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Want to make takeaways healthy? Give yourself electric shock, experts say

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Cutlery which delivers an electric shock to change the taste of food could help cut down salt in fast food, researchers have said (stock image) CREDIT: LAURI PATTERSON/GETTY

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By **Telegraph Reporters**

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Cutlery which delivers an electric shock to change the taste of food could help cut down salt in fast food, researchers have said.

Scientists have developed a pair of chopsticks, that can make food taste saltier, sour or bitter without the need for extra seasoning.

They are also working on a spoon and fork that could make food taste spicier or sweeter.

This "digital seasoning" technology could allow diners to tinker with the taste of their food as they eat so it suits them.

It could also help food manufacturers and restaurants to reduce the amount of salt they put into food without compromising taste.

The utensils work by delivering pulses of electricity to the tip of the tongue to stimulate the taste buds.

Dr Nimesha Ranasinghe, an assistant professor of computer science at the University of Maine who led the work on the electric cutlery, said:

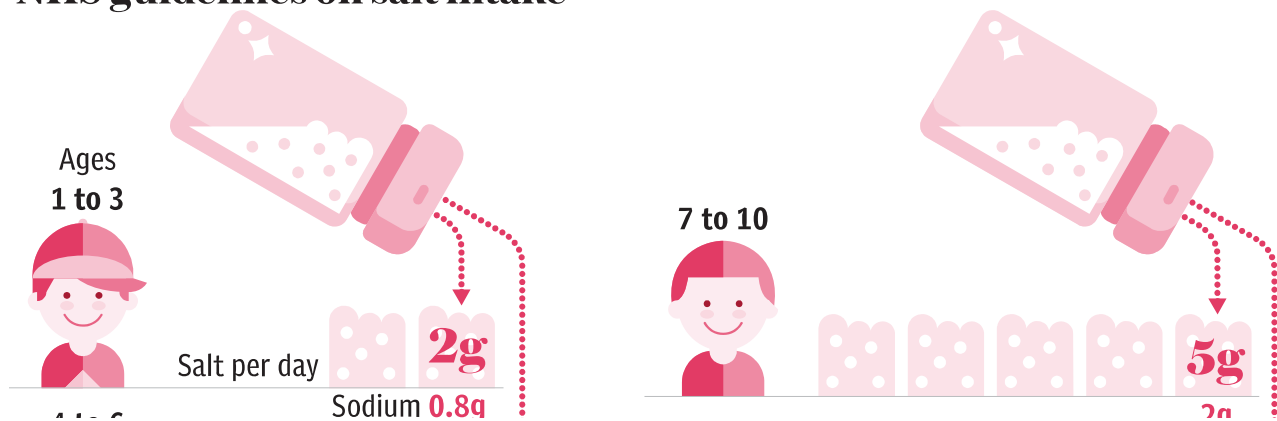
"This technology is aimed at overlaying a virtual taste sensation. Depending on the food or beverage, it will augment the flavor.

"For example, when we eat mashed potato by applying an additional layer of electric salt, the overall flavor is enhanced."

Some Chinese takeaway food and ready meals were recently found to contain up to 11 times more salt than a bag of crisps - more than half an adults daily allowance. Salt is known to be linked to serious health problems like heart disease and stroke.

But using a pair of electric chopsticks could help cut salt levels without leaving it tasting bland, said Dr Ranasinghe.

NHS guidelines on salt intake



The technology, which Dr Ranasinghe initially developed while at the University of Singapore, works by installing two electrodes into each chopstick or the end of a spoon.

These send a weak current through the tip of the tongue when they touch it to stimulate the taste buds.

By controlling the frequency, amplitude and strength of the electric current, the researchers can stimulate either sourness, saltiness and bitterness. They say up to 80% of people experience changes in saltiness and sourness with the devices and 70% can sense changes in bitterness.

Dr Ranasinghe, whose work is published in the journal *Food Research International*, initially developed a fork that could replicate saltiness but has since developed a spoon, chopsticks and a soup bowl that can trigger all three tastes.

He said he was also working on ways of replicating sweetness and spiciness by rapidly heating and cooling the tongue.

It could lead to a spoon that allows desserts to taste sweet while having lower sugar levels or a fork that can give a curry extra heat without the need for extra chillies.

Dr Ranasinghe said: "We have some early findings of simulating sweetness, a mint-cool sensation and hot or spicy sensations. But this thermal stimulation requires bulky heat sinks to accurately control."

He added further work was needed before this digital sugar and electric chilli powder could be added to utensils.