

MS[®] PROGRESS Report

Targeting a treatment for progressive MS

While great progress has been made in treating relapsing-remitting MS, people living with progressive MS still have no treatment options. For many, there is no time to lose.

Fortunately, a major, global effort to find a treatment for progressive MS is underway. The Multiple Sclerosis Society of Canada is a leading partner in the International Progressive MS Alliance, a collaboration of MS societies around the world with the unified goal of accelerating the development of treatments for this form of MS.

The Alliance gave this effort a huge boost with the announcement of three, \$6 million Collaborative Network Award grants at the 2016 European Committee for Treatment and Research in MS (ECTRIMS) Conference.

International Progressive MS Alliance awards \$18 million

The Collaborative Network Awards are multi-year grants intended to fuel international networks of researchers and institutions to make crucial breakthroughs in understanding and treating progressive MS. The MS Society of Canada is particularly proud of the Canadian researchers who received funding for the kind of innovative and collaborative thinking that can lead to a treatment for progressive MS.

Measuring progressive MS

A reliable, precise and accessible measurement is at the heart of all scientific research. Dr. Douglas Arnold of the Montreal Neurological Institute at McGill University received a Collaborative Network Award to use magnetic resonance imaging (MRI) to develop a sensitive and reliable measure of disease progression that can be used in early stage clinical trials. His interdisciplinary team of experts will review



existing patient MRI scans using cutting-edge pattern-recognition technology to uncover biomarkers of disease progression. Such a tool will allow researchers and clinicians to better diagnose progressive MS, monitor changes in disease, and assess treatment benefits, with the ultimate goal of accelerating the development of new treatments for progressive MS.

Using bioinformatics to identify re-purposed drugs

One way to shorten development time of possible treatments is to re-purpose an existing drug approved for another disease. Dr. Gianvito Martino from San Raffaele Hospital in Milan will use a bioinformatics approach to identify candidate drugs for further study. Bioinformatics combines computer science, statistics and engineering, and can allow researchers to review thousands of drug candidates that have the potential to be effective against progressive MS. Dr. Gianvito's goal is to develop a roster of drug candidates within the next four years that can be taken into early stage clinical trials for people with progressive MS.

Another perspective on the immune system

Dr. Francisco Quintana from Brigham and Women's Hospital in Boston received a Collaborative Network Award to identify potential drug candidates that target a different facet of the immune system than other disease-modifying therapies developed to date. Using this focused approach, Dr. Quintana's goal is to develop candidates for study in clinical trials within four years – a major reduction in development time for potentially effective therapies for progressive MS.

Why is treating progressive MS so challenging?

More than one million people worldwide are living with progressive MS, and many living with relapsing remitting MS are likely to transition to progressive MS over time. So why are no approved treatments available? For one thing, progressive MS is hard to define and difficult to measure. Moreover, the mechanisms underlying progressive MS are not well understood, so candidate drugs that target these mechanisms are difficult to identify. Although currently approved disease-modifying therapies for relapsing-remitting MS have thus far seen little success in treating progressive MS, a new generation of drug candidates that target newly understood aspects of MS like B cells, nerve protection and myelin repair are beginning to show some promise as progressive MS therapies.



A Message from the President

Yves Savoie

This Spring 2017 edition of *Progress Report* describes some exciting trends emerging in MS research.

Our cover story is about progressive MS. The MS community has united to aggressively pursue treatments for progressive MS, and the research is encouraging.

The International Progressive MS Alliance, an unprecedented global collaboration of MS organizations including the MS Society of Canada, researchers, clinicians, pharmaceutical companies, and people living with progressive MS, is transforming the MS landscape.

Together with supporters like you, we are drawing the MS community together to drive forward faster.

Our recently announced Hermès Canada | MS Society Wellness Research Innovation Grants are designed to forge collaborations between researchers and innovators in the community to develop innovative wellness solutions for people affected by MS. The awarded projects are described in this edition of *Progress Report*.

The MS Society of Canada is proud to help lead these developments. We are especially hopeful that a breakthrough is approaching for treatment of progressive MS, which affects over one million people worldwide. A treatment would be a major step toward our ultimate goal – ending MS.

As always, I am thankful for your dedicated support.

Warm Regards,

Yves Savoie

MS Society announces Hermès Canada | MS Society Wellness Research Innovation Grant

In 2015, the MS Society of Canada sent out the MS Wellness Survey, an online questionnaire designed to gather data from people living with MS about their needs, practices and gaps related to nutrition, physical activity and emotional wellbeing. More than 1,000 people responded to the survey, and the results formed the foundation of the Hermès Canada | MS Society Wellness Research Innovation Grant, an innovative funding opportunity that aims to advance research in wellness and lifestyle, and ultimately lead to wellness solutions for people affected by MS.



Dr. Katherine Knox is one of two University of Saskatchewan researchers awarded funding from the MS Society of Canada.

Physical activity and MS: What can we improve?

The MS Wellness Survey indicated that most respondents appreciate the benefits of physical activity, yet many are unable to participate due to the existence of barriers to participation. The Hermès/Canada grants were awarded to teams working to overcome some of these barriers.

Improving access to physical activity and rehabilitation

Dr. Katherine Knox, Associate Professor at the University of Saskatchewan is exploring a customized, web-based physical activity and rehabilitation program to improve

access to physical activity. Over the course of six months, Dr. Knox and her team will measure the impact of the web-based program on adherence, physical function, MS symptoms and safety in people living with MS with moderate to severe disability. An effective web-based program could allow more people living with MS, particularly those with significant mobility impairments, to benefit from regular physical activity.

Increasing physical activity participation in youth with MS

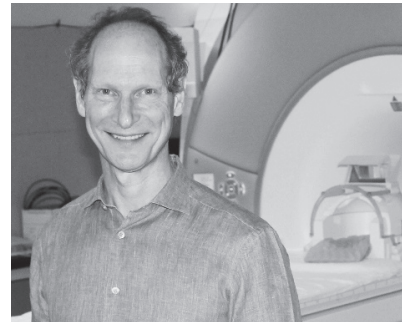
Dr. Ann Yeh, Professor of Pediatrics at the University of Toronto and Staff Neurologist at The Hospital for Sick Children in Toronto, believes that, for many young people living with MS, social or psychological barriers may preclude participation in group-based physical activities. Dr. Yeh and her team will work with adolescents living with MS to develop a customized, physical activity mobile application (app) tailored to youth with MS. The study is designed to deliver a useful tool that enables youth with MS to engage in physical activity.

What are some alternative forms of physical activity?

The MS Wellness Survey showed that many people living with MS struggle to choose the right exercise program. One appealing candidate is Pilates, an exercise regimen that focuses on core strength and can be adapted to any level of fitness. Dr. Charity Evans, Professor of Pharmacy at the University of Saskatchewan, has teamed up with the owner of a Pilates studio in Saskatoon to conduct a small trial to determine if Pilates is a safe and effective physical activity option for people living with MS.



Dr. Douglas Arnold



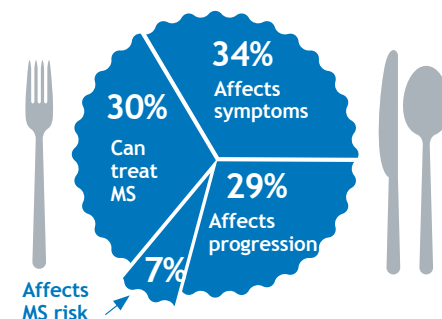
Dr. Arnold, Montreal Neurological Institute at McGill University

Dr. Douglas Arnold, Professor of Neurology at the Montreal Neurological Institute at McGill University, is one of the world's foremost experts on MS imaging. Dr.

Arnold was recently awarded one of three, \$6 million Collaborative Network Award grants from the International Progressive MS Alliance to pursue ground-breaking research in progressive MS. With support from the grant, he and an international team of collaborators are working on a desperately-needed tool for measuring disease progression in people living with progressive MS. More sensitive and reliable tools can lead to more powerful studies, which in turn can accelerate the development of a treatment for progressive MS.

MS Wellness Survey

People want to know how nutrition:



To maximize the health benefits of nutrition, people want:

- 39% Info & resources
- 30% Motivation & support
- 31% Reduction of food barriers

People want research about physical activity to answer:

- 32% What's the best type for my activity level?
- 23% Will it help delay progression of my disease?
- 30% How will it affect/manage my symptoms?
- 15% Will it help with my cognitive function?

People also said:

- 39% Physical activity improves mobility
- 64% They can't access facilities for physical activity
- 19% They are worried activity will make their MS worse

When they need to talk, people turn to:

- Family and friends
- Don't want/need to talk
- Healthcare team
- Nobody to talk to
- Support groups/online communities

5 in 10 Identified EMOTIONAL WELL BEING as their top wellness priority

NEWS FROM ECTRIMS 2016

Focus on wellness and symptom management

More than 900 scientific presentations were presented at the most recent European Committee for Treatment and Research in MS (ECTRIMS) conference in London, UK, covering new knowledge and breakthroughs in virtually every aspect of current MS research. A growing number of presentations each year focuses on wellness and symptom management, and this year was no exception. Here are a few highlights:

The latest on diet

Diet has long been thought by many researchers to have a significant impact on people living with MS. A multi-center pediatric study conducted by Dr. Emmanuelle Waubant (University of California San Francisco) investigated the association between various types of dietary intake (fat, vegetable, fibre, fruit, carbohydrate, protein,



sugar, dairy and iron) with MS relapse rates in youth living with MS. Dr. Waubant and her team found that each 1% increase in fat intake resulted in a 4% increase in the risk of relapse, while youth with MS who ate more vegetables had a lower risk of relapse than those who didn't.



Exercise and fatigue

With support from the MS Society of Canada, Postdoctoral Fellow Dr. Nadine Akbar (Kessler Foundation) embarked on a study to uncover the mechanisms by which exercise can alleviate fatigue in people living with MS. Using a technique called functional magnetic resonance imaging (fMRI), Dr. Akbar showed that resistance training such as weight lifting strengthened the nerve cell connection between areas of the brain believed to be involved in fatigue, providing evidence of the biological mechanism behind the beneficial effects of exercise on fatigue.



Dr. Nadine Akbar is looking at the impact of exercise on MS.

MS Navigators

The MS Society of Canada offers a wealth of information and services to help people affected by MS. To help sort through it all, you can contact our MS Navigators. MS Navigators provide consistent, quality MS information and support for anyone in Canada. They are available 9 AM to 5 PM and are knowledgeable about research and treatment options. They can help navigate through the maze of health and community services needed by people affected by MS. You can reach MS Navigators:

By phone (844) 859-6789

By email msnavigators@mssociety.ca

World MS Day is May 31

World MS Day is a time to recognize those living with MS. The theme this year is "Life with MS". The MS Society of Canada is committed to improving the quality of life for those living with MS and those close to them. Please join us in celebrating this important date.



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