

Analyzing the Role of High Pro-Inflammatory Diets and Childhood Obesity in the Risk of Adult Carcinogenesis in South Carolinian Children

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Abstract

Childhood obesity has been a growing epidemic in the United States with about one in five of U.S. children considered overweight or obese. The increased number of overweight and obese children can be linked to several factors including nutrition and social economic status. Obesity in children can lead to numerous health complications such as diabetes, high blood pressure, chronic inflammation and carcinogenesis. Therefore, the goal of this study is to eliminate or reduce preventable risk factors such as unhealthy nutrition and childhood obesity, which in turn may reduce clinical manifestations of adult cancer outcomes. Areas of South Carolina have a long history of being under-developed which contribute to numerous problems such as obesity, poverty and sub-par health care. We have enrolled SC children from varying degrees of rurality to determine if obesity and/or high-fat pro-inflammatory diets contribute to increased levels of pro-inflammatory markers and obesity related genes to include: Adiponectin, leptin, SAA1 /2, Interleukin 1 and 6. Subjects were be randomized into obese and non-obese groups based on BMI guidelines. The transcriptional levels of pro-inflammatory genes were measured by quantitative Real-time polymerase chain reaction. The results suggest increased expression of these pro-inflammatory markers are directly correlated to diet irrespective of weight class (normal, overweight, obese). Reducing childhood obesity and pro-inflammatory diets, while providing access to healthy foods are beneficial in the reduction of cancer risk and will serve as preventive measures for early-stage onset of adult cancers. USDA/NIFA Grant Number SCX-311-20-16.

tumor suppressors, cell death and the development, progression, and treatment of cancer in African-Americans and South Carolinians. She is currently an Assistant Professor of Bioengineering Sciences at South Carolina State University.

Speaker Publications:

1. Brown, Shanora & Evans Knowell, Ashley. (2017). Implication of childhood obesity and high pro-inflammatory diets in South Carolinian children: Survey and data stratification. *Journal of Food Processing & Technology*. 08. 10.4172/2157-7110-C1-072.
2. Morton, Derrick & Patel, Divya & Joshi, Jugal & Hunt, Aisha & Evans Knowell, Ashley & Chaudhary, Jaideep. (2016). ID4 regulates transcriptional activity of wild type and mutant p53 via K373 acetylation. *Oncotarget*. 8. 10.18632/oncotarget.13701.
3. Ford, Marvella & Magwood, Gayenell & Brown, Erika & Cannady, K. & Gregoski, Mat & Knight, Kendrea & Peterson, L.L. & Kramer, R. & Evans Knowell, Ashley & Turner, D.P.. (2016). Disparities in Obesity, Physical Activity Rates, and Breast Cancer Survival. 10.1016/bs.acr.2016.08.002.
4. Evans Knowell, Ashley & Larue, Amanda & Findlay, Victoria. (2016). MicroRNAs and Their Impact on Breast Cancer, the Tumor Microenvironment, and Disparities. *Advances in Cancer Research*. 133. 10.1016/bs.acr.2016.08.003.

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Biography:

Dr. Ashley E. Knowell is investigating the role of childhood obesity as a risk factor for adult cancers. The ultimate goal of the project is to provide families with the necessary tools and information to establish healthy nutritional habits, reduce childhood obesity and ultimately reduce adult cancer risk among South Carolinian children. Her research interests also include