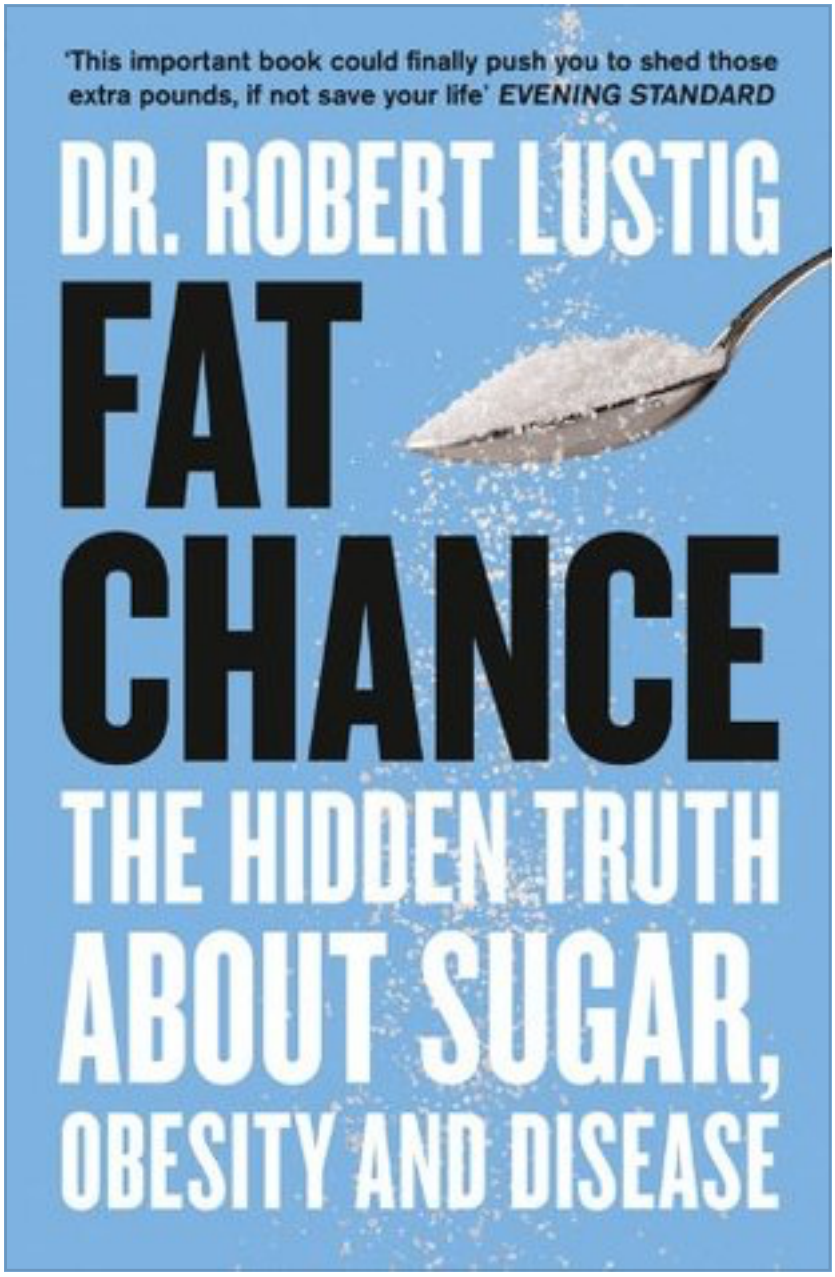
#99: Fat Chance

#books/date/2019/09 #books/type/fiction #books/rating/★★★



Overview

> "Obesity is a biochemical alteration in the brain promoting leptin resistance with resultant weight gain and secondary changes in behavior to maintain energy balance. The apparent character defects of gluttony and sloth are not the cause of the problem; they are the result of the problem. The biochemistry drives the behavior, not vice versa." (pg. 47)

I bought this book as a reaction to my chronic sweet-tooth—sort of a scare-yourself-straight tactic. It scared me, but I'm still working on the behavior changes.

Dr. Robert Lustig, a pediatric endocrinologist goes through the science of obesity in great detail, and clearly lays out how sugar is making us sick. Obesity is caused by many different factors and gluttony/laziness are not the driving force—obesity is a biochemical problem, one that involves hormones and specific things that we take into our body, epigenetics (changes in the areas around our genes that can cause them to be turned on or off), and environmental factors. Needless to say, it's a complex problem with no easy answers.

In terms of practical advice, I noted learnings around the importance of breakfast, eating an early dinner, and of course reducing sugar intake. Will I take this advice to heart (and stomach). I certainly hope so!

Book Notes

PART I: THE GREATEST STORY EVER TOLD

CHAPTER 2 - A CALORIE IS A CALORIE—OR IS IT?

- "Obesity is a combination of several factors: physics, biochemistry, endocrinology, neuroscience, psychology, sociology, and environmental health, all rolled up into one problem. The factors that drive the obesity pandemic are almost as myriad as the number of people who suffer from it." (pg. 9)
- Problems with "a calorie is a calorie"…
  - "There is no way anyone could actually burn off the calories supplied by our current food supply."
  - "If a calorie is a calorie, then all fats would be the same…likewise all proteins would be the same…all carbohydrates would be the same." (pg. 20)
  - "Our consumption of fructose has doubled in the past thirty years and has increased sixfold in the last century." (pg. 21)
  - **"A calorie burned is a calorie burned, but a calorie eaten is not a calorie eaten."**

PART II: TO EAT OR NOT TO EAT? THAT'S NOT THE QUESTION

CHAPTER 4 - GLUTTONY AND SLOTH - BEHAVIOR DRIVEN BY HORMONES

- "Insulin can block leptin signaling in the brain, and therefore insulin acts as a 'leptin antagonist'." (pg. 45)

- "Storing energy is a biochemical processionals not under the patient's control."
- "Obesity is a biochemical alteration in the brain promoting leptin resistance with resultant weight gain and secondary changes in behavior to maintain energy balance. The apparent character defects of gluttony and sloth are not the cause of the problem; they are the result of the problem. The biochemistry drives the behavior, not vice versa." (pg. 47)
- "The majority of humans, regardless of weight, release double the insulin today that we did thirty years ago for the same amount of glucose." (pg. 47)

CHAPTER 5 - FOOD ADDICTION—FACT OR FALLACY

- "Once sensitized, animals and humans may become hyperrresponsive to a new substance; this is known as cross-serialization. In other words, if the brain has been wired for addiction, it's easy to switch from one substance to another." (pg. 51)
- Binge eating disorder: eating until uncomfortable (pg. 55)
- Salt is not an addictive substance: "People's taste for salt can be retrained; hypertensive adults can be retrained to a lower-salt diet within twelve weeks." (pg. 58)

CHAPTER 6 - STRESS AND "COMFORT FOOD"

- "Both cortisol and the sympathetic nervous system (SNS) raise blood sugar and blood pressure, to prepare the individual for meeting and adapting to stress." (pg. 67)
- "Chronic stress or heightened responses to stress due to ineffective coping strategies will unleash a long-term cortisol cascade."
- "Stress breeds more cortisol, which in turn breeds more stress." (pg. 68)
- "Human research shows that cortisol specifically increases caloric intake of 'comfort foods' (those with high energy density or high fat and high sugar)." (pg. 68)
- Cortisol reactivity controls the magnitude of this behavior. Can this be measured?
- "Sleep deprivation has been shown to increase cortisol and reduce leptin, and in doing so, mimic starvation and hunger." (pg. 69)
- Limbic Triangle
    - "Chronic insulin action at the VMH inhibits leptin signaling, which is interpreted as starvation. This decreases SNS activity (sloth) and increases vagal activity (hunger). In the VTA, chronic insulin deregulates hedonic reward pathways by inhibiting leptin signaling (reward). You want to eat more, especially high-fat and high-sugar treats, which results in excessive energy intake. Chronic activation of the amygdala increases levels of cortisol (stress). By itself, this promotes excess food intake and insulin resistance, ratcheting up insulin levels and accelerating weight gain." (pg. 71)

PART 3 - "CHEWING" THE FAT

CHAPTER 7 - THE BIRTH, CARE, AND FEEDING OF A FAT CELL

- Epigenetics - "Changes in the areas around our genes that can cause them to be turned on or off, usually inappropriately." (pg. 78)
- "There is no fat accumulation without insulin. Insulin shunts sugar to fat. It makes your fat cells grow. The more insulin, the more fat period. While there are many causes of obesity, excess insulin (known as hyperinsulinemia) in some form is the 'final common pathway' for the overwhelming majority of them. Block it, and the fat cells remain empty." (pg. 82)

PART 4 - THE "REAL" TOXIC ENVIRONMENT

CHAPTER 11 - FRUCTOSE—THE "TOXIN"

- "Americans currently consume sugar at a rate of 6.5 ounces a day, or 130 pounds a year." (pg. 118)
- 200 calories per day of sugar is recommended by the American Heart Association (pg. 119)
- "Consumption of fructose does not stimulate an insulin response so leptin doesn't rise and the animal keeps eating." (pg. 128)

CHAPTER 12 - FIBER—HALF THE "ANTIDOTE"

- Why brown rice is better than white rice…
  - "When you ingest the whole kernel, your intestines will slowly strip away the outside bran, making the rise in serum glucose occur slowly and reach a lower peak concentration. But when the outside bran is removed by processing, your liver is hit with an influx of glucose and the rise occurs quickly, with a higher peak. And that means a higher insulin peak." (pg. 133)
  - "Anything that will move the food through the intestine faster will generate the satiety signal sooner. Insoluble fiber does just that." (pg. 136)

CHAPTER 13 - EXERCISE—THE OTHER HALF OF THE ANTIDOTE

- "Resting energy expenditure (REE) accounts for about 60 percent (or 1200 calories per day) of total energy expenditure…Thermic effect of food (TEF, the energy you burn to absorb, digest, and metabolize the food you eat) accounts for about 10 percent (200 calories)." (pg. 142)
- "Another way to take advantage of TEF is to consume some form of protein at breakfast. Burning protein costs more energy than burning other foodstuffs. Protein doesn't not stimulate insulin to the same extent as carbohydrates do, and increases satiety better than other nutrients." (pg. 144)
- Cardio isn't best…
  - High-intensity interval training or strength training provided equal improvements to waist circumference and blood vessel flow (pg. 147)

- "Irrespective of weight, consistent exercise is the single best way for people to improve their health." (pg. 149)

PART 5 - THE PERSONAL SOLUTION

CHAPTER 17 - ALERTING YOUR FOOD ENVIRONMENT

- Successful diets share two things in common. "They are low in sugar, and they are all high in fiber (and therefore high in micronutrients)…You now hold the keys to kingdom." (pg. 192)
- Curbing sugar consumption…
  - Take all recipes and reduce sugar amount by one third (pg. 197)
  - "If it's a liquid, it should have less than 5 calories"
  - "If it's a solid, it should have 3 grams of fiber or more."

CHAPTER 18 - ALTERING YOUR HORMONAL ENVIRONMENT

- The goal of obesity management is to reverse the hormonal dysfunction by accomplishing the following (pg. 212):
  1. Get the insulin down—to reduce your body fat and improve leptin resistance
     - "The best way to reduce insulin release is to limit the exposure of the pancreas to the agent that drives insulin up, which is glucose. This means cutting back on refined carbohydrates." (pg. 212)
  2. Get the gherkin down—to reduce hunger
     - "The best way to do so is to eat breakfast. If you don't eat breakfast, you don't ratchet up your thermic effect of food, gremlin levels keep rising as the morning drags on, and you will eat more at lunch dinner, and into the evening."
     - "Eating after dinnertime is problematic for everyone, because any energy consumed that late will have no chance to be burned." (pg. 213)
     - "**Dinner must consistently occur a good four hours before bedtime**." (pg. 214)
  3. Get the PYY up—to hasten satiety (the feeling of being full)
     - "The signal for satiety—the switch that turns off the meal—is peptide YY. Between the stomach and the PYY cells are twenty-two feet of intestine…the key is to wait twenty minutes for second portions." (pg. 214)
  4. Get the cortisol down—to reduce perceived stress and hunger and reduce deposition of energy into visceral fat.
     - "Although exercise raises your cortisol while you're doing it (to mobilize glucose and free fatty acids for energy), it reduces your cortisol levels for the rest of the day." (pg. 215)
     - "Here's perhaps the most important idea in this book for raising children. If your child lays off the soft drinks and exercises, he will create time. If he exercises

vigorously for one hour, his five hours of homework will take only four hours because he will be more focused and efficient. He will have created time." (pg. 215)

- "Obesity is a phenotype (a composite trait) of many different pathologies." (pg. 218)
- "Ninety percent of the food produced in the United States is sold to you by a total of ten conglomerates—Coca-Cola, ConAgra, Dole, General Mills, Hormel, Kraft, Nestle, Pepsico, Procter and Gamble, and Unilever." (pg. 234)