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Georgia Southern Receives Grant to Study Nanoparticle Levels and Field Evaluation of N-95 Respirator Masks in Construction Sites

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The Center for Construction Research and Training awarded a new pilot grant of $30,000 to Georgia Southern University through National Institute for Occupational Safety and Health (NIOSH) cooperative agreement OH009762 (PI: Dr. Atin Adhikari, Department of Epidemiology & Environmental Health Sciences, Jiann-Ping Hsu College of Public Health; Co-PIs: Dr. Aniruddha Mitra and Dr. Abbas Rashidi, Department of Mechanical Engineering). Construction workers experience high rates of respiratory diseases and exposure to ultrafine dust including silica nanoparticles potentially an important etiological factor. Exposure levels of nanoparticles in construction worksites are largely unknown and respiratory protection offered by commonly used respirator masks against nanoparticles in construction jobsites have never been investigated. According to the U.S. Bureau of Labor Statistics, approx. 6.7 million workers are employed in the U.S. construction industry and these construction workers are at an increased risk of respiratory diseases from exposure to respirable dust containing crystalline silica, gypsum, and other contaminants. General belief is that the dust generated during mechanical processes in construction jobsites are mostly large particles formed through crushing, drilling, grinding, or sawing. Consequently, little attention has been given to the generated submicron ultrafine and nanoparticles and their associated exposure levels. These data is, however, critically important because recent laboratory studies have demonstrated cytotoxicity of nanoparticles on lung epithelial cells. Because no data is available on the nanoparticle exposure levels among construction workers, the performance of particulate respirators generally used by construction workers were never evaluated in field conditions against particles of sub-micron and nano-size range. In this project, the multi-disciplinary research team will investigate nanoparticle exposure levels in several construction job sites by a novel newly developed nanoparticle monitoring device and also evaluate the real-time filtration efficiency of respirator masks against nanoparticles by a unique respirator evaluation set-up.
Georgia Southern Receives $15,000 grant to Study Reference Collection of Borrelia

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Dr. Marina Eremeeva, Associate Professor of Environmental Health Sciences at the Jiann-Ping Hsu College of Public Health Georgia Southern University, has received a $15,000 grant from the Lyme Disease Association, Inc. to perpetuate and further characterize an important reference collection of Borrelia isolates from the southeastern USA; one primary goal is to make them available to the wider research community investigating the ecology and etiology of Lyme disease. Our collection is a unique sampling of representative Borrelia isolates from ticks, animals and human. These Borrelia spp. are known to circulate in the southeastern USA and can be used to further the development of accurate and comprehensive information about the spatial and temporal presence and prevalence of B. burgdorferi s.l. and other Borrelia spp. In the Southeast USA, and their contribution to the risk of acquiring Lyme disease in this region areas.
Georgia Southern Examines Maternal Caregiver Support for Prevention of Childhood Obesity

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African American maternal caregiver support for prevention of childhood obesity may be a factor in implementing, monitoring, and sustaining children’s positive health behaviors. However, little is known about how perceptions of childhood obesity risk factors and health complications influence caregivers’ support of childhood obesity prevention strategies. The objective of this study was to determine if childhood obesity risk factors and health complications were associated with maternal caregivers’ support for prevention initiatives.

A convenience sample of maternal caregivers (N = 129, ages 22–65 years) completed the childhood obesity perceptions (COP) survey. A linear regression was conducted to determine whether perceptions about childhood obesity risk factors and subsequent health complications influenced caregivers’ support for prevention strategies. Caregivers’ perceptions of childhood obesity risk factors were moderate (M = 3.4; SD = 0.64), as were their perceptions of obesity-related health complications (M = 3.3; SD = 0.75); however, they perceived a high level of support for prevention strategies (M = 4.2; SD = 0.74). In the regression model, only health complications were significantly associated with caregiver support (β = 0.348; p < 0.004).

In conclusion, childhood obesity prevention efforts should emphasize health complications by providing education and strategies that promote self-efficacy and outcome expectations among maternal caregivers.


Dr. Dayna S. Alexander, alumni of the Jiann-Ping Hsu College of Public Health Georgia Southern University (JPHCOPH) was the lead author. Dr. Moya Alfonso, Associate Professor of Community Health Behavior and Education and Dr. Alesha R. Wright, alumni both of the JPHCOPH were co-authors.