

Have scientists discovered what's really making us fat?

Presented by Xand van Tulleken

Step 3: The dangers of combining fat and sugar: video transcript

Xand van Tulleken:

The real work is being done with rats and what they like eating. Everyday rodents who work with Professor Paul Kenny, a world-renowned researcher in the neurobiology of obesity and, rather interestingly, addiction.

He devised a series of elegant experiments to work out what foods we like and why. The first thing he did was feed his rats sugar. And they could have as much as they wanted.

Prof Paul Kenny:

The animals, of course, enjoy them and they'll consume vigorously, but they tend not to gain weight, because what they do is they adjust the consumption of other macronutrients to compensate. So, on average, animals with access to high-sugar solutions consumed the same amount of calories each day as they would if they weren't having access to those solutions.

Xand van Tulleken:

Really? So if you let a rat drink all the soda it wants to, or you let it have unlimited access to sugar, it doesn't get fat?

Prof Paul Kenny:

Typically, no.

Xand van Tulleken:

Then, he gave them as much fatty food as they wanted.

Prof Paul Kenny:

If you just give them access to fat, they will gain some weight, but really not that much, and what you find is they don't eat as much, physically eat as much food as they would've before, the reason being that they know that the fat is high in calories and their body is quick to deal with that. They have signals that tell them, "You've had enough, stop eating."

Xand van Tulleken:

So, Professor Kenny took this simple insight and fed his rats foods that were high in fat and sugar. So what happened when you fed cheesecake to rats?

Prof Paul Kenny:

They practically stopped eating the regular, healthy food that was there, but they didn't binge on the high fat, high sugar stuff, they grazed on it, but that was their main source of calories.

Xand van Tulleken:

This is the going to the fridge and just having a spoonful of ice cream every 20 minutes.

Prof Paul Kenny:

Precisely, yeah. You know, you get up and you eat, but if you're going to eat it's for that type of food and you tend to eat much more frequently. It's not as if you're not gorging on it, but that's what you eat continuously.

And those animals gained a massive amount of weight, they really gained a lot of weight, and they became sedentary. They slept a lot, didn't move around, but that was where they got their calories from.

Xand van Tulleken:

What Professor Kenny's discovered is that, unlike fat and sugar on their own, the rats had no off switch when it came to fat and sugar combined.

Prof Paul Kenny:

The combination of fat and sugar is completely different than either macronutrient alone, and it tastes remarkably good.