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No Taste for Health: How Tastes are Being Manipulated to Favour Foods that are not Conducive to Health and Wellbeing

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Lelia Green

Background

"The sense of taste," write Nelson and colleagues in a 2002 issue of *Nature*, "provides animals with valuable information about the nature and quality of food. Mammals can recognize and respond to a diverse repertoire of chemical entities, including sugars, salts, acids and a wide range of toxic substances" (199). The authors go on to argue that several amino acids—the building blocks of proteins—taste delicious to humans and that "having a taste pathway dedicated to their detection probably had significant evolutionary implications". They imply, but do not specify, that the evolutionary implications are positive. This may be the case with some amino acids, but contemporary tastes, and changes in them, are far from universally beneficial. Indeed, this article argues that modern food production shapes and distorts human taste with significant implications for health and wellbeing.

Take the western taste for fried chipped potatoes, for example. According to Schlosser in *Fast Food Nation*, "In 1960, the typical American ate eighty-one pounds of fresh potatoes and about four pounds of frozen french fries. Today [2002] the typical American eats about forty-nine pounds of fresh potatoes every year—and more than thirty pounds of frozen french fries" (115). Nine-tenths of these chips are consumed in fast food restaurants which use mass-manufactured potato-based frozen products to provide this major "foodservice item" more quickly and cheaply than the equivalent dish prepared from raw ingredients. These choices, informed by human taste buds, have negative evolutionary implications, as does the apparently long-lasting consumer preference for fried goods cooked in trans-fats.

"Numerous foods acquire their elastic properties (i.e., snap, mouth-feel, and hardness) from the colloidal fat crystal network comprised primarily of trans- and saturated fats. These hardstock fats contribute, along with numerous other factors, to the global epidemics related to metabolic syndrome and cardiovascular disease," argues Michael A. Rogers (747). Policy makers and public health organisations continue to compare notes internationally about the best ways in which to persuade manufacturers and fast food purveyors to reduce the use of these trans-fats in their products (L'Abbé et al.), however, most manufacturers resist. Hank Cardello, a former fast food executive, argues that "many products are designed for 'high hedonic value', with carefully balanced combinations of salt, sugar and fat that, experience has shown, induce people to eat more" (quoted, Trivedi 41). Fortunately for the manufactured food industry, salt and sugar also help to preserve food, effectively prolonging the shelf life of pre-prepared and packaged goods.

Physiological Factors

As Glanz et al. discovered when surveying 2,967 adult Americans, "taste is the most important influence on their food choices, followed by cost" (1118). A person's taste is to some extent an individual response to food stimuli, but the tongue's taste buds respond to five basic categories of food: salty, sweet, sour, bitter, and umami. 'Umami' is a Japanese word indicating "delicious savoury taste" (Coughlan 11) and it is triggered by the amino acid glutamate. Japanese professor Kikunae Ikeda identified glutamate while investigating the taste of a particular seaweed which he believed was neither sweet, sour, bitter, or salty. When Ikeda combined the

glutamate taste essence with sodium he formed the food additive sodium glutamate, which was patented in 1908 and subsequently went into commercial production (Japan Patent Office).

Although individual, a person's taste preferences are by no means fixed. There is ample evidence that people's tastes are being distorted by modern food marketing practices that process foods to make them increasingly appealing to the average palate. In particular, this industrialisation of food promotes the growth of a snack market driven by salty and sugary foods, popularly constructed as posing a threat to health and wellbeing. "[E]xpanding waistlines [are] fuelled by a boom in fast food and a decline in physical activity" writes Stark, who reports upon the 2008 launch of a study into Australia's future 'fat bomb'. As Deborah Lupton notes, such reports were a particular feature of the mid 2000s when:

intense concern about the 'obesity epidemic' intensified and peaked. *Time* magazine named 2004 'The Year of Obesity'. That year the World Health Organization's *Global Strategy on Diet, Physical Activity and Health* was released and the [US] Centers for Disease Control predicted that a poor diet and lack of exercise would soon claim more lives than tobacco-related disease in the United States. (4)

The American Heart Association recommends eating no more than 1500mg of salt per day (Hamzelou 11) but salt consumption in the USA averages more than twice this quantity, at 3500mg per day (Bernstein and Willett 1178). In the UK, a sustained campaign and public health-driven engagement with food manufacturers by CASH—Consensus Action on Salt and Health—resulted in a reduction of between 30 and 40 percent of added salt in processed foods between 2001 and 2011, with a knock-on 15 percent decline in the UK population's salt intake overall. This is the largest reduction achieved by any developed nation (Brinsden et al.). "According to the [UK's] National Institute for Health and Care Excellence (NICE), this will have reduced [UK] stroke and heart attack deaths by a minimum of 9,000 per year, with a saving in health care costs of at least £1.5bn a year" (MacGregor and Pombo).

Whereas there has been some success over the past decade in reducing the amount of salt consumed, in the Western world the consumption of sugar continues to rise, as a graph cited in the *New Scientist* indicates (O'Callaghan). Regular warnings that sugar is associated with a range of health threats and delivers empty calories devoid of nutrition have failed to halt the increase in sugar consumption. Further, although some sugar is a natural product, processed foods tend to use a form invented in 1957: high-fructose corn syrup (HFCS). "HFCS is a gloopy solution of glucose and fructose" writes O'Callaghan, adding that it is "as sweet as table sugar but has typically been about 30% cheaper". She cites Serge Ahmed, a French neuroscientist, as arguing that in a world of food sufficiency people do not need to consume more, so they need to be enticed to overeat by making food more pleasurable. Ahmed was part of a team that ran an experiment with cocaine-addicted rats, offering them a mutually exclusive choice between highly-sweetened water and cocaine:

Our findings clearly indicate that intense sweetness can surpass cocaine reward, even in drug-sensitized and -addicted individuals. We speculate that the addictive potential of intense sweetness results from an inborn hypersensitivity to sweet tastants. In most mammals, including rats and humans, sweet receptors evolved in ancestral environments poor in sugars and are thus not adapted to high concentrations of sweet tastants. The supranormal stimulation of these receptors by sugar-rich diets, such as those now widely available in modern societies, would generate a supranormal reward signal in the brain, with the potential to override self-control mechanisms and thus lead to addiction. (Lenoir et al.)

The Tongue and the Brain

One of the implications of this research about the mammalian desire for sugar is that our taste for food is about more than how these foods actually taste in the mouth on our tongues. It is also about the neural response to the food we eat. The taste of French fries thus also includes that “snap, mouth-feel, and hardness” and the “colloidal fat crystal network” (Rogers, “Novel Structuring” 747). While there is no taste receptor for fats, these nutrients have important effects upon the brain. Wang et al. offered rats a highly fatty, but palatable, diet and allowed them to eat freely. 33 percent of the calories in the food were delivered via fat, compared with 21 percent in a normal diet. The animals almost doubled their usual calorific intake, both because the food had a 37 percent increased calorific content and also because the rats ate 47 percent more than was standard (2786). The research team discovered that in as little as three days the rats “had already lost almost all of their ability to respond to leptin” (Martindale 27). Leptin is a hormone that acts on the brain to communicate feelings of fullness, and is thus important in assisting animals to maintain a healthy body weight. The rats had also become insulin resistant. “Severe resistance to the metabolic effects of both leptin and insulin ensued after just 3 days of overfeeding” (Wang et al. 2786).

Fast food restaurants typically offer highly palatable, high fat, high sugar, high salt, calorific foods which can deliver 130 percent of a day’s recommended fat intake, and almost a day’s worth of an adult man’s calories, in one meal. The impacts of maintaining such a diet over a comparatively short time-frame have been recorded in documentaries such as *Super Size Me* (Spurlock). The after effects of what we widely call “junk food” are also evident in rat studies. Neuroscientist Paul Kenny, who like Ahmed was investigating possible similarities between food- and cocaine-addicted rats, allowed his animals unlimited access to both rat ‘junk food’ and healthy food for rats. He then changed their diets. “The rats with unlimited access to junk food essentially went on a hunger strike. ‘It was as if they had become averse to healthy food’, says Kenny. It took two weeks before the animals began eating as much [healthy food] as those in the control group” (quoted, Trivedi 40). Developing a taste for certain food is consequently about much more than how they taste in the mouth; it constitutes an individual’s response to a mixture of taste, hormonal reactions and physiological changes.

Choosing Health

Glanz et al. conclude their study by commenting that “campaigns attempting to change people’s perception of the importance of nutrition will be interpreted in terms of existing values and beliefs. A more promising strategy might be to stress the good taste of healthful foods” (1126). Interestingly, this is the strategy already adopted by some health-focused cookbooks. I have 66 cookery books in my kitchen. None of ten books sampled from the five spaces in which these books are kept had ‘taste’ as an index entry, but three books had ‘taste’ in their titles: *The Higher Taste*, *Taste of Life*, and *The Taste of Health*. All three books seek to promote healthy eating, and they all date from the mid-1980s. It might be that taste is not mentioned in cookbook indexes because it is a *sine qua non*: a focus upon taste is so necessary and fundamental to a cookbook that it goes without saying. Yet, as the physiological evidence makes clear, what we find palatable is highly mutable, varying between people, and capable of changing significantly in comparatively short periods of time.

The good news from the research studies is that the changes wrought by high salt, high sugar, high fat diets need not be permanent. Luciano Rossetti, one of the authors on Wang et al’s paper, told Martindale that the physiological changes are reversible, but added a note of caution: “the fatter a person becomes the more resistant they will be to the effects of leptin and the harder it is to reverse those effects” (27). Morgan Spurlock’s experience also indicates this. In his case it took the actor/director 14 months to lose the 11.1 kg (13 percent of his body

mass) that he gained in the 30 days of his fast-food-only experiment. Trivedi was more fortunate, stating that, "After two weeks of going cold turkey, I can report I have successfully kicked my ice cream habit" (41). A reader's letter in response to Trivedi's article echoes this observation. She writes that "the best way to stop the craving was to switch to a diet of vegetables, seeds, nuts and fruits with a small amount of fish", adding that "cravings stopped in just a week or two, and the diet was so effective that I no longer crave junk food even when it is in front of me" (Mackeown).

Popular culture indicates a range of alternative ways to resist food manufacturers. In the West, there is a growing emphasis on organic farming methods and produce (Guthman), on so called Urban Agriculture in the inner cities (Mason and Knowd), on farmers' markets, where consumers can meet the producers of the food they eat (Guthrie et al.), and on the work of advocates of 'real' food, such as Jamie Oliver (Warrin). Food and wine festivals promote gourmet tourism along with an emphasis upon the quality of the food consumed, and consumption as a peak experience (Hall and Sharples), while environmental perspectives prompt awareness of 'food miles' (Weber and Matthews), fair trade (Getz and Shreck) and of land degradation, animal suffering, and the inequitable use of resources in the creation of the everyday Western diet (Dare, Costello and Green). The burgeoning of these different approaches has helped to stimulate a commensurate growth in relevant disciplinary fields such as Food Studies (Wessell and Brien).

One thing that all these new ways of looking at food and taste have in common is that they are options for people who feel they have the right to choose what and when to eat; and to consume the tastes they prefer. This is not true of all groups of people in all countries. Hiding behind the public health campaigns that encourage people to exercise and eat fresh fruit and vegetables are the hidden "social determinants of health: The conditions in which people are born, grow, live, work and age, including the health system" (WHO 45). As the definitions explain, it is the "social determinants of health [that] are mostly responsible for health inequities" with evidence from all countries around the world demonstrating that "in general, the lower an individual's socioeconomic position, the worse his or her health" (WHO 45). For the comparatively disadvantaged, it may not be the taste of fast food that attracts them but the combination of price and convenience. If there is no ready access to cooking facilities, or safe food storage, or if a caregiver is simply too time-poor to plan and prepare meals for a family, junk food becomes a sensible choice and its palatability an added bonus.

For those with the education, desire, and opportunity to break free of the taste for salty and sugary fats, however, there are a range of strategies to achieve this. There is a persuasive array of evidence that embracing a plant-based diet confers a multitude of health benefits for the individual, for the planet and for the animals whose lives and welfare would otherwise be sacrificed to feed us (Green, Costello and Dare). Such a choice does involve losing the taste for foods which make up the lion's share of the Western diet, but any sense of deprivation only lasts for a short time.

The fact is that our sense of taste responds to the stimuli offered. It may be that, notwithstanding the desires of Jamie Oliver and the like, a particular child never will never get to like broccoli, but it is also the case that broccoli tastes differently to me, seven years after becoming a vegan, than it ever did in the years in which I was omnivorous. When people tell me that they would love to adopt a plant-based diet but could not possibly give up cheese, it is difficult to reassure them that the pleasure they get now from that specific cocktail of salty fats will be more than compensated for by the sheer exhilaration of eating crisp, fresh fruits and vegetables in the future.

Conclusion

For decades, the mass market food industry has tweaked their products to make them hyper-palatable and difficult to resist. They do this through marketing experiments and consumer behaviour research, schooling taste buds and brains to anticipate and relish specific cocktails of sweet fats (cakes, biscuits, chocolate, ice cream) and salty fats (chips, hamburgers, cheese, salted nuts). They add ingredients to make these products stimulate taste buds more effectively, while also producing cheaper items with longer life on the shelves, reducing spoilage and the complexity of storage for retailers. Consumers are trained to like the tastes of these foods. Bitter, sour, and umami receptors are comparatively under-stimulated, with sweet, salty, and fat-based tastes favoured in their place. Western societies pay the price for this learned preference in high blood pressure, high cholesterol, diabetes, and obesity.

Public health advocate Bruce Neal and colleagues, working to reduce added salt in processed foods, note that the food and manufacturing industries can now provide most of the calories that the world needs to survive. "The challenge now", they argue, "is to have these same industries provide foods that support long and healthy adult lives. And in this regard there remains a very considerable way to go". If the public were to believe that their sense of taste is mutable and has been distorted for corporate and industrial gain, and if they were to demand greater access to natural foods in their unprocessed state, then that journey towards a healthier future might be far less protracted than these and many other researchers seem to believe.

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