



Bonus Chapter

Lies, Damn Lies & Statistics

ROBB WOLF *revolutionary solutions
to modern life*

You might have noticed that the recommendations our government makes with regards to “healthy eating” have changed a bit over the years. When I was a kid it was the “Four Food Groups.” This gave way to the “Food Pyramid” and unless I’ve been on an ether binge too long, I believe the current iteration of that marketing campaign is

“My Plate.” On the surface, the recommendations made by academia and the government seem reasonable: eat less, particularly fat and animal products, move more. But we have a pesky little problem: these recommendations keep “failing.” Failing to keep Americans fit. Failing to keep Americans healthy.

For nearly fifty years the US government told the world that a diet high in saturated fat and dietary cholesterol will increase our likelihood of everything from cancer to diabetes to heart disease. Not long ago a retraction was published saying, in effect that there is no connection between dietary cholesterol and fat intake and the aforementioned diseases. This did not make many headlines (other than at my house) but it should have been a remarkable moment in history given the time, money and effort that has been put into selling us this bill of goods. We have been the unwitting casualties of what I call

“The Macro Nutrient Wars.” One day it’s “high carb,” the next it’s “low carb.” This gets pretty damn confusing, especially when we observe a variety of cultures that eat both more and less fat or carbs than Americans, yet have generally better health than we do. I’m going to make the bold claim that the reason for this confusion

is that most researchers and literally “no one” in government is looking at the continued failure of governmental food recommendations from the perspective of genetic discordance and “hyper-palatable” foods.

Here is a common scenario: A lab-coat clad expert will cite the most recent study indicating that when people are locked in a metabolic ward (prison, minus the shower perks) the most important feature with regards to weight loss seems to be the total

amount of calories folks eat. That would be true if we all lived in the nutritional equivalent of the prison TV show “Oz” and a measured amount of slop slid into our tray each day. Most of us (fortunately) have freedom and that freedom often brings us in close proximity to a dizzying variety of tasty foods. Many of these foods have been engineered to be hyper-palatable, some would argue literally addictive. The notion that food (or the food-like substances which comprise

But we have a pesky little problem: these recommendations keep “failing.” Failing to keep Americans fit. Failing to keep Americans healthy.

most of the center aisles in a grocery store) could actually be addictive, is controversial but I think we all have a food that we could look up into the sky and scream “I wish I knew how to quit you!!”

If our car is broken we turn to a mechanic, usually with decent results. When our diet is broken (as evidenced by excessive weight or various health problems) we tend to look towards doctors and dieticians. Interestingly however, these folks (unlike an auto mechanic) get paid whether or not they give us good advice or produce favorable results. The Registered Dietitians, physicians and academics who tell us to “eat whatever you want, just in moderation” are setting up just about all of us for failure (Yes, “moderation” works for a few people: we all know someone that eats terribly, rarely works out and has a physique to die for. The fact I’m writing this book and YOU are reading it means you and I are not that person.) And then what happens? A revolving door of sorts: people who are diligently following the Academy guidelines end up back in the doctor’s office. Moderation is a nice soundbite, but it is not the answer. Whether you care to consider a low fat vegan diet, a high protein/ low carb diet, or something in between, the eating strategies that consistently get folks results share a commonality: we must, to some degree, limit our food options. Let me restate the last piece in a different way as it is quite important: the dietary approaches that limit OPTIONS (vegan, Paleo, Low carb, Atkins, South Beach) consistently work better (as evidenced by scientific studies) than the Academy recommendations which focus not on food quality, but portion control. Yes, portion

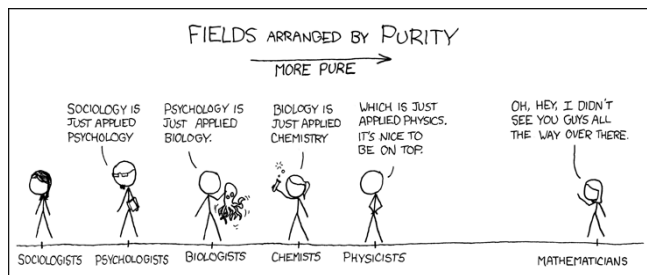
size matters, but it appears that limitless food options make the process of actually maintaining portion control quite difficult.

A few large corporations make a metric ton of money telling us to “eat everything you want, just do it in moderation.” Here is a great example, the good folks from Coca Cola tell us to “Have a Coke and a smile,” just follow it up with a vigorous run. I’m not joking or being sarcastic with this. Coke has put millions of dollars into a campaign to include personal training as part of the Affordable Care Act. Now, having an insurance company reimburse you for the cost of a personal trainer may sound like a great idea, but here’s the catch: Coke wants the “official” story to be that what you eat (and drink) does not matter, what matters is how much you exercise. But the fact is: you can’t out exercise a shitty diet. Proof of this? The phenomena of the “chubby aerobics instructor” has become so commonplace it’s almost cliché. Aesthetics aside, we see a suspiciously high rate of cardiovascular disease (CVD) and other systemic inflammatory problems with elite athletes who consume prodigious amounts of refined carbohydrates. Bad food will eventually catch up with us, be that in an expanding waistline or a trip to the cardiac care unit.

How we got to this place in which “common sense” advice, eat everything in “moderation” (whatever that means) diverged from the reality of outcomes (ever increasing rates of obesity, diabetes and a host of other diet related conditions) is equal parts good intentions, greed and pack mentality. Most people instinctively

rally behind the notion that greed is the root of many problems. Ironically however, it is the do-gooders (both in academia and government) that pose a larger problem. We will make several stops while unraveling this story but there are two critical pieces to understanding our current situation: How our governmental policies have become so divorced from reality and the genesis of the modern junk food industry.

KEYS TO THE KINGDOM



I've spent a fair amount of time around academia and although it can be an incredibly stimulating environment at certain times it can also be a world of remarkable egocentrism. The above cartoon illustrates this point perfectly. Coming from a "hard" science background I can appreciate the rigor of mathematics, physics and engineering but I also find it a bit prickish for these disciplines to look down their collective noses at the social sciences. I've witnessed many an engineer or physicist sneer at the theories and hypotheses found in anthropology, history, or sociology while offering no better alternatives. Now, understanding the intricacies of quantum physics is no cakewalk but when we try to understand the world we live in, things like the weather, economies or human behavior are infinitely complex systems. These systems do not lend themselves to "easily" tested theories

like smashing neutrons together in a particle accelerator to verify some of Einstein's ideas.

The social sciences do endeavor to bring scientific rigor to their processes and the "Great Man" theory in history is a perfect example. The basic precept of this theory is that unique individuals are major drivers of change from a historical perspective. History books are full of the names of people who have played pivotal roles in altering our world. Other theories posit that global change relies not on a single individual but rather networks of people who affect this change. I think both models hold merit; we actually need both the notable (and often pugnacious and charismatic) individual as well as an amenable social network to affect global change.

Ansel Keys was just such a notable individual who managed to dramatically alter the course of US and global food policy. Keys was a researcher with an eclectic background ranging from chemistry to zoology and economics. His interests led him to studying human nutrition and disease using the tool of epidemiology, the study of disease across populations. Keys and other researchers observed that Americans were a bit heavier and suffered from cardiovascular disease (or CVD) more than many other Westernized countries, so he spearheaded a study in the early 1950's which would become one of the most influential scientific studies in the history of nutrition. The essence of the study was to look at the amounts of saturated fat, particularly from animal sources, consumed in various countries relative to the rates of death from CVD. The results were striking:

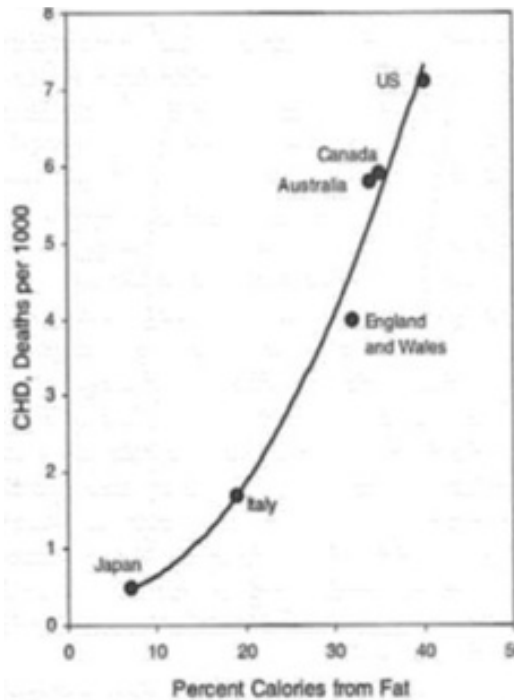


Figure 1A. Correlation between the total fat consumption as a percent of total calorie consumption, and mortality from coronary heart disease in six countries. Data from Keys.⁷

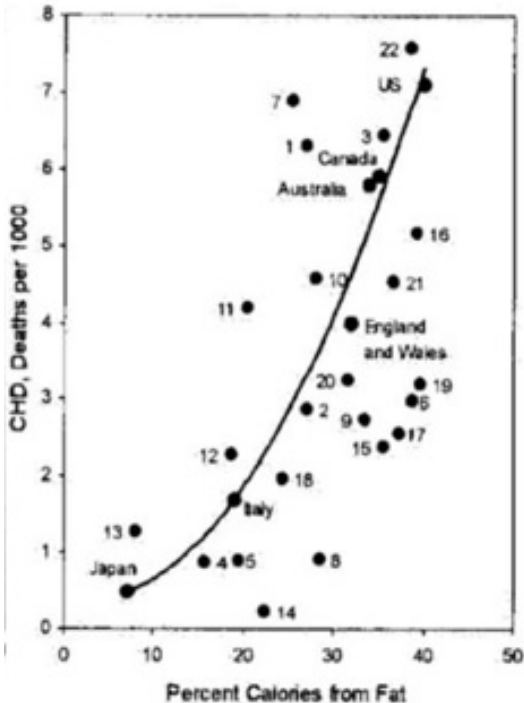


Figure 1B - as 1A but with all countries where data were available when Keys published. 1 Australia 2 Italy 3 Canada 4 Ceylon 5 Chile 6 Denmark 7 Finland 8 France 9 W Germany 10 Ireland 11 Israel 12 Italy 13 Japan 14 Mexico 15 Holland 16 New Zealand 17 Norway 18 Portugal 19 Sweden 20 Switzerland 21 Great Britain 22 USA. Data from Yerushalamy and Hilleboe

The graph on the left suggests nearly perfect correlation between fat intake and CVD deaths. The Seven Countries data is quite compelling when considered in isolation, but there was actually data available for 22 countries (the chart on the right above). The inclusion of all the data does not paint as tidy a picture. In fact, one could easily find what would appear to be contradictions to the general hypothesis that fat intake drove CVD.

Keys' findings received a boost of sorts when health data from post World War 2 Europe was analyzed. Certain countries saw a marked decrease in CVD both during and immediately after the conflict. The war had dramatically altered trade and there were shortages of just about every commodity you can think of. Folks had to rely on homegrown produce to meet their basic needs, and subsequently ate less fat, sugar, and calories overall. Despite the fact that several important dietary factors changed (reduced fat, sugar and caloric intake) supporters of the dietary fat=CVD theory ascribed the improved health solely to the reduced fat intake.

Many people in the research community at the time were highly critical of Keys. His work was rich in correlation yet anemic in causation. Correlation and causation are slippery topics in science as multiple factors may be at play in a given situation. If some of these factors fit our assumptions, they are used to solidify a given position, this is certainly the case here. Although some of Keys' research suggested a link between fat intake, blood cholesterol levels and CVD, there was perplexing data showing examples of

higher fat intakes and lower rates of CVD, and also lower fat intakes and higher rates of CVD (all relative to the US).

Despite the misgivings of Keys work, he was tenacious in promoting the high fat=CVD hypothesis. Ancel developed quite a reputation for publicly attacking dissenting voices in a way that would have likely made him successful in a modern presidential campaign. Keys has been vilified within certain circles. Some have suggested his work was outright fraud. There are whole complex histories about Keys one may find on the internet which promulgate inaccurate representations of his work in the same way dietary cholesterol was blamed for CVD. In digging through the original Seven Countries data published by Keys and really looking at what he said vs what some say he said, I don't agree that he committed fraud to further his low fat agenda. However I think it's fair to say he did not consider other factors such as sugar and refined carbohydrate intake. It's easy to look back and criticize this work but Keys contributions to science are remarkable. These scientists were just piecing together the mechanisms of CVD and had to sift through some very complex findings.

Another interesting but ultimately misleading study linking cholesterol to CVD was a study performed by Nikolai Anichkov, in which rabbits were fed either a low (none) or high cholesterol diet. The rabbits fed large amounts of cholesterol developed damage and blockage to the arteries at high rates. This was a remarkable finding in that it linked cholesterol to CVD, but again, the

story is much more complex than first meets the eye. This is a good place to circle back to some of our big picture concepts related to the "ancestral diet" of any organism. Whether you buy into the idea that the earth is billions or thousands of years old, it's reasonable to say that critters tend to have a diet best suited to their physiology. Some critters eat plants, others eat animals, and some (like humans) eat both. The digestive and metabolic physiology of an herbivore is dramatically different than that of a carnivore or omnivore. Cholesterol, a product found exclusively in animals, would of course create serious problems for rabbits as they are essentially not wired to eat animal products.

Cholesterol is one of the most contentious topics in all of medicine, with one camp (typically composed of vegetarians and vegans) claiming we should endeavor, by any means necessary, to get cholesterol levels as low as possible to minimize CVD. On the other side are folks who claim there is NO relationship between cholesterol and the development of atherosclerosis and CVD (these are typically folks promulgating low-carb diets). As with most topics, it's a bit more complex than that. We will look at the specifics later but the take-away from this is that the rabbit+cholesterol studies were important in suggesting a potential mechanism for CVD. BUT it is important to recognize that these studies were also taken out of context and played into a larger story picked up by researchers and politicians who were influenced by work like that of Ancel Keys. Incidentally, Keys was clear in stating that dietary cholesterol

was not a factor in CVD, but many high-fat foods are also rich in cholesterol. In the process of demonizing dietary fat, cholesterol went along for the ride.

Ancel Keys, via his influence on a key governmental commission, is clearly an important figure in the formation of modern dietary policies. His work unintentionally opened the door for junk food to receive endorsements from outfits like the American Medical Association (more on that later). While writing this very chapter an interesting paper emerged**which looked at research conducted by Keys and his associates. The original work was part of the Minnesota Coronary Experiment which ran from 1968-1973. This was one of the largest, best conducted and controlled studies of its kind. It would literally be impossible to do a study like this today due to both costs and certain ethical considerations. Over 9,000 hospitalized mental patients were fed either a diet rich in saturated fat or a diet in which the saturated fat was replaced with polyunsaturated fats from vegetable oils. The patients fed vegetable oils showed a decrease in cholesterol levels but interestingly, no decrease in mortality. In fact, the opposite was seen: the patients fed vegetable oils were more likely to die during the study period than those fed saturated fat, who coincidentally, had higher cholesterol levels. This material was not published until 1989

and oddly, that publication claimed there was no difference between the two groups. Recent analysis of the raw data has left many in the research community fiddling with their collective pocket-protectors as to why this information took so long to be released, and upon release did

not accurately reflect what the data suggested. What should one make of this? I'm honestly not sure. One could easily make a case for suppression of information to forward Keys' low-fat position, and perhaps this is true, but we really do not know why this situation played out as it did. What

is clear however is that a large, well controlled study, started by Keys himself, upended the notion that saturated fat and elevated cholesterol are THE drivers of CVD.

Keys' findings might have remained a possibly interesting footnote in medical research history, but the formation of a governmental committee, initially tasked with addressing the problem of malnutrition in the US, provided the catalyst to launch government and business into the macronutrient wars.

MCGOVERN COMMISSION - OR SCIENCE BY COMMITTEE

Exactly what influence the government should play in our lives is a hot topic that can turn any family gathering into a crime scene if booze and grandiose political ideas are allowed to mix sufficiently. Wherever you may be on the political

*In the process of
demonizing dietary
fat, cholesterol went
along for the ride.*

spectrum, there is no doubt that influence our lives, the government does.

The Select Committee on Nutrition and Human Needs, headed by Senator George McGovern, was founded in 1968 and was tasked with addressing the problem of undernutrition in the US. The committee achieved a laudable degree of success in this regard but as is often the case with governmental agencies, when the initial charter of the committee neared completion, the committee was not disbanded, it was repurposed. It's new directive was to formulate dietary guidelines to reduce the rates of disease afflicting Americans, including heart disease. The people tasked with this process were not scientists, but rather lawyers and clerks, many of whom were passionate about the idea of vegetarian and low fat diets.

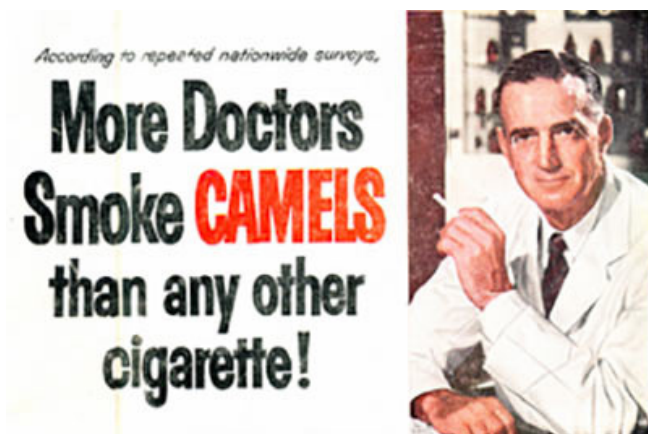
After a number of hearings and consultations with a vegetarian leaning nutritionist from Harvard University, an initial set of guidelines were released with the recommendation to increase carbohydrates and decrease fat, particularly saturated fat. The recommendations were not warmly received and were broadly criticized within the scientific community. Interestingly, those scientists who argued there was scant evidence to support the notion that health would be improved by the reduction of fat, meat, eggs etc, were dismissed as being shills for the meat and dairy industries. Money certainly influences policy. I don't think anyone can argue against that. But when the government picks "winners" by casting its lot with a specific dietary approach, and that that approach is later

propped up by government subsidies, we are not talking about equal influence or outcomes. Despite the pushback from the scientific community, the notion that reducing fat intake, particularly from animal sources, would improve health was a sexy idea. It was the tail end of the Vietnam War, the "establishment" was the enemy and many of the staples of American culinary experience such as steak, eggs, and butter were falling out of favor due to "enlightened" cuisines which focussed more on beans and whole grains.

The net effect of the anti-establishment sentiment (steeped in the burgeoning vegetarian movement) coupled with flawed nutrition research and guidelines, resulted in a shift in governmental food recommendations towards more carbohydrate and less fat intake. Senator McGovern, in one of his many sessions promoting the new dietary guidelines, quipped the following when asked by scientists if adequate data had been gathered to support these changes in dietary recommendations: "We Senators don't have the luxury that a research scientist does of waiting until every last shred of evidence is in." Fueled by dogmatic certainty on the part of the McGovern commission and bolstered by people like Nathan Pritikin who advocated for essentially a zero fat diet, the stage was set to move fat from a dietary staple to a toxin only slightly better than Agent Orange.

Modern medicine is truly a miracle, don't get me wrong. If you have a bullet wound, get hit by a bus, or contract a wacky tropical virus, you have a better chance of survival than ever in history. But the medical establishment has produced

a few zingers as well. I believe the old line for Camel cigarettes went something like “I’d walk 10,000 miles for a Camel.” Fifty years ago your doctor would have thought that’d be a great idea as you were getting in both your smoke and your daily exercise. Fifty years from now it will be just as absurd that the medical establishment puts their respective seal of approval on damn near anything, so long as it was low fat. Apparently the American Heart Association really did go “coo-coo for Cocoa Puffs.”



Let me suggest a perspective that will ruffle some feathers in the the serious low carb camp: had the dietary recommendations born of Ancel Keys’ work (eat less fat and more carbs) and bolstered by the McGovern Commission been implemented in a whole food fashion, I’d likely not have written either this book nor my first as there would have been little if any need. But the sad fact is the way in which these recommendations were implemented has been a mess. The well intentioned message (eat less fat) was co-opted by the nascent junk food industry and was shocked into life via government stimulus to win votes and assuage concerns about national food security during the Cold War. The net effect on the medical community and most of society was “so long as it’s low fat, it’s ok.”

We eat more calories overall than we did a few decades ago and the lion’s share of those calories have a backbone of refined carbohydrates. There are some folks for whom a low carb diet is likely ideal, but I think the case could be made this is more a symptom of a broken metabolism than the default state for all humans. Some people argue compelling cases that humans are best served eating very few carbohydrates but it’s not hard to find healthy, long-lived populations that eat a significant amounts of carbs. However, these pre-westernized cultures are not getting these carbs in the form of coco puffs and soda. I talk at length about these nuances later in the book. Although I would like you to be a bit irked about our current state of affairs, the one where the government subsidizes the production of junk food which is addictive and killing us, and then builds nutritional recommendations around



these very junk foods, I also want you to keep a bit of perspective. Junk food carbs are not all carbs. We will learn if you do better on more or fewer carbs, but it's important to remember that quality does matter.

So how did refined carbohydrates take such a prominent role in our food system. This was born out of political maneuvering and the existential threat of nuclear annihilation posed by the Cold War.

SNACKS FOR THE COLD WAR

World War 2 is but a historical fact for most of us but for the people who lived through the horrors of that era it was a pitched battle for existence. In ramping up the war effort there was massive need for just about everything you can imagine: metals, including iron for tanks and brass for bullets; rubber for tires and hoses; and of course, food. As Napoleon observed "An army marches on its stomach." In an effort to keep our military supplied and fed, as well as feeding our many allies, the US government enacted a series of incentives programs (called subsidies) to encourage farmers to produce as much food as possible. The gambit clearly worked. After the war the US government attempted to roll back the subsidies programs which were necessary for victory, but this was a highly unpopular proposition to the farmers who were doing pretty well with these favorable price controls. Some of the subsidies were rescinded, but not all of them.

And then there was the Cold War, a game of brinkmanship which could have ended most of life on earth via thermonuclear annihilation.

Dodgy as that proposition was, it proved to also be incredibly expensive for both the US and then USSR. Missiles, large militaries and spy games ain't cheap. The US was embroiled in the Vietnam War (a very physical manifestation of the Cold War) while on the domestic level the prices for just about everything, including food, were increasing at a painful rate. It may seem a stretch to link the Cold War to our current obesity epidemic and billion dollar junk food industry, but in a fascinating article in the Guardian, Jacques Peretti traces the origin of our problem to Richard Nixon's Cold War maneuvering.^{***} Peretti relates the story of how Richard Nixon, facing problems both at home and abroad, needed the economy to improve (or at least appear to improve) and to secure a large, dedicated voting block. The solution? Pay farmers to produce more food than we could ever eat. The glut of corn, wheat and other subsidies brought prices down (if you ignore the allocation of tax revenue in this scheme) while endearing the conservative voting bloc largely represented by farmers. Tricky Dick got his votes, the US citizen now had access to cheap food, and in fact there was so much surplus food lying around folks had to get creative about what to do with it. High fructose corn syrup went from an oddity to a major player in the burgeoning junk food scene as this now infamous derivative of corn was cheap, tasty and extended the shelf life of products almost indefinitely.

"The story begins in 1971. Richard Nixon was facing re-election. The Vietnam war was threatening his popularity at home, but just as big an issue with voters was the soaring cost of

food. If Nixon was to survive, he needed food prices to go down, and that required getting a very powerful lobby on board -- the farmers. Nixon appointed Earl Butz, an academic from the farming heartland of Indiana, to broker a compromise. Butz, an agriculture expert, had a radical plan that would transform the food we eat, and in doing so, the shape of the human race.

Butz pushed farmers into a new, industrial scale of production, and into farming one crop in particular: corn. U.S. cattle were fattened by the immense increases in corn production. Burgers became bigger. Fries, fried in corn oil, became fattier. Corn became the engine for the massive surge in the quantities of cheaper food supplied to American supermarkets: everything from cereals, to biscuits and flour found new uses for corn. [...]

By the mid-70s, there was a surplus of corn. Butz flew to Japan to look into a scientific innovation that would change everything: the mass development of high fructose corn syrup (HFCS), or glucose-fructose syrup as it's often referred to in the UK, a highly sweet, gloppy syrup, produced from surplus corn, that was also incredibly cheap. HFCS had been discovered in the 50s, but it was only in the 70s that a process had been found to harness it for mass production... HFCS was soon pumped into every conceivable food: pizzas, coleslaw, meat. It provided that "just baked" sheen on bread and cakes, made everything sweeter, and extended shelf life from days to years."

Peretti goes on to blame the low fat movement

for the escalation of this disaster.

Keep in mind, all the factors at play here: Dietary fat was vilified, particularly fats of animal origin. The main solution then was to consume more carbs and vegetable oils, and this is precisely what the government policies reflected. Conveniently, the government also began the subsidization of corn and other commodities which are easily transformed into hyper-palatable, shelf stable, high profit margin junk food.

So, connecting the Cold War to the junk food industry is not not such a nutty idea after all, yes?

If you consider history, evolution and economics all together, the "confusion" surrounding our current health problems in Westernized societies can be ascribed more to greed, wanton ignorance, and a shocking inability for both government and academics to connect the dots. That's my cranky analysis. My somewhat less cranky analysis is that a number of ideas and actions, based on the best of intentions have had remarkable unintended consequences. I'll make the case that modern, hyper-palatable foods, bypass our neuroregulation of appetite and thus contribute to overeating. Later, I'll make the point that these foods tick most of the boxes we'd associate with addictive substances such as cocaine and opiates. Some would argue that anything meeting these parameters should be heavily regulated, perhaps banned or heavily taxed. I've not seen prohibition do much in the way of mitigating intake of addictive substances,

but I have seen it create a thriving black market. It's outside the scope of this book to really dig into the economics behind this story but I hope it's not too outlandish a proposition that the government should not be in the business of making junk food cheap, and if we as a society do decide to tax junk foods such as soda, we should certainly not tax it while also subsidizing its production.

So, whatever good intentions the subsidies programs may have started under, government subsidies of junk food is not doing us any favors. The possible exception is a small group of multinational corporations and farmers who are enriched by the government dole while directly contributing to a looming medical catastrophe.

I'll take a moment to let all of that sink in and do a little home economics that will further my point. I just looked on Amazon.com and found a 10 count box of Hostess Twinkies for \$4.67, which is about what you'd find them in most super markets. This puts the price of these delectable little morsels at \$.46 for each Twinkie. The price for organic apples (in season when they are cheapest) is about \$2.99/lb. Each apple weighs about 1/3 of a pound which puts organic apples at just about a dollar each. Now, I'm not picking organic apples to be hoity-toity, but because most organic produce and grass fed meat does not receive ANY government subsidies, so the price you see reflects real market based supply and demand.

On one level that Twinkie appears pretty damn cheap, but let's look at how much this is costing

in terms of the energy we get from each product: the Twinkie provides 160 cal mainly in the form of refined flour, sugar and vegetable oils (all items that exist largely due to subsidies). The apple by contrast is about 95 cal, mainly from a mix of sugars, but it also provides a hefty dose of fiber, antioxidants, vitamins and minerals. Let's see how these two items play out with regards to calories per dollar: Apple: 95cal/dollar, Twinkie: 347cal/dollar

This is a serious problem on a lot of levels. For people living on the margins, it seems as though one can obtain more total calories for less money by eating junk food. This is not always the case and we are neglecting to consider the health impact of eating this highly refined food. It's also worth mentioning that we have not factored in the hidden costs that taxes pushed into subsidies, oil, military, and governmental largesse all factor into when talking about junk food. There are also compelling societal reasons for the poor to choose these high-reward foods. Stress, dangerous living situations, and financial uncertainty can all be assuaged somewhat by gnoshing on foods that stimulate the same centers of the brain as cocaine. One may be poor but can literally "eat like a king" in the form of junk food.

Let's pull this back to overeating and look at all of this from a practical perspective. Consider this: How many apples can you eat in a day? One? Perhaps 2? If you really worked at it maybe three apples. Now, how many Twinkies could you eat in a day? Think about it like this: you have a line of apples on one side of your desk,

a line of Twinkies on the other, which one can you eat more of? I don't think I'm spewing hyperbole in saying you could crush all the Twinkies, does not matter how many there are!

They are a convenient, hyperpalatable food and when you eat one, you damn sure can eat another. Apples are a tasty fruit, but due to their mild nature and high fiber and water content, you are not likely to over eat them. And if you did try to do a heroic effort of eating apples, the fiber tends to be self limiting in that unless you want to carry a bag of apples with you to the bathroom, you will end up pooping like a goose before you induce metabolic problems from apple overload.

Educating the public, including politicians, about complex health issues is rarely simple and there can be any number of confounding variables which paint often conflicting, yet compelling pictures. THIS, is just such a story. Data from Keys' work was erroneously associated with the condition of familial hypercholesterolemia, and the animal studies such as those done by Anichkov (feeding rabbits cholesterol) confirmed a link between dietary fat

and cholesterol, which was incredibly compelling. Wrong, but compelling.**** The ensuing battle which emerged after this initial research in the 1950's is what I call "The Macronutrient

Wars." It has consumed billions of dollars and helped to steer many a governmental health policy into a brick wall to say nothing of helping millions of people find an early grave. The influence of the McGovern Commission on dietary policy and the subsequent health of most Americans is profound. These flawed ideas might never have seen broad application were it not for the do-goodery of a governmental body in need of a problem to champion. Finally, this perfect storm might have blown itself out were it not for farm subsidies creating the cheap raw

materials necessary for the junk food industry. Bad ideas, promulgated by governmental commissions, funded by governmental subsidies and all of this backed lock, stock and two smoking syringes of insulin by the medical establishment. It's a complex, convoluted story, but if we do not know the history of a problem it's unlikely we will find effective solutions.

This desire for simplicity put researchers, politicians and the public into a stance that it was either fat or carbohydrate at the root of most Western degenerative disease

Although humans are incredibly adaptable we have an quasi-religious predilection for simple explanations of our complex world. This desire for simplicity put researchers, politicians and the public into a stance that it was either fat or carbohydrate at the root of most Western degenerative disease. More recently, doctors and researchers espousing a vegan diet (one containing NO animal products such as meat, seafood, eggs etc) have hung everything from cancer to diabetes on protein, especially animal protein. This is the latest iteration of the demonization of fat and meat. Despite the weakness of the research behind these claims, the idea has incredible legs and is once again influencing everything from health policy to agricultural practices. History may not repeat itself, but it does rhyme.

The Macronutrient Wars is evidence of an epic failure of our governmental health policy. One could make a strong case for a class-action suit not dissimilar to that seen leveled at the tobacco industry. Some have recommended this process

and a few of the litigators who made a killing going after big tobacco are exploring this option. It'd be a shame if science and common sense cannot right the ship, but at this point lawyers may be more valuable in fighting the obesity epidemic than any number of mainstream healthcare providers. Time will tell how that part of the story plays out but the Macronutrient Wars are unfortunately far from over. The desire to provide a one sized fits all recommendation is human nature.

You might find this material interesting, or you may be wondering why I'm not just talking about meal plans and calories. If you do not understand a problem, you can't fix it. Our whole health and food system is broken and you now have a pretty good accounting of how that state of brokenness came to be. Armed with this information you will be better prepared to make the changes that will benefit you instead of the large corporations and governmental agencies committed to perpetuating confusion via the Macronutrient Wars.

References

1. Ahrens Jr. E. Nutritional Factors and Serum Lipid Levels. *Am J Med.* 1957 Dec. 928:52
2. Sijbrands EJ, Westendorp RG, Defesche JC, de Meier PH, Smelt AH, Kastelein JJ. Mortality over two centuries in large pedigree with familial hypercholesterolaemia: family tree mortality study. *BMJ.* 2001 Apr 28;322(7293):1019-23.
3. Ancel Keys. Atherosclerosis: a problem in newer public health. *J Mt Sinai Hosp N Y.* 1953 Jul-Aug;20(2):118-39.
4. Henry, C. J. K. (2012), How much food does man require? New insights. *Nutrition Bulletin*, 37: 241–246.
5. Lawrence GD. Dietary fats and health: dietary recommendations in the context of scientific evidence. *Adv Nutr.* 2013 May;4(3):294–302.
6. Sanders TAB, Lewis FJ, Goff LM, Chowienczyk PJ, RISC Study Group. SFAs do not impair endothelial function and arterial stiffness. *Am J Clin Nutr.* 2013 Sep;98(3):677–83.
7. Kromhout D, Geleijnse JM, Menotti A, Jacobs DR. The confusion about dietary fatty acids recommendations for CHD prevention. *Br J Nutr.* 2011 Sep;106(5):627–32.
8. Ravnkov U, Diamond D, Karatay MCE, Miller DW, Okuyama H. No scientific support for linking dietary saturated fat to CHD. *Br J Nutr.* 2012 Feb; 107(3):455-457-460.
9. Wells JCK, Siervo M. Obesity and energy balance: is the tail wagging the dog? *Eur J Clin Nutr.* 2011 Nov;65(11):1173–89.
10. Schaffer H, Hunt DB, Ray DE. U.S. Agricultural Commodity Policy and its Relationship to Obesity. *Healthy Eating Research.* 2007 Mar. ID 1007
11. Klara R. Throwback Thursday: When Doctors Prescribed “Healthy” Cigarette Brands [Internet]. *AdWeek.* 2015 June 8. Available from: <http://www.adweek.com/news-gallery/advertising-branding/throwback-thursday-when-doctors-prescribed-healthy-cigarette-brands-165404>
12. Billions Of Taxpayer Dollars Keep Junk Food Cheap, Study Finds [Internet]. *The Huffington Post.* 2011 Nov. Available from: http://www.huffingtonpost.com/2011/09/22/farm-subsidies-junk-food_n_975711.html
13. The Coca-Cola / ACSM “Exercise is Medicine” Scheme [Internet]. THE RUSSELLS. 2016 [cited 2016 Aug 5]. Available from: <https://therussells.crossfit.com/2016/01/12/the-coca-cola-acsm-exercise-is-medicine-scheme/>
14. Minger D. The Truth About Ancel Keys: We’ve All Got It Wrong [Internet]. *Raw Food SOS* Available from: <https://rawfoodsos.com/2011/12/22/the-truth-about-ancel-keys-weve-all-got-it-wrong/>

15. Masterjohn C. What Can Familial Hypercholesterolemia Mortality In the 19th Century Teach Us About Genetics? [Internet]. 2011 March 12. Available from: <http://chrismasterjohnphd.com/2011/03/12/what-can-familial-hypercholesterolemia/>
16. Konstantinov IE, Mejevoi N, Anichkov NM. Nikolai N. Anichkov and His Theory of Atherosclerosis. *Tex Heart Inst J*. 2006;33(4):417–23.
17. Masterjohn C. High Cholesterol and Heart Disease — Myth or Truth? [Internet]. 2008 Aug 23. Available from: <http://www.cholesterol-and-health.com/Does-Cholesterol-Cause-Heart-Disease-Myth.html>
18. Tellier AL. Blame Nixon for the obesity epidemic. [Internet]. *Los Angeles Times*. 2012 Jun 27; Available from: <http://articles.latimes.com/2012/jun/27/news/la-ol-nixon-obesity-epidemic-corn-20120627>
19. Pianin E. How Billions In Tax Dollars Subsidize The Junk Food Industry [Internet]. *Business Insider*. 2012 July 25. Available from: <http://www.businessinsider.com/billions-in-tax-dollars-subsidize-the-junk-food-industry-2012-7>
20. Peretti J. Why our food is making us fat. [Internet]. *The Guardian*. 2012 Jun 1; Available from: <https://www.theguardian.com/business/2012/jun/11/why-our-food-is-making-us-fat>
21. Taubes G. Nutrition. The soft science of dietary fat. *Science*. 2001 Mar 30;291(5513):2536–45.
22. Milking taxpayers. [Internet]. *The Economist*. 2015 Feb 14; Available from: <http://www.economist.com/news/united-states/21643191-crop-prices-fall-farmers-grow-subsidies-instead-milking-taxpayers>
23. Champeau R. Most heart attack patients' cholesterol levels did not indicate cardiac risk [Internet]. *UCLA Newsroom*. 2009 Jan 12. Available from: <http://newsroom.ucla.edu/releases/majority-of-hospitalized-heart-75668>