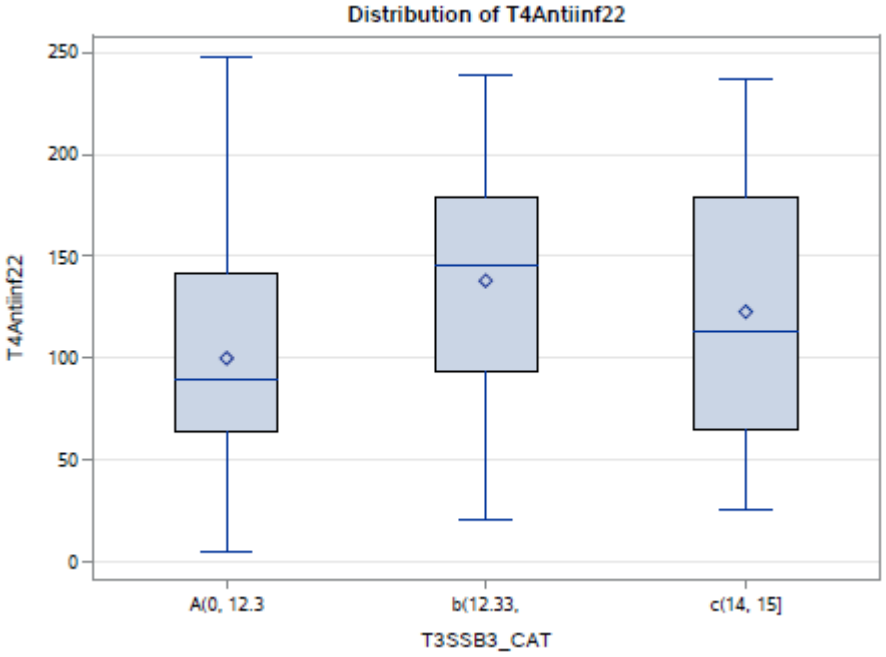
Vegetable behavioral tool demonstrates validity with MyPlate vegetable cups and carotenoid and inflammatory biomarkers

Marilyn S. Townsend [a, *], Mical K. Shilts [b], Dennis M. Styne [c], Christiana Drake [d], Louise Lanoue [a], Leslie Woodhouse [e], Lindsay H. Allen [e]
[a] Nutrition Department, University of California, One Shields Avenue, Davis, CA 95616, USA

Validation…Focus on Sweet Drinks

Indicative validity = Focus on Sweet Drink, 3-item tool is a powerful indicator of kids' health as validated by concurrent biomarkers & diet recalls.

Higher scores (lower consumption) on Focus on Sweet Drinks: children with higher levels of anti-inflammation markers [p= .026].

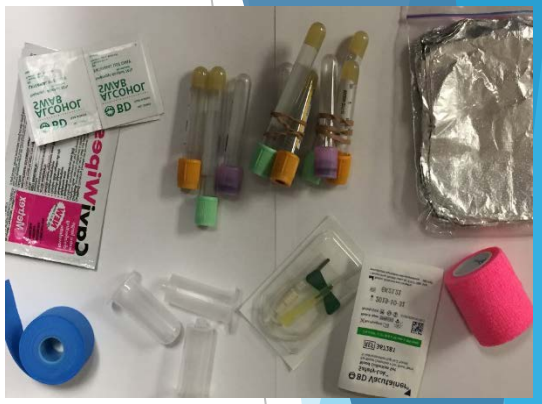


Higher scores on tool: parent reported less sugar in child' diet [p<.05] and parents drinking less sweet beverages [p<.00001].

Lessons Learned

Be prepared/Sample Collection Requires:

- Material (tubes, labels, gauzes, syringes, etc)
- Confidentiality (IRB approval, Labels)
- Child is healthy (fasted, hydrated & no fever)
- Sterility (during collection & disposal)
- Ice (during collection & transport)
- Lab for recovery, storage & analyses of blood



Ensure child well-being:

- GOOD PHLEBOTOMIST!
- Private space
- Importance of parents (prep call)
- Snacks & Juices available
- Prizes!!

Take Home

Use of Biomarkers in Childhood Obesity Study:

- Complex at different levels: selection of biomarkers, collection, analyses & interpretation.
- Results indicate: need of a large sample size (>100) for statistical significance.
- Ability to measure a large number of different markers (obesity, cardiac health, diabetes risk, etc).
- Can be used as predictors and indicators.
- Can be used to validate self-report tools.
- **VALIDATION of the HEALTHY KID TOOLS**

Mical Kay Shilts, PhD

CSU Sacramento

UC Davis

SACRAMENTO STATE

Learning Objectives

At the end of the session,

- the participant will list 3 concepts to consider when developing obesity prevention tools.
- the participant will understand different methods of validation appropriate for obesity prevention tools.
- the participant will view 5 examples of ‘real world applications’ of valid obesity prevention tools.

Outline

- Website
  - Photographic Tailoring
  - Goal setting
- Education
  - Traditional
  - Medical Clinic
    - Kiosk
- Mini-tools

Real World Applications

Healthy Kids Website

Healthy Kids
UCDAVIS Department of Nutrition | University of California Cooperative Extension

Welcome shiltsm@gmail.com
Log Off
Manage Account

Home | Parents | Educators | Directors

PARENTS

Want to keep your child healthy?

Take the survey and have goals created just for you and your child!

Click a survey to begin

Family food & activity

Family meal time

Educators

Are you using these surveys with your classes? *Healthy Kids* or *My Child at Meal Time*?
Begin here to quickly enter completed surveys for an entire class. Create personal goal sheets for each participant.

Login Here

New User? Create an account here.

Directors

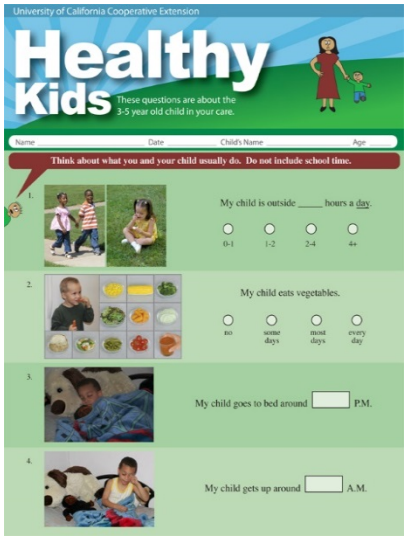
Want to use these surveys with your program? Register and open an account to have access to these tools. Download the current *Healthy Kids* or *My Child at Meal Time* surveys or create photo-customized versions tailored to your target audience.

Login Here

New User? Create an account here.

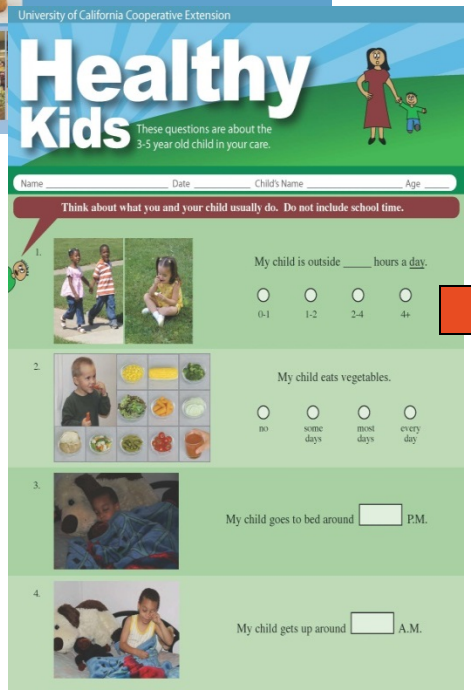
Healthy Kids Website-Tailoring Images

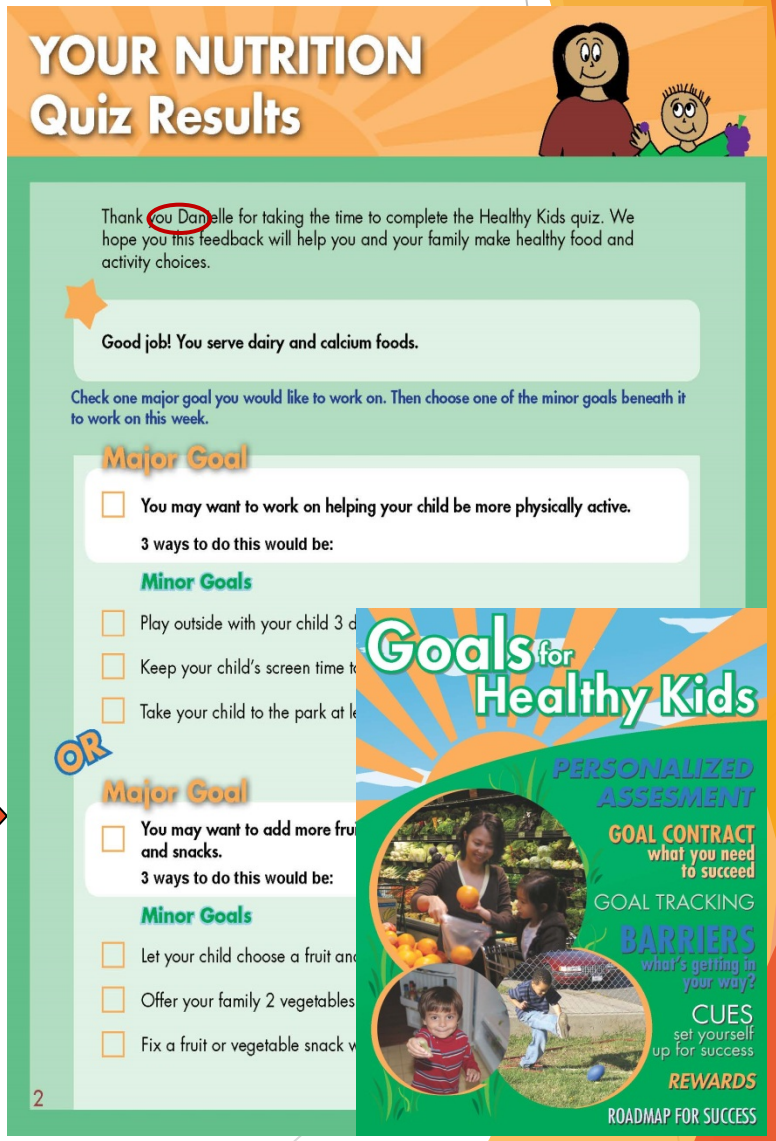
- The Photobank gives you up to 4 additional photos for each HK & MCMT question
  - Asian
  - Black
  - White
  - Hispanic/Latino ethnicity



Guided Goal Setting

Goals are Tailored to Parent Responses



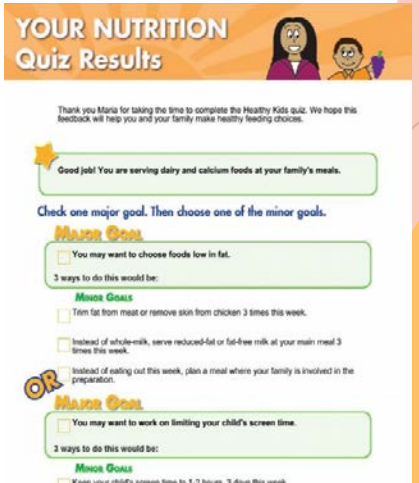


Healthy Kids Website-Guided Goal Setting

- Select a tool

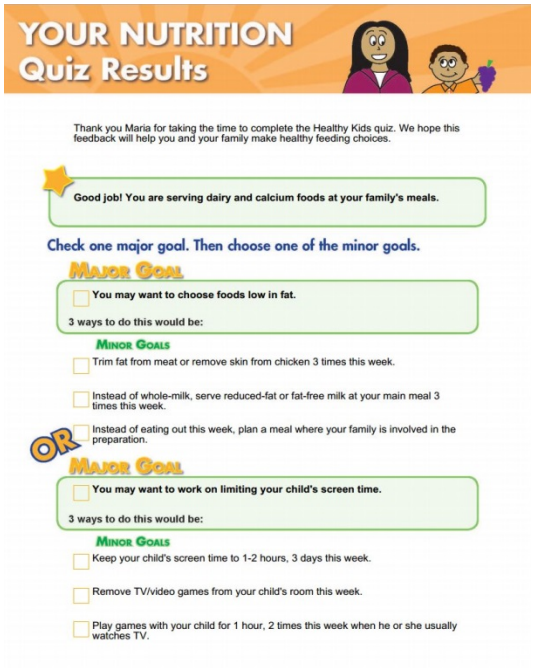
- Answer questions

- Print individualized goal sheets



Healthy Kids Website-Guided Goal Setting

- Educators can enter participant data easily
- Print multiple goal sheets at once



YOUR NUTRITION Quiz Results

Thank you Maria for taking the time to complete the Healthy Kids quiz. We hope this feedback will help you and your family make healthy feeding choices.

Good job! You are serving dairy and calcium foods at your family's meals.

Check one major goal. Then choose one of the minor goals.

MAJOR GOAL

You may want to choose foods low in fat.

3 ways to do this would be:

MINOR GOALS

Trim fat from meat or remove skin from chicken 3 times this week.

Instead of whole-milk, serve reduced-fat or fat-free milk at your main meal 3 times this week.

Instead of eating out this week, plan a meal where your family is involved in the preparation.

OR

MAJOR GOAL

You may want to work on limiting your child's screen time.

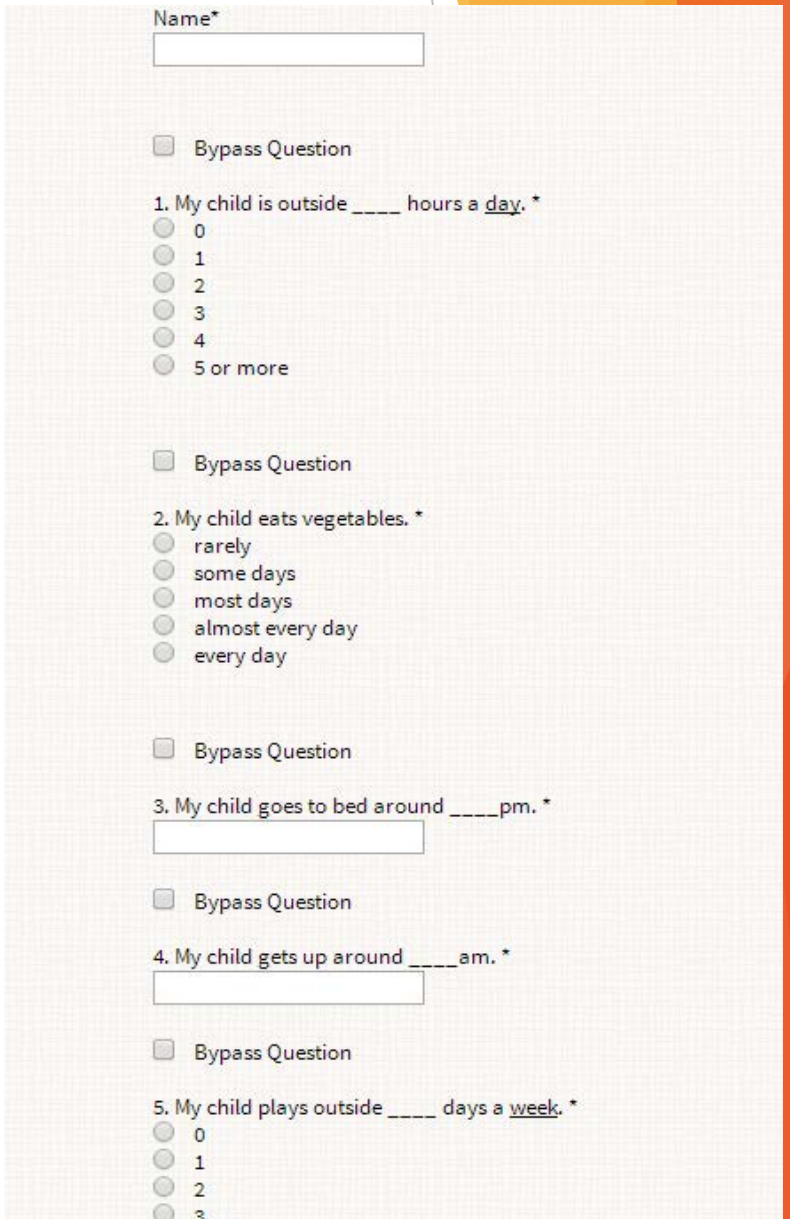
3 ways to do this would be:

MINOR GOALS

Keep your child's screen time to 1-2 hours, 3 days this week.

Remove TV/video games from your child's room this week.

Play games with your child for 1 hour, 2 times this week when he or she usually watches TV.



Name*

Bypass Question

1. My child is outside ____ hours a day. *
- 0
- 1
- 2
- 3
- 4
- 5 or more

Bypass Question

2. My child eats vegetables. *
- rarely
- some days
- most days
- almost every day
- every day

Bypass Question

3. My child goes to bed around ____pm. *

Bypass Question

4. My child gets up around ____am. *

Bypass Question

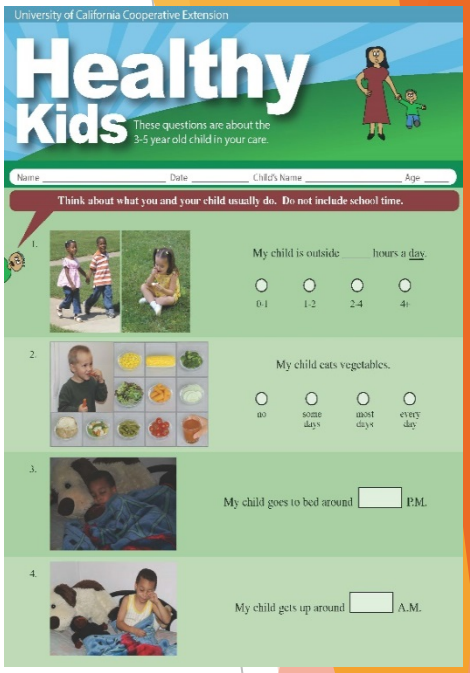
5. My child plays outside ____ days a week. *
- 0
- 1
- 2
- 3

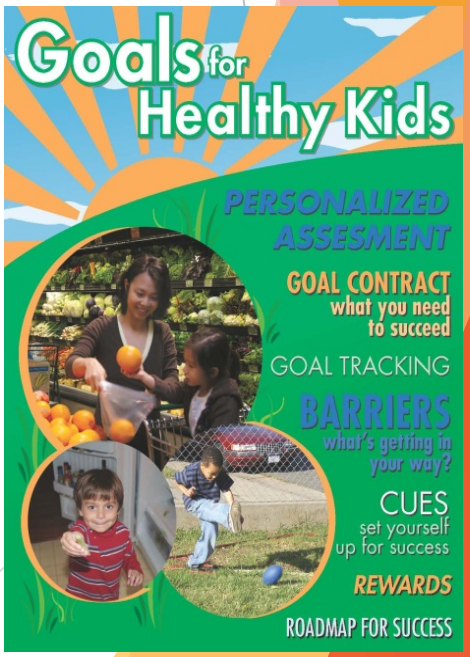
Guided Goal Setting

- Parents reported a high level of goal effort and goal achievement.
- Parents reported preference for goal personalization & goal options.

Community Education Setting

- HK evaluation tool
  - Pre and post intervention
  - 6-week parent education intervention
- Guided goal setting
- Significant difference in the HK 12-item energy density scale $p < .01$, HK 8-item vegetable scale $p < .05$ and 12-item snacking scale $p < .10$



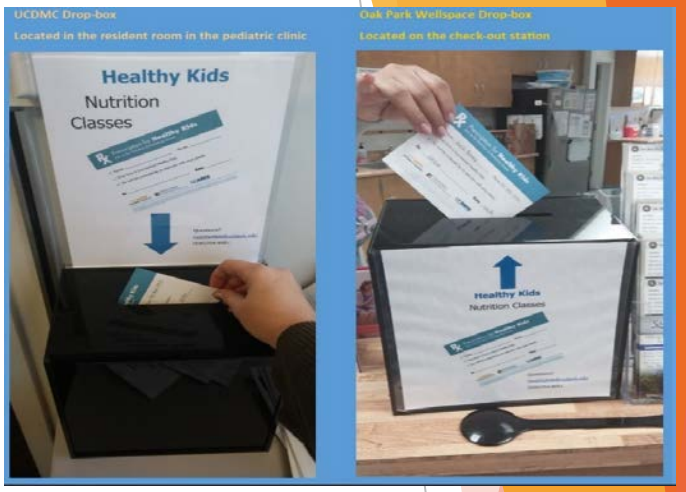


Community Education Setting

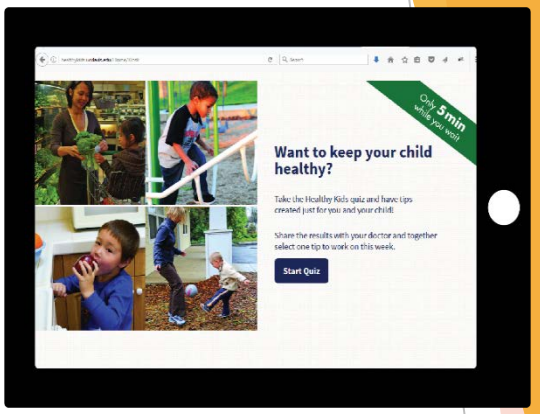
- MCMT evaluation tool
  - Pre and post intervention
  - 6-week parent education intervention
  - Control group
- Guided goal setting
- Significant difference in the MCMT Responsiveness scale $p < .05$

Medical Clinic Setting

- HK & MCMT evaluation tools in English and Spanish
  - Pre and post intervention
  - 8-week EFENP parent education intervention
- Guided goal setting
- Parents (n=22) report that goal setting activities (88%) were liked very much.
- 65% of parents stated that the physician referral was an important reason for enrolling.



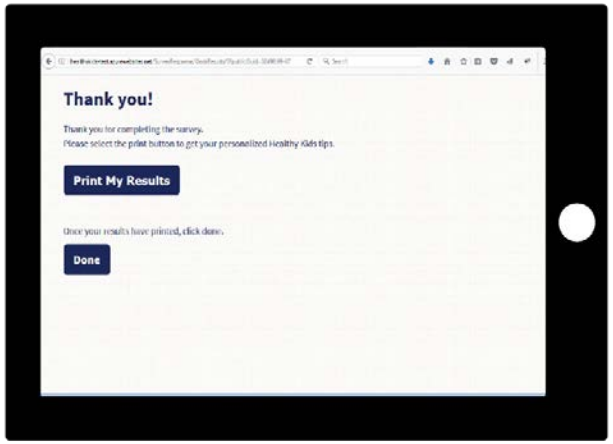
Medical Clinic Kiosk

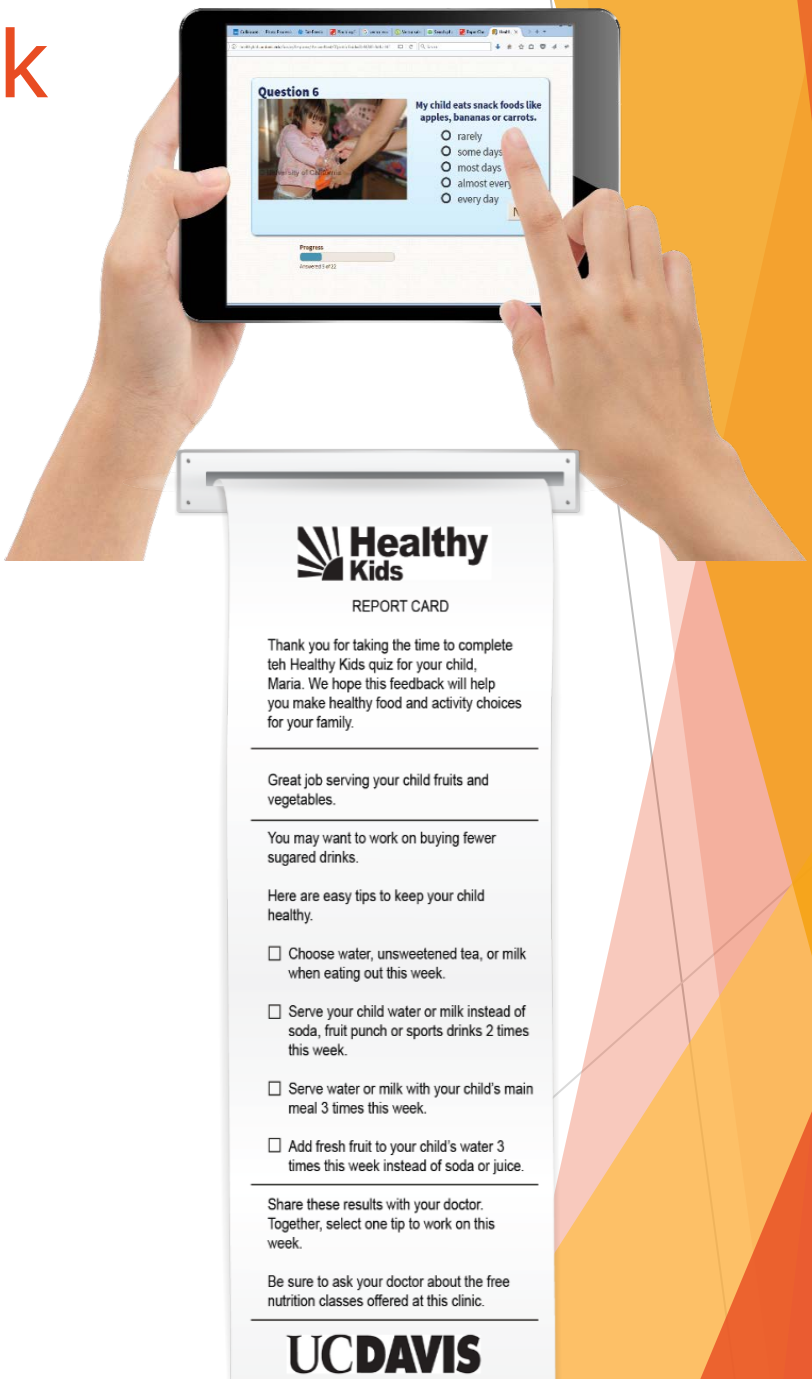


- Content based on HK and MCMT
- Placed in pediatric clinic waiting room
- To facilitate pediatric obesity risk communication between parents & pediatricians.
- To increase referrals to the EFNEP intervention.
- Meetings with clinic staff and physicians indicated kiosk needed to be:
  - small, mobile and have a printer attached

Medical Center Kiosk

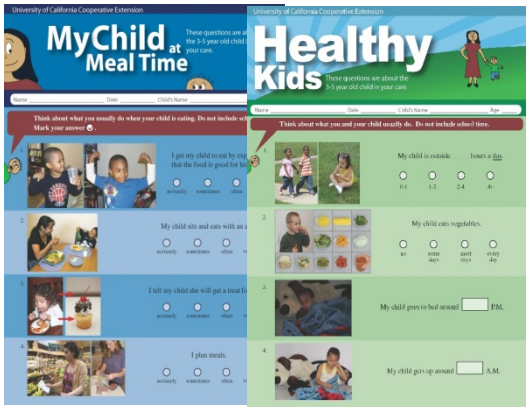
- Pilot testing
  - 22-item kiosk survey took parents ~3 minutes to complete
- All parents (n=6) reported that it was “very easy” or “easy” to complete the survey
- Feasibility testing is ongoing





Mini Tools

For Parents of Preschoolers



Thank you

shiltsm@csus.edu

Application of the Family Nutrition and Physical Activity (FNPA) screening tool for evaluating and impacting home obesogenic environments

Greg Welk

Iowa State University

Contributors, Collaborators and Colleagues

- Michelle Ihmels, Ph.D.
- Rachel Johnson, M.S.
- Karissa Peyer, Ph.D.
- Lisa Bailey-Davis, D.Ed., RD
- Amy Christison, Ph.D.
- Lorraine Lanningham-Foster, Ph.D.
- Maren Wolff, MS, RD, LD

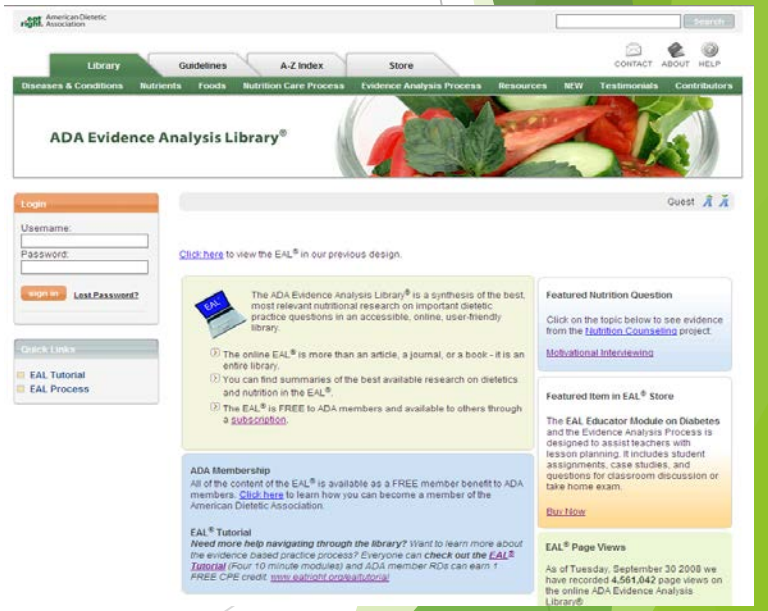
Development and Utility of Online Family Nutrition and Physical Activity (FNPA) Screening Tool

www.adaf.eatright-fnpa.org

Academy of Nutrition and Dietetics

Overview of Process for the Development of the FNPA Tool

- Concept evolved through partnership with the Academy of Nutrition and Dietetics (AND)
- Interdisciplinary research team completed formal Evidence Analyses (EA) on childhood obesity w/AND:
  - Esther Meyers – AND
  - Pat Crawford – UC-Berkeley
  - Lorraine Ritchie – UC-Berkeley
  - Karen Peterson – Harvard
  - Greg Welk – Iowa State
  - Michelle Ihmels – Iowa State
- Constructs identified in the Evidence Analyses as being predictive of childhood obesity were the basis for FNPA items



10 Key Domains were identified in Evidence Analyses

1. **Breakfast and Family Meal**
2. **Modeling of Nutrition**
3. **Nutrient Dense Foods**
4. **High Calorie Beverages**
5. **Restriction and Reward**
6. **Parent Modeling Physical Activity**
7. **Child's Physical Activity**
8. **Screen Time**
9. **TV in Bedroom**
10. **Sleep and Schedule**

Domains were selected based on consistency and strength of associations in predicting childhood obesity.

These 10 factors had a grade of II or III

2 Questions were Developed for each Construct (n=20)

Family Nutrition & Physical Activity

THE FNPA TOOL IS DESIGNED TO ALLOW YOU TO EVALUATE YOUR HOME ENVIRONMENT AND PARENTING PRACTICES RELATED TO YOUR CHILD'S RISK FOR OVERWEIGHT AND OBESITY.

FOR EACH QUESTION, PLEASE SELECT THE ANSWER THAT BEST REPRESENTS YOUR CHILD/FAMILY

	Almost Never	Some-times	Usually	Almost Always
1. My child eats breakfast....	☐	☐	☐	☐
2. Our family eats meals together.....	☐	☐	☐	☐
3. Our family eats while watching TV ...	☐	☐	☐	☐
4. Our family eats fast food....	☐	☐	☐	☐
5. Our family uses microwave or ready to eat foods ...	☐	☐	☐	☐
6. My child eats fruits and vegetables at meals or snacks...	☐	☐	☐	☐
7. My child drinks soda pop or sugar drinks...	☐	☐	☐	☐
8. My child drinks low fat milk at meals or snacks...	☐	☐	☐	☐
9. Our family limits eating of chips, cookies, and candy...	☐	☐	☐	☐
10. Our family uses candy as a reward for good behavior...	☐	☐	☐	☐
11. My child spends less than 2 hours on TV/games/computer per day	☐	☐	☐	☐
12. Our family limits the amount of TV our child watches...	☐	☐	☐	☐
13. Our family allows our child to watch TV in their bedroom...	☐	☐	☐	☐
14. Our family provides opportunities for physical activity	☐	☐	☐	☐
15. Our family encourages our child to be active every day	☐	☐	☐	☐
16. Our family finds ways to be physically active together ...	☐	☐	☐	☐
17. My child does physical activity during his/her free time...	☐	☐	☐	☐
18. My child is enrolled in sports or activities with a coach or leader...	☐	☐	☐	☐
19. Our family has a daily routine for our child's bedtime...	☐	☐	☐	☐
20. My child gets 9 hours of sleep a night ...	☐	☐	☐	☐

Scoring: **Add up scores for each scale (items should be scored 1,2,3,4 from left to right except for items that are reverse coded (3,4,5,7,10, and 13), These should be scored 4,3,2,1 from left to right. See Back for Feedback.**

Family Meal Patterns	Item 1 _____	+	Item 2 _____	=	_____
Family Eating Habits	Item 3 _____	+	Item 4 _____	=	_____
Food Choices	Item 5 _____	+	Item 6 _____	=	_____
Beverage Choices	Item 7 _____	+	Item 8 _____	=	_____
Restriction / Reward	Item 9 _____	+	Item 10 _____	=	_____
Screen time behavior and monitoring	Item 11 _____	+	Item 12 _____	=	_____
Healthy Environment	Item 13 _____	+	Item 14_____	=	_____
Family Activity Involvement	Item 15 _____	+	Item 16 _____	=	_____
Child Activity Involvement	Item 17 _____	+	Item 18 _____	=	_____
Family Routine	Item 19 _____	+	Item 20 _____	=	_____
				Total Score	_____

The FNPA Tool was developed at Iowa State University by Michelle Ihmels (mihmels@iastate.edu) and Greg Welk (gwelk@iastate.edu) in partnership with the American Dietetics Association.

Self-scoring rubric and summary of recommended practices promotes awareness

Family Nutrition & Physical Activity

A HIGHER SCORE ON EACH ITEM IS CONSIDERED THE "HEALTHIER CHOICE". A LOW FNPA SCORE MAY INDICATE AN INCREASED RISK FOR THE DEVELOPMENT OF OBESITY. RECOMMENDED PRACTICES FOR EACH QUESTION ARE OUTLINED BELOW.

Family Meals (Recommended Practice)
It is important that children not skip breakfast as breakfast skipping has been linked to increased risk of overweight, particularly among older children and adolescents. Eating together as a family is also important for establishing positive family interactions related to eating.

Family Eating Practices (Recommended Practice)
Regular consumption of food away from home, particularly at fast food establishments, has been associated with increased risk for overweight, especially among adolescents. It is harder to make healthier choices when eating out so reducing meals out can promote healthier eating. It is also important to not watch television while eating meals as this may cause children to eat too much or to eat less healthy foods.

Food Choices (Recommended Practice)
Prepackaged foods generally contain more fat and salt than freshly prepared meals, and dietary fat intake is associated with higher overweight levels in youth. Eating more fruits and vegetables reduces a child's risk for overweight. The effect may be direct or indirect (by reducing consumption of other foods).

Beverage Choices (Recommended Practice)
Intake of sugar-sweetened beverages is related to increased risk of overweight in children.
Studies also suggest that a child with a low intake of calcium may be at increased risk for becoming overweight.

Restriction/Reward (Recommended Practice)
It is important that parents not restrict highly palatable foods (such as snack food and candy) as this promotes a child's desire for such forbidden foods. It is important to monitor consumption of foods (but not to restrict it) since moderate consumption lets children learn to regulate their behavior. Foods should generally not be used as rewards because it causes children to value these foods over other healthier options.

Screen Time and Monitoring (Recommended Practice)
Excessive television viewing and video game use is associated with increased overweight in youth. Children should have 2 hours or less of screen time (television, video games, and computer time) per day. Parents should monitor and limit screen time.

Healthy Environment (Recommended Practice)
Creating a healthy environment is important for physical activity. Remove televisions from bedrooms is a good practice since it reduces likelihood of excess television viewing. Provide opportunities to be active.

Family Activity Behavior (Recommended Practice)
Parents are important role models for their children, so it is important to remind children about the importance of being physically active. By being active as a family you can help establish healthy lifestyle practices that promote and reinforce physical activity as a family value.

Child Activity Behavior (Recommended Practice)
A child's participation in regular physical activity is associated with a reduced risk of overweight. Parents can plan activity into their day but kids may need reminders or specific opportunities to help them be active every day.

Family Schedule/Sleep Routine (Recommended Practice)
It is important that a child has a daily routine or schedule for bedtime.
Research suggests that lack of sleep and irregular routines may increase a child's risk for overweight.

The FNPA Tool was developed at Iowa State University by Michelle Ihmels (mihmels@iastate.edu) and Greg Welk (gwelk@iastate.edu) in partnership with the American Dietetics Association.

Construct Validity: Cross Sectional Analyses

(Ihmels et al., 2009 - IJBNPA)

- Factor analyses revealed that the items loaded on a single factor (alpha reliability = 0.70)
- Logistic regression revealed that children with a total score in the lowest tertile (high risk family environment) had a greater likelihood of being overweight (odds ratio = 1.7).

International Journal of Behavioral Nutrition and Physical Activity

BioMed Central

Research

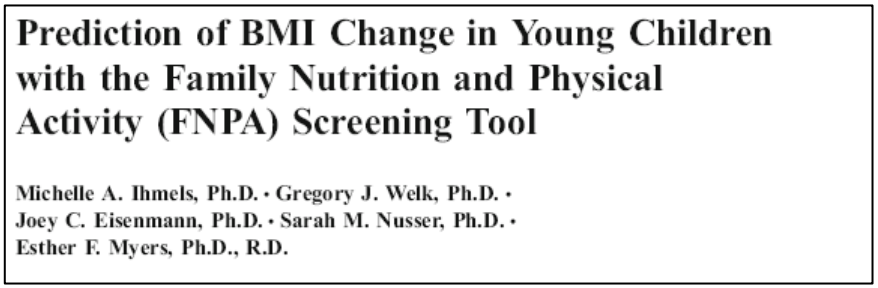
Open Access

Development and preliminary validation of a Family Nutrition and Physical Activity (FNPA) screening tool

Michelle A Ihmels*[1], Greg J Welk[1], Joey C Eisenmann[2] and Sarah M Nusser[3]

Predictive Validity: Longitudinal Analyses
(Ihmels et al., 2009 – Annals of Behavioral Medicine)

- FNPA was a significant predictor of 1 year change in BMI after taking into account multiple variables
  - Baseline BMI
  - Parent BMI
  - Parent SES

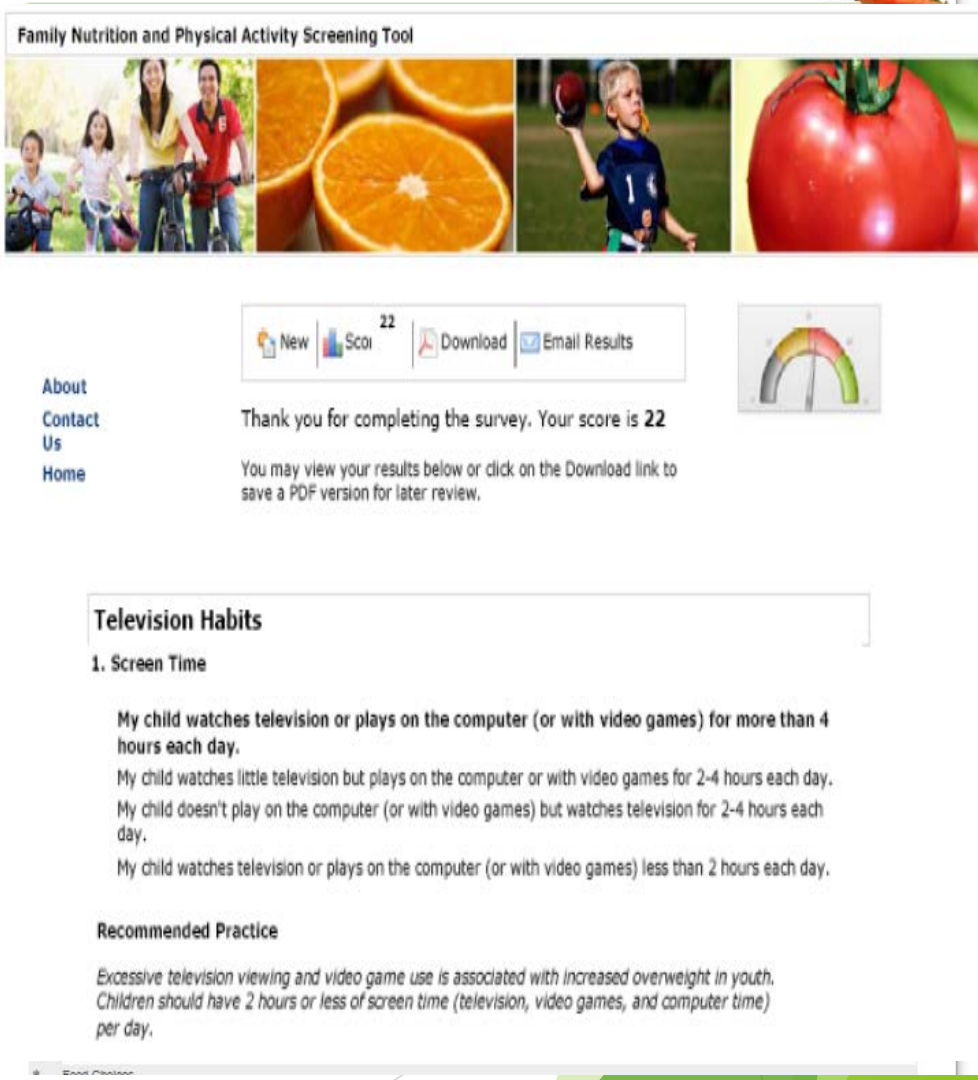

Prediction of BMI Change in Young Children with the Family Nutrition and Physical Activity (FNPA) Screening Tool

Michelle A. Ihmels, Ph.D. · Gregory J. Welk, Ph.D. · Joey C. Eisenmann, Ph.D. · Sarah M. Nusser, Ph.D. · Esther F. Myers, Ph.D., R.D.

- Ihmels, M.A., Welk, G.J., Eisenmann, J.C., Nusser, S.M. & Myers, E.F. Prediction of BMI change in young children with the Family Nutrition and Physical Activity (FNPA) screening tool. ABM. 2009, 38(1): 60-68

Features of Online FNPA Tool

- Easy to use (and FREE) online tool
- Customizable interface for specific projects
- Quick data entry for parents
- Personalized feedback with links to Kids Eat Right

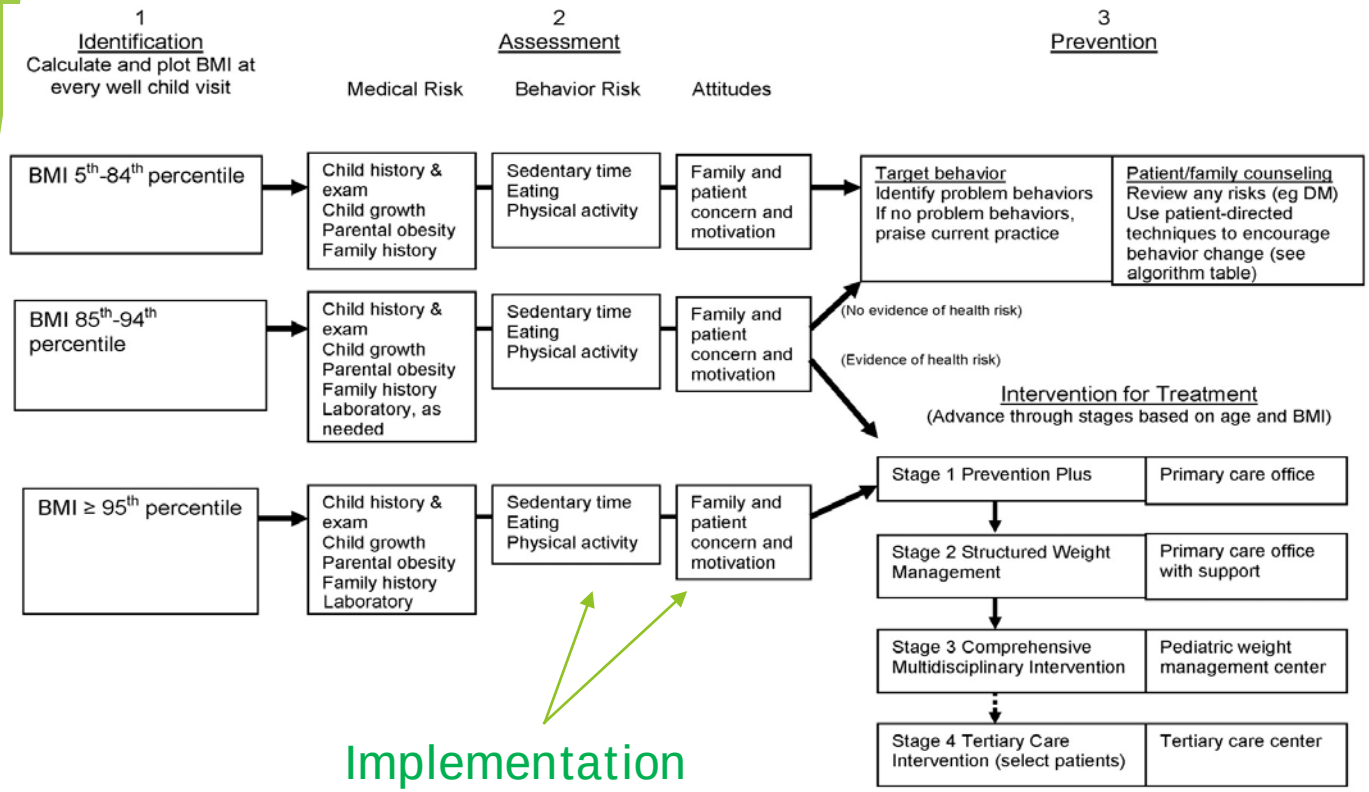


Primary Care Provider Role

- Universal prevention
- Promotion of healthy lifestyle for patients and families
- Have a clear understanding of the complex and interconnected factors of weight gain
- Screening, identification and treatment of obesity-related comorbidities
- Use best available evidence
- Tailored counseling
- Advocacy

American Academy of Pediatrics
Institute for Healthy Childhood Weight

Universal Guidelines for Assessment, Prevention, and Treatment



Implementation Gap that FNPA Can Fill

Barlow, S. E. et al. *Pediatrics* 2007

PEDIATRICS®

Recent Applications of the FNPA Tool for Clinical Applications

- The FNPA has been used in several clinical studies to facilitate parent education and family based counseling on obesity prevention
- Studies were in 3 different medical systems
  - Illinois (Chistison et al.)
  - Pennsylvania (Bailey-Davis et al.)
  - Iowa (Wolff et al.)

Illinois College of Medicine Study (Christison et al)

CHILDHOOD OBESITY
October 2014 | Volume 10, Number 5

DOI: 10.1089/chi.2014.0057

BRIEF REPORT

Pairing Motivational Interviewing with a Nutrition and Physical Activity Assessment and Counseling Tool in Pediatric Clinical Practice: A Pilot Study

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Figure 2. Flow diagram of methods.

		Could Do Sometimes	Could Do Most of Time	Could Do Almost Always
		2	3	4
☐12. Remove TV's from the bedroom				
☐13. Encourage 1 hour of daily physical activity				
☐14. Family physical activity ≥ 1 hour/week				
☐15. Scheduled bedtime				
☐16. Nine hours of sleep/night				
☐17. Other:				
☐18. Other:				

Figure 1. FNPA coaching tool. FNPA, the Family Nutrition and Physical Activity Screening Tool.

PREVENT Study

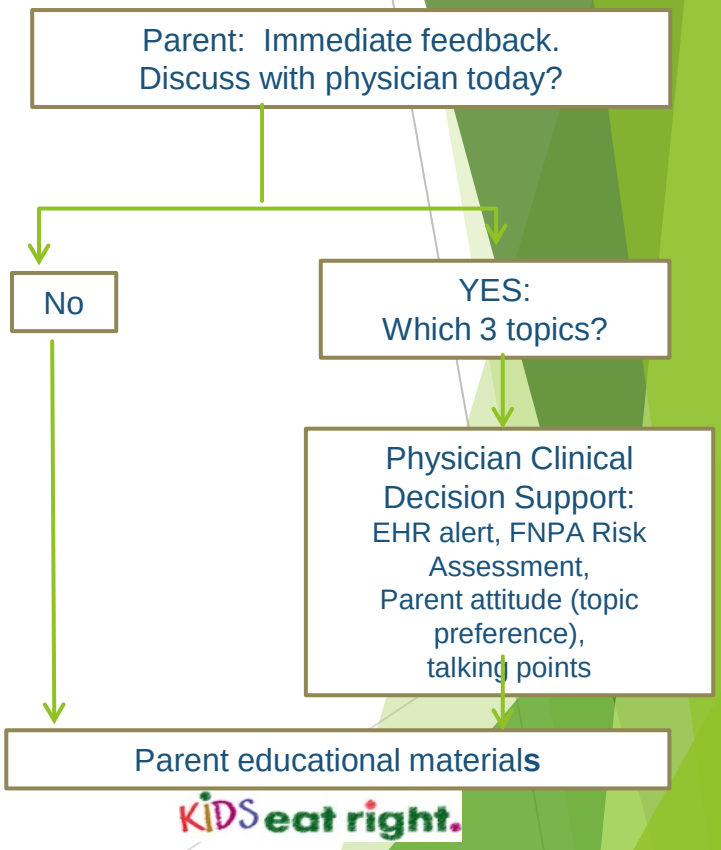
Geisinger Health Systems (Lisa Bailey-Davis)

Geisinger

FOR EACH QUESTION, PLEASE SELECT THE ANSWER THAT BEST REPRESENTS YOUR CHILD/FAMILY

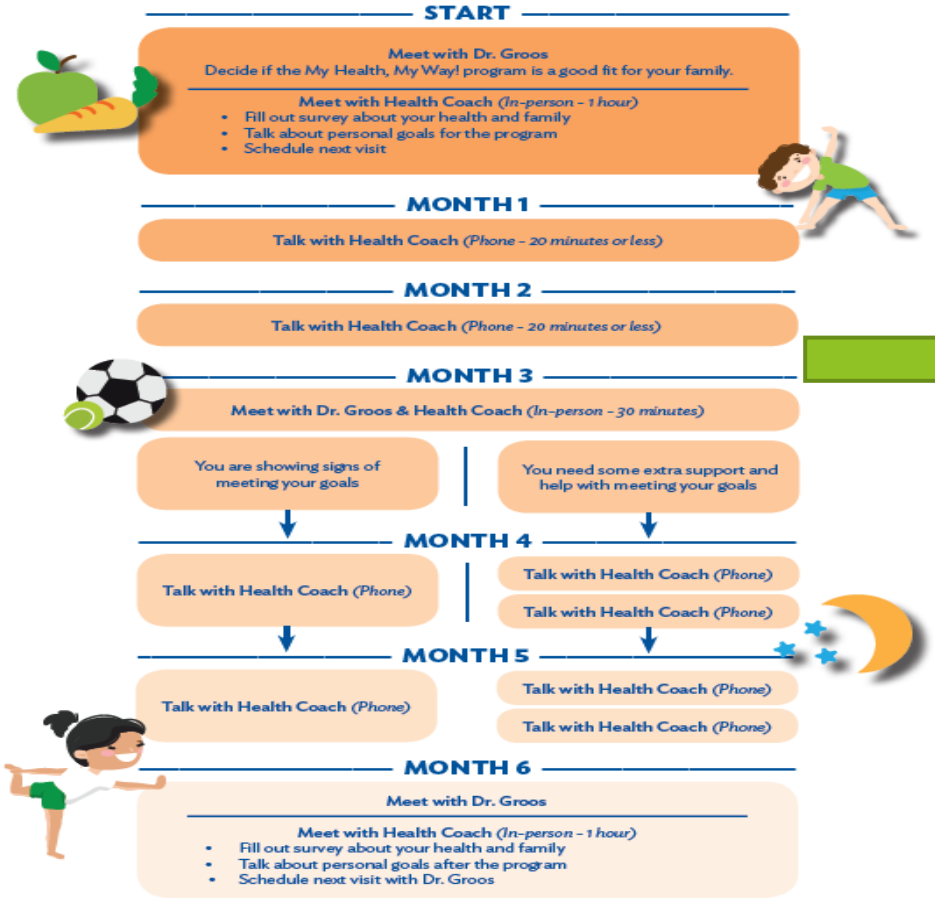
	Almost Never	Some-times	Usually	Almost Always
1. My child eats breakfast....	☐	☐	☐	☐
2. Our family eats meals together.....	☐	☐	☐	☐
3. Our family eats while watching TV ...	☐	☐	☐	☐
4. Our family eats fast food....	☐	☐	☐	☐
5. Our family uses microwave or ready to eat foods ...	☐	☐	☐	☐
6. My child eats fruits and vegetables at meals or snacks...	☐	☐	☐	☐
7. My child drinks soda pop or sugar drinks...	☐	☐	☐	☐
8. My child drinks low fat milk at meals or snacks...	☐	☐	☐	☐
9. Our family limits eating of chips, cookies, and candy...	☐	☐	☐	☐
10. Our family uses candy as a reward for good behavior...	☐	☐	☐	☐
11. My child spends less than 2 hours on TV/games/computer per day	☐	☐	☐	☐
12. Our family limits the amount of TV our child watches...	☐	☐	☐	☐
13. Our family allows our child to watch TV in their bedroom...	☐	☐	☐	☐
14. Our family provides opportunities for physical activity	☐	☐	☐	☐
15. Our family encourages our child to be active every day	☐	☐	☐	☐
16. Our family finds ways to be physically active together ...	☐	☐	☐	☐
17. My child does physical activity during his/her free time...	☐	☐	☐	☐
18. My child is enrolled in sports or activities with a coach or leader...	☐	☐	☐	☐
19. Our family has a daily routine for our child's bedtime...	☐	☐	☐	☐
20. My child gets 9 hours of sleep a night ...	☐	☐	☐	☐

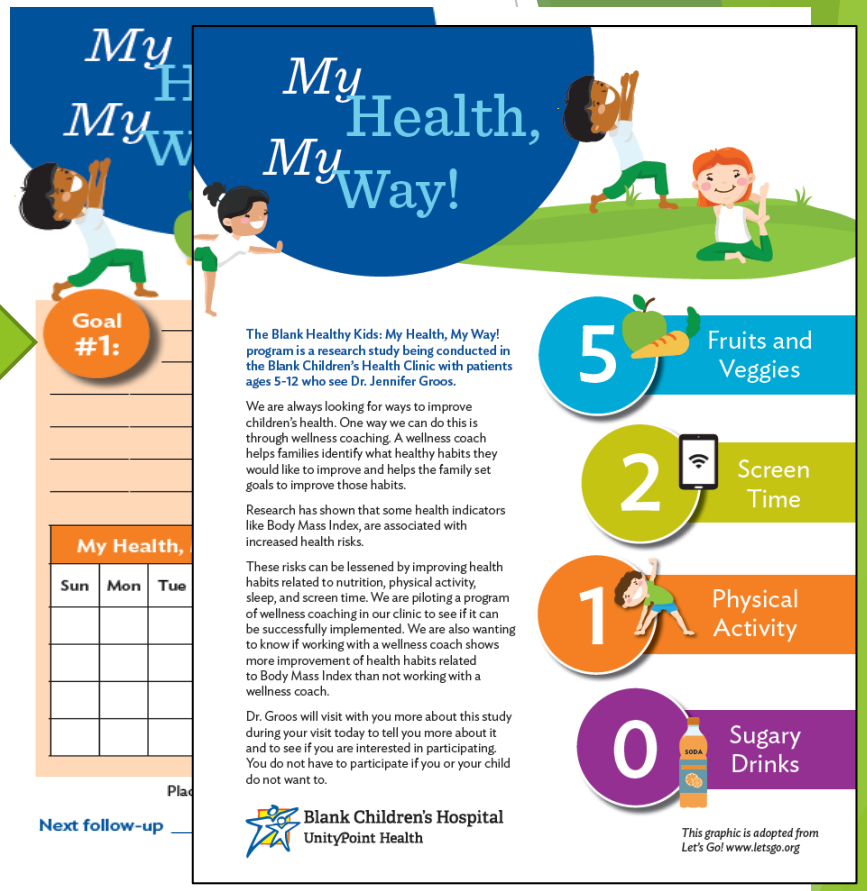
FNPA and Parent Attitude Assessment Integrated into Well Child Visits:



Blank Healthy Kids: My Health, My Way!

(BlankProject – Wolff/Lanningham-Foster)





Conclusions

- The FNPA has demonstrated utility for assessing home obesogenic environments and promoting parent awareness about weight issues
- Clinical studies demonstrate the feasibility and utility of the FNPA when integrated into standard pediatric well child visits

Thanks

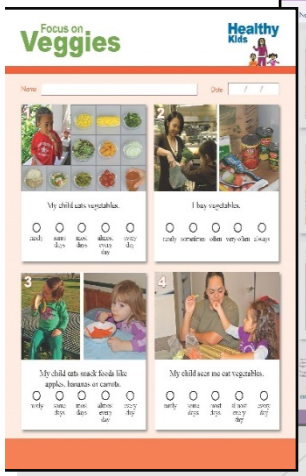
Visit www.myfnpa for information or to join the FNPA User Group or contact Greg Welk (gwelk@iastate.edu)

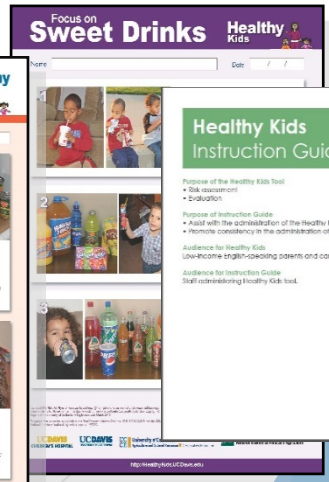
Look for a future symposium on the FNPA at FNCE in the Fall (Karissa Peyer and Lisa Bailey Davis)

Closing

7 Potential uses

- Screening
- Obesity risk assessment / prediction
- Evaluation [pre post]
- Program needs assessment
- Intervention tailoring
- Designing personalized messages, clinical setting
- Goal generator for participants





Learning Objectives

- Participants will list 3 concepts to consider when developing obesity prevention tools.

  Literacy level, cultural background, language preference, SES, age, setting

- Participants will understand different methods of validation appropriate for obesity prevention tools.

  Content, face, concurrent, criterion, predictive validity

- Participants will view 5 examples of 'real world applications' of valid obesity prevention tools.

  Pediatric medical practice
  Family medicine at university hospital
  Community agency
  Photographic tailoring on website
  Goal setting on website

FUNDING SOURCES

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Add Greg #

Application & How to order?

- http://Townsendlab.UCDavis.edu
- http://HealthyKids.UCDavis.edu
- www.adaf.eatright-fnpa.org

UC Davis Reprographics

- Reprographics Store-Coming Soon
  - http://repro-ecommerce.ucdavis.edu/

Tools for Assessing Home Obesogenic Environments: From Development to Real World Applications

Questions

SNEB Symposium

July 23, 2017, 1:00-2:30