Abstract:
The brain is a highly metabolic organ that has limited capacity for energy storage so it requires a nearly constant supply of blood flow. Even short periods of hypo- or hyper-perfusion can result in brain injury. Cerebral autoregulation is thought to protect the cells of the brain from damaging fluctuations in blood flow although this protective mechanism is believed to become dysfunctional in numerous pathologies, such as diabetes, stroke, and traumatic brain injury. Our long-term research goal is to investigate the physiologic and pathologic functioning of the neurovascular unit (neuron, glia, blood vessel) and to understand how altered control of the cerebral circulation leads to neuronal injury. This presentation will discuss some of our work in progress investigating the impact of stressors such as exposure to high glucose or oxidative stress on the cardiovascular system with emphasis on the cerebral circulation.

Biography:
Dr. Rarick received his B.S. degree in Kinesiology from The Pennsylvania State University and his M.S. degree in Exercise Science and Cardiac Rehabilitation from East Stroudsburg University, PA. He then enlisted in the U.S. Army and served as an active duty Soldier for five years where he worked as a Biological Research Assistant in the Military Performance Division at the U.S. Army Research Institute of Environmental Medicine. During this time, he worked on multiple research projects related to improving Soldier physical readiness and prevention of occupational injuries. After finishing his enlistment, he left the military to return to graduate school and received his Ph.D. in Integrative Physiology from The University of Iowa. He then continued his training as a Postdoctoral Fellow in the laboratory of Dr. David Harder in the Department of Physiology at the Medical College of Wisconsin. Dr. Rarick has remained at MCW and is currently an Assistant Professor in the Department of Pediatrics, Division of Critical Care. His research focuses on the regulation of cerebral blood flow and how the loss of important regulatory mechanisms results in greater mortality and morbidity following stroke or traumatic brain injury.