

2021-2022 ANNUAL REPORT

CROSH 

PREVENTION THROUGH RESEARCH

**CENTRE FOR RESEARCH IN OCCUPATIONAL SAFETY AND HEALTH
AT LAURENTIAN UNIVERSITY**

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Message from the Director and Associate Director

Dear Members and Supporters,

The past year has been a challenging one for the CROSH community as Laurentian University filed for creditor protection in February of 2021, triggering a series of unexpected and unprecedented changes to the university structure and people. We want to acknowledge the pain that this process has caused the workers, students, and their families; we know that every single person at the university was impacted by this event.

We want to recognize the CROSH members that were terminated; many of whom were excellent researchers that contributed to meaningful change in workplaces by training and mentoring our students.

We also want to thank the people who remain, for continuing to demonstrate excellence; and for carrying a heavy workload through this year. Your efforts are a testament to your passion for teaching, learning, and your sincere desire to prevent occupational injury and illness. This annual report highlights some of these efforts.

Lastly, all of us at CROSH are deeply grateful for the continuous support from our stakeholders, community, families, and students; who remain committed to working with CROSH and assisting us in the recovery process.

To all of you, we say: thank you!

Sincerely,

Dr. Sandra Dorman
Director, CROSH

Dr. Alison Godwin
Associate Director, CROSH



Dr. Sandra Dorman
Director, CROSH



Dr. Alison Godwin
Associate Director, CROSH

About CROSH

The Centre for Research in Occupational Safety and Health (CROSH) was established by Laurentian University to provide a formalized structure for industry, safe workplace associations, labour groups, government organizations, and researchers to share workplace injury and disease problems and solutions.

Our Mission

We envision a Northern Ontario where workplaces partner to ensure every worker gets home safe and healthy every day. We will be an agent for innovation and discovery to solve relevant and critical problems facing northern industries so they can eliminate occupational injury and disease from their workplaces.

Our Research Approach

CROSH embodies a **Field-to-Lab-to-Field** research philosophy with the goal of achieving **Prevention Through Research**. Through community consultation and engagement, CROSH researchers identify critical research questions. We engage in innovative **Field** research to understand the problem, develop evidence-based interventions in the **Lab**, and evaluate the interventions in the **Field**.



FIELD

Identify and understand the problem in the **Field**.



LAB

Drive innovation in the **Lab** to develop interventions aimed at prevention.



FIELD

Evaluate the intervention back in the **Field**.



At CROSH we are:

Committed to Scientific Excellence and Innovation – We develop, and assist partners in developing, cutting edge, research-based solutions to inform decision-making about occupational health and safety.

Respectful and Considerate – We believe in fostering a work environment that promotes equity, diversity, and inclusion, embraces the uniqueness of individuals, and is representative of the Northern Ontario population. As such, we require that every individual be treated with respect and consideration so as to support their personal and professional growth.

Outreach Focused – We actively nourish the relationships between our researchers and Northern Ontario workplaces by promoting the exchange of knowledge and student training.

Strengthened by Collaboration – We acknowledge that our work is strongest when we incorporate interdisciplinary perspectives, which ensures that our research addresses broad challenges and is relevant to the organization.

Honest in All Our Practices – We conduct research according to sound practices that value open communication, welcome accountability, and strive for continual improvement.



YEAR IN REVIEW

May 2021 - April 2022



Major Research Projects

Guided by our philosophy of Prevention Through Research, we work with businesses and organizations locally and across Northern Ontario to help them solve their health and safety problems. Some of our major research projects from 2021 - 2022 include:

Equity, Diversity, and Inclusion in Mining

Workplace Partner: Vale Canada Limited

Description: Vale Canada Limited - and the mining industry as a whole - faces short, medium, and long-term challenges in instituting change to be an inclusive and gender-equitable workforce. One of these challenges is ensuring female equipment operators are accommodated for in work tasks and operational design.

Objectives: To help Vale Canada Limited achieve its short term objectives, CROSH is evaluating work tasks and operational design to accommodate for female operators.

KTE Target Audience: Mining companies and northern industries

Funding: Vale Canada Limited

Budget: \$150,000

Linkage to MLITSD Priorities: Preventing occupational illnesses.

Ergonomic Evaluation of a Surveying Instrument with Recommendations for Improvement

Workplace Partners: Abitibi Geophysics and Vale Canada Limited

Description: In partnership with Abitibi Geophysics and Vale Canada Limited, this project involves: evaluation of a current loop-wire carrying backpack; prototype design and creation; laboratory evaluation of new backpack prototypes; and re-evaluation of the new backpack prototypes in the field.

Objectives: Create and construct an ergonomic backpack for transporting and laying loop wire in the field. In doing so, the ultimate objective is to reduce injury risk for these workers, and maintain a strong workforce in Sudbury where the mining industry employs roughly 14,000 workers and has a product and service value of \$4 billion.

KTE Target Audience: Mining and mineral exploration industries

Funding: NSERC Alliance Grant and workplace partners

Budget: \$130,000

Linkage to MLITSD Priorities: Support small business to fulfill OHS roles and responsibilities.

Assessing Reliability and Validity of the Public Services Health and Safety Association Acute Care Violence Assessment Tool

Workplace Partners: Sault Area Hospital, Health Sciences North (HSN), Public Services Health and Safety Association (PSHSA), Timmins and District Hospital

Description: This mixed methods study involves collecting data from incident reports and patient charts from a Northern Ontario hospital to assess the reliability and validity of the violence assessment tool (VAT) mandated by the Ministry of Labour, Immigration, Training, and Skills Development. The VAT is to be used to assess the risk of violence towards health care workers.

Objectives: To assess the reliability and validity of the VAT to make changes or improvements to the tool.

KTE Target Audience: Northern Ontario healthcare workers and Ontario Nursing Association.

Funding: Public Services Health and Safety Association and CROSH Seed Grant.

Budget: \$10,600

Linkage to MLITSD Priorities: Addressing workplace mental health and workplace violence and harassment.

Advancing Fatigue Risk Mitigation with EEG Fatigue-Detection: A Field Study

Workplace Partner: Torex Gold Resources Inc.

Description: Under the effects of fatigue, a worker becomes more vulnerable to environmental and occupational hazards, compromising safety of workplace operations. Advancements in wearable technology now allow for the quantitative detection and measurement of the brain's electrical activity. This technology, with predictive capacities, can provide real-time feedback to users on their fatigue level. However, few field studies have assessed the workplace implementation of such devices.

Objectives: Evaluate a real-time live feedback wearable EEG (electroencephalogram) fatigue detection system in the field.

KTE Target Audience: Mining, transportation, other industries where shift work and fatigue are significant challenges.

Funding: MITACS Accelerate and CROSH Seed Grant.

Budget: \$25,000

Linkage to MLITSD Priorities: Preventing occupational illnesses.

Collaborative Healthcare Simulation: Advanced Post-Secondary Virtual Reality Modules

Workplace Partners: Lumeto, Georgian College, Michener Institute of Education at University Health Network, eCampusOntario

Description: With our partners, we developed twelve immersive and interactive virtual reality training modules for use in Nursing (RN), Respiratory Therapy (RT) and other allied health programs across Ontario.

Objectives: To provide healthcare students in northern and rural communities a methodology for learning clinical skills through the use of virtual reality modules.

KTE Target Audience: Nursing, Respiratory Therapy, and other allied health programs across Ontario..

Funding: Government of Ontario and eCampus Ontario.

Budget: \$1,080,000

Linkage to MLITSD Priorities: Improve OHS best evidence (to measure performance and target key initiatives).

Northern Ontario Community Immunity Series

Workplace Partners: Healthcare units across Northern Ontario, Science Communication Graduate Program at Laurentian University

Description: Our team of researchers and staff engaged with workers across Northern Ontario on community immunity and the safety and effectiveness of COVID-19 vaccines. We developed brochures, posters, placemats, videos, audio episodes, and training modules on the main questions workers and community members had about COVID-19 vaccines, as communicated by health units across Northern Ontario.

Objective: Encourage confidence in Ontario's COVID-19 vaccine program

KTE Target Audience: Small businesses and Northern Ontario workers, their family members, and their communities.

Funding: NSERC

Budget: \$50,000

Linkage to MLITSD Priorities: Support small business to fulfill OHS roles and responsibilities.

A Field Evaluation of the Physiological and Environmental Demands of Wildland Firefighters; for the Prevention of Heat Stress.

Workplace Partner: Aviation, Forest Fire & Emergency Services (AFFES), Ministry of Natural Resources and Forestry (MNRF)

Description: Wildland fires are of significant concern, with rising global temperatures causing lengthened fire seasons, enhanced fire severity and ignition rates, and land area consumption reaching unprecedented levels. Paramount to fire suppression is the safety of firefighters, and operational staff; who, over a fire season are exposed to several sources of heat, including radiant heat from the fire itself. Given the changing nature of fire globally, MNRF-AFFES would like to re-examine their heat stress policy incorporating both the practical demands of the job and the significant hazards of a heat stress event. To accomplish this, research-based analysis of ground conditions, and physiological responses wildland firefighters, over a fire season are needed.

Objectives: This project uses Kestrel readings, on-the-ground, in multiple fire-specific areas (e.g. black line, aerial canopy, bone yard etc.). These readings will be examined in relation to predicted conditions from weather reports. In addition, these measures will form the foundation for in-lab testing of workers in the CROSH Environmental Chamber, where temperature and humidity conditions can be set, to examine heat dissipation technology. In addition, workers will wear Equivital personal monitoring equipment during high heat days to monitor physiological responses to heat while working.

KTE Target Audience: Wildland Firefighters in Canada

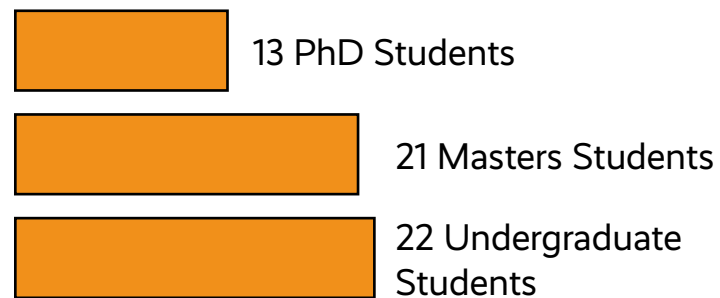
Funding: AFFES

Budget: \$50,000

Linkage to MLITSD Priorities: Preventing occupational injury and illness. Responding to effects of climate change in the workplace.

OHS Training

CROSH provides OHS training opportunities to all levels of students, from undergraduate to PhD. In 2021-2022 we had 56 student members from 16 academic programs.



Biomedical Biology
Biomolecular Science
Computational Science
Cybersecurity and Threat Intelligence
Health Promotion
Human Kinetics
Human Studies and Interdisciplinarity
Interdisciplinary Health
Kinesiology
Mechanical Engineering
Mining-Mechanical Engineering
Nursing
OHS Management
Rural and Northern Health
Science Communication
Sport and Physical Education

Completed Graduate Student Projects

A 50-year Review of Mining Incident Investigative Reports

Emily Tetzlaff, PhD Student, Human Kinetics

Advancing Fatigue Risk Mitigation with EEG Fatigue-Detection: A Field Study

Emily Tetzlaff, PhD Student, Human Kinetics

Chronic Obstructive Pulmonary Disease (COPD): The Impact of Occupational Hazards in the Minerals Industry

Dr. Sherry Mongeau, PhD in Rural and Northern Health **(Graduated)**

Code and Classification Catalogue: Creating an Updated Version of the Code Classification Systems

Rebecca Bond, Masters Student, Human Kinetics

COVID-19 Workplace Temperature Screening Practices

Emily Tetzlaff, PhD Student, Human Kinetics

Sara Gauthier, Bachelor of Science in Kinesiology **(Graduated)**

Wesley Young, Masters of Engineering **(Graduated)**

The Examination of Core Cooling During and After Exercise on Mitochondrial Biogenesis Signaling Pathways

Curtis Hancock, Masters in Human Kinetics **(Graduated)**

Gauging User Tolerance to Interface Modifications Using Gestalt Principles

Rachelle Barrette, Masters of Science in Computational Sciences **(Graduated)**

Lived Experiences of Self-care Among Adults with Inflammatory Bowel Disease in Northeastern Ontario

Kelsey Lefebvre, Masters of Science in Nursing **(Graduated)**

Secretion and Interaction of the Heat-Stable Enterotoxin b (STb) with the Gut Hormone Secreting STC-1 Cells

Dr. Eyad Kinkar, PhD Biomolecular Sciences **(Graduated)**

Validating the Remote First Aid Self-Efficacy Scale for Use in Training and Personal Development of Remote First Responders

Jonah D'Angelo, Masters in Human Kinetics **(Graduated)**



Undergraduate student member Sara Gauthier and W-SIM Technologist/Masters of Engineering student Wesley Young evaluating COVID-19 workplace temperature screening practices. Sara was supervised by Dr. Alison Godwin and Dr. Katie Goggins. CROSH collaborated with Ontario small business Provox, Inc. on this project.

Ongoing Graduate Student Projects

Addressing Obesity in the Workplace Considering Changes in Resting Metabolic Rate

Parastou Zerang, PhD Student, Human Kinetics

Analysis of Survey Incident Reports: Examining Factors that Influence Health and Safety within the Mineral Exploration Field

Rebecca Bond, Masters Student, Human Kinetics

Assessing the Reliability and Validity of the Violence Assessment Tool (VAT)

Dr. Oghenefego Akpomi-Eferakeya, Masters Student, Interdisciplinary Health

Depressive Symptoms Among Mining Workers in Northern Ontario: Prevalence, Associated Factors, and Recommendations

Caroline Dignard, PhD Candidate, Rural and Northern Health

Development of VR Applications and Ancillary Tools for VR Headsets and Online

Patrick J. Trottier, Masters Student, Cybersecurity and Threat Intelligence

The Effects of an Educational Intervention Applying Personal Information to Guide Healthy Changes in Overweight and Obese Patients

Parastou Zerang, PhD Student, Human Kinetics

The Effect of Inconsistent Medical Device User Interface Designs on Nurse Performance

Amy Doan, PhD Student, Human Studies



PhD student Parastou Zerang and Masters student Azin Zargham in the Workplace Simulator Lab preparing to measure an individual's metabolic rate as part of a research project on obesity in the workplace. Parastou's and Azin's supervisor is Dr. Sandra Dorman.

The Effect of Prehabilitation with Weight Loss on the RMR

Parastou Zerang, PhD Student, Human Kinetics

Evaluating the Effectiveness of Several Consumer-level Digital Displays Against Head Mounted Displays

Tim Doan, PhD Student, Human Studies

The Evaluation of RMR and BMR Following Weight Loss

Azin Zargham, Masters Student, Human Kinetics

Examining a New Technique in Mixed Martial Arts Looking at Force Production, Anatomy, and Statistics

Jared Whitney, Masters Student, Human Kinetics

Gamification Engagement Design Evaluation at IRegained

Amy Doan, PhD Student, Human Studies

Health Outcomes Related to Outdoor Exposure

Jonah D'Angelo, PhD Student, Human Kinetics

Human Computer Interactions and User Experience

Rachelle Barrette, PhD Student, Human Studies and Interdisciplinarity

Identifying the Mental Health Burden of Indigenous and Non-Indigenous OPP and T3PS Officers Working in Urban and Rural Northwestern Ontario Communities

Emily Tella, Masters Student, Kinesiology

Investigation of the Effect of McIntyre Powder Exposure on Cardiovascular Health in the Ontario Mining Industry

Andrew Zarnke, PhD Candidate, Human Kinetics

The Mental Health of Registered Nurses and Registered Practical Nurses in Northern Ontario During the COVID-19 Pandemic

Disal Wickramasinghe, Masters Student, Interdisciplinary Health

Nurses Perceptions of the Utilization of the VAT in Northeastern Ontario

Dr. Oghenefego Akpomi-Eferakeya, Masters Student, Interdisciplinary Health

Predictors of Absenteeism and Presenteeism in a Mining Population

Liam Nesbitt, Masters Student, Human Kinetics

A Preliminary Assessment of the Learning Comprehension, Self-efficacy, and Usability of NORCAT's FiAR Fire Extinguisher and Trainer

Adam Graham, Masters Student, Human Kinetics

Understanding the Mental and Physical State of Health Care Clinicians Before and During the COVID-19 Lockdown

Victor Benitez, Masters Student, Human Kinetics

Stress, Anxiety, and Depression Among Mining Workers: Understanding the Correlates of Mental Health and Well-being

Caroline Dignard, PhD Candidate, Rural and Northern Health



Graduate student Adam Graham demonstrating NORCAT's FiAR fire extinguisher and trainer. Adam evaluated the system for his Masters of Human Kinetics Major Paper. Adam was supervised by Dr. Alison Godwin and Dr. Katie Goggins.

Undergraduate Student Projects

Examining the Impact of Non-neutral Sitting Postures and Whole-body Vibration Exposure on Discomfort

Taryn Thompson, Bachelors of Biomedical Biology
Elizabeth Kelly, Bachelor of Mechanical Engineering

Literature Review on Occupational Hazards for the Purpose of Creating Videos: Confined Spaces, Diesel Particulate, Noise, Silica Dust, Slips, Trips and Falls, Wood Dust, Working at Heights

Taryn Thompson, Bachelors of Biomedical Biology

A Regional Review of COVID-19 Vaccination Rates and their Impact in Ontario Occupational Settings

George Flagler, Health Promotion

Solving a Drill Vibration Problem for DMC Mining Services

Elizabeth Kelly, Bachelor of Mechanical Engineering

Use of Virtual Reality to Increase Awareness of Line-of-sight Hazards Around Mobile Equipment

Sara Gauthier, Kinesiology



Virtual reality application developed to increase awareness of line-of-sight hazards around mobile equipment. Undergraduate student Sara Gauthier worked on this project under the supervisor of Dr. Alison Godwin.

\$36,000 in paid workplace internships for 11 student members

Abitibi Geophysics and Vale Canada Limited

Ergonomic evaluation of a surveying instrument with recommendations for improvement.
Sydney Boileau, Kinesiology Undergraduate Student, Laurentian University

New Gold Inc Rainy River Mine

Measuring whole-body vibration on heavy duty machinery mine operators within the New Gold Inc Rainy River Mine.

Emily Tella, Masters in Kinesiology Student, Lakehead University

New Gold Inc Rainy River Mine

Measuring whole-body vibration on heavy duty machinery mine operators within the New Gold Inc Rainy River Mine.

Kate Posluszny, Masters in Kinesiology Student, Lakehead University

Canadian Mental Health Association (CMHA) Cochrane-Timiskaming

Research and feasibility study to see how mobile phone and app technology can enhance clinician safety when visiting clients' homes.

Victor Antonio Benitez, Masters in Human Kinetics Students Laurentian University

Aviation, Forest Fire, and Emergency Services (AFFES)

Developing Knowledge Translation Exchange (KTE) on fatigue for Ontario Wildland Firefighters.

Kira Gouchie, Kinesiology Undergraduate Student, Laurentian University

Aviation, Forest Fire, and Emergency Services (AFFES)

Developing Knowledge Translation Exchange (KTE) on nutrition for Ontario Wildland Firefighters.

Parastou Zerang, PhD in Human Kinetics Student, Laurentian University

eCampus Ontario

Collaborative Healthcare Simulation - Advanced Post-Secondary VR Modules.

Sara Perfetto, Kinesiology Undergraduate Student, Laurentian University

eCampus Ontario

Collaborative Healthcare Simulation - Advanced Post-Secondary VR Modules.

Adam Graham, Masters in Human Kinetics Student, Laurentian University

eCampus Ontario

Collaborative Healthcare Simulation - Advanced Post-Secondary VR Modules.

Vanessa De Coppi, Health Promotion Undergraduate Student, Laurentian University

Research-based Internship

Analyzing health and safety protocols in sport organizations to mitigate risk amidst the COVID-19 Pandemic.

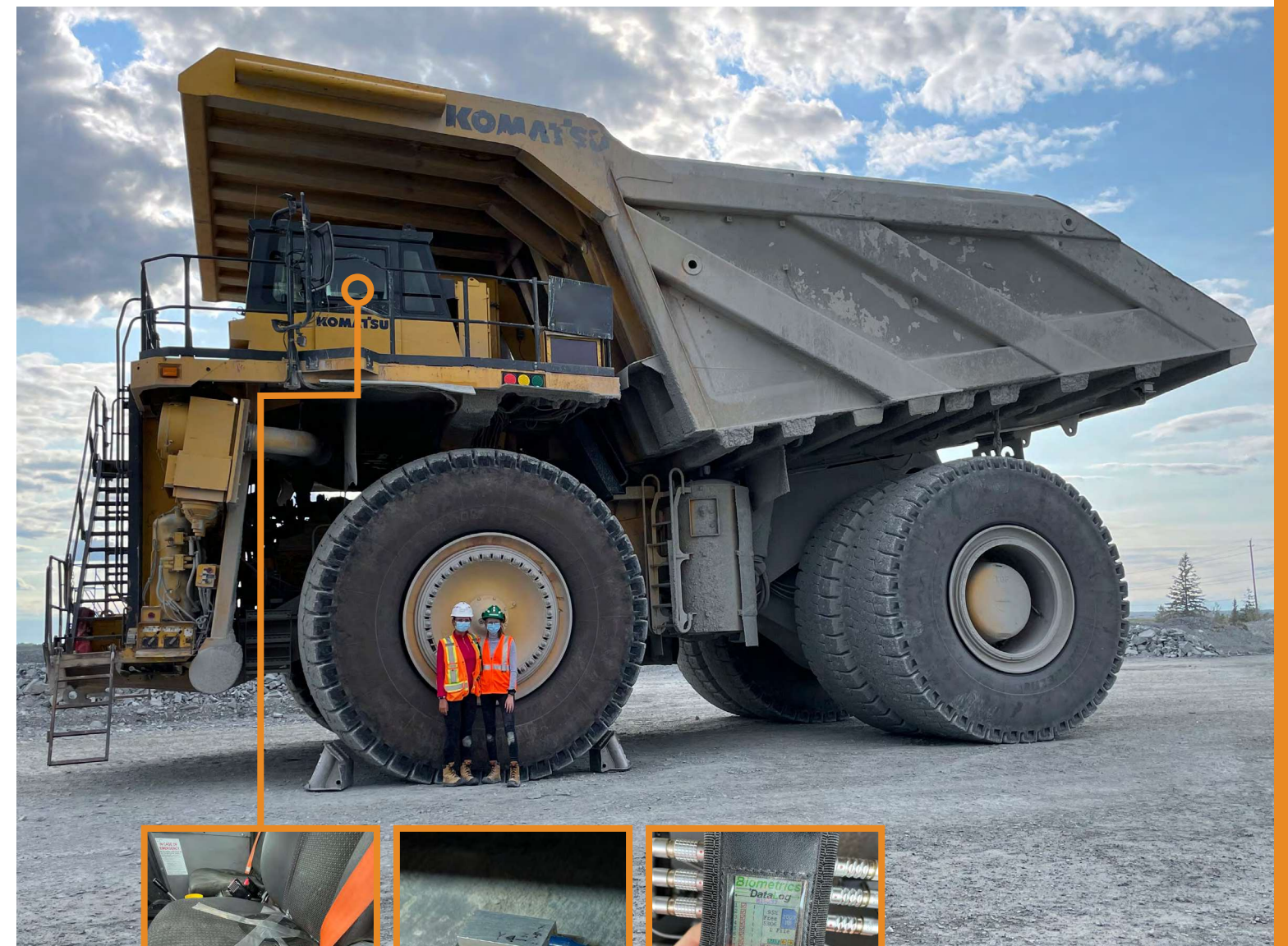
Jared Whitney, Masters in Human Kinetics Student, Laurentian University

Applied Internship

Developing marketing strategies to help CROSH achieve strategic goals.

Yiorgio Mathioudakis, Science Communication Masters Student, Laurentian University

newgold



For their CROSH internship, graduate student members Kate Posluszny and Emily Tella of Lakehead University measured and analyzed whole-body vibration on heavy duty machinery mine operators at **New Gold Inc's Rainy River Mine** in Emo, Ontario. Kate and Emily are supervised by Dr. Kathryn Sinden.

\$20,000 in student awards, scholarships, and fellowships

\$1,000 United Steelworkers Undergraduate Award

Taryn Thompson, Undergraduate Student, Biomedical Biology

\$1,000 United Steelworkers Graduate Scholarship

Rebecca Bond, Masters Student, Human Kinetics

\$3,000 CROSH Human Factors and Ergonomics Entrance Scholarship

Adam Graham, Masters Student, Human Kinetics

\$3,000 CROSH Human Factors and Ergonomics Fellowship

Rebecca Bond, Masters Student, Human Kinetics

\$3,000 CROSH Occupational Health and Wellness Fellowship

Oghenefego Akpomi-Eferakeya, Masters Student, Interdisciplinary Health

\$3,000 CROSH Occupational Health and Wellness Fellowship

Disal Wickramasinghe, Masters Student, Interdisciplinary Health

\$3,000 CROSH Occupational Physiology and Environment Fellowship

Parastou Zerang, PhD Student, Human Kinetics

\$3,000 CROSH Occupational Physiology and Environment Fellowship

Azin Zargham, Masters Student, Human Kinetics



Student member Rebecca Bond, far left, at Foraco Canada Ltd in Hamner, Ontario. Rebecca, who is doing her Masters in Human Kinetics at Laurentian University, earned our Human Factors and Ergonomics Fellowship this year. Rebecca is supervised by Dr. Alison Godwin.

We awarded \$77,000 in Seed Grant funding to enable innovative health and safety research



Project Partners: Avalon Advanced Materials Inc and Prospectors and Developers Association of Canada (PDAC)

Budget: \$9,844.00

Project: Mixed methods approach for secondary data analysis using survey reports from an exploration industry database.

Researchers: Dr. A. Godwin and Dr. A. Pegoraro



Project Partner: Laurentian University

Budget: \$10,000.00

Project: A regional review of COVID-19 vaccination rates and their impact in Ontario occupational settings.

Researchers: Dr. N. Lightfoot and G. Flagler



Project Partner: NORCAT

Budget: \$10,000.00

Project: Effectiveness of using augmented reality to train competencies in fire extinguisher usage.

Researchers: Dr. A. Godwin and Dr. K. Goggins

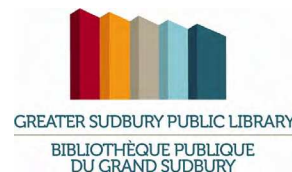


Project Partner: Lakehead University

Budget: \$11,950.00

Project: Does diphenhydramine impair evaporative heat loss during physical activity in temperature conditions.

Researcher: Dr. N. Ravanelli



Project Partner: Greater Sudbury Public Library

Budget: \$12,000.00

Project: Keeping COVID out of the workplace: Respirator education.

Researchers: Dr. K. Goggins and Dr. A. Godwin



Project Partners: Ontario Provincial Police (OPP) and Treaty Three Police Service (T3PS)

Budget: \$11,210.00

Project: Identifying the mental health burden of Indigenous and Non-Indigenous OPP and T3PS officers working in urban and rural Northwestern Ontario Communities.

Researchers: Dr. K. Sinden and E. Tella



Project Partner: OHCOW

Budget: \$12,000.00

Project: Diesel emissions in mining; an education intervention evaluation program.

Researchers: Dr. S. Dorman and A. Zarnke



Student member George Flagler at Totten Mine as part of the Seed Grant project: Diesel emissions in mining; a knowledge transfer program. George's supervisor on this project is Dr. Sandra Dorman.



CROSHCon 2022

Leading the Way

January 21, 2022

Our annual health and safety conference, CROSHCon, held virtually, saw record numbers of attendees. We welcomed both current health and safety professionals and students - the health and safety professionals of tomorrow! We are especially proud that CROSHCon 2022 was fully **bilingual**, including live professional interpretation.

By the numbers:

299

health and safety professionals and students from across Ontario (and Canada) attended CROSHCon 2022.



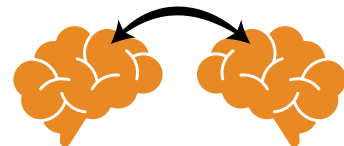
9

CROSH presenters, from undergraduate student to faculty researcher.



3

Brainstorm Corners during which attendees discussed their health and safety thoughts and concerns with our researchers and students.



1

esteemed keynote speaker. **Dr. Linda Duxbury** captivated and inspired attendees as she discussed the challenges facing employees and employers moving forward from COVID-19.



Dr. Linda Duxbury, PhD
Chancellor's Professor, Management
Sprott School of Business



Testimonials from Attendees

"CROSHCon 2022 provided an exceptional keynote presentation and provided information on very important relevant topics that many employers encounter. This is a great gateway to learn about new technologies and research in our neighbourhood. I look forward to the 2023 session."

Health and Safety Professional

"CROSHCon 2022 was a great opportunity to learn about emerging health and safety topics from qualified experts in their respective fields."

Human Resources Professional

"Many important health and safety challenges don't have obvious answers. CROSH is helping us find those answers."

Ergonomist

"Presenters at CROSHCon 2022 presented and informed viewers on a number of topics of occupational concern and research in Northwestern Ontario. Presenters also did a fantastic job at explaining what researchers at CROSH are working on, providing viewers with the opportunity to understand current areas of concern and the potential to work with the team in the future on similar concerns."

Health and Safety Student

See it for yourself: you can watch recordings of the presentations at

crosh.ca/croshcon2022



Northern Ontario Community Immunity Series

With a \$50,000 grant from the Natural Sciences and Engineering Research Council of Canada (NSERC) to address vaccine hesitancy in Northern Ontario businesses and workplaces, we partnered with the Laurentian University Science Communication Program to develop the Northern Ontario Community Immunity Series (NOCIS).

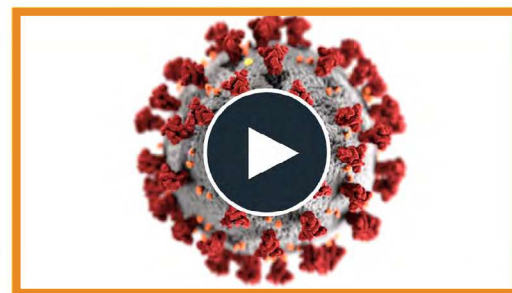
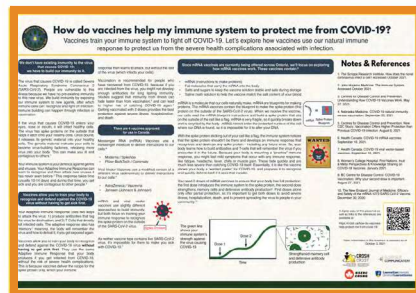
The objective of the series was to engage workers and their communities in conversation about community immunity and the safety and effectiveness of COVID-19 vaccines in order to decrease vaccine hesitancy.

We liaised with health units across Northern Ontario to develop materials that were relevant to the concerns of Northern Ontario workers and their communities.

We created **brochures, posters, placemats, videos, audio episodes, and training modules** on the following topics:

- How can I talk about COVID-19 with the people I care about?
- How did we develop the COVID-19 vaccines so efficiently?
- What is Community Immunity? How getting vaccinated protects everyone.
- Assessing Risks and Benefits: How can I make informed choices about vaccination?
- How can I protect myself against COVID-19?
- How does COVID-19 spread from person to person?
- How do vaccines help my immune system to protect me from COVID-19?

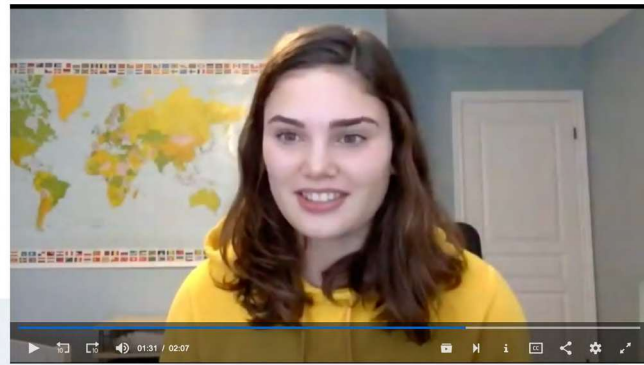
In addition to sharing digital copies of all materials with health units and workplaces, we also distributed print copies to businesses, community centres and organizations, and to any individuals who requested them.



In the Media

NORTHERN ONTARIO | News

Sudbury research group develops materials to help vaccine-hesitant



CROSH student member and Laurentian University undergraduate kinesiology student Marja Frederiksen was on the CROSH Northern Ontario Community Immunity Series team. She and other team members were interviewed by CTV News Northern Ontario.

Aelick, L. (January 29, 2022). Health and safety experts concerned about rapid tests ending up in the recycling bin. CTV News Northern Ontario. <https://northernontario.ctvnews.ca/health-and-safety-experts-concerned-about-rapid-tests-ending-up-in-the-recycling-bin-1.5759931>

Carmicheal, H. (April 28, 2022). 'I am proud to have called Tony my friend.' Sudbury Star. <https://www.thesudburystar.com/news/local-news/i-am-proud-to-have-called-tony-my-friend>

CBC News. (December 14, 2021). Laurentian research centres shares COVID-19 resources for northerners. CBC News Sudbury. <https://www.cbc.ca/news/canada/sudbury/crosh-covid-19-resources-education-1.6285650>

Campbell, I. (December 6, 2021). Sudbury research group develops materials to help vaccine-hesitant. CTV News Northern Ontario. <https://northernontario.ctvnews.ca/sudbury-research-group-develops-materials-to-help-vaccine-hesitant-1.5694976>

CBC News. (August 3, 2021). Laurentian researchers heading to northern areas to foster COVID-19 'vaccine confidence'. CBC News Canada. <https://www.cbc.ca/news/canada/sudbury/research-covid-vaccine-hesitancy-confidence-laurentian-university-1.6128120>

Gillis, L. (August 5, 2021). Laurentian University researchers plan to tour the North to find out why some people choose not to get vaccinated. The Toronto Star. <https://www.thestar.com/news/canada/2021/08/06/laurentian-university-researchers-plan-to-tour-the-north-to-find-out-why-some-people-choose-not-to-get-vaccinated.html>

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Ménard, I. (August 4, 2021). Une étude sur les craintes liées à la vaccination contre la COVID-19. Pas comme d'habitude: Radio-Canada. <https://ici.radio-canada.ca/ohdio/premiere/emissions/pascommehabitude/episodes/558165/rattrapage-du-mercredi-4-aout-2021/14>

Moodie, J. (April 28, 2022). Sudbury's miners more willing to open up about mental health. The Sudbury Star. <https://www.thesudburystar.com/news/local-news/sudburys-miners-more-willing-to-open-up-about-mental-health>

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Papineau, C. (June 7, 2021). Laurentian University receives \$1.2M for three projects. CTV News Northern Ontario. <https://northernontario.ctvnews.ca/laurentian-university-receives-1-2m-for-three-projects-1.5459422>

Therrien, A. (March 5, 2022). Climate change increasing health risks among forest firefighters. Calgary Journal. <https://calgaryjournal.ca/2022/03/05/climate-change-increasing-health-risks-among-forest-firefighters>

Zanetta, A. (August 4, 2021). Des chercheurs se penchent sur les craintes liées à la vaccination contre la COVID-19. Radio-Canada. <https://ici.radio-canada.ca/nouvelle/1814062/covid-hesitation-vaccination-crainte-universite-laurentienne>



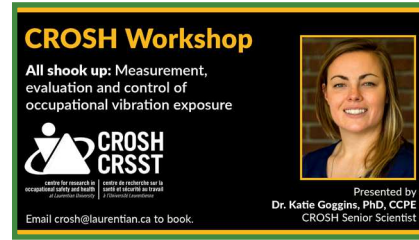
CROSH Services



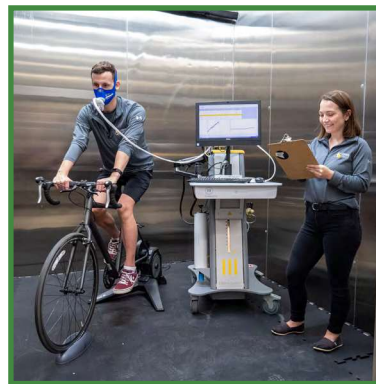
Workplace Simulator (W-SIM) Services



Webinars and Conferences



Workshops



Fitness Assessments

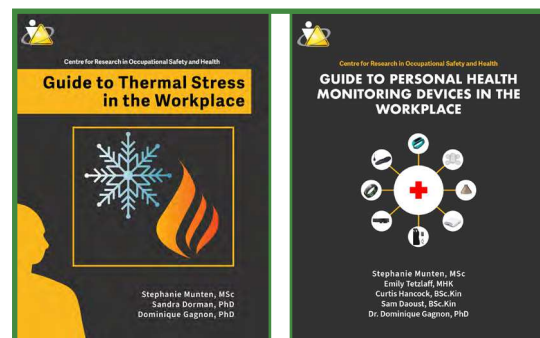


Knowledge Transfer Kits

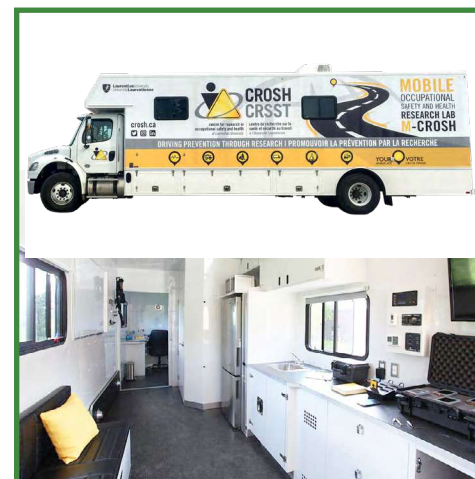


Collaborative Applied Research

CROSH provides a variety of occupational health and safety-related services to Northern Ontario businesses and workplaces.



Guidebooks



Mobile Research Lab (M-CROSH) Services

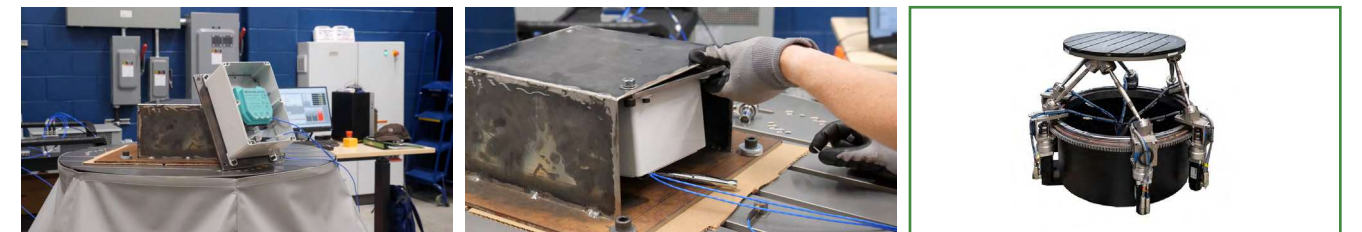
Research Services Example

In 2021, CROSH proudly launched our research services program. Using our **field-to-lab-to-field** research approach, we help Northern Ontario businesses solve real-world health and safety problems. One example of our research services is our work with DMC Mining Services.



Solving a vibration problem for DMC Mining Services

Sudbury-based DMC Mining Services had a drilling machine that regularly broke down because of a vibration problem; DMC Mining Services hired us to solve this problem. To do so, our team first went into the **field** to analyze and understand the situation.



Then, using the rotopod (robotic motion and vibration platform, pictured far right) in our **lab**, we developed a solution for DMC Mining Services' vibration problem. Our solution now allows them to operate their drilling machine more productively and safely in the **field**.

RESEARCH HIGHLIGHTS



4 Poster Presentations

4 Conference Proceedings

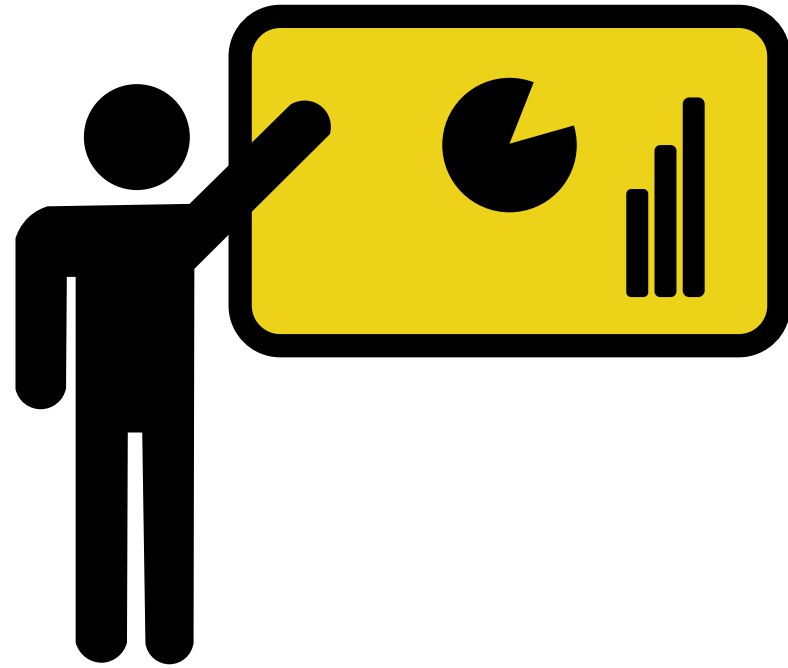
6 Published Abstracts

19 Workshops and Training Sessions

38 Technical Reports

51 Presentations

60 Peer Reviewed Published
Journal Articles



Peer-Reviewed Poster Presentations

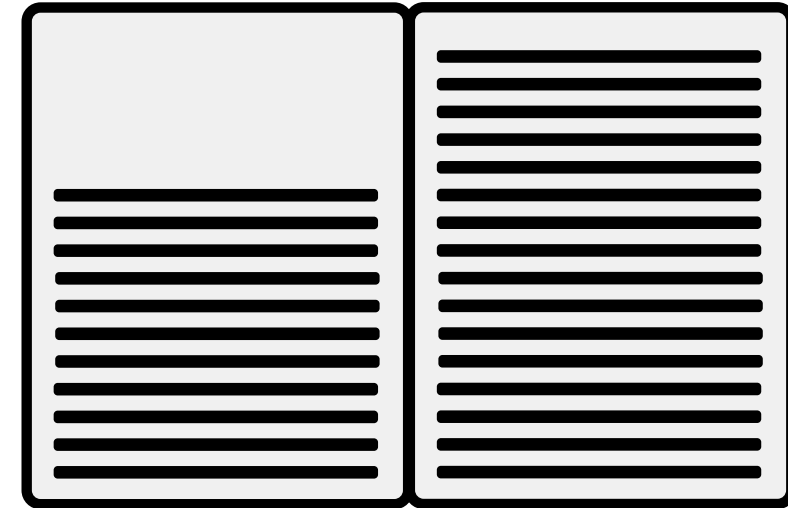
Dionne, A., & Arpin-Cribbie, C. (2021). Perfectionism and susceptibility to engaging in infidelity-related behaviours. 82nd Canadian Psychological Association Annual National Convention, Virtual Event: June 7-25.

Kerekes, Zs, Lessel, C., Tiszberger, M., & Lariviere, M. (2021) Absenteeism and presenteeism related data in the mining industry. 129th Annual Convention of the American Psychological Association Virtual Conference, August 11-14, On-Demand Library Index, p.55.

Merritt, T.J.S., Dworkin, I., & Rzezniczak, T.Z. (2021). Enzyme activity regulation is complicated: expanding the interacting NADP(H) network.

Non-Peer Reviewed Poster Presentations

Posluszny, K., Tella, E., Goggins, K.A., Teeple, A., & Sinden, K.E. (2022). An evaluation of whole-body vibration in a Northwestern Ontario mining service: Implications for mitigating associated adverse health outcomes. Centre for Applied Health Research 2022 Showcase of Health Research. February 7-10, Online.



Peer-Reviewed Conference Proceedings

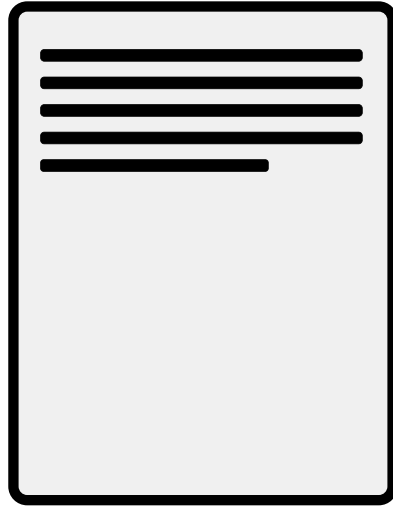
Goggins, K., Chadeaux, D., Tarabini, M., Lievers, W.B., Arsenault, M., & Eger, T. (2021). Modeling of the foot-ankle system in natural standing position using a four degree-of-freedom lumped parameter model. 8th American Conference on Human Vibration, June 23-25, Online. 74-75.

Goggins, K., Oddson, B., Lievers, W.B., & Eger, T. (2021). Identifying landmarks for foot-transmitted vibration measurement based on two data analysis methods. 8th American Conference on Human Vibration, June 23-25, Online. 72-73.

Kayna-Forstner, M., Goggins, K., Godwin, A., Yantzi, N., & Eger, T. (2021). Assessing whole body vibration transmissibility in children's bicycle trailers. 8th American Conference on Human Vibration, June 23-25, Online. 43-44.

Non-Peer-Reviewed Conference Proceedings

Tetzlaff, E., Eger, T., Pegoraro, A., & Dorman, S. (2021). Repeating Recommendations: A 50-Year Review of Mining Incident Investigative Reports [P01-29-640]. XXII World Congress on Safety and Health at Work. Toronto, ON, September 20-23.



Published Abstracts

Akpomi-Eferakeya, O. F., Horrigan, J., Heale, R., & Donato, E. (2021). Nurses Perceptions of the Utilization of the Violence Assessment Tool (VAT) in Northeastern Ontario. University of Toronto Journal of Public Health, 2(2). Special Issue of Abstracts from Conferences Social and Behavioural Health Sciences Research Abstract. doi: 10.33137/utjph.v2i2.37004.

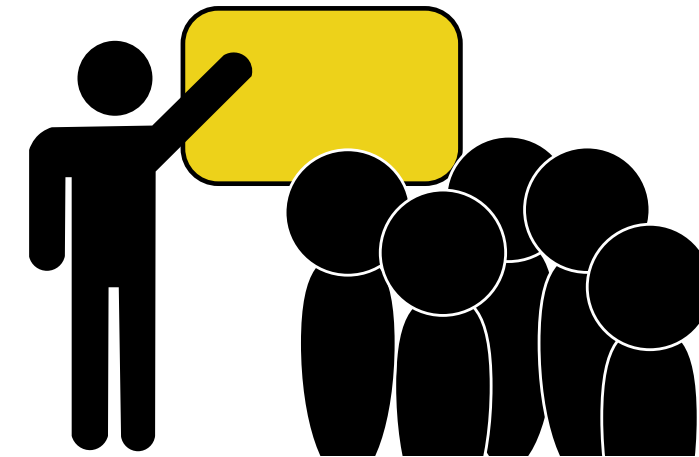
Balogh, D., Campbell, M.B., & Kociolek, A.M. (2022). Comparing ultrasound media for biomechanical analysis of the carpal tunnel. 5th North American Congress on Biomechanics. Ottawa ON, August 21-25.

Campbell, M.B., Turcotte, K.E., Racine, G., Holmes, M.W.R., & Kociolek, A.M. Median nerve deformation and velocity change in concert during a power grip in the transverse plane of the carpal tunnel. 5th North American Congress on Biomechanics. Ottawa ON, August 21-25.

Debray, A., Ravanelli, N., Gravel, H., Bartlett, A.A., Usselman, C., Bherer, L., & Gagnon, D. (November 2021 – Submitted). Endothelial Sensitivity to Exercise-Induced Shear Rate in Pre- and Post-Menopausal Females and in Males. Experimental Biology 2022.

Leach, C., Newhouse, N., & Ravanelli, N. (November 2021 – Submitted). The Effect of Cold-Water Ingestion During Passive Heating on Local Sweat Rates. Experimental Biology 2022.

Racine, G., Holmes, M.W.R., & Kociolek, A.M. (2021) Concurrent changes in median nerve deformation and displacement during gripping. XXVIII Congress of the International Society of Biomechanics. Stockholm SDR (Sweden), July 25-29.



Workshops & Training Sessions

Dignard, C. "Gestion de stress." (2022). Workshop for the Camps d'anticipation de l'Université Laurentienne. May 19, 2022.

Dorman, S.C. (2021). How can I talk about COVID-19 with people I care about? NOCIS. Fall 2021.

Dorman, S.C. (2021). How did we develop the COVID-19 vaccines so efficiently? NOCIS. Fall 2021.

Dorman, S.C. (2021). What is community immunity – how getting vaccinated protects everyone. NOCIS. Fall 2021.

Dorman, S.C. (2021). Assessing risks and benefits: how can I make informed choices about vaccination? NOCIS. Fall 2021.

Dorman, S.C. (2021). How can I protect myself against COVID-19? NOCIS. Fall 2021.

Dorman, S.C. (2021). How does COVID-19 spread from person to person? NOCIS. Fall 2021.

Dorman, S.C. (2021). How do vaccines help my immune system to protect me from COVID-19? NOCIS. Fall 2021.

Frederiksen, M. (2021). Comment puis-je parler de la COVID-19 avec mes proches? NOCIS. Fall 2021.

Frederiksen, M. (2021). Comment a-t-on mis au point si efficacement les vaccins contre la COVID-19? NOCIS. Fall 2021.

Frederiksen, M. (2021). Qu'est ce que l'immunité collective? Comment la vaccination protège-t-elle tout le monde. NOCIS. Fall 2021.

Frederiksen, M. (2021). Évaluer les risques et les avantages: comment faire des choix éclairés à propos de la vaccination? NOCIS. Fall 2021.

Frederiksen, M. (2021). Comment puis-je me protéger contre la COVID-19? NOCIS. Fall 2021.

Frederiksen, M. (2021). Comment la COVID-19 se transmet-il de personne à personne? NOCIS. Fall 2021.

Frederiksen, M. (2021). Comment les vaccins aident-ils mon système immunitaire à me protéger contre la COVID-19? NOCIS. Fall 2021.

Mankis, T. (2021). Presentation Matters: Understanding your audience, planning your objectives, and designing your slides to effectively communicate your safety science. CROSH Webinar. December 1, 2021.

Mankis, T. (2021). Vaccine education module 1: How do vaccines help our immune systems to protect us from COVID-19? NOCIS. Fall 2021.

Mankis, T. (2021). Vaccine education module 2: How we developed the COVID-19 vaccines efficiently and safely? NOCIS. Fall 2021.

Mankis, T. (2021). Vaccine education module 3: Assessing risks and benefits – How can we make informed choices about vaccination? NOCIS. Fall 2021.



Technical Reports

Goggins, K., & Godwin, A. (2022). Ergonomic Evaluation of a Backpack solution for Carrying Surveying Tripod for Geographical Surveying. Vale Canada Limited | Exploration. February.

Goggins, K., & Godwin, A. (2021). Ergonomic Evaluation of a Surveying Tripod for Geographical Surveying. Vale Canada Limited | Exploration. November.

Goggins, K., Posluszny, K., Tella, E., & Sinden, K. (2021). Seated whole-body vibration evaluation (ISO2631-1) for heavy equipment operators: 14 240T haul trucks, 2 100T haul trucks, and 6 dozers. New Gold Inc. July 26.

Gohar, B. & Nowrouzi-Kia, B. (2021). The psychosocial impact of COVID-19 on OSSTF education workers. Report presented to OSSTF, p.55.

Gohar, B. & Nowrouzi-Kia, B. (2021). The psychosocial impact of COVID-19 on OECTA education workers. Report presented to OECTA, p. 58.

Lessel, C. (2022). YMCA NEO: Sudbury & North Bay–Workplace Violence and Harassment–½ Day. (Sudbury, ON). Report prepared for WSN. May 19.

Lessel, C. (2022). YMCA NEO: North Bay–Workplace Violence and Harassment–½ Day. (Sudbury, ON). Report prepared for WSN. May 16.

Lessel, C. (2022). Sensity Workers–It’s Okay Not to be Okay 1-Hours. (Sudbury, ON). Report prepared for WSN. May 13.

Lessel, C. (2022). SPARK–Mental Health Awareness 1-Hour. (Sudbury, ON). Report prepared for WSN. May 13.

Lessel, C. (2022). YMCA NEO: Sudbury–Workplace Violence and Harassment–½ Day. (Sudbury, ON). Report prepared for WSN. May 10.

Lessel, C. (2022). Norcat Contract–Mental Health Awareness 0.5-Hour Session. (Sudbury, ON). Report prepared for WSN. May 9.

Lessel, C. (2022). Fisher Wavy Inc.–Respectful Workplace: Preventing Workplace Violence and Harassment Half-Day. (Sudbury, ON). Report prepared for WSN. May 5.

Lessel, C. (2022). Sensity Union/JHSC–Mental Health Awareness 1.5-Hours. (Sudbury, ON). Report prepared for WSN. May 3.

Lessel, C. (2022). Corporation of the Township of Matheson Public Workers Department–Respectful Workplace: Addressing Violence and Harassment at Work ½ Day. (Sudbury, ON). Report prepared for WSN. April 28.

Lessel, C. (2022). Sensity Leadership–Leadership and Mental Health 1.5-Hours. (Sudbury, ON). Report prepared for WSN. April 21.

Lessel, C. (2022). Feed Your Brain Series–The Right to Disconnect 1-Hour Webinar. (Sudbury, ON). Report prepared for WSN. April 19.

Lessel, C. (2022). WSN Quarterly Report–Material Evaluation: Q4. January 1 to March 31, 2022. (Sudbury, ON). Report prepared for WSN. April 4.

Lessel, C. (2022). Norcat Contract–Mental Health Awareness 0.5-Hour Session. (Sudbury, ON). Report prepared for WSN. March 29.

Lessel, C. (Mar 1, 2022). Kap Chamber–Dare to Care 1-Hour. (Sudbury, ON). Report prepared for WSN. March 1.

Lessel, C. (2022). Norcat Contract–Mental Health Awareness 0.5-Hour Session. (Sudbury, ON). Report prepared for WSN. February 14.

Lessel, C. (2022). CMHA SM–Consulting Engagement 1-Hour. (Sudbury, ON). Report prepared for WSN. February 10.

Lessel, C. (2022). Norcat Contract–Mental Health Awareness 0.5-Hour Session. (Sudbury, ON). Report prepared for WSN. February 9.

Lessel, C. (2022). WSN Quarterly Report–Material Evaluation: Q3. October 1 to December 31, 2021. (Sudbury, ON). Report prepared for WSN. January 28.

Lessel, C. (2022). Township of Cochrane–Psychological Health and Safety: Workplace Violence and Harassment ½ Day. (Sudbury, ON). Report prepared for WSN. January 18.

Lessel, C. (2022). YMCA NEO–It’s All About You–45-Minute. (Sudbury, ON). Report prepared for WSN. January 10.

Lessel, C. (2021). Impala Finance Team–Mental Health Awareness; Pandemic Pandemonium; Stigma; and Resiliency 3-Hour Session. (Sudbury, ON). Report prepared for WSN. December 17.

Lessel, C. (Dec 7, 2021). Kirkland Lake Gold: Train the Trainer Internal Instructor–Mental Health Module 3-Hour Session. (Sudbury, ON). Report prepared for WSN.

Lessel, C. (2021). Kirkland Lake Gold: Train the Trainer Internal Instructor–Mental Health Module 3-Hour Session. (Sudbury, ON). Report prepared for WSN. November 19.

Lessel, C. (2021). Norcat Contract: Voisey’s Bay–Mental Health Awareness 0.5-Hour Session. (Sudbury, ON). Report prepared for WSN.

Lessel, C. (2021). Agnico Eagle Mines Limited–Supervisors: Dare to Care 1-Hour Session. (Sudbury, ON). Report prepared for WSN.

Lessel, C. (2021). Agnico Eagle Mines Limited–Workers: Mental Health Awareness 15-minute session. (Sudbury, ON). Report prepared for WSN.

Lessel, C. (2021). WSN Healthy Workplace Month Webinar–Stamping out Stigma. (Sudbury, ON). Report prepared for WSN.

Lessel, C. (2021). WSN Healthy Workplace Month Webinar–Resiliency: Recognizing our Capacity to Adapt. (Sudbury, ON). Report prepared for WSN.

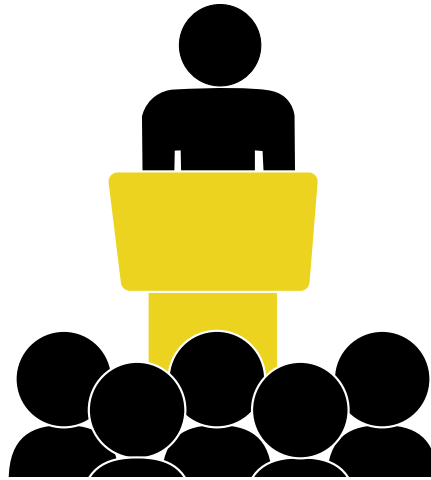
Lessel, C. (2021). WSN Healthy Workplace Month Webinar–Mental Health Awareness. (Sudbury, ON). Report prepared for WSN.

Lessel, C. (2021). WSN Healthy Workplace Month Webinar–Self-Respect: The Foundation of Leadership. (Sudbury, ON). Report prepared for WSN.

Posluszny, K., Tella, E., Goggins, K. A., Teeple, A., Sinden, K. E., Francoeur, R. (2021) New Gold Mine Incorporated Report: Centre for Research in Occupational Safety and Health at Laurentian University: Vibration Measurement Service.

Tetzlaff, E., Dorman, S., Oddson, B., & Gagnon D. (2021). Advancing fatigue risk mitigation with EEG fatigue-detection: a field study. For Torex Gold Resources Inc. [136 pages]

Young, W., Kelly, E., Goggins, K., & Lievers, W.B. (2022). Vibration analysis of wire isolator rubber isolator for vibration isolator of RFID read on a raise bore drill. For: DMC Mining Services.



Invited Presentations

Bond, R., & Godwin, A. (2022). Design of a health and safety survey incident data and code catalogue. Diamond Drillers Association. March 3, Online.

Dorman, S.C. (2022). Hot worksites and health: The risky business of working in heat. Occupational Health Clinics for Ontario Workers. June 2nd, Online.

Dorman, S.C. (2021). Fatigue management: Understanding your sleep needs in context of work, work-life balance and risk. XUST Reach Professional Workshop, Goodman School of Mines. November 12, Online.

Eger, T. and Moskalyk, J. (2021). Advancing Equity, Diversity & Inclusion in Leadership: What we have Learned from Women in STEMM. Rotary District 7010 Conference 2021 Changing Together (Timmins, ON). September 10, Online.

Godwin, A. (2022). Line-of-sight and virtual reality training applications. WSN NFFSA Group, Online.

Goggins, K. (2021). All Shook Up: Measurement, Evaluation and Control of Occupational Vibration Exposure. Workshop for XUST Chinese Students. November 19, Online.

Goggins, K. (2022). Evaluating occupational vibration exposure. 3-hr lecture for CHL5914H S: Physical Agents I–Noise. Dalla Lana School of Public Health, University of Toronto. March 10, Online.

Goggins, K. (2021). Vale Joint Occupational Health and Safety Committee Update Meeting–Equity, Diversity and Inclusion Research Project. November 8, Online.

Kociolek AM. (2021) Mapping pathomechanics of wrist and hand cumulative trauma disorders (CTDs). PHED4067 Clinical Biomechanics, Nipissing University, North Bay, ON, November 24.

Lafreniere, N.A. (2021). Collaborative Healthcare Simulation-Advanced Post-Secondary Virtual Reality Modules. Simulation Innovation and Research Spotlight Evening, Sudbury, ON, October 7.

Lariviere, M., Kerekes, Zs., & Pakula, D. (2021). Mining Mental Health Study–Lessons learned. Goodman School of Mine and MIRARCO, XUST-REACH Professional Workshops for Students at the School of Safety and Resources and Environment at Xi'an University of Science and Technology in China. Webinar. Sudbury, ON, Goodman School of Mine. October 22.

Lariviere, M., Kerekes, Zs., & Arrigo, J. (2021). Mining Mental Health Study: Vale's brave journey into the unknown. Webinar. Society for Mining, Metallurgy and Exploration. December 17.

Leduc, C., O'Connor, C., Greiner, B., Corcoran, P., Williamson, E., Griffin, E., Mulcahy, K., Ni Dhalaigh, D., Arensman, E., & MENTUPP Consortium. (2021). Mental health promotion and suicide prevention in the workplace (MENTUPP). Lancet Symposium and British Isles Workshop, Oxford, UK, October 11-12, Online.

Leduc, C. & O'Connor, C. (2021). The MENTUPP Project: Prioritizing mental health in the workplace. World Suicide Prevention Day Webinar: Suicide Prevention among Priority Groups, National Suicide Research Foundation, Online Presentation. September 10.

Lievers, W.B. (2022). Decreasing size of trabecular bone structural units (BSU) with age and deteriorating architecture. McCraig Institute for Bone and Joint Health, University of Calgary. February 28.

Pegoraro, A. (2022). Diversity in sport. Ivey Sport Leadership Conference. January 2022.

Pegoraro, A. (2021). Getting girls back in the game. SIRC/CWS. November 2021.

Pegoraro, A. (2021). Signals vs. noise – Gender equity in CDN sport. SCRI Conference, Keynote. October 2021.

Pegoraro, A. (2021). The surveillance of woman athletes. Annual Distinguished Lectures, Tucker Centre for Women & Girls in Sport. October 2021.

Pegoraro, A. (2021). Using data to bust gender myths. Conversation 2021. June 2021.

Posluszny, K., Tella, E., Goggins K. A., Teeple, A., & Sinden, K. E. (2022). An Evaluation of Whole-body Vibration in a Northwestern Ontario Mining Service: Implications for Mitigating Associated Adverse Health Outcomes. Centre for Applied Health Research at St. Joseph's Care Group-2022 Showcase of Health Research.

Tella, E. (2021). Virtual presentation: Canadian Association of Fire Chiefs. Online.

Tella, E. (2021). Virtual presentation: Guest Lecturer for KINE-3230-FDE-Research Processes at Lakehead University. Online.

Tella, E., Sinden, K.E., Pearson, E., MacDermid, J., & Acton, M. (2022). Identifying the Mental Health Burden of Indigenous and Non-Indigenous OPP and T3PS Officers Working in Urban and Rural Northwestern Ontario Communities. Research and Innovation Week–2022 Conference.

Peer-reviewed conference presentations

Bakhsh, J., Taks, M., Kennedy, H. & Pegoraro, A. (2022). Bounded impacts: A comparison of perceived social impacts from traditional and digital sport event consumption. North American Society for Sport Management.

Berriault, C.J., Arrandale, V.H., Lightfoot, N.E., & Demers, P.A. (2021). Chronic respiratory disease in the Ontario mining industry. 28th International Symposium on Epidemiology in Occupational Health. From Workplace to the Population: Exposure and Prevention. EPICOH 2021, October 25-28, Online.

Donato, E., Lightfoot, N., Carter, L., & MacEwan, L. (2021). An exploration of interprofessional education in four Canadian undergraduate nursing programs. World Nursing Congress, San Francisco, California, October 11-13.

Goggins, K., Chadeaux, D., Tarabini, M., Lievers, W.B., Arsenault, M., & Eger, T. (2021). Modeling of the foot-ankle system in natural standing position using a four degree-of-freedom lumped parameter model. 8th American Conference on Human Vibration, June 23-25, Online. 74-75.

Goggins, K., Oddson, B., Lievers, W.B., & Eger, T. (2021). Identifying landmarks for foot-transmitted vibration measurement based on two data analysis methods. 8th American Conference on Human Vibration, June 23-25, Online. 72-73.

Horrigan, J., Van Hule, H., Berquist, R., Rigg, L., & Dugas, J. (2021). Testing the Reliability and Validity of the Public Services Health and Safety Association Violence Assessment Tool. XXII World Congress on Safety & Health at Work: Prevention in the Connected Age, Global solutions to achieve safe and healthy work for all, Toronto, Canada. This Global Congress was Co-hosted by the Institute for Work & Health (WH) and the Canadian Centre for Occupational Health and Safety (CCOHS) together with the International Social Security Association (ISSA) and the International Labour Organization (ILO). September 20-23.

Kanya-Forstner, M., Goggins, K., Godwin, A., Yantzi, N., & Eger, T. (2021). Assessing whole body vibration transmissibility in children's bicycle trailers. 8th American Conference on Human Vibration, June 23-25, Online. 43-44.

Paterson, C., Leduc, C., Maxwell, M., Aust, B., Amann, B., Cerga-Pashoja, A., Coppens, E., Couwenbergh, C., O'Connor, C., Arensman, E., & Greiner, B. (2021). Factors influencing successful implementation of a workplace mental health intervention: interim results. International Association for Suicide Prevention's 31st World Congress, Gold Coast, Queensland, Australia. September 21-24.

Lightfoot, N., Manitowabi, D., Barnett, N., Nootchtai, C., Odijig, M.L., Moulton, J., Fongemy, J., Lariviere, M., Kerekes, Z., Arrandale, V., Holness, L., MacEwan, L., Eger, T., & Warry, W. (2021). Workers' compensation experience in some Indigenous northeastern Ontario communities. NOSM Northern Health Research Conference, Sudbury, ON, October 15, Online.

Lightfoot, N., Manitowabi, D., Nootchtai, C., Odijig, M.L., Moulton, J., & Mongeau, S. (2022). Seeking Mino-nokiiwin: Community-based Indigenous Occupational Health and Safety Experience in Northeastern Ontario. NOSM Northern Health Research Conference, Sudbury, ON, June 24th, 2022.

Merritt, T.J.S., Dworkin, I., & Rzezniczak, T.Z. (2021). Enzyme activity regulation is complicated: expanding the interacting NADP(H) network. CanFly XVI.

Ravanelli, N., Morris, N., & Morrison, S. (2021). Effect of heat waves on 24-hour movement behaviour, thermal perception, and thirst in children and adults: a pilot study. Applied Physiology, Nutrition, and Metabolism, 46(10): S71, 2021. Canadian Society for Exercise Physiology Annual General Meeting 2021. Online.

Rich, K., Pegoraro, A. & Boggs, J. (2022). Spatial Analysis of Sport Participation: Piloting a Method for Assessing Urban and Rural Characteristics of Community Context in one Provincial Sport Organization. North American Society for Sport Management.

Smith, L. & Pegoraro, A. (2022). Lighten Up, It's Just a Joke: Effects of Sports Media Exposure on Rape Myth Beliefs and Bystander Intervention in Sexual Harassment and Assault. 72nd Annual ICA.

Taks, M., Bakhsh, J., & Pegoraro, A. (2021) Social Impacts Experiences of Sport Events and the Role of Social Media: Evidence from the 2019 NBA Finals. North American Society for Sport Management, Online.

Wanless, E., Kennedy, H. & Pegoraro, A., (2022). What are Sport Consumers Talking About? Topic Modeling for Brand-Affiliated Twitter Content. North American Society for Sport Management.

Warwick, L., Gonzales, J., Kennedy, H., Pegoraro, A., & Mishra, S. (2021). Leadership Diversity and COVID-19 Risk Management in NCAA Division 1 Football. North American Society for Sport Management, Online.

Non-Peer-Reviewed Conference Presentations

Dorman, S.C. (2022). Northern Ontario Community Immunity Series: Answering questions to gain vaccine confidence. CROSHCon 2022: Leading the Way. January 21, Online.

Godwin, A. (2022). Evaluating the usability of healthcare VR simulations. CROSHCon 2022: Leading the Way. January 21, Online.

Goggins, K., Godwin, A., & Dorman, S. (2022). The safety outcomes of Equity, Diversity and Inclusion in mining. CROSHCon 2022: Leading the Way. January 21. View online: <https://www.youtube.com/watch?v=xPbzsZ8FfQ>

Horrigan, J., Van hulle, H., Berquist, R., Rigg, L., Dugas, J., & Akpomi-Eferakeya, O. (2022). Assessing the Reliability and Validity of the Violence Assessment Tool (VAT). Presented virtually by Horrigan, J. & Akpomi-Eerakeya, O. at CROSHCon 2022–Leading the way. January 21, Online.

Kelly, E. (2022). DMC Vibration Isolator Project. CROSHCon: Leading the Way Through Industry Guided Research. Centre for Research in Occupational Safety and Health, Sudbury, ON, January 21, Online.

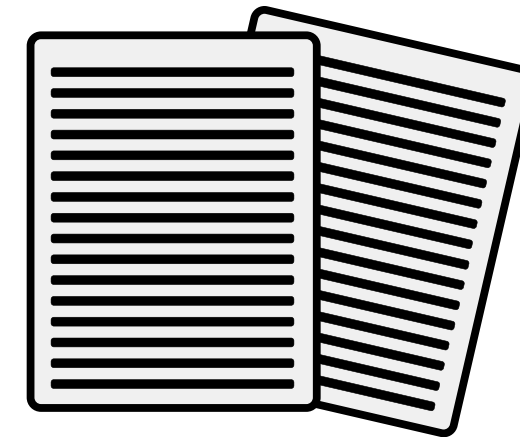
Lessel, C. (2022). Below the Surface [Panel]. WSN Virtual Mining Health and Safety Conference, Sudbury, ON, April 27, Online.

Nesbitt, L. (2022). Examining factors in presenteeism and absenteeism. 2nd Annual GSA Graduate Research Symposium - Symposium de recherche des diplômés l'AEES. March 21, 2022.

Tetzlaff, E., Dorman, S., Oddson, B., & Gagnon D. (2022). Advancing fatigue risk mitigation with EEG fatigue-detection: a field study. CROSHCon: Leading the Way. Centre for Research in Occupational Safety and Health, Sudbury, ON, January 21, Online.

Wickramasinghe, D., Horrigan, J., Nowrouzi-Kia, B., & Gohar, B. The mental health of registered nurses and registered practical nurses in Northern Ontario during the COVID-19 pandemic. 2nd Annual GSA Graduate Research Symposium – Symposium de recherché des diplômés l'AEÉS. March 21, 2022.

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School of Nursing, Laurentian University

Dr. Céline Larivière
Dean, Faculty of Education and Health,
Laurentian University

Dr. Caleb Leduc
Postdoctoral Researcher,
University College Cork

Dr. W. Brent Lievers
Associate Professor, Bharti School of
Engineering and Computation,
Laurentian University

Dr. Nancy Lightfoot
Full Professor, School of Rural and Northern
Health, Laurentian University

Dr. Kerry McGannon
Full Professor, School of Kinesiology and
Health Sciences, Laurentian University

Dr. Thomas Merritt
Full Professor, School of Biological, Chemical
and Forensic Sciences, Laurentian University

Dr. Behdin Nowrouzi-Kia
Assistant Professor,
Department of Occupational Science and
Occupational Therapy, University of Toronto

Dr. Ann Pegoraro
Lang Chair in Sport Management, Full
Professor, Department of Management,
University of Guelph

Dr. Nicholas Ravanelli
Assistant Professor, School of Kinesiology,
Lakehead University

Dr. Stephen Ritchie
Associate Professor, School of Kinesiology and
Health Sciences, Laurentian University

Dr. Kathryn Sinden
Associate Professor, School of Kinesiology,
Lakehead University

Dr. Matt Spencer
Post-Doctoral Researcher, CROSH,
Laurentian University

Dr. Line Tremblay
Full Professor, School of Kinesiology and
Health Sciences, Laurentian University

Affiliate Members

Nicholas Beckett-Brown
Health, Safety, and Environment Consultant,
Advisory Services, NORCAT

Dr. William Cole
OHS Consultant

Josée Cormier
Health, Safety, and Environment Consultant,
Advisory Services, NORCAT

Sara Gauthier
Medical Student, University of Ottawa

Nazanin Gholami
Health Promoter, Public Health Sudbury &
Districts

Margaret Kanya-Forstner
Registered Kinesiologist, CBI Health

Dr. Vineet Johnson
Founder, President & CEO, IRegained Inc

Dr. Mallorie Leduc
Programme Coordinator in the School of
Public Health, University College Cork

Courtney Lessel
Research Assistant, CROSH

Stephanie Pilon
Program Coordinator, CNIB

Dr. Jairus Quesnele
Chiropractor,
Evidence-Based Chiropractic and Rehabilitation

Ayden Robertson
Health and Safety Consultant, WSPS

Peg Scherzinger
Retired Sessional Instructor and Ergonomist

Chelsea Sherrington
Kinesiologist, Life Mark Health Group

Brandon Vance
Health, Safety, and Environment Consultant,
Advisory Services, NORCAT

Kelsey Whelan
Return to Work Specialist, WSIB

Beau Williams-Orser
Head Route Setter and Head Climbing Coach,
ARC

Student Members

Dr. Oghenefego Akpomi-Eferakeya
Masters Student, Interdisciplinary Health

Mustafa Alzahran
Undergraduate Student, Kinesiology

Mohamed Alzahran
Undergraduate Student, Kinesiology

Mahdis Aziziderouei
PhD Student, Western Ontario

Rachelle Barrette
PhD Student, Human Studies and
Interdisciplinarity

Victor Benitez
Masters Student, Human Kinetics

Rebecca Bond
Masters Student, Human Kinetics

Sydney Boileau
Undergraduate Student, Kinesiology

Jacob Bonin
Medical Student,
Northern Ontario School of Medicine

Bayly Burns
Undergraduate Student, Kinesiology

James Carlin
Undergraduate Student, Sport and Physical
Education

Ivana Constantino
Undergraduate Student, Kinesiology

Jonah D'Angelo
PhD Student, Human Kinetics

Leah Dawson
Undergraduate Student, Kinesiology

Vanessa De Coppi
Undergraduate Student, Health Promotion

Amy Doan
PhD Student, Human Studies

Tim Doan
PhD Student, Human Studies

Caroline Dignard
PhD Candidate, Rural and Northern Health

George Flagler
Undergraduate Student, Health Promotion

Marja Frederiksen
Undergraduate Student, Kinesiology

Ian Gibb
Undergraduate Student, Kinesiology

Kira Gouchie
Undergraduate Student, Kinesiology

Adam Graham
Masters Student, Human Kinetics

Curtis Hancock
Masters in Human Kinetics (graduated)

Elizabeth Kelly,
Undergraduate Student,
Mechanical Engineering

Dr. Eyad Kinkar
PhD in Biomolecular Science (graduated)
Assistant Lab Manager
Rio Tinto Diavik Diamond Mine

Matthew Kuchtaruk
Undergraduate Student, Kinesiology

Kiara Lachance
Undergraduate Student, Kinesiology

Kelsey Lefebvre
Masters of Science in Nursing (graduated)

Dr. Sherry Mongeau
PhD in Rural and Northern Health (graduated)
Interim Director, Learner Support Services,
Northern Ontario School of Medicine

Solange Marc St. Hilaire,
PhD Candidate,
Human Studies and Interdisciplinarity

Yiorgio Mathioudakis
Masters Student, Science Communication

Emily McDonald
Undergraduate Student, Health Promotion

Reza Mehboob
PhD Student, Interdisciplinary Studies
(Ergonomics/MSD Prevention),
University of New Brunswick

Liam Nesbitt
Masters Student, Human Kinetics

Dougie Newhouse,
Undergraduate Student, Kinesiology

Sara Perfetto
Undergraduate Student, Kinesiology

Kate Posluszny
Masters Student, Kinesiology
Lakehead University

Désirée Quenneville
Masters Student, Human Kinetics

Darienne See
Undergraduate Student,
Sport and Physical Education

Dr. Mohamed Shoukri
Masters Student, Interdisciplinary Health

Dr. Leila Vakili Sohroforouzani
Masters Student, Human Kinetics

Emily Tella
Masters Student, Kinesiology,
Lakehead University

Emily Tetzlaff
PhD Student, Human Kinetics
University of Ottawa

Taryn Thompson
Undergraduate Student, Biomedical Biology

Patrick J. Trottier
Masters Student,
Cybersecurity and Threat Intelligence

Nicholas Vanderschoor
Diploma Student,
Occupational Health and Safety Management

Isaac Vestby
Undergraduate Student,
Physical Health Education

Jared Whitney
Masters Student, Human Kinetics (graduated)

Disal Wickramasinghe
Masters Student, Interdisciplinary Health

Megan Wickie
Masters Student,
Kinesiology and Health Sciences

Wesley Young
Masters in Mining-Mechanical Engineering
(graduated)

Azin Zargham
Masters Student, Human Kinetics

Andrew Zarnke
PhD Candidate, Human Kinetics

Parastou Zerang
PhD Student, Human Kinetics

Janika Zwiers
Undergraduate Student,
Sport and Physical Education

Funding Acknowledgment

This Centre receives funding through an investment provided by the Ministry of Labour, Immigration, Training and Skills Development. The views expressed are the views of the Centre and do not necessarily reflect those of the Province.

Centre for Research in Occupational Safety and Health

935 Ramsey Lake Road, Laurentian University
Sudbury, ON Canada P3E 2C6

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