FIU Engineering & Computing
Biomedical Engineering

Wallace H. Coulter Foundation
Biomedical Engineering Seminar Series

DR. ANITA SINGH is an Associate Professor and Chair of the Biomedical Engineering Department, Widener University Chester, PA. She earned her PhD from Wayne State University, Detroit in Biomedical Engineering. She then completed her postdoctoral fellowship at the Lankenau Hospital, Philadelphia and worked as a Research Associate and the co-Director of Behavior and Biomechanics Core at Drexel University, College of Medicine. She also has industrial experience in medical device company. Her research has focused on developing a new model of traumatic axonal injury that offers the possibilities of improving the understanding of white matter tract damage in the brain during and after a traumatic event. Her recent research activities include investigating a new combinatorial treatment strategy using bioengineered scaffolds and robotic training paradigm in spinally contused and transected rats. She is currently involved in understanding the biomechanical, functional and structural injury thresholds for neonatal brachial plexus palsy. Her work has been published in several journals including Journal of Biomechanics, Brain Injury and Journal of Neurotrauma, and has presented and received awards at national and international conferences. She is also a recipient of the prestigious NSF-CAREER award and has additional funding from National Institute of Health and Department of Defense.

DR. ANITA SINGH

Associate Professor and Chair of the Biomedical Engineering Department
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UNDERSTANDING THE MECHANISM, TREATMENT AND PREVENTION OF NERVOUS SYSTEM INJURIES

ABSTRACT: Treatment and prevention of nervous system injuries require a detailed understanding of the injury mechanisms. In our lab, we utilize bioengineering approaches such as biomechanical testing, neurophysiological recordings, immunohistochemistry and computational modeling to understand central and peripheral nervous system injuries. One area of our research is spinal cord injury. In an existing research, our team is investigating the outcomes of a combinatorial treatment strategy by injection of bioengineered scaffold (PNIPAAm-PEG) secreting neurotrophins (BDNF+NT3) into the injury site and rehabilitation training using a body weight supported treadmill training (BWSTT) approach in a clinically relevant contusion SCI model. Our studies have reported combinational treatment strategies to result in improved kinematics and physiological responses then alone treatment.

Another area of our research is to investigate injury threshold values for neonatal brachial plexus palsy, which is a birth-related complication. Using a neonatal piglet animal model, we have reported failure strains and loads that lead to brachial plexus avulsion and rupture injuries. We are currently investigating functional and anatomical changes in the neonatal brachial plexus that can help with diagnosis, prognosis and treatment of neonatal brachial plexus palsy. A detailed understanding of injury mechanisms will lead to promising treatment options that can enhance recovery.

This talk will give a brief overview of these projects and discuss about their future implications and clinical potentials.

FRIDAY, OCTOBER 9 / 9:00 AM / VIA ZOOM

Zoom Registration ▸ https://bme.fiu.edu/seminars

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Through the generous support of the Wallace H. Coulter Foundation the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to campus to provide a research seminar and to meet with faculty and students and to tour our academic and research facilities.

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