

# BMO Sick Kids Research Fund Update



## Progress Report

It brings me great pleasure to be able to write about the incredible progress and accomplishments of our team over the last calendar year. We now have a well established team, independent research funding and are starting to publish our research in world renowned journals. This is a longer report, but there is a lot to update you on. The details of the accomplishments are outlined below.

### The Human Physiology Research Unit Team

I am truly amazed at how far we have come in the last few years. At the inception of your support just a few years ago, you supported one person's research - Dr. Greg Wells. With the funding you have provided us we have been able to build a comprehensive team that spans all levels of academic training. The team now consists of:

#### Undergraduate trainees

Third year kinesiology student Fiona Callender (who is also a national medalist in track and field) who maintains a 90%+ average and has just completed a study on the electrical characteristics of athletes' hearts. This research holds great potential for the prevention of sudden arrhythmia death syndrome in young athletes. Undergraduate student Danish Mulla will be joining us for the summer of 2013 to work on our new cancer research program under the supervision of Dr. Sarah West. Mr. Mulla won an award that will cover 50% of his summer student work stipend.

*Fund support: \$1500 for rental of signal averaged ECG machine from Cardiac Unit at Sick Kids Hospital. Summer stipend for Danish Mulla.*

#### Master of Science Candidates

Jessica Caterini and Gillian White. Jessica is doing a basic science study on how breathing is controlled during movements of different intensities and speeds. This is critical as most exercise testing of chronic disease does not take into

account the factors that Jessica is exploring. Her work will help to improve the physiological testing of children with chronic diseases. Gillian White is conducting research into the use of cold water immersion to reduce inflammation. While this technique is popular in sports, cold holds great promise as a potential therapy for those with chronic illnesses and the physiology of cold and its relationship to inflammation in the body is not well understood.

*Gillian White received a \$10,000 grant award from the Ontario Ministry of Health for her cold research. Gillian has also received 2 awards: the Glenn H Carter Fellowship in Exercise Intervention and Disease Prevention (\$6,000) and the Bertha Rosenstat Ontario Graduate Scholarship (\$5,000).*

### Doctoral Candidates

Laura Banks is conducting research using the magnetic resonance imaging and spectroscopy coil that was purchased with the Bank of Montreal funds. She has developed a new technique for measuring metabolism in heart muscle non-invasively. We are only the second research group in the world to have this capacity and the first pediatric group. Laura is currently working to prepare her research for publication in peer-reviewed journals and will be graduating this summer.

*Fund support: Previous purchase of MRI/S coil. Laura has received independent funding for her research from the Canadian Institutes for Health Research in excess of \$85,000 that would not have been possible without the BMO funded coil.*

### Post-Doctoral Research Fellows

Dr. Sarah West joined our team in September of 2012. Her research will be to determine the effect of cancer and cancer treatment on exercise capabilities in children with and who have survived cancer. This is important as 80% of children with cancer now survive the disease. But many end up with serious physical limitations due to damage to heart, lungs, muscle and nerves. Exercise and physical activity hold great potential for the treatment of this group.

*Fund support: Salary support for Dr. Sarah West. Dr. West has now been awarded a 2 year Fellowship from the Research Training Centre at the Hospital for Sick Children for 2 years. Without our ability to recruit Dr. West we would not have been able to write the applications for grants and the Fellowship that ultimately earned Dr. West her fellowship.*

## External Research Support

This year marked a huge milestone for our team and for myself as an independent researcher. We were awarded a \$100,000 research grant from the Canadian Institutes of Health Research to perform research on heart disease in children and the use of exercise to treat children with heart diseases. The foundation of our measurements will be the use of the MRI coil we bought previously with BMO support. Achieving independent funding from CIHR is incredibly difficult now (<9% funding rate) and this is a tremendous achievement that creates the foundation for our team to move forward for the next several years.

## Research Publications

Another major accomplishment this year was the publication of one of our research projects titled “Skeletal muscle abnormalities in children with Turner Syndrome” in the Journal of Clinical Endocrinology and Metabolism. This is fantastic as the Journal has an impact factor of 8.2. In science language this means that the work was published in a very highly regarded journal that many researchers and clinicians read.

We are doing great work, and we are now being recognized around the world. Thank you all again for your support. None of our success would be possible without your help. Your donations have allowed us to develop new areas of investigation and to build a team to perform the work. Together we will save many lives. Please don't hesitate to contact me if you have questions or comments.



Greg Wells, Ph.D.

Assistant Professor, Faculty of Kinesiology, University of Toronto

Associate Scientist, Physiology & Experimental Medicine, Hospital for Sick Children

+1 (416) 710-4618 (m) (416) 978-3244 (o)

[www.humanphysiology.utoronto.ca](http://www.humanphysiology.utoronto.ca)

Twitter: @drgregwells