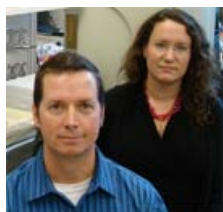



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JUNE 17, 2011

## RESEARCH AND REPORTS

## UNC Study Highlights Perils of Snack-filled Diet



A study by researchers at the University of North Carolina at Chapel Hill Gillings School of Global Public Health shows rats that ate snack foods commonly consumed by children and adults in the U.S. ate more, gained more weight, had more tissue inflammation and were intolerant to glucose and insulin (warning signs of diabetes) than rats whose diets were high-fat from lard.

The study, which was the cover story of the June 2011 issue of the journal *Obesity*, shows that the “cafeteria diet” contributed more to diet-induced obesity than common high-fat diets typically used in rodent studies. This “cafeteria diet,” also known as CAF, is an experimental system for studying obesity that mimics buffet-style access to junk food such as cookies, chips and processed meats.

The results suggest that researchers can get more accurate information from animal models that eat a diet that may resemble what humans consume. Use of the CAF model also may be useful for identifying novel options for preventative interventions or therapeutics to treat obesity in humans, the study notes.

“Obesity has reached epidemic levels in the United States,” said Dr. Liza Makowski, assistant professor of nutrition at UNC and the study’s senior author. “These findings provide us with a better animal model to help explore what factors are contributing most to this dangerous trend, and what strategies for prevention and treatment of obesity will be most successful.”

Using obese rats in laboratory experiments has been a common practice for decades, but rodents are typically made obese on manufactured lard-based, high fat diets, Dr. Makowski explained. She and her team showed that feeding the rats a diet that more closely resembles a typical American diet filled with snacks revealed even more severe risks and emphasized the potentially harmful nature of excessive snacking.

“Although we can’t pinpoint what component of these snacks is causing these pre-diabetes conditions, we show that the ‘cafeteria diet’ provides a more severe animal model of metabolic syndrome than lard-based, high-fat diets,” she said. Metabolic syndrome is the cluster of factors that increase a person’s risk for coronary artery disease, stroke and Type 2 diabetes. “The rapid gain in weight, extensive obesity and multi-organ dysfunctions observed in the CAF model more closely reflect what is happening to humans who eat these snack foods regularly.”

The researchers noted rats fed the tasty, highly palatable ‘cafeteria diet’ ate more food – about 30 percent more calories – than those eating high-fat or high-sugar diets.

“By the second week, rats on the lard based high-fat diet actually ate less, dropping their caloric intake to the same intake as rats on a standard, or healthy, diet,” Dr. Makowski said. “However, the CAF-fed rats continued to eat more, and gained almost double the weight of rats on the standard diet.”

The lead author of the study, titled “Cafeteria Diet is a Robust Model of Human Metabolic Syndrome with Liver and Adipose Inflammation: Comparison to High-Fat Diet,” is Dr. Brante P. Sampey, a postdoctoral fellow in nutrition at UNC. Other authors are Dr. Alex Freerman, research associate at UNC; Dr. Amanda Vanhoose, postdoctoral fellow at Vanderbilt University Medical Center; Ms. Helena Winfield, Dr. Michael Muehlbauer and Dr. Christopher Newgard, all from Duke University Medical Center’s Sarah W. Stedman Center for Nutrition and Metabolism; and Dr. Patrick T. Fueger, Indiana School of Medicine, Indianapolis.

The article is available online at [www.nature.com/oby/journal/v19/n6/full/oby201118a.html](http://www.nature.com/oby/journal/v19/n6/full/oby201118a.html).

[Photo (from left to right): Dr. Brante Sampey and Dr. Liza Makowski]



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The Friday Letter is a weekly publication of the Association of Schools of Public Health, the only national organization representing the deans, faculty and students of the CEPH-accredited member schools of public health and other programs seeking accreditation as schools of public health.

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#### Association of Schools of Public Health

1900 M Street NW  
Suite 710  
Washington, DC 20036  
Phone: (202) 296-1099  
Fax: (202) 296-1252  
E-mail: [FridayLetter@asph.org](mailto:FridayLetter@asph.org)

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