

High-intensity exercise following trauma among firefighters

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**After the Call

Introduction

- Firefighters face high levels of stress and trauma in their jobs, which can lead to PTSD
- Post-traumatic stress disorder (PTSD) can be difficult to identify
- Significant mental health problems in a firefighter among firefighters (Kara et al., 2015)
- Need to identify interventions for an accessible and acceptable firefighter
 - Support the development of PTSD
 - Reduce symptoms
 - Reduce the burden
- Forming research high-intensity exercise program and
 - Researcher-developed program



Objectives

- Explore the feasibility for implementing interventions associated with high intensity exercise among firefighters
- Identify the need for research intervention

Methods

- Qualitative exploratory consultation with firefighters
 - Conducted focus group discussions with firefighter focus groups about recruitment issues and based on contextual sampling approach
- Consultation
 - Phone or videoconferencing (Zoom) with research
 - Approximately 1 hour
- Web structured interviews guide
 - Consent process following process
 - Details about the feasibility of a high intensity exercise program
 - Recruitment for adherence and completion
- Analysis
 - Thematic analysis approach (Crabtree, 2012)
 - Identify research objectives related to study feasibility and treatment from a collaborative perspective from firefighter perspectives and challenges
 - Considered for future research and practice



Participant Table

Participant	Age	Length of Service	Gender	PTSD
Johnston-Campbell	Full time	25 years	Male	Yes
Robert Anagnostis	Full time, Volunteer	10 years, 10 years	Male	Knowledge
David Smith	Full time	17 years	Male	Yes
Paul Jones	Full time	14 years	Male	Knowledge
Michelle Lee	Full time	13 years	Female	Yes
Christopher	Full time, 2017, 2017**	10 years	Male	Knowledge
Alvinne Brownell	Full time	10 years	Female	Knowledge
Paul Jones	Full time, being called, 2017	10 years	Male	Yes

Theme 1: Current Practices

Current practices are existing and beneficial, but do not meet the needs of all firefighters.

Department is starting to realize the reality of the problem, I do think they know how to handle it on a daily basis.

The current system can encourage you to work out for help. As long as you're doing your job, it's more a going to know you're worth it for help. - David Smith

Most fire departments have resources available such as peer support, Critical Incident Stress Support, and Employee Assistance Programs, but the majority of the time, however, it is up to the individual to reach out and access the services. Therefore, some individuals often do not receive the necessary support and services they require following traumatic incidents, leading to the potential development of PTSD.

Theme 2: Stigma

Stigma towards mental health conditions is a dying culture, but still appears to exist among firefighters.

Trainees learning building that that will help. - Jordan Campbell

"With the younger generation, people are more willing to talk about it - not so much that that it is as taboo as it used to be, but it's still there for sure." - Mark Cho

While some participants stated that stigma towards seeking mental health services (discussed) amongst firefighters, most stated that it still exists. As current practice is not meeting the needs of all firefighters, many individuals fall between the cracks. Others, individuals do not reach out for the fear of appearing weak.

Theme 3: Willingness to Exercise

Most firefighters are receptive to implementing exercise programs.

"The younger generation is more receptive to exercise." - Doug Harris

Each stakeholder has confirmed that their firehall does have an exercise facility, but it is typically quite small and has older and/or broken equipment. Firefighters often have to log in their own equipment or the tools weight over time. Some stakeholders reported enjoying group exercise with their team, some participants noted that other firefighters exercise less often and with less intensity.

Theme 4: Feasibility of High-Intensity Exercise

Implementing a high intensity exercise program will be challenging for firefighters.

Everything in your mind and body is leading to the other direction from high intensity. - Jordan Cho

If you could prove that it would benefit your team and your body, that might change your mind. - Alvinne Brownell

Participants highlighted that the timing of the exercise program would have to fit their schedule. When starting these workouts, call the department to see if they have the time for another job and to not, to get back to the firefighters to follow an exercise program immediately following an incident will likely result and evidence about discomfort and it would need to be specific and relatively short. Suggestions for implementation included recommending cycling, being smaller of injuries and ensuring the program start in order for the team to be ready for another call.

Conclusion and Future Directions

- There is a need to expand trauma prevention interventions amongst firefighters
- Evidence suggests that high intensity exercise could help reduce the long-term symptoms associated with trauma
- Firefighters are receptive to the implementation exercise programs
- Continue to research needs on the impact of exercise for trauma prevention and recovery
- There is a need to develop a protocol to exercise following a critical traumatic incident
 - Exercise timing, duration, and type of exercise program



References

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi: 10.1191/1478088706qp063oa

Kleim, B. & Westphal, M. (2011). Mental health in first responders: A review and recommendation for prevention and intervention strategies. *Traumatology*, 17(4), 17-24. <https://doi.org/10.1177/1534765611429079>

Qi, W., Gevonden, M., & Shalev, A. (2016) Prevention of Post-Traumatic Stress Disorder after trauma: Current evidence and future directions. *Current Psychiatry Report*, 18(2), 20, doi: 10.1007/s11920-015-0655-0

Rosenbaum, S., Vancampfort, D., Steel, Z., Newby, J., Ward, P. B., & Stubbs, B. (2015). Physical activity in the treatment of post-traumatic stress disorder: a systematic review and meta-analysis. *Psychiatry research*, 230(2), 130-136.

Introduction

- Firefighters face high levels of stress and trauma in their jobs, which can lead to PTSD (Kleim & Westphal, 2011; Rosenbaum et al., 2015).
- Various interventions developed to treat PTSD are not always accessible
 - Stigma towards mental health problems is a barrier among firefighters (Qi, Gevonden & Shalev, 2016).
- Need to develop interventions that are accessible and acceptable to firefighters
 - Prevent the development of PTSD
 - Build resiliency
 - Promote recovery
- Promising approach: high-intensity exercise (Rosenbaum et al., 2015)
 - Accessible, proactive intervention approach

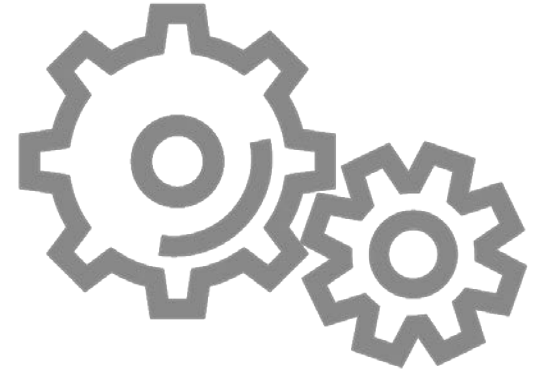


Objectives

- (1) Explore the capacity for implementing recommendations associated with high-intensity exercise among firefighters
- (2) Identify next steps for research and practice

Methods

- Qualitative key informant consultations with 8 firefighters
 - Conducted by two student researchers with mentorship from faculty advisor
 - Recruitment was purposive and based on a snowball sampling approach
- Consultations
 - Phone or web conferencing (Zoom), audio recorded
 - Approximately 1 hour
- Semi-structured interview guide
 - Current practices following trauma
 - Beliefs about the feasibility of a high-intensity exercise protocol
 - Key factors for adherence and compliance
- Analysis
 - Descriptive, thematic approach (Braun & Clark, 2006)
 - Student researchers independently listened to audio recordings and developed themes collaboratively
 - Identified themes focused on opportunities and challenges
 - Considerations for future research and practice



Participant Table

Pseudonym	Role	Length of Career	Gender	City
Joshua Campbell	Full time	20 years	Male	Toronto
Giannis Karabassis	Full time Volunteer	6 months 3 years	Male	Mississauga
David Smith	Full time	13 years	Male	Toronto
Ravi Kapur	Full time	15 years	Male	Mississauga
Mindy Chu	Full time	5 years	Female	Toronto
Doug Harris	Full time, WFI*, PFT**	8 years	Male	Mississauga
Amanda Mosinski	Full time	12 years	Female	Mississauga
Tariq Alawi	Full time, Acting captain, PFT	26 years	Male	Toronto

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Theme 1: Current Practices

Current practices are evolving and beneficial, but do not meet the needs of all firefighters.

“Departments are starting to realize it’s a really big problem, I don’t think they know how to handle it yet.” - Mindy Chu

“The crew or captain can encourage you to reach out for help. As long as you’re doing your job, no one is going to force you to reach out for help.” - David Smith

The fire departments have resources available such as peer support, Critical Incident Stress Teams, and Employee Assistant Programs. For the majority of the time, however, it is up to the individual to reach out and access the services. Therefore, some individuals often do not receive the necessary supports and services they require following a traumatic incident, leading to the potential development of PTSD.

Theme 2: Stigma

Stigma towards mental health conditions is a dying culture, but still apparent in firefighters.

“I run into burning buildings but I feel sad today.” - Joshua Campbell

“With the younger generation, people are more willing to talk about - not so much that ‘suck it up, buttercup mentality,’ but it’s still there for sure.” - Mindy Chu

While some participants stated that stigma towards accessing supports has drastically decreased amongst firefighters, most stated that it still exists. As current practices are not meeting the needs of all firefighters, many individuals “fall between the cracks.” Often, individuals do not reach out for the fear of appearing weak.

Theme 3: Willingness to Exercise

Most firefighters are receptive to implementing exercise programs.

“The younger guys are more receptive to exercise.” - Doug Harris

Each stakeholder has confirmed that their firehall does have an exercise facility, but it is typically quite small and has older and/or broken equipment. Firefighters often times bring in their own equipment or do body weight exercises. Some stakeholders reported enjoying group exercise with their team. Some participants noted that older firefighters exercise less often and with less intensity.

Theme 4: Feasibility of High-Intensity Exercise

Implementing a high-intensity exercise program will be challenging for firefighters.

“Everything in your mind and body is heading in the other direction from high intensity.” - Joshua Carter

“If you could prove that it would really benefit your heart and your brain, that might change people’s views” - Amanda Mosinski

Participants highlighted that the timing of the exercise program would have to fit their schedule. When returning from a traumatic call, the main priority is to prepare the truck for another call and to rest. To get buy-in from firefighters to follow an exercise program immediately following a traumatic call, they would need evidence about its benefits and it would need to be specific and relatively short. Suggestions for implementation included recommending cycling, being mindful of injuries, and keeping the program short in order for the team to be ready for another call.

Conclusion and Future Directions

- There is a need to expand trauma prevention interventions amongst firefighters
- Evidence suggests that high-intensity exercise could help reduce the long-term symptoms associated with trauma (Rosenbaum et al., 2015)
- Firefighters are receptive to the implementation exercise programs
- Currently no research exists on the impact of exercise for trauma prevention in first responders
- There is a need to develop a protocol for exercise following a critical traumatic incident
 - Examine timing, duration, and type of exercise program

