Playing Games While Eating May Cut Food Intake: Study

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Playing games on computer screens during a meal may decrease the amount of food a person eats, according to a study.

The research, published in the Journal of Nutrition, found that when 119 young adults consumed a meal while playing a simple computer game for 15 minutes, they ate significantly less than when they ate the same meal without distractions.

Researchers from the University of Illinois at Urbana-Champaign in the US evaluated the food consumption of participants on two separate occasions -- one day when they played the game while eating, and on another day when they ate without distractions.

The game, called Rapid Visual Information Processing, tests users' visual sustained attention and working memory, the researchers said.

It has been used extensively by researchers in evaluating people for problems such as Alzheimer's disease and attention-deficit disorder.

The game randomly flashes series of digits on the computer screen at the rate of one per second. Participants in the study were instructed to hit the space bar on the keyboard whenever they saw three consecutive odd numbers appear.

"It's fairly simple but distracting enough that you have to really be watching it to make sure that you don't miss a number and are mentally keeping track," said lead author Carli A. Liguori from the University of Illinois.

The participants, who fasted for 10 hours before each visit, were told to consume as much as they wanted of 10 miniature quiches while they were either playing the game or eating quietly without distractions for 15 minutes.

The food was weighed and counted before and after it was given to each person.

After a 30-minute rest period, participants completed an exit survey that asked them to recall how many quiches they had been given, and the number they had consumed.

They also rated how much they enjoyed the meal as well as their feelings of hunger and fullness.

Liguori found that participants ate less when they were distracted by the computer game.

The participants' meal memory -- their ability to recall how much they had been served and eaten -- was less accurate when they were distracted than when they ate quietly without the game.

However, participants' consumption on their second visit was affected by which activity they had performed during their initial visit.

The people who engaged in distracted eating on their first visit ate significantly less than their counterparts who did not experience the distracted eating condition until their second visit.

When participants who engaged in the distracted eating on their first visit were served the quiches on their next visit, they behaved as if they were encountering the food for the first time.

"It really seemed to matter whether they were in that distracted eating group first," said Liguori, who is a visiting faculty member at the University of Pittsburgh.

"Something about being distracted on their initial visit really seemed to change the amount they consumed during the non-distracted meal.

"There may be a potent carry-over effect between the mechanism of distraction and the novelty of the food served," she said.

The results suggest that there may be a difference between distracted eating and mindless eating.

Although the terms are often used interchangeably, Liguori hypothesised that they may be distinctly different behaviours with nuances that need to be explored.

'Brain Network That Helps Infants Predict Others' Behaviour Found'

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Researchers have identified the brain network which emerges in infants around four years of age and enables them to predict what others think, an advance that may lead to better understanding of developmental disorders like autism.

According to the scientists, including those from the University College London in the UK, infants use two different nerve networks in their brains, which mature at different rates, to predict others' behaviour by taking on their perspective.

The study, published in the journal PNAS, referred to these brain structures as regions for implicit and explicit "Theory of Mind", which mature at different ages to fulfil their function.

According to the scientists, a region called the supramarginal gyrus that supports non-verbal action prediction matures earlier.

They said this region is also involved in visual and emotional perspective taking.

"This enables younger children to predict how people will act," said study co-author Charlotte Grosse Wiesmann from the Max Planck Institute for Human Cognitive and Brain Sciences (MPI CBS) in Germany.

"The temporoparietal junction and precuneus through which we understand what others think -- and not just what they feel and see or how they will act -- only develops to fulfil this function at the age of four years," Wiesmann added.

The study said there's already another mechanism for a basic form of perspective taking by which very young children simply adopt the other's view.

"In the first three years of life, children don't seem to fully understand yet what others think," added Nikolaus Steinbeis, another co-author from the University College London.

In the study, published in the journal PNAS, the researchers investigated the relations between these brain regions, and the ability of infants to predict others' behaviour.

They assessed a sample of three- to four-year-old children who watched video clips that showed a cat chasing a mouse.

In the video, the cat watches the mouse hiding in one of two boxes, and while the feline is away the rodent sneaks over to the other box unnoticed.

When the cat returns it is expected to still believe that the mouse is in the first location.

As the participants watched the video, the scientists used eye-tracking technology to assess the looking behaviour of the children.

They noticed that both the three- and four-year-olds expected the cat to go to the box where the mouse had originally been, meaning they had predicted correctly where the cat was going to search for the mouse based on the feline's belief.

When the researchers asked the children directly where the cat will search for the mouse, instead of looking at their gaze, the three-year-olds answered incorrectly, but the four-years-olds succeeded, the study noted.

They used control conditions to ensure that this was not because the younger children misunderstood the question.

According to the scientists, different brain structures were involved in verbal reasoning about what the cat thought, as opposed to non-verbal predictions of how the feline was going to act.

Scientists Develop System That Teaches Robots To Do Chores

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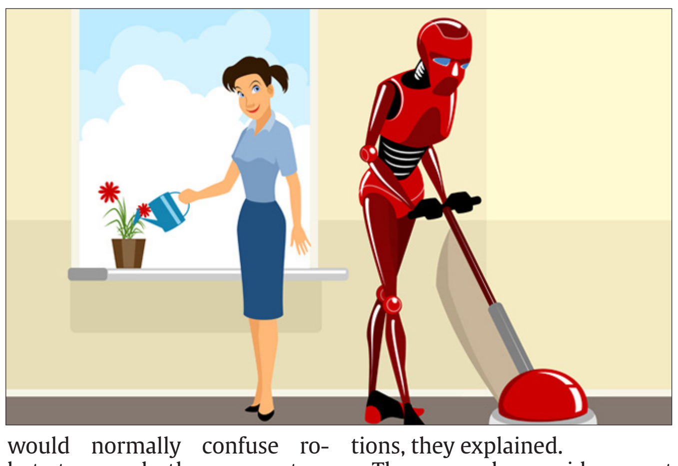

Researchers, including one of Indian-origin, have designed a system that lets robots learn complicated tasks like setting a dinner table under certain conditions, which they would otherwise find confusing with too many rules to follow.

The new system, called Planning with Uncertain Specifications (PUnS) system, gives robots human-like planning ability to simultaneously weigh many ambiguous, and potentially contradictory requirements to reach end goals, according to their study, published in the journal IEEE Robotics and Automation Letters.

With the new system, robots choose the most likely action to take, based on a "belief" about some probable specifications for the task it is supposed to perform, the researchers from Massachusetts Institute of Technology (MIT) in the US, said.

In the study, the scientists compiled a dataset with information about how eight objects -- a mug, glass, spoon, fork, knife, dinner plate, small plate, and bowl -- could be placed on a table in various configurations.

A robotic arm first observed randomly selected human demonstrations of setting the table with the objects, the study noted.

The researchers then tasked the arm with automatically setting a table in a specific configuration, in real-world experiments and in simulation, based on what it had seen.

To succeed, the robot had to weigh many possible placement orderings, even when the items were purposely removed, stacked, or hidden, they said.

While following these rules would normally confuse robots too much, the new system helped the bot make no mistakes over several real-world experiments, and only a handful of errors over tens of thousands of simulated test runs, the researchers said.

"The vision is to put programming in the hands of domain experts, who can program robots through intuitive ways, rather than describing orders to an engineer to add to their code," said study first author Ankit Shah from MIT.

"That way, robots won't have to perform preprogrammed tasks anymore. Factory workers can teach a robot to do multiple complex assembly tasks. Domestic robots can learn how to stack cabinets, load the dishwasher, or set the table from people at home," Shah said.

According to the scientists, for robots, learning to set a table by observing demonstrations, is full of uncertain specifications.

Items must be placed in certain spots, depending on the menu and where guests are seated, and in certain orders, depending on an item's immediate availability or social conventions, they explained.

The researchers said present approaches to planning are not capable of dealing with such uncertain specifications.

Using the new PUnS system enables a robot to hold a "belief" over a range of possible specifications, the scientists said.

"The robot is essentially hedging its bets in terms of what's intended in a task, and takes actions that satisfy its belief, instead of us giving it a clear specification," Shah said.

According to Shah and his team, the new system is built on "linear temporal logic" (LTL), a language that enables robotic reasoning about current and future outcomes.

The researchers defined templates in LTL that model various time-based conditions, such as what must happen now, must eventually happen, and must happen until something else occurs.

The robot's observations of 30 human demonstrations for setting the table yielded a probability distribution over 25 different LTL formulas, they said.

Each formula, according to the scientists, encoded a slightly different preference -- or specification -- for setting the table.

That probability distribution becomes its belief, the researchers explained.

"Each formula encodes something different, but when the robot considers various combinations of all the templates, and tries to satisfy everything together, it ends up doing the right thing eventually," Shah said.

In simulations asking the robot to set the table in different configurations, it only made six mistakes out of 20,000 tries, the study noted.

The researchers said the robot showed behaviour similar to how a human would perform the task in real-world demonstrations.

If an item wasn't initially visible, the scientists said, the robot would finish setting the rest of the table without the item.

Then, when the fork was revealed, it would set the fork in the proper place, they added.

"That's where flexibility is very important. Otherwise it would get stuck when it expects to place a fork and not finish the rest of table setup," Shah said.

The scientists hope to modify the system to help robots change their behaviour based on verbal instructions, corrections, or a user's assessment.

"Say a person demonstrates to a robot how to set a table at only one spot. The person may say, 'do the same thing for all other spots,' or, 'place the knife before the fork here instead,'" Shah said.

"We want to develop methods for the system to naturally adapt to handle those verbal commands, without needing additional demonstrations," he added.