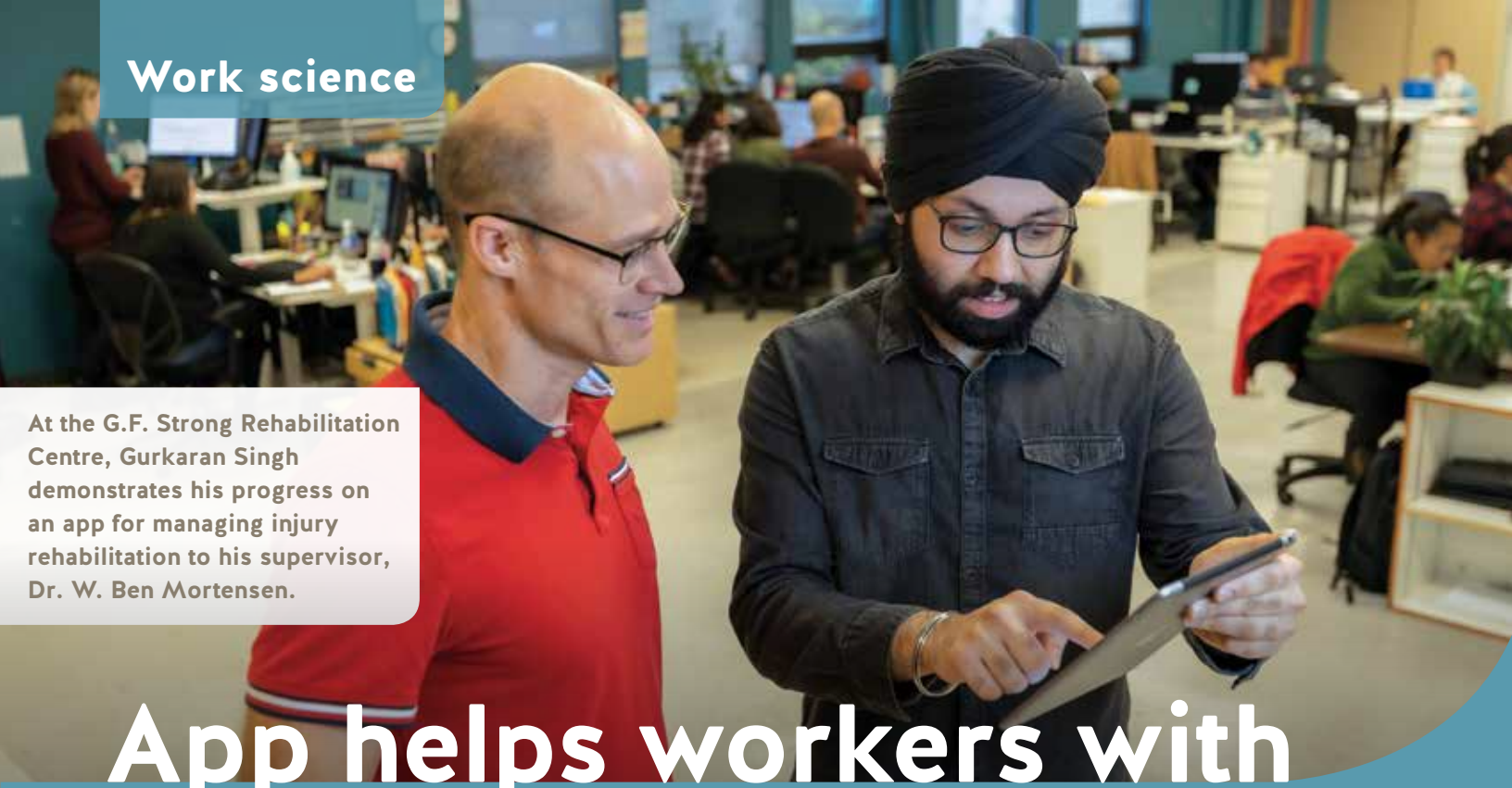

At the G.F. Strong Rehabilitation Centre, Gurkaran Singh demonstrates his progress on an app for managing injury rehabilitation to his supervisor, Dr. W. Ben Mortensen.

App helps workers with spinal cord injuries

By Gail Johnson

Spinal cord injuries are among the most devastating and difficult to deal with. Even more challenging is the potential for common secondary complications to arise, from pressure ulcers to depression. The key to well-being in recovery, however, could rest in the palm of the hand.

Emerging research supported by WorkSafeBC is exploring the use of a new app that bolsters self-management skills for workers who have experienced a spinal cord injury (SCI). The effect? Improved health outcomes among those recovering from SCIs.

Gurkaran Singh, a recipient of a 2017 WorkSafeBC research training award, is completing his master's in rehabilitation sciences at the University of British Columbia. His graduate project builds on previous work by Dr. W. Ben Mortenson, associate professor of occupational science and occupational therapy, in the development of a mobile app to help people manage their care and treatment plans.

For those with spinal cord injuries, those plans can be extremely complex, even daunting, making it hard for them to keep up once they're out of the hospital or clinical setting.

While the power of technology to help people manage a range of chronic conditions, from asthma to diabetes, has been well established, Singh discovered early on in his studies that evidence related to how a mobile app could help those with spinal cord injuries was lacking. With a keen interest in technology and volunteer experience with people with disabilities in Vancouver and rural India, he was motivated to improve the quality of life of individuals with SCIs.

"There are a lot of health apps out there that are made for general populations," Singh says, speaking of the various fitness apps that track things such as nutrition, step counts, heart rates, and sleeping patterns. "But a lot of these apps have a one-size-fits-all approach. They're not specifically geared to this population and its needs. That was my goal and my purpose: to dig deeper into those needs and address them."

Keeping all your health information in one place

The ultimate aim of the app is to assist individuals in incorporating healthy habits and lifestyle choices to help prevent secondary complications.

The app allows users to store details about medications, weight, blood pressure, symptoms,

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mood, and more. As they track this kind of information, they learn more about themselves and how their injury is affecting their lives. App users have the option of sharing the data with their medical team, but only if they choose to do so. The goal of the app is to gather data for the user, not for external parties — data privacy is something the team is taking seriously when it comes to developing the app.

App users can input instructions from health care providers such as appointments, diet, sleep, and exercise. The app will then generate reminders via push notification and record data so people don't lose track of anything. Users can also set goals within the app and the program will break them down into manageable steps and keep tabs on progress.

Having recruited people with SCIs across Canada and the United States, and taking feedback from health care professionals, such as caregivers and clinicians, Singh is exploring the app's usability and areas of improvement.

"To make sure that it's effective and meets the needs of people, not just theoretically but practically, that can only come from people actually trying and testing the app," he says. "You need that real-world experience."

Easily accessible — anywhere, anytime

What makes this kind of technology particularly beneficial for those with SCIs is that it's easily accessible from any location. Furthermore, self-management — taking steps on a daily basis toward overall well-being — gives people a sense of autonomy, something that people with severe injuries often feel they're missing.

Consider how the app might help with social interaction, for example. Engaging with the community can be difficult for those with SCIs for various reasons. The app prompts users to pursue social activities and engage with like-minded individuals, whether it's in person or via an online forum. Avoiding isolation in this way is vital to mental health.

Research offers insight into e-health

"WorkSafeBC is committed to advancing and promoting occupational health research," says Deepani Weerapura, WorkSafeBC senior manager of Policy, Regulation and Research. "Through our research program, research training awards are available to full-time graduate students in B.C. These awards give emerging researchers the chance to work with established experts and build their careers in workplace health and safety science, medicine, policy, and practice."

"Singh's research gives us broader insight into e-health literacy, and health literacy more broadly," says Lori Guiton, WorkSafeBC's director of Policy, Regulation and Research. "This is key, as more information is being delivered to us through mobile devices. Giving injured workers access to tools that help with recovery is so important. This is the type of study that adds to our knowledge about the use of e-health apps to promote rehabilitation."

So far, generally speaking, users have reported feeling optimistic about the app despite being unfamiliar with the technology. Beyond assisting people with SCIs, Singh is hopeful that the app's use will lead to other positive effects. For instance, reducing secondary complications will greatly improve the quality of life for people with spinal cord injuries while also reducing health care costs.

"I'm hoping in the long term that, by introducing this app, people with spinal cord injuries can resume daily activities sooner, be able take control of their lives, and maybe re-enter employment and contribute to the changing demographics of the workforce," Singh says. "It would benefit employers and, most importantly, it will benefit injured workers."