

# Occupational injury prevention in focus

Kathryn Sinden's work in health, and specifically ergonomics, stretches across occupational contexts from firehalls to the police station to an open pit mine.

This varied work has one overarching goal: how to prevent injuries so people can enjoy a full and rewarding life.

"That's an area of passion for me," says Sinden, an assistant professor in Lakehead University's School of Kinesiology who received a Research Development Grant for her work from Lakehead's Senate Research Council.

"I feel we should be able to go home after we've worked a long day, to be able to enjoy our families and do the things we want to do," she said.

With the broad aim of developing tools to prevent and reduce the human and financial impact of workplace injuries, Sinden's primary focus has been with Hamilton-area firefighters.

Firefighters are uniquely predisposed to increased risk of injury due to high physical loads and wearing "bunker gear" which could weigh up to 40 kilograms.

Sinden's involvement in that project began while completing her PhD at McMaster and continued through her post-doctoral training at Queen's and McGill.

That series of projects has helped to establish FIRE-WELL, a firefighting e-community of practice focused on an injury management program that has spread across Canada and includes not just physical work but also mental health and disease prevention.

Since arriving at Lakehead in the summer of 2016, Sinden's interest in occupational health has extended to the Thunder Bay Fire Rescue Service.

"What's different here is creating knowledge that's specific to Northwestern Ontario," Sinden says of the initiative, which involves both the fire service and the Thunder Bay Professional Firefighters' Association.

"We have a different geography, our environment is different. How does that impact the way Thunder Bay firefighters perform their work?"

Along with differences in equipment such as boots, gloves and helmets, there are other differences in how firefighters here perform their duties compared to warmer centres in Canada or the United States.

For example, local firefighters can literally have ice build up on their bodies when they're

## RESEARCH IN ACTION

dealing with a structural fire in sub-zero temperatures.

"So how does that influence their kinematics, their ability to move?" Sinden says.

"Those are really important considerations."

A team of research assistants is involved in the study.

Student lead researcher Sara Sayed helps set up equipment to collect data on the tasks that firefighters perform, measuring heart rate and breath rate, for example, to see how they relate to the risk of injury.

"I have the opportunity to learn about some of the unique pieces of firefighting equipment and how to use applied/wearable technologies to answer questions that will help improve the health and well-being of firefighters," Sayed explains.

Along with fulfilling the requirements of her master's thesis, Sayed is also using this data to prepare conference presentations and research articles. Sinden's research has expanded to other physically demanding occupations, including examining the impact of work on women's health and well-being.

That includes a current undergraduate student project with female workers employed by a city organization, to see how working in a male-dominated profession influences their work health.

A pilot project to start this summer will involve collaborating with an open pit mine in the Rainy Lake area and will look at the risk of injury for men and women operating heavy machinery.

More specifically, it will ask if women manifest fatigue differently than men and how that might change the risk of injury.

"We know women manifest musculoskeletal risk differently than men, so how do those things interplay?" she says.

Sinden will host a free In conversation discussion this Saturday at 2 p.m. in the Waverley Library Auditorium called Ergonomics and Work: Using research to develop tools and processes that improve worker safety. All are welcome to attend.

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