

Responsive Parenting for Early Obesity Prevention

Leann Birch

William Flatt Professor

Department of Foods and Nutrition

The University of Georgia

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Throughout history, food scarcity was a threat to child health, and is still a threat to many...

- High risk of child morbidity, mortality
- Not enough food
- Availability unpredictable
- Food choice limited
- Low palatability
- Low energy, nutrient density



Traditional parenting practices evolved to promote child intake, health in the context of food scarcity

- Feeding the “default” response to crying
- Provide large portions when possible
- Force, pressure children to eat in the absence of hunger
- “A big baby = A healthy baby”
- Traditional practices and attitudes persist
- Can promote rapid weight gain and increase obesity risk



Rapid weight gain in infancy predicts...

- Higher BMI and fat mass in childhood¹
- Increased risk of obesity in adulthood²
- Higher blood pressure in childhood³ and adulthood⁴
- Reduced physical fitness in childhood⁵
- Increased metabolic risk factors⁶



¹Sacco, J Clin Nutr, 2013; Koontz, Ped Obes, 2014; Taveras, Pediatrics, 2009; Stettler, ²Circulation, 2005; ³Belort 2007 J Pediatr; ⁴Ben Shlomo, Hypertension, 2008; ⁵Van Deutekom, Int J Obes, 2015;

⁶Ekelund, J Clin Endocrinol Metab, 2007

An alternative to traditional feeding practices: Responsive parenting

- Prompt, developmentally appropriate
- Contingent on child's behavior, needs
- Fosters the development of self regulation
- Promotes cognitive, social, emotional development
- Three step process
 1. Observation
 2. Interpretation
 3. Action



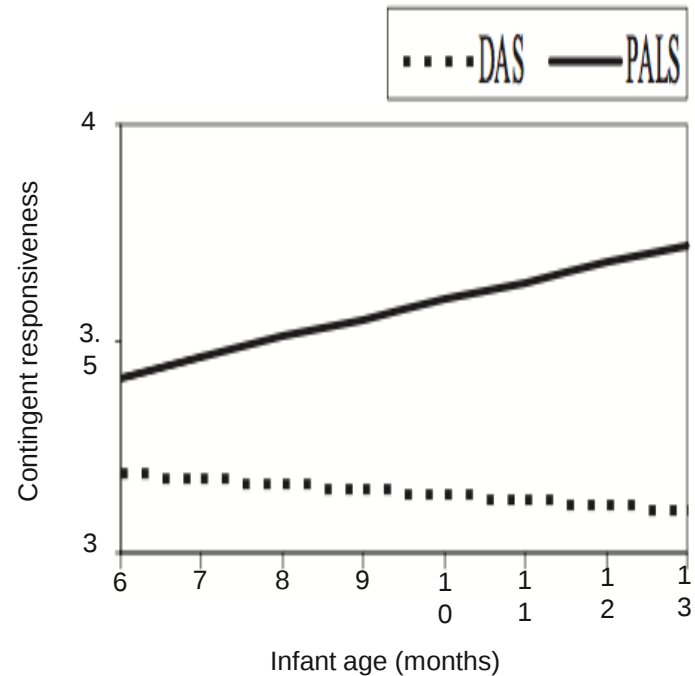
Can responsive parenting reduce rapid weight gain, obesity risk in infancy?

Is parenting modifiable?

Responsiveness can be taught to caregivers

- Evidence from randomized controlled trials shows that responsive parenting is modifiable
- Parenting intervention (PALS) increased mothers' contingent responsiveness compared to control (DAS)*

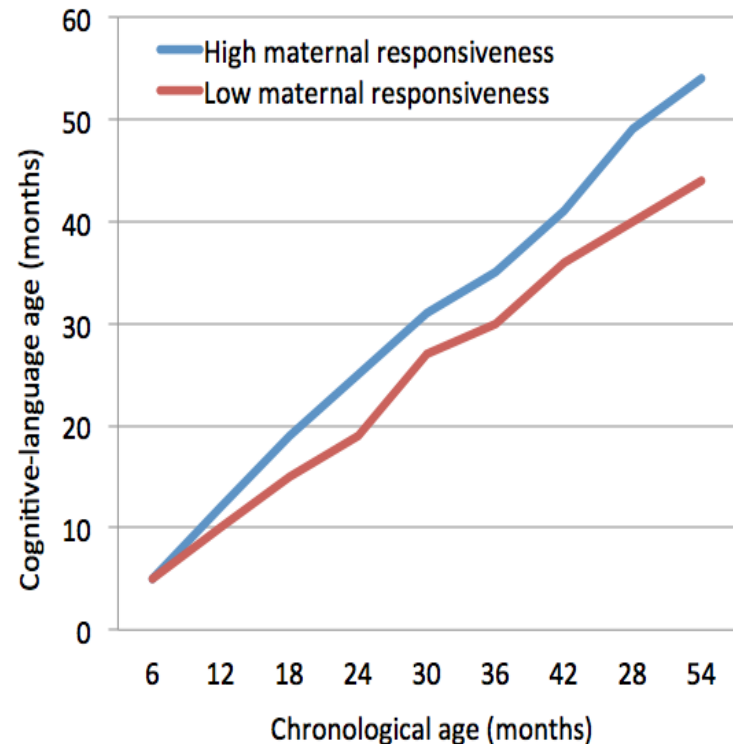
Figure 1. Change in ratings of mothers' contingent responsiveness in PALS vs. DAS groups



Responsive parenting promotes many aspects of children's development

- Responsive parenting positively associated with cognitive, social, and emotional growth in children*
- Non-responsive, controlling parenting is related to adverse outcomes*

Figure 1. Maternal responsiveness in infancy and early childhood predicts higher cognitive-language age scores



Modified from Landry 2001

*Eshel et al., *Bull World Health Organ*, 2006; Landry et al., *Dev Psychol*, 2001*;

Responsive parenting promotes self regulation

- Self regulation affects cognitive, social, and emotional development
- Self regulation: self-control, will power, effortful control, delay of gratification, emotion regulation, executive function, and inhibitory control*
- Multiple aspects of self regulation important in avoiding excessive intake in our current environment

Can responsive parenting reduce obesity risk?



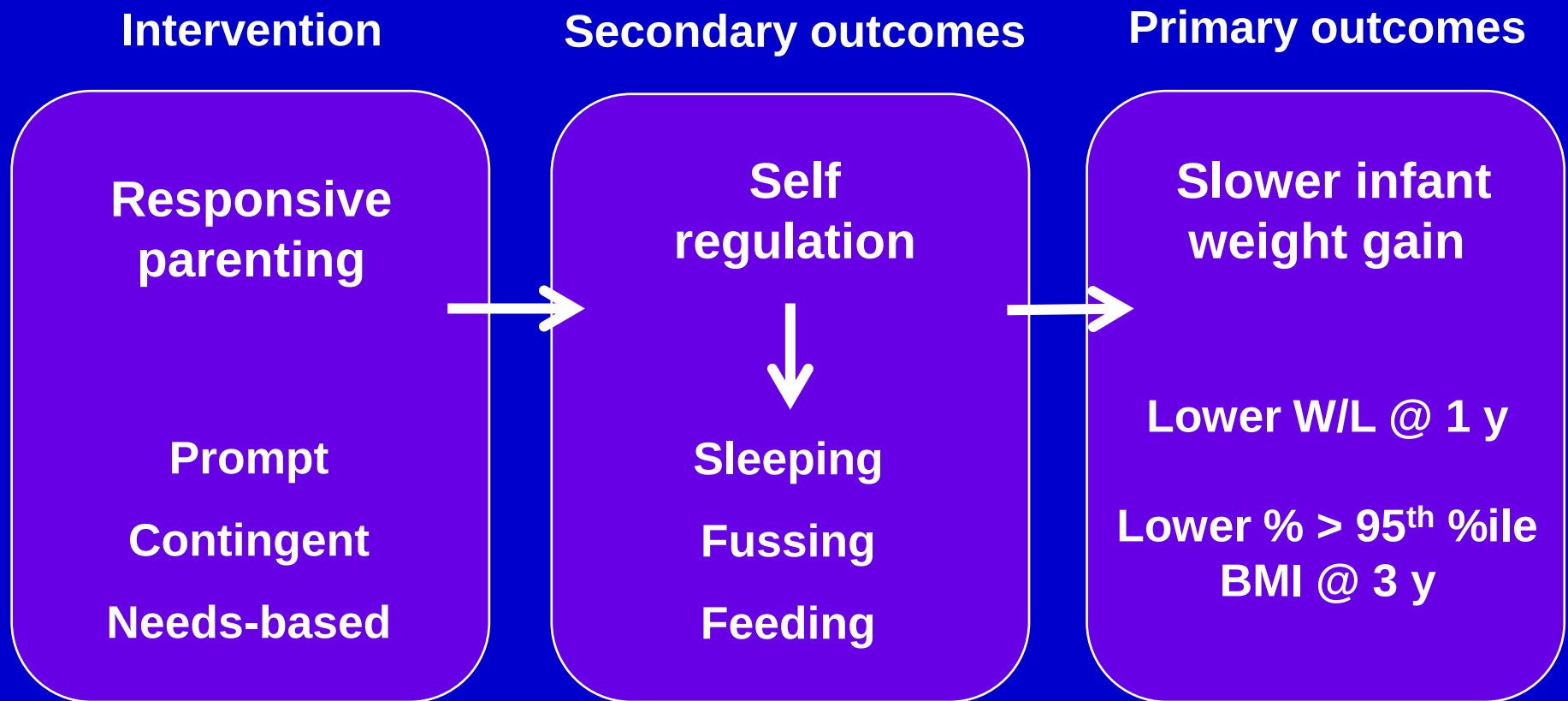
Two RCTs, SLIMTIME, INSIGHT: Can responsive parenting reduce obesity risk in infancy?*

- RCTs with first-time mothers and infants
 - SLIMTIME (N= 160) 2x2 design, 2 home visits, 1 y outcome
 - INSIGHT (N=279) 2 arm RCT, 4 home visits 1st y, 1, 3 y outcomes
- Primary outcomes:
 - weight gain in infancy
 - weight status at 1 y, 3 y
- Secondary outcomes:
 - parenting behaviors
 - sleep duration, night feedings
 - feeding-to-soothe
 - “finishing the bottle”
 - infant emotion regulation

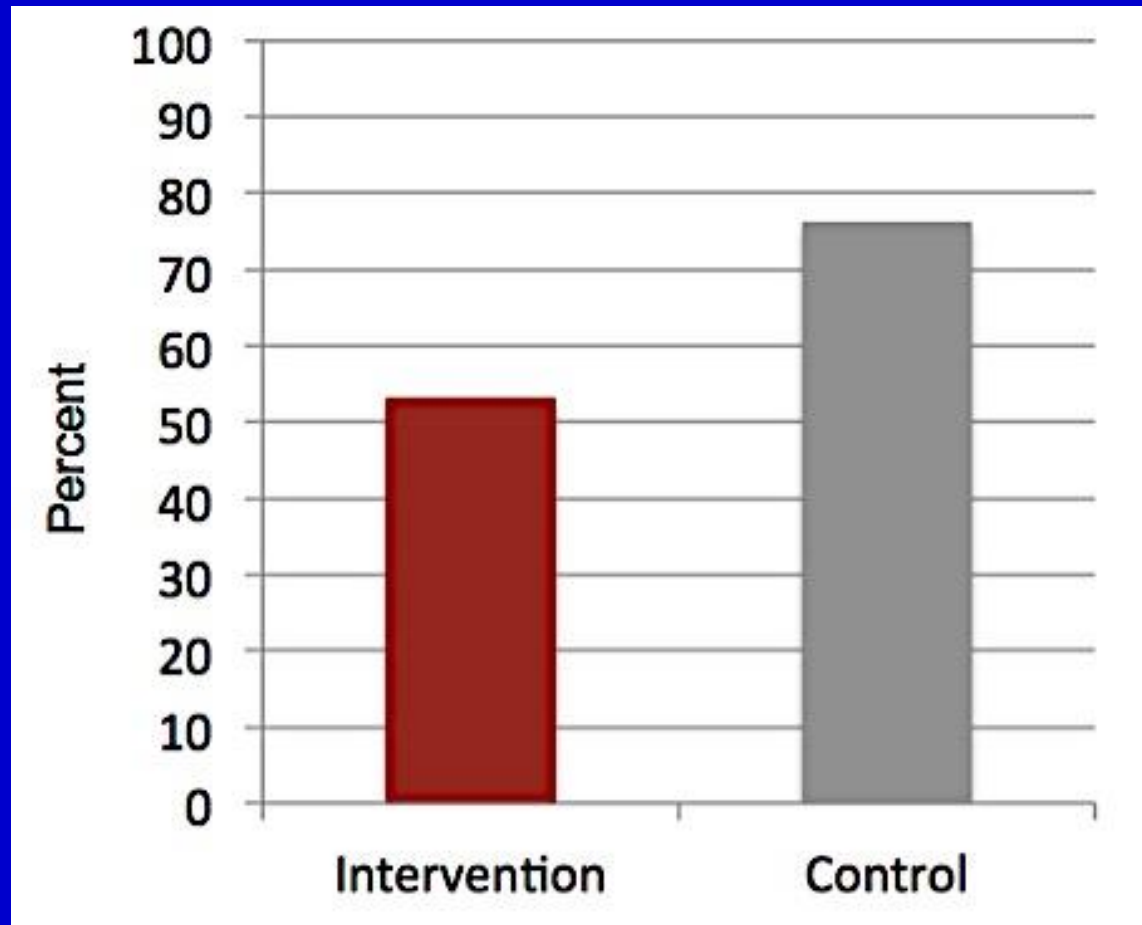


*Paul et al. Obesity 2012; Paul et al. BMC Peds, 2014;
Savage et al. Pediatric Academic Society, 2015
supported by NIDDK

Teaching responsive parenting to prevent obesity: Findings from SLIMTIME, INSIGHT

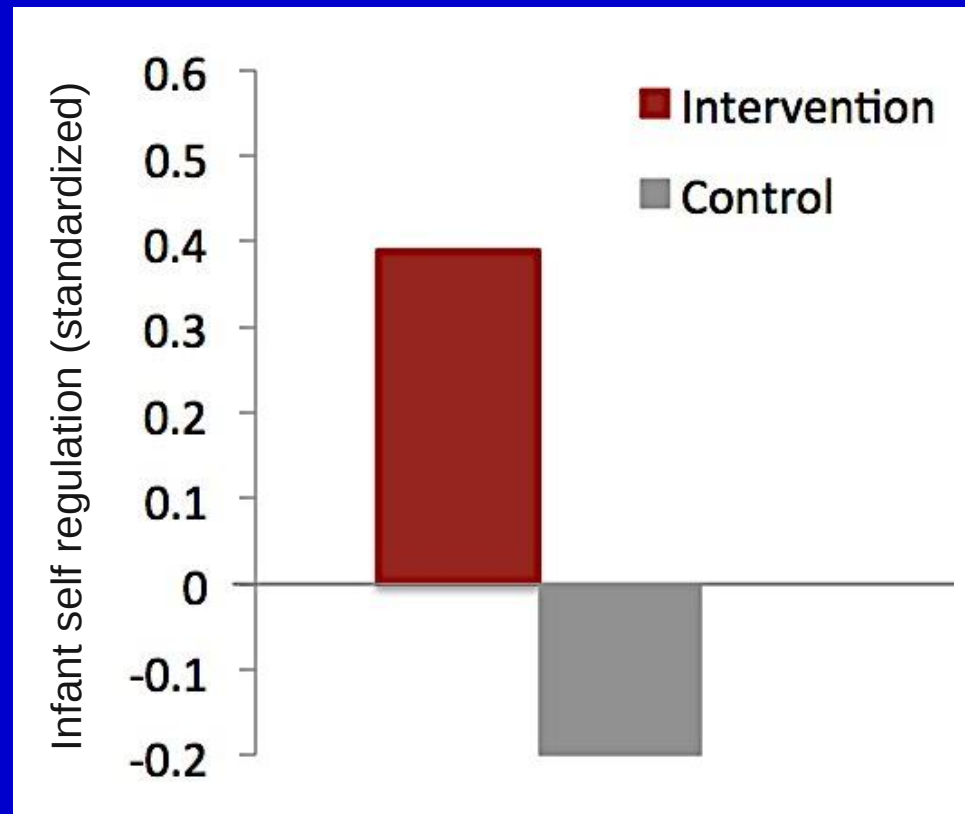


SLIMTIME: Mothers in intervention less likely to encourage infants to “finish the bottle”

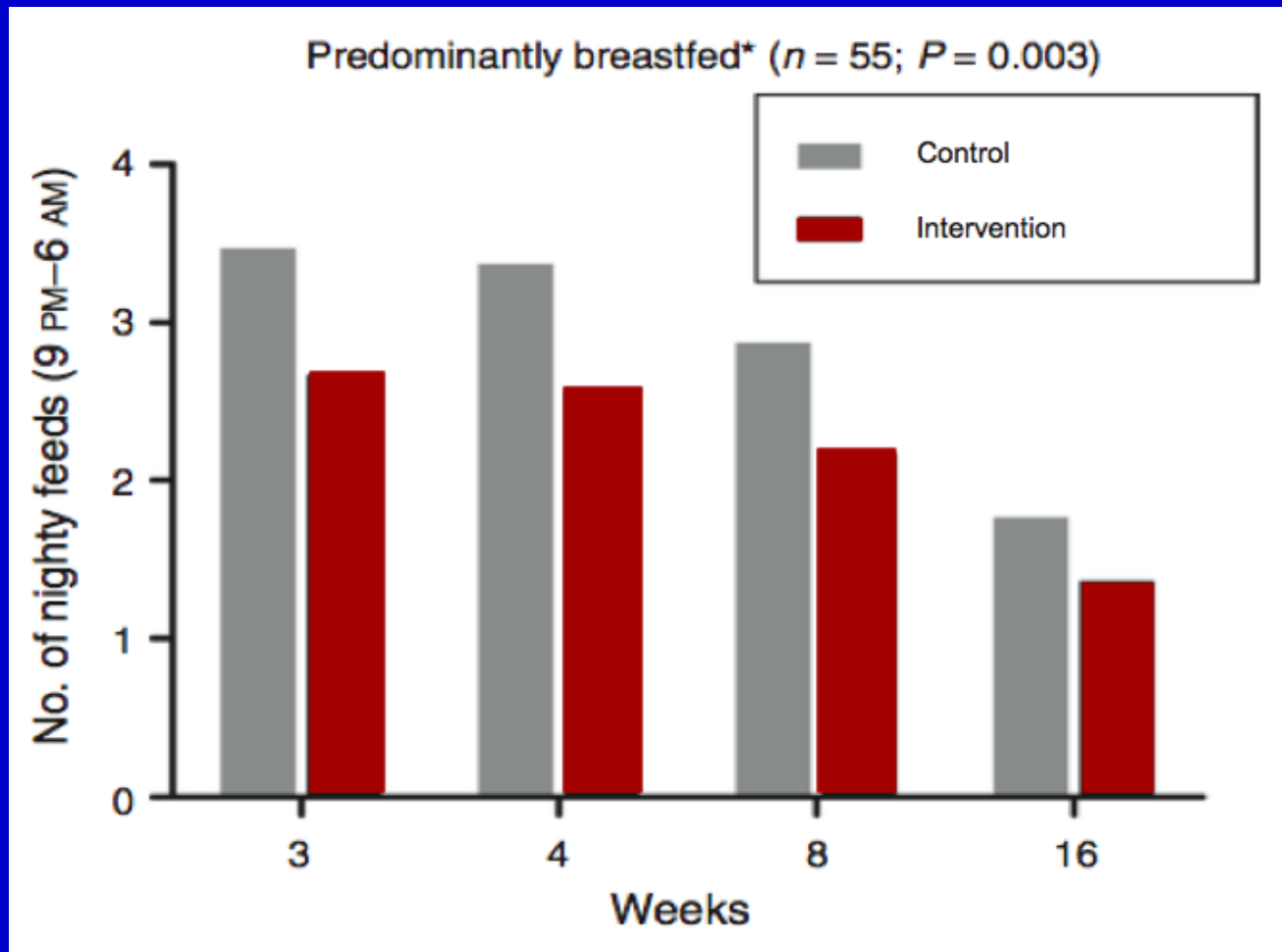


SLIMTIME: Parenting intervention infants were better able to regulate their negative emotions*

- Compared to control, parenting infants were better able to recover from being upset, fussing, crying during a toy removal task

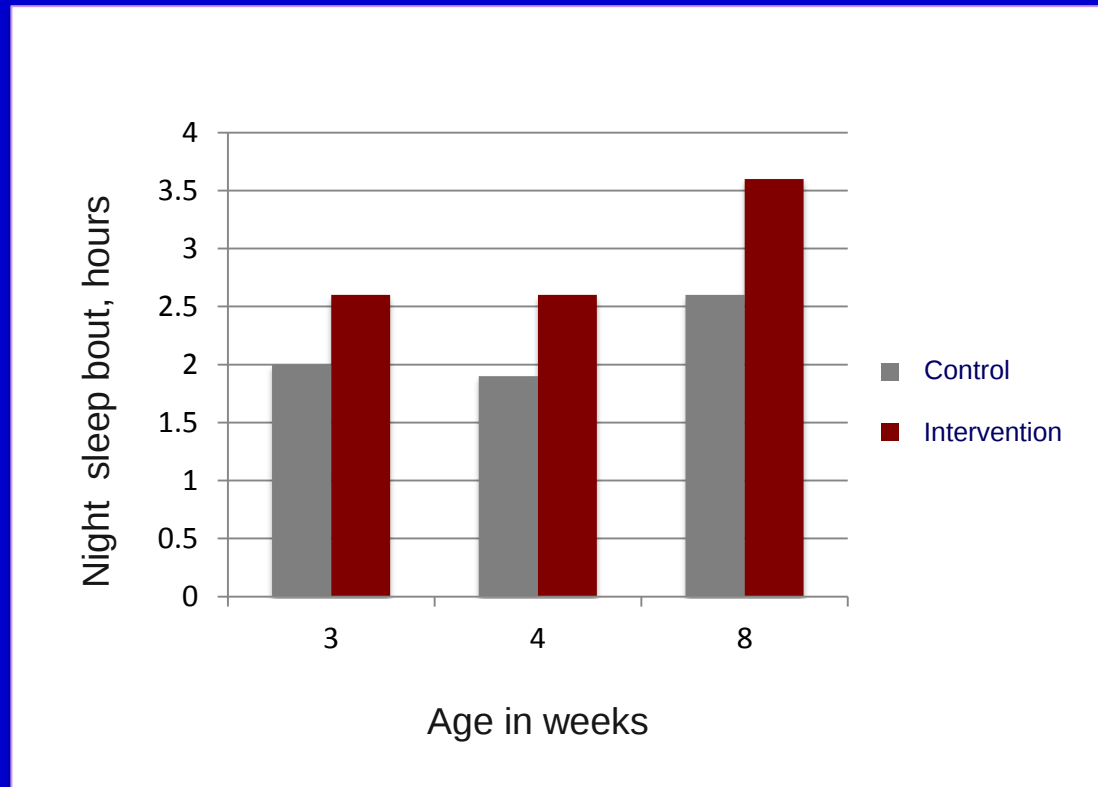


SLIMTIME: Infants in parenting intervention took fewer nighttime feedings*



*Paul et al., *Obesity*, 2012

SLIMTIME: Infants in parenting intervention slept longer at night vs. controls*



Longer sleep duration is associated with lower obesity risk

Weight-for-length at 1 y lower in infants receiving both SLIMTIME intervention components*

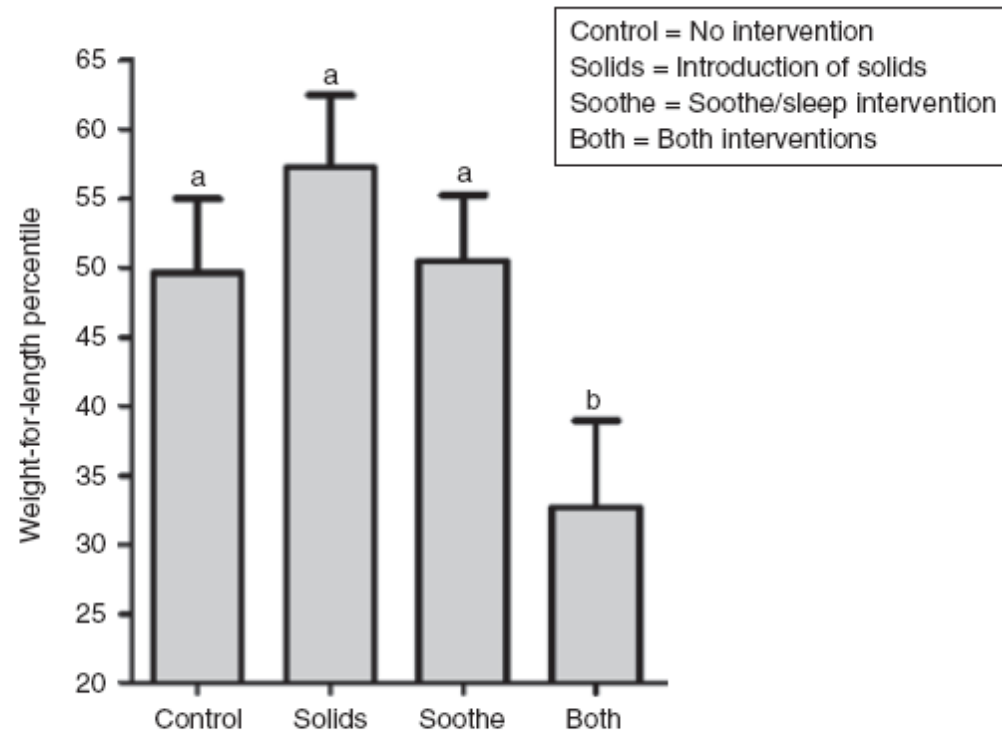


Figure 1 Study group weight-for-length percentiles at 1 year (both interventions group vs. other three groups; $P = 0.009$).



INSIGHT: RCT responsive parenting vs safety control

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

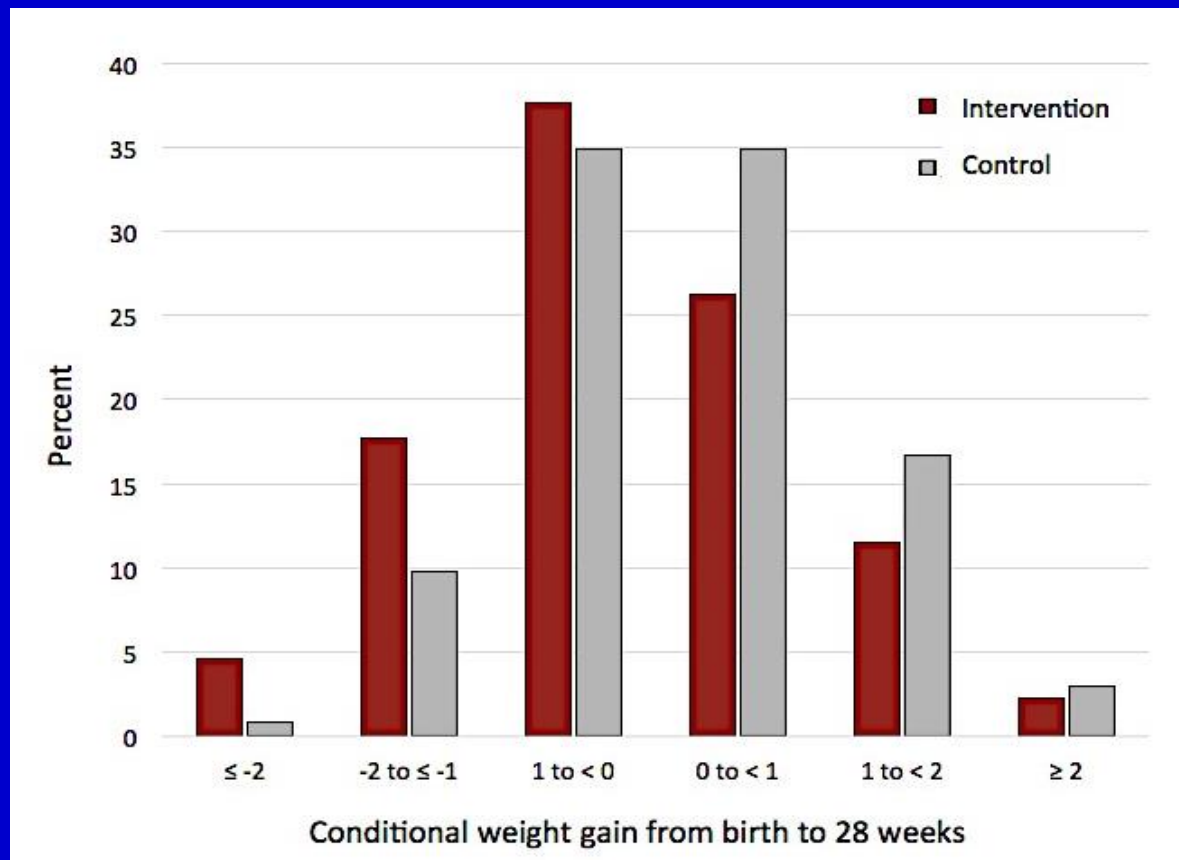


Main responsive parenting intervention themes:

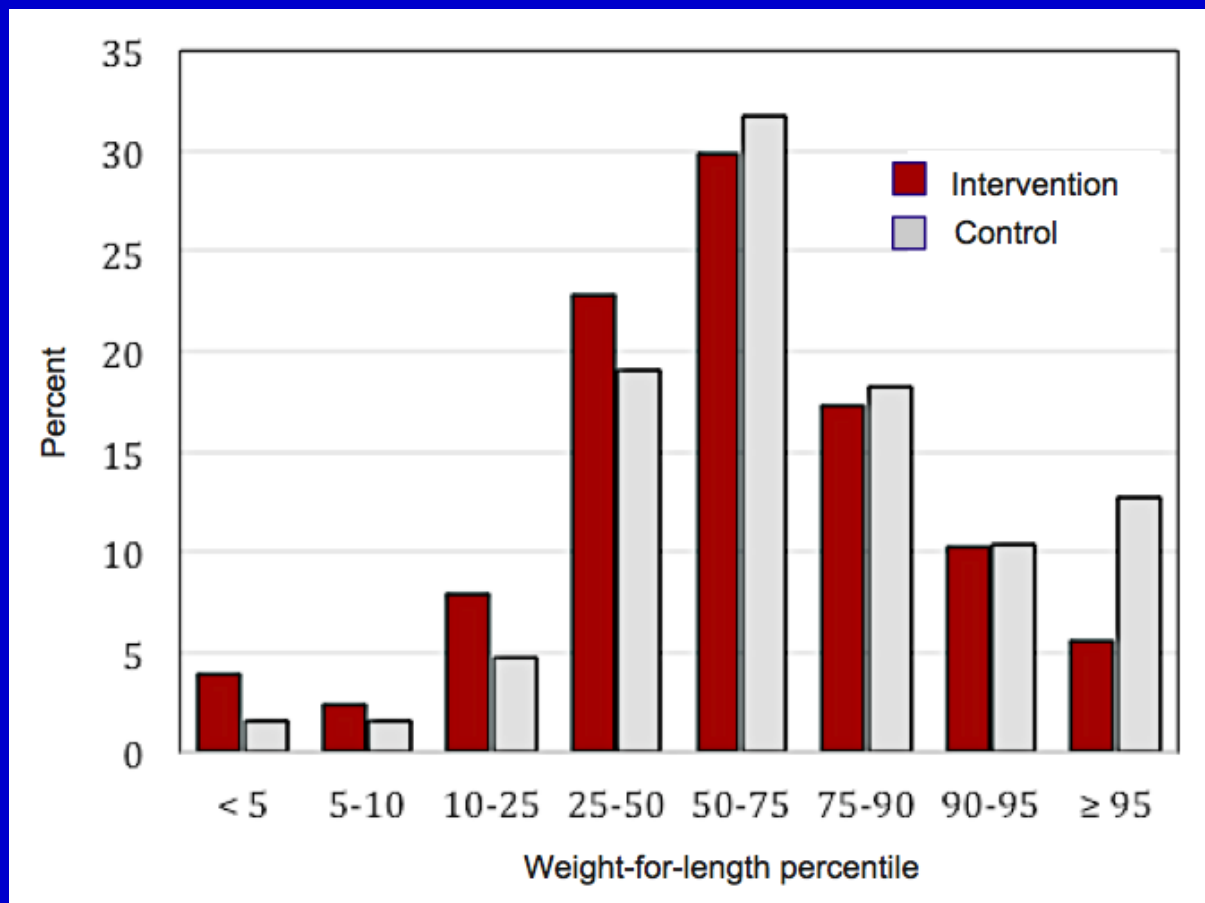
- Recognition and appropriate response to infant hunger and fullness cues
- Alternatives to feeding in order to soothe infant
- Promoting adequate sleep, self-soothing, “settling”
- Developmentally appropriate introduction of solid foods and portion sizes

INSIGHT: Infants in parenting intervention have less rapid weight gain* from birth to 28 weeks*

Based on conditional weight gain (CWG), with mean of 0
CWG score >0 = faster weight gain; <0 = slower weight gain



INSIGHT: Infants in parenting intervention had lower weight-for-length percentiles at age 1 y*



*Kolmogorov Smirnov Two-Sample Test $p < 0.01$;
Savage et al. presented at PAS meeting, 2015; *In Preparation*, 2015

Responsive parenting intervention efficacious: Infant behavior, growth, weight outcomes

- Less feeding to soothe, bottle emptying
 - Longer night sleep duration & fewer night feedings
 - More self-soothing, regulation of negative emotion
 - Less rapid weight gain and lower weight status at 1 year
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- Collateral benefits on other aspects of child development?
 - Generalizability to higher risk samples?
 - More resource efficient, effective designs?
 - Dose? Timing? Mode of intervention delivery?
 - Longer term effects?



Parenting infants less likely to experience faster weight gain than safety control*

