

# Beyond eating and exercise: Trauma informed approaches to obesity intervention in SBHCs

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Presented at National SBHA Conference, 6/2019

# Objectives

1. Discuss the physiologic changes that result from chronic stress, and their interrelationship with weight and metabolic health
2. Analyze the hidden barriers to traditional obesity interventions and identify alternative approaches in working with youth affected by trauma, toxic stress and economic insecurity
3. Formulate integrated obesity intervention approaches in the SBHC that address stress and social determinants of health together with clinical care and health education

# Warm-up: Pair and Share

- Think of the obesity assessment/management practices in your SBHC and reflect on what 1-2 aspects...
  - work well and contribute to a student's success;  
and on the flip side,
  - hinder student progress or are more unappealing/frustrating, etc.
- Grab a partner and share your thoughts for 5 minutes!

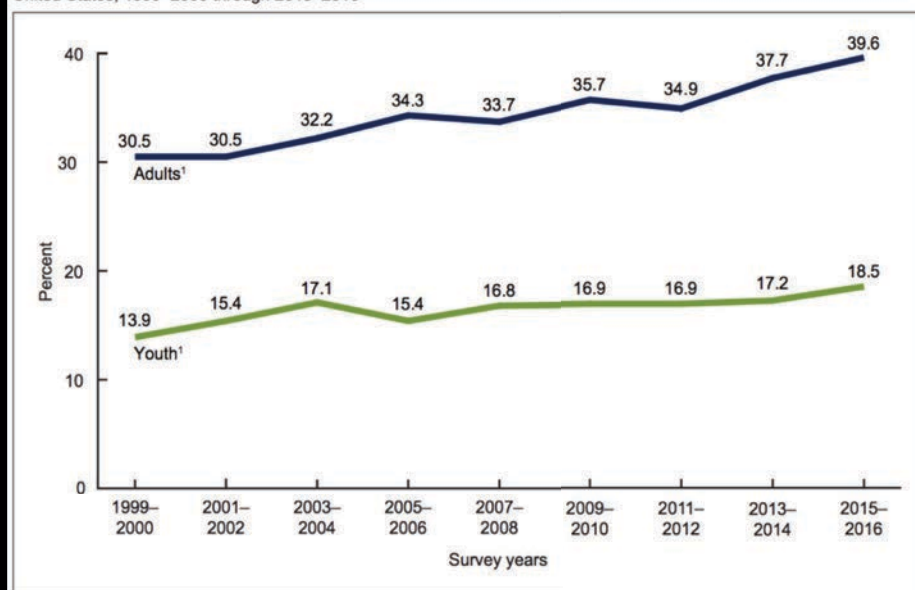




## Overweight and Obesity in Youth: Where Are We Now?

# Current State of Obesity

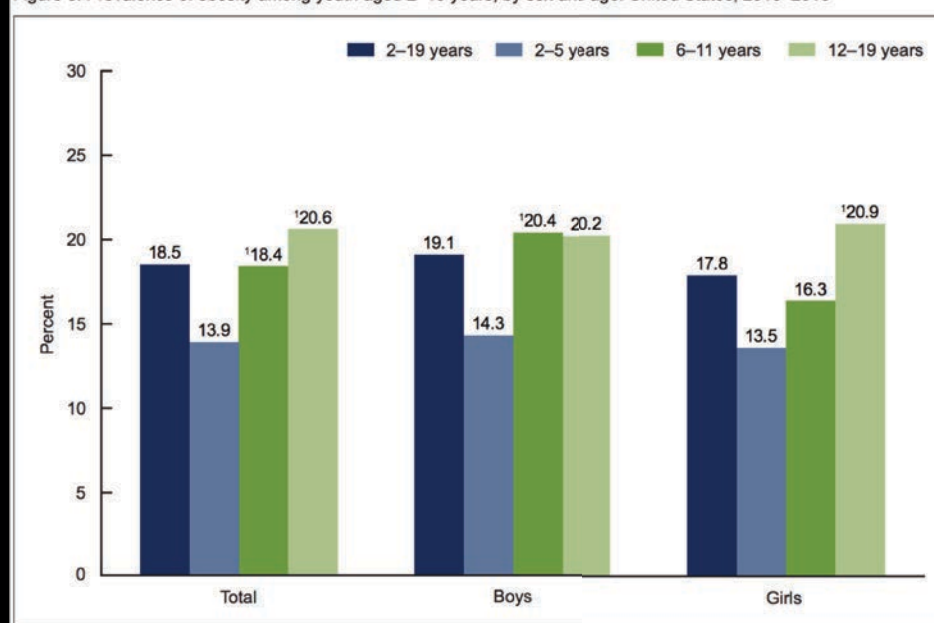
Figure 5. Trends in obesity prevalence among adults aged 20 and over (age adjusted) and youth aged 2–19 years: United States, 1999–2000 through 2015–2016



<sup>1</sup>Significant increasing linear trend from 1999–2000 through 2015–2016.

NOTES: All estimates for adults are age adjusted by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over. Access data table for Figure 5 at: [https://www.cdc.gov/nchs/data/databriefs/db288\\_table.pdf#5](https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#5). SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Figure 3. Prevalence of obesity among youth aged 2–19 years, by sex and age: United States, 2015–2016

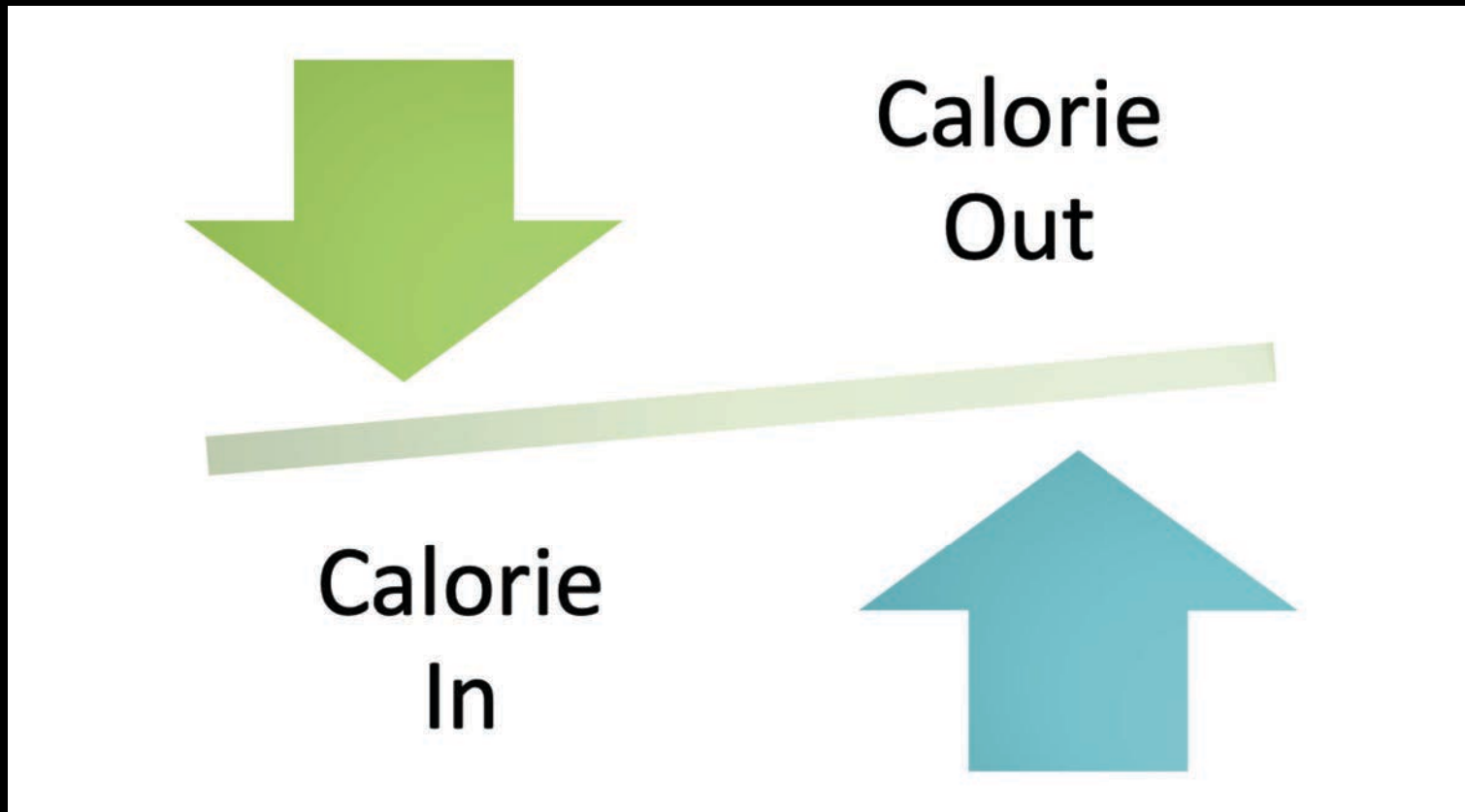


<sup>1</sup>Significantly different from those aged 2–5 years.

NOTE: Access data table for Figure 3 at: [https://www.cdc.gov/nchs/data/databriefs/db288\\_table.pdf#3](https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#3). SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.

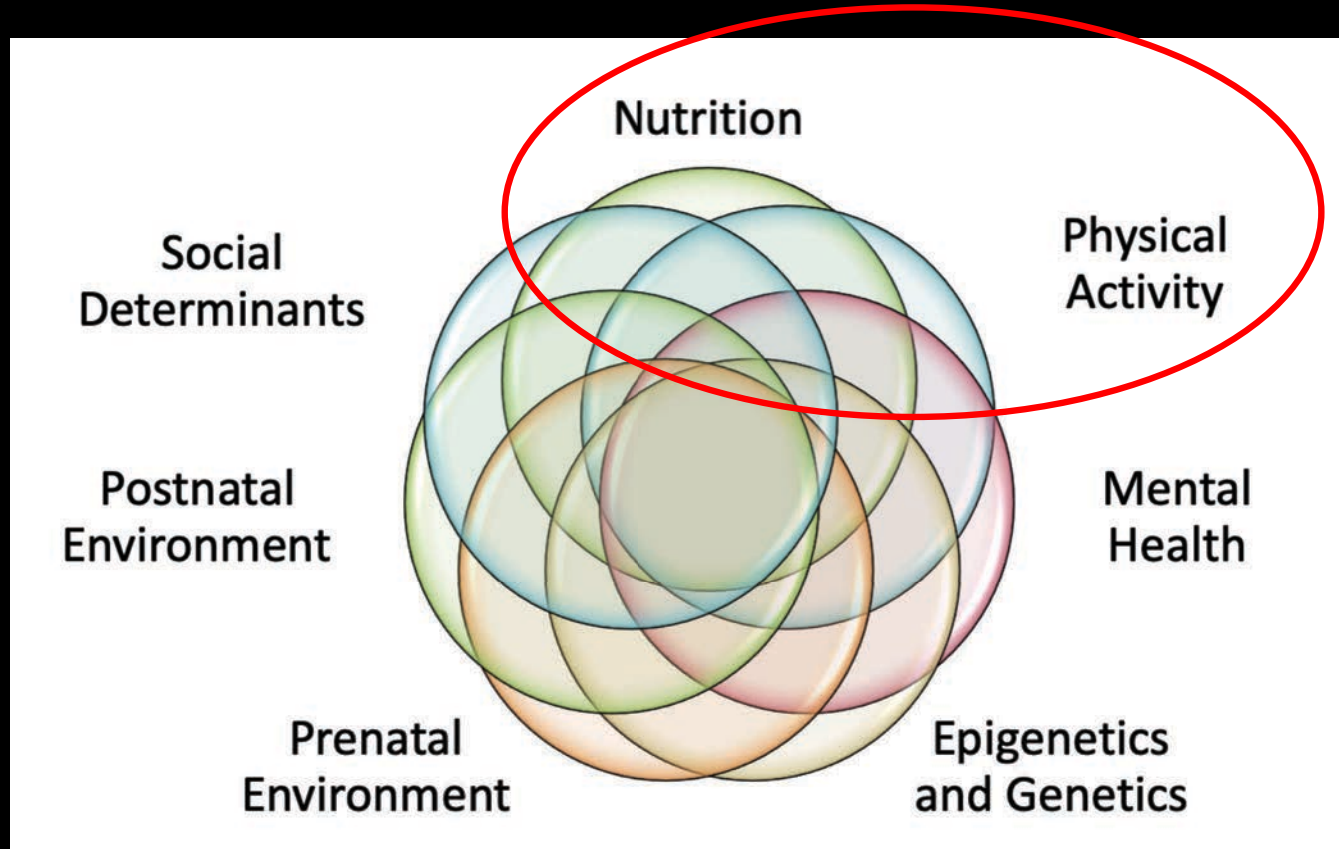


Is it this simple?





# Multifactorial Etiology of Obesity





# Social Determinants

Parent health/disability

Finances

Transportation

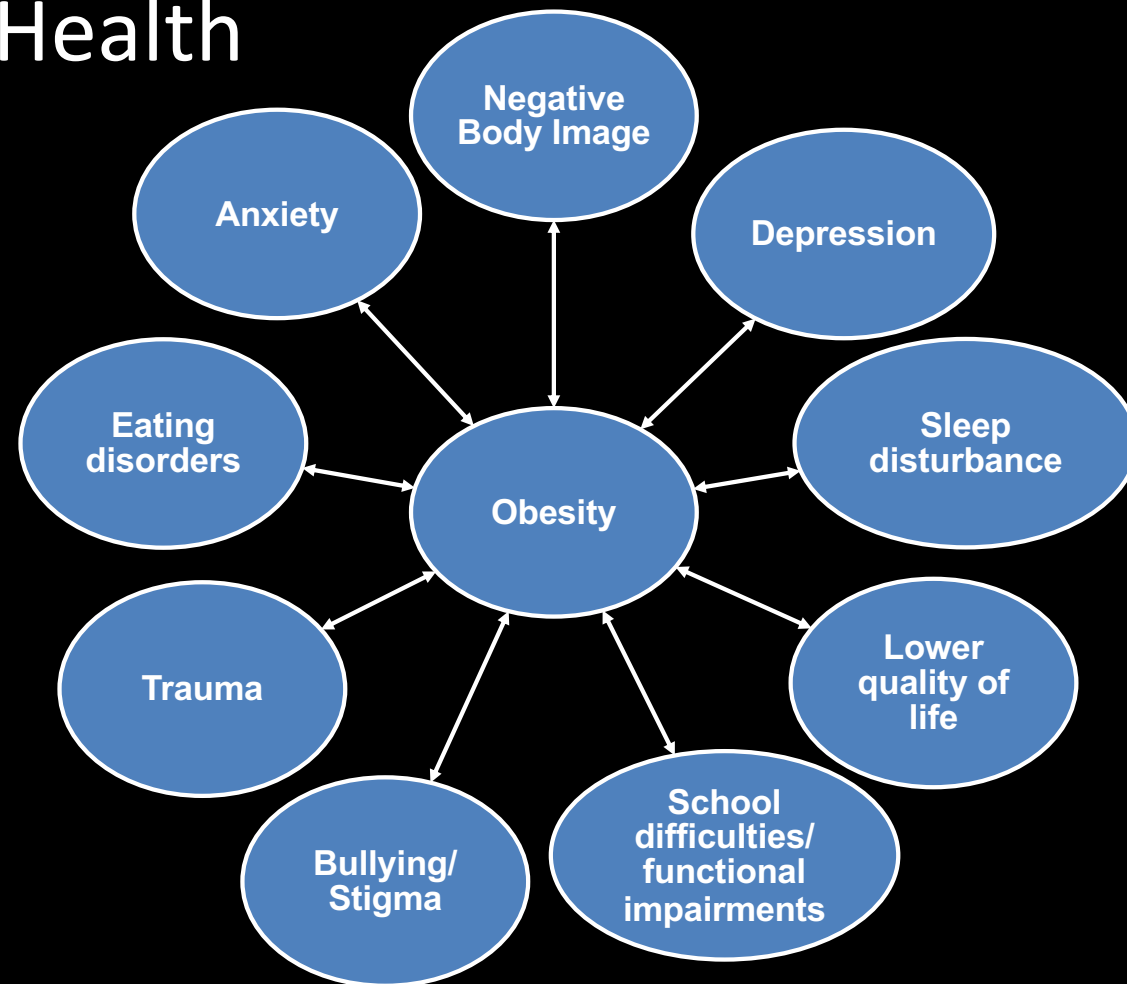
Housing

Food insecurity

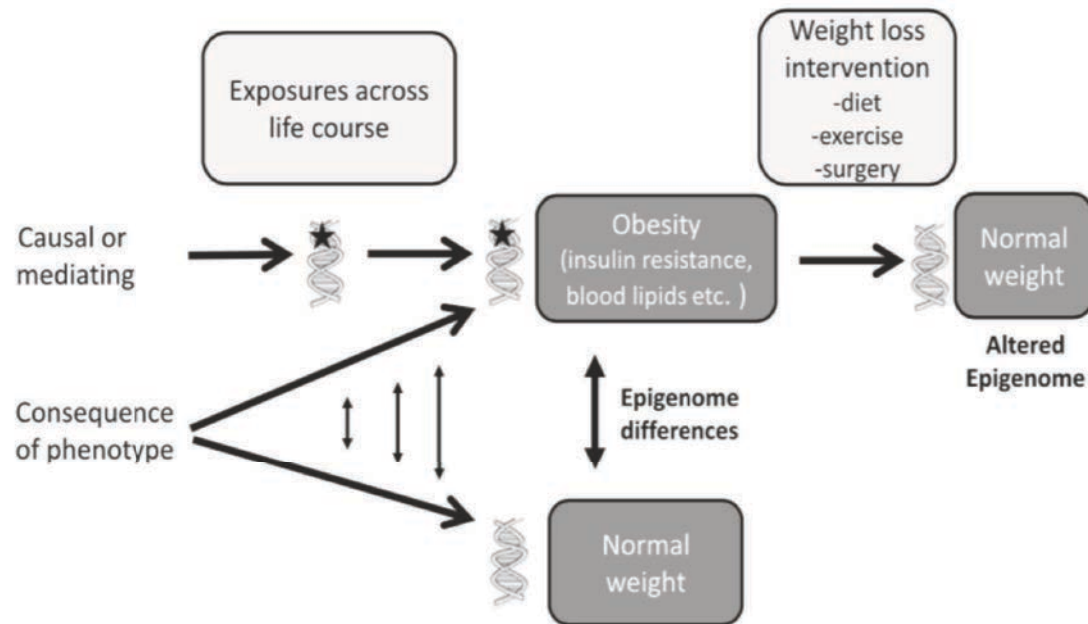
Medical insurance



# Behavioral Health



# Epigenetics



**Fig. 1** Epigenetic changes as a cause or consequence of obesity and related comorbidities. An epigenetic change is indicated as a *star* on the DNA.



**Let's Talk About Stress**

# Toxic Stress

- “Toxic stress can result from strong, frequent, or prolonged activation of the body’s stress response systems in the absence of the buffering protection of a supportive adult relationship.”
- Shonkoff, J. P., & Garner, A. S. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-246. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/22201156>

OR – the level/persistence/type of stress overwhelms even the most supportive parent

# Long-term effects of toxic stress

- Impact on developing child NOT just social and behavioral but also biochemical
- Excessively high, prolonged exposures lead to:
  - Changes in the brain – e.g. altered neuroendocrine responses
  - Altered size and function of brain centers
  - Biological disruptions that increase predisposition to chronic diseases of adulthood

## DEFINITION

# TRAUMA

An event that we experience as overwhelming that has a lasting effect on our well-being

# COMPLEX TRAUMA

(1) repetitive, prolonged, or cumulative (2 ) most often interpersonal, involving direct harm, exploitation, and maltreatment including neglect/abandonment/antipathy by primary caregivers or other ostensibly responsible adults, and (3) often occur at developmentally vulnerable times in the victim's life.



# Reactions to trauma

## Child traumatic stress

- “occurs when children and adolescents are exposed to traumatic events or traumatic situations, and when this exposure overwhelms their ability to cope with what they have experienced”

*(National Child Traumatic Stress Network)*

- Potential sequelae of trauma: depression, anxiety, PTSD

## Prevalence of trauma exposure

- In one nationally representative sample of school-age youth, 74% had been exposed to 1 or more traumas and 50% had been exposed to home or community violence
- In Oakland SBHCs, over 90% of all youth screened by BH providers had past exposure to trauma or violence

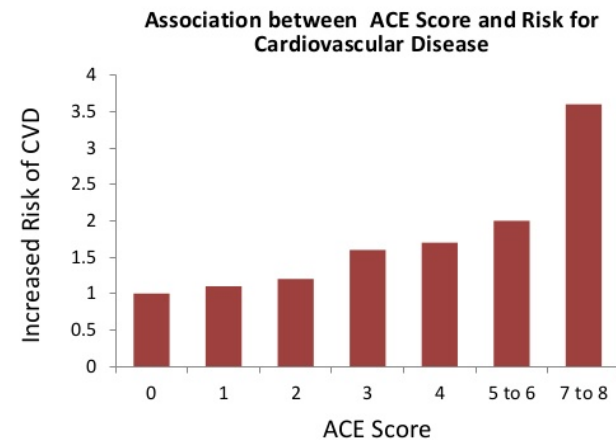
# Adverse Childhood Experiences (ACEs)

- Verbal abuse
- Physical abuse
- Sexual abuse
- (Emotional or physical neglect)
- Battered mother
- Household substance abuse
- Mental illness in household
- Parental separation or divorce
- Incarcerated household members

# ACEs and Health Outcomes

- ↑ incidence of all chronic diseases
  - Emphysema
  - Type II DM
  - Cardiac disease

## Graded Relationship Between ACE Score and Cardiovascular Disease

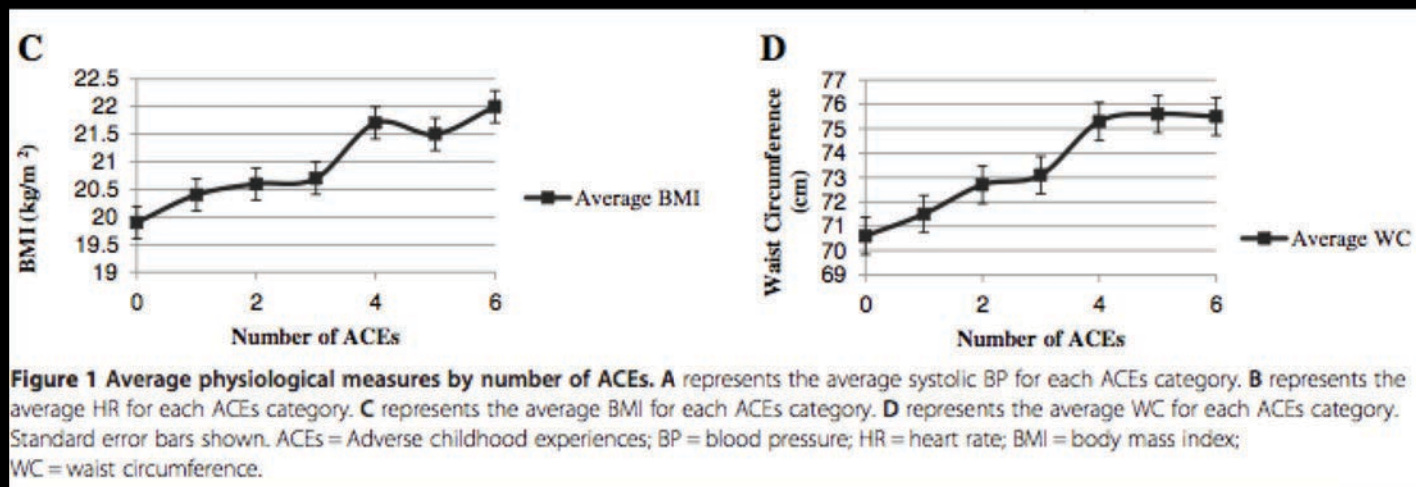


Adapted from Dong et al., 2004

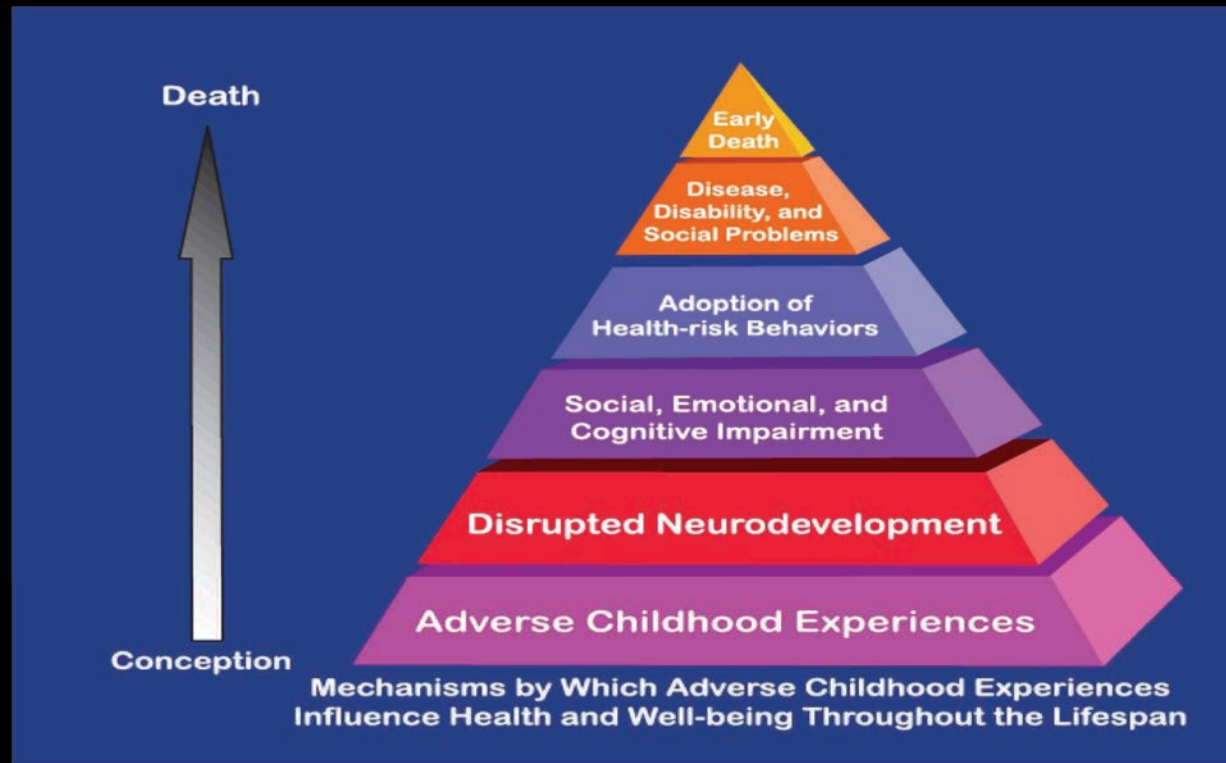
Adapted by R Wade from Dong, 2004

# ACEs & CV Health of Children

School-based study of 6<sup>th</sup>-8<sup>th</sup> grade children, measuring BP, HR, BMI, WC, parent questionnaire re ACEs



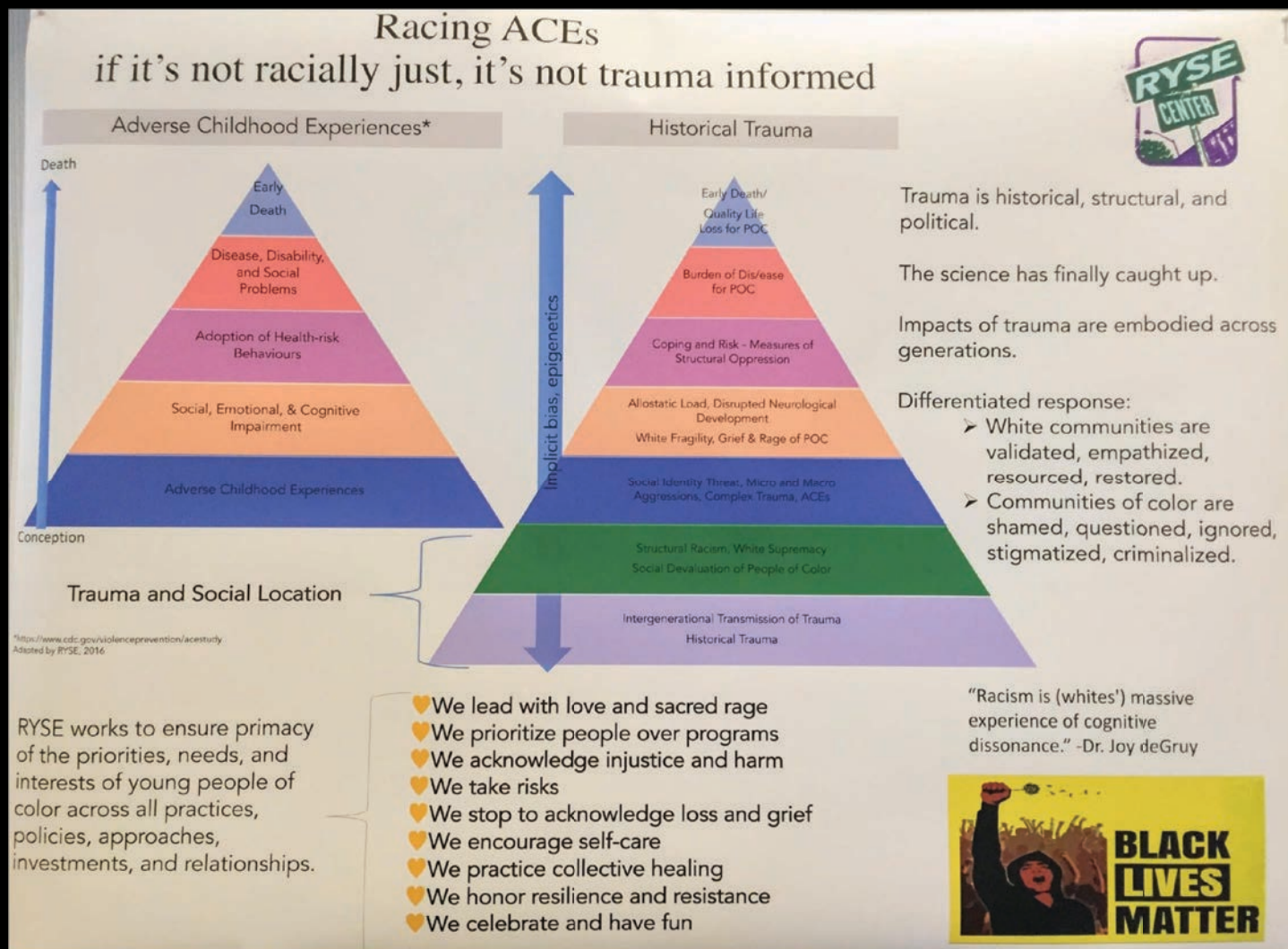
# ACE Lifecourse



# Poverty in relation to ACES/trauma

- Young adults in N. Philadelphia stated that watching their parents stress over finances MORE traumatic than physical abuse
  - Single parenting but not divorce seen as a stressor
- Youth living in E. Oakland critique PTSD screens as pathologizing survival skills : being on guard, sleep difficulties, avoidance, not backing down from a fight
  - Both groups expressed feeling a lack of love from parents/within themselves as a major stressor





RYSE Center, Richmond CA, poster 10/2016 (used with permission)

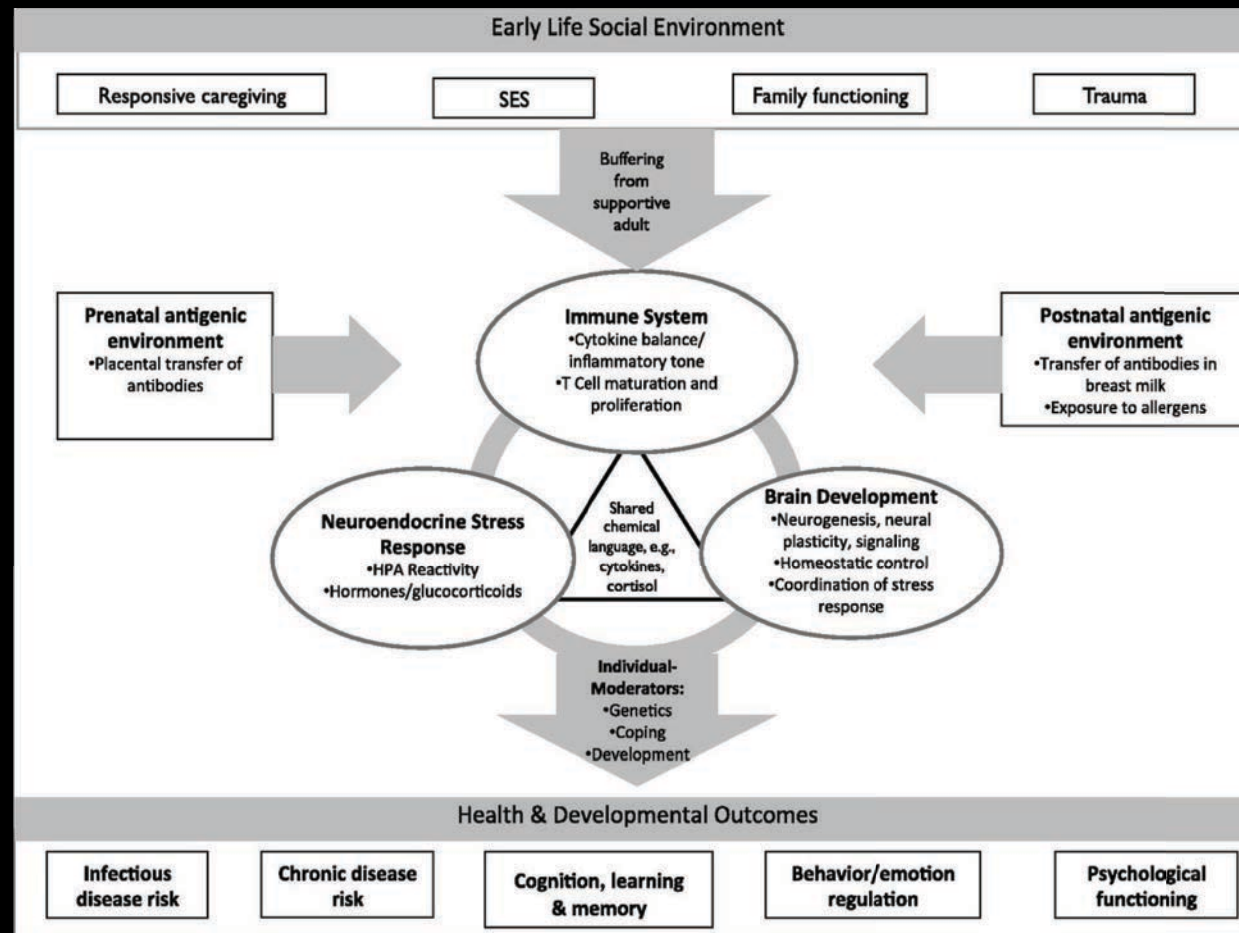
## ACEs/Toxic Stress vs. Acute/Chronic Trauma

- Impact of interventions to mitigate impact of ACES still under investigation
- We don't know how hx of ACEs affect the youth's ability to perceive, process and heal from acute/chronic trauma in adolescence
- Or individual impacts of different ACEs

# Stress Physiology

- Increased cortisol
- Persistent elevation of glucose while inhibiting insulin
- Increases appetite ("comfort foods")
- Increases visceral fat storage
- Leptin desensitization





Sara B. Johnson et al. Pediatrics 2013;131:319-327

**PEDIATRICS®**



**What is being done about it?**

# Ineffective school approaches to obesity

Classroom/PE measurement -  
how does this intersect with a  
trauma informed approach?

Weight shaming vs. increasing  
awareness

Negative effects of “BMI letters”





# Does weighing help?

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*J Acad Nutr Diet*. 2012 January ; 112(1): 99–103. doi:10.1016/j.jada.2011.08.036.

**Self-weighing among adolescents: Associations with body mass index, body satisfaction, weight control behaviors, and binge eating**

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**Abstract**

Among adolescent girls, the health effects of frequent self-weighing are unclear. This study examines cross-sectional and longitudinal associations between frequency of self-weighing and body mass index (BMI), body satisfaction, weight control behaviors, and binge eating among a diverse population of adolescent girls. The study was conducted in the Minneapolis/St. Paul metropolitan area from 2007–2009. The study population included 356 adolescent girls (mean age = 15.7 years); 46.2% of the girls were overweight or obese and over 75% were from a racial/ethnic minority group. Anthropometric and survey data were collected at baseline and at follow-up, nine months later. Hierarchical linear regression models were developed to test associations. Cross-sectionally, frequent self-weighing was associated with lower body satisfaction ( $p = 0.034$ ) and higher rates of healthy ( $p = 0.002$ ), unhealthy ( $p = 0.016$ ), and extreme ( $p = 0.038$ ) weight control behaviors. A quadratic association was found between frequency of self-weighing and binge eating, with girls who weighed themselves least and most frequently reporting the highest prevalences of binge eating ( $p = 0.014$ ). No association was observed between frequency of self-weighing and girls' BMI ( $p = 0.111$ ). Short-term longitudinal associations between baseline frequency of self-weighing and changes in body satisfaction, weight control behaviors, binge



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*J Adolesc Health*. 2013 June ; 52(6): 738–744. doi:10.1016/j.jadohealth.2012.11.016.

**Prevalence of adolescents' self-weighing behaviors and associations with weight-related behaviors and psychological well-being**

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**Abstract**

**Purpose**—To examine the relationships between self-weighing frequency, and weight-related behaviors and psychological well-being in a population-based sample of adolescents.

**Methods**—This study compared weight-related behaviors between infrequent and frequent self-weighers, stratified by weight status and gender. Data were from Project EAT 2010 (Eating and Activity in Teens), a population-based study of 2,778 adolescents.

**Results**—Approximately 14% of girls and boys weighed themselves frequently (weekly or more). In comparison to girls who were infrequent self-weighers, girls who were frequent self-weighers were more likely to diet, engage in unhealthy and extreme weight control behaviors, use unhealthy muscle-enhancing behaviors, and have lower self-esteem and greater body dissatisfaction. In comparison to boys who were infrequent self-weighers, boys who were frequent self-weighers were more likely to diet, engage in unhealthy and extreme weight control behaviors, use unhealthy muscle-enhancing behaviors and report greater depressive symptoms. Among overweight adolescents, in addition to being associated with these harmful outcomes, frequent self-weighing was associated with the use of healthy weight control behaviors and higher levels of moderate-to-vigorous activity.

**Conclusions**—Findings indicate that adolescents who frequently self-weigh themselves are at increased risk for a number of problematic health behaviors and poorer psychological outcomes. For overweight adolescents, frequent self-weighing was additionally associated with a number of positive outcomes. Based upon these findings, any recommendations for weight monitoring should be made cautiously; all adolescents, including overweight adolescents, should be advised not to engage in frequent self-weighing behaviors. Furthermore, any adolescents engaging in frequent self-weighing behaviors should be monitored for problematic outcomes.



# Stigmatization of obesity

- Weight stigma – “societal devaluation of a person because [they have] overweight or obesity and often includes stereotypes that individuals with obesity are lazy, unmotivated, or lacking in willpower and discipline.”
- Weight stigma leads to prejudice, social rejection, overt discrimination

Pont, S. J., Puhl, R., Cook, S. R., & Slusser, W. (2017). Stigma Experienced by Children and Adolescents With Obesity. *Pediatrics*, 140(6). doi:10.1542/peds.2017-3034

# Stigmatization of obesity causes harm to children

- Weight shaming and teasing begins as young as age 3
- Prominent in child-oriented media:
  - 70% of children's movies contain weight stigma, 90% target overweight
- Students are less likely to help visibly overweight children and more likely to bully them
- Level of future bullying/victimization can be predicted by BMI

# Stigmatization of obesity has consequences

- Increased incidence of depression, anxiety, substance use, poor body image among youth who are bullied, teased about weight
  - Differences persist when controlled for BMI, age of onset, sex
- Increased social isolation
- Negative effect on academic performance
- Increase in unhealthy eating behaviors
- Lower levels of physical activity
- Worsening obesity

# The framing of obesity is the problem

- Life expectancy has increased in the US at the same time that obesity rates have increased
- Studies of mortality related to BMI are mixed, and may not control for all confounders
  - Studies of elderly and chronically ill show higher BMI can be protective
- Is it possible to address healthy diet, exercise, sleep and stress reduction without asking our patients to lose weight?

# How Doctors Can Stop Stigmatizing — And Start Helping — Kids With Obesity

June 05, 2019


By [Mara Gordon](#)



(Andrea D'Aquino for NPR)

What are we going to do about it?

# Impact on Healthy Behaviors of Group Obesity Management Visits in Middle School Health Centers

The Journal of School Nursing  
1-12  
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Shelly Kaller, MPH<sup>3</sup>, Claire D. Brindis, DrPH<sup>4,5</sup>,  
Atziri Rodriguez, MPH<sup>6</sup>, Mizan Alkebulan-Abakah, MPH<sup>7</sup>,  
and Jyu-Lin Chen, RN, PhD, FAAN<sup>1</sup>

**6 to 10 week Shared Medical appointment model with interactive health ed, youth-parent sessions, social justice content.**  
**Quantitative results:**

<sup>a</sup>During the past 24 hr, how many times did you drink a glass of can of soda? 1.6 (1.4) 1.10 (.93) 5.69 (.02)

<sup>a</sup>Number of days of exercise (60 min per day) 3.9 (2.21) 4.80 (2.21) 8.37 (.01)

<sup>c</sup>I feel support from my classmates (low score better) 1.4 (0.9) 0.90 (0.87) 7.30 (.008)

## Impact on Healthy Behaviors of Group Obesity Management Visits in Middle School Health Centers

The Journal of School Nursing  
1-12

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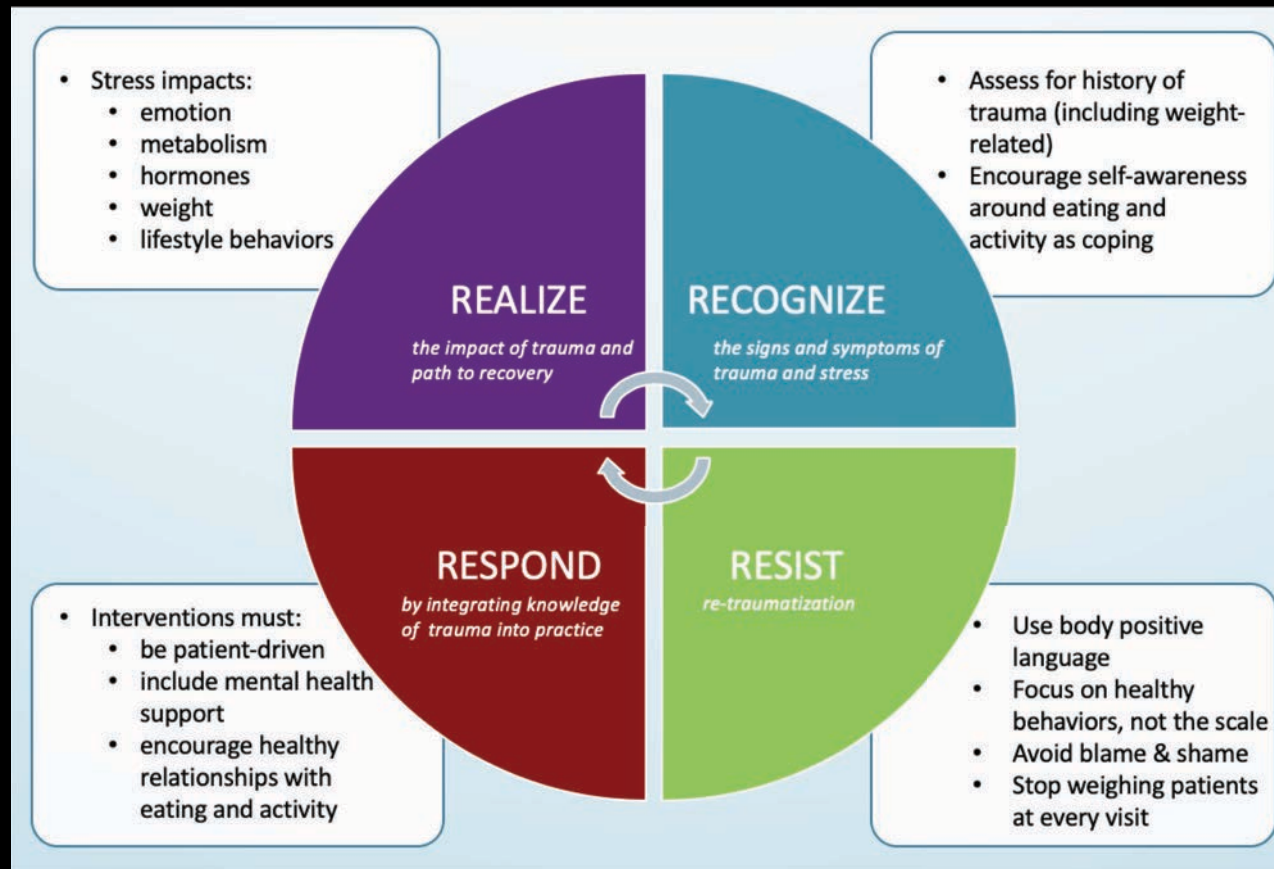
- Focus groups led at two sites, immediately and at 18 months after
- Youth enjoyed/remembered interactive exercises:  
stress demonstration & mindfulness, “corner store challenge,” cooking/tasting with vegetables & fruit, and discussed lessons with their parents

“The thing was because every time when you’re stressed, you feel like eating, and we’re like trying to calm down our stress so we don’t eat too much.”

“I didn’t know about reading the nutrition facts and my mom didn’t know about them. Now she checks everything, I mean everything, even the water. And she always gets the fresh fruits.”



# Trauma-informed approach



# Taking weight & weight stigma off the table

Association for Size Diversity and Health (ASDAH) principles:

1. Weight inclusivity
2. Health enhancement
3. Respectful care
4. Eating or well-being
5. Life-enhancing movement

<https://www.sizediversityandhealth.org/content.asp?id>

# Health at Every Size™ (HAES)

## **Health at Every Size: The New Peace Movement**

We're losing the war on obesity. Fighting fat has not made the fat go away. However, extensive "collateral damage" has resulted: Food and body preoccupation, self-hatred, eating disorders, weight cycling, weight discrimination, poor health. . . . Few of us are at peace with our bodies, whether because we're fat or because we fear becoming fat. It's time to withdraw the troops. There is a compassionate alternative to the war—Health at Every Size—which has proven to be much more successful at health improvement—and without the unwanted side effects.<sup>1, 2</sup> The scientific research consistently shows that common assumptions underlying the war on obesity just don't stand up to the evidence.

- Disputes assumptions about normal weight & longevity
- Asserts that SES, poor nutrition, lack of exercise, weight cycling, not obesity itself, lead to outcomes associated with obesity in literature
- Asserts that dieting is a predictor of future weight gain

Linda Bacon, 2010

[https://lindabacon.org/HAESbook/pdf\\_files/HAES\\_Manifesto.pdf](https://lindabacon.org/HAESbook/pdf_files/HAES_Manifesto.pdf)

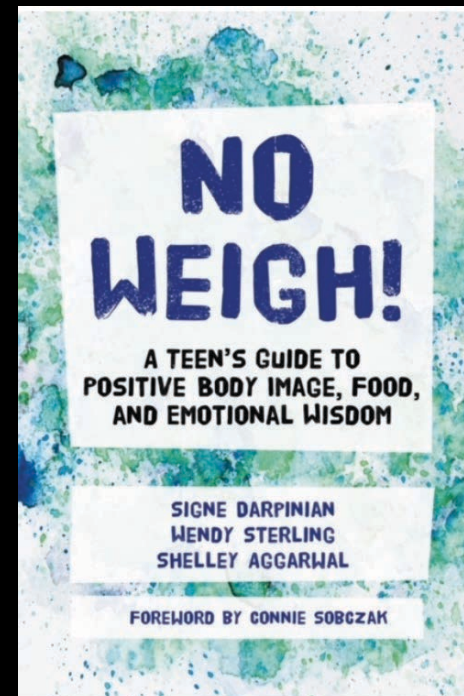
# HAES for teens

## Intuitive Eating

- Eating to appetite
- Eating what appeals
- Stopping at just enough

Impact of puberty on body changes

Coping with stress



# Does HAES work?

- Systematic review of 14 studies of adults by Ullian et al., 2018:
- Positive physical activity and psychological well-being outcomes, with positive qualitative changes in eating behaviors
- Cardiovascular responses (BP, blood panels), body image and energy intake were inconclusive
- Study authors are conducting an RCT, both arms HAES, differ in “dose” of intervention

# Support for body positivity



## HHS Public Access

Author manuscript

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### Does body satisfaction help or harm overweight teens? A ten-year longitudinal study of the relationship between body satisfaction and BMI

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#### Abstract

**Purpose**—This study examines the relationship between body satisfaction of overweight adolescents and 10-year changes in BMI.

**Methods**—Participants who were overweight as adolescents ( $n=496$ ) were drawn from Project EAT, a 10-year longitudinal study.

**Results**—Among overweight girls, a significant difference in 10-year BMI change across baseline body satisfaction quartiles was observed. Overweight girls with the lowest body satisfaction at baseline had a nearly 3-unit greater increase in BMI at follow-up, compared to overweight girls in the high body satisfaction quartile; this difference has important clinical significance. Among overweight boys, significant associations between body satisfaction quartile and change in BMI were not observed.

**Conclusion**—Overall, findings indicate that among overweight adolescents a high level of body satisfaction during adolescence was not harmful, and in fact may be beneficial for girls, in terms



## HHS Public Access

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### Body Satisfaction, Weight Gain, and Binge Eating Among Overweight Adolescent Girls

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Division of Adolescent/Young Adult Medicine, Department of Medicine, Children's Hospital Boston and Harvard Medical School, Boston, MA (Sonnewille, Calzo, Austin, Field). Department of Mathematics and Statistics, Smith College, Northampton, MA (Horton). Department of Food Relations and Applied Nutrition, University of Guelph, Guelph, Ontario, Canada (Haines). Channing Laboratory, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA (Austin, Field). Department of Society, Human Development, and Health, Harvard School of Public Health, Boston, MA (Austin). Department of Epidemiology, Harvard School of Public Health, Boston, MA (Field).

#### Abstract

**Objective**—To examine if body satisfaction is associated with body mass index (BMI) change and whether it protects against the development of frequent binge eating among overweight and obese adolescent girls.

**Methods**—We used prospective data from 9 waves of an ongoing cohort study of adolescents, the Growing Up Today Study. At enrollment in 1996, participants were 9 to 14 years old. Questionnaires were mailed to participants annually until 2001, then biennially through 2007. Girls who were overweight or obese in 1996 were included in the analysis ( $n=1,559$ ). Our outcomes were annual change in BMI and incident frequent binge eating, defined as binge eating at least weekly and no use of compensatory behaviors.

**Results**—At baseline, 57.2% of the overweight and obese girls were at least somewhat satisfied with their bodies. During 11 years of follow-up, 9.5% (95% confidence interval (CI) [7.8, 10.8]) of the girls started to binge eat frequently. Controlling for BMI and other confounders, overweight and obese girls who reported being at least somewhat satisfied with their bodies made smaller BMI gains ( $\beta=-0.10$  kg/m<sup>2</sup>, 95% CI [-0.19, -0.02]) and had 61% lower odds of starting to binge eat frequently (odds ratio (OR)=0.39, 95% CI [0.24, 0.64]) than their less satisfied peers. Compared to girls who were the least satisfied with their bodies, girls who were the most satisfied had 85% lower odds of starting to binge eat frequently (OR=0.15, 95% CI [0.06, 0.37]). The association between body satisfaction and starting to binge eat frequently was stronger for younger adolescents than older adolescents.



## NIH Public Access

Author Manuscript

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### Relationships between body satisfaction and psychological functioning and weight-related cognitions and behaviors in overweight adolescents

Taya R. Cromley, Ph.D.<sup>a</sup>, Stephanie Knatz, M.A.<sup>b</sup>, Roxanne Rockwell, M.A.<sup>b</sup>, Dianne Neumark-Sztainer, Ph.D. M.P.H., R.D.<sup>c,d</sup>, Mary Story, Ph.D., R.D.<sup>c,d</sup>, and Kerri Boutelle, Ph.D.<sup>b,d,e,\*</sup>

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#### Abstract

**Purpose**—To examine how differences in body satisfaction may influence weight control behaviors, eating, weight and shape concerns, and psychological well-being among overweight adolescents.

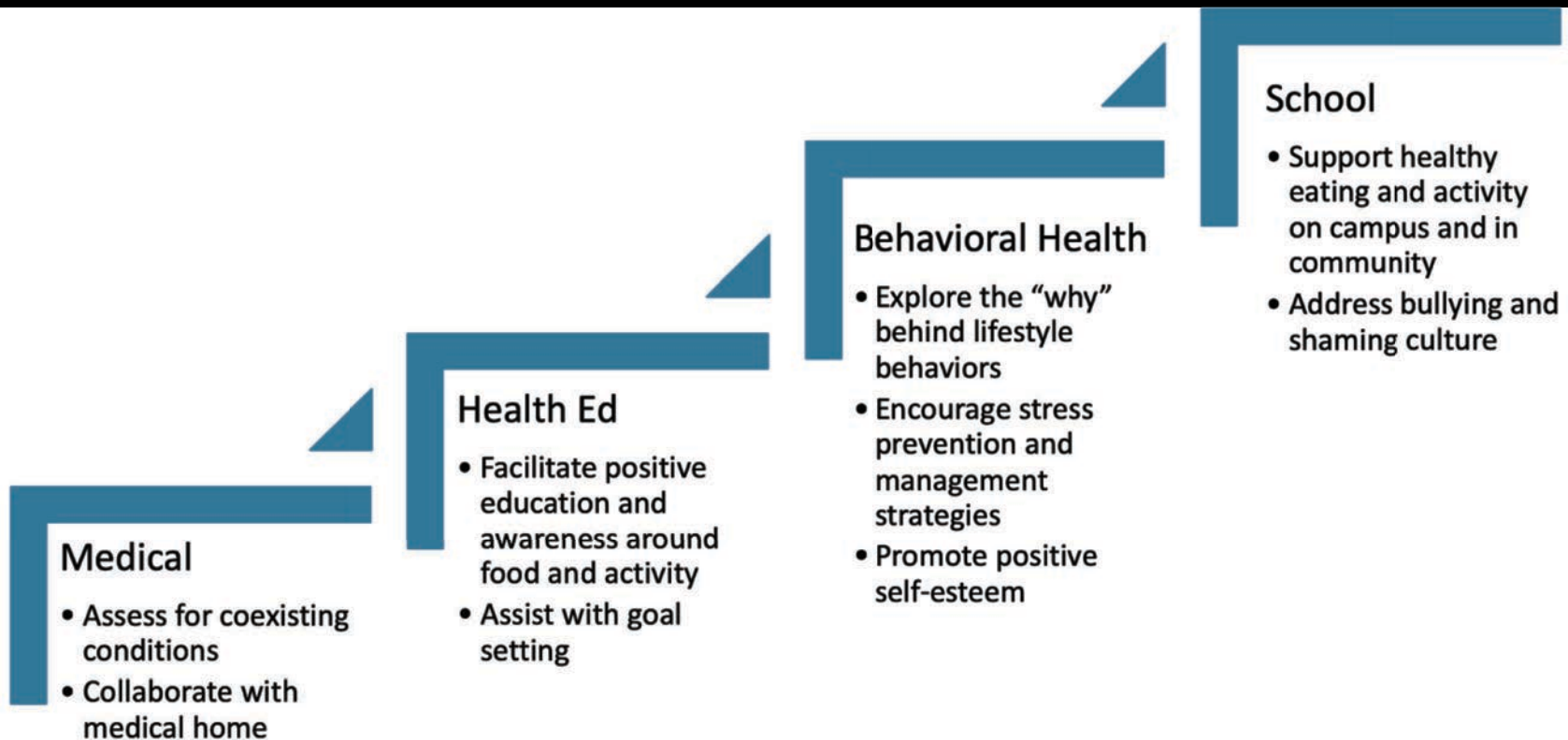
**Methods**—A sample of 103 overweight adolescents completed a survey assessing body satisfaction, weight control behaviors, eating-related thoughts and behaviors, importance placed on thinness, self-esteem, anger, and symptoms of depression and anxiety between 2004–2006. Logistic regression analyses compared overweight adolescents with high and low body satisfaction.

**Results**—Higher body satisfaction was associated with a lower likelihood of engaging in unhealthy weight control behaviors, less frequent fears of losing control over eating, and less importance placed on thinness. Overweight adolescents with higher body satisfaction reported higher levels of self-esteem and were less likely to endorse symptoms of depression, anxiety, and anger than overweight adolescents with lower body satisfaction.

**Conclusions**—Adolescents with higher body satisfaction may be protected against the negative behavioral and psychological factors associated with overweight.



# SBHC Interdisciplinary Approach



## Take home ideas

- Many current “obesity interventions” ignore the vital role of stress and trauma in weight management and weight disparities
- Interventions should avoid perpetuating stigma and/or shaming that may exacerbate mental health consequences of overweight and cause patients to avoid the health center
- The practice of frequent weighing does not improve weight outcomes in adolescents and may impact psychosocial well-being
- More research is needed to develop and evaluate interventions that are multi-disciplinary, body and person positive, and include mental health support for adolescents





**What questions do you have?**

THANK YOU!

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