

Kelly J. Shields
Cardiovascular Training Grant
Graduate School of Public Health
University of Pittsburgh
Student Gallery

- **Background**

I have followed a rather unorthodox path toward my pursuit of an MS in Epidemiology and participation as a post-doctoral trainee with the Cardiovascular Training Grant. I spent 3 years in industry after completion of my bachelor's of science in mechanical engineering from Grove City College. Still wanting to pursue additional academic goals and have a more direct impact in peoples' lives I applied as a master's of science student to the biomedical engineering program at Virginia Commonwealth University. Considering my options with a master's degree, I decided to remain in the program and complete a PhD in biomedical engineering with a research emphasis in biomechanics and tissue engineering of articular cartilage. Upon graduation I had the opportunity to work in a research laboratory associated with the University of Pittsburgh and the Lupus Center of Excellence, which focused on murine models evaluating cardiovascular disease, complement production, adipose tissue, and systemic lupus erythematosus. My background in biomechanics was the link between my former research and new interests. Although the benchtop work with murine models is exciting and worthy of extensive investigation into cardiovascular disease progression and management, I desired a true translational aspect to my research and was still missing the human component of this type of work. The epidemiology program at the Graduate School of Public Health will provide me additional research tools to specialize in cardiovascular subclinical disease measures in lupus patients while continuing my murine model research.

- **Areas of Interest and dissertation work**

The benchtop work with the murine cardiovascular models evaluates the vascular stiffness due to both age and disease progression. We have discovered a potential pathway for the exacerbated development of atherosclerotic disease and vascular stiffness in the murine model, which may include various adipose depots. We also have found a similar mechanism in humans and I will be evaluating the relation between various adipose depots through transthoracic CT scans and anthropomorphic measures along with vascular stiffness in systemic lupus erythematosus patients and their respective controls.

- **Remote training experience**

My remote training experience includes collaboration with a group from Norway evaluating aortic plugs sampled from a CABG procedure. I will spend 1 week in Norway in the fall of 2010 participating in a small international conference relating our murine work with the patient samples we processed using standard histology and immunohistochemistry techniques. I also used scanning electron microscopy to obtain detailed ultrastructural characterization of the samples. We will be composing a manuscript with the collected data for a peer reviewed journal.

- **Perspectives on the program**

I was not entirely sure of what to expect upon entering the program. I have enjoyed this time of gaining a new research perspective. The emphasis on statistics and statistical programming has been an added bonus considering I knew this was a weakness of mine. The professors have been extremely knowledgeable and very supportive both in and out of the classroom. The other trainees in the grant have been very supportive as well and share their knowledge willingly. I believe the professors foster this readiness to openly communicate ideas and thoughts. The degree of collaboration between groups within the GSPH and outside of the university is also readily shown. The cardiovascular training grant is a key component to my positive experience with the pursuit of this degree allowing a more intimate group setting to work together within the larger GSPH.

- **Advice to current and prospective students**

I would suggest trying not to get so wrapped up in classes and classwork that you miss the many opportunities afforded to you through the GSPH and the cardiovascular training grant. Find an area that you are or can become passionate about and remain positive throughout the process. I would also recommend finding mentor(s) compatible with you and your work style. Lastly, allow yourself to be open to new ideas and methods suggested by others.

- **Future Plans and opportunities**

My goal is to become an independent researcher of a translational research laboratory exploring cardiovascular disease development in systemic lupus patients. Having the tools to perform both benchtop and clinical work will allow me to evaluate questions and answers provided by both research arms and apply the results.