

Insight

December 2016



Innovation at Work

WorkSafeBC Research Services launches a new grant competition



Fighting Fatigue

New research explores sleep deprivation in wildland firefighters



Holiday wishes

It's the festive season – try our oatmeal cranberry cookie recipe

Did you know?

Nearly 40 percent of Canadians report being sleep deprived, and 10 percent of workplace accidents are attributed to fatigue.

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Innovation at Work: 2017 request for proposals announced

WorkSafeBC Research Services has just launched the 2017 [Innovation at Work](#) request for proposals (RFP).

Innovation at Work grants provide funding for small-scale research projects that develop practical shop-floor solutions, translate new knowledge into practice, or solve specific problems for workplaces. Anyone who is a Canadian resident may apply for an Innovation at Work grant. We encourage partnerships between workplace parties, unions, employer organizations, educators, and professional researchers on these projects.

Letter of Intent

We are offering applicants an opportunity to receive feedback on their proposed projects before submitting their complete applications. If you are considering applying for an Innovation at Work grant, you can use the [letter of intent template](#) to provide essential details about your research idea. These details include the project title, proposed research questions, potential project partners, and an outline of what the research will include and how you plan to carry it out. If you indicate interest in receiving feedback, experts will offer comments about areas you may wish to enhance — such as methodology or partnerships — before completing a full application. You are not required to submit a letter of intent to be eligible to apply for funding.

2016 Innovation at Work applicants

If you submitted a full application in response to the 2016 Innovation at Work RFP, please do not submit the same proposal for the 2017 competition. Proposals received through the 2016 competition are currently being reviewed, and funding decisions will be announced in the spring.

We look forward to your ideas for innovative research in workplace health and safety. Please note the following important dates:

- Letter of intent deadline: **December 16, 2016**
- Application deadline: **February 10, 2017**

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WORK SAFE BC

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Fighting Fatigue: New research explores sleep deprivation in wildland firefighters

Each year, WorkSafeBC offers Research Training Awards to highly qualified scholars in B.C. In 2015, master's student Andrew Jeklin received a Research Training Award in support of his research on fatigue and sleep deprivation in wildland firefighters. Jeklin is originally from Duncan, B.C., and has worked in the forestry industry as both a tree planter and a firefighter. His research aims to improve our understanding of the relationship between the occupational risk factors of cognitive fatigue (sleep deprivation, irregular and prolonged work schedules, and overexertion) and the incidence of injury among wildland firefighters. Fatigue can have serious real-world consequences by significantly reducing information processing. This can result in slower reaction times, poor decision-making, and decreased situational awareness and hazard recognition.

"Occupational fatigue and sleep research excites me because of how it can empower and educate workers as well as decrease workplace accidents and improve the health, safety, and well-being of workers," Jeklin says.

A significant number of incidents and injuries among wildland firefighters can be attributed to factors commonly associated with fatigue and sleep deprivation. "However, it is not just in these high-risk occupations that we are seeing this trend," Jeklin says. "Nearly 40 percent of Canadians report being sleep deprived, and 10 percent of workplace accidents are attributed to fatigue."

Rest easy?

For the study, Jeklin worked with the [British Columbia Forest Service](#) to recruit 40 participants (30 firefighters and 10 incident commanders) during two separate fires in the summer of 2015. Each participant took part in testing sessions twice a day for a full 17-day work cycle (14 duty days, 3 rest days), with researchers taking objective and subjective measures of fatigue and sleep.

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The results showed a significant linear increase in sleepiness and fatigue, and decreased alertness across the work cycle. Fatigue and sleep outcome measures did not significantly improve during the three-day rest period, which suggests that participants were not getting sufficient restorative sleep during their days off.

“In a wildland firefighting environment, stressors such as smoke, noise, light, prolonged work days, and temperature can significantly reduce sleep. Previous studies, including ours, demonstrate that individuals in this environment typically only sleep between 5 to 6.5 hours a night on average,” Jeklin explains.

Interestingly, sleep measures gradually started to improve over the 14-day work cycle, suggesting an adaptation to these challenging sleeping environments.

The research provides insight into some of the challenges that firefighters and other shift workers may face. These findings are consistent with other studies and suggest that given appropriate environmental conditions, workers can adapt to extended blocks of shift work and improve their sleep.

New resources

Building on this study, Jeklin and his fellow researchers received a knowledge translation grant to develop an education and training resource. It will cover a wide range of topics, including strategies for managing fatigue, techniques for getting better sleep, and information about the risks of sleep deprivation. It will be given to B.C. firefighters as they start the new season, and there is potential for generalizing it for use in other sectors where shift work is common.

“Fatigue risk is an ever-present challenge in this field of research,” Jeklin concludes. “Yet, the potential impact that fatigue risk management systems and training on fatigue and sleep in the workplace can have is profound. It will impact the productivity and efficiency of an organization, but more importantly, it will impact the health and safety of the workforce.”

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Holiday wishes

The Policy, Regulation and Research Division would like to wish everyone a warm and safe holiday season. Below is one of our favourite holiday recipes for you to try.

Oatmeal cranberry cookies

These cookies can be made with standard baking ingredients, or with vegan substitutions, as noted.

Ingredients:

- 1 c. melted butter (or substitute canola oil or melted coconut oil)
- 1 c. brown sugar
- 2 large eggs (or substitute 2 flax eggs: in a small bowl, combine 2 tbsp flaxseed meal with 6 tbsp cold water, mix well, and allow to set in the refrigerator for about 5 minutes)
- 1 tbsp vanilla extract
- ¼ c. honey (or substitute maple syrup or fancy molasses)
- 1 ½ c. flour
- 1 heaping tsp baking soda
- 2–3 tsp ground cinnamon
- 1–2 tsp allspice
- 1/2 tsp salt (less if you use salted butter)
- 3 c. thick-cut rolled oats
- 1 c. raisins and/or dried cranberries

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Directions:

1. In a medium-sized bowl, whisk together brown sugar and melted butter or oil until the sugar is completely dissolved. Add the eggs, vanilla, and honey. Mix until well combined.
2. In a large bowl, mix together the flour, baking soda, and spices. Add the wet ingredients and mix with a big spoon, just until combined.
3. Add the oats and raisins/cranberries and mix everything together. The batter will be thick and sticky.
4. Chill the dough for 30-60 minutes in the refrigerator, or up to 2 days. If the batter has been refrigerated longer than an hour, let it sit at room temperature for half an hour before forming the cookies or it will be too stiff to manage.
5. Preheat oven to 350°F. Line two large baking sheets with parchment paper or silicone baking mats.
6. Form the batter into balls (about 1 heaping tbsp of batter per cookie) and place 2 inches apart on the baking sheets. Press each one lightly with the back of a teaspoon so they bake evenly.
7. Bake for 10 minutes, rotating the pans halfway through.
8. Remove the cookies from the oven when they are slightly browned around the edges. The centres will look raw, and you may think you've done something wrong, but don't worry! It's important not to over bake them.
9. Let the cookies cool on the baking sheets for a few minutes before transferring them to a plate to cool completely.