Rehabilitation Robot
may extend reach to more physiotherapy patients.

A Canadian-designed robot may play a key role in making physiotherapy more accessible and effective for 400,000 people recovering from strokes in North America, and allow patients to take a more active role in their own treatment.

technology overview

Autonomous Upper-Limb Stroke Rehabilitation Device – a "Rehab Robot"

- Developed in Canada.
- Intelligent control system and user-friendly Java interface runs virtual training sessions.
- Patients can do physiotherapy exercises at home by pushing on a robotic arm, feeling resistance and watching the results on a video monitor.

"You can only do so much in the clinic," says Dr. Alex Mihailidis, head of the University of Toronto's Intelligent Assistive Technology and Systems Lab. Stroke patients often require physical therapy in order to re-learn the use of their arms and legs, and the exercises learned in a clinic must also be repeated at home if they are to be effective. "When you send the patient home, if they don't continue the exercises or don't do them properly, it may actually result in a decrease in their ability."

One solution may be a new "Rehab Robot" currently being developed in Canada by Quanser Inc. of Markham, Ontario and funded by CITO (now the Ontario Centres of Excellence) and Precarn. The technology promises more efficient results than traditional therapy and could enable a single therapist to treat up to four times more patients. Using advanced computer and mechanical controls, the device will ensure exercises are performed properly and can even adjust therapy as a patient improves. Patients will also be able to use the robot at home, making treatment more accessible in remote areas where access to physiotherapists is limited.

Dr. Mihailidis says clinicians and therapists are very excited about the potential of this revolutionary device. Likely ready for commercial use in one to two years, the robot will help relieve strain on overburdened healthcare systems.

This technology will also open doors to a new range of tools and devices that will assist and enhance the lives of seniors and the disabled.

"These haptic robotic devices could also be used to help rehabilitate people injured in car accidents or disabled from arthritis, heart disease or other conditions," says Dr. Geoff Fernie, VP Research at the Toronto Rehabilitation Institute.

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At the time of publication, this technology is not currently licensed for sale in Canada.