

Randomized Controlled Trials of Lifestyle Intervention for Children and Adults

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Goals of Behavioral Lifestyle Interventions

- Behavioral lifestyle interventions focus on changing eating and leisure-time activity behaviors
- Goal is to:
 - Improve weight status
 - Weight loss in adults
 - Reductions in zBMI (or percent overweight) in children
 - Maintain weight status
 - Long term weight loss maintenance
 - Weight gain prevention



Behavioral Lifestyle Interventions

- Dietary goals
- Leisure-time activity goals
- Behavioral modification techniques



Childhood Lifestyle Interventions

- Evidence-based treatment for 8-to-12-year-olds
 - Low-calorie diet (1000-1200 kcals/day)
 - Reduce intake of fast-food, soda, sweet and salty snack foods
 - Increase in physical activity (30-60 minutes/day)
 - Reduction in TV watching (15 hours/week)
 - Use a family-based approach with large emphasis on behavioral parenting practices for changing behaviors



Family-based Interventions

- Self-monitoring
- Stimulus control
- Modeling
- Positive reinforcement
- Extinction



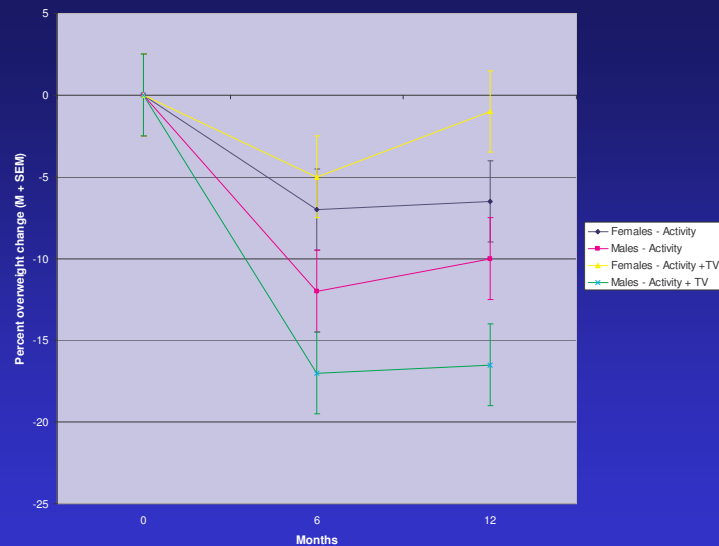
Treatment Structure

- 6-months of treatment (Parent + child)
 - Weekly sessions for 12 to 16 weeks
 - Group session for parents
 - Group session for children
 - 15 minute individual parent-child meeting with an interventionist
 - For remaining 2 to 3 months of treatment, frequency of sessions drops to either one or two meetings/month
- Assessments at 0, 6, 12 months (DV = percent overweight or zBMI)



Leisure-time Activities

- Does targeting increasing PA or increasing PA + reducing TV improve weight loss outcomes?
- Is the effect different by gender?

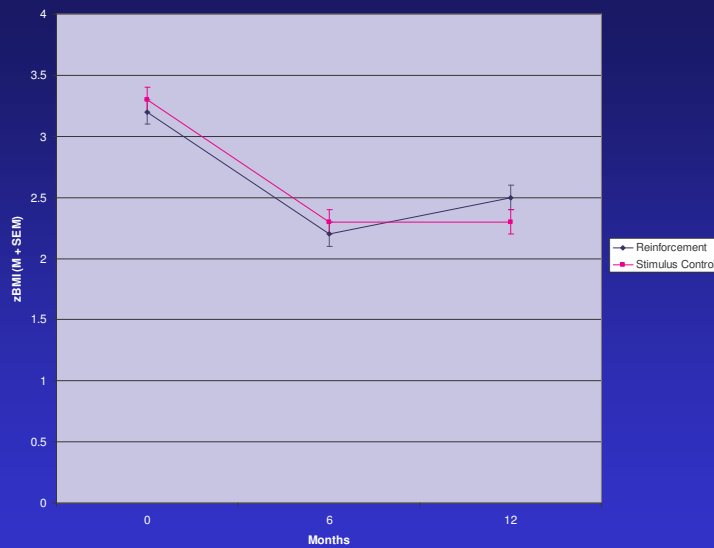


Epstein, L. H., Paluch, R. A., & Raynor, H. A. (2002). Sex differences in obese children and siblings in family-based obesity treatment. *Obesity Research*, 9, 746-753.



Strategies to Modify TV Watching

- Does using positive reinforcement or stimulus control to reduce TV watching have differential effects on changes in TV watching, PA, and weight?



Epstein, L. H., Paluch, R. A., Kilanowski, C. K., & Raynor, H. A. (2004). The effect of reinforcement or stimulus control to reduce sedentary behavior in the treatment of pediatric obesity. *Health Psychology, 23*, 371-380.



Maternal and Child Health Bureau Recommendations for Treatment in a Primary Care Setting

1. Start treatment in children as young as 3 years of age
2. Apply a family-based model in treatment
3. Use behavior modification techniques
4. Help families make small changes
5. Target changing 2 or 3 eating and activity behaviors at a time



Childhood Interventions

- Behaviors recommended to target in primary care settings
 - Fast-food intake (limit)
 - Sweetened drink intake (limit)
 - Sweet and salty snack foods (limit)
 - Low-fat dairy (2 servings per day)
 - Fruits & vegetables (1.5 c fruits & 2.5 c vegetables/day)
 - Physical activity (60 minutes per day)
 - TV watching (< 2 hrs/day)



Childhood Interventions

- Will these recommendations be effective at treating young children who are overweight?

AND

- What are the best behaviors to target?



Childhood Interventions

- Child HELP and Kids CAN
 - Funded by the American Diabetes Association and the National Institutes of Health (R21)
 - For children between the ages of 4 to 9 years, \geq 85th percentile BMI
 - Both programs randomly assign families to one of three 6-month interventions
 - Newsletter (control) – one newsletter/month
 - 2 behavioral parenting groups (target 2 different behaviors) – 8 sessions over 6 months
 - Assessments 0, 3, 6, 9, 12 months (DV = zBMI)



Child HELP

Increase

- ↑ Fruits and Vegetables
(2 servings fruit and 3 servings vegetables/day)
- ↑ Low-fat dairy
(2 servings/day)
- Low-energy-dense foods increase feelings of fullness and may displace consumption of low-nutrient-dense foods

Decrease

- ↓ Sweet/salty snack foods
(≤ 3 servings/week)
- ↓ Sweetened drinks
(≤ 3 servings/week)
- Decrease intake of foods that are low in nutrient-density and high in energy-density



102 children currently randomized

Kids CAN

Traditional

- ↑ Physical Activity
(60 min/day)
- ↓ Sweetened drinks
(≤ 3 servings/week)
- Traditional behaviors that target increasing energy expenditure and decreasing energy intake

Substitution

- ↓ TV watching
(≤ 2 hours/day)
- ↑ Low-fat milk
(2 servings/day)
- Focusing on substitute behaviors for targeted behaviors may enhance feelings of choice for engaging in targeted behavior



81 children currently randomized

Adult Lifestyle Interventions

- Since 1996, most adult behavioral obesity treatments achieve a mean weight loss of 10 kg over 6 months of treatment, but have a weight-loss regain of 38% over a mean f/u of 18 months
- How can weight loss maintenance be improved?



Adult Lifestyle Interventions

- State-of-the-art behavioral adult weight control interventions
 - Low-calorie diet (1200-1500 kcals/day)
 - Low-fat diet (20% to 30% kcals/fat)
 - Strong focus on increasing structure of the diet
 - Physical activity
 - 200 minutes of moderate-intense activity/week
 - 10,000 steps/day
 - Behavioral modification techniques



Adult Lifestyle Interventions

- Self-monitoring
- Stimulus control
- Pre-planning
- Goal setting
- Problem-solving
- Positive reinforcement



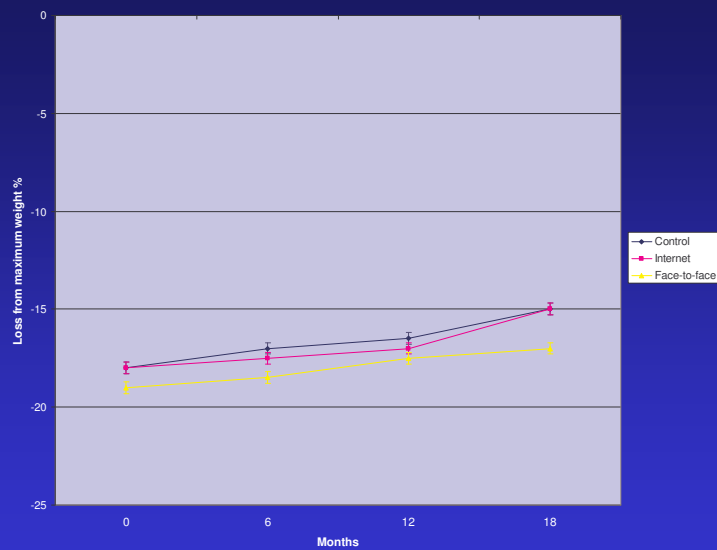
Structure of Treatment

- As longer duration of contact improves outcomes, standard length of intervention is 18 months
 - Weight loss maintenance interventions
 - 1 to 2 times/month - 60 minute group sessions
 - Weight loss interventions
 - Weekly for 6 months – 60 minute group sessions
 - 2 times/month for months 7-18 - 60 minute group sessions
- Assessments at 0, 6, 12, 18 months (DV = wt)



Weight Loss Maintenance

- Can a weight loss maintenance intervention based upon self-regulation theory improve long-term weight loss maintenance?
- Is the modality of intervention important (Internet vs. face-to-face)?



Wing, R. R., Tate, D. F., Gorin, A. A., Raynor, H. A., Fava, J. L. (2006). A self-regulation program for maintenance of weight loss. *New England Journal of Medicine*, 355, 1563-1571.



Dietary Variety Prescription

- Studies suggest that limiting the number of different foods, particularly energy-dense foods, in the diet may help with successful weight loss and long-term weight loss maintenance
- Limiting variety may be especially helpful during maintenance, when self-monitoring of intake is less consistent



Dietary Variety Prescription

- 18 month trial testing the effect of limiting snack food variety (R01 - NIDDK)
- 2 groups: Standard vs. Standard + variety prescription
 - Can this prescription be adhered to over the long-term?
 - Will a greater length of time of limiting variety effect weight loss?
 - What is the mechanism – (hedonics and/or stimulus control)?
- 95 participants randomized at Providence, RI: 105 to randomize in Knoxville, TN



Potential Interactions

- Physical activity
 - PA always a component of behavioral weight loss interventions
 - Modifications of prescription
 - Methods to improve adherence
 - Inter-relationship between eating and activity
- Family/parenting
 - Child programs always family-based, with an emphasis on parenting
 - Preference development for foods is believed to occur in early childhood



Potential Interactions

- Setting of assessment/delivery
 - Primary care
 - Community
 - Home
- Genetic risk
 - Develop treatment specific for genetic markers
 - Identify those at increased risk of developing specific diseases – does this improve adherence to treatment?
- Economics
 - Compare cost of different types of intervention per weight change outcomes
 - Estimation of cost of intervention per savings in health care costs (cost: benefit)

