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New studies examine caffeine's effect on cognitive tasks, food pairing

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Since 1977, there has been a 70% increase in caffeine consumption among children and adolescents. Whether it is coffee, tea, soda, or energy drinks, our children are consuming more of it. One well documented effect of caffeine is improved cognitive performance on certain tasks. However, scientists also hypothesize that habitual caffeine use may lead to greater neural rewards if the caffeine drinker were to consume illicit drugs.

To add more to the research base regarding caffeine's effect on cognition in children and teens, Jennifer Temple, PhD, University at Buffalo, recently investigated with graduate student Adam Graczyk whether male and female children perform differently on 5 separate tasks in response to caffeine. Using a sample size of 96 children and adolescents, they measured developmental and gender differences in subjects who were given caffeine or placebo and then put through memory tests, reaction time tests, and color-word tasks. The results showed that caffeine increased the number correct in the memory tests, and that females had more correct responses than males in simple reaction time and color-word tasks. There were also differences across the menstrual cycle in the females.

According to Temple, "This is the first study in children and adolescents to report sex differences in responses to caffeine on cognitive tasks as well as different responses according to the girls' menstrual cycles. It suggests that if we look at caffeine as a model for illicit drugs, men and women respond differently because of circulating steroid hormones.

Moving forward, this could be helpful in developing treatments for drug addictions based on gender." This poster will be presented at the American Society for Nutrition's scientific sessions at Experimental Biology.

This study was funded by NIDA grant RO1 DA030386 and by the Gender Institute at the University at Buffalo.

Caffeine Pairing: A Potential New Way to Eat Your Veggies?

In a separate study addressing caffeine, Temple along with her PhD student Leah Panek wanted to find out whether pairing a flavored food (in this case yogurt) with caffeine consumption would increase one's perceived likeability of that food.

They tested whether a caffeinated beverage paired with a novel flavored yogurt would increase preference for that yogurt compared with placebo. A total of 68 men and women ages 18-50 were randomized to receive a beverage containing placebo or caffeine and then consumed a low energy density yogurt or high energy density yogurt. The flavors were not typical of yogurt in order to avoid any taste preferences in place prior to the study; they included almond, maple, peppermint, pumpkin pie, raspberry-lemon, strawberry coconut, and savory (cumin).

Results showed that after rating and ranking the seven yogurts over 4 days, yogurt liking increased over time, with the yogurt paired with caffeine liked more than yogurt paired with placebo.

"Next we'd like to do the same experiment with fruits and vegetables, in order to capitalize on the fact that people already consume caffeine," Temple said.

Imagine if you could learn to love the one vegetable you hate by administering caffeine!

Leah Panek contributed to the caffeine pairing study, which was funded by the School of Public Health and Health Professions at the University at Buffalo.

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