Doctoral student's work on cocoa research may yield sweet benefits for health

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Karen Strat, a doctoral student in the Virginia Tech College of Agriculture and Health Sciences is working on research exploring the effects of cocoa on digestion and metabolism.

Attention people who consider chocolate a key food group: What if a component of chocolate could improve digestion and metabolism, and decrease the potential for disease?

Karen Strat, a third-year Ph.D. student from Oakton, Va., in the

Department of Human, Nutrition, Foods and Exercise in Virginia Tech's College of Agriculture and Life Sciences, is in the midst of research exploring that prospect with Andrew Neilson, an assistant professor of food science and technology and principal investigator of the project.

Neilson has been studying cocoa and other polyphenols and completed research with mice on the health effects of an antioxidant in cocoa. His work was published in the *Journal of Agriculture and Food Chemistry.*

The current research involves two studies with people: an acute study in which the subjects are their own controls, and a chronic study in which subjects are randomized to receive the cocoa component and others receive a placebo.

Strat said the acute study, which will involve 24 subjects, should wrap up this year, but the chronic study, with 36 subjects, will take longer.

"I'm in it for the long haul," she said.

She and her advisor, Kevin Davy, professor of human nutrition, foods, and exercise, said her involvement in the project arose from her work with Translational Obesity Research, an Interdisciplinary Graduate Education Program. Strat said she was in the first round of students for the program and had the opportunity to work with several professors, including Neilson.

"It turned out he had a project ready to go," she said. "I had enough experience here during my first two years that I was ready to take it on."

Neilson said the project is a collaboration between his and Davy's labs. Strat works closely with them both and said her job is to execute the studies, from recruiting subjects to screening and enrolling them and then running the tests and analyzing the data.

The research team began screening recruits for the study in January, after strong interest brought in 150 surveys. But when researchers began screening the potential subjects, "no one qualified," Strat recalled. The team modified the criteria and began enrolling subjects.

Strat said she is about half of the way through the acute phase, in which subjects visit the lab four times. She gives them a chilled glass of a chocolate-flavored drink into which she has mixed either the cocoa or a placebo and conducts a series of blood tests to study how their bodies metabolize the drink.

Researching metabolism and digestion was not Strat's original plan for study when she was an undergraduate at the University of Mary Washington, where she studied biology and chemistry. But she discovered she enjoyed research and was drawn to interdisciplinary work and the chance to reach across fields to solve problems.

Davy, who co-directs the Translational Obesity Research Interdisciplinary Graduate Education Program, said Strat "runs the study," which provides an opportunity to hone research skills and continue her interdisciplinary work.

"I allow students to act pretty independently," he said. "If they make mistakes, they have to figure it out. If their work is research, they need to know how to do these things."

Strat said her experience in the Interdisciplinary Graduate Education Program, and her graduate school interdisciplinary research courses, helped her learn to work in a team setting with people of different backgrounds to solve problems. She also has sharpened her communications skills. Strat said she enjoys explaining the study procedures to her subjects and working with them.

Strat cautioned that the study is not a "chocolate diet," and people should not immediately boost their intake of sugar-laced chocolate products in hopes of increased health benefits. But while the studies are still in progress and researchers are just beginning to analyze the early data, she said "I believe there is promise" in Neilson's work.

Provided by Virginia Tech