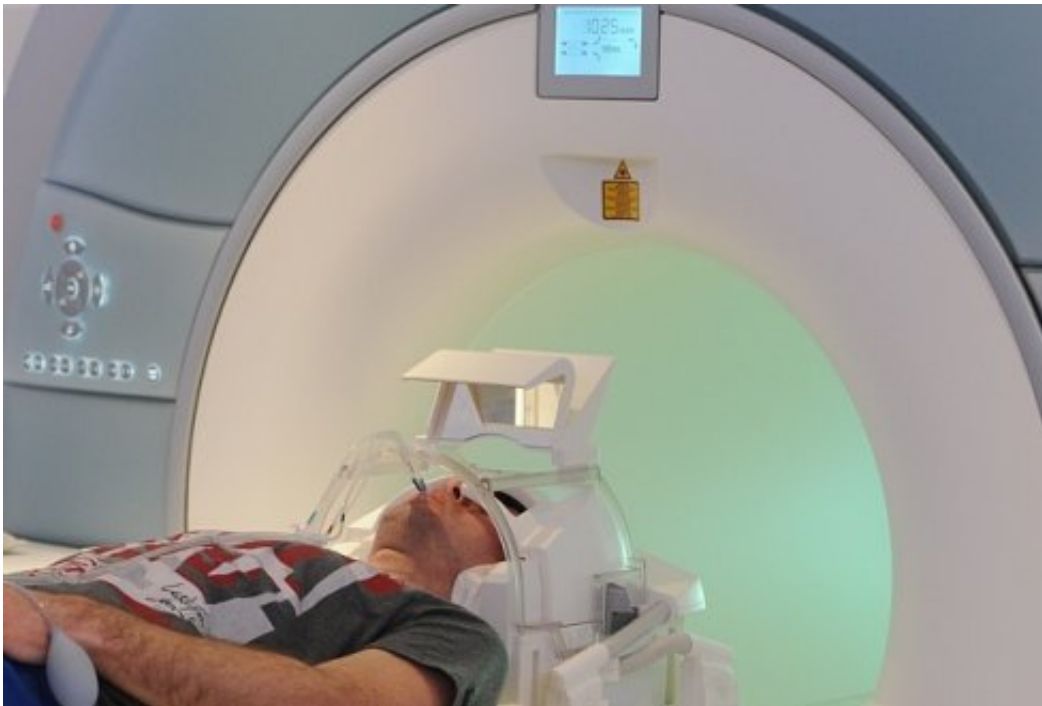


Similar reward effect of sugar-free and 'normal' breakfast drinks

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Do light products taste worse after repeated exposure? Or does the body gradually learn that they contain fewer calories and that is why we grow to like them less? In collaboration with dairy cooperative FrieslandCampina, a research team from Wageningen University studied the reward effect of sugar-free and 'normal' breakfast drinks. They concluded that light products taste equally good after repeated exposure,

as reported in the on-line scientific journal Plos One on 4 December.

What happens when the [sugar](#) in a product is replaced by a non-caloric sweetener, such as in light products? Do we continue to like the product? Or does the body 'learn' that a product without real sugars is less satiating, making the product less attractive? And does it matter in which product the sugar is replaced? These questions are the subject of a detailed study in which forty students took part.

For four weeks the students consumed each morning for breakfast a drink that contained sugar or a sugar-free drink with an identical taste. These were yoghurt drinks or [soft drinks](#). During and after these four weeks the researchers tested how much the students liked the drinks. A brain scan of the test subjects was also made using the MRI equipment installed in Hospital Gelderse Vallei in 2011. In this first study using the new facility, the researchers were able to dispense the drinks to the test subjects who were in the MRI and measure the response in the brain immediately.

After four weeks the research team found that there was no change in the preference for one of the two drinks. The [test subjects](#) liked the drinks the same as at the start of the study. The MRI results also showed that the brain did not respond differently to the sugar-free drinks (the 'light' versions) after the 4 weeks. But there was one important difference. The participants found the yoghurt drinks more satiating, even if the energy value was the same as that of the soft drink.



3T Magnetic Resonance Imaging

The researchers find an explanation for this in the fact that as a child we learn that dairy-based drinks are more satiating than drinks that are just as sweet. The body 'knows' this. People find a thicker drink more satiating based on knowledge, and not per se because they experience this at that moment. "Our body uses the knowledge from the past", explains researcher Sanne Griffioen-Roose. Whether we learned to value products in our early life or not is closely linked to the content – for example, we like products that contain a lot of sugar. These kinds of products have a satiating effect. It appears therefore that the reward value of a drink mainly depends on what we have learned about this product during our life, such as dairy products give energy. And you do not just forget this.

More information: "Effect of replacing sugar with non-caloric sweeteners in beverages on the reward value after repeated exposure."

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Provided by Wageningen University

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