



WFIRM Summer Scholar Program 2018 Meet our Joshua Frase Namesake Scholar

Rayia Johnson

Winston-Salem State University, Exercise Physiology

Faculty Advisor: Tracy Criswell, PhD, Assistant Professor

My name is Rayia Johnson and I am a rising senior at Winston-Salem State University where I am an Exercise Physiology (Exercise Science) major. During my collegiate experience, I have had a few experiences in a lab setting but nothing like the WFIRM lab. I have taken the basic courses of Biology, Chemistry and Anatomy and Physiology course labs. During these courses we learned basic principles such as pipetting, accurate measuring and lab safety. Every once in a while, we would conduct experiences with mild chemicals in non-formal setting.

My personal motivation for engaging in regenerative medicine is to explore my career options. I always wanted to see how labs conduct studies such as those I've read throughout many of my science classes. Regenerative medicine is advancing the field and new approaches in regenerative medicine science, methods and techniques. It is a place where scientists, engineers and clinicians come together with the ultimate goal to bring curative treatments and technologies to those who really need it. I have always wanted to help others and this is another way to do that and enhance tomorrow's medical field and science.

My project consists of observing the effects of PEMF (pulsed electromagnetic field) on growth and differentiation of C2C12 muscle cells. I will be working with Dr. Tracy Criswell. The purpose of this study is to find safe and effective ways to treat and care for military or civilian patients, who have severe muscle injury. Recent studies have demonstrated the ability of PEMF therapy shown to reduce inflammation, edema and pain. The goal of this project treat skeletal muscle stem cells (satellite cells) with PEMF in order to investigate whether this treatment can aid growth, differentiation and alignment of myofibers, which is necessary for function of tissue engineered muscle. We predict PEMF therapy will increase the efficiency of muscle cell therapy.

My future career goals consist of attending Occupational Therapy School. I want to eventually get my doctorate and open up my own practice or combine my services with several therapy practices. From my own family experiences, I have realized, especially in the context of autoimmune disorders, that an individual needs the attention of several doctors. I would like to make it easier for my family, myself and would be a great way to give back to others.