



What is FIREWELL?

A national wellness community of firefighters and researchers working together to share ideas and advance workplace health and safety.

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FIREWELL Update

A Message from the Project Director: Dr. Joy MacDermid

Summer is here but there is still much work to be done to advance firefighter health through applied research. FIREWELL researchers, firefighters and organizations from across Canada continue working together to explore firefighter workplace health problems, identify potential solutions, execute studies, interpret, implement and share research findings.

In January, we started a new study on the impact of the Resilient Minds program in fire departments in Prince Edward Island. We also launched the French version of our website and a new series called "FIREWELL Research Champion". We published FIREWELL research in peer-reviewed journals and presented at local and national conferences and workshops.



Thank you for all your support of this work.

We look forward to continuing our collaborations and wish you a safe and happy summer!

New Members

A warm welcome to the researchers who joined FIREWELL this year:

Ms. Robin Campbell is a PhD student in the School of Occupational Therapy at Dalhousie University, Nova Scotia. Her research interests include: volunteer first responders and occupation health, mental health and the criminalization of mental illness. Robin was a volunteer firefighter and pump operator with the Wolfville Fire Department (NS) for 10 years, and currently volunteers as a Fire Commissioner with the Greenwich Fire Department (NS).

Ms. Jennifer Keir is a Research Technician at the University of Ottawa, Ontario. Her research interests include: firefighters' exposure to chemicals from combustion emissions, decontamination methods, and science communications. Ms. Keir has presented her groundbreaking research on firefighters' toxic exposures during emergency fire events at firefighter workshops and conferences in Canada and the United States.

Study Updates



New Projects

Abbreviations: Canadian Institutes for Health Research (CIHR); Social Sciences and Humanities Research Council (SSHRC)

Assessing the Impact of the Resilient Minds Program in Fire Departments

Funder: CIHR & SSHRC

Aim: To assess the impact of a mental health training program in volunteer and career firefighters.

Status: Recruitment and data collection

Lead: Ms. Amanda Brazil, University of Prince Edward Island & Canadian Mental Health Association-Prince Edward Island

Development of Firefighter-Specific, Self-Report Survey on Work Limitations

Funder: CIHR & SSHRC

Aim: To create a work limitations survey that targets the high task demands performed by firefighters on the job.

Status: Data analysis (survey construction)

Lead: Dr. Joy MacDermid, Western University

Ongoing Projects

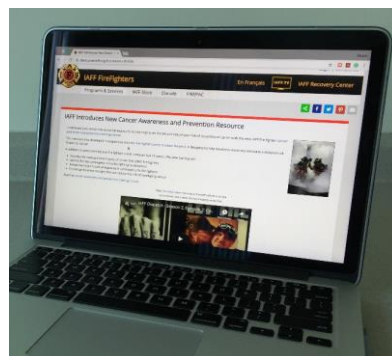
A review of Canadian firefighter websites

Funder: CIHR & SSHRC

Aim: To search and catalogue the health information resources available on Canadian firefighter websites.

Status: Manuscript in press by Interactive Journal of Medical Research.

Lead: Dr. Joy MacDermid, Western University



Prevalence of Musculoskeletal Injuries in Firefighters: A Systematic Review and Meta-analysis

Funder: CIHR & SSHRC

Aim: To identify what type of research has been conducted on firefighter health, what specific injury prevention and musculoskeletal interventions have been tested, the quality of the literature, and the involvement of health professionals in customizing interventions for firefighters.

Status: Data analysis and report writing

Lead: Dr. Joy MacDermid, Western University

A qualitative study exploring firefighters' work health priorities

Funder: CIHR & SSHRC

Aim: To understand firefighters' concerns regarding their musculoskeletal health and critical incident exposure and how future research might help address these issues.

Status: Data analysis and report writing

Lead: Dr. Joy MacDermid, Western University

Adapting firefighter TEAM-Feedback modules to context

Funder: Canadian MSK Rehab Research Network

Aim: To establish the feasibility of the Physical Demands Analysis and TEAM-Feedback Modules as injury prevention strategies for firefighters in different geographical locations.

Status: Not yet recruiting

Lead: Dr. Kathryn Sinden, Lakehead University

Adapting the tools for modified work for workers with musculoskeletal disorders for firefighters

Funder: Canadian MSK Rehab Research Network

Aim: To adapt the Work-related Musculoskeletal Disorders: Guide and Tools for Modified Work (TMW) to the specific needs of firefighters.

Status: Not yet recruiting

Lead: Dr. Susan Stock, University of Montreal

Effectiveness of select wearable technologies for estimating submaximal and maximal oxygen consumption

Funder: CIHR

Aim: To examine the effectiveness of select wearable technologies for estimating oxygen consumption (VO_2) and maximal oxygen uptake (VO_{2max}).

Status: Report writing

Lead: Dr. Veronika Jamnik, York University

Research Highlights

FIREWELL members **bolded**, *Firefighters italicized*,
Trainees underlined

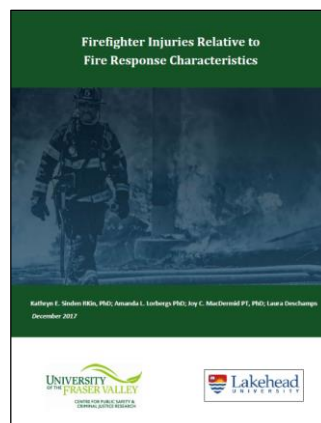
*Publication or presentation supported by a FIREWELL research grant from CIHR, SSHRC, Ministry of Labour or Canadian Association of Fire Chiefs.



Peer-Reviewed Publications

1. *Hu MA, **MacDermid JC**, Killip S, **Lomotan M**, **FIREWELL**. A structured review of health information on firefighter websites. doi:10.2196/ijmr.9369. Interact J Med Res, accepted for publication, June 2018.
2. ***MacDermid JC**, Tang K, **Sinden KE**, *D'Amico R*. Work functioning among firefighters: a comparison between self-reported limitations and functional task performance. J Occupational Rehabilitation. 2018 May 25 [Epub ahead of print].
3. *Nazari G, **MacDermid J**, **Sinden K**, Overend T. The Relationship between Physical Fitness and Simulated Firefighting Task Performance. Rehabilitation Research and Practice. Volume 2018 (2018), Article ID 3234176, 7 pages.

4. *Nazari G, Bobos P, MacDermid J, Sinden K, Richardson J, Tang A. Psychometric Properties of the Zephyr Bioharness Device: A Systematic Review. BMC Sport Sci Med Rehabil. 2018;10:6.
5. Gumieniak RJ, Shaw J, Gledhill N, **Jamnik VK**. Physical employment standard for Canadian wildland fire fighters; identifying and characterising critical initial attack response tasks. Ergonomics. 2018 May 7:1-12 [Epub ahead of print].
6. Gumieniak RJ, Gledhill N, **Jamnik VK**. Physical employment standard for Canadian wildland fire fighters; developing and validating the test protocol. Ergonomics. 2018 May 2:1-13 [Epub ahead of print].
7. Gumieniak RJ, Gledhill N, **Jamnik VK**. Physical employment standard for Canadian wildland firefighters: examining test-retest reliability and the impact of familiarisation and physical fitness training. Ergonomics. 2018 May 4:1-10 [Epub ahead of print].
8. **Carleton RN**, Afifi TO, Taillieu T, Turner S, El-Gabalawy R, Sareen J, Asmundson GJG. Anxiety-related psychopathology and chronic pain comorbidity among public safety personnel. J Anxiety Disord. 2018 Apr;55:48-55 [Epub 2018 Mar 13].
9. **Carleton RN**, Afifi TO, Turner S, Taillieu T, LeBouthillier DM, Duranceau S, Sareen J, Ricciardelli R, MacPhee RS, Groll D, Hozempa K, Brunet A, Weekes JR, Griffiths CT, Abrams KJ, Jones NA, Beshai S, **Cramm HA**, Dobson KS, Hatcher S, Keane TM, Stewart SH, & Asmundson GJG. Suicidal Ideation, Plans, and Attempts Among Public Safety Personnel in Canada. Canadian Psychology. Advance online publication (Feb 8 2018).
10. **Carleton RN**, Afifi TO, Turner S, Taillieu T, Duranceau S, LeBouthillier DM, Sareen J, Ricciardelli R, MacPhee RS, Groll D, Hozempa K, Brunet A, Weekes JR, Griffiths CT, Abrams KJ, Jones NA, Beshai S, **Cramm HA**, Dobson KS, Hatcher S, Keane TM, Stewart SH, Asmundson GJG. Mental Disorder Symptoms among Public Safety Personnel in Canada. Can J Psychiatry. 2018 Jan;63(1):54-64 [Epub 2017 Aug 28].
11. ***Sinden KE**, Lorbergs AL, **MacDermid JC**, Deschamps L. Firefighter Injuries Relative to Fire Response Characteristics. A report for the Canadian Association of Fire Chiefs. December 2017.



Presentations (First author = presenter)

1. ***MacDermid JC**. Musculoskeletal Problems and Work Limitations in Firefighters. Mississauga Fire and Emergency Services (MFES) Wellness and Fitness Initiative (WFI) Open House. Mississauga, Ontario. May 31, 2018.
2. ***Sinden KE**. CROSH Webinar: Incorporating Sex and Gender into Applied Ergonomic Research: Important Insights Gained! May 30, 2018.
3. ***Kajaks T, MacDermid JC, Galea V, Vrkljan B**. The extra burden: accounting for external firefighter loads using digital human modeling for ergonomic assessments [poster]. Canadian Bone & Joint Conference. London, Ontario. May 11-12, 2018.
4. ***Nazari G, MacDermid JC, Sinden KE, Overend TJ**. The Relationship between Physical Fitness and Simulated Firefighting Task Performance [poster]. Canadian Bone & Joint Conference. London, Ontario. May 11-12, 2018.
5. ***Osifeso TA, MacDermid JC, Sinden KE, Macedo L**. Anatomic region and number of musculoskeletal injuries, predictors of greater work limitations in firefighters: A cross-sectional study [poster]. Canadian Bone & Joint Conference. London, Ontario. May 11-12, 2018.
6. ***Lu Z, MacDermid JC, Sinden KE, D'Amico R**. Movement analysis for occupationally valid evaluation (MOVE) using video software in the context of firefighters' high-rise lifting task [poster]. Canadian Bone & Joint Conference. London, Ontario. May 11-12, 2018.
7. **Keir J**. A Review of Past and Present Studies on Firefighters' Toxic Exposures. Ontario Association of Fire Chiefs Conference 2018. Mississauga, Ontario. May 3 2018.
8. ***Sayed ST, Sinden KE, Hurley T, Zalan K, Wang J, Habrowski E, MacDermid J, FIREWELL**. Identifying musculoskeletal injury risk for application in injury prevention tool development for career firefighters. Crossroads Interdisciplinary Health Research Conference. Halifax, Nova Scotia. March 9-10, 2018.
9. **Keir J**. Singeing Risk: A Scientific Approach to Reducing Firefighters' Exposure to Toxic Exposures. Fire House World Conference 2018. San Diego, California. March 7 2018.
10. ***Osifeso T, MacDermid J, Sinden K**. Anatomic region and number of musculoskeletal injuries, predictors of greater work limitation in firefighters in selected provinces in Canada [poster]. McMaster University Rehabilitation Science Graduate Programs Open House. Hamilton, Ontario. January 17, 2018.



L-R: G. Nazari, J. MacDermid, T. Osifeso, T. Kajaks at the CBJC

11. *[Hu M](#), [MacDermid J](#), [Killip S](#), FIREWELL. A structured review of health information on firefighter websites [poster]. McMaster University Rehabilitation Science Graduate Programs Open House. Hamilton, Ontario. January 17, 2018.
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Team News & Accomplishments

Dr. Nick Carleton (University of Regina & Canadian Institute for Public Safety Research and Treatment)

- Will lead federally-funded research (\$30 million) on public safety personnel's mental health.

Acting Captain Steve Fraser (Occupational Health and Safety, Vancouver Fire & Rescue Services)

- Training the newest member of the VF&RS mental health team: Lola is the first therapy dog (golden retriever) in the Canadian fire service and will help Vancouver firefighters deal with the stress of their job.

President Louise Hine-Schmidt (Fire Service Women Ontario)

- Awarded a prestigious Honeywell DuPont 2018 FDIC Scholarship for the 2018 Fire Department Instructors Conference (FDIC) International in Indianapolis, Indiana. FDIC is the largest conference in the fire service, attracting more than 34,000 firefighters from around the world.

Chief Ken McMullen (Red Deer Emergency Services)

- Appointed as Chief of Red Deer Emergency Services (effective March 2018).
- Received (as a member of the Canada Task Force 2) the inaugural Emergency Management Exemplary Service Award (Resilient Communities) from Public Safety Canada. The CAN-TF2 team was recognized for their response to the Fort McMurray fire in 2016.

Ms. Sara Sayed (Master's student, Lakehead University, Supervisor: Dr. Kathryn Sinden)

- Recognized for Best Student Poster Presentation, "*Identifying musculoskeletal injury risk for application in injury prevention tool development for career firefighters*", at the 2018 Crossroads Interdisciplinary Health Research Conference in Halifax, Nova Scotia.

Dr. Kathryn Sinden (Lakehead University)

- Nominated for the Thunder Bay RBC Annual Innovation Award for her research with first responders.

In the Media: FIREWELL Research

Dr. Joy MacDermid (Western University) & **Captain Rob D'Amico** (Hamilton Professional Fire Fighters Association) were featured on multiple media outlets about a FIREWELL research study that found high rates of painful sites and a burden of musculoskeletal disorders in career firefighters from a fire service in southwestern Ontario.



The study, [Prevalence and distribution of musculoskeletal disorders in firefighters are influenced by age and length of service](#), was published in the Journal of Military, Veteran and Family Health December 2017 and is currently among the Top 5 Most Read articles.

[Firefighter's injuries make them 'working wounded': study](#) (Radio Canada International, February 16, 2018)

[Study examines Hamilton firefighters' injuries](#) (The Hamilton Spectator, February 16, 2018)

[Firefighter injuries pile up, Western University study finds](#) (London Free Press, February 16, 2018)

980 CFPL Radio (February 16, 2018)

CBC London Morning (February 13, 2018)

[Study looks at persistent pain experienced by firefighters](#) (Fire Rescue 1, February 2, 2018)

[Study looks to extinguish persistent firefighter pain](#) (Western News, February 1, 2018)

Engagement

The FIREWELL website (<https://firewell.ca/>) is our platform for sharing the latest evidence on firefighter health from FIREWELL and other researchers. We strive to make FIREWELL research findings accessible to firefighters through summaries written in "normal" language.

Firefighters from 8 fire services (Hamilton, Montreal, St. Catherines, Thunder Bay, Toronto, Vaughan, Vancouver, Waterloo) are registered users who are beta testing the Members-Only sections of the FIREWELL website.

A thumbnail image of a research summary document titled "FIREWELL Research Summary: The effects of age and gender on Canadian firefighters' fitness levels". The document includes a sub-headline "We wanted to know if Canadian firefighters' fitness levels are affected by age and gender." and a small image of two silhouettes of people. The text discusses the study's purpose, methods, findings, and cautions. At the bottom, it lists the authors (MacDermid, D'Amico, and O'Brien) and the funding source (Ministry of Labour). The website URL www.firewell.ca is also visible.

As a pan-Canadian team with firefighters, researchers and partners spanning the county, FIREWELL is committed to creating outputs in English & French. In March, we launched the French version of our website: <https://firewell.ca/fr/>



The website is still a work in progress so any suggestions on content (e.g., firefighter news, publications, presentations, grants) and ways to improve the site are always welcome!

We are also using different social media platforms to engage with firefighters and other stakeholders:

- 258 followers on Twitter
- 55 followers on Facebook

Connect with us:



FIREWELL Research Champions

Our research wouldn't be possible without the incredible support from our firefighter collaborators and partners! In January, we launched the monthly "FIREWELL Research Champions" series which spotlight our firefighter members and their valuable contributions to our research:

<https://firewell.ca/tag/research-champion/>

The Research Champion posts are the most engaging posts on social media and help raise the profile of FIREWELL research.

Where There Is Smoke

FIREWELL was proud to support the "*Where There is Smoke: The Women Firefighter Narrative Visibility Project*" by the Fire Service Women Ontario and Red Dress Productions. The interactive, audio installation featuring career and volunteer women firefighters' stories of standout and workaday moments from the community and the fire hall was unveiled on June 16th at the Workers Arts and Heritage Centre in Hamilton.

FIREWELL member, **Ms. Amanda Brazil** from the Cross Roads Fire Department, shared her story as a women volunteer firefighter in Prince Edward Island in a video featured at the show.



Upcoming Events

9th Annual Canadian Institute for Military and Veteran Health Research Forum

Date: October 15-17, 2018

Location: Regina, Saskatchewan

Some of the FIREWELL researchers and trainees will be presenting their work at CIMVHR. Come out and join us!

Fire Service Women Ontario (FSWO) Professional Development Symposium

Date: October 26-28, 2018

Location: Waterloo, Ontario

Team Members (in alphabetical order)

The FIREWELL partnership represents diversity in types of fire services, genders, provinces, and rural/urban contexts. Our transdisciplinary group of researchers have expertise in conducting firefighter health research.

Firefighters

- Captain Rob D'Amico, Hamilton Professional Fire Fighters Association
- Mr. Regan Bolduc, Thunder Bay Fire Rescue
- Acting Captain Steve Fraser, Vancouver Fire & Rescue Services
- Chief John Hay, Thunder Bay Fire Rescue
- President Louise Hine-Schmidt, Fire Service Women of Ontario
- Chief Ken McMullen, Red Deer Emergency Services
- Lieutenant Chris Ross, Montreal Firefighters Association

Researchers (*Firefighter)

- Ms. Amanda Brazil*, University of Prince Edward Island
- Ms. Robin Campbell*, Dalhousie University
- Dr. Nick Carleton, University of Regina
- Dr. Heather Carnahan, Memorial University
- Dr. Heidi Cramm, Queen's University
- Dr. David Frost, University of Toronto
- Dr. Veronica Jamnik, York University
- Ms. Jennifer Keir, University of Ottawa
- Dr. Joy MacDermid, University of Western Ontario & McMaster University
- Dr. Kathryn Sinden, Lakehead University
- Dr. Susan Stock, University of Montreal

Healthcare Collaborators

- Dr. Ahmed Negm, McMaster University
- Dr. Mike Pysklywec, Occupational Health and Exposure Program (Hamilton)
- Dr. Liz Scott, Organizational Solutions Inc.

Current Trainees

- Mr. Goris Nazari (PhD trainee, Western University, Supervisor: Dr. Joy MacDermid)
- Ms. Sara Sayed (MSc Trainee, Lakehead University, Supervisor: Dr. Kathryn Sinden)
- Ms. Shannon Killip (MSc trainee, McMaster University, Supervisor: Dr. Joy MacDermid)
- Ms. Temitope Osifeso (MSc trainee, McMaster University, Supervisor: Dr. Joy MacDermid)

Firefighter Partner Organizations

- Fire Service Women Ontario
- Hamilton Fire Department
- Hamilton Professional Fire Fighters Association
- Montreal Firefighters Association
- Prince Edward Island Fire Fighters Association
- Thunder Bay Fire and Rescue
- Thunder Bay Professional Firefighters Association
- Vancouver Fire & Rescue Services

Research/Academic Partner Organizations

- Canadian Institute for Military and Veteran Health Research
- Canadian Institute for Public Safety Research and Treatment
- The Offshore Safety and Survival Centre – Marine Institute

Other Partner Organizations

- Canadian Mental Health Association – British Columbia
- Canadian Mental Health Association – Prince Edward Island
- Canadian Mental Health Association – Vancouver-Fraser
- Dartfish Canada
- Organizational Solutions Inc.

FIREWELL Coordinating Centre

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