



**Peter Munk Cardiac Centre**  
Toronto General Hospital

## **Research En Route: Expedition Challenges Ideas About Life After Organ Transplant**

The mission to Antarctica aims to raise the level of awareness about heart failure and the need to create funding for research into a disease that kills one in three Canadians.

A tremendous amount of research is being done to lower the incidence of heart failure given the alarming increases in occurrence over the past few years. Dr. Heather Ross, Medical Director of the Cardiac Transplant Program, Peter Munk Cardiac Centre, TGH and Dr. Patricia Murphy, Clinical Director of Cardiac Anesthesia, Peter Munk Cardiac Centre, TGH will assess and monitor the impact of exercise and extreme weather on heart transplant patients while scaling Mt. Vinson Massif in Antarctica with a team that includes a heart transplant recipient.

The main research focus is on understanding the functioning of a transplanted heart. This entails monitoring and regulation of the heart rate, oxygen circulation and effect of exercise and altitude. The instrumentation on the trip includes a heart rate monitor and oximetry - an effective procedure to measure the oxygen saturation of arterial capillary blood.

All transplant patients are faced with the predicament of the adverse effects of rejection drugs. These drugs are used to prevent organ rejection when the patient's body recognizes the new organ as foreign tissue. Due to the effect of these immunosuppressive rejection drugs on muscles, physical exercise in transplant patients can be fairly difficult.

Following on from research done on the previous transplant awareness trip, Dr. Ross explains how the vagus nerve regulates the heart rate in a normal person, but since in a transplanted heart the vagus nerve is severed at the time of transplant, the patient needs to achieve a gradual adrenalin release during any active physical challenge to ensure no stress on the heart muscle.

The data gathered on this trip has predictable capabilities to determine the extent of activity permitted on transplant physiology and its effectiveness. As Dr. Ross says, "Exercise renews the heart."

For more information, please visit [www.testyourlimits-antarctica.ca](http://www.testyourlimits-antarctica.ca)

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