New research shows humans possess surprising nutritional intelligence

April 25 2022

Credit: Pixabay/CC0 Public Domain

Pioneering research has shed new light on what drives people's basic food preferences, indicating our choices may be smarter than previously thought and influenced by the specific nutrients, as opposed to just

calories, we need.

The international study, led by the University of Bristol (UK), set out to re-examine and test the widely-held view that humans evolved to favor energy dense foods and our diets are balanced simply by eating a variety of different foods. Contrary to this belief, its findings revealed people seem to have "nutritional wisdom," whereby foods are selected in part to meet our need for vitamins and minerals and avoid nutritional deficiencies.

Lead author Jeff Brunstrom, Professor of Experimental Psychology, said: "The results of our studies are hugely significant and rather surprising. For the first time in almost a century, we've shown humans are more sophisticated in their food choices, and appear to select based on specific micronutrients rather than simply eating everything and getting what they need by default."

The paper, published in the journal *Appetite*, gives renewed weight to bold research carried out in the 1930s by an American pediatrician, Dr. Clara Davis, who put a group of 15 babies on a diet which allowed them to "self-select", in other words eat whatever they wanted, from 33 different food items. While no child ate the same combination of foods, they all achieved and maintained a good state of health, which was taken as evidence of "nutritional wisdom."

Its findings were later scrutinized and criticized, but replicating Davis' research was not possible because this form of experimentation on babies would today be considered unethical. As a result, it has been nearly a century since any scientist has attempted to find evidence for nutritional wisdom in humans—a faculty which has also been found in other animals, such as sheep and rodents.

To overcome these barriers, Professor Brunstrom's team developed a

novel technique which involved measuring preference by showing people images of different fruit and vegetable pairings so their choices could be analyzed without putting their health or well-being at risk.

In total 128 adults participated in two experiments. The first study showed people prefer certain food combinations more than others. For example, apple and banana might be chosen slightly more often than apple and blackberries. Remarkably, these preferences appear to be predicted by the amounts of micronutrients in a pair and whether their combination provides a balance of different micronutrients. To confirm this, they ran a second experiment with different foods and ruled out other explanations.

To complement and cross-check these findings, real-world meal combinations as reported in the UK's National Diet and Nutrition Survey were studied. Similarly, these data demonstrated people combine meals in a way that increases exposure to micronutrients in their diet. Specifically, components of popular UK meals, for example 'fish and chips' or 'curry and rice', seem to offer a wider range of micronutrients than meal combinations generated randomly, such as 'chips and curry'.

The study is also notable as it features an unusual collaboration. Professor Brunstrom's co-author is Mark Schatzker, a journalist and author, who is also the writer-in-residence at the Modern Diet and Physiology Research Center, affiliated with Yale University. In 2018, the two met in Florida at the annual meeting of the Society for the Study of Ingestive Behavior, where Schatzker delivered a talk about his book, The Dorito Effect, which examines how the flavor of whole foods and processed foods has changed, and the implications for health and wellness.

Interestingly, Professor Brunstrom and Mark Schatzker's research originated from a disagreement.

Professor Brunstrom explained: "I watched Mark give a fascinating talk which challenged the received view among behavioral nutrition scientists that humans only really seek calories in food. He pointed out, for example, that fine wine, rare spices, and wild mushrooms are highly sought after but are a poor source of calories.

"This was all very intriguing, so I went to see him at the end and basically said: 'Great talk, but I think you're probably wrong. Do you want to test it?' That marked the start of this wonderful journey, which ultimately suggests I was wrong. Far from being a somewhat simple-minded generalist, as previously believed, humans seem to possess a discerning intelligence when it comes to selecting a nutritious diet."

Mark Schatzker added: "The research throws up important questions, especially in the modern food environment. For example, does our cultural fixation with fad diets, which limit or forbid consumption of certain types of foods, disrupt or disturb this dietary "intelligence" in ways we do not understand?"

"Studies have shown animals use flavor as a guide to the vitamins and minerals they require. If flavor serves a similar role for humans, then we may be imbuing junk foods such as potato chips and fizzy drinks with a false 'sheen' of nutrition by adding flavorings to them. In other words, the food industry may be turning our nutritional wisdom against us, making us eat food we would normally avoid and thus contributing to the obesity epidemic."

More information: Jeffrey M. Brunstrom et al, Micronutrients and food choice: A case of 'nutritional wisdom' in humans?, *Appetite* (2022). DOI: 10.1016/j.appet.2022.106055 , www.sciencedirect.com/science/… ii/S0195666322001465

Provided by University of Bristol