

# Research at Toronto Rehab

## Real Need. Real Science. Real Solutions.

Message from Dr. Geoff Fernie, Institute Director, Research  
Toronto Rehabilitation Institute - University Health Network



Toronto Rehab research is about solving problems. Whether it's preventing falls on stairs, improving therapy for concussion, or helping people speak again after a stroke, it's all part of our wide rehabilitation research mandate. And we're constantly pausing to ask: are we producing tangible solutions that make people's lives better? The three new videos presented here are shining examples of some of our achievements over the last year.

### 1. Keeping People Upright: the Balance, Mobility and Falls Clinic



Preventing injury and illness is always on our minds. This means keeping people healthy and out of hospital. We also help those who already have health problems to avoid 'secondary' injuries and disease. In this video, we profile an innovative new clinic where Toronto Rehab clinicians and researchers work side-by-side with stroke survivors, who are at a high risk of falling. And we've gone one step further to help healthy older people stay safe too. In the video, you'll learn about a new portable, easy-to-use technology that can assess people's walking habits - and red-flag potential problems.

### 2. Healing the Heart at Home



For those who do need therapy for illness, injury and age-related conditions, we're devising new and better treatments. The goal: to get people quickly back to daily life, and in the best shape possible. This video showcases a new approach to cardiac rehab that takes therapy right into people's homes. Our research shows that, by offering this program, we're reaching a wider group of patients and achieving impressive outcomes. Why is this vital? Because cardiac rehab reduces the risk of dying from another heart event, improves quality of life, and helps people return to work sooner.

### 3. Helping Hospitals with Hand Hygiene



One of the most vexing problems in the healthcare system today is how to curb hospital-acquired infections. Almost 10,000 patients die in Canada every year from infections they pick up in hospital. It's estimated that half of those deaths could be prevented through proper hand hygiene. This video features new Toronto Rehab technologies that help hospitals monitor and improve hand hygiene practices. More generally, across our nine research teams, there's a lot of activity focused on addressing pressing challenges faced by the healthcare system.

### Supporting 'aging in place'

Our society is rapidly aging. Getting older often means a decline in function. Toronto Rehab researchers are studying the challenges faced by older people, and developing advanced health technologies to support 'aging in place'. Whether it's a footwear insole to improve balance and prevent falls, or changes to building codes that make stairs safer, we're determined to keep people safe and healthy - and reduce pressures on the healthcare system. Our innovations also ease the burden on family caregivers.

### Turning ideas into useful products

To deliver our ideas to consumers as soon as possible, Toronto Rehab researchers often collaborate with companies. We also help the private sector to test and develop its own ideas.

We're tremendously proud of our three spin-off companies which are bringing our innovations into the marketplace and creating jobs. MyndTec Inc. (formerly Simple Systems), a Toronto Rehab-University of Toronto company, is commercializing a stimulator used to reawaken paralyzed muscles. Last year, Simple Systems won the TieQuest 2012, which drew entries from hundreds of entrepreneurs across North America. Meanwhile, our spin-off, HandyMetrics Corporation, is steadily expanding sales of HandyAudit®, a hand hygiene auditing system for healthcare institutions. Another company is bringing to market a portable detection device called ApneaDx™, which provides an easier, less costly way to diagnose obstructive sleep apnea.

### Extraordinary labs



Our state-of-the-art labs - part of the iDAPT Centre for Rehabilitation Research - are alive with activity. The most advanced rehabilitation engineering facility in the world, this dynamic environment - with its sophisticated simulation labs - lets us generate new treatments and technologies, influence policy, and better understand challenges faced by people living with injury, illness and age-related conditions.

The imagination and dedication, so essential for making discoveries, comes from our remarkable team of scientists, support staff, students and postdoctoral fellows.

We thank the Ontario Ministry of Health and Long-Term Care, Ontario Ministry of Research and Innovation, the Ontario Innovation Trust, the Canadian Institutes of Health Research, the Ontario Neurotrauma Foundation and other agencies, foundations and ministries for their support. We are also extremely grateful for contributions from generous individuals and corporations that come to us through the Toronto Rehab Foundation.

We hope you will take the time to view the videos presented here. You can find out more about the work we are doing to solve everyday problems and maximize life at [www.uhn.ca/torontorehab](http://www.uhn.ca/torontorehab). You'll also see who's behind our amazing research, and a full list of agencies and organizations whose support makes it all possible.

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**Dr. Robert Bell, President and CEO, UHN**

*I'm impressed by how many people know about Toronto Rehab research, and know it well. Toronto Rehab researchers have earned a reputation around the world for the work they are doing to enhance people's function, safety and independence. This is a place that comes up with great ideas - and shares them widely through scholarly publications, close involvement with clinicians, and interactions with policymakers and many organizations seeking its expertise.*

**Dr. Christopher Paige, VP Research, UHN**

*Whether it's new insights into how cold weather affects older people or a novel technology for lifting patients, Toronto Rehab is truly at the forefront of rehabilitation research. Researchers bring a wide range of experience and backgrounds to their studies. Their spirit of collaboration is evident in the work they do with colleagues across UHN and around the world. The result: high calibre research that is producing much-needed solutions for people living with the effects of disability, illness and aging.*

## THE FACTS

- More than half of us will be touched by disability, either personally or through someone in our immediate family circle
- The number of people 65 and older will double over the next two decades
- About 90% of those over 65 have at least one chronic disease, and 80% have at least two
- An estimated 27% of Ontario families have provided care continuously for two years.

## THE NUMBERS

### Funding 2012-13

Ontario Ministry of Health and Long-Term Care: \$3,000,000

Toronto Rehab Foundation: \$1,441,826

External Research Grants: \$8,777,222

**Total: \$13,219,048**

(does not include infrastructure funding)

### Publications

Journal articles: 280

### Research Ethics Board (REB)

Current studies: 236

Independent assessment of new proposals: 75

### Scientists

Scientists and Senior Scientists: 39

Affiliate Scientists: 76

**Total: 115**

### Trainees

Postdoctoral Fellows: 46

Graduate Students: 203

### About the Toronto Rehabilitation Institute

One of North America's leading rehabilitation sciences centres, the Toronto Rehabilitation Institute is revolutionizing rehabilitation by helping people overcome the challenges of disabling injury, illness or age-related health conditions to live active, healthier, more independent lives. It integrates innovative patient care, groundbreaking research and diverse education to build healthier communities and advance the role of rehabilitation in the health system. Toronto Rehab, along with Toronto Western, Toronto General and Princess Margaret Hospitals, is a member of the University Health Network and is affiliated with the University of Toronto. [www.uhn.ca](http://www.uhn.ca)