

What Really Caused the Obesity Epidemic?

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✓ Fact Checked

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STORY AT-A-GLANCE

- › At the heart of the calorie myth is a fundamental error in the understanding of the law of thermodynamics. Energy is used up in making nutrients available in your body
- › The energy used up in making protein available to your body is around 25 to 30% whereas the thermic effect of carbohydrates is around 6 to 8%
- › To lose weight, always eat real food; limit the number of times you eat each day; and if you're still struggling, reduce your carbohydrate intake

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Most people believe losing weight follows a simple equation: eat less, move more. But this simply isn't true, and Zoe Harcombe's book, "[The Obesity Epidemic: What Caused It? How Can We Stop It?](#)" is the most comprehensive document I've ever seen that exposes this fallacy. If you've ever been curious why a calorie isn't a calorie, this is a must-read book.

Harcombe has a Ph.D. in public health nutrition, and her book provides a detailed analysis of the historical reasons behind the calorie myth, and why it's false.

"I could and probably should've written [the book] about 20 years ago. I had an eating problem as a teenager [and] I actually disproved the calorie theory back when I was 15 or 16 [years old] ..." she says.

"I found a book that said if you create a deficit of 1,000 calories a day, either by eating less and/or doing more, then you will lose 1 pound for every 3,500 calorie deficit you create. So, that should be 2 pounds a week.

I started this when I was only about 120 pounds ... [At the end of the year] I had lost 20 to 30 pounds. I was quite unhealthy, to be honest, but I hadn't lost the absolute, classic 104 pounds the formula said I should've lost in fat alone, let alone water and lean tissue.

So, I should've known then that this is a heap of nonsense. But it took me another 20 or so years to really work it out."

The Role of Thermodynamics in Understanding Obesity

Approximately 39% of the developed world is overweight,¹ yet most people seek to be slim. In the U.S., 73.6% of adults² are now either overweight or obese. Worldwide, the U.S. is No. 12 in the top obese countries, at 36.2% of adults falling in the obese category.³ So what's going on?

Harcombe is a mathematician, gaining entry to study math at Cambridge University on a scholarship. Interestingly, this is where British computer scientist pioneer and mathematician Alan Turing studied math. While there, she switched to economics, but her interest in numbers didn't change.

"It was a logic problem to me, this obesity paradox. We don't want to be overweight and yet we are. Clearly, what we are telling people, in terms of eat less, do more, if it were as simple as that we wouldn't have a problem, let alone an epidemic," she says.

At the heart of it is a fundamental error in the understanding of the law of thermodynamics. Most people fail to appreciate that there are many intricate biochemical dynamics that occur that are unaccounted for when you just count calories in and calories out.

Thermodynamics refers to heat and movement: thermo = heat, dynamics = movement. It's about the movement of energy. As explained by Harcombe, the first law of thermodynamics says that:

"In a closed system, in a thermal equilibrium, energy will neither be created nor destroyed. It shall be conserved.

Now, immediately you say the human body is not a closed system. We're not in thermal equilibrium although we're continuously trying to get there. So, then you have to bring in the second law, and people working in the field of nutrition never bring in this second law," Harcombe says.

"The second law is often called the law of common sense. It says: 'Energy will be lost and energy will be used up in creating available energy.'

That's where it gets really interesting in the field of nutrition. Of course, we sweat, we lose liquids, and we lose fluid substances. We go to the toilet and [lose] all the rest of it. But far more than that, it's the energy used up in making available energy."

Thermic Effects of Nutrients Vary

For example, the thermic effect of protein, i.e., the energy used up in making protein available to your body, is somewhere around 25 to 30%, whereas the thermic effect of carbohydrates is around 6 to 8%.

So, as noted by Harcombe, there's a massive, competitive advantage at the outset. But even then, it's not about the calories — it's about energy, and the energy in the human body says nothing about weight.

The calorie theory claims there are 3,500 calories to one pound of body fat. Yet no one in public health seems to know where that calculation came from. Nor can they prove it's true. Harcombe has a [blog](#) in which she has challenged those in public health to prove the calorie theory is true or stop using it.

As noted by Dr. Malcolm Kendrick, author of "[Doctoring Data: How to Sort Out Medical Advice From Medical Nonsense](#)," much of the medical advice we take as gospel is simply made up. There's no support and no science for it, and the calorie theory appears to fall into this category.

While there's science to show the number of calories in a pound of fat, it's a major flaw in logic to say that all you have to do to lose that pound of fat is to create an equal caloric deficit.

Starvation Study Disproved Calorie Theory in the 1940s

Another variable of the equation is your body's innate resistance to weight loss. Dr. Ancel Keys actually disproved the calorie theory in the mid-1940s.

"America had just joined the war with the bombing of Pearl Harbor ... and he was looking at Europe saying, 'These guys in Europe, they're introducing rationing.' In fact, they'd been rationing since 1941.

When does rationing become starvation and what happens when humans don't get the calories, protein, fats, vitamins, and minerals they need for sustained period of time?"

Dr. Keys decided to do an experiment to investigate the impact of starvation on human beings, and ended up getting 36 conscientious objectors to volunteer. First he monitored them to determine what it took to maintain their weight, and then he placed them on a 24-week calorie-restricted diet of about 1,600 calories. They also had to walk for about 45 minutes a day.

"Many dietitians today would say, 'That's not enough in terms of eat less, do more. You need to eat even less and do even more.' But within about 10 weeks, these guys gave up their studies on the campus at Minnesota.

They stopped courting women despite the fact they're the only blokes still around in America. They lost interest in anything and everything other than

food, where the next meal was coming from, and recipes. They became obsessed [with food]. If ever we needed an insight into eating disorders, this experiment provided it. And they didn't lose anywhere near the weight that would've been predicted by that formula.

Keys had to keep moving the calorie intake down ... And at about 24 weeks, even when he was taking them down below 1,000 calories a day, these normal-sized men were not losing any more weight. He just couldn't elicit any more weight loss.

When he stopped the experiment and looked at what had happened with re-feeding, they all overreacted. They regained all the weight within a few weeks, and – here's the interesting bit – plus about 10% more."

Calorie-Controlled Diets and Weight Loss

Francis Benedict did the first calorie-controlled experiment in 1917. All of the 12 men who lost weight on his calorie-controlled diet gained the weight back within a few weeks, plus a few pounds more. Keys obtained the same results in his 1945 study, followed by researchers Albert Stunkard and Mavis McLaren-Hume who, in 1959, concluded the same. "People just don't keep weight off when it's been achieved through calorie deficit," Harcombe says.

Marion Franz's 2007 paper⁴ looked at 80 studies of 26,000 people, again finding that when people lose weight as a result of calorie restriction, they gain it all back and the trajectory was heading above the starting weight. According to Harcombe, a 2015 study published in the American Journal of Public Health showed the same pattern with 280,000 people. "How much more evidence do we need that eating less and doing more just doesn't work?," Harcombe asks.

One of the reasons for why calorie counting doesn't work has to do with the complexity of the human body. When on a starvation-type diet, your body will tend to shut down

various processes in order to survive. For example, by reducing thyroid function, your body will not burn as many calories. In short, it alters the thermodynamics of your body.

Your Body Tends to Self-Regulate Based on Available Energy

A British study called the EarlyBird Diabetes Study fitted children with sophisticated pedometers, and then compared the level of activity between children who went to posh schools that provided lots of physical activities and sports, ordinary schools with minor physical education classes, and deprived schools that did not provide any scheduled physical activity.

Interestingly, the children engaged in about the same level of activity no matter where they went to school, because while those who engaged in sports came home tired and remained inactive outside of school, the less privileged children would spend time outdoors, playing football or bicycling around. In the end, they all used up about the same amount of energy.

"If you're trying to do more and you go to the gym, your body's just going to make sure you don't feel like doing the ironing in the evening, walking the dog, or doing some gardening. Your body will adjust at that top level. If you force it, if you have this incredible willpower, resist the urge to eat more and really try and force yourself to carry on doing even more [physical exercise], your body can still adjust, particularly women.

One of the first things to go is the reproductive system. The body shuts down periods. Reproduction just says, 'That's completely unessential.' So, how many calories or energy did that [system] need to sustain it? People know that if they've had a serious weight loss and really gone quite underweight, you get extremely cold because the body just shuts off the heating system.

Fine hair grows over the arms and legs of anorexics. It's sort of fine down, like animal fur, which is the body's way of saying, 'I'm going to protect you even though you've turned off the heating system.' You can shut down thyroid to an

extent. The body just goes down into basic protect mode. It doesn't just give up body fat. In fact, the last thing the body seems to want to do is to give up body fat.

That is why I end up saying to people, 'You must work with your body and not against it if you want to be slim and healthy long term' ... If you are relying upon calories ... and you think, as the formula tells you, that 50 fewer calories a day [will make you] five pounds lighter at the end of the year, you are dreaming in color.

It just doesn't add up at any level. Stop counting calories; it's not doing you any favors ... It's about eating better. It's not about eating less."

Retrain Your Body to Burn Fat for Fuel

I believe the timing of your food (i.e., intermittent fasting) is another important factor in helping to optimize your weight. Our ancient ancestors did not have access to food 24/7, so our genetics are optimized to having food at variable intervals, not every few hours. When you eat every few hours for months, years, or decades, never missing a meal, your body forgets how to burn fat as a fuel.

It becomes very inefficient at it. So, even though you've got 10, 30, 50 or 100 pounds of fat on your body, you can't burn it off. As explained by Harcombe, one of the basic, fundamental principles is that – with few exceptions – you cannot burn body fat if you have other fuel available.

"In the vast majority of the circumstances, if you've got carbohydrate available, either readily available – because you've just eaten carbohydrates – in the blood stream, or readily available in glycogen, of which we can store about 1,500 calories' worth; as long as you've got that, your body has absolutely no need to break down body fat whatsoever," she says, adding:

"I mapped out a scenario in a presentation that I did recently, looking at somebody who's consumed predominantly carbohydrate calories and

somebody who's consumed predominantly fat, protein, meat, fish, eggs, dairy products, nuts and seeds (what we call good calories). Your body can use the good calories, because the fat and protein are also used for basal metabolic needs, cell repair, fighting infection, and building bone density."

The problem is people are being told to have half or more (typically 55 to 60%) of their diet in the form of carbohydrates. Harcombe notes the Harris Benedict equation tells us that even an active person only needs about 25% of their diet in the form of something that can be turned into energy, and that's either carbohydrates or fats. I suspect that higher levels may be helpful for some, though, in initial phases of losing weight.

But either way, as long as you're getting enough healthy fat, you don't need carbohydrates to cover your energy needs. In fact, in order to use up the energy provided by a 55% carb diet you'd have to be a triathlete or someone who exercises vigorously for hours every day.

The other key is the type of fat you are consuming. It is best to have as low an intake of omega-6 fat that is loaded with linoleic acid (LA). The 10- to 20-times increase in LA intake over the past 150 years is believed to be a primary reason for the obesity epidemic contributing to an increase in diabetes, cancer, heart disease and dementia. The increase in LA can't be helped by increasing omega-3 fats. Lowering LA levels to as low as possible is the key to lowering the risk of obesity.

Low-Fat, High-Carb Recommendations Have Been All Wrong

The recommendation to reduce fat and eat more carbs is without a doubt a major contributor to the obesity epidemic. Fortunately, there are now signs of a shift, at least in the U.S. In February 2015 the Dietary Guidelines Advisory Committee (DGAC) submitted its 2015 Scientific Report⁵ to the U.S. Department of Agriculture and Health and Human Services, which serves as the foundation for the development of U.S. dietary guidelines.

The DGAC not only suggests eliminating warnings about dietary cholesterol, it also reverses nearly four decades of nutrition policy by concluding that dietary fats have no

impact on cardiovascular disease risk.

"Dietary cholesterol, that little phrase is no longer a nutrient of concern," Harcombe says. "Why it was ever a nutrient of concern, I don't know. Even Ancel Keys said, 'Cholesterol in food has no impact on cholesterol in the blood.' We've known that all along. Even the guy behind all of this never worried about dietary cholesterol. But then, the total fat is quite an interesting one because if you look at the draft guidelines, it's conspicuously absent.

Total fat just isn't mentioned, and I don't think they're going to come out and say, 'Guys, we've got it wrong. We're really sorry. We've made two-thirds of you fat and sick. It's our fault.' I don't think they will ever be able to do that because I think there would be lawsuits, and I think there should be lawsuits for the damage that has been done to people."

One of the reasons why saturated fats have been vilified for so long is because they're confused with trans fat, which is an artifact of industrialization. Trans fat does in fact increase your risk of premature death from virtually all chronic diseases – heart disease, cancer, diabetes, and Alzheimer's.

Trans fat has been around for about 125 years or so. But while saturated fat has been associated with those health problems (courtesy of being confused with trans fat), it is not the cause of those diseases.

It's commonly known that association does not prove causation. And they never separated those two out, which is why saturated fat became so vilified. Most newer studies suggest that saturated fat is beneficial, while trans fat is what creates problems.

"People don't know their macronutrients ... Every food that contains fat, contains all three fats: saturated, monounsaturated, and polyunsaturated. There are no exceptions. So, we have public health officials running around saying. 'Avoid saturated fat and eat more unsaturated fat,' as if that's actually possible

...

Take a typical steak. Nothing is more demonized than red meat. Sirloin steak is 71% water ... 21% protein ... about 7% left is fat, and 2% is saturated fat. So, there is more unsaturated fat than saturated fat in red meat ... Same in fish, more unsaturated, and same in nuts and seeds. There's only one food group that has more saturated than unsaturated fat, and that's dairy products ..."

Weight Loss Strategies That Work

So what advice does Harcombe have for those of you struggling with weight issues? Her No. 1 recommendation is to EAT REAL FOOD, meaning food in the most natural form you can find. Ideally, whole organic produce, and pasture-raised when it comes to meats and animal products like dairy and eggs.

It is of utmost important to eliminate most any source of significant omega-6 fat. This would, of course, mean not only avoiding all seed oils, but most seeds and nuts which are also high in omega-6 fat. Additionally, it is key to understand that most all restaurant food is cooked in seed oils which are also used in their sauces and salad dressings.

"Some of the best quality foods on the planet are also the cheapest," she notes. "Liver and onions, for example. If anyone can find me a more nutritious single food than liver, I'd love to hear about it. Because at the moment, liver is my winner, and it has been for some time.

Sardines are among the most nutritious of the oily fish, and they can be very, very affordable. Tinned [sardines] is absolutely fine because you get the bones and the skin as well, and that is great for the bone nutrients, calcium, vitamin D and so on. So, the first point is: Always eat real food.

The second principle [is to] cut back on the number of times you're eating [each day]. I would say those two principles alone would get most people, most of the way there. If you're then still struggling, that's when I'd say manage your carbohydrate intake.

So, even what we think of as good carbohydrates, even dairy is too high in carbohydrate for some particularly carb-sensitive, insulin-resistant people. You know, if you've tipped over into type 2 diabetes already or morbid obesity, chances are you really are going to have to manage your carb intake to quite a tight level. And that's it."

To that, I would add avoid sitting by engaging in nonexercise movement throughout the day, and get regular exercise. Exercise will not produce significant weight loss without addressing your diet, but when done in combination it can be significantly beneficial.

Conflicts of Interest Hamper Truthful Nutrition Guidance

One thing standing in the way of proper nutrition guidance from the government is conflicts of interest. As Harcombe explains:

"The UK has something that it calls the Responsibility Deal. We call it the Irresponsibility Deal. It's actually the stated intent of the government to work with the fake food industry, to try to do something about obesity.

There's a professor in the UK who said, "You may as well put Dracula in charge of the blood bank." It really is as crazy as that. I have a little chart [showing] these conflicts of interest. Those are the organizations behind public health dietary advice."

We don't really have a government of the people anymore. We have the government for the corporations now, and small groups of special interests are benefitting quite dramatically at the expense of the vast majority of the public.

"It was interesting to see Michelle Obama when Barack Obama came into power, and she wanted to do something about obesity. The early message was very much about eating the right things and moving away from all this junk. That changed so quickly. It was almost like she got a phone call from someone saying, 'Hey, remember who funded your husband getting into the campaign.'

Suddenly, it became 'Let's move.' Moving is a good thing to do, but you can't outrun a bad diet. If the American children are still having the burgers, the chips, the milkshakes, and the ice cream, there's no amount of exercise that they can do that's actually going to prevent obesity given a bad diet. The conflicts are just endemic, they're absolutely everywhere.

Therefore individuals are just going to have to do this for themselves. Every one of us can bankrupt the fake food industry and put the drug companies out of business by taking charge of our own health, and say, 'We're just not having that junk.' Then, we won't need the drugs and none of our hard-earned money is going to go to Coca-Cola, Pepsi, Hershey bars or anything else. It's up to us."

To learn more, I highly recommend picking up a copy of Harcombe's book, "The Obesity Epidemic." It's a really magnificent reference that clearly identifies the fatal flaws of thinking that losing weight is merely a simple equation of eating less and exercising more.

The book will give you the data you need to share with anyone who still believes all you need to do is eat less and move more to lose weight. Because that's simply not true. The real answer is eating real food, cutting down on the number of meals you eat each day, addressing your fat to carb ratio, along with physical activity.

Sources and References

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