

Why Weight?

Exploring relationships between
health, size, and anti-fat bias

Amity Calvin
UNM FM PGY-3
she/her/hers

This event is taking place on the
occupied indigenous land of the
Mescalero Apache people.

We honor their strength of community
and stewardship of their ancestral land
in the face of colonization.



Financial disclosures





Kasha Katuwe Slot Canyon

Objectives

- Discuss the history and limitations of the BMI
- Examine the data linking weight and health measures
- Assess the impact of anti-fat bias on health outcomes
- Evaluate the effectiveness of conventional weight-loss methods

Questions

- Where does the BMI come from?
- Is being fat bad for you?
- How does anti-fat bias show up in healthcare?
- What do diet and exercise do?
- What next?



Woodpecker Arch

A Word on Word Choice

Term	Used by...	Notes
Fat	Fat activists Weight stigma researchers	Highly descriptive without being medical, not preferred by patients
Weight, overweight, higher weight	Providers Psychologists	Generally preferred by patients
BMI	Public health researchers Providers	Useful for population research, not for individuals
[Morbidly] obese, obesity	Most people Providers	Not preferred by patients

Brochu et al, 2018; Puhl et al, 2010; Stuij et al, 2020

- ❖ For fat activists and some weight stigma researchers, the word “fat” is preferred. In part because it’s reclaiming the word, and in part because it’s blatantly not medical.
- ❖ “Weight, overweight and higher weight” are the words generally preferred by patients. Compared to “obese, obesity”, and particularly “morbid obesity” which are used by most providers but absolutely not preferred by patients.



Ah-Shi-Sle-Pah Wilderness

Where does the BMI come from?

The BMI

- 1830s: Quetelet- sociologist
- 1860s: Galton- father of eugenics
- 1900s: Insurance companies
- 1950s: Healthcare adopts BMI
- 1995: WHO adopts BMI
- 1998: Threshold lowered from 27.8 to 25
- 1999+: “Obesity Epidemic”

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12	13	13	14	15	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	25	26	26	26
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<https://patient.info/doctor/bmi-calculator-calculator>

Blackburn & Jacobs, 2014

- ❖ Adolphe Quetelet (Ket-lay), a Belgian sociologist and also a founder of phrenology. Started a “search of characteristics of the average man”, studied only white men. Landed on the BMI in 1832, easy to measure, made a bell curve. Never intended for individuals- it was built for population research only.
- ❖ After Quetelet dies, Francis Galton takes over (the father of eugenics). Believed that the middle of the bell curve was not ‘normal and healthy’, it was ‘mediocre’, and something to be overcome. Here the BMI shifts from being used for populations, to being used for individuals.
- ❖ Early 1900s- insurance companies in the US start using BMI to figure out how much to charge people.
- ❖ 1950s- healthcare providers start to adopt it.
- ❖ 1985- NIH defines obesity using only BMI, followed by the World Health Organization in ‘95.
- ❖ 1998- the NIH dropped the BMI threshold for ‘overweight’ from 27.8 to 25, 25 million people in the US “medically fat” overnight.
- ❖ 1999+, “Obesity Epidemic” became the prevailing narrative.

The BMI

Overestimates health risks for Black people

Underestimates health risks for Asian people

Never designed for women/AFAB

The Endocrine Society, 2009; WHO, 2000



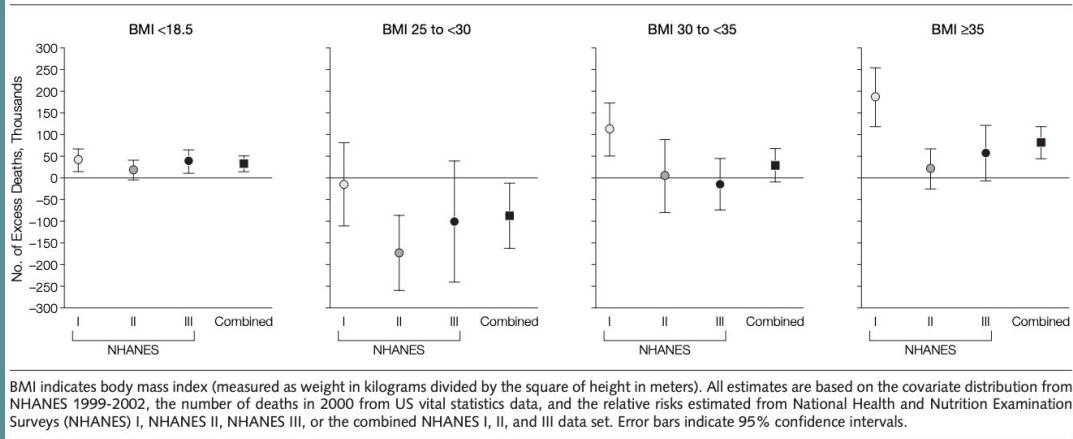
Goblin Colony

Is being fat bad for you?



Weight and Mortality

Figure 2. Estimated Numbers of Excess Deaths in 2000 in the United States Relative to the Healthy Reference BMI Category of 18.5 to <25, Shown by Survey and BMI Category



Flegal et al, 2005

- ❖ A prominent 2005 JAMA study used data from the National Health and Nutrition Survey.
- ❖ n=36,000
- ❖ The horizontal line in each graph represents the average mortality of BMI group 18-25, what we call “normal” weight. The first graph is the ‘underweight’ group, the second is ‘overweight’, the last two are for ‘obesity’ groups, BMI 30-35, then BMI>35.
- ❖ This study did find that both the ‘underweight’ and ‘obese’ groups were associated with increased mortality (above the horizontal line), but the overweight group had a reduction in mortality (below the horizontal line).

BMI 18-25 ('normal') and 30-35 (obese): Same mortality

BMI <18 (underweight): Highest mortality

BMI 25-30 (overweight): **Lowest rate of all-cause mortality**

Flegal et al, 2013

- ❖ 8 years later, a 2013 JAMA Meta-analysis with n=2.8million found that:
 - the 'normal' and 'obese' weight groups had the same mortality.
 - the 'underweight' group had the highest mortality
 - The 'overweight' group had the LOWEST rate of all cause mortality

BMI 30-35: 30% were metabolically healthy

BMI 25-30: 50% were metabolically healthy

BMI 18-25: 30% were metabolically unhealthy

Tomiyama et al, 2016

- ❖ In a 2016 study of more than 40,000 adults in the US, researchers compared BMIs with specific health measures, like insulin resistance, blood pressure, and cholesterol.
- ❖ 30% of people with a BMI 30-35 (obese category), and 50% with BMI 25-30 (overweight category), were metabolically healthy by these measures. On the other hand, 30 percent of those with a “healthy” BMI, between 18-25, were metabolically unhealthy by these measures.

57 Varieties of Obesity

Leptin deficiency
LepR deficiency
POMC deficiency
MC4R deficiency
aMSH deficiency
Sim-1 deficiency
PC-1 deficiency
KSR2 deficiency
MRAP2 deficiency
SH2B1 deficiency
BDNF deficiency
trkB deficiency
Carpenter syndrome
Cohen syndrome
Ayazi syndrome
MOMO syndrome
Rubenstein-Taybi syndrome
Fragile X syndrome
Albright osteodystrophy

Prader-Willi syndrome
Bardet-Biedl syndrome
Alstrom syndrome
BFL syndrome
Hypothalamic
Hyperphagic
Thermogenesis deficient
Circadian-disrupted
Stress-induced
Viral
Central
Peripheral
Diffuse
Neonatal
Early childhood
Peripubertal
Gestational
Menopausal
"Healthy"
Metabolic

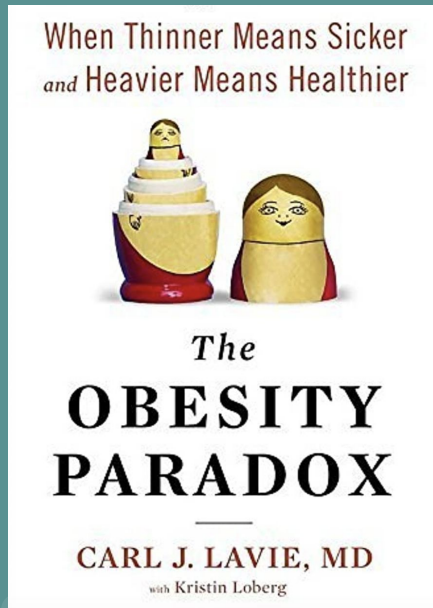
Inflammatory
Diet-dependent
Exercise-sensitive
Sleep-sensitive
Insulin-induced
Steroid-induced
Progesterone-induced
Psychotropic-induced
Antibiotic-induced
Endocrine disruptor
Phentermine-responsive
Lorcaserin-responsive
Topiramate-responsive
Metformin-responsive
Bupropion-responsive
GLP-1 responsive
Bypass-responsive
Bypass-resistant
Gastric band-responsive



Adapted from Kaplan L, presentation at the 29th Blackburn Course in Obesity Medicine, June 2, 2016

<https://conscienhealth.org/2016/06/57-varieties-obesity-moving-past-one-size-fits/>

- ❖ Dr Lee Kaplan, director of the Obesity Institute at Mass General Hospital, has identified at least 57 types of obesity. These include medical conditions, genetic syndromes, medication-related weight gain, stress-induced cortisol production, etc.



www.amazon.com/Obesity-Paradox-Thinner-Healthier-2014-04-03

Bacon & Aphramor, 2011; Morse et al 2010; Ross et al 1997

- ❖ The Obesity Paradox is the term used to describe the consistent findings that, while higher BMI is associated with higher rates of certain diseases, people with higher BMI have longer survival for those diseases.

When Thinner Means Sicker
and Heavier Means Healthier



The
**OBESITY
PARADOX**

CARL J. LAVIE, MD
with Kristin Loberg

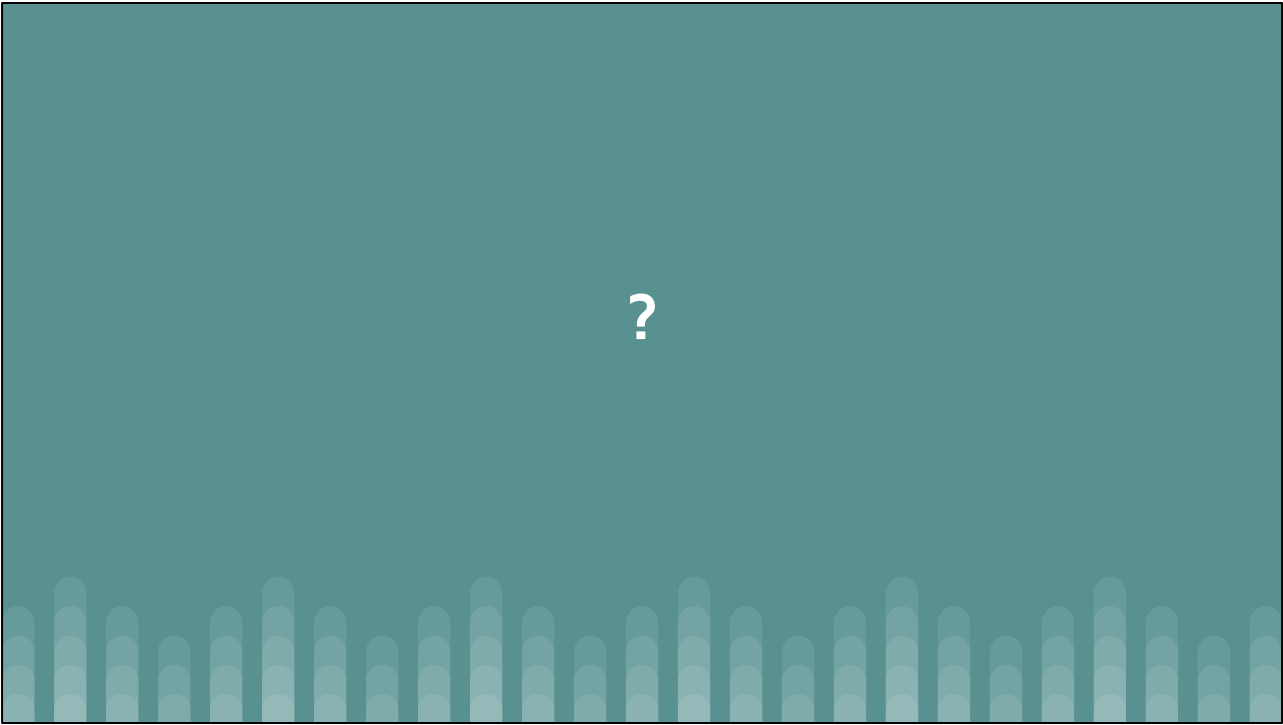
www.amazon.com/Obesity-Paradox-Thinner-Healthier-2014-04-03

Bacon & Aphramor, 2011; Morse et al 2010; Ross et al 1997

Longer survival for:

T2DM
HTN
CAD
CKD
post-MI
post-CABG
post-dialysis

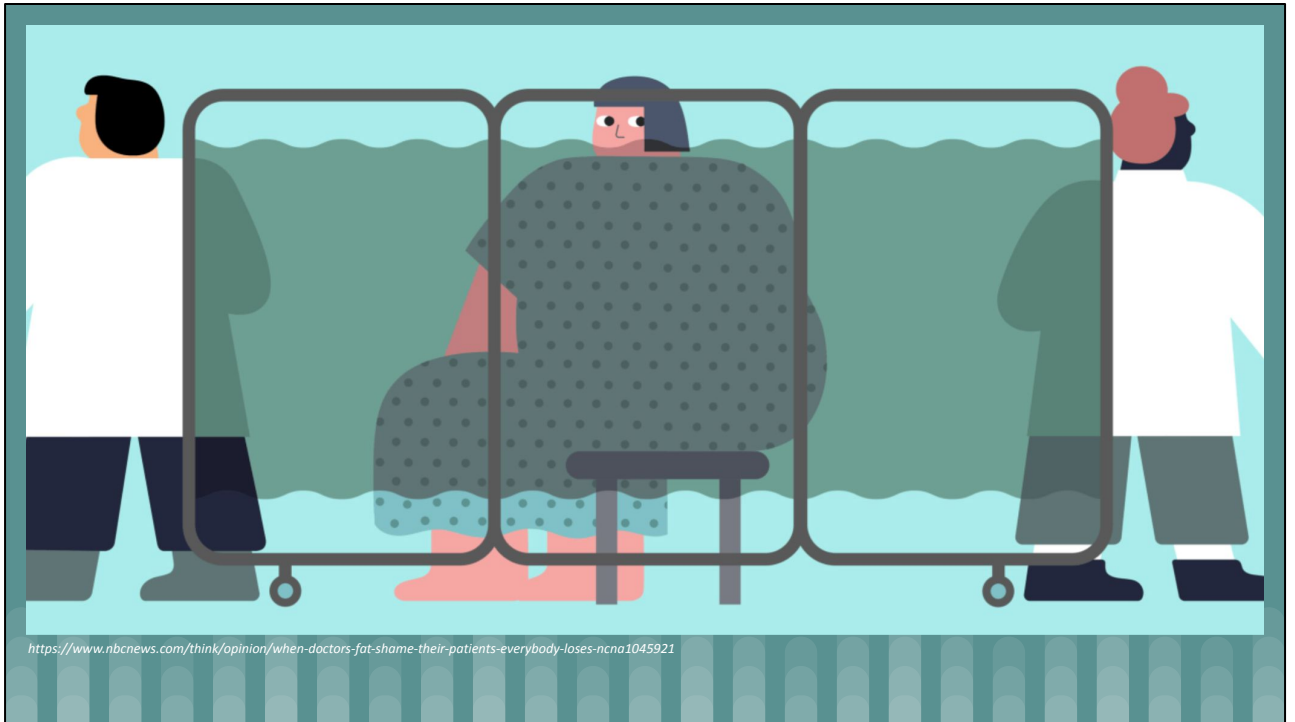
- ❖ We call it a 'paradox' because it feels 'inexplicable', and we can't agree on a reason for it.
- ❖ Critics of the term "Obesity Paradox" point out that, we can't just call something a paradox because we can't explain it, and then go forward as if it didn't exist. Which is what we've been doing. We acknowledge that obesity is very complicated, and yet our fix for it remains the same- lose weight.
- ❖ In short, yes, higher weight is associated with many medical conditions, but higher weight alone might not be a health problem in itself and weight loss might not be the solution.





Bisti/De-Na-Zin Wilderness

How does anti-fat bias show up in healthcare?



- ❖ Anti fat bias is an umbrella term that describes the attitudes, behaviors, and social systems that marginalize fat bodies.
- ❖ Anti fat bias is also called weight stigma, weight bias, size discrimination. Fat activists prefer 'anti-fat bias' because this works to reclaim and destigmatize the word 'fat'.



- ❖ Before getting into anti-fat bias in healthcare specifically, here are just a few ways anti-fat bias shows up generally:
 - One is wage disparity. Fat women have been found to have a wage disparity anywhere between 6-24%. For men, the gap is 4-20%.
 - In the classroom. Teachers have been found to grade fat students more harshly.
 - Moral perception. In one study, when 3-5 year olds were asked to identify the mean character in a story, 80% of the time they identified the fat kid.



<https://nutrition.org/nutrition-messaging-right/>

- ❖ These billboards were part of a 2011 campaign by a pediatric hospital in Georgia, and they look like Wanted posters.
- ❖ What these say, is “WARNING: These bodies are not okay. These bodies are dangerous. These bodies need to be changed immediately.”



Hunger et al, 2014

- ❖ A longitudinal study of teenagers found that:
- ❖ Being labeled as 'too fat' at age 10 was a predictor of weight gain by age 19, regardless of their initial size.

Healthcare providers...

Report less respect for fat patients

Spend 28% less time with fat patients

Build less emotional rapport with fat patients

Huizinga et al, 2009; Hebl & Xu, 2001; Gudzone et al, 2013

Self-perception as overweight



Higher BP, Lipids, A1C

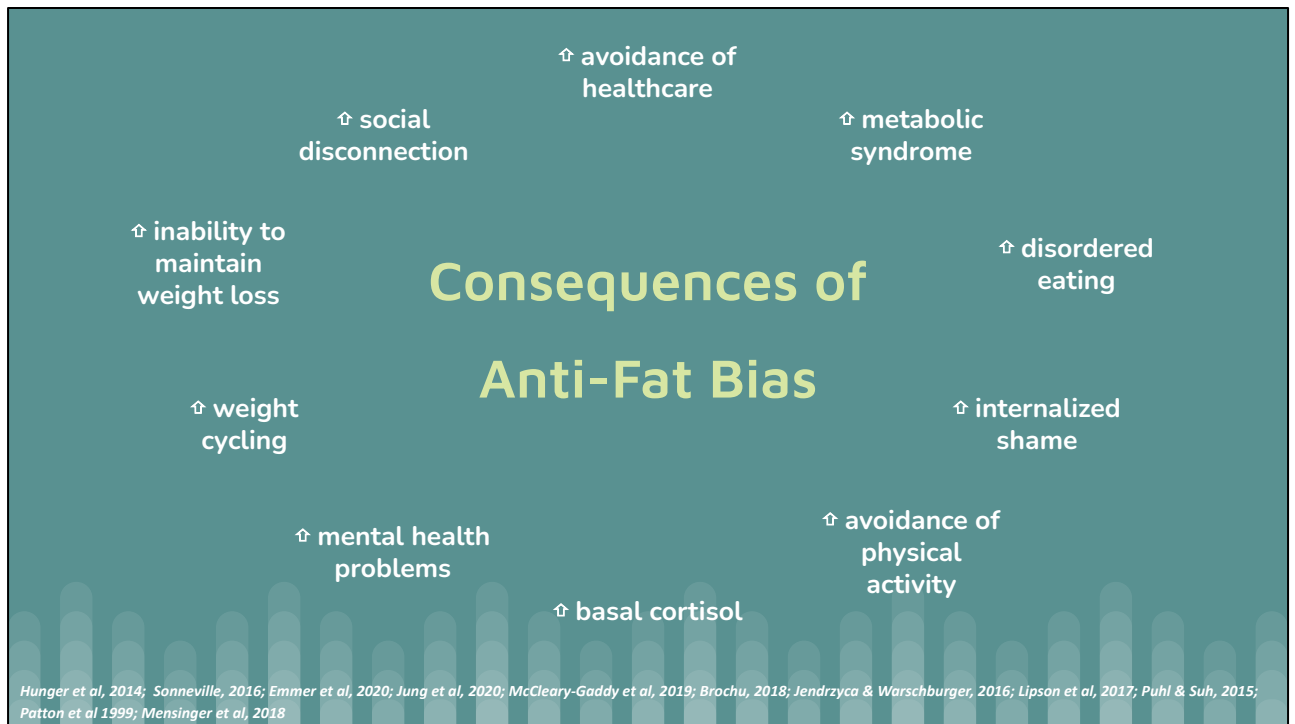
Experience of anti-fat bias



60% increased mortality risk,
independent of BMI

Tomiyama et al 2018; Daly et al 2017; Sutin et al 2015

- ❖ **Self-perception** as being overweight has been associated with higher blood pressure, cholesterol, and A1C
- ❖ A study of n=19,000 found that: **Experience** of anti-fat bias was associated with 60% increased mortality risk, independent of BMI. The authors note that the bias associated with weight could be more harmful than the weight itself.



- ❖ Things linked to anti-fat bias: weight cycling, increased cortisol, metabolic syndrome, social disconnection, and... avoidance of healthcare.

1.7x

Simon et al, 2006

- ❖ Not much data on what we're missing
- ❖ Single study of 300 autopsies, 'obese' patients 1.7 times more likely to have significant and undiagnosed medical condition (eg endocarditis, ischemic bowel disease, or lung cancer).

Eric Garner

1970-2014



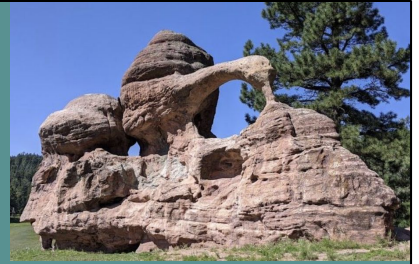
<https://nymag.com/intelligencer/2019/06/eric-garner-death-inevitable-says-lawyer.html>

Cheney-Rice, 2019 (New York Magazine)

- ❖ In the trial for his murder by chokehold, the police attorney argued for clearing of all charges because Eric Garner, quote,
- ❖ "Died from being morbidly obese."
- ❖ "He was a ticking time bomb that resisted arrest. If he was put in a bear hug, it would have been the same outcome."
- ❖ In a trial followed by the entire country, their argument was that a fat person cannot be murdered, doesn't deserve justice for their murder, because they are fat.

breathe





Teakettle Rock

What do diet and exercise do?

2017 Cochrane Review: diet & exercise in teens

⇒ weight loss: **1 BMI pt in 6-24 months**

2011 Meta-analysis: aerobic exercise

⇒ weight loss: **3.7 lbs in 12 months**

2006 Health Initiative RCT: calorie reduction

⇒ weight loss: **0.9 lb in 7 years**

Al-Khudairy et al, 2017; Thorogood et al, 2011; Howard et al, 2006

- ❖ Cochrane Review looked at 44 RCTs that studied diet, physical activity and behavioral interventions for weight loss for 12-17yo kids. They found Low Quality evidence that these interventions reduce BMI, mean difference was 1 BMI point in 6-24 months.
- ❖ 2011 meta-analysis evaluated Moderate-intensity aerobic exercise: found average weight loss of 3.7lbs in 12 months.
- ❖ 2006 Health Initiative, n=48,000, studied long-term calorie reduction: found average loss of 0.9 lb after 7 years.

Review of calorie restriction diets:

Majority of dieters had complete weight regain.

30-60% re-gained more weight than they lost.

Mann et al, 2007

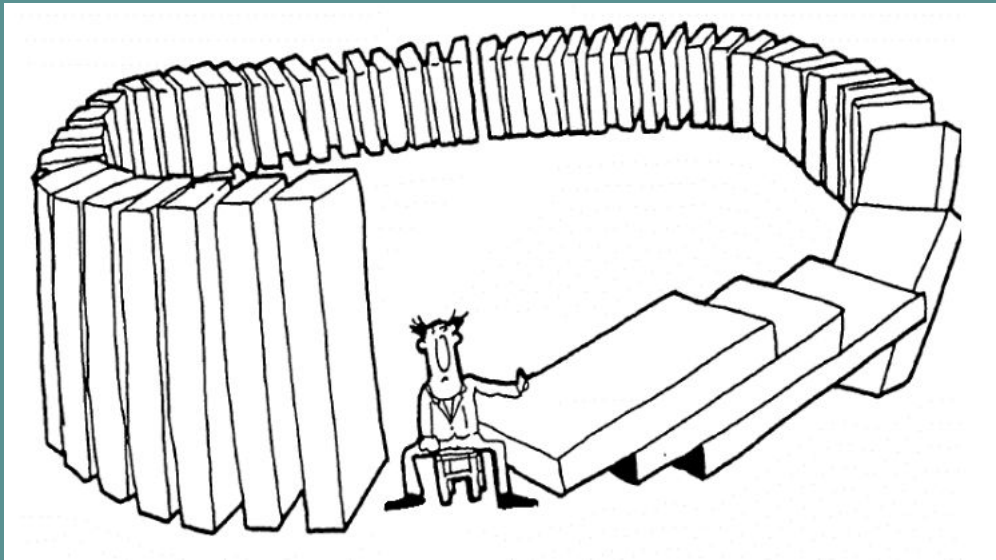
- ❖ UCLA review of 31 studies, long-term outcomes of calorie-restricting diets.
- ❖ Majority of dieters had complete weight regain, 30-60% re-gained more weight than they lost.
- ❖ Sustained weight loss, was found only in a small minority within 4-5 years.



<https://www.science.org/content/article/do-no-unconscious-harm-can-hidden-prejudices-medicine-stamped>







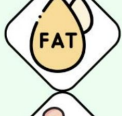



Keeffer et al, 2020

- ❖ 57% of healthcare providers believe obesity can be entirely prevented, and 60% believe it can be cured with lifestyle. (n=5600)



<https://www.needanotherlook.com/consequences>

Side Effects of Dieting

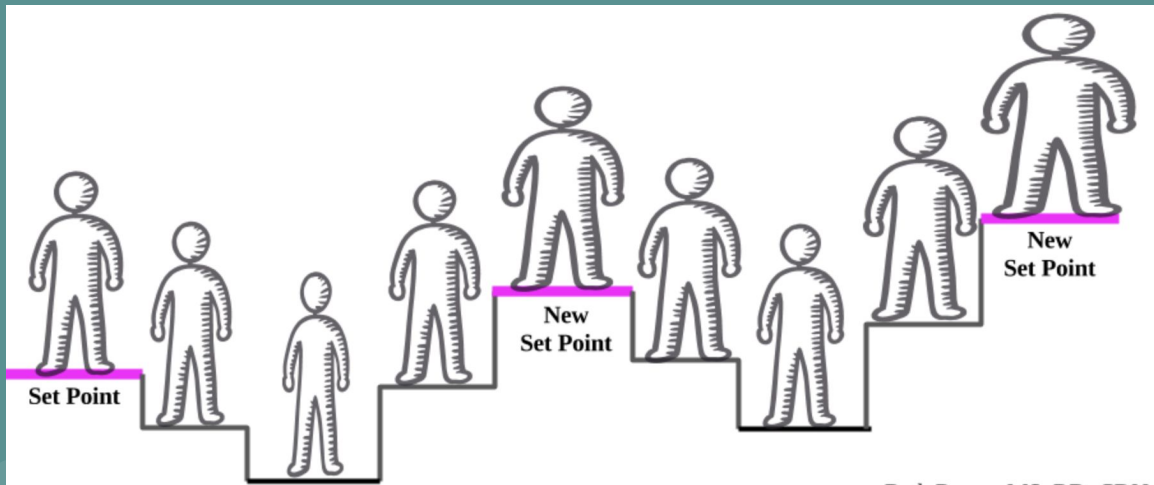
Fatigue			Constipation
Nutrient Deficiency			Mental Illness
Imbalances Hormone			Not Sustainable
Retains Fat Weight			Risk of Eating Disorders
Impairs Bone Health			Imbalances Electrolyte

<https://www.artofliving.org/in-en/wellbeing/physical/healthy-living/10-side-effects-fad-diet>

Pi-Sunyer, 1993

- ❖ Dieting and weight loss carry heavy risks.
- ❖ Higher risk of gallbladder disease, loss of muscle mass, liver dysfunction, digestive problems, nutritional deficiencies, decreased bone health, and of course eating disorders.

Weight Cycling



<https://askaboutfood.com/how-dieting-makes-you-gain-weight-may-2019/>

Lowe et al, 2013

- ❖ “Yo-yo-ing” or “yo-yo dieting”
- ❖ Growing body of research showing that dramatic weight loss may permanently suppress a person’s metabolism, leading to increased weight gain in the future.
- ❖ “Set point theory”, where the body’s metabolism establishes a new set point with every big change.

Weight Cycling

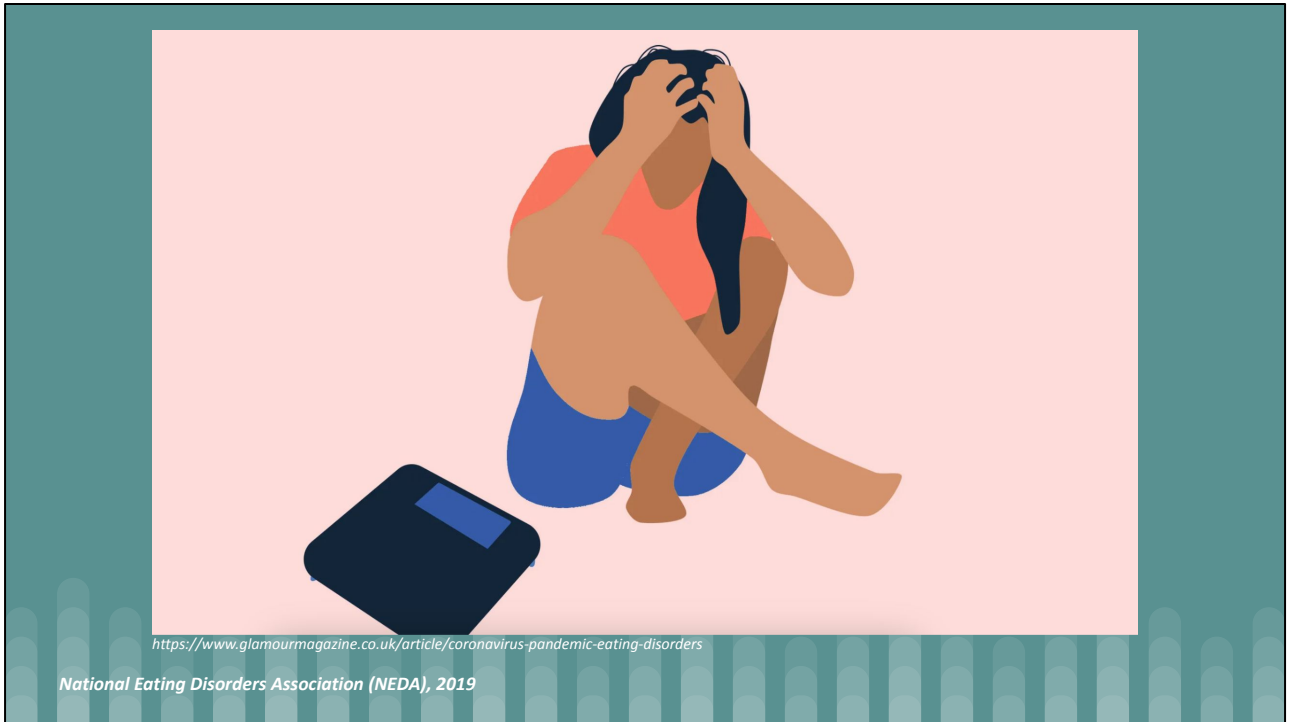
↑
Cardiovascular
Disease

↑
Hypertension

↑
All-Cause
Mortality

Zou et al, 2019

- ❖ A 2019 systematic review of 23 studies, N=>400,000, linked weight cycling to increased risk of cardiovascular disease, HTN, and an increase in all-cause mortality.



- ❖ National Eating Disorder Association in 2019: “Dieting is the most important predictor of developing an eating disorder.”
- ❖ In the study they cited: teenagers who dieted were 5x more likely to develop an eating disorder.

\$70,000,000,000.

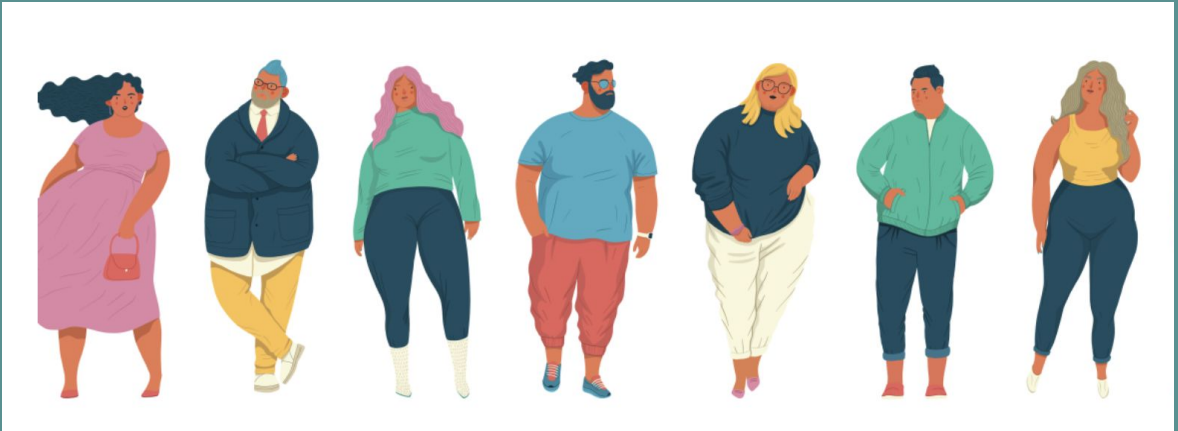
O'Brien et al, 2023 (Wall Street Journal); Appelbaum, 2020 (New York Times)

- ❖ The weight loss product and diet industry is worth over \$70 billion dollars.
- ❖ \$70 billion is enough to provide housing for every person experiencing houselessness in the US



Kasha Katuwe Tent Rocks

What next?



<https://verdict.justia.com/2021/01/22/should-the-law-prohibit-anti-fat-discrimination>

- ❖ Reframing my “nutrition and exercise” spiel: Health is the goal, not Weight. Of all the numbers we have to measure health, weight doesn’t tell me much
- ❖ Shift away from weight-focused talk: opens up room for the patient to breathe, don’t have to defend themselves to me. Many ways to pursue health, without weight being at the center of it.



<https://columbuspark.com/2019/09/26/weight-stigma-awareness-week-and-health-at-every-size/>

Health At Every Size, 2020 (ASDAH)

- ❖ Health at every size everyone has the potential for health at every size, weight alone does not define a person's health.
- ❖ Not against weight loss- it just cautions about the *pursuit* of weight loss at any cost.



- ❖ No takeaways, because that's not the point. Want to leave room for new learning, let our minds be changed.

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