The Need for an Integrative Approach to Pediatric Obesity

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Results of Conventional Obesity Treatment

Adults

• Subjects remaining in weight loss programs lose approximately 10% of their weight

• About 50% of weight loss is regained in 1 year

• Almost all of weight loss is regained by 5 years

NIH consensus statement
“Most pediatric obesity interventions are marked by small changes in relative weight or adiposity and substantial relapse . . .”

Why have conventional approaches to weight loss been largely unsuccessful?
Biology: The Thrifty Gene Hypothesis
Thrifty Genes and Obesity

• Human populations have maintained relatively stable body weight over time amidst an abundance of food

• However, our genes haven’t changed much in the last several decades
Biology Behavior

Poor Diet
Genes
Sedentary lifestyle

Weight Gain

Sedentary lifestyle

Behavior

Low self-esteem
Poor parenting practices
Low Motivation

A Vicious Cycle

Toxic Environment

Supersizing
Wide availability of junk food
Poor quality school lunch program
Food ads aimed at children
Lack of community parks, playgrounds
TV, computer, video games
Toxic Environment

- Poor quality school lunch program
- Food ads aimed at children
- Lack of community parks, playgrounds
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- Wide availability of junk food
- Supersizing

Biology

- Genes
- Sedentary lifestyle

Weight Gain

Behavior

- Low motivation
- Poor parenting practices
- Low self-esteem

Improve Diet

A Vicious Cycle
Need for a Integrative Approach

Incorporating a comprehensive approach to:

• Diet
• Physical Activity
• Parenting practices
• Environmental change
Diet
FOOD GUIDE
PYRAMID
A Guide to Daily Food Choices

- Fat
- Carbohydrate
- Nutrients
A 7-Year Clinical Trial of Diet & Weight

The Women’s Health Initiative

- 48,835 women ages 50 to 79 years
- Intervention: counseling sessions to promote a low fat diet
- Control: written education materials
- Dietary fat decreased from 39% to < 30% in the intervention group

What if Fat Doesn’t Make You Fat?
1-Year Clinical Trial of the Atkins’ Diet

Foster et al. NEJM 2003, 348:2082-90

- 63 obese adults
- Intervention: subjects given a copy of Atkins’ New Diet Revolution or The LEARN Program (low fat)
Effects of Glycemic Load on Body Weight


- 16 obese adolescents, age 13 - 21 years
- Diet: Low Glycemic vs Low Fat
- Intervention: Individual counseling sessions (14 total)

![Graph showing change in BMI over time with no significant effect on treatment x time: p = 0.05]

- Reduced Glycemic Load
- Reduced Fat
• 86 adults ages 18 to 65 years, from the Chicago metropolitan area
• Intervention: ad libitum low GL diet vs energy restricted low fat diet
• Process measures showed significant differences in GI and GL

**GI & Body Weight: Chronic Effects**  
*Maki et al. AJCN 2007, 85:724-34*

![Graph showing change in weight (kg) over months for low fat and low glycemic load diets.](image)

- Treatment x time, p < 0.001
Physical Activity
Exercise in the Treatment of Obese Adults

Meta-analysis of 14 studies involving patients with type 2 diabetes

Body Weight (Kg)

Exercise Control

83 kg p = .76 82.5 kg

Boule et al. JAMA 2001, 286:1218-27
Exercise in the Treatment of Childhood Obesity

- **Design**
  - 100 overweight boys and girls, ages 7 to 11 years
  - Randomly assigned for 3 months to:
    - control
    - low dose exercise (20 min/day)
    - high dose exercise (40 min/day)

- **Results**
  - No difference in BMI

Davis et al. Obesity 2006, 14:1985-91
Poor Results of Exercise in Obesity Treatment

A question of energy balance

70 kcal per mile

2,200 kcal

One super-size fast food meal = 4 mile/day for 1 week
A More Effective Approach to Developing an Active Lifestyle

*Discourage sedentary activities*

- No TV during meals
- Remove TV from the bedrooms and living room
- Limit total screen time to 2 hr per day maximum
A More Effective Approach to Developing an Active Lifestyle

Encourage all forms of physical activities

- **Play**
- Sports - traditional and non-competitive alternatives (yoga, biking, jump rope, Frisbee, etc)
- Routine activities
  - Walking rather than taking the car
  - Stairs rather than elevator
- Chores (gardening, mowing the lawn)
- Family outings (beach, hiking, swimming, picnic, etc)
- Being outdoors
Parenting
Child Development

Changing physical and psychological needs with age

- Young children
  - Born with an innate preference for sweet, salt and fat
  - Programmed to learn about new foods by watching adults
  - Require clear boundaries and limits

- Older children
  - Less influenced by adults, and more so by peers
  - Require increasing independence and responsibility
Child Development

A common error in parenting practice

- Parents often raise young children without clear guidance
  - TV and the food industry fill the gap
  - Very poor diet and activity habits become ingrained

- When weight problems develop, parents often employ coercive behavior change methods (punishment, criticism, food restriction)
  - Teaches child what not to do, rather than what to do
  - Leaves child feeling upset (no one learns well when upset)
  - Prevents child from internalizing responsibility for behavior
  - Increases conflict at home
A More Effective Approach to Parenting

Age-appropriate practices

- Establish a parent-directed system, with clear limits, for young children that transitions to a child-directed system over time

- Benefits:
  - Works with, not against, child’s psychological needs
  - Avoids/reduces conflict
  - Supports the parent-child relationship
  - Encourages child to develop into a responsible adult
An Innovative Approach to Parenting

Constructive methods

- Protecting the home environment
- Modeling
- Praise
- Rewards
- Contingency management
- Setting goals
- Self-monitoring
- Anticipating obstacles
- Redirecting
- Empowerment
An Integrative Approach to Childhood Obesity
Biology

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Sedentary lifestyle

Weight Gain

Poor quality school lunch program
Wide availability of junk food
Supersizing

Behavior

Food ads aimed at children
Lack of community parks, playgrounds
TV, computer, video games
Low Motivation
Poor parenting practices
Low self-esteem

A Vicious Cycle
Breaking the Vicious Cycle

Toxic Environment
- Poor quality school lunch program
- Wide availability of junk food
- Supersizing

The Home
- Food ads aimed at children
- Lack of community parks, playgrounds
- TV, computer, video games

Biology
- Poor Diet
- Genes
- Sedentary lifestyle

Weight Gain

Behavior
- Low Motivation
- Proper parenting practices
- Low self-esteem
Breaking the Vicious Cycle
Food ads aimed at children

Lack of community parks, playgrounds

TV, computer, video games

Supersizing

Wide availability of junk food

Poor quality school lunch program

Toxic Environment

The Home

Biology

Weight Gain

Behavior

Breaking the Vicious Cycle

Right Diet

Genes

Active lifestyle

Robust self-esteem

Proper parenting practices

High Motivation

Protecting

Environment

Breaking the Vicious Cycle
Ban on food ads aimed at children
Limited TV, video games
Reasonable Portion sizes
Limited availability of junk food
Good quality school lunch program
Many community parks, playgrounds
Limited TV, video games

Healthy Environment

The Home

A Victorious Cycle

Biology

Weight Loss

Behavior

Genes
Active lifestyle
Right Diet

Proper parenting practices
Robust self-esteem
High Motivation
<table>
<thead>
<tr>
<th><strong>Issue:</strong></th>
<th>Food advertisement aimed at children</th>
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<tbody>
<tr>
<td><strong>Recommendation:</strong></td>
<td>Pass federal legislation regulating food advertising to children</td>
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<tr>
<td><strong>Rationale:</strong></td>
<td>The American Academy of Pediatrics and the American Psychological Association have declared that advertisement to young children is inherently manipulative and unethical. Most food advertisements today are for extraordinarily high calorie, poor quality products. When children see these advertisements, they eat more of the featured foods, and less of unadvertised foods (ie, vegetables, fruits and whole grains). A ban on such practices will support parents’ efforts to improve the quality of their children’s diets.</td>
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<td><strong>Issue:</strong> Bias in nutrition research funded by industry</td>
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<td><strong>Recommendation:</strong> Improve National Institutes of Health funding for nutrition research</td>
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<td><strong>Rationale:</strong> Recent studies have found that scientific articles funded by a food company are overwhelmingly more likely to be favorable to the financial interests of that company. This bias may have a corrupting influence upon the scientific basis for public health recommendations on diet. Efforts to require disclosure of “duality of interests” do not appear to protect against this bias. In view of the importance of diet on health in general, and body weight in particular, objective research is vital. Increased government funding will decrease the attractiveness of industry money to scientists, and dilute the effect of any remaining bias.</td>
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