

Thomas Fair - profile

I am currently in my second year of undergraduate training at Winston-Salem State University (WSSU), majoring in exercise physiology. I have a fervent interest in the anatomy and physiology of the human body, so much so that I became a teacher's assistant for anatomy and physiology. I am interested in how the human body carries out chemical and physical functions to support life, from the smallest biomolecules to the complex organ systems. More specifically, I am interested in the physics and biomechanics of evaluating the musculoskeletal system for proper and improper function. During a classroom laboratory session, Dr. Markert, an Assistant Professor of Exercise Science at WSSU, taught about biomaterials, biomedicine, tissue engineering and chemical engineering. The process of regenerating tissues and organs, and how regenerative medicine can speed up the healing process to fully restore integrity and function of these structures intrigued me.

While at WSSU, I felt I wanted to broaden my interests in science, and gain experience in research laboratories. In the Fall of 2015, I was accepted as a National Institute of General Medical Sciences Research Initiative for Scientific Enhancement (NIGMS-RISE) scholar and program trainee. As a current scholar, I am required to train at least 15 hours per week and get hands-on research experience. I currently participate in various on-going research activities under the mentorship of Dr. Victor Pulgar. Dr. Pulgar's research interests are on the local vascular mechanisms in animal models of cardiovascular diseases. My project focuses on conducting vascular reactivity experiments in the arteries of male Sprague Dawley rats, to understand how the response to acidosis is produced. We also want to observe the varied responses to different levels of pH in hypertensive and normal rats. I will be learning many skills, including the proper protocol used when handling animals, specifically rats. My training will also include dissection and collection of tissue samples, learning how to perform the Western blot technique, and how to operate a myograph. My goal is to understand how research and the scientific process work, from having a specific aim, to collecting and analyzing the data. The experience that I will get in the lab will expose me to bench research, and help me fully understand the clinical and translational implications of my findings. Furthermore, the NIGMS-RISE program is providing me the opportunity to participate in professional development seminars and activities, and improve my presentation and scientific writing skills.