

# Momentum

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If you would like to submit an article for a future issue of Momentum, please contact Aryn Gatto at 416-597-3422 ext. 5271 or [gatto.aryn@torontorehab.on.ca](mailto:gatto.aryn@torontorehab.on.ca). We thank you for your contribution and will do our best to incorporate your submission. Please note, Toronto Rehab reserves the right to edit all submitted articles.

## Cardiovascular disease and its effect on cognition

By: Aryn Gatto (BA Kin, CK), Heart Health for Life Project Coordinator and Exercise Leader

As many of us are now aware, physical activity and fitness have positive impacts on one's physical health, emotional well-being and quality of life. Exercise can strengthen the heart and the muscles of the body as well as help lower cholesterol levels, blood pressure and blood glucose levels. Researchers have also discovered that physical activity can have a positive effect on another important aspect of one's life, one that has recently garnered substantial health media attention: cognition. So, what is cognition? Cognition can be defined as how we think and retain our thoughts [1]. Cognition involves several processes that we use continuously to make good choices, remember a loved one's birthday, pay attention to street signs and pedestrians crossing the road, be aware of the date and time, move within our physical limitations or solve a puzzle.

### Cognition involves the following processes [1]:

- **Judgment:** The ability to make good choices appropriate for our abilities
- **Memory:** The ability to remember general information and personal experiences (memory can be divided into short term and long term memory)
- **Attention:** The ability to concentrate on one thing
- **Insight:** Understanding our abilities

- **Orientation:** Being aware of one's surroundings and who we are
- **Sequencing:** Sorting ability and the ability to perform actions in the correct order
- **Problem solving:** The ability to identify a problem and come up with solutions

A number of research studies have demonstrated that cognitive and communicative functioning can be adversely affected by cardiovascular disease [2]. Cardiovascular disease (CVD) refers to conditions of the heart and circulatory system [3], and includes coronary artery disease, cerebrovascular disease (stroke), heart failure, peripheral vascular disease, rheumatic heart disease and congenital heart disease [3].

According to the Heart and Stroke Foundation, a stroke is caused by a blockage or rupture in the blood vessels carrying blood to the brain and can result in loss of cognitive function [4]. For this reason, someone who has suffered a stroke may have difficulty remembering where they last put their keys, remembering the names of their childhood friends or remembering how to tie their shoelaces. Researchers have found that aerobic exercise can improve mobility as well as certain cognitive processes related to motor learning in those who have had a stroke [5].

A recent study, conducted at the Toronto Rehabilitation Institute and Sunnybrook Health Sciences Centre, revealed exciting findings to this effect. This study examined patients with coronary artery disease who recently entered a cardiac rehab program. The patients performed cognitive and exercise tests to determine their cognitive capacity and cardiopulmonary fitness levels. The researchers found that higher concentrations of a particular marker in the blood, called brain-derived neurotrophic factor (BDNF) protein, were associated with better performance in cognitive tests. Higher concentrations of this protein were found in patients who are more physically active, whereas lower BDNF concentrations were found in those with a poorer cardiopulmonary fitness level [6]. What this means is continuing your exercise program and keeping fit not only help strengthen, recondition and maintain a healthy heart and muscles, but can also preserve your cognitive abilities – thinking, remembering, reasoning and solving problems.

#### End Notes:

1. Tips and Tools for Everyday Living: A guide for stroke caregivers; Heart and Stroke Foundation of Ontario (2010).
2. Murray, L., Cardiovascular Disease: Effects Upon Cognition and Communication (May 23, 2006). <http://www.asha.org/Publications/leader/2006/060523/f060523c.htm>
3. Public Health Agency of Canada. Cardiovascular Disease (June 2011) <http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/index-eng.php>
4. What is a Stroke? Heart and Stroke Foundation of Ontario (August 2008) [http://www.heartandstroke.on.ca/site/c.pv13leNWJwE/b.3581687/k.744C/Stroke\\_\\_What\\_is\\_Stroke.htm](http://www.heartandstroke.on.ca/site/c.pv13leNWJwE/b.3581687/k.744C/Stroke__What_is_Stroke.htm)
5. Barbara M. Quaney, PT, PhD, Lara A. Boyd, PT, PhD, Joan M. McDowd, PhD, Laura H. Zahner, PT, Jianghua He, PhD, Matthew S. Mayo, PhD, and Richard F. Macko, MD. Aerobic Exercise Improves Cognition and Motor Function Poststroke (2009). <http://nnc.sagepub.com/content/23/9/879.full.pdf+html>
6. Swardfager WL, Herrmann N, Marzolini S, Saleem M, Shammi P, Oh PI, Albert P, Daigle M, Kiss A, Lanctôt KL. Brain derived neurotrophic factor, fitness and cognition in coronary artery disease. *Brain Behav Immun* (April 2011).



# Emil Boychuk

## *Crossing the finish line: my cardiac rehab story*

By: Emil Boychuk (Cardiac Rehab Graduate, November 2009)

I felt completely elated as I crossed the finish line of the Scotiabank Toronto Waterfront Half Marathon on September 26th, 2010, having achieved my goal of finishing in two and a half hours. In 2009, I was pleased to have completed the 5K by jogging and walking. These are my milestones of achievement as I progressed in my cardiac rehabilitation at Toronto Rehab, and this is my rehab story:

I considered myself a pretty fit guy and took pride in completing the Terry Fox run every year since 1982. However, I began gaining weight throughout my 50s and although I loved my work, longer hours meant more stress and less time for exercise and relaxation. In July 2008, after another intense year of work, my first episode of angina had me rushing from a walk-in clinic, through a battery of tests at North York General emergency, and finally to an angiogram at Sunnybrook, where my cardiologist found an artery that was 90% blocked. Shortly thereafter, I left the operating table with two stents and thus began my recovery from heart disease.

I was amazed at how well I felt as I returned to working and walking around the house, but felt unsure about the degree of activity that was right for me. Fortunately, my family physician referred me to the Cardiac Rehab program at Toronto Rehab. Right from the start, I was grateful for the guidance I received. Daily walks were recommended but I discovered my pace was too slow for reconditioning my heart. I also learned that I should avoid certain activities at this stage, such as mowing the lawn and gardening.

As I progressed, I added some jogging to my walks and was excited as I hoped to soon return to regular jogging. However, despite completing a stress reduction program, resistance training, and attending lectures and diet consultations, my jogging kept raising my heart rate to my recommended maximum in just one minute. My midterm stress test indicated there was still something limiting my optimal heart function. More tests and another angiogram revealed this was a blockage above my stents that required bypass surgery.

After a short period on the waiting list, I had an assessment with Dr. Fuad Moussa, a surgeon at Sunnybrook. Dr. Moussa informed me that I was a good candidate for receiving innovative surgery that was minimally invasive and off pump. After agreeing to this option and researching the procedure, I learned that “minimally invasive” meant that I would not

have my chest cut down the middle—the surgeon would just go between my ribs. Secondly, “off pump” meant that my heart would remain beating throughout the procedure instead of being stopped and circulation being done by an artificial pump. I became very hopeful and on March 4, 2009 this wish was fulfilled; I became the 2nd person at Sunnybrook to undergo this innovative procedure.

A few weeks after surgery I was able to resume a revised rehab program and by September 27, 2009 I was able to join others from Toronto Rehab for the Scotiabank Toronto Waterfront 5K. Having completed this in 45 minutes, I set my sights on doing the Half Marathon the following year!

I graduated from the Cardiac Rehab program in November 2009. In 2010, I joined the Take C.H.A.R.G.E. program at Toronto Rehab, which has kept me up to date on heart health information and opportunities to get answers to personal questions. In the spring, I began training for the half marathon while continuing my rehab prescription.

I am deeply grateful to the Cardiac Rehab Team at Toronto Rehab for my success with the half marathon and my health and happiness today. **Keep up the great work!**



# Family Corner

## *Helping your loved one manage their diabetes*

By: Aryn Gatto (BA Kin, CK), Heart Health for Life Project Coordinator and Exercise Leader



Diabetes affects the lives of many Canadians: According to the Canadian Diabetes Association, there are currently more than 9 million Canadians living with diabetes or prediabetes. Living with diabetes can present a unique set of challenges that one may not want to face alone. As a caregiver, family member or friend, you can support your loved one with their diabetes management in a number of ways, from making lifestyle changes as a family, to learning about the disease progression or communicating with your loved one's health care team.

### **Here are some tips to help you support your family member or friend manage their diabetes:**

- Be supportive and understanding – listen to how they feel
- Discuss how you can both reduce stress in your lives.
- Listen to their health goals and ask how you can help him/her achieve them
- Find physical activities you can do together
- Discuss different meal planning options that are suitable for your lifestyle
- Consider attending a diabetes workshop or learning session together
- Learn about their medications
- Remind them to schedule regular doctor's appointments and eye exams
- Be available to communicate with their health care team
- Remind them to check blood sugar levels as directed by his/her physician
- Help them maintain good foot health
- Be mindful of your own mental and physical health to better care for your loved one

### **There are many online and community resources that might be helpful to you.**

[www.diabetescarecommunity.ca](http://www.diabetescarecommunity.ca) is one resource in particular that features an assortment of information regarding diabetes care. This new website aims to support Canadians living with Diabetes and their families.

#### **Here is what you can do on the Diabetes Care Community website:**

- Connect with other diabetes caregivers to ask questions and to share ideas
- Learn about different medications for diabetes management
- Find tips on healthy eating, physical activity and emotional support
- Stay up to date on the latest news and breakthroughs in diabetes research
- Find medical products for diabetes management (e.g. blood glucose meters)

#### **References and other helpful resources:**

[www.diabetes.ca](http://www.diabetes.ca) – Canadian Diabetes Association

<http://www.diabetes.org/> - American Diabetes Association

#### **LOCAL EDUCATION & SUPPORT**

##### **Heart Disease**

Cardiac Peer Support Group  
Harbourfront Community Centre  
627 Queen's Quay West  
(Bathurst & Queen's Quay)  
Toronto, ON M5V 3G3  
416-597-4165 (Mark Surchin)  
[hcc@harbourfrontcc.ca](mailto:hcc@harbourfrontcc.ca)  
[www.harbourfrontcc.ca](http://www.harbourfrontcc.ca)

##### **Diabetes**

Diabetes Education Centre  
North York General Hospital-  
Branson Site  
555 Finch Avenue West  
Toronto, ON M2R 1N5  
416-635-2575  
[www.nygh.on.ca](http://www.nygh.on.ca)  
(Click Programs & Services à Diabetes  
Education Centre)

##### **Stroke**

Stroke Recovery Group  
Presented by Neighbourhood Link  
Support Services  
11 Coatsworth Avenue  
(Coxwell & Danforth)  
Every Wednesday 12-2PM  
(416) 691-7407 (Ask for "Intake")

##### **Family & Support Services**

Family Service Toronto  
Outreach, Counselling and  
Social Services  
416-595-9230  
<http://www.fsatoronto.com/>



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