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## Multiple sclerosis and rehabilitation

Through its Neuro Rehabilitation Program, Toronto Rehab offers a Multiple Sclerosis Service that provides specialized interprofessional treatment and education for adults living with the many challenges of multiple sclerosis.

### What is multiple sclerosis?

- Multiple sclerosis (MS) is a disease of the central nervous system. It attacks the protective myelin covering the arms (axons) of nerve cells, causing inflammation and destruction. This short circuits the nerve signals sent from the brain and to other body parts, which causes a variety of symptoms, depending upon which part(s) of the nervous system are affected.
- MS symptoms may include problems with vision, balance and/or coordination, muscle stiffness, fatigue, speech or memory, and even paralysis. The cause of MS is not known and there is no cure. Medications and therapies can help control symptoms.
- MS can range from being relatively mild to totally disabling. At its most extreme, MS can cause the loss of self-care, speaking and walking abilities, and drastically reduce independence and quality of life.

### Facts about multiple sclerosis

- An estimated 55,000-75,000 Canadians have multiple sclerosis.
- Canada has one of the world's highest rates of MS; the disease occurs more often in countries with temperate climates farther from the equator.
- MS can occur at any age. It is usually diagnosed between the ages of 15 to 40, but can make its first appearance in young children or older adults.
- Women are more than three times as likely to develop MS as men.
- MS is seen most commonly in people of northern European background.
- Every day, three more people in Canada are diagnosed with MS, making it the most common neurological disease affecting younger adults. Approximately 1,000 new Canadian cases of MS are diagnosed each year.
- The economic impact of MS in Canada totals more than \$1 billion annually.
- As the incidence rate of MS continues to rise, so will the cost to the health care system. Rehabilitation is a vital part of Canada's solution to this challenge.

### Toronto Rehab's expert multiple sclerosis rehabilitation

- At Toronto Rehab, rehabilitation is the interprofessional process of helping people who experience disabling injury, illness and conditions associated with aging to regain the skills, abilities, confidence and independence they need to live their lives to the fullest.

- Rehabilitation can improve quality of life for people with MS by helping them improve their balance and mobility, communication skills, cognitive functioning and ability to perform daily activities, especially dressing, eating and other activities involving their hands and arms.
- Rehabilitation for people with multiple sclerosis includes an individualized program of therapy that may involve, for example, cognitive retraining, mobility and daily living skills training, adaptive aids, fatigue management and counselling for mood and adjustment.
- In order to ensure our patients and others around the world can benefit from the newest therapies, methods and equipment, leading-edge research is at the centre of the care Toronto Rehab provides. Through close collaboration between Toronto Rehab researchers and clinicians, innovations in research are rapidly translated to the clinical setting

### Pushing the frontiers of multiple sclerosis rehabilitation research

Toronto Rehab conducts high-impact research that leads to advances in knowledge, treatment and technology and has a valuable impact on people affected by disability and their caregivers. Our rehabilitation research program is one of the largest and most diverse in North America. Current MS-related research projects include:

- **TIME to address the gap** – Jo-Anne Howe, clinical educator in physiotherapy, played a key role in launching Together in Movement & Exercise (TIME), an evidence-based community fitness and wellness program designed for adults with MS, acquired brain injury and stroke. The program was created to address a service gap that exists after people complete their rehabilitation. Developed in partnership by Toronto Rehab and Toronto Parks, Forestry and Recreation, the program includes exercises adapted from research by Toronto Rehab physiotherapists and is taught by city fitness instructors who have attended education sessions conducted by hospital physiotherapists.
- **Improving attention and memory** – Nadine Richard, a Toronto Rehabilitation Institute Scholarship in Rehabilitation-related Research for Graduate Students with Disabilities recipient, is testing treatments for attention and memory problems in people living with MS. She uses a combination of cognitive testing and neuroimaging to understand how MS affects communication between different parts of the brain, and how the brain's attention networks recover and adapt over the course of rehabilitation. Her latest study places people with a progressive form of MS in a clinical rehabilitation setting that mimics the challenges of the real world and requires them to manage multiple tasks on a timed schedule.
- **Exercise DVD for people with MS** – Physiotherapists in the Neuro Rehab Program developed a DVD that provides an in-home option for ongoing exercise after discharge from therapy. Adjunct scientist Dr. William Gage and physiotherapist Jo-Anne Howe explored the effects of the DVD after 12 weeks of use and found improvements in strength, balance and some aspects of walking. These findings suggest that people with MS can attain benefits from exercising independently within their own home after discharge.

### For more information

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