

OZEMPIC: Stephan Guyenet, PhD talks about the neurology of obesity

My name is Stefan Guen I have a phd in Neurobiology from the University of Washington and I've been doing research for about 11 years and publishing uh my thoughts online as well Fundamentally excess fat mass obesity overweight those conditions as far as we know Well I mean this is just thermodynamic fact it's caused by more energy entering the body than energy exiting the body But that doesn't necessarily get us that far in terms of thinking about what obesity is what's causing it and how to reverse it Anthony Scni who did some work in rats back in the 19 seventies and they were trying to produce dietary obesity in rats so they could study obesity So at the time they were they were trying to develop a reliable model so that grad students didn't have to you know wait a year to get fat rats They wanted fat rats quick and they wanted them really really fat And so how do you do that Well you can feed them a high fat diet that will cause them to gain fat But Sloan had this kind of novel idea that as far as I know no one had ever tried this before Him He went to the grocery store and he bought all kinds of human junk food He bought the kind of stuff that we eat every single day And what he found is that in rats those foods are exceptionally fattening So the fat gain that those rats experienced completely outpaced anything that you could provoke by any other type of diet by far I mean you could put regular healthy rat chow you know regular healthy rat chow It's mostly corn and soybeans They they're pretty healthy on the stuff It's good for them You can put it in their cage and they will completely ignore it And instead they will eat chips and cookies and salami and and peanut butter and whatever you know fruit loops whatever palatable calorie dense foods you put in there and we diverged from rodents evolutionarily tens of millions of years ago So whatever these pathways are that are operating that are causing us to overeat they're extremely ancient So these are extremely deeply seated uh brain adaptations So we've essentially purified these palatability factors that are the things that our brains are kind of looking for We're kind of hardwired to look for these properties and food We're hardwired to look for calorie density to look for carbohydrate to look for fat to look for sugar And it turns out that our ancestors just weren't as good as we are at getting all those things all in a single meal Their food was a lot simpler and that's kind of like what our brains are adapted to They're not adapted to being hit with a sledge hammer

of these um compelling food properties at every meal And you know these things I I won't get too deep into the neurobiology of it but these food properties cause dopamine to be released by the brain which is a a reinforcement signal that reinforces motivation and behavior And if you get excessive dopamine release for example co by cocaine or especially crack cocaine or methamphetamine or heroin excessive dopamine release leads to um all the behaviors associated with drug seeking being prioritized over everything else in your life And we call that addiction They're prioritized to an abnormally strong degree And um it turns out that a lot of people by all appearances appear to be addicted to many of our modern foods they're not getting addicted to celery sticks they're not getting addicted to lentils What they're getting addicted to is these foods that have a combination of extreme uh reward factors These things that provoke dopamine release fat carbohydrate salt sugar combinations of all these things together that our ancestors would never have experienced So when it comes to us you know a piece of a piece of pizza or ice cream or candy or actually chocolate is a good example Um these things reinforce behavior in my opinion to a degree that you would have not have seen um that our ancestors would not have experienced and people develop you know it's controversial whether there is such a thing as food addiction Some researchers believe that there is some researchers don't kind of believe the concept but certainly people exhibit addiction like behaviors toward food And most of us even if we're not addicted to food per se we'll still feel compelled to eat some of these foods even though we know it's not good for us So we might not be addicted but we might you know we could stop eating it Sure If somebody put a you know a gun to your head you wouldn't need it But that doesn't mean that it's easy to control those impulses especially if you're depleted If your um impulse control is depleted because you're tired He worked all day you've been making big decisions all day You're stressed out you haven't slept enough you're gonna have a higher level of impulsivity and it's gonna be more difficult for you to make constructive choices in the face of these very very compelling foods And so I think from a dietary perspective it's very important to cook for yourself Make foods from simple uh single ingredients If if you're able to I think restaurants tend to be a real pitfall You don't realize uh exactly what you're eating when you walk into a restaurant um avoiding processed food But I think another thing that's really really important and doesn't always necessarily make it to the top of the pile in these types of discussions is controlling your food environment because I think that a lot of

people have some idea about how to eat healthy Now they may not be optimally educated on the subject but the average person doesn't believe that coca-cola is good for you They don't believe that candy is good for you or that pizza is good for you They eat it because they like it They eat it because it's there because it's easy So controlling your food environment and creating a situation where you don't have essentially where good choices are easy you've set it up in advance so that good choices are easy Poor choices are more difficult maybe even not even available in your house And if you can create a situation like that you minimize your need for willpower and you create a situation where the path of least resistance is one of eating healthy foods