**22 December 2023 / Let’s process food**

**[HALF SECOND OF SILENCE]**

**[BILLBOARD]**

NOEL: A lot of us have been hearing about the problem of “ultra-processed foods.” They dysregulate our systems, they trick our brains, there’s even some speculation they’re addictive.

Why IS everything so processed these days? There are some understandable REASONS.

CHRIS VAN TULLEKEN: Now, if you grow cobs of corn, you harvest them all at the end of August. And the public market for cobs of buttered corn with salt on them is very limited. You only want to eat them once, twice a week. So if you're a corn farmer, what you want to do is turn your crop of corn into modified maize starch, modified corn protein isolat,e high fructose corn syrup corn oil. You want to create the base ingredients that have an infinite shelf life, nearly infinite, and can be used in everything.

NOEL: Coming up on Today, Explained: A doctor shares his research from a new book Ultra Processed People.

[THEME]

NOEL: Dr. Chris Van Tulleken is an infectious disease specialist, and advisor on food and nutrition to the World Health Organization and UNICEF. He is not \*just\* a doctor. He also plays one on TV.

<CLIP> Operation Ouch - “Operation Ouch”

DR. CHRIS VAN TULLEKEN (Doctor): I mean, this is where I start to look, I'm spread a bit thin. I also do some broadcasting for the BBC about health and medicine and science for, for children and for adults. So I do, I do a popular kids show here called Operation Ouch with my twin brother, which is very silly and very fun.

NOEL: <laughs>

NOEL: Dr Chris got very interested in these things called Ultra Processed Foods - or UPF’s - when he was on an assignment for the BBC about childhood obesity.

*<*[*CLIP*](https://www.bbc.co.uk/programmes/p09hvd8b)*> BBC - Anchor: “Dr. Chris Van Tulleken investigates the food we're feeding our children.”*

*Doctor- “It might change your brain forever.”*

*Chris- “ Really?”*

CHRIS: And I was going to frame it as a very complicated mixture of genetics and socio cultural factors and economic pressures. And, you know, increasing amounts of food and also inactivity, you know, Children not being on screen.It seemed obvious that this was a complex mess. And the more research I did, the more it seemed very obvious there was only one real cause of pandemic childhood obesity, and that is the marketing of industrially processed or ultra processed food.

NOEL: What are these? What does this mean, this term?

CHRIS: So for a really long time, we've known that there are foods that harm us. The problem has been, how do we describe this food? We've called it junk food, processed food, but no one had ever formally tried to operationalize a definition for research.

[SCORING IN ] Here’s the Plan - BMC

CHRIS: And then a team in Brazil observed this incredibly fast nutrition transition, and this happened across South and Central America, that obesity went from being essentially unheard of to, in the space of, you know, a decade, suddenly, it was the dominant public health problem

*<*[*CLIP*](https://www.youtube.com/watch?v=dNGMhzRL7n4)*> AFP News Agency - Reporter: “The soaring popularity of cheap fast food, lack of exercise and lack of time to cook. The result? Half of Brazilians are overweight and 16 percent are obese”*

CHRIS: the scientists in Brazil tried to describe the very wide category of food that seemed to be driving this because they noticed that people weren't buying more salt and oil and sugar. What they were buying was salt, oil and sugar in the form of these biscuits, breads, confectionery, ice cream, and soft drink sodas. And so they created a definition in 2009, and now we have over a decade of research. We've probably got 1,500 scientific peer reviewed papers directly studying ultra processed food, and then at least another 500 to 1, 000 papers that bring evidence to bear on the hypothesis that a poor diet means an ultra processed diet.

[ SCORING OUT ]

NOEL: Where would I see them in the wild? I mean, Brazil, okay, I could also walk down to the supermarket right, and find some?

CHRIS: So the definition, there's this long formal definition housed on the United Nations Food and Agriculture website, but it boils down to this. If something is wrapped in plastic, and it contains at least one ingredient that you don't typically find in a domestic kitchen, then it's an ultra processed food. And it's about 60 percent of the food on average that we eat in the UK or the USA or Canada, Australia. It is our diet culture.

NOEL: And the thing that I thought was remarkable reading your book is there are a lot of things that I thought were healthy or, or might have intuited were healthy in large part because they're sold to me as healthy food, but they do fit into that category: they're wrapped in plastic and they contain things not found in nature. Give me an example of some of the trickery here. Where do we find these things where we think, Oh, that that's healthy for me? And it's actually not.

CHRIS: A really good definition of ultra processed food would be any food with a health claim on the packet.

Noel: hmm!

[SCORING IN] Neutral Irene

CHRIS: Low salt.

*<*[*CLIP*](https://www.youtube.com/watch?v=ROiufwI5CRE)*> Humpty Dumpty - Narrator : “Hey look, Humpty Dumpty Chips! My Mom bought these because they say low sodium!”*

CHRIS: low fat.

*<*[*CLIP*](https://www.youtube.com/watch?v=wr9oBjEj4vg)*> Skippy - Eartha Kitt: “Introducing new Skippy reduced fat peanut butter. With 30 percent less fat. Plus the delicious Skippy taste you crave.”*

CHRIS:low sugar

*<*[*CLIP*](https://www.youtube.com/watch?v=rTM4yJeNbSE)*> Fruity Pebbles - Fred Flinstone: “Try my new Post Reduced Sugar Fruity Pebble Cereal! Even with half the sugar, it's fruity licious!”*

CHRIS: high in fiber and vitamin enriched.

*<*[*CLIP*](https://www.youtube.com/watch?v=s18TtmNmioQ)*> Narrator: Fiber beyond recognition. Fiber One*

CHRIS: All of those products are very likely to be ultra processed. So almost all breakfast cereal including the whole grain healthy ones. If you look, they will contain high fructose corn syrup, they will contain emulsifiers, they will contain peculiar flours, protein isolates, flavoring, stabilizers, all these things that make up ultra processed food.

[SCORING OUT]

Almost all of our bread that we eat, I mean probably 95 to 98 percent of the bread consumed in the U. S. and the U. K. is ultraprocessed. This was the category of stuff that I was most surprised by because I, I used to buy these sort of seeded whole grain loaves. that were very delicious. It was called Seven Seeds Sensations, but right in the middle of the ingredients list, you'll see things like mono and diacetyl tartaric acid esters of mono and diglycerides of fatty acids. So we see these emulsifiers that are used to turn the bread into a kind of very soft, spongy foam. So breads and cereals are the ones that surprise people the most.

NOEL: I got so disgusted reading your book that I, I bought a bread maker. I said, I can't do this anymore. I thought this [bleep] was healthy. And, and then I'm looking at it and I mean it, it, it looks good.You know, it looks really good and it's full of fiber. And it turns out it's also full of other stuff.

CHRIS: And I'm so pleased to hear that. I, I am still at the spending $10 and asking that my family don't eat the bread too quickly. I should get a bread maker.

NOEL: So in the book, in the course of writing the book, you decided to do an experiment on yourself. Tell me about the experiment.

CHRIS: So this wasn't just a stunt for writing the book. So I'm, um, I'm a molecular biologist by training and I've switched my research focus over to nutrition via the, you know, the interesting companies that I described. So, um, we're now running a big clinical trial about ultra processed food. And so I was the first patient in the trial. to set up all the experiments. You know, you have to work out what's going to happen and what you should measure and what's going to fly and what isn't. So this was done formally with all my colleagues at university college in London, um, and our national hospital of neurology and neurosurgery. So, um, I went on an 80 percent ultra processed diet for a month to see what would happen to my body. Several journalists have kind of reported that I heroically put my body on the line for science, and I really didn't. I just ate a completely normal diet for an American teenager. 20 percent of people in Britain and the U.S. eat 80 percent of their calories from ultra processed food. And a typical teenager eats 70, 80, or even 90%. So this, this was a normal diet.

NOEL: What did you actually eat during that time? What was a typical day like for you?

CHRIS: I ate, you know, branded breakfast cereal, sometimes kind of healthy stuff like Special K or Alpen, or sometimes I ate junky stuff like Coco Pops or Crunchy Nut Corn Flakes.

*<*[*CLIP*](https://www.youtube.com/watch?v=yN5Uwh4fioM)*> Kellogs - Narrator: “Crunchy golden flakes covered in nuts and honey.”*

CHRIS: All very normal breakfast. Lunch was a sandwich from a fancy chain like Pret,

<CLIP> “Say hello to Pret perks.”

CHRIS: emulsified bread, maltodextrin in the condiments, and then a pack of crunchy stuff and a soda.

SFX - chips

SFX - soda can popping

CHRIS: And then dinner would be like a microwave ready meal, a frozen pizza,

<CLIP> “Delivery?” “It’s not delivery it’s Dejourno!”

CHRIS: or a takeaway I quite like. I'd get lots of different food for takeaway.

<CLIP> “So if it was delivered with Uber Eats, does that mean I can eats it?” “Oh no.”

CHRIS: So all, all normal stuff.

NOEL: What actually happened when you ate like a relatively normal person, when you put 80 percent UPFs into yourself?

CHRIS: Three things happened.

[SCORING] Something\_Fishy\_-\_Bass\_And\_Percussion\_Only\_Mix\_APM-01

CHRIS: First of all, I gained so much weight that I would have doubled my body weight, uh, in a year if I'd continued. I gained over six kilos.

NOEL: Oh!

CHRIS: And this is, this is in absolute agreement with all of the big data studies and the clinical trial that we've got. This is, this is food that is engineered to drive weight gain. The second thing that happened was we, did a series of scans that looked at connectivity between different bits of my brain. And the main thing we saw was this huge increase in connectivity between the habit automatic behavior bits right at the back of the brain and those reward addiction bits right in the middle. And this was a very robust effect. We did serial MRIs and there was no question this, this wasn't noise. You know, this was done by our medical physicists. We're very sure this was a real effect. We don't really know what that. Means? We don't know what it means for the kids who are growing up in their, you know, I'm, I'm 45, nothing's going to happen to my brain other than slow degradation until I die.

NOEL: <chuckles>

CHRIS: you know, but for, for kids eating these substances from birth, there are really, really alarming signs that this is, this is permanently going to change their brains.And then the third kind of major effect was that. At the beginning of the end of the diet, I ate a standard meal, which was kind of like a big glass like this of a sort of scientific milkshake. It had very fixed amounts of fat and protein and sugar. And then we measured all my hormones and how they respond to the meal. And at the end of the diet, at the beginning I responded normally, at the end of the diet, at the end of the standard meal, my hunger hormones remain sky high. So this is food that is interfering with our body's ability to say, I am done, it is time to stop eating.

[SCORING OUT]

NOEL: What happened to you when you stopped this “diet.” Was it hard to stop eating UPFs?

CHRIS: In a way, the most interesting thing happened in the middle of the diet. You know, I was, I was in my early forties at the time and I had these two young kids and I was eating quite healthily because I'm a doctor and suddenly I had this opportunity to go and eat all this junk that I'd eaten as a kid and as a young student and I was really looking forward to this diet. And the food started to become a bit wearing midway through. When I spoke to a scientist in Brazil who I collaborate with, Fernanda Rauba, and Fernanda kept saying, this isn't food, Chris, you mustn't think of it as food. It is an industrially produced edible substance. It has no nourishing value. Its purpose is to generate profit. And she flicked some switch in my head

[SCORING IN] Do Your Job, Do Some Research

CHRIS: It was like falling out of love with someone, or it was like the way that ex smokers describe their habit, or sometimes people who've lived with the substance addiction fall out of love with something very permanently. So by the end of the diet, I didn't just quit the food because I knew it was bad for me. I quit the food because it had become disgusting to me.

NOEL: Dr. Chris VanTulleken. Did he just say … these foods are addictive? Gonna press Dr. Chris. Coming up.

# [BREAK]

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# [BUMPER]

NOEL: We’re back with medical and TV doctor Chris Van Tulleken.

NOEL: Chris, earlier in the show, when we were talking about your journey eating ultra processed foods as 80 percent of your diet, I felt like what you wanted to tell me was these foods are addictive, but you didn't want to use the word addictive. Let's back up and let me ask you why it is that when I open up a bag of chips, I'm almost certainly going to eat the entire bag of chips. What is the science? And if we can't call it addiction, what can we call it?

CHRIS: I, you're right, I did, I do, I do angst about saying food addiction because I think for some people it sounds absurd or stigmatizing. But the truth is we have, uh, overwhelming evidence that for some people, Certain ultra processed products are as addictive as drugs of abuse like cocaine or opiates or alcohol or nicotine tobacco products. They are really, really addictive. And I am one of those people, but we have really lots of different evidence. So, the first thing that people listening might want to reflect on is the definition of addiction, which is broadly the continued use of a substance or behavior that you know is harmful to you, physically or psychologically, despite repeated attempts to quit and despite that knowledge. And ultra processed food definitely meets that criteria. Many of us find that we have these food products that we are unable to stop eating in the moment and unable to stop eating in general. We eat them, we finish the bag, but then we'll find ourselves having another bag of chips or crunchy stuff at the next meal.

*<*[*CLIP*](https://www.tiktok.com/@loveyouronions/video/7248602820830596378?q=addiction%20to%20upf&t=1701194480304)*> Tiktok: So I'll have a little treat, a little biscuit, or a small bowl of crisps, or some strawberries with Nutella, something like that. And more often than not, this will completely set me off, and I'll want to demolish the entire packet of crisps.*

CHRIS: The problem with defining any food as addictive is that baked into the idea of addiction is the idea of abstinence. And you can't be abstinent from food. So The evidence that they are addicted beyond the simple, obvious thought experiment is that the genetic factors that predispose you to other addictions also predispose you to food addiction. The social factors like poverty and trauma similarly predispose you to food addiction and other addictions. So one of the arguments the food industry is making against me quite aggressively at the moment online and in other places is that by demonizing ultra processed foods, which I, which I hope I actually don't do, you know, moderate intake for many people is absolutely fine. But. By demonizing them, I'm actually creating eating disorders.

I would say that we are gathering evidence, I'm working with our Royal College of Psychiatrists, the Eating Disorders Faculty, um, and there is a growing consensus that these are the foods that drive eating disorders, that they are foods that dysregulate and disrupt our relationship with food and taste and flavor and community. Uh, and they are the engines of much of the problem. So, uh, I think addiction to these products is real and many people listening will be living with that addiction.

NOEL: When you say they dysregulate and disrupt our systems, what do you mean by that? What does that actually look like inside of me?

CHRIS: So we're sure that ultra processed food does cause harm. We've got a clinical trial. We've got lots of big epidemiological data linking it to cancers, cardiometabolic disease, anxiety, depression, dementia, early death, inflammatory disease. There's a, there's a long list and most obviously weight gain. One of the things that We're really trying to understand in more detail is how does it do all this and we have quite a lot of ideas/ So when it comes to excess consumption ultra processed food is incredibly soft and it's incredibly energy dense and it's soft because of all the physical processing. It's made of modified cornstarch corn oil and high fructose corn syrup, which are then textured. So the food structure has been almost pre digested, it's pre chewed. So it's soft, it's energy dense because it lacks water. The softness plus the high calories per gram mean that you consume calories incredibly quickly, essentially quicker than your body can say, you know what, I am done, I'm going to stop eating now. And everyone will have had that experience of You can eat an 800 calorie burger, and another 600 calories of fries, and then another four, five hundred calories of soda, and you can do it all in ten minutes. And you've consumed your entire day's worth of calories. If you were eating real food, it would take you half an hour of Chewing and slow mastication, all of which would start releasing the, the hormones inside you and the neural signals that say it's, it's time to stop now.

NOEL: And it's not fun. I would just, I just want to throw in that, that, that half an hour of eating real food is not nearly as fun as eating french fries.

CHRIS: Oh, well, that's intriguing. So I might dispute that or rather there is sometimes people will say, Oh, but Chris, this food is delicious. We actually, again, we have quite a lot of evidence that this food is delicious in the same way that cigarettes are delicious. You like the first puff, you know, with alcohol, we like the first sip. We like the first bite of the burger. Actually, toward the end of the meal of french fries and soda, most people aren't enjoying it anymore.

NOEL: That’s true

CHRIS: And we have a lot of evidence.

NOEL:yeah, yeah.

CHRIS: This food is not actually delicious. People don't like it, but they do want it. And liking things, which is, which is a good thing, is very neurologically distinct from wanting things. And the wanting, craving bit of the brain, that's the addictive bit. But the main thing I think that people are starting to understand, and this is the focus of a lot of my recent research, is It's not one aspect of ultra processed food that you can point to, it's not the flavour enhancers, or the salt fat sugar ratio, or the fact they add acid, or any one aspect, it's that every single dial on every product has been dialed up to 11.

NOEL: Let's talk about the companies. If you and other doctors, medical doctors, are aware that these foods are unhealthy, that they're doing bad things to us, I assume that the companies that are selling them to us know the same. Are there any incentives to get those companies to change the way they're packaging and selling food to us and change what they are putting in, what they sell to us as food?

CHRIS: Not really. In the United States, there is no warning on any of your food. There is nothing on your food that says this is healthy food or this is unhealthy food. This is real food or this is ultra processed food. In the US, I'm, and I love America, so I'm sorry this does sound kind of ranty and about America, but you have no functional regulation of any of your food additives. So no one, including the Food and Drug Administration, has any definitive list of all the different chemicals that are added to food. It's somewhere between 5, 000 and 15, 000, but no one has the exact number. None of it is tested. And when it comes to flavors, they're a completely separate category. They're entirely, uh, regulated by The Flavor Manufacturers Association. So they, they are, it's just industry marks its own homework.

So there is no way for a normal consumer to decide what food is healthy and what isn't in the US. And what we know, because I've been studying this for some years, is that within the industry, Their hands are actually tied. So what's easy is to throw rocks at McDonald's or Pepsi or Coca Cola or Nestle, any of the big food giants. Some of those companies have made sincere efforts to try and clean up their act. I mean, they weren't big efforts, but they were efforts. In each case, activist investors, the people who own the company, usually big institutions, got involved and fired in some cases, the CEOs, or in all cases, the boards that were making these decisions.

So even if the companies want to change, the company's purpose is to deliver financialized growth to their owners. Their owners are your pension, my pension, it's, you know, big institutional investors, Vanguard, BlackRock, UBS, Jupiter. And so the companies are stuck where they cannot. Now, the people who can change them are the government, and what we see in your country and in mine is a very close relationship between industry and government. So rather than writing policy at arm's length, like we do with tobacco, where there are no conflicts of interest, food policy is more or less written by the industry it concerns. And so we have an environment where almost everything we eat is ultra processed.

NOEL: You know, I'm, I'm thinking about potential solutions and I know that some of our listeners will get upset with me for saying, you know, I bought a bread maker, it costs $70. This is not a cheap thing and it also takes time and I, I don't have kids so I, you know, have the time to do this, but I understand that a lot of people. will respond to this and say, What the hell do you want me to do about it? Right? I'm one person, and I'm busy, and I'm broke, and etc. Do you have a satisfying answer to that, Dr. Van Tulleken?

CHRIS: No, I don't. Not really. We are in the 1960s when it comes to tobacco control, so we are sure that this category of products is harming you. Um, there is no regulation and for many people, this is the only affordable available food. So I'm very conscious in these interviews that the people who are most affected are not people like you and I, we can afford, you know, I can, I can josh about spending 12 on a loaf of bread. It is an obscenity that real bread, which should be the foundational food of the human diet is absolutely unaffordable for the vast majority of people, especially at the moment. Now, the people who are most affected are low income groups, people of color, already marginalized people, and they're essentially forced to eat terrible food. So people should be raging about this.

[SCORING] Meiji de Tokasu (intro loop)

CHRIS: If people listening feel addicted, then... The proposal is a fairly simple one. Treat it like cigarettes and you may find the food becomes disgusting. What I promise you is that at that moment, your life will get more expensive and time consuming. And, um, I think people have to make this journey from, from being a victim to being, being an activist quite quickly, because what, what we have to do is regulate these companies.

NOEL: Chris Van Tulleken. His new book is Ultra Processed People and if you read it, I can almost guarantee you will also find yourself buying a breadmaker. Today’s show was produced by Siona Petrose and edited by Matthew Collette. It was fact-checked by Laura Bullard and engineered by Patrick Boyd. Today, Explained will be off next week but if you need us during the holidays, you check back in the feed on Wednesday and Thursday for some of our greatest hits. I’m Noel King, Happy Holidays.

**[10 SECONDS OF SILENCE]**