The Society for Clinical Child and Adolescent Psychology (SCCAP): Initiative for Dissemination of Evidence-based Treatments for Childhood and Adolescent Mental Health Problems

With additional support from Florida International University and The Children's Trust.

SOCIETY OF CLINICAL CHILD & ADOLESCENT PSYCHOLOGY

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Keynote Overview

Evidence-Based Psychosocial Interventions for Pediatric Obesity

David Janicke, Ph.D.
Associate Professor of Clinical and Health Psychology
University of Florida

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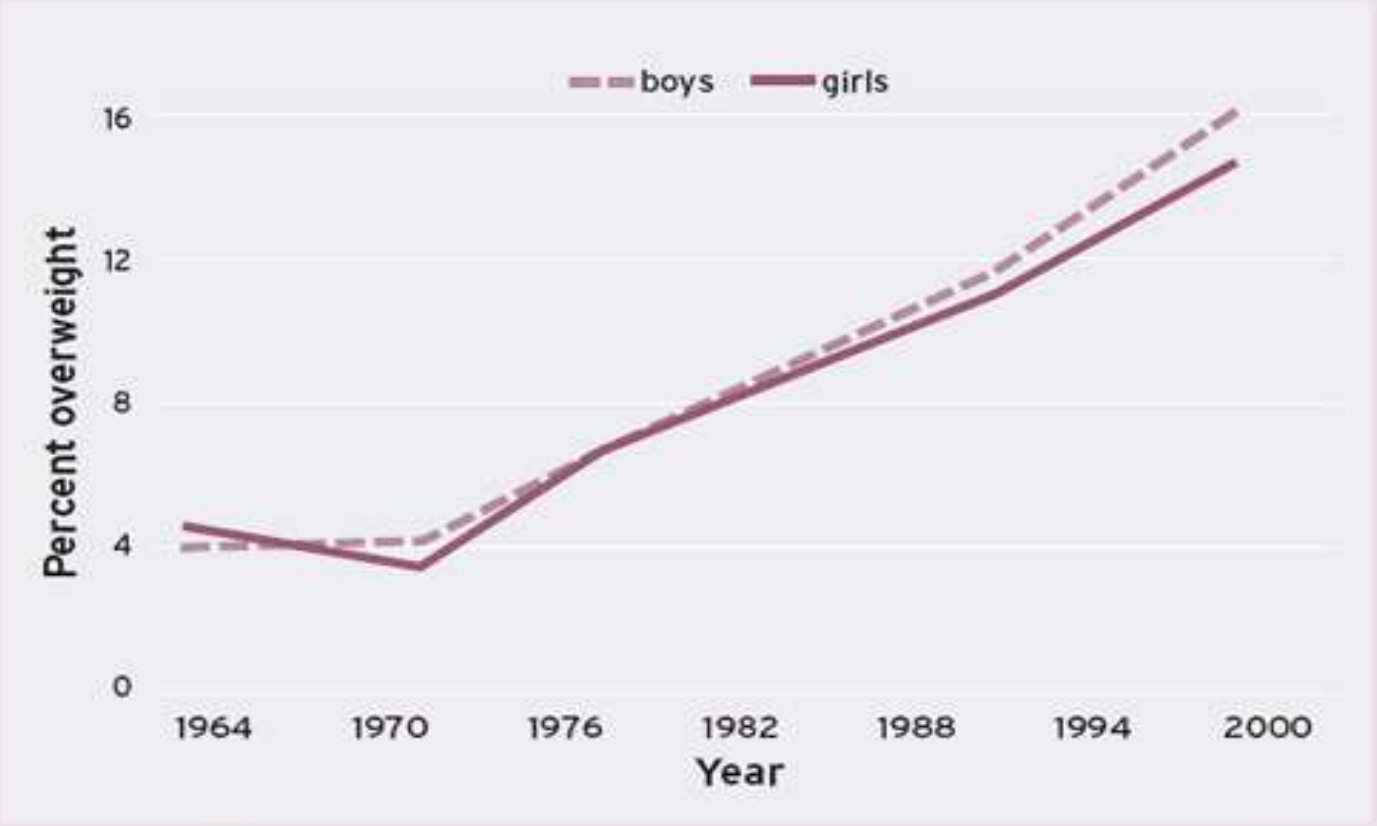
Outline

- Review background information on pediatric obesity
- Describe lifestyle and behavioral interventions for pediatric obesity
- Review the evidence base for these interventions
- Future directions for intervention research

Conflict of interests: None

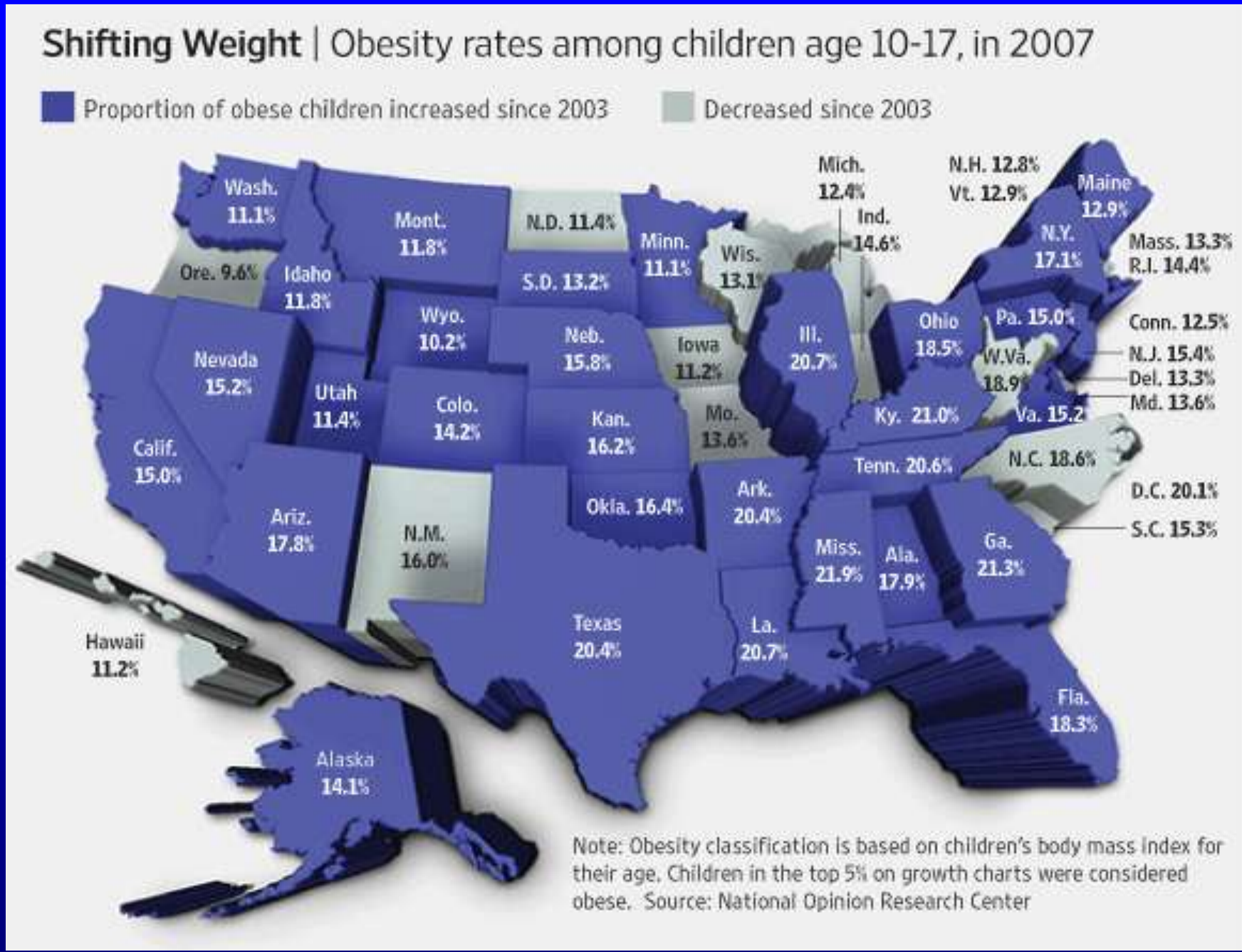
The Plumpening (Figure 1)

Since the early 1960s, the percentage of overweight children ages 6 to 11 has almost quadrupled.



Note: According to the Centers for Disease Control (CDC), an "overweight" individual has a body mass index (BMI) at or above the 95th percentile of the CDC's sex-specific BMI growth chart. The point estimates on the graph are the result of surveys administered in five time periods: 1963-65, 1971-74, 1976-80, 1988-94, and 1999-2000.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, "Health, United States, 2003"


Shifting Weight | Obesity rates among children age 10-17, in 2007
Proportion of obese children increased since 2003
Decreased since 2003
Wash. 11.1%
Ore. 9.6%
Calif. 15.0%
Idaho 11.8%
Nevada 15.2%
Mont. 11.8%
Wyo. 10.2%
Utah 11.4%
Ariz. 17.8%
Colo. 14.2%
N.M. 16.0%
N.D. 11.4%
S.D. 13.2%
Neb. 15.8%
Kan. 16.2%
Okla. 16.4%
Texas 20.4%
Minn. 11.1%
Iowa 11.2%
Mo. 13.6%
Ark. 20.4%
La. 20.7%
Wis. 13.1%
Ill. 20.7%
Mich. 12.4%
Ind. 14.6%
Ohio 18.5%
Ky. 21.0%
Tenn. 20.6%
Miss. 21.9%
Ala. 17.9%
Ga. 21.3%
Fla. 18.3%
N.C. 18.6%
S.C. 15.3%
Va. 15.2
W.Va. 18.9%
Pa. 15.0%
N.Y. 17.1%
N.H. 12.8%
Vt. 12.9%
Maine 12.9%
Mass. 13.3%
R.I. 14.4%
Conn. 12.5%
N.J. 15.4%
Del. 13.3%
Md. 13.6%
D.C. 20.1%
Hawaii 11.2%
Alaska 14.1%
Note: Obesity classification is based on children's body mass index for their age. Children in the top 5% on growth charts were considered obese. Source: National Opinion Research Center

Prevalence

- 2009-2010 data (Ogden et al ., 2012)
  - **16.7% are obese**
  - **31.8% are overweight or obese**
- No upward trend from 2000-2010
  - Slight increase for males (18.6%), but not females (15.0%)
- Higher rates for African American & Hispanic Youth
  - 14.0% of Caucasian youth
  - 21.2% of Hispanic youth
  - 24.3% of African American youth

Ogden et al (2012). Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. *JAMA, 307,* 483-490.

Definition

- BMI = body mass index = kg / meters^2
  - It is an estimate of body fat/adiposity
- Adults use strict BMI cutoffs
  - Obese = BMI 30+
  - Overweight = BMI 25 to 30
- Child categories based on BMI for age and gender
  - Obese = 95th percentile and above
  - Overweight = 85th to 95th percentile

Health Impacts

- Tracks into adulthood
- During childhood & adolescents at greater risk for:
  - Type 2 diabetes
  - Sleep apnea
  - Non-fatty liver disease
  - Orthopedic problems (i.e., Blounts disease)
  - Hypertension, dyslipidemia & abnormalities in coronary arteries

Cook et al (2003). Prevalence of a metabolic syndrome phenotype in adolescents: findings from the third National Health and Nutrition Examination Survey, 1988-1994. *Arch Pediatr Adolesc Med, 157,* 821-827.
Weiss et al (2004). Obesity and the metabolic syndrome in children and adolescents. *N Engl J Med, 350,* 2362-2374.
Whitaker et al (1997). Predicting obesity in young adulthood from childhood and parental obesity. *N Engl J Med, 337,* 869-873.

Psychosocial Impacts

- Are at increased risk for psychosocial problems [1]
  - Lower body image & self-esteem
  - Peer victimization
  - Depressive symptoms
- Important factor is stigmatization [2]

[1]Institute of Medicine (2005). Preventing Childhood Obesity: Health in the Balance
[2]Latner & Stunkard (2003). Getting worse: The stigmatization of obese children. *Obes Res*, *11*, 452-456

Why the Dramatic Increase?

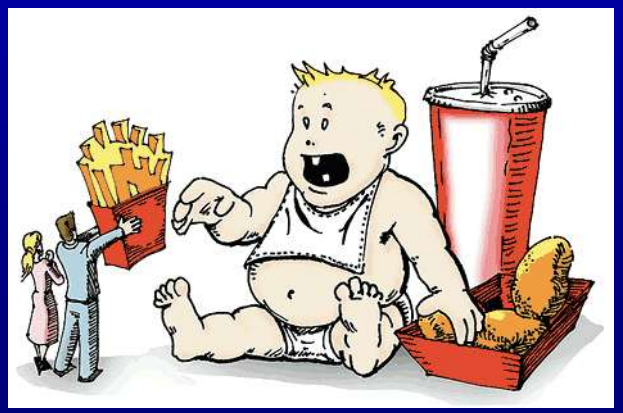
Dietary Intake

- ↑ consumption of, and greater access to, pre-packaged, calorie dense foods anytime, anywhere
- ↑ meals consumed away from home
- ↑ portion size
- ↑ sweetened beverage intake

Spear et al (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120,* s254-s288.

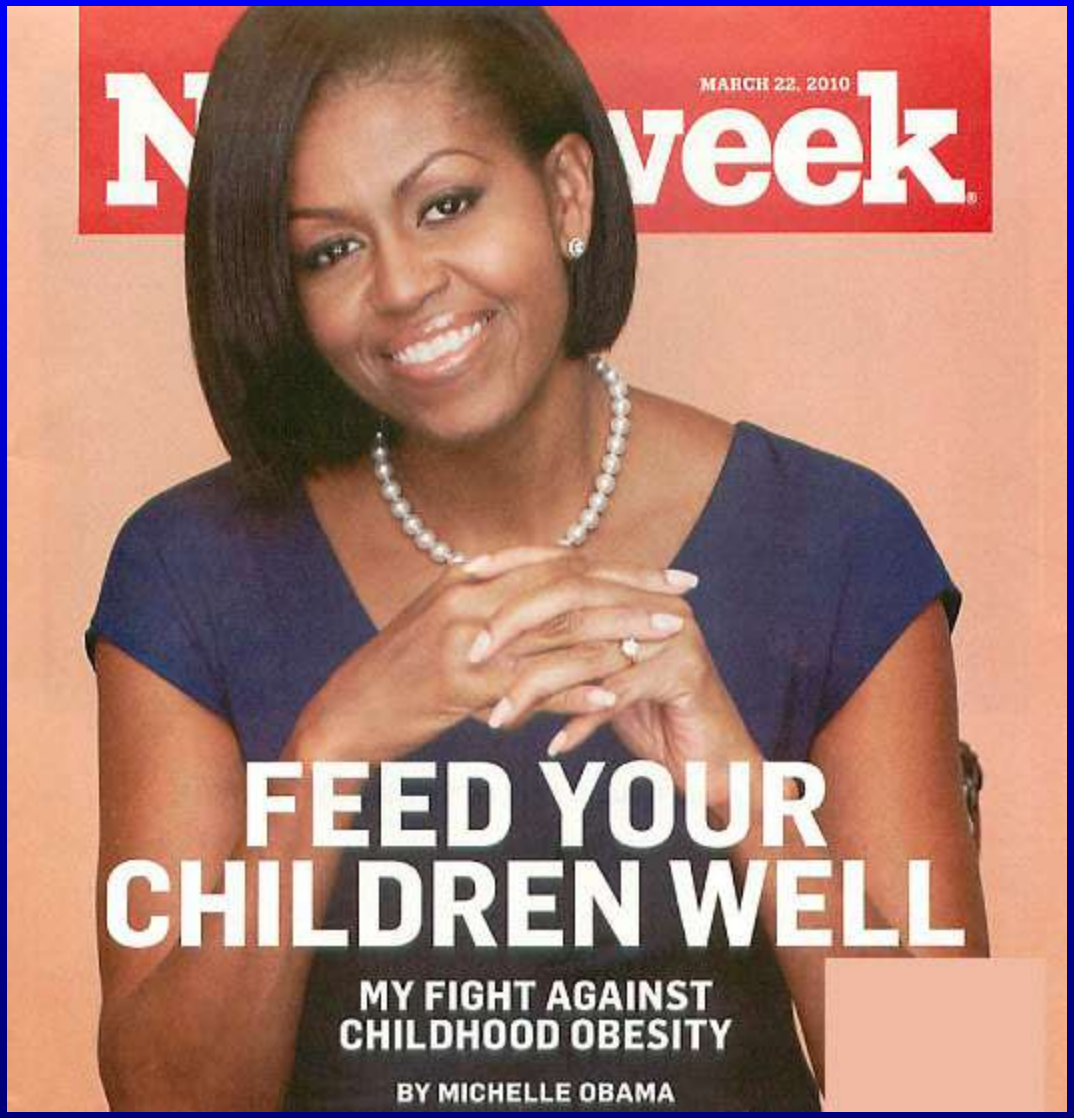
Toxic Environment

- Family environments, marketing and public policies that encourage overeating and inactivity
  - Proliferation of opportunities for sedentary activity
  - Built environment
  - Less time for PA in schools
  - Marketing targeting kids
  - Changes in family lifestyle



Even When We Try…….

Good News


MARCH 22, 2010
veek
FEED YOUR CHILDREN WELL
MY FIGHT AGAINST CHILDHOOD OBESITY
BY MICHELLE OBAMA

Good News

- Improvements in diet and exercise can be effective in reversing some of these problems
- Reductions in weight status => improvements in insulin, fasting glucose, lipid levels, triglycerides, and blood pressure
  - BMIz ↓ of ≥ .15 lead to improvements in *one component* of MS [1]
  - BMIz ↓ of ≥ .50 lead to improvements in *all components* of MS [2]

[1] Kirk et al (2005). The relationship of health outcomes to improvement in BMI in children and adolescents. *Obes Res., 13,* 876-882.
[2] Reinher et al (2009). Lifestyle interventions in obese children is associated with a decrease of the metabolic syndrome prevalence. *Atherosclerosis, 207,* 174-180.

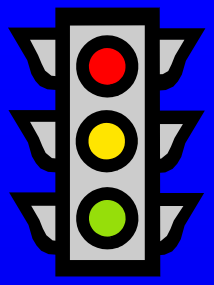
Ecological Model

Taken from http://www.balancedweightmanagement.com/TheSocio-EcologicalModel.htm

Comprehensive Behavioral Family Lifestyle Interventions

- Multi-component programs
  - Education & counseling
    - Nutrition
    - Physical activity
    - Behavioral strategies
- Group or individual format
- Usually include child and parent in treatment
- In-session physical activity component
- Vary in duration and intensity

Dietary Change



- Education on well-balance diet & food preparation
  - USDA's MyPlate guidelines[1], portion sizes, nutrition labels, eating breakfast, encouraging family meals, limiting meals away from home[2]
- Stoplight or Traffic Light system[3]
  - Categorize as Green, Yellow, and Red based on nutrient content
- Reduce caloric intake
  - Balanced deficit diet (for example caloric intake of 1200-1500)
  - Substitute Green & Yellow foods for Red foods
- More streamlined dietary targets
  - Increase fruits, vegetables, or fiber
  - Decrease intake of sweetened beverages

[1]http://www.choosemyplate.gov

[2]Spear et al (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120*, s254-s288.

[3]Epstein & Squires (1988). The Stoplight Diet for Children. Little, Brown and Company, Boston, MA.

Physical Activity

- Children should get 60 minutes per day of moderate PA
- Target increase physical activity through lifestyle and play
  - Set objective goals
  - Increase opportunities for high value new activities
    - Structured aerobic activities, organized sports
    - Dance, interactive movement-based video games
    - Family activities, lifestyle activities
- Target decrease in screen time

Spear et al (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120,* s254-s288.

Behavior Change Strategies

- Self-monitoring
- Define target behaviors
- Goal setting
- Positive parenting
- Stimulus control
- Modeling

Other Critical Features

- Assessing goal achievement and barriers to change; revising plans as necessary
- Integrate various behavioral components as necessary throughout the program
- Support from interventionists and other participants
- Address emotional and social issues
- Making it positive and fun!!

Commonly Used Methods for Reporting Weight Status

- Weight
- BMI
- BMI z
- Percentage Overweight

Weight Maintenance vs. Weight Loss

- As children grow, maintenance of weight while growth in height will lead to a decrease in BMI
- Weight maintenance often is the initial goal
  - If lack of treatment success, weight loss may be recommended
- When weight loss is encouraged, should not exceed:
  - 1 lb/month for children 2 to 5 yrs
  - 2 lbs/week for obese older children and adolescents

Spear et al (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120,* s254-s288.

Individual Studies

Epstein's Series of Studies

- Six month comprehensive behavioral program
- Children & parents attend simultaneous but separate groups
- Stoplight diet
  - Self-monitoring, goal setting, & other behavioral strategies
  - Targeted calorie intake of 1200-1500 calories/day
  - Green foods $\geq$ 40/wk; Red foods $\leq$ 15 wk
- Physical activity & sedentary activity change
- Targeted parents for change

[1]Epstein et al (2007). Family-based obesity treatment, then and now: Twenty-five year of pediatric obesity treatment. *Health Psychology, 26,* 381-391

[2]Epstein et al (1994). Ten-year outcomes of behavioral family-based treatment for childhood obesity. *Health Psychology, 13,* 373-383

Epstein's Series of Studies

- General effect sizes:

6 months	= -1.20	60 months	= -0.55
12 months	= -1.02	120 months	= -0.67
24 month	= -0.82		

- At 10 year follow-ups:
  - 34% of participants decreased percentage overweight by 20%
  - Roughly 30% were no longer obese
- Younger children showed larger change up to 24 months
- Girls benefited more than boys over long-term

Epstein et al (2007). Family-based obesity treatment, then and now: Twenty-five year of pediatric obesity treatment. *Health Psychology*, *26*, 381-391
Epstein et al (1994). Ten-year outcomes of behavioral family-based treatment for childhood obesity. *Health Psychology*, *13*, 373-383

Savoye et al (2007 & 2011)

- Bright Bodies Program (Yale Pediatric Obesity Clinic)
- 174 children 8 -16 yrs (above 95th %) – Diverse sample
- BB group treatment included 98 hours of contact
  - Educational meetings (wkly for first 6 mos; bi-wkly for next 6 mos)
  - 50 minute exercise sessions 2x/week for first 6 mos; 2x/month for last 6 mos
  - Facilitated by dietician or social worker, and an exercise physiologist
- Control kids seen in clinic 1x every 6 months for dietary counseling

Savoye et al (2007). Effects of a weight management program on body composition and metabolic parameters in overweight children. *JAMA, 297,* 2697-2704.
Savoye et al (2011). Long-term results of an obesity program in an ethnically diverse pediatric population. *Pediatrics, 127,* 402-410.

Savoye et al (2007 & 2011)

- Results at 12 months
  - 71.4% in BB vs 63.8% in controls completed assessment
  - BMI: -1.7 for BB vs +1.6 increase for controls ($p < .001$)
  - Significant improvements in body fat, cholesterol & insulin for BB youth
  - No differences in blood pressure, glucose, and HDL or LDL cholesterol

- Results at 24 months
  - 42.9% in BB vs 44.9% in controls completed assessment
  - BMI: -0.9 for BB vs +1.9 increase for controls ($p < .001$)
  - Also improvements in Total & LDL cholesterol, & insulin resistance for youth in BB

Savoye et al (2007). Effects of a weight management program on body composition and metabolic parameters in overweight children. *JAMA, 297*, 2697-2704.
Savoye et al (2011). Long-term results of an obesity program in an ethnically diverse pediatric population. *Pediatrics, 127*, 402-410.

Wilfley et al (2007)

- 148 children (ages 7 -12 yrs), 20% to 100% overweight
- All received a 5 month behavioral family intervention
  - Exhibited mean change in BMIz = - 0.22
- Randomized to 1 of 3 maintenance treatments (4 months) (n = 148)
  - Behavior Skills (BSM) - specific weight maintenances skills
  - Social Facilitation (SFM) - social skills and support
  - Control
- Results at 24 months (used intent-to-treat analysis)
  - BSM & SFM not differ at any time point
  - Pooled BSM/SFM lead to greater decrease in wt outcomes at 9 mos vs controls
  - No significant differences at 1-Yr and 2-Yr follow-ups
  - Baseline social skills moderated 2-yr outcomes

Wilfley et al (2007). Efficacy of Maintenance Treatment Approaches for Childhood Overweight: A RCT. *JAMA, 298,* 1661-1673.

Jelalian et al (2010)

- 118 overweight adolescents (ages 13 – 16 yrs) and parent(s)
- Randomized to CBT + Aerobic Ex OR CBT + Adventure Therapy
  - Sixteen 1-hour wkly education sessions + 4 bi-wkly maintenances sessions
    - Balanced deficit diet (1400-1600 calories) and gradual increase in PA to 60 minutes/day
    - Behavioral topics (self-monitoring, motivation for weight loss, goal setting, stimulus control)
  - Weekly 60-minute activity sessions (Aerobic EX or ADV-Therapy)
    - Adv Therapy: Outward Bound activities consisting of physical & mental challenges to develop social skills, problem-solving abilities, & self-confidence
    - Aerobic Exer: Use of treadmills, stationary bicycles, dance videos, brisk walking and other aerobic activities within the clinic setting.
- Results
  - Significant decrease of roughly 1 BMI unit for both groups at month 12

Jelalian et al (2010). Behavioral Weight Control Treatment with Supervised Exercise or Peer-Enhanced Adventure for Overweight Adolescents. *J of Peds, 157,* 923-8

Meta-Analysis and Systematic Reviews

Reviews, Meta-Analysis & Position Papers

- Jelalian & Saelens (1999) – SR
- Summerbell et al (2003) – Cochrane Database
- Snethen et al (2006) – MA
- Young et al (2006) – MA
- American Dietetic Association (2006) – PP
- McGovern et al (2008) – MA
- Seo et al (2010) - MA
- Faith et al (2012) - PP

MA = Meta-Analysis; SR = Systematic Review; PP = Position Paper/Statement

Wilfley et al (2007)

- Meta-analysis of 14 RCTs from 1976 to 2004
- Inclusion criteria
  - RCT of lifestyle interventions; duration $\geq$ 4 weeks
  - Treatment of overweight/obese youth; age $\leq$ 18 years
- Results
  - Treatment duration ranged from 9 wks to 77 wks
  - Timing of follow-up (1 month to 5 years); attrition (5% to 46%)
  - ES ranged from .48 -.75 at post-tx and .60 -.91 at follow-up
- Conclusions
  - No moderator effects (age, gender)
  - Trend for more powerful effects with longer treatment
  - Decrease in ES as follow-up was further removed from baseline

Wilfley et al (2007). Lifestyle interventions in the treatment of childhood overweight: A meta-analytic review of RCTs. *Health Psychology, 26*, 521-532.

Kitzmann et al (2010)

- Meta-analysis of 66 lifestyle intervention studies: 1965 to 2004
- Inclusion criteria
  - RCTs examining treatment of overweight/obesity in youth ≤ 18 yrs
  - No requirement for length of treatment
  - No indication of requirement for intent-to-treat analysis
- Results
  - Overall ES at post-treatment (ES = 0.41)
  - At follow-up (n = 11), small ES = 0.22
  - Parent involvement associated with greater effect sizes
    - Larger ES when parents educated about nutrition and food preparation
    - ES 3x larger when parent training in behavior management
    - No difference based on if parents were targeted for weight loss

Kitzmann et al (2010). Lifestyle interventions for youth who are overweight: A meta-analytic review. *Health Psychology, 29,* 91-101.

Cochrane Review (2010)

- Included 54 studies on lifestyle interventions (1985-2008)
  - General impressions
    - Many studies showed positive effects on adiposity
    - Parent involvement very beneficial, especially with younger children
    - No evidence of adverse effects
  - Treatment duration ≥ 6 months; intent-to-treat analysis
  - Results of meta-analysis on multi-component behavioral interventions:
    - Age < 12 yrs: 4 studies of behavioral interventions.
      ES = -0.06 at 6 months. Not maintained at 12 or 24 mos.
    - Age > 12 yrs: 3 studies of behavioral interventions.
      ES = -0.14 at 6 months; Maintained at 12 months
  - Insufficient dietary & PA treatment studies to conduct meta-analysis

Oude Luttikuis et al (2009). Interventions for treating of childhood obesity. The Cochrane Collaboration, 2009.

US Preventive Services Task Force (2010)

- Systematic review of behavioral weight management interventions
- 11 high quality studies (4-18 yrs of age) (most published since 2005)
  - At 6-12 months change in weight status was modest with differences between BI & control youth ranging from 0.3 to 3.3 BMI units.
    - Three comprehensive programs of mod/high intensity resulted in BMI differences of 1.9 to 3.3 between groups
    - For 8 yr old boy/girl => 13 lb difference
    - 12 yr old boy/girl => 17-18 lb difference
  - Evidence of ↑ insulin resistance in med/high-intensity comprehensive tx
  - No evidence of adverse effects (i.e., slowed growth, eating disorders)

Whitlock et al (2010). Effectiveness of weight management interventions in children: A targeted systematic review for the USPSTF. *Pediatrics*, *125*, e396-418.

US Preventive Services Task Force (2010)

- Assigned evidence category of "**Grade B**"

  "…..Adequate evidence that multi-component, moderate- to high-intensity behavioral interventions (> 25 hours in 6 months) for obese children and adolescents aged 6 years and older can effectively yield short-term (up to 12 months) improvements in weight status."

USPSTF (2010). Screening for Obesity in Children and Adolescents: USPSTF Recommendation Statement. *Pediatrics, 125,* 361-368.

Conclusions

- Data supports short-term efficacy of lifestyle interventions in ages 6+ yrs
- Best improvements in comprehensive, high-intensity, behavioral programs
- Longer treatments associated with greater improvements
- Parent involvement is beneficial, most notably in younger children

Conclusions

- Some evidence of clinically significant improvements
- Little, if any, evidence of adverse effects
- Less than optimal generalizability
  - Many studies in specialty obesity clinics, with moderate-to-high intensity treatment
  - Highly trained interventionists
  - Mostly Caucasian participants
  - Degree of obesity


PAST
FUTURE

Translation and Dissemination to Real World Settings

- "One of the greatest challenges facing health promotion and disease prevention is translating research findings into evidence-based public health and clinical practices."[1]

- "RCTs in real world settings are extremely valuable but much too rare…… now is the time for more solution-oriented intervention studies in real-world community settings."[2]

[1]Kerner et al (2005). Introduction to the special section on dissemination: Dissemination research and research dissemination: How can we close the gap? *Health Psychology*, *24*, 443-446.

[2]Robinson et al. (1999). Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA, 297,* 2697-2704.

Translation and Dissemination to Real World Settings

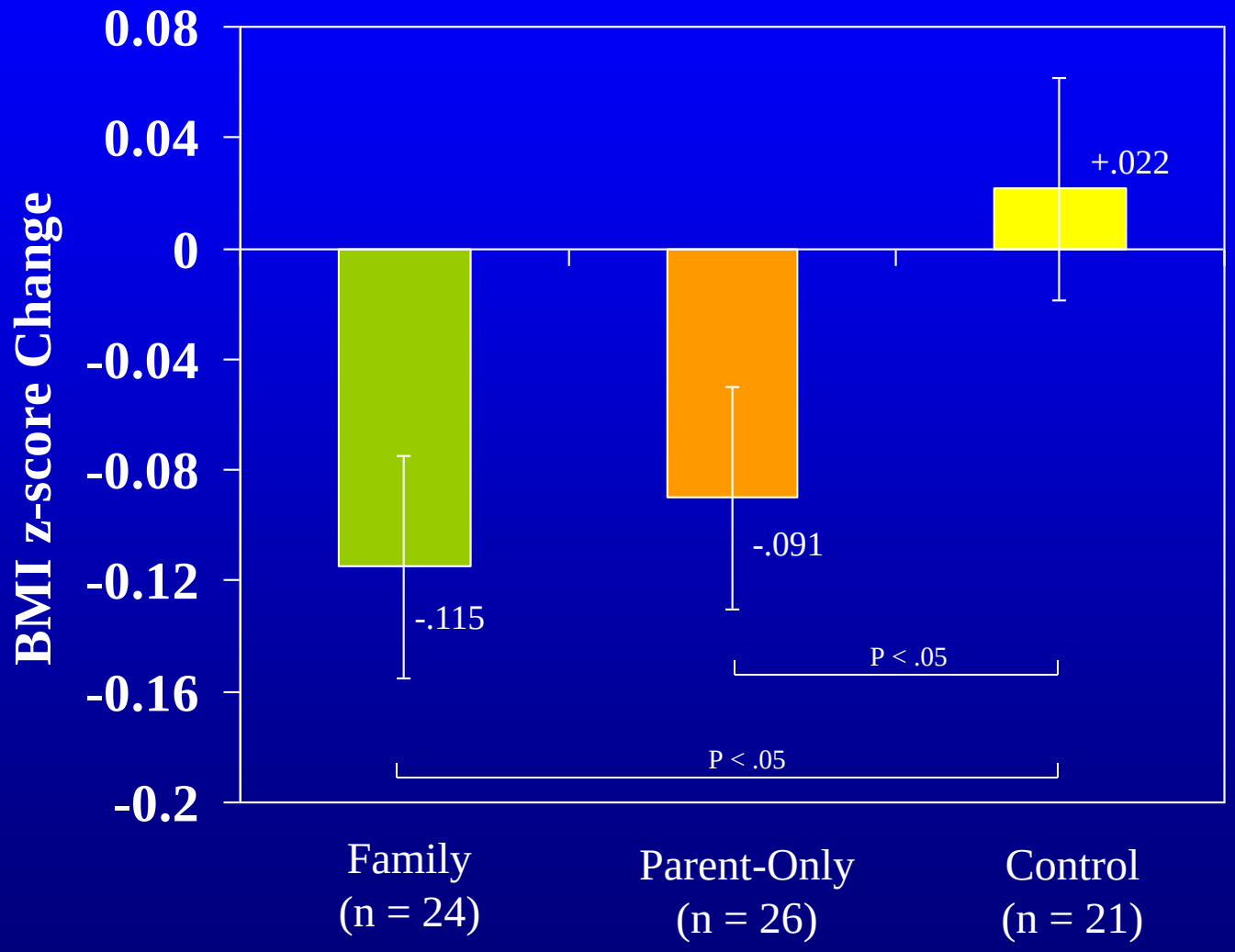
- Balance the needed intensity and duration of treatment contacts with what providers and participants can do in real world settings
- Need RCTs in delivery settings and/or using modes of patient contact that are accessible and sustainable
- Interventionists with diverse skills set and how to best train them
- More RCTs with economically and racially diverse participants
- Can effectiveness be maintained with larger trials

Project STORY

- Funded by NIDDK Planning Grant for Translational Research
- Intervention delivered to overweight/obese youth in rural settings at Cooperative Extension Service offices
  - Ages 8 to 14 who were overweight or obese
- Randomized to 1 of 3 conditions:
  - Behavior Family, Behavior Parent-Only, and waitlist control
- Treatment included 12 sessions over 16 weeks

Funded by NIDDK Grant (R34 DK071555) for Planning Grants for Translational Research for the Prevention and Control of Diabetes and Obesity

BMI z-score Change (Pre-Treatment to Month 10)



Janicke et al (2008). Comparison of Parent-Only versus Family-Based Interventions for Overweight Children in Underserved Rural Settings: Outcomes from Project STORY. *Archives of Pediatrics and Adolescent Medicine, 162,* 1119-1125.

Primary Care-Based Interventions
(Saelens et al, 2002)

- 44 adolescents (20% to 100% overweight)
- Healthy Habits treatment (HH)
  - Computerized assessment of lifestyle behaviors that generated action plan
  - One physician counseling session to review and finalize action plan
  - One meeting with PI to introduce self-monitoring
  - Weekly phone counseling for 4 months to facilitate behavior change
    - Modified stop light system to set goal of 1200 to 1500 calories/wk
    - 60 minutes of moderate PA 5 of 7 days/week
- Results
  - HH youth exhibited BMIz Δ of -0.05 vs +0.06 for control at post-tx ($p<.02$)
  - Similar, but non-significant differences at 3 month follow-up

Saelens et al (2002). Behavioral weight control for overweight adolescents initiated in primary care. *Obesity Research, 10,* 22-32.

Targeting Preschool-Aged Youth

- LAUNCH Project (Stark et al., 2011)
- 18 children (2-5 yrs), above 95th percentile of BMI
- Treatment
  - 12 weekly core intervention visits
    - Alternate between group meetings and individual home visits
    - Addressing dietary intake, screen time, physical activity & behavior strategies
    - Focuses first on breakfast, then lunch, dinner, & snack.
    - Given 14 day supply of vegetables at each group session; food exposures
- Results
  - Significant differences in BMI-z:
    - 6 months tx = −0.49 (0.36) vs
      control = +0.10 (0.32)
- Follow-up R01 is on-going

Stark et al (2011). A Pilot RCT of a Clinic and Home-Based Behavioral Intervention to Decrease Obesity in Preschoolers. *Obesity, 19,* 131-141.

School-Based Interventions

- Planet Health (Gortmaker et al., 1999)
  - 2-yr program integrated into school curricula for 6th & 7th graders
  - Goals to decrease TV time & intake of high-fat foods; increase FV and PA
  - Prevalence of obesity in girls decreased from 23.6% to 20.3 in Tx schools
- Robinson et al (1999) - Intervention to reduce TV time in 3rd & 4th graders
  - 8 lessons incorporated into the standard curriculum + parent newsletter
  - Tx condition had ↓ BMI, waist circumference, TV and video games
- Lytle (2009)
  - Current state of the science is to assess a battery of measures related to weight or body composition……and to report any change in any measure as evidence that the intervention was successful"

Gortmaker (1999). Reducing Obesity via a School-Based Interdisciplinary Intervention Among Youth. *Archives of Pediatrics & Adolescent Medicine , 153*, 409-418.
Robinson et al. (1999). Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA, 297*, 2697-2704.
Lytle (2009). School-based Interventions: Where Do We Go Next? *Archives of Pediatrics & Adolescent Medicine , 163*, 388-389.

Additional Future Directions

- Develop and evaluate interventions that are culturally and linguistically appropriate for children and families from racially and ethnically diverse backgrounds[1]

- Examine mediators and moderators of change

[1]Spear et al (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120,* s254-s288.

Integrated Multi-Level Interventions

"Halting this epidemic may ultimately be determined by the quality and coordination of a range of obesity treatment initiatives, alongside an effective obesity prevention strategy."

Oude Luttikuis et al (2009). Interventions for treating of childhood obesity. The Cochrane Collaboration, 2009 - Page 17.

For more information, please go to the main website and browse for more videos on this topic or check out our additional resources.

Additional Resources

Online resources:

1. Society of Clinical Child and Adolescent Psychology website: http://effectivechildtherapy.com
2. United States Department of Agriculture website: http://www.choosemyplate.gov

Selected Peer-reviewed Journal Articles:

1. American Dietetic Association (2006). Position of the American Dietetic Association: individual-, family-, and community-based interventions for pediatric overweight. *J Am Diet Assoc, 106*, 925-945.
2. Epstein et al (2007). Family-based obesity treatment, then and now: Twenty-five year of pediatric obesity treatment. *Health Psychology, 26,* 381-391
3. Kitzmann et al (2010). Lifestyle interventions for youth who are overweight: A meta-analytic review. *Health Psychology, 29*, 91-101.
4. Oude Luttikhuis, H., Baur, L., Jansen, H., Shrewsbury, V. A., O'Malley, C., Stolk, R. P., et al. (2009). Interventions for treating obesity in children. *Cochrane Database of Systematic Reviews*.
5. Savoye et al (2011). Long-term results of an obesity program in an ethnically diverse pediatric population. *Pediatrics, 127*, 402-410.
6. Spear et al (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120*, s254-s288.
7. USPSTF (2010). Screening for Obesity in Children and Adolescents: USPSTF Recommendation Statement. *Pediatrics, 125,* 361-368.
8. Wilfley et al (2007). Lifestyle interventions in the treatment of childhood overweight: A meta-analytic review of RCTs. *Health Psychology, 26*, 521-532.

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