Welcome to the COPE Webinar Series for Health Professionals!

January 18, 2017
The Role of Responsive Parenting in Pediatric Obesity Prevention

12 noon – 1 PM EDT
Moderator: Lisa Diewald, MS, RD, LDN
Program Manager
MacDonald Center for Obesity Prevention & Education

Handouts of the slides are posted at: www.villanova.edu/COPE

MacDonald Center for Obesity Prevention and Education (COPE) Goals

- Provide Continuing Education
- Partner with agencies and organizations
- Participate in Research
- Enhance Education

The Role of Responsive Parenting in Pediatric Obesity Prevention

Objectives:
1. Define responsive parenting and responsive feeding.
2. Identify areas to target for effective pediatric obesity prevention that incorporate responsive parenting principles.
CE Credits

Notice:
- Villanova University College of Nursing is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center Commission on Accreditation
- Villanova University College of Nursing Continuing Education/COPE is a Continuing Professional Education (CPE) Accredited Provider with the Commission on Dietetic Registration
- The American College of Sports Medicine’s Professional Education Committee certifies that Villanova University College of Nursing Continuing Education, Center for Obesity Prevention and Education (COPE) meets the criteria for official ACSM Approved Provider status (2015-December, 2018). Providership #698849

CE Credits

Credits:
- This webinar awards 1 contact hour for nurses and 1 CPEU for dietitians
- Suggested CDR Learning Need Codes: 5070, 5370, 9000, 9020, Level 2

The Role of Responsive Parenting in Pediatric Obesity Prevention

Jennifer Savage Williams, Ph.D.
Interim Director
Center for Childhood Obesity Research
Assistant Professor
Department of Nutritional Sciences
Penn State University
DISCLOSURE

Neither the planners or presenter have any conflicts of interest to disclose.

Accredited status does not imply endorsement by Villanova University, COPE or the American Nurses Credentialing Center of any commercial products or medical/nutrition advice displayed in conjunction with an activity.

THE ROLE OF RESPONSIVE PARENTING IN PEDIATRIC OBESITY PREVENTION

Jennifer Savage Williams
January 18, 2017

Childhood Obesity in the United States

One out of 3 children are obese or overweight before their 5th birthday.

Approximately 12.5 million or 17% of children and adolescents aged 2 to 19 years are obese.
1 of every 7 low-income preschool aged children in the US is obese

The first 1000 days (conception to age 2): target for obesity prevention

- Rapid change in diet, metabolic, and behavioral systems are opportunities
- Early onset obesity comorbidities are more serious
- Infants and toddlers don’t tend to “grow out of it”
- Obesity interventions later in life* have limited success
- Dietary patterns are established early in life
- Experimental studies suggest promising strategies for early obesity prevention (T1 and T2)

*Summerbell et al Cochrane review, 2005; Harris at al, 2009; Haynos & O’Donohue, 2012
Responsive parenting
- Defined as a mother's/caregiver's prompt, contingent, & appropriate interaction with child

Why target responsive parenting?
- Language development
- Attachment
- Emotional growth
- Social competence
- School readiness
- Weight status
- Self regulation


Responsive Feeding

Parent is:
1. Aware of cues
2. Accurate interpretation
3. Prompt, developmentally appropriate response


Feeding practices can have negative impacts on regulation and impact

Responsive feeding

- Greater parental awareness of infant hunger and satiety associated with lower neophobia\textsuperscript{1}
- Pressure and restriction associated with higher neophobia\textsuperscript{2}
- Pressuring associated with decreased satiety responsiveness\textsuperscript{2}
- Responsive feeding may reduce risk of overweight\textsuperscript{3}

\textsuperscript{1}Cassells et al. 2014 Appetite
\textsuperscript{2}Li et al. 2014 Pediatrics
\textsuperscript{3}DiSantis et al. 2011 Int J Obes

Discordant Feeding Responsiveness $\rightarrow$ Overweight

\textsuperscript{1}DiSantis KI et al. International Journal of Obesity, 2011

Self-regulation

Self-regulation refers to the ability to inhibit dominant responses and control one’s behaviors

- Children with lower self-regulatory abilities consume more snack foods (Riggs, et al., 2010)
- Lower self-regulation linked to excessive weight gain during childhood (Francis & Susman, 2009)

(Riggs, et al., Nutr Educ & Behav, 2010; Francis & Susman, JAMA, 2009)
What factors may impact responsive parenting/feeding?

Infant fussing and soothing
- Use of food to soothe associated with greater child weight
- Relationship stronger with high temperamental negativity

Costanzo and Woody's (1985) model of parental control and obesity proneness

Stifter et al. 2011 Appetite
Structure-based parenting may influence child eating behavior

Control
Psychological Control:
- Pressure
- Intrusiveness
- Dominance

Structure
Behavioral Control:
- Routines
- Guidance
- Limit setting

Control in Feeding
- Restricts all access
- Hiding foods
- Parent perspective
- Takes food away

Structure in Feeding
- Provides access
- Rules & routines
- Child perspective
- Parent provides, child decides

Grolnick & Pomerantz, Child Dev. Pers, 2009; Rollins, Savage, Birch, JOC, 2015

The Intervention Nurses Start Infants Growing on Healthy Trajectories (INSIGHT) Study

Primary Aim: To evaluate a responsive parenting (RP) intervention that is designed to prevent rapid infant weight gain and childhood obesity at age 3 years among first-born infants.

Funding: NIDDK R01DK088244
Study protocol: Paul et al. 2014 BMC Pediatrics

We hypothesize that the use of food to control infant fussing, crying, and wakefulness can lead to overconsumption of calories and weight gain
Sample Characteristics

- Demographic characteristics assessed at birth
- Singleton, term newborns ≥ 37 weeks gestation
- Birth weight ≥ 2500 grams
- Primiparous mothers ≥ 20 years old
- English speaking
- No major maternal/infant morbidities
- No plan to move within 3 years
- Retention: 251 (of 279) mothers completed the 1 year visit (90%)
  243 (of 279) mothers and 2 year visit (87%)

INSIGHT Design

- Randomized, controlled trial with birth cohort

Legend: EN - Enroll, R2 - Randomization, H1 - Home Visit, DC - Data Collection only, RC - Research Center Visit

Early Insight: Helping parents raise healthy babies in the first 4 months

Main responsive parenting intervention themes:
- Recognition and appropriate response to infant hunger and fullness cues
- Alternatives to feeding in order to soothe infant
- Promoting adequate sleep, self-soothing, "settling"
- Developmentally appropriate introduction of solid foods and portion sizes
**Intervention Components – Main Concepts**

**Overall Goal:** to promote self-regulation by setting limits and being responsive within these key areas:

<table>
<thead>
<tr>
<th>Sleep Component</th>
<th>Feeding Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sleep recommendation: total hours</td>
<td>• Bottle feeding tips</td>
</tr>
<tr>
<td>• Consistent bedtime routines</td>
<td>• Identifying hunger &amp; fullness cues</td>
</tr>
<tr>
<td>• Drowsy but awake</td>
<td>• Repeated exposure</td>
</tr>
<tr>
<td>• Bedtime between 7-8pm</td>
<td>• Shared responsibility of feeding</td>
</tr>
<tr>
<td>• Sleep disruptions (e.g., milestones, fears, separation anxiety)</td>
<td>• Age appropriate foods</td>
</tr>
<tr>
<td>• Opportunity to self soothe</td>
<td>• Portion size</td>
</tr>
</tbody>
</table>

**Emotional/Social Regulation**

- Baby’s temperament
- Alternatives to food to soothe
- Positive reinforcement
- Emotion coaching
- Routines/expectations to reduce temper tantrums

**Interactive Play**

- Tummy time tips
- Activity, game and toy suggestions
- Spend time outdoors
- Limit restrictive devices
- AAP screen time recommendations
- Motor, social, cognitive & language developmental milestones

*These are examples of topics and not exhaustive.

---

**Results – Demographics**

Maternal Characteristics:

- Household income ≥ $75,000 (51%)
- Predominantly white (94%) and non-Hispanic (94%)
- Married (80%)
- Well educated – 67% had at least completed college
- Pre-pregnancy BMI = 25.5
- Age: 28.9 years at recruitment

* No significant differences by study group

---

**INSIGHT responsive parenting intervention prevents rapid weight gain (birth to 6 months)**

Only 37% of responsive parenting infants had faster weight gain from birth to 6 months compared to 51% of safety control infants (p=0.05)

Savage et al. JAMA Pediatrics 2016
INSIGHT responsive parenting intervention protects against overweight at age 1 year

Weight for length ≥ 95th percentile (WHO): 5.5% in responsive parenting infants compared to 12.7% of safety control infants (p=0.05)

Savage et al. JAMA Pediatrics 2016  *Kolmogorov Smirnov Two-Sample Test p<0.01

Total nighttime sleep duration by study group

While a majority of infants consumed diets low in fruits and vegetables, the INSIGHT RP intervention was associated with healthier dietary patterns.
Parenting infants slept longer at night compared to control babies

<table>
<thead>
<tr>
<th>Infant age (weeks)</th>
<th>Parenting</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>42 min</td>
<td>28 min</td>
</tr>
<tr>
<td>8</td>
<td>24 min</td>
<td>22 min</td>
</tr>
</tbody>
</table>

* (p<.05)

BMI percentile distribution by study group at 2 years

Risk of becoming or staying ≥95th percentile from age 1 to 2 years is higher among safety control children

<table>
<thead>
<tr>
<th>CDC ≥95th BMI Percentile at age 2 years</th>
<th>WHO ≥ 95th WL Percentile at age 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>217 (89)</td>
<td>5</td>
</tr>
<tr>
<td>15 (6)</td>
<td>6</td>
</tr>
<tr>
<td>Total 232 (95)</td>
<td>Total 243 (95)</td>
</tr>
</tbody>
</table>

Chi-square test of independence from 1 to 2 years: p<0.0001
CMH test, Study group X weight status at 1 yr (WHO) p=0.02

Chi-square test of independence from 1 to 2 years: p<0.0001
CMH test, Study group X weight status at 1 yr (WHO) p=0.02
Risk of becoming or staying ≥85th percentile from age 1 to 2 years is higher among safety control children

<table>
<thead>
<tr>
<th></th>
<th>CDC ≥85th BMI Percentile at age 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>WHO ≥ 85th at age 1 year</td>
<td>170 (70)</td>
</tr>
<tr>
<td>W/L Percentile</td>
<td>34 (14)</td>
</tr>
<tr>
<td>Total</td>
<td>204 (84)</td>
</tr>
</tbody>
</table>

Chi-square test of independence from 1 to 2 years: p<0.0001
CMH test, Study group X weight status at 1 yr (WHO) p=0.02

Lessons learned from INSIGHT

• Out of 24 behavioral interventions at 2y or younger, only 4 have had significant effects on weight¹
  • SLIMTIME²
  • Healthy Beginnings³
  • Verbestal et al. 2013
  • NOURISH
  • and now INSIGHT

• Commonalities of SLIMTIME, Healthy Beginnings, INSIGHT:
  • Home intervention delivery by nurses targeting first time mothers
  • Multi-component interventions that start early (first weeks of life)
  • Focus on responsive parenting

¹Redsell et al. 2015 Mat Child Nutr; ²Paul et al. 2011 Obesity; ³Wen et al. 2012 BMJ

Next step: translation to practice

• What intervention components work in different populations
• Integrating intervention into existing community entities
Good health starts outside the doctor’s office, in places where we live, learn, work, and play.

Cross-sector work engages sectors traditionally responsible for health promotion—such as health care providers and public health agencies—and nontraditional partners—such as city planners, members of the media, and business leaders—to work together to improve health.

IOM’s Roundtable on Obesity Solutions

Acknowledgements

Collaborators:
- Ian Paul (PI, PSU COM)
- Leann Birch (Co-PI, U of Georgia)
- Michele Marini (PSU)
- Stephanie Anzman-Frasca (U at Buffalo)
- Clinical Research Staff
  - Jessica Beiler
  - Jennifer Stokes
  - Patricia Carper
  - Amy Shelly
  - Nicole Verdiglione

Consultant:
- Jodi Mindell (Saint Joseph’s University)

Center for Childhood Obesity Research

QUESTIONS?
Evaluations and CE Certificates

• Those completing the webinar will be emailed a link to the evaluation.
• The email will be sent to the email address that you used to register for the webinar.
• Complete the evaluation soon after you receive the email. The evaluation does expire after 3 weeks. Once expired, you cannot obtain a certificate.
• Once the evaluation is completed, the certificate will be emailed separately within 2 or 3 business days.

Upcoming FREE COPE Professional Webinar

Nicole L. Simone, M.D.
Margaret Q. Landenberger Associate Professor
Sydney Kimmel Medical College, Thomas Jefferson University
Radiation Director, Jefferson Breast Cancer Center

Diet Modification as a Novel Therapeutic for Cancer Treatment: When Less is More
Date: Wednesday, February 22, 2017
Time: 12:00PM - 1:00PM EST
CE Credit: 1.0 contact hour, 1.0 CPEU
To register: villanova.edu/cope

Upcoming FREE COPE Professional Webinar

Brie Turner-McGrievy, PhD, MS, RD
Assistant Professor
University of South Carolina

Plant-based Possibilities: Use of plant-based diets for weight loss
Wednesday, March 29, 2017
12:00 PM - 1 PM EST
1.0 Contact Hour, 1.0 CPEU
To register: villanova.edu/cope
Questions and Answers!

Moderator: Lisa K. Diewald, MS, RD, LDN
Email: cope@villanova.edu
Web site: www.villanova.edu/COPE

To receive monthly emails on upcoming COPE events, please join COPE’s Contacts on our website.
Thank you for your time and interest.