



Danny Lennon:

Of course today we're talking all about dietary guidelines generally, and particularly the idea that there's a line of thinking that they are out to get us in some way that the dietary guidelines have been set up as a way to make us "fat and sick" as the common quote you probably would've heard. I think that terminology is often a red flag when I hear it, because it just gets parroted so often. But really these are mainly in relation to government dietary guidelines. Most of the stuff that's discussed online is in relation to the United States. So those put forth by the USDA. But we're going to talk a bit later about guidelines that are in place in other countries, but most of the conversation centers around that of the US Dietary Guidelines [For Americans], although as we may discuss, there's probably a lot of similarities when we look at many countries now as a way to frame this, I think there's two different ends of the spectrum.

Danny Lennon:

There's some things that are completely absurd and we might not spend too much time on the complete absurdities of this, of when people get into complete conspiratorial, thinking of governments are out to actively kill us. So a great way to do it is to tell us, to eat these certain things like grains and, and sugar, and that's going to kill us all. Whereas on the other end, there's probably people who have a more nuanced view that, but that still lend itself to this idea that the dietary guidelines are inherently unhealthy. Just one example and I'll link to this in the show notes for people, is an opinion piece in JAMA that was published by David Ludwig in 2016. And amongst that he talks about different changes in population diet and look at the dietary guidelines. Within that he at one point says "recent research suggests that the focus on dietary fat reduction has directly contributed to this growing burden of chronic disease".

Danny Lennon:

So I think that would be on the charitable end one position that's put forward that guidelines have aimed to reduce fat intake in the population and through doing that, that has directly caused an increase in chronic diseases. And we'll touch on that later on. And then in terms of the more I suppose, mainstream discussion on this, I thought as a way to set this up for people listening, if you haven't come across some of these ideas, I'm going to play a few clips. These are particularly from author Nina Teicholz, who has written a couple of books on this that have been the darling of proponents of this idea that "the dietary guidelines are making us fat and sick" as they would say. And her investigative work into how those guidelines came about and what that means has been something many people point to. So there's a few different claims I'm going to play here that should set us up for that. And then we're going to dive into exactly what we're talking about after that. So I'll start with the first,

Nina Teicholz (video clip):

The expert community and all of our public health, our trusted public health institutions have ignored science and they have been wrong about, they, they basically ignored science and continued recommendations based on, weak data that has made Americans fat and sick. So, I mean, who would want to own that legacy? I surely would not.

Danny Lennon:

So we have the starting point that these guidelines have made the population fat and sick or more accurately have increased the prevalence of obesity and other chronic diseases. The second part of the claim relates to, well, are these based on good evidence or not? And this is where we get into the claim that they're actually not based on anything.

Nina Teicholz (video clip):

Then my book came out in 2014 and then these dietary guidelines, well, the expert report for dietary guidelines came out in 2015 the next year. And I remember reading that expert report, I just spent like a decade reading, every single study I could, thousands and thousands studies. And my book is also a history of how these guidelines had come about. But even in writing that I didn't understand how important they were. So I read this expert report and I realized, I was like, well, where's all the science, like, where's the science that I've studied. And I went and I looked at every single study, the entire library of science that is used to support our, our guidelines. I mean, every single study I analyzed and I pulled up and I looked at it and I and I just, I couldn't find any rigorous evidence for our guidelines.

Danny Lennon:

So the next part is that not only do we have these guidelines that are problematic, but every piece or every study that is referenced within those guidelines or that they're based on doesn't count as any degree of rigorous evidence. So we'll have that to look at. And within that, there's a secondary claim, as an example that she gives is in relation to fruits and vegetables:

Nina Teicholz (video clip):

You know, eat more fruits and vegetables. Well, I went and looked at all the reviews they had done on fruits and vegetables, and there's no rigorous evidence to show that eating fruits and vegetables promotes health. It's not to say that they don't promote health, but you can't find when I, when I say rigorous evidence, I mean, randomized controlled clinical trials that show that people eating more fruits and vegetables are healthier than people who don't,

Danny Lennon:

There's a number of claims, of course, within that, some relates to this search for randomized control trials and a denigration of anything that is not a randomized control trial, which we've talked about on the podcast before. And then there's the actual claim about fruit and vegetables, which we may return to. The next clip that I want to play really gets to one of the main pragmatic questions here is, well, what are the guidelines suggesting and how is it influencing consumer behavior? And I think this is where you start to see a real skewing of what's actually put out.

Nina Teicholz (video clip):

So the guidelines are sort of an amalgam of different forces, and definitely one of those forces is that they are meant to benefit the food industry. And you're absolutely right. I mean, if you look at everything in those, all those middle aisles of the supermarket, it is, the top ingredients are sugar grains and, and industrial vegetable oil. I mean, those are, that's cookies, crackers, chips, cereal, breakfast, everything that are all made of some formation of those, those ingredients and the guidelines permits that

Danny Lennon:

The thing I want people to note just from that, that we will revisit is the pointing out of things of limits on saturated fat, on salt, et cetera. But then the promotion of things like "sugar, grains and vegetable oils" as she puts it and then pointing to foods like cookies, crackers and crisps, as the examples given as to what is promoted. And so that is something that we should look into. And then this is the very final clip I'll play. And this is one that is, we'll probably start with, by diving into some of the historical context, because what gets wrapped up in most of this narrative around dietary guidelines is where they came from and some nefarious science, so to speak.

Nina Teicholz (video clip):

So the USDA, it's a set up conflict of interest and designed to fail, but the guidelines are also, if you look at things like their are caps on saturated fat, the cap on cholesterol, long standing caps on, excessive caps on salt. I mean, these are just long time biases. A lot of this going back to many people know Ansel keys and the American heart association, but they're just biases that go long. You go back decades.

Danny Lennon:

So I think that gives a good framing of a number of different bullet points that would come under this idea of why these guidelines are problematic and how they are not only incorrect, but they're directly causing people harm and how they were developed and put in place is very problematic. Now there's some nuance that we will discuss later on, and I think there's some degree of accuracy around, we need to be wary of the food industry, et cetera, but in terms of some of these points I think there's a lot to work through before we start working through those. Alan, is there any others in addition, or is there anything in relation to this general narrative that comes to mind for you that you think that you'd like to put a pin in for people to be aware of that will maybe revisit at some point?

Alan Flanagan:

I think obviously there's a tendency within this to create a very simplistic narrative that allows a simple boogiemán, that implies this conspiracy between vested interests of industry. And of course the actual formulation of the guidelines. So, the idea we just heard there, "oh, of course this all goes back to Ansel

Keys". And that statement in and of itself obviously means nothing in isolation, but yet it's, it's one of the most powerful throwaway lines that you could ever hear for that community. They are Pavlovian dogs to the "it all started with Ansel Keys". And that's quite literally all you need to say before people just start lapping up, whatever comes next. And of course, it's something we've talked about before, is this idea that, complex phenomena can be reduced to a sole agent acting alone or a sole event, in isolation.

Alan Flanagan:

And I just kind of, yeah. Encourage people to be wary of that narrative that it relates to, either a single individual or a single, body of evidence often they'll reference the seven countries study as what our guidelines were based on which is of course absurd because the seven countries study started the guts of 20 years before dietary guidelines came into, came into play. So, yeah, just, I think that the simplicity, the simplicity of the narrative, I would hope, from previous quack asylum episodes is something that people are already finding as a red flag.

Danny Lennon:

Yeah. And I will, I think it is important to note that much of this narrative is actually very compelling on hearing it for the first time. And I think maybe 10, 12 years ago when I first heard it, it was like, "oh, this makes a lot of sense". Like, look at the case they're presenting. This seems very factual. This seems to all tally up and I can completely understand why people may find this, or if they read a book, like some of those that Teicholz or even a Gary Taubes has published, why they are compelling. And indeed on first read, I was in the exact same position. I think the second part of that is as is often the case. There's little bits of truth that are hidden in that, where there is some, some credence. So I think as a, maybe a spoiler for people, this is certainly not to say anything that's in any dietary guideline is something we have a hundred percent agreement on.

Danny Lennon:

And so for example the point that gets made around a potential con conflict of interest in the United States specifically where you have the USDA being over dietary guidelines, and then also at the same time promotion of agriculture, I can understand why someone might want to have a nuanced conversation around that, but these are secondary to many of the bolder claims that I think we should probably start off with. Yeah. before we get to any guidelines in, in other jurisdictions, because I think we, as we said, probably most of the focus around this conversation gets stuck on the US. So if we start with the US specifically to maybe put some context of the history of those guidelines, because as you noted people talk about Ansel Keys and his work, and then the first set of the guidelines and how that then changed the course of maybe what the population ended up consuming. What are some of the key historical points do, do you think that we should start with here in terms of when guidelines first emerge, what data they were based on, and then maybe from there we can start discussing well, did that do anything to how the population started eating?

Alan Flanagan:

Sure. I think so. Most of what attracts the I, and certainly the focus of what people would've heard refer to in those clips are the 1977 dietary guidelines for America. And they were introduced following really just, not just extensive, obviously scientific research into nutrition science, which at the time, prior to the first world war had really dealt with different issues in the population and primarily single nutrient deficiency diseases, which had been eradicated through successful interventions, like food fortification.

And then you shift to the post-second world war period, and particularly in a country like America, which didn't really suffer the economic damage and even structural physical damage that many of the European countries suffered and other countries around the world. So you have this quite, almost immediate explosion in not just the wealth and standards of living accessibility to food foods that had had previously been either more limited in availability or certainly higher in cost.

Alan Flanagan:

And often that corresponded to animal meats, which often would've been higher in cost. And as a result may have been certainly for lower socioeconomic families, a one-serve, maybe twice a week, luxury. And so now you have this dramatic explosion of the industrial side of food processing and food production, which it really kicked into gear during the second world war. And, and you do have radical transformations in the food supply occurring. And they're largely industry driven, right? There's very little by way of like government intervention. So to speak, to regulate the types of products being produced or indeed to regulate other aspects of what we now know to be really important in the food supply, such as advertising or otherwise. And there's an explosion in the rates of particularly coronary heart disease and cardiovascular disease.

Alan Flanagan:

And so we don't really have the prevalence of increasing population-wide obesity at the time. But we have very clear high mortality rates in the population and there's interest in the role of diet in, in the contribution of risk to these disease outcomes. And so there's a body of work that has started in the post second world war period through the 1950s, it's grounded in very well controlled metabolic ward studies, where the interventions are matched for calories. People are fed for often up to a month with changing aspects of diet manipulating the content of total fat manipulating specific fat subtypes, manipulating carbohydrate intake. And we also have various groups around the world doing different population wide research. They love to hone in on Ansel Keys and the Seven Countries Study. That was one part of a wider growing interest in understanding correlations at the population level between potentially dietary intake and health.

Alan Flanagan:

And all of this is occurring with a an increasing recognition that there is a contribution to diet to these diseases, the concept of risk factors, which we now use as a term without second thought had been introduced in the Framingham, the original Framingham heart study. And so you had this identification of factors associated with risk of disease, whether that was say, for example, a high blood cholesterol level or high blood pressure. And so you're starting to see the emergence of nutrition research, which is identifying that diet actually has an impact on these processes, right? So we've identified some of the physiological risk factors, and we're starting to be able through this period to distill dietary risk factors that relate to the impact of various aspects of diet on these processes. And so you have this coalescence of this early evidence into the desire to make dietary recommendations to the whole population.

Alan Flanagan:

And I think that there's a couple of points that really are worth bearing in mind and, and making at this point relative to some of the commentary that we've heard from the criticisms is that at no stage was anything considered to be set in stone. It was acknowledged that this was an overall area of research still in its relative infancy. It was acknowledged that there was different perspectives on certain aspects of the evidence base. It was acknowledged that some of the aspects of certain of the recommendations

were not even that clear cut. And so there was a relative aspect of debate in a good faith context that actually was encapsulated in the initial dietary guidelines. So no one ever suggested that this was the sum total of everything we knew and would ever know about diet and human health, but at the broadest level, they were considered roughly sensible steps to be able to recommend to the population level that might have an influence on disease and the influence of diet on disease.

Alan Flanagan:

Now I think secondary to that this relationship with the food industry gets made up as a big part of this. And, and again I always, whenever I hear anyone in that paradigm talk about the dietary guidelines, I really question whether they've actually ever read the report itself because to read it and to come away with anything other than an acknowledgement of some of the ambiguity and indeed the role of industry, there's a section in it, which deliberately identifies that the US food supply and that the US diet and that the influence of purchasing in the US diet since the second world war had primarily been driven by industry, right? It had entirely been driven by industry. So this wasn't government in collusion with industry, this was government recognizing that actually the private sector was in charge of the ship of public health and the direction of that ship and that perhaps that possibly wasn't in the best interest in the public.

Alan Flanagan:

There's a section in the '77 guidelines, which highlights the role of advertising and how that's likely to be most impactful amongst lower socioeconomic groups in society. So there are sections that almost themselves repudiate the very interpretation of the dietary guidelines as put forward by many of the people in the low carb paradigm. And then of course, there's the guidelines themselves, which I think is always just really important to like come back to the reality of what was recommended. And like you said, at the start, this highlighting that "yes, these guidelines recommended margarine-rich potato chips and cookies and crackers". It's such an absurd claim. That's totally divorced from the reality of what the guidelines recommended. And so, ultimately the guidelines are recommending, increased intake of dietary fiber and fruits and vegetable consumption and a reduction of sugar by 45%, it was suggested in the initial guidelines to get added sugar, what we would now call added sugar or non milk extrinsic sugars to be limited to 10% of energy. Yes, saturated fat, to be limited to 10% of energy dietary cholesterol around 300 milligrams, which was give or take the national average at the time, although some parts of the population were higher. And even within that, there is an entire section based on the contradictory views that was published as part of the guidelines that reflected a diversity of opinion in relation to certainly dietary cholesterol and the fact that different health societies and regulatory bodies in different countries around the world have taken slightly different views. So, overall, and, and certainly the other thing that almost repudiates current. So if you're going to argue that the guidelines then that as we've just described, like increasing dietary fiber, increasing fruit and vegetable consumption reduction of sugar intake reduction, the reduction of total fat, which people have really focused in on there's, there's no doubt that the researchers in this area did not associate total fat with heart disease.

Alan Flanagan:

It's an erroneous accusation for those researchers at the time. However, the reduction in saturated fat was considered by proxy of reduction in total fat that by achieving that reduction in animal fat intake, a reduction in total fat would be achieved. But the primary focus was to achieve a balance of fat subtypes with give or take around 10% of energy coming from saturated, polyunsaturated, monounsaturated, fats, respectively. And so if you're looking at these guidelines then, and you're saying, we have no

evidence that these are evidence based recommendations, then you're, you're still to divorce yourself. We have two roads. You can go down to interpret these guidelines. You can make the case now based on current knowledge that these are entirely unscientific guidelines that should never have been introduced until more evidence was required. That's obviously an absurd position to take, because the reality as we stand here in 2022 is you look back on these guidelines and realize that almost every single one of them is upheld by all of the current evidence that we have in 2022. So the only legitimate argument that they might have, doesn't even hold based on current knowledge.

Danny Lennon:

So there's, there's two points within that, that I think are worth mentioning. One is on realizing what the goal of dietary guidelines in the first place are going to be is on average, what shifts in how the population is eating could, could lead to then improved health on a population scale overall. So what is doable, and then what would move the needle on some of these big risk factors at a population level. And as an example, people might see in some of the guidelines of, oh, people should aim for 50% of the grain products they consume to be whole grain, right? Yes. So then someone could say, well, well, surely why wouldn't you say a hundred percent? So, but again, it's most people aren't getting 50% right now. If they got 50%, they would be way healthier. So again, the goal is if, can we shift them in that direction?

Danny Lennon:

This is not a document saying for every single person here's what a perfect diet looks like. Or as you said, this is not everything we know about nutrition. It's how the population currently eats in what pattern can we promote that would lead to better health outcomes. Yeah. and then the second then becomes taking these things and then twisting it into something that wasn't said. And I actually came across an example in some of Teicholz's work, I think in one of her books, I'll link to the exact page in the show notes for people. It's talking about the American heart association and their recommendations to reduce fat intake. And she says "in short to avoid fat people should eat sugar, the AHA advised". So again, this is taking something of, okay, was there a limit on fat intake recommended? Yeah. You can see guidelines where there's a certain range that's, that's typically recommended by either governments or a body like AHA. But is that then this equivalent to them and going, saying: "we want you to replace that with sugar". No guideline I've ever seen has told people to increase the amount added sugar you're consuming. So just saying that is just a false accusation that is used to back up a point that doesn't really have much more basis to it.

Alan Flanagan:

Right. And it's, it's a point that was, yeah. It's like you said, it's a point that was never made. So they're raising an argument to a point that was never made. And that's the whole basis of the attacks of these guidelines, you know? So like, even with, with regard to, complex carbohydrates, all of these points were outlined. There was also to be fair, a recommendation of reducing or indeed being mindful of total energy intake. Right. and so you have all of these guidelines, individual level guidelines, which are divorced from the accusations that are then made back to the guidelines. So they create this straw man, "oh, the guidelines told us to eat sugar". And then they go at it like, well, look at the evidence now that we have for sugar and while our advancement in sugar, our understanding of sugar at the time.

Alan Flanagan:

And this is, this is really important at the time these guidelines were introduced. The veracity of the evidence for dietary sugars was not as robust as the evidence for saturated fat in, in the context of heart

disease or for polyunsaturated fat as a mitigating and beneficial reducing risk factor. And, and there's a number of reasons for that. The studies weren't as well controlled. They didn't use isocaloric substitution. So the effects of sugar were often tied to the effects of total energy intake. The numbers of studies that did do a better job of controlling didn't really find any particular adverse, effective sugar, unless people already had a cardiometabolic, but in otherwise healthy people, they didn't really see those effects. And there wasn't really anywhere near the epidemiology for dietary sugar, because people didn't really consume any more sugar at the time.

Alan Flanagan:

So what you see in terms of dietary sugar in the post second world war period, is people always consumed a lot of sugar, right? Even going back to the industrial revolution, people consumed a significant proportion of their total daily energy from what we would call added sugars. Now, the food sources of those sugars shifted, right. And there is evidence of in certain sections of the population, an increase in added sugar consumption through the eighties and into the nineties, from the introduction of things like soft drinks, which weren't necessarily as much of feature of the food supply, certainly pre world war II and even through the 1950s, although they're starting to come onto the market. So to say that they buried the evidence for sugar to promote the evidence for fat is again, creating a straw man that doesn't exist and never existed in the first place to try and then mount an argument that it was the guidelines. There's a difference between suppressing evidence versus not really having as good evidence. And even if we take that as the reality of it was, which is the evidence was stronger for reducing saturated fat at the time than it was for sugar, the guidelines still recommend a reduction in sugar intake. And so to say that the guidelines ignored this key feature is again, to ignore the reality. The reduction of salt, for example, as well, limited to five grams a day, that's entirely consistent with current knowledge in 2022. So even though there was debate at the time and to read these dietary guidelines is to see a lot of, I think, intellectual honesty and an epistemic humility. And, and, just, just as an example of that, like, here's a paragraph, this is I'm reading this now from the actual document that is, what people call the '77 McGovern report. And it says: "the record clearly reflects extreme diversity of scientific opinion on these questions. Many such conflicting opinions are included in the committee's recent publication dietary goals for the United States, supplemental views, since it is possible that this diversity might be overlooked simply because few people will be able to take the time to read through the voluminous 869 pages, supplemental views publication. I have selected a few opinions representative of both viewpoints on the issues in controversy..." And they go to outline it. But I, in particular, I love that line since, since it's possible that basically, no one's going to be arsed to read the whole thing. Here's a few examples of the fact that there is some diversity of opinion in this regard that it just, it obviously comes back to the fact that, again, clearly with the arguments put forward by most of the pro-high-fat, it's all sugar carb community. They just clearly haven't read even the initial document, let alone the 869 pages of the supplemental views. So one would certainly doubt whether they've read thousands and thousands of studies upon which this was apparently grounded on.

Danny Lennon:

Right? So let's look at maybe what's actually in the guidelines and we'll start with the US Dietary Guidelines for Americans specifically. And we don't need to dive through all of this. This episode is not about necessarily every part of what's in them, but at a very overview level, it's nothing that unsurprising for people that there is a focus on dietary patterns, I suppose, as opposed to actual specific foods. So they, they actually give examples of different dietary patterns that would fit to the recommendations they give throughout the document. So this is the most current dietary guidelines. Now they give an example of an omnivorous diet, a vegetarian diet, and a Mediterranean diet that



would all fit the overall principles of these guidelines. There's most focused then placed on food groups, such as fruits, vegetables, grains, dairy what they call "protein foods" and then oils, which is mainly vegetable oils, nuts seeds, et cetera, within that group.

Danny Lennon:

And they give different examples of options of food that would fall into each of those groups and, and how that fits into these overall dietary patterns. And then in terms of limits, again, the usual ones you would think of: added sugars, saturated, fat, sodium alcohol, and then they, there's some like really nice images that are in here based on some of the data they've collected showing how most of the population over consumes things like refined grains and massively under consumes things like whole grains. And then they go through different vegetable types. And so on. We can maybe come back to that later on, but there is of course an evolution of how these guidelines get updated every five years and how this has changed over the course of time. One of the examples that people are maybe familiar with is you mentioned how initially there was limits placed on say dietary cholesterol.

Danny Lennon:

That doesn't seem to be really a part of the most current ones. And there's been some shifts in the language of the rapport and different things that have now been included in, in terms of plant-based proteins, et cetera. But in terms of, if we're thinking about this particular argument that gets put forward, it would therefore someone might look at the most current dietary guidelines and say, "oh, these look like relatively sensible, but maybe I'm getting it wrong. Maybe it was these earlier guidelines that was telling me to go and eat a lots of sugar." Right? But it seems that there's been definitely an evolution and change and the focus of different nutrients has maybe changed, but by and large, some of the "big rock" pieces of early dietary guidelines, as you mentioned, have been relatively stable, and it hasn't been a wholesale change from the eighties compared to where we are now. And some of those main things are still the bedrock of it. So presumably the people who are complaining about the initial dietary guidelines that were put forward and that caused all this disease are still complaining about current guidelines as well, I would presume. I don't know if there's anything in terms of the evolution from say 1980 until the most recent guidelines that you, that you would think is noteworthy to mention or if that's overall framework that's okay.

Alan Flanagan:

Yeah, I think, I think that's it. I think, of most interest to people is probably the dietary cholesterol one. And this is something that's been historically confused, whether deliberately or not, I can never tell when people say things like, for example, Ancel Keys, demonized cholesterol. Well, I think often people are conflating blood cholesterol and dietary cholesterol because dietary cholesterol. He was one of the first, in the mid 1950s to publish saying actually when saturated fat and polyunsaturated fat and total energy are accounted for dietary cholesterol, probably of little concern. And this pro versus con viewpoint and cholesterol was encompassed. They had a whole dialogue section in relation to dietary cholesterol in the original guidelines. So there were some national organizations that recommended a limit. Some that didn't bother somewhere, the limit was slightly higher. And at the time America recommended reducing two, 300 milligrams a day on average, like the average population level a bit higher.

Alan Flanagan:

And so I think probably the most striking is the removal of that threshold limit. And I think that almost again, just speaks to the lack of any real substance in so much of what's being argued either in the historical context or even now, because of course there are argument centers in the fact that, the science was portrayed as set in stone and it demonized these, particular compounds and saturated fat and cholesterol all travel together. And again, in our current evidence base, we would largely think that once those factors are accounted for, there's probably little impact, although you'll still get studies that come out that suggest a risk associated with egg consumption, the egg epidemiology is largely a lot of noise. And so it shows, I think one of those evolutions over time of a point that initially was in contention to one where, the up to date recommendations reflect the science, but where the initial claim made by arguments against the dietary guidelines that cholesterol was demonized again is just not to be found in the initial document. And certainly now does not exist in the updated document.

Danny Lennon:

<Affirmative> so be beyond what we have in, in the US. I think it's interesting to then put that in, in comparison with what we have in, in other places. So in the UK, yeah. People listening will be familiar with the EatWell Guide or maybe they will, maybe they won't, but that's certainly used in the UK. Canada has a food guide that has actually got quite a lot of positive reviews from their most recent addition of that. And is an interesting one to look at. Most notably I think it, it serves as a nice difference as we may discuss a bit later on compared to the US in particularly relation to dairy, which is a food group that is still shown as a prominent role within the USDA guidelines, at least visually.

Danny Lennon:

And then as a food group, some of the wording shows it as being something that people should be consuming. Although notably within that, there is the option of using a soy alternative as part of the dairy group, but this is something that the Canada food guide has completely taken out. So that's an interesting point to note. There's also some nice elements that, that you see within there of pointing at things beyond actual foods of talking about enjoying food and cooking more and actually pointing out that marketing can influence your food choices. Again, addressing the point you made earlier about how these things can actually point to problems in the food industry or industry at large of shaping our food intake. And then there's also one that came across. I think I shared you this, it was like a short blog post I think Kevin Bass did before where he basically just took a visual of all the different dietary guidelines from different countries around the world, whether that's the EatWell guide visual representation or the MyPlate that's used in the US et cetera.

Danny Lennon:

And you look at all these different food dietary guidelines from different countries. And by and large, there's a lot of similarity between them, right? There's not ones that have drastically different guidelines overall. So if this is indeed on the basis of just poor research and decision making in the context of the US, presumably that argument would follow that every country's either just copying what the US does, which I mean could be plausible or, but it would also be, seem to be odd that at the same time, then we see in these various different places, similar type of guidelines being put out. I don't know if there's anything on aspects of either the EatWell Guide in the UK or any other jurisdiction that you think is worth getting into here right now, or, or that might be an interesting point before moving on. But I think just for the sake of being complete to note, when we refer to the guidelines this probably depends on where people are and, but we're framing of course, mainly looking at the US because of that's where most of the arguments are made.

Alan Flanagan:

Yeah. I think the only other one that I've always found quite I guess nice in many respects from both an evidence based perspective and in terms of the framing of the guidelines is the Nordic nutrition council guidelines. And they have, like very subtle distinctions, like, like recommendations for berries and other foods that would be consumed in higher amounts in that region. Of course we know are potentially associated with a range of health benefits, but they have statements like "decreased energy density, increased micronutrient density and improve carbohydrate quality", and then a series of recommendations on like how to achieve that. And then they have statements like improved dietary fat quality by balancing fatty acid proportions. And again, specific food based recommendations to achieve that limit processed and red meat limit the use of salt and food products and preparation.

Alan Flanagan:

And then they talk specifically about foods to increase foods, to exchange and then foods to limit. And so I think I like the Nordic, the NNR guidelines because it's very pragmatic and it's also sensible and accessible. So, for the increased exchange that you've just increased vegetables and pulses, for example, but you'd exchange refined cereals for whole grain cereals or butter based spreads for vegetable based spreads or high fat dairy for low fat dairy. The latter could be argued in the evidence, but like if you're making population recommendations, it's overall sensible, increased fish and seafood limit salt and process meat. So it's just an example of the overall dietary pattern is largely going to be similar in concept. And in terms of, even if we're talking from macronutrient percentage breakdowns, it's going to be largely similar, but it just again, shows the potential diversity and food-based recommendations. And indeed the ultimate dietary pattern that might be recommended as a result.

Danny Lennon:

Is there anything the Nordic countries don't do well? They just seem to be able to just do it a bit better than most...

Alan Flanagan:

They do life very well.

Danny Lennon:

So at this point, I suppose there's two ways to go about investigating, getting this, and they're, they're both related. So one thing that is clear is let's say if we go back over the however many decades someone wants, they can clearly chart an increased prevalence of both obesity and then a variety of chronic diseases, right? For example, type two diabetes. And so this is where you get this correlation. Then people saying: "look, we have the dietary guidelines came into place and we've just seen obesity rates continue to increase. We've seen diabetes rates continue to increase. Therefore the dietary guidelines have contributed to this". And, and as some of the claims we noted earlier saying that they directly contributed to this. Now there's two ways we can maybe go about looking this one, we can say, "okay, what evidence is there that the guidelines cause obesity or chronic disease?" Or in other words, can we see that if people follow the types of guidelines that are being recommended, these types of dietary patterns that we see in the guidelines, if you follow that diet, do you have an increased risk of obesity or does that lead to an increased adiposity in people who follow that diet compared to a different dietary pattern?

Danny Lennon:

Then the second question might make that whole thing a moot point, because you could say, "well, do people in the population actually follow these guidelines?" Because if they don't then it now suddenly becomes disconnected from the fact there's an increasing prevalence of obesity and chronic disease. So let's take the first question of whether these guidelines do in fact increase obesity and chronic disease prevalence. So for this, I mean there's many ways we could look at this, but basically we're trying to get to the point of saying, given what these recommendations are and then the type of dietary patterns that are in there and the types of limits on these different nutrients. Do we have evidence of types of dietary patterns that would be indicative of those? And if we do, what outcomes do we see and do people lead to does that end up with people having higher body mass, more APOE, more type two diabetes prevalence, et cetera or not? So I don't know what way you would even start investigating that question. But the idea that there is evidence to suggest that there are causing the prevalence of these diseases to increase well, if,

Alan Flanagan:

If you, if you'll actually start scrutinizing this, the supporting claims when that statement is made that well, we had the introduction of these guidelines, 1977 in American, 1983 in the UK, other countries at various points in time, largely around that, that overall period, late seventies, early eighties. And here is this rise in population levels of obesity and indeed other, cardiometabolic diseases increased prevalence of type two diabetes of fatty liver. You know, some would argue a plateau in the reduction of carbohydrate mortality, or sorry if cardiovascular mortality, despite a reduction in or despite the introduction of like drugs. So you've got all these disease outcomes that are linked to the introduction of the guidelines, and then you scrutinize what exactly is offered as support of that. And it immediately becomes apparent that what's been argued is a purely post hoc fallacy.

Alan Flanagan:

The argument is that this is the time the guidelines were introduced. These are the population trends in these diseases, ergo these trends were caused by the introduction of these guidelines. And so at this very basic level of kind of, thinking about this stuff, we can see an immediate fallacy at play in the argument being made. Of course, Then we can step a little further away from just that to Mount a more nuanced evidence based argument against the idea. And there's two ways of doing that. There's obviously looking at available population evidence, and then there's looking at some of the available interventions of which there are actually, shock-horror to most people, interventions in this area. For the population standpoint, what you need to do is you need to take the actual guidelines, define what adherence to those guidelines is and come up with a composite score for adherence to those guidelines.

Alan Flanagan:

Okay. So you might decide that, well, the corner stones of the guidelines are saturated fat under 10% sugar under 10%, salt under five grams a day or sodium under 2,400 milligrams, X amount, five servings of fruits and vegetables. For example, whatever the parameters of how you're defining adherence to the dietary guidelines is a lot of the studies, they don't use every single one of the dietary guidelines, for example, they won't be scoring for, the replacing polyunsaturated with saturated fat. So they might take the cornerstone ones and score on that. And then you look at the associations between adherence to the dietary guidelines and health outcomes. Now what we would expect to see if the hypothesis that these guidelines were causative or certainly associated with disease at the population level is we would expect to see that the more adherence someone scores to the guidelines relative to the country, in

question, the more we would expect to see that correlated with increased risk of mortality obesity, or any of the cardiometabolic diseases that we listed before.

Alan Flanagan:

And of course we see the exact opposite to what is claimed and we see it across a range of countries European and otherwise. And so it becomes really difficult, I think, to see where there is an argument to be made that, that this is actually the case, that there's a number of examples we can go to. There was an study published in 2020 based on Danish data, the Copenhagen general population study. This was an enormous study with pretty much around a hundred thousand people. And so they took the Danish food based dietary guidelines, and they had a number of key recommendations. So they had less saturated, fat vegetables and fruit increasing fish consumption per week, less sugar and lower salt foods, right? So they had a scoring for each of these and they classified people relative to four, five different, sorry, levels of adherence.

Alan Flanagan:

And they looked at all cause mortality, cardiovascular, mortality, non-cardiovascular mortality. And what was most striking was within categories 1, 2, 3, 4, you could see a separation in terms of overall risk, but rather damning to the hypothesis that adherence to the guidelines would be causative of these relationships are certainly associated the highest level of adherence, right? Compared to the lowest level. What you saw was that the lowest level of adherence had a 35% increase in risk of cardiovascular mortality. 46% increase in risk of non all cause mortality and 56% increase in risk in non cardiovascular mortality. And these were largely highly significant results in terms of their magnitude of effect. And indeed the confidence intervals accompanying these. And this was over, five years up to sorry, 14 years of follow up.

Alan Flanagan:

And so, this is obviously in the Danish population. So we could say that things would be different elsewhere, but what we're clearly seeing is the reverse, essentially, of what's being argued by people who would argue that the actual guidelines are associated with an increase in risk. In fact, the highest adherence to the lowest, ended up being linearly associated with increas risk. So as you got from the highest adherence to the lowest risk of these outcomes kept getting higher. And so that's obviously the Danish population, but we've seen the same in the UK with Biobank cohort and this focused more on international guidelines. So obviously we've talked about different country specific guidelines, but again, broadly speaking, we see large similarities. So the UK Biobank cohort was not analyzed in relation to what we would term say, like the Eatwell guide or the UK guidelines specifically, but based on the world health organization, overall guidelines.

Alan Flanagan:

And again, what you saw was, and, and this looked differently at what, when the last study was looking at comparing the least adherence to the highest, this was looking at highest adherence. So this was looking at whether there was lower risk from greater adherence. And again, you saw this linear trend where to meet only two of the dietary recommendations was associated with a pretty modest 9% lower risk to adhere to up to three to four of the recommendations was associated with a 21% relative risk reduction in terms of all cause mortality. So again, we're seeing, we're seeing in one instance, low adherence associated with quite a profound increase in risk and in the opposite direction, we're seeing higher adherence associated with reductions in risk. And this has been, replicated in any studies that

you have used largely dietary guideline related score to assess mortality in a prospective cohort study in different populations.

Danny Lennon:

So we're seeing that adherence adherence to those particular types of dietary patterns that would be recommended seems to lead to reduced risk rather than an increased risk. And then I suppose to presume another pushback that some of this community may have would be, well, you haven't referenced anything there in comparison to low carb diets, right? If they were compared to low carb, it would be, be worse. And I mean, there's a number of ways you can investigate this. We have intervention trials that we've mentioned a number of different examples. One people could think of is if you look at the DIETFITS trial from Chris Gardner and his colleagues, that that is one where you actually see a focus on healthy eating patterns in both of those groups. And you're just changing higher carb, lower fat and vice versa in the two groups over the course of the year.

Danny Lennon:

You don't really see any difference. So if this presumption that eating in line with how the guidelines suggest are restricting dietary fat a bit more getting more higher carbohydrates focusing on things like grains, et cetera, that is a problem and going to cause you to increase adiposity over time. Then why wouldn't we see more weight gain over the course of the year, right? That there's just one way to test it. Nevermind all the both interventions and epidemiology we've discussed in relation to low carbohydrate versus higher carbohydrate intakes. And so it just doesn't really, I just fail to see where this there's much basis to this is.

Alan Flanagan:

No, it's, it's, it's such, it's in many respects, it's a nonsensical argument and it, there's, there's two immediate and very predictable progressions of this argument as one is, they'll say, well, yes. You know, people have been following if people were following a low carb diet, that this would be, we wouldn't see this, we we'd see a benefit to the low carb diet relative to this standard population, what they call a low fat diet. And there's two aspects to this one is that if you actually scrutinize the data, you don't see anyone really consuming a low fat diet. You see a change in the percentage of fat attributable to diet, but that change is associated with changes in total energy intake, specifically in increase in total energy intake. So the percentage change is often accompanied over time by relatively little change in the absolute intake of fat per day.

Alan Flanagan:

In recent years, certainly in the UK, you can see a little bit of a decline in that total fat intake, but on the whole, you don't really see it move, even though the percentage has changed. So the at baseline, the argument that people started eating a low fat diet is nonsense. And then secondly, you've got the body of epidemiology on low carbohydrate diets and prospective cohorts, which show nothing but an increased risk of cardiovascular disease. An increased risk that in those studies is mediated by both saturated fat content and by blood cholesterol levels. So it's again, it's repudiating the idea that the guideline that, that specific component of the guideline is not evidence based because the body of low carb epidemiology consistent consistently shows an increase in risk of cardiovascular disease, mortality, and all cause mortality as well, but specifically one that's mediated by the very factors that have always been at the cornerstone of the recommendations to lower cardiovascular disease risk relative to dietary fat.

Alan Flanagan:

And then I think that the final point to make in relation to that, which makes it even more absurd is this idea that people followed the guidelines, right? So we've just said that, for example, the claim is made that these guidelines came in and it shifted people to a low fat diet. Well, on the basis of the evidence, that's just unsupported that people started eating a low fat diet. People started eating a very high calorie diet overall, and there are aspects of the food composition of the diet that certainly changed. But if you look at analysis that have looked at adherence to the dietary guidelines, what you tend to see is very low overall population level of adherence to dietary recommendations. And what you tend to see within that low adherence is quite a strong stratification relative to social demographic characteristics.

Alan Flanagan:

We've seen that in a really nice study that came out in 2019, which looked at repeated analysis of the UK population between 1986. So three years after the introduction of the guidelines here to 2012. And so, you really do see, and some of the benefits that were observed in that context actually related to public health interventions, like the salt reduction program, right? So they weren't asking individuals to make behavior change. This was sodium reduction achieved at the level of industry and, and impacting the whole food supply. So, if this argument is going to hold that the dietary guidelines had some sort of massively negative impact, then at the first instance, they have to show that people actually responded to and began to eat according to those dietary guidelines. And then secondly, you've got to show that if that is true, and there are people who did follow any number of the recommendations that they have poorer health outcomes relative to people who didn't. And of course, both of those are immediately repudiated by reference to the evidence. Very little people started following the guidelines, there are socio-demographic barriers to why that is the case. And secondly, when we look at adherence to those guidelines, we consistently see reduction in risk and higher risk in people who did not adhere to them. So it's just, it's one of the most self-defeating arguments I've ever seen mounted in, in the quackery space.

Danny Lennon:

Yeah. And, and one of the nice things on that second question of whether people actually follow these guidelines, it's actually shown in the most recent version of the USDA dietary guidelines you can go in and there's some really nice visual charts as well, that represent this. You start looking at some of the population figures and they show what percentage of the population consumes an intake of different foods at, or above the recommendation or below the recommendation. And you see things like 90% of women and 97% of men don't meet the recommended intake of fiber. For vegetables, 90% of the population are below the recommendation. They have that broken down by different vegetable groups. And again, all really high amounts of people below the recommendation. 80% don't eat enough fruit 95% don't get enough whole grains.

Danny Lennon:

And then you have something like 90 something percent are getting more than the recommendation amount of refined grains, right? So you see that literally the vast majority of people aren't getting anywhere near eating these dietary guidelines like not even close and so not even close, hence why moving even slightly in that area could have a potential benefit. There's some the same thing you see in, in the UK, there's 1,018 report here from public health, England. And even if we took well, what is the recommendation that most people on the street, if you stop them would think about right. That the most obvious one is, well, I've heard about this five a day, right? Get five portions of fruit and veg a day.

What percentage of the population in, in the UK is consuming that 31% of adults and 8% of teenagers are getting the recommended five portions of fruit/veg a day, nevermind any other recommendation.

Danny Lennon:

So this idea that people have started consuming this and their health has suffered as a result of that fails on both of these counts that we put forth, so far. And there's actually one quote that I, I took from a 2006 review paper that I'll link for people. Quatrimoni is the leader author on this. And it says quite simply, "poor compliance with the guidelines rather than the guidelines themselves is likely responsible for the weight gain observed in the American population. Adoption of an eating pattern, consistent with a dietary guidelines should facilitate population weight control if sustained long term". And so yeah, this idea that there's actual compliance with them is just nowhere to be seen when we think of how most people are consuming. And then actually look at, as you noted earlier, what do the guidelines actually say, as opposed to what certain low carb gurus are telling you the guidelines say.

Alan Flanagan:

Are telling you yeah, exactly. And are telling you what are being promoted. Like when, think about public health campaigns that we have, right. We have five a day for fruit and vegetables. For example, we have specific we've, similar things in the US, right? As far as the actual public health campaigns are uniformly, getting people to try and actually consume more of these core characteristics of guidelines. And then you have these contentions, like we heard earlier that, "well, the guidelines recommend cookies and margarine", like name, name one public health campaign that is encouraging people to recommend cookies and margarines? Or cookies and crisps and whatever. And so they just make these just totally absurd statements and accusations that what the guidelines are telling you to do and, and really what they're doing is deliberately or not deliberately, but certainly doing one way or the other is really conflating the role of the food industry and an unregulated free market, as it relates to nutrition and population health with the role of government.

Alan Flanagan:

And of course they're doing that because it fits into their conspiratorial worldview. And as we've said before, the low carb movement really is a, a conspiracy theory group. They hold multiple conspiracy theories on various issues. And so for them, they don't see that separation. Whereas again, if you read the original 1977 report, you see a very clear recognition that the private sector is in the driving seat of public health. You see a very clear recognition of the role of advertising and marketing. You see a very clear recognition that that's likely to have the greatest impact among people in more socially deprived circumstances. And of course, as that relates to adherence, we, any analysis that has looked at cost related to diet has to be fair, typically shown a linear increase in the cost of a diet associated with the number of recommendations that an individual is meeting.

Alan Flanagan:

And so this is, this is a major public health barrier, right? We've seen this in some of the UK analysis based on the SACN Committee like data here in the UK public health data, where the difference in the cost per 2000 calories relative to the number of SACN dietary recommendations being met, literally linearly increases from no recommendations met to six recommendations met. And so these are some of the examples of the barriers as to why compliance with the dietary guidelines is not as simple as people just going out and doing it. And certainly I think it's, it's doing a disservice to as critical as we can be of the role of governments in this situation, which I think we can be, I don't think it relates to dietary



guidelines. I think as we've discussed on some of the food policy and environment episodes, it relates more to the lack of willingness to have stronger regulations, despite evidence from things like the sugar tax that they're really successful at forcing reformulation and reducing population levels of consumption. It's the absence of any sort of checks and balances on an industry's ability to market, to influence preferences, to create a food environment, conducive to a diet that's high energy dense, poor nutritional quality and otherwise. And so these are, if you're going to take issue with government's role in the facilitation of population ill health over the LA, there is plenty to go with and it's really not to do with the guidelines right. You know, you're barking up the wrong tree.

Danny Lennon:

Yeah. And as we've, we've noted in so many previous episodes, there's so many drivers of people's diets and food choices, some of which you've just named. And so it's just so egregious for the example we referenced earlier where they're talking about, well, people are going down these aisles and seeing things like potato chips or whatever, and saying, well, this is because dietary guidelines say, eat less fat and eat vegetable oils. And carbohydrate is like, as if that has anything to do with someone's decision to make that purchase right. And for, for that to be something problematic, help that has nothing to do with that whatsoever. And so it's just such a strange argument that one might make to, I think we've discussed as much as we can about some of the absurdities of this.

Danny Lennon:

So maybe to round this off, I think maybe it might be useful to frame the dietary guidelines from, from a variety of different countries in a way where because I think it's important to note that this is not some sort of <laugh> or certainly I don't think it is two shells for the dietary guidelines trying to tell everyone this is the best nutrition document anyone can ever read, and this is all you ever need. And there's certainly some interesting points of contention people could discuss and debate. And, but again, it's, as you mentioned earlier, noting, well, what is the goal of a population based dietary guideline? And do they, in general, if someone followed this would they be healthier? I think we've answered. That's probably going to be the case for most people. The second question is, well, is there other things that could be done to actually get people to follow these guidelines better?

Danny Lennon:

I think undoubtedly answer that would be yes. There's things that could be done. And then there's probably smaller little nuance pieces of different countries, dietary guidelines, which we could discuss. Right. So what I mentioned earlier was around this issue with dairy in the US, someone could make the case that maybe they oversell the point of dairy, right. That it's painted as an essential food group rather than optional, which I think someone can make a fair case towards there's other things like added sugars being set at limit them to 10% or less a number of people have called on that to be reduced. Right. So the SACN have, have advised that to be 5% for example, of daily calories. So there are things here where there are some interesting points of contention, but that's not to say that those guidelines as they are, are inducing any degree of harm. Right. So it's that here's some places where they could possibly improve to make them more beneficial or in other cases, easier for people to actually implement, which is probably the real barrier.

Alan Flanagan:

Yeah. Yeah, exactly. I think, like a characteristic of quackery we've discussed before is the idea that there can be a grain of either truth or indeed a grain of solid logical basis of an argument before it's departed

up, from, to move to the realm of quackery. And that is the case with these. I mean, no one is saying, for example, a case will be, "oh, well the guidelines weren't based on randomized control trials" and it's like, well, that's seldom a luxury. It's again, a straw man. It's like, yes, it's true. Is that a limitation? Well, it's seldom the public policy is based on randomized control trials alone, across a range of things you could bring in you know. Were there conflicts of interest in feeding into the report in terms of the actual claims being made, you could argue, most of that is argued based off the affiliation of a number of the scientists involved.

Alan Flanagan:

But again, while there could be a case to answer in relation to that, what you're looking at is the veracity of the data they produced the contributed to that. And you're also recognizing that it's not necessarily every single person that was involved in the report and scientists do get funded from somewhere. So is that a compromising conflict of interest? I would argue that the report is far more transparent than people give a credit for. And so I would be more comfortable with the lack of necessarily huge industry influx. Although people could argue that with dairy, maybe that's the case, certainly in the states that the dairy industry has a big in influx of interest into maintaining that essential food group in the status. But again, these are really nuanced points where there's a conversation to have over and they certainly don't detract or indeed support the argument that there's some sort of net negative to public health from the actual application and adherence to the guidelines.

Danny Lennon:

Yeah, I guess that's the thing of, that's something that could be plausible that we could look at, for example, is there a conflict of interest here where you're trying to promote agriculture whilst putting together guidelines possibly, but let's look to see if there's there's evidence of that. I, I think it's sometimes telling that there's always issues with certain researchers having certain funding, but then there's no skepticism around dairy industry funding coming from low carb people who want cheese and butter at the center of the food plate, you know? Yeah. And, and I mean, look, we we've talked before about the role of the food industry by and large, outside of the context of guidelines and that there, there is a lot of harm that can be done there. And we we've noted that there are things that are imperfect about the guidelines themselves, but by in large, the problem is not that people follow them and then become sick, it is that people don't follow them. And if we could, if we could work out a way to get a higher percentage of the population eating anywhere close to in line with what those guidelines are consuming, I just fail to see how anyone can make the case that would lead to worse health a opposed to actually drastically improve people's health. Yeah, but there we are.

Alan Flanagan:

There we are.

Danny Lennon:

Any closing thoughts before we wrap this one up?

Alan Flanagan:

If they're really going to get hung up in the randomized controlled trial thing, there is the CRESSITA study for example, which tested the effects of a full adherence to the British, like the EatWell Guideline guidelines compared to like a British control diet on obviously intermediate risk factors, blood cholesterol levels, blood pressure even inflammation and other outcomes. And literally what you saw across the board. I

mean, and this was a really interesting study because it emphasized the food-based substitutions that you'd use, right? So replace saturated fat, but like say butter with soft polyunsaturated fat, with margarine, specifically a model one saturated fat from olive oil replace refined with whole grains, specifically add oily fish to weekly consumption.

Alan Flanagan:

And then the typical British pattern was left, consuming butter spreads, refined grains cereals. And they all had population averages for the various nutrients of interest at baseline. And you're, it was 12 weeks and the intervention group reduced body weight, significant reduction in blood pressure, blood cholesterol and all of this, again, reflected the actual changes that occurred in terms of adding more omega threes, reducing saturated fat, reducing salt, increasing their fiber intake. And if you extrapolated that those changes in risk factors to risk for cardiovascular disease, then what you would've seen was that adherence to the guidelines would reduce non-fatal cardiovascular disease by 30% fatal cardiovascular disease by 15%. So the ideand again, they love to fall back on this randomized control trials did not support the guidelines, but it turns out randomized control trials do support the guidelines and that that level of adherence and the reduction in corresponding mortality estimated from that adherence is fairly precisely what we see in terms of reductions in mortality, in the general population, from the perspective cohort studies that have looked at adherence to the guidelines.