

About Toronto rehab

THE iDAPT CENTRE FOR REHABILITATION RESEARCH AT TORONTO REHABILITATION INSTITUTE

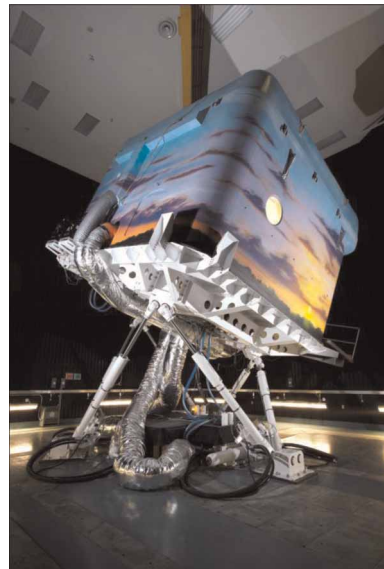
The iDAPT Centre is one of the most technologically advanced rehabilitation research centres in the world. iDAPT Centre research produces new knowledge, practical technologies and innovative treatments that reduce accidents and illness, help people overcome disability and enable them to live healthier, active, more independent lives.

The iDAPT Centre for Rehabilitation Research:

- is an integrated network of 13 different state-of-the-art laboratories, workshops and other research venues. More than 65,000 square feet of new and renovated facilities is home to scientists and research students from a broad range of engineering and clinical rehabilitation disciplines who all work collaboratively to develop new technologies for people living with a disabling injury or illness.
- is the first to apply aerospace technology to a research laboratory – housed in a massive environment four stories below ground - giving scientists safe and controlled settings so they can recreate the kind of everyday environmental challenges experienced by people with disabilities.
- will facilitate discovery and support a culture of inquiry – scientists and clinical experts interact - by using advanced technology to answer questions, solve problems, develop new therapies and strive for breakthroughs that will help support recovery after injury or illness, restore independence and quality of life.

At iDAPT Centre, Toronto Rehab's scientists conduct research in nine key areas:

- Artificial Intelligence and Robotics
- Cardiopulmonary Fitness
- Cognition
- Communication
- Mobility
- Neural Engineering and Therapeutics
- Optimization of the Rehabilitation System
- Sleep and Upper Airway
- Technology



iDapt's Neural Engineering and Therapeutics Team

The Neural Engineering and Therapeutics (NET) Team is focused on translational research to advance understanding of neurological recovery, neurorehabilitation, and quality of life for individuals with spinal cord injury (SCI). The team has been developing neuroprosthetic systems and assistive technologies, neurorehabilitation, tools interventions and outcomes tools for individuals with SCI and other neurologic impairments. Most of the NET Team's current interventions are developed to have clinical application within five years. The NET Team has evaluated the impact of these interventions in clinical trials. The key projects that the NET team is currently involved with are:

- development and testing of a whole body vibration therapy for improving bone health in individuals with SCI
- development and testing of functional electrical stimulation (FES) therapies that help patients with paralyzed limbs to “relearn” how to perform basic tasks such as grasping and walking voluntarily
- development and testing of brain-computer interface systems that enable people to control assistive devices without touching them
- development and testing of a walking assessment to determine recovery and treatment effectiveness
- development and testing of devices for assessing and training sitting balance, and for blood pressure regulation

The NET Team has established the Canadian National Spinal Cord Injury Conference, which is a biennial event. In this journal, we will present the work of the award winners and discuss the relevance of their work to neural engineering and therapeutics.

