



# DRIVING CHANGE & INNOVATION

AADE17



# How Bias Stands in the Way of Addressing Childhood Obesity

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Founder and Principal  
ConscienHealth

# Learning Objectives

- Describe common biases about obesity and people living with obesity
- Describe trends in childhood obesity and its impact upon health
- Discuss how biases interfere with progress in efforts to reduce the impact of childhood obesity

# Disclosure to Participants

- **Notice of Requirements For Successful Completion**
  - Please refer to learning goals and objectives
  - Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours
- **Conflict of Interest (COI) and Financial Relationship Disclosures**

Consulting fees:

  - 3D Communications – Eisai – EnteroMedics – Novo Nordisk – Nutrisystem
- **Non-Endorsement of Products:**
  - Accredited status does not imply endorsement by AADE, ANCC, ACPE or CDR of any commercial products displayed in conjunction with this educational activity
- **Off-Label Use:**
  - Participants will be notified by speakers to any product used for a purpose other than for which it was approved by the Food and Drug Administration.

# Outline

- **Defining bias**
  - Effects on science, policy, and people
- **Childhood obesity trends**
- **Overcoming Bias**
  - Myths, presumptions, and facts
  - Cause and effect
  - Looking carefully at the science

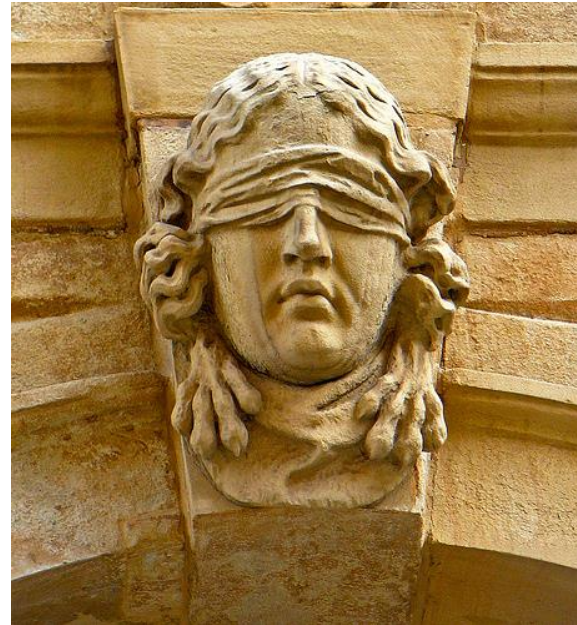
The Impact of Bias in Childhood Obesity

# Perspective on Bias

# What Is This Bias of Which I Speak?

Bias is an inclination or outlook to present or hold a **partial perspective**, often accompanied by a **refusal to consider** the possible merits of **alternative points of view**. Biases are learned implicitly within cultural contexts. People may develop biases toward or **against an individual**, an ethnic **group**, a nation, a religion, a social class, a political party, theoretical **paradigms** and **ideologies** within academic domains, or a species.

– Adapted from  
*Psychology: Contemporary Perspectives*  
Paul Okami



# Two Kinds of Bias Are Pervasive in Obesity and Nutrition

- Intellectual bias favoring personal convictions
- Weight bias directed at people with obesity



God Judging Adam, Etching by William Blake / WikiArt

The Impact of Bias in Childhood Obesity

# How Does Bias Affect Research & Policy?

# The Impact of Bias Starts with Research & Scientific Literature

- Observational studies
- Short-term endpoints
- Surrogate endpoints
- Publication bias
- Repetitive studies build a bias of familiarity

*“Many conjectures commonly advanced as recommendations to reduce weight gain or promote weight loss – ‘eat breakfast every day,’ ‘eat more fruits and vegetables,’ ‘eat more meals with family members,’ ‘reduce fast food availability’ ‘eliminate vending machines from schools,’ etc. – could be tested and we should challenge ourselves to do so more often.”*

Casazza and Allison:  
Stagnation in the clinical, community  
and public health domain of obesity

# Myths and Presumptions Presented as Facts

## Myths

- Small energy changes add up to big weight loss
- Realistic goals yield better weight outcomes
- Slow weight loss is best
- Readiness to change matters
- PE prevents childhood obesity
- Breastfeeding prevents obesity

## Presumptions

- Eating breakfast prevents weight gain
- Early exercise and eating habits shape weight for life
- Eating fruits and veggies will reduce weight or prevent gain
- Snacking causes obesity
- Sidewalks and parks prevent obesity

# Myths and Presumptions Presented as Facts

## Myths

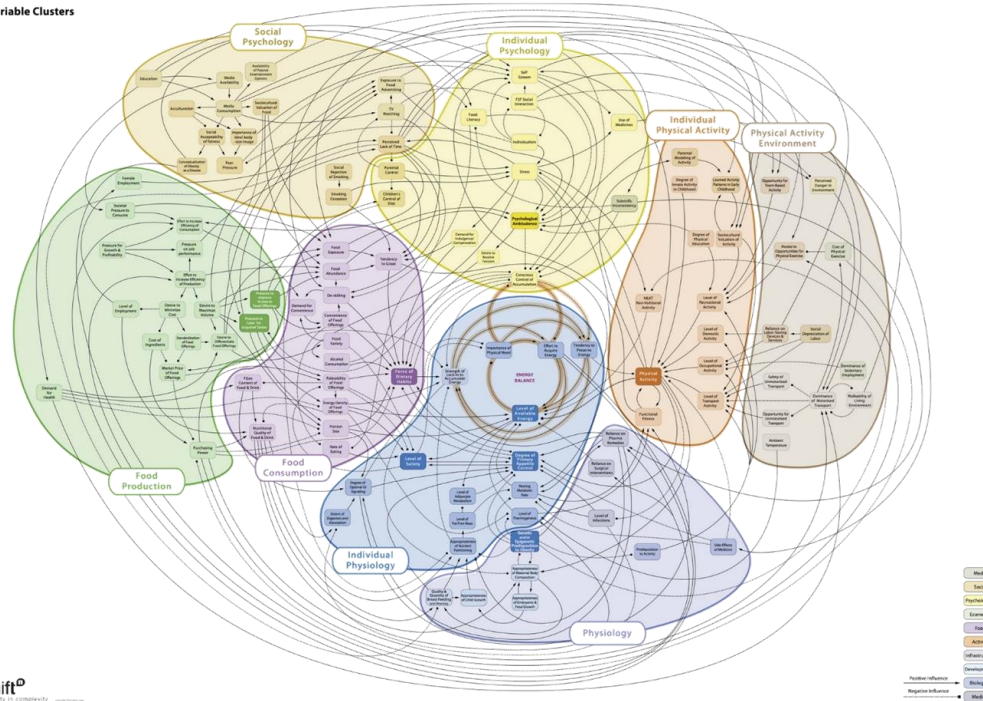
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# Presumptions Triumph Over Scientific Complexity

Obesity System Map  
Variable Clusters



# Myths and Presumptions Become the Basis for Policy Decisions

- Low-fat dietary recommendations
- Promoting breastfeeding to prevent obesity
- Investments to eradicate food deserts
- Restaurant menu labeling

# Bias Drives Policy Decisions That Affect Clinical Care

*“Prevention obviously has to be the primary strategy for dealing with obesity, because there’s just too much obesity to treat.”*

The Impact of Bias in Childhood Obesity

# Bias Directed at People with Obesity

# Weight Bias Flows from Common Assumptions About People with Obesity



Untitled, photograph by Boohoomian / flickr

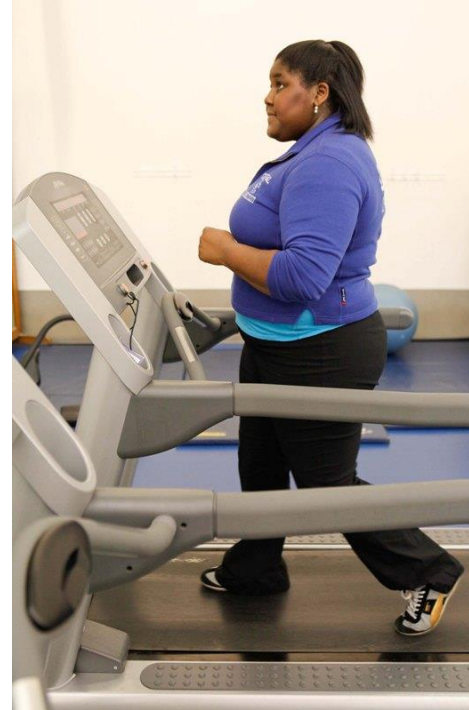


Photograph courtesy of the UCONN Rudd Center

# Weight Bias Flows from Common Assumptions About People with Obesity



Untitled, photograph by Boohoomian / flickr



Photograph courtesy of the UCONN Rudd Center

# Health Professionals Harbor Bias Against Patients with Obesity

- Non-compliant
- Lazy
- Lack self-control
- Awkward
- Weak-willed
- Sloppy
- Unsuccessful
- Unintelligent
- Dishonest



# Historical Bias About Obesity

*The best place to start is by simply telling the patient the truth.*

*“Sir or Madam, it’s not OK to be obese. Obesity is bad. You are overweight because you eat too much. You also need to exercise more. Your obesity cannot be blamed on the fast food or carbonated beverage industry or on anyone or anything else.*

*You weigh too much because you eat too much.  
Your health and your weight are your responsibility.”*

Robert Doroghazi, MD

*AJM, Mar 2015*

# Self-Care Is Often the Only Option Available for Obesity



# Evidence-Based Care Is Mostly Out of Reach for People with Obesity



# Because of Weight Bias The Standard of Care Is No Care

- Most PCPs do not routinely address obesity
- If they do, they simply instruct the patient to lose weight
  - Referral to IBT is uncommon
  - Most physicians will not consider drug therapy
  - Few are considered for surgery



# Only 36 Clinics for 5 Million Children with Severe Obesity



## Why So Few Clinics?

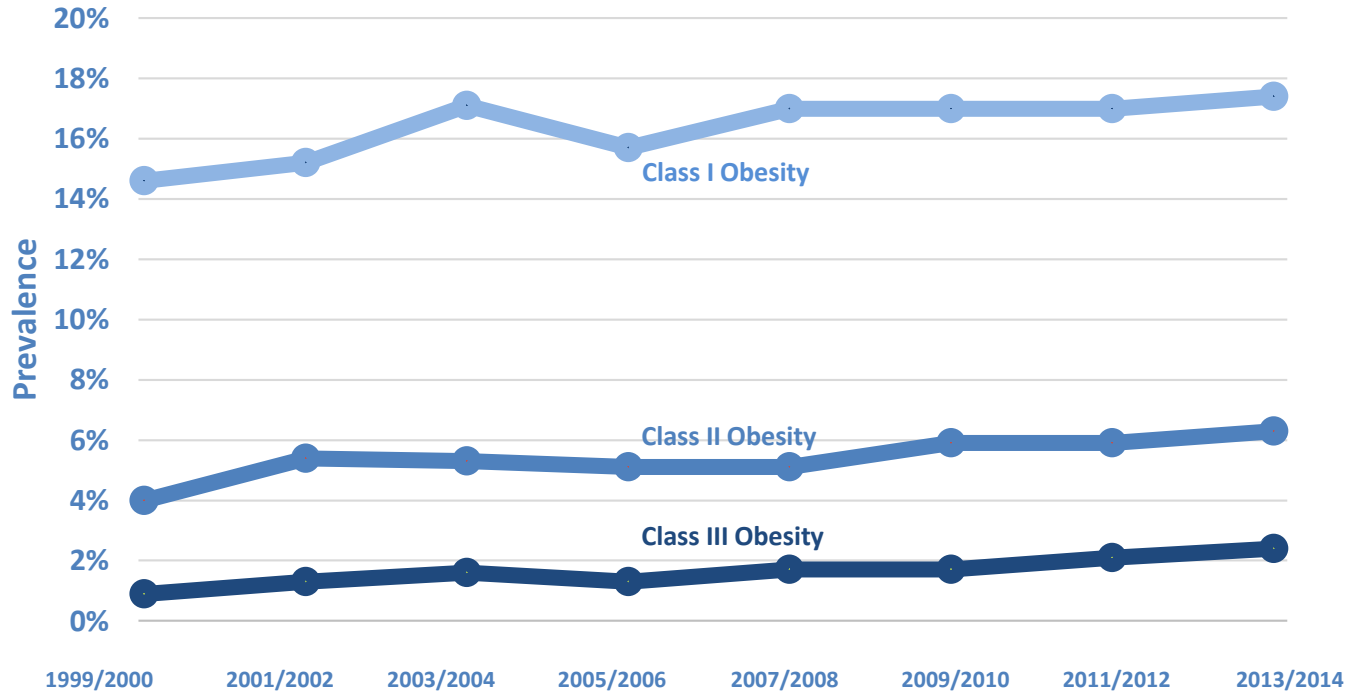
*“I spend much of my work week raising money and fighting for funding. Our excellent adult program makes money. But we struggle due to insurance reimbursement. And the population we serve is lower income.”*

– Pediatric Program Medical Director

Critical Thinking About Childhood Obesity

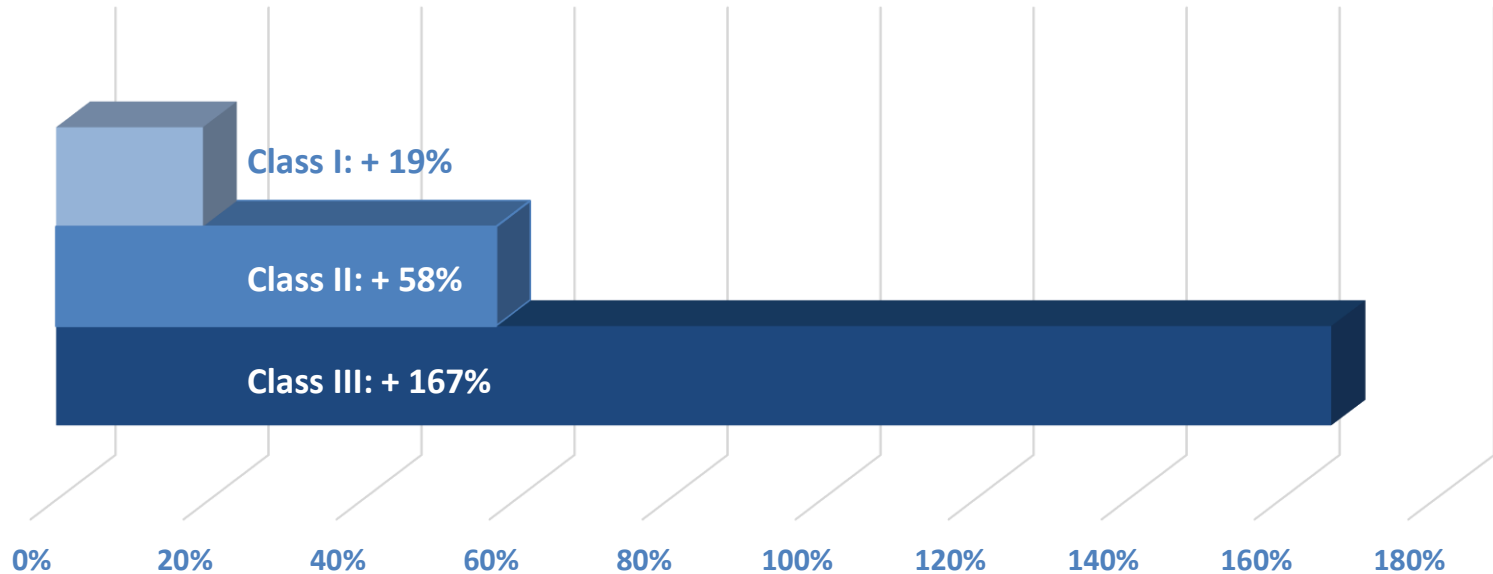
# Trends: Up, Down, or Sideways?

# Prevalence of Obesity Among U.S. Children Aged 2-17 Years

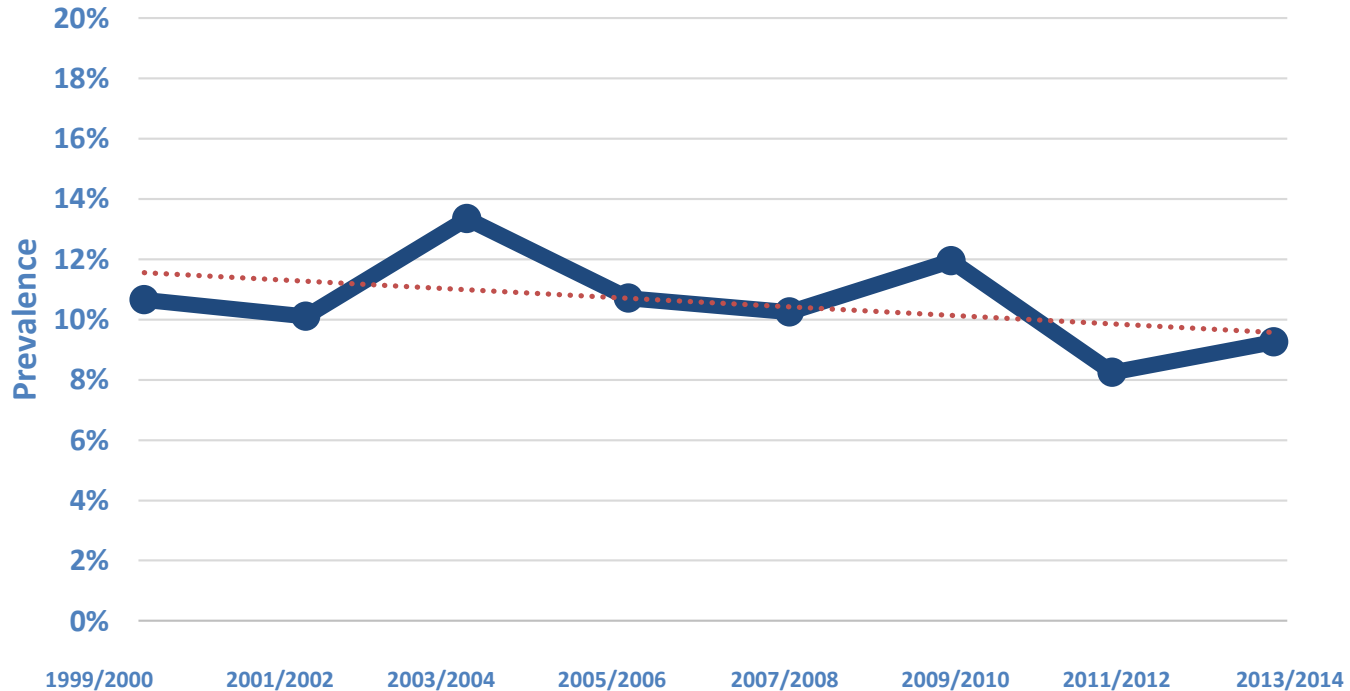


# Growth in Severe Childhood Obesity Is Setting the Stage for a Health Crisis

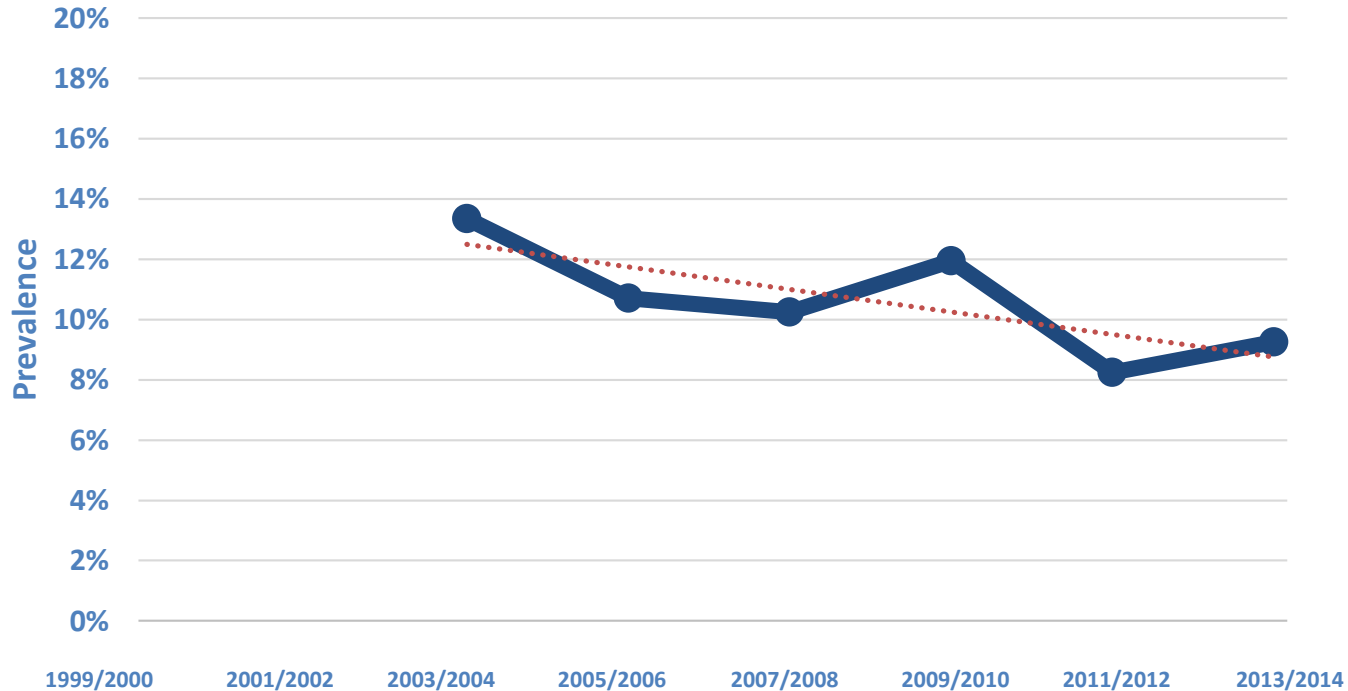
Increase in Childhood Obesity Between 1999 and 2014



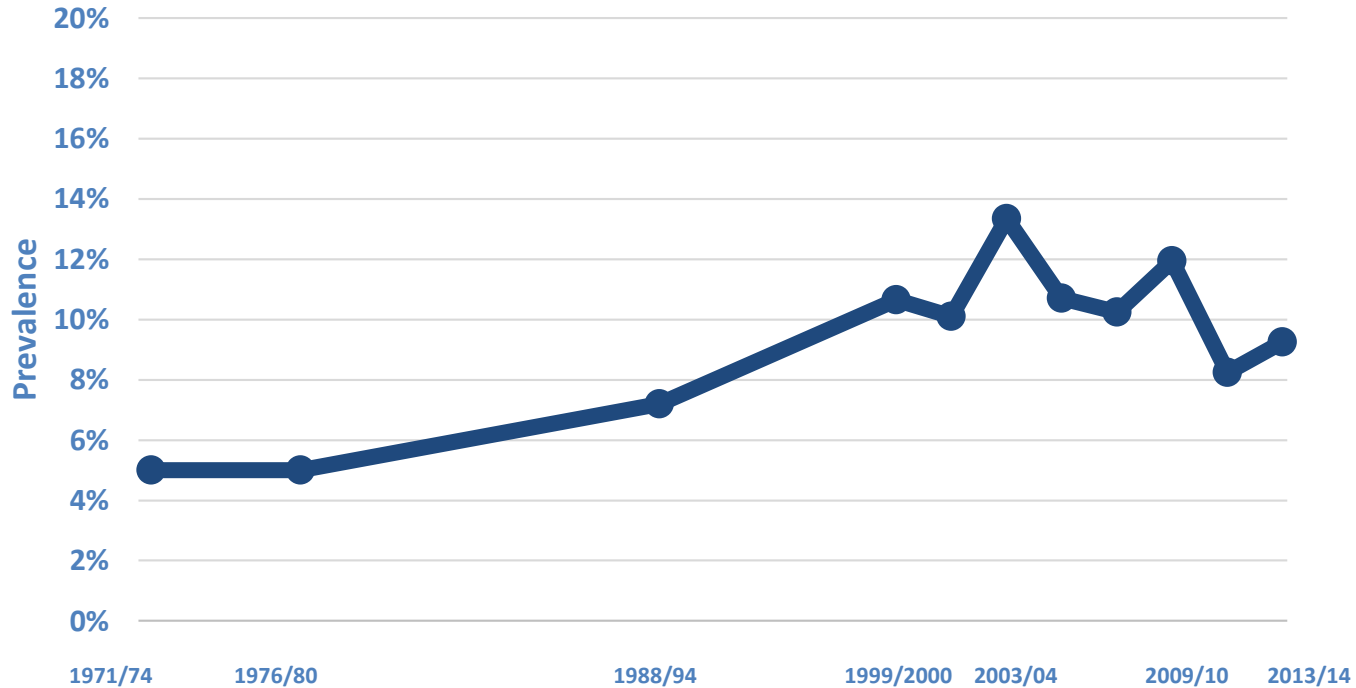
# Prevalence of Obesity Among U.S. Children Aged 2-5 Years



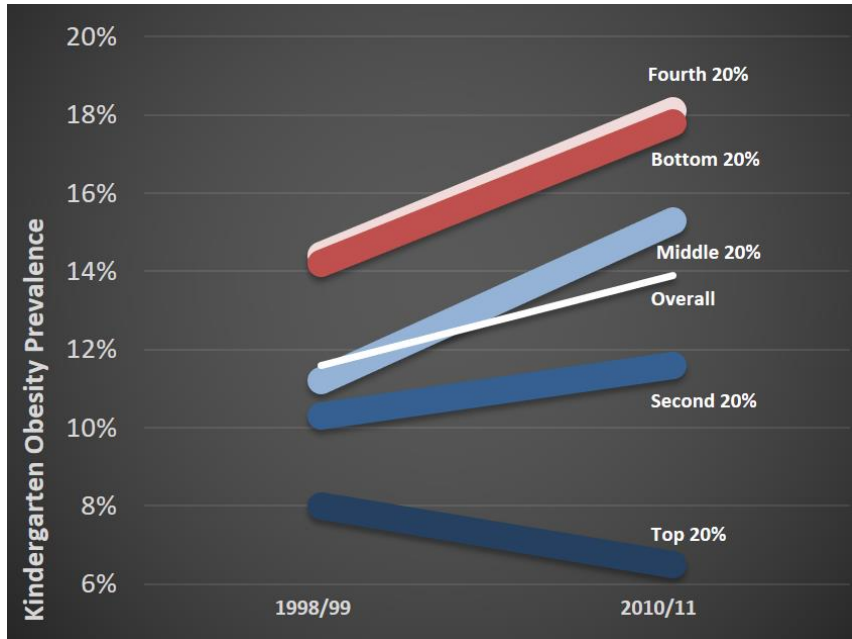
# Prevalence of Obesity Among U.S. Children Aged 2-5 Years



# Prevalence of Obesity Among U.S. Children Aged 2-5 Years



# Childhood Obesity Trends By Socioeconomic Quintiles



## Conclusions

- Obesity decreased in children with higher SES
- But increased in children with lower SES
- News of static trends must be interpreted cautiously
- Need to understand the drivers of disparities

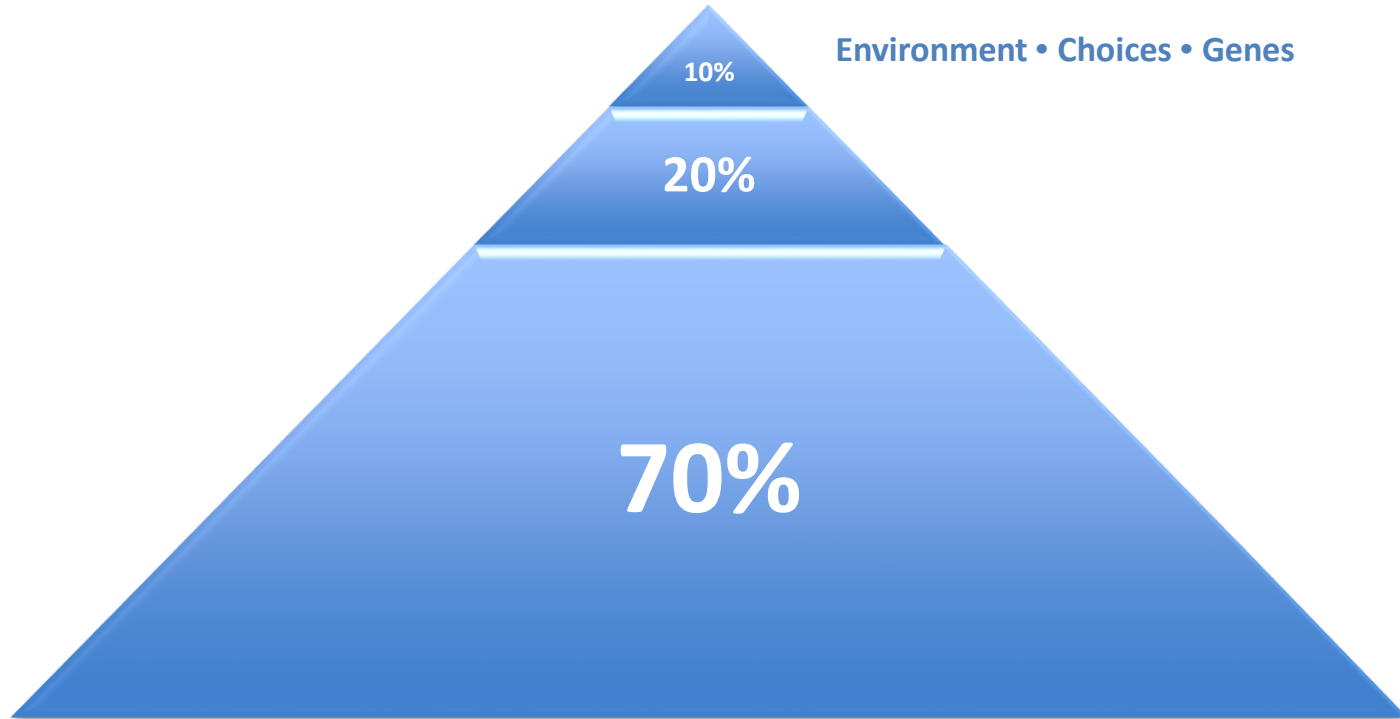
Critical Thinking to Overcome Bias in Childhood Obesity

# Myths, Presumptions, and Facts

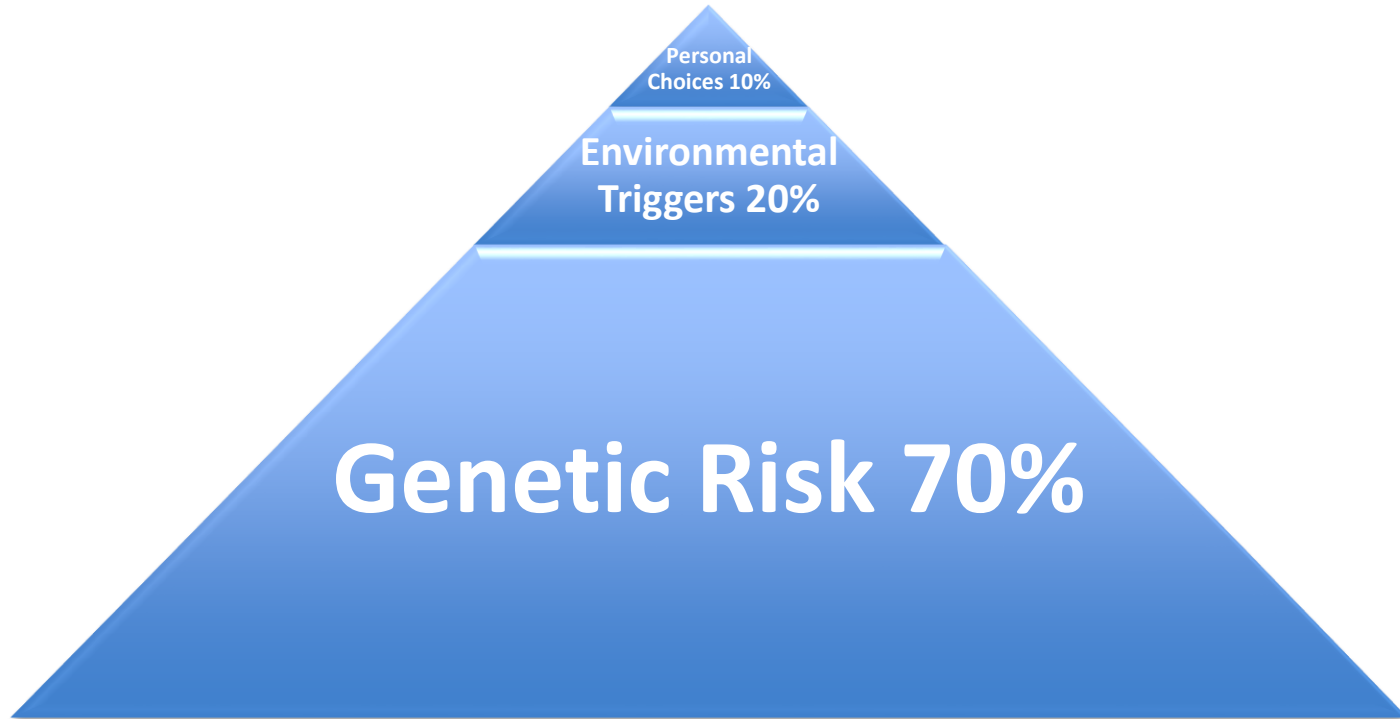
# Some Myths to Discard

- **Obesity is primarily the result of bad choices**
- **Promoting breastfeeding prevents obesity**
- **Skipping breakfast causes weight gain**

# Obesity Is Primarily the Result of Bad Choices?

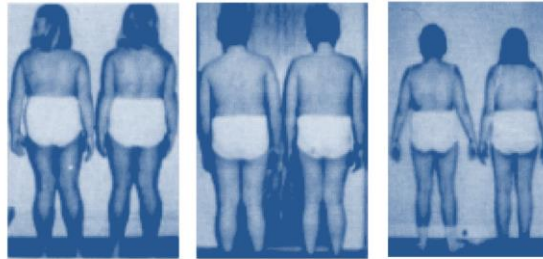


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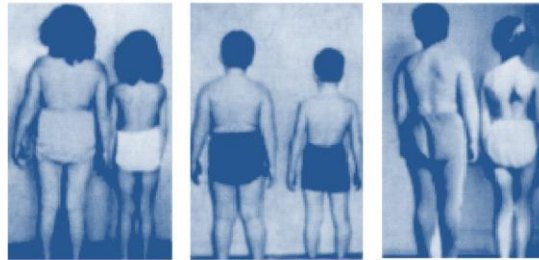


# Obesity: Well-Understood as a Highly Heritable Disease

## Body Mass in Twins



**Monozygotic Twins (Intrapair Correlation = 0.66)**



**Dizygotic Twins (Intrapair Correlation = 0.26)**

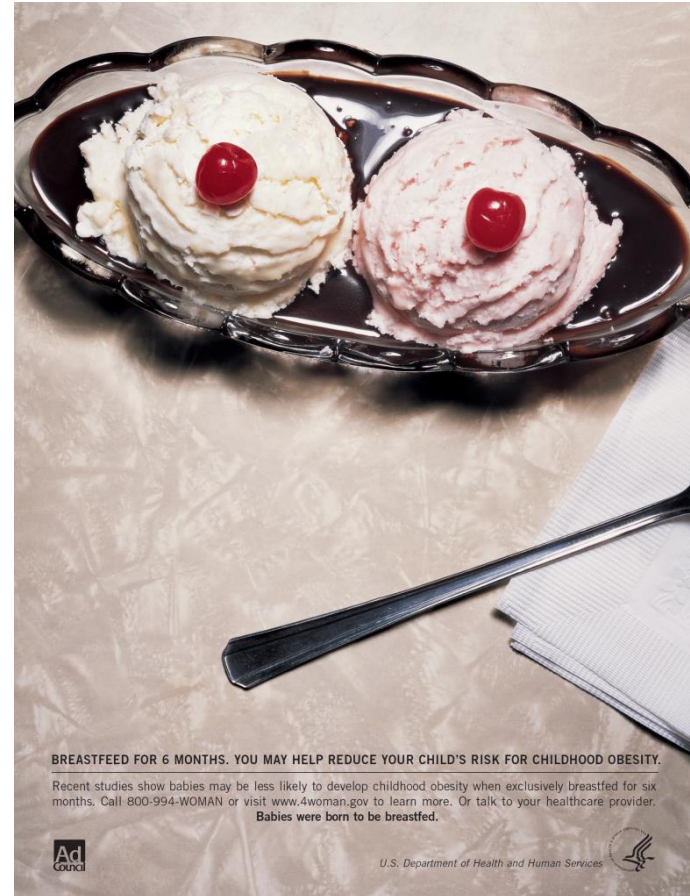


“Obesity is, like essential hypertension, a complex multifactorial disease where genetic factors promote sensitivity or resistance to obesity in a toxic environment. This concept of a genetic resistance versus sensitivity to obesity helps explain why many people remain thin in a toxic environment whereas others develop profound obesity.”

– Allyn Mark, *Dietary Therapy for Obesity*, 2008

# Promoting Breastfeeding Prevents Obesity?

- Meta-analyses show only a small effect at best
- Studies are confounded by longer breastfeeding mainly in families with higher:
  - Income
  - Education
  - Social status
- Publication bias is also a problem



# Skipping Breakfast Causes Weight Gain?

- **Two well-controlled, randomized studies**
  - Dhurandhar et al, The Effectiveness of Breakfast Recommendations on Weight Loss, 2014
  - Betts et al, The Causal Role of Breakfast in Energy Balance and Health, 2014
- **No effect on weight**



# Some Presumptions to Test

- Taxes on SSBs and junk food will prevent obesity
- Low-fat dairy leads to better health outcomes
- Promoting fruits and vegetables reduces obesity

# Taxes on SSBs and Junk Food?

- Aggressive taxes on soda & junk food in Mexico may cut soda sales
- No impact yet on obesity
- Unlike tobacco, food options are many and diverse
- Declines in SSBs have not yet sparked declines in obesity
- For more:  
Brand-Miller and Barclay, Declining Consumption of Added sugars and Sugar-Sweetened Beverages in Australia, 2017



# Low-Fat Dairy Leads to Better Health Outcomes?

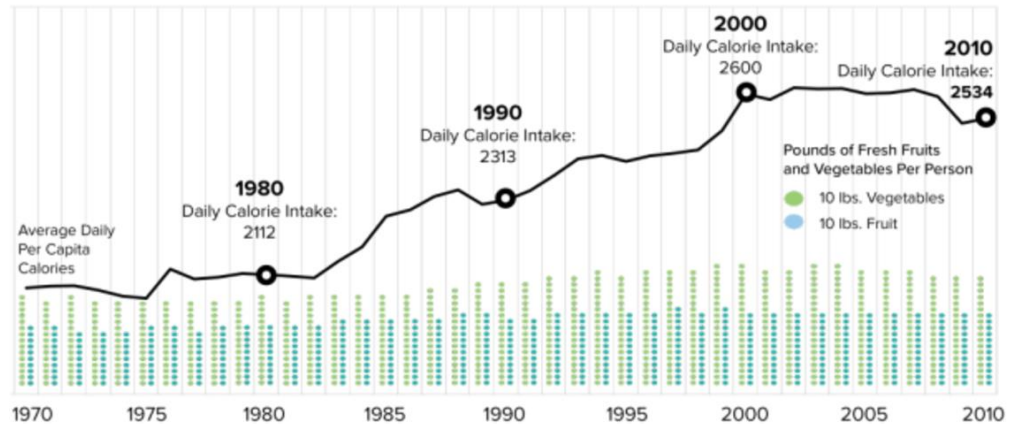
- Recent studies link full-fat dairy to better health outcomes
- But not low-fat dairy
- “While evidence remains insufficient to definitively recommend only whole-fat dairy, it certainly is robust enough not to recommend only low-fat dairy.”



# Promoting Fruits and Veggies Reduces Obesity

- Americans have been eating more fruits and veggies
- Obesity rates keep growing
- All types of food are more available and affordable than ever

Americans are eating more fruits, veggies, and everything else



Source: An and Sturm, Five Myths About American Obesity, 2017

# Some Facts to Rely Upon



- Inheritance is not destiny
- Healthy dietary patterns matter more than individual foods
- You can't outrun a poor diet
- Intensive support helps in childhood obesity
- We have much to learn about preventing childhood obesity

# Inheritance Is Not Destiny



- Genetic obesity risk is a fact to confront
- Behaviors and environment can moderate risks
- Example: sleep patterns
- Personalized prevention and care might help

# Healthy Dietary Patterns Matter More Than Individual Foods



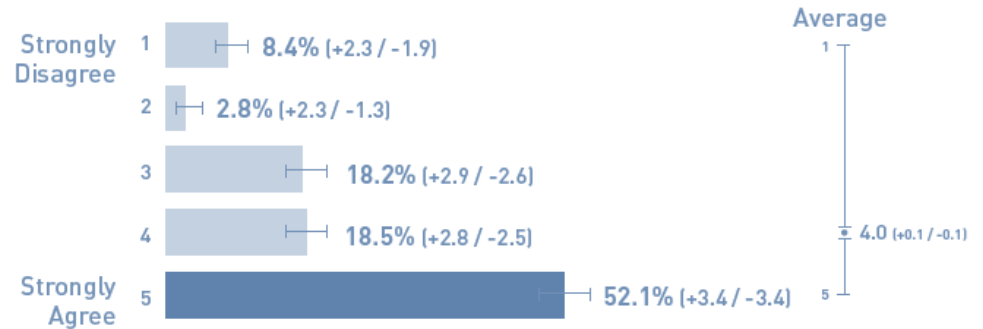
- Popular diet advice often focuses on “good” and “bad” foods
- 2015 Dietary guidelines emphasize overall eating patterns
- The Mediterranean diet offers a good example

# You Can't Outrun a Poor Diet

- Popular culture promotes exercise for weight loss
- Actual effect on weight is minimal
- Discouragement results

How strongly do you agree or disagree?  
Exercise is a very effective way to lose weight.

Results for respondents with demographics. Weighted by Age, Gender, Region. (941 responses)



# Intensive Support Helps in Childhood Obesity



“The benefit of treatment for obesity is clear. USPSTF recommendations should lead to universal coverage for comprehensive, intensive behavioral treatment for obesity in children and adolescents.”

- USPSTF guidelines call for 26 or more contact hours
- Less intensive programs are not clearly effective

# Much to Learn in Childhood Obesity Prevention



- Despite best efforts, childhood obesity rates continue rising
- Though perhaps more slowly
- In a recent systematic review:  
“Behavioural prevention interventions are associated with small improvements in weight outcomes in mixed-weight populations of children and adolescents. No intervention strategy consistently produced benefits.”

Critical Thinking to Overcome Bias in Childhood Obesity

# Correlations and Causality

# Dietary Guidance Sometimes Relies Upon Observational Evidence

*“Some researchers consider RCTs as the be-all and end-all of causal inference. This sentiment may be appropriate in the pharmaceutical industry, but the drug trial paradigm cannot be readily translated for use in the nutritional sciences.”*

Satija et al, 2015, AdvNutr  
Understanding Nutritional Epidemiology and Its Role in Policy

# Standards of Evidence



# Establishing Causality



Source: Austin Bradford Hill, The Environment and Disease – Association or Causation, 1965

# Correlations with Unproven Causality

- High fat diets and obesity
- Food deserts and obesity
- Potatoes and diabetes



# Low-Fat Diets: An Uncontrolled Policy Experiment

*The New York Times*

Magazine

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## What if It's All Been a Big Fat Lie?

By GARY TAUBES

**I**f the members of the American medical establishment were to have a collective find-yourself-standing-naked-in-Times-Square-type nightmare, this might be it. They spend 30 years ridiculing Robert Atkins, author of the phenomenally -best-selling "Dr. Atkins' Diet Revolution" and "Dr. Atkins' New Diet Revolution," accusing the Manhattan doctor of quackery and fraud, only to discover that the unrepentant Atkins was right all along. Or maybe it's this: they find that their very own dietary recommendations -- eat less fat and more carbohydrates -- are the cause of the rampaging epidemic of obesity in America. Or, just possibly this: they find out both of the above are true.



Lendon Flanagan for The New York Times

# Targeting Food Deserts Has Done Little to Reduce Obesity

- Food deserts are found in areas of high obesity
- But many variables confound the relationship
- Reverse causation is a distinct possibility

Medical Daily

Vitality

Under the Hood

Innovation

The Hill

The Grapevine

VITALITY

Fixing Food Deserts May Be A Waste Of Time: Having Access  
To Healthy Food Won't Improve America's Health

Dec 8, 2015 06:07 PM By Samantha Olson

# Evidence Is Lacking to Vilify Potatoes



- **Observational study links potatoes with weight gain and diabetes**
- **More recent systematic review says no:**  
“The identified studies do not provide convincing evidence to suggest an association between intake of potatoes and risks of obesity, T2D, or CVD. French fries may be associated with increased risks of obesity and T2D although confounding may be present.”

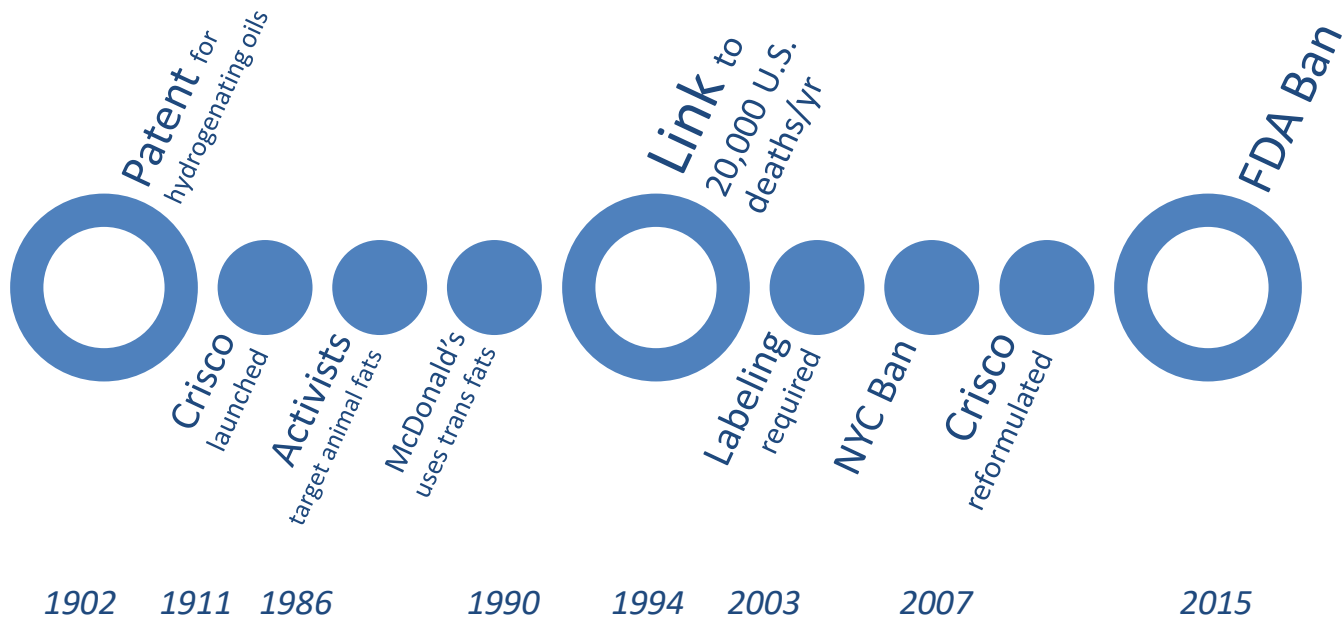
# Health Correlations

## Proven to Be Cause and Effect

- Trans fats
- Saturated fats
- Whole grains



# Trans Fats Now Banned from the Food Supply



# Replacing Saturated Fats with Unsaturated Fats Improves Health

- Swapping fats helps
- “Low-fat” recommendations led to more refined carbs
- Real world tradeoffs make a big difference



# Whole Grains Lead to Better Health Outcomes

- Better energy balance, fullness, and satisfaction
- Favorable impact on gut microbiota



Critical Thinking to Overcome Bias in Childhood Obesity

# Errors in the Scientific Literature

# Sources of Errors

- Honest mistakes
- Personal bias
- Scientific misconduct



Allison et al, Reproducibility: A tragedy of Errors, 2016

# Consider This Case of a Retracted Study

- A gardening & cooking childhood obesity prevention obesity program
- Published, then retracted from *Obesity*
- Efficacy claim “not supported” by the data
- Republished with the same claims in *Pediatric Obesity*
- Authors say peer review “prevents the entire story from being told”



# A More Recent Example of Overstated Results

- Childhood obesity program in Australian schools
- Overall analysis found no significant effect
- Yet abstract claims “some evidence of effectiveness”



# Summary and Conclusions

- **Bias causes profound harm:**  
to people, to science, and to health promotion
- **Childhood obesity trends are daunting**
- **Critical thinking is essential**
  - Distinguish myths, presumptions, and facts
  - Recognize distinctions between correlation and causation
  - Identify and reduce errors in scientific literature

# Opportunities

- Acknowledge biases
- Build a stronger evidence base
- Conduct real experiments
- Think critically
- Look for solutions that work



Targets of Opportunity, photograph by Randy Robertson / flickr

# More Information

- **For these slides:**

<http://conscienhealth.org/wp-content/uploads/2017/08/aade17.pdf>

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