



Mobilizing Your Philanthropy

*Researching the impact of movement on Parkinson's Disease
at the University of Delaware*

In Grateful Recognition of Shake It Off, Inc.
Presented October 2016



Setting Research into Motion at UD

Dr. Chris Knight, associate professor of kinesiology and applied physiology at the University of Delaware, is leading studies into the role of the nervous system in fast movements. He is designing optimal exercise strategies for older adults, including a special focus on people with Parkinson's Disease.

Chris and his team are studying the effects of speed-based, interval exercises such as peddling on a recumbent bike with low resistance and high speed. The research focuses on quickness and the reaction time needed for individuals to change speeds, which is closely tied to fall prevention. By concentrating his studies on the most fundamental unit of control, the motor unit, Chris and his team of researchers examine the code delivered from the nervous system to the muscle tissue during movement. Using specialized multichannel needle or fine-wire electrodes in humans, action potentials are recorded as they arrive at muscle tissue, providing a window to the function of the nervous system at the periphery.

Chris hopes the recordings of individual motor units will provide valuable new insights into what is occurring in the brains and spinal neurons of individuals suffering from movement disorders as well as understanding how exercise can help alleviate the symptoms.

The team's research also incorporates functional conditioning exercises, such as work with medicine balls, the TRX system, boxing and Zumba, allowing exercise regimes to be tailored to the specific needs and skill level of the individual participants.

“Being a participant in Dr. Knight's research program has demonstrated that exercise is a key to delaying the progression of Parkinson's Disease. I look forward to each session and enjoy the interaction with the other participants with Parkinson's. It has been a pleasure working with the staff at the University of Delaware.”

Scott DeBoda
Program Participant

Your Philanthropy in Action

With the generous contributions of Shake It Off, Inc. and its community of supporters, Chris has been able to make significant strides in his research by:

- Investing in new, portable neurophysiological equipment that reduces experiment time and increases data quality.
- Enhancing the quality data utilized in articles submitted to peer-reviewed publications, leading to additional research proposal and federal grant successes.
- Growing the number of participants in research studies; more than 60 individuals have participated in Chris' research and exercise classes and the number steadily grows each semester.
- Hiring additional highly-skilled personal trainers to lead exercise classes geared towards individuals with mobility disorders in the fall semester of 2016.
- Increasing undergraduate and graduate student participation in his lab; Chris currently has three graduate students conducting research with him, and now has the ability to support their ongoing research during summer months.

Movement Towards the Future

As he continues to develop and enhance his research, Chris will focus his efforts on further understanding the science behind why and how these exercises are improving some symptoms associated with movement disorders, as well as developing new delivery methods to bring the resources to an expanded patient population. Chris hopes that with additional support, resources and participants, he can extend the impact of his research by further investigating the effects of various exercise movements on the symptoms of rigidity and bradykinesia.

The University of Delaware is grateful for support of Shake It Off, Inc., which is providing critical resources to Dr. Chris Knight and his team of researchers as they seek to improve the quality of life through movement for individuals diagnosed with Parkinson's Disease. Shake It Off's generosity not only strengthens our ability to investigate the effects of exercise on movement disorders, but it also expands our reach and impact to those affected, their loved ones and caregivers and the greater movement disorders community.



Office of Development and Alumni Relations
University of Delaware
83 East Main Street, 3rd Floor
Newark, DE 19716
www.udel.edu/giving

To learn more about the research and inquire about participating, please contact:
Dr. Christopher Knight at caknight@udel.edu or 302-831-6175