Increasing Physical Activity and Decreasing Sedentary Behaviour in the Workplace

Executive Summary

September 2015

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Executive Summary
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BACKGROUND INFORMATION

The purpose of this review is to identify the best workplace interventions to support employees moving more and sitting less.

**Physical Activity**: Physical activity refers to any movement with a substantial increase in resting energy expenditure. Canadians are recommended to engage in a minimum of 150 minutes of moderate-to-vigorous physical activity per week. According to accelerometer data, only 15% of Canadians achieve this recommendation. Adults are considered “physically inactive” if they do not meet this recommendation regularly. Physically inactive adults are at greater risk of developing cardiovascular disease, type 2 diabetes, obesity, or some forms of cancer.

**Sedentary Behaviour**: Sedentary behaviour refers to sitting or lounging activities during waking hours. Currently, Canada does not have national guidelines for sedentary behaviour. High rates of sedentary behaviour have been associated with adverse physiological outcomes, such as all-cause mortality, cardiovascular disease, cancer (breast, colon, colorectal, endometrial, and epithelial ovarian), and type 2 diabetes. These adverse physiological outcomes are independent and distinct from physical inactivity outcomes. On average, a person spends more than one half of their waking day engaging in sedentary behaviours. Common sedentary behaviours include screen time activities, eating, commuting in a car, or working on a computer at the workplace.

Given that individuals spend the majority of their waking hours at the workplace, workplaces are ideal locations to implement health and wellness interventions.

**Systematic Review of Workplace Interventions**: The Alberta Centre for Active Living completed a systematic review on workplace interventions that focus on increasing physical activity, reducing sedentary behaviour, or both (systematic review was registered with PROSPERO: CRD42015019398). The studies selected for the review were limited to those with healthy adult participants over 18 years of age that worked in a full-time or part-time capacity. This review included various study designs with a control group or comparator group (e.g., randomized trials, controlled before-after studies, non-randomized trials), while other eligible studies had multiple time points but did not have a comparator (e.g., repeated measures studies).

The primary outcomes assessed were changes in physical activity and sedentary behaviour. Secondary outcomes were specifically relevant to workplaces, such as absenteeism or sick days, presenteeism or work productivity, quality of life, and mental or physical wellbeing.
FINDINGS

The systematic review identified 4,545 articles from 13 databases, which examined the effectiveness of workplace interventions on physical activity and sedentary behaviour. A total of 47 articles fit the criteria of this review.

The study findings and quality of the studies were assessed according to the type of workplace intervention. Findings and recommendations specific to four types of intervention are reported in the intervention-specific documents in this series.

Four distinct, yet interrelated groups, emerged based on common themes. The four groups, with examples of interventions, are:

1) CHALLENGES AND COMPETITIONS
   - Create pedometer challenges to increase steps per day.
   - Provide physical activity and sitting logs.

2) INFORMATION AND COUNSELLING
   - Provide individual or group counselling with an expert (e.g., a personal trainer or health promotion facilitator).
   - Share Internet-based tools and resources.
   - Display print media (e.g., posters or handouts).

3) ORGANIZATIONAL CULTURE AND NORMS
   - Create an office environment that supports active breaks (e.g., employee stair walking or walking meetings).
   - Encourage active and frequent breaks from sitting (e.g., hourly prompts to stand up, stretch or walk).

4) ACCESS AND THE PHYSICAL ENVIRONMENT
   - Rearrange the workplace layout (e.g., move printers farther away from workstations).
   - Modify workstations (e.g., sit-to-stand desks and treadmill, cycling or stepping workstations).
   - Provide access to an exercise facility.
   - Provide secure bike racks.

A series of four documents, each targeting a type of intervention, were developed to provide more detailed information pertaining to the implications of the findings from the systematic review.
PRIMARY OUTCOMES

Physical activity and sedentary behaviour were the two primary outcomes of the systematic review.

1. PHYSICAL ACTIVITY

The most effective workplace physical activity interventions targeted changes to organizational culture and norms. Significant findings were found in 80% of studies examined in this intervention category. Successful interventions were implemented through workplace physical activity policies.

Examples include:

- Providing flexible work hours for employees (e.g., starting work earlier or later to support participation in physical activity).
- Promoting and encouraging incidental workplace physical activity, such as standing meetings, active breaks instead of coffee breaks, walking lunch groups, or standing desk stretches.
- Reinforcing organization level commitment to establishing a healthy workplace for employees (e.g., safe bike storage, appealing stairwells, or lunch time walking groups).

Effectiveness and quality of studies were assessed using rigorous systematic review protocols.

<table>
<thead>
<tr>
<th>Intervention Category</th>
<th>Effectiveness of Intervention (% of the studies that showed an increase in physical activity)</th>
<th>Quality of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges and Competitions</td>
<td>59% (10/17 studies found significance)</td>
<td>★★★☆</td>
</tr>
<tr>
<td>Information and Counselling</td>
<td>54% (19/35 studies found significance)</td>
<td>★★★☆</td>
</tr>
<tr>
<td>Organizational Culture and Norms</td>
<td>80% (4/5 studies found significance)</td>
<td>★★★☆</td>
</tr>
<tr>
<td>Access and the Physical Environment</td>
<td>44% (4/9 studies found significance)</td>
<td>★★★☆</td>
</tr>
</tbody>
</table>

*Quality of studies: scores and associated stars are based on the average risk of bias assessment for the studies. The risk of bias is considered high in studies that do not randomly assign participants to the intervention, do not blind participants and personnel to the intervention, have incomplete data, have selective reporting, or have other potential threats to the validity of the findings. Studies with a lower risk of bias are considered of higher quality. Studies conducted in a naturalistic setting, such as workplaces, generally have a higher degree of bias.

★★☆☆☆: Poor Quality Studies (scored -7 to 0);
★★★☆☆: Moderate Quality Studies (scored 1 to 4);
★★★★☆: High Quality Studies (scored 5 to 7).
2. SEDENTARY BEHAVIOUR

The most effective workplace sedentary behaviour interventions targeted changes in access and the physical work environment. In this intervention category, 86% of studies examined found significant results.

More specifically, sit-stand workstations were found to be the most effective adjustment to the physical work environment and were able to both significantly reduce daily minutes of sitting time and increase the number of sit-stand transitions.

<table>
<thead>
<tr>
<th>Intervention Category</th>
<th>Effectiveness of Intervention</th>
<th>Quality of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges and Competitions</td>
<td>60%</td>
<td>★★★☆</td>
</tr>
<tr>
<td></td>
<td>(3/5 studies found significance)</td>
<td>(Mean: 2.20; Range: 0 to 6)*</td>
</tr>
<tr>
<td>Information and Counselling</td>
<td>50%</td>
<td>★★★☆</td>
</tr>
<tr>
<td></td>
<td>(5/10 studies found significance)</td>
<td>(Mean: 2.30; Range: 0 to 6)*</td>
</tr>
<tr>
<td>Organizational Culture and Norms</td>
<td>67%</td>
<td>★★★☆</td>
</tr>
<tr>
<td></td>
<td>(2/3 studies found significance)</td>
<td>(Mean: 3.67; Range: 1 to 6)*</td>
</tr>
<tr>
<td>Access and the Physical Environment</td>
<td>86%</td>
<td>★★★☆</td>
</tr>
<tr>
<td></td>
<td>(6/7 studies found significance)</td>
<td>(Mean: 1.71; Range: -1 to 6)*</td>
</tr>
</tbody>
</table>

*Quality of studies: scores and associated stars are based on the average risk of bias assessment for the studies. The risk of bias is considered high in studies that do not randomly assign participants to the intervention, do not blind participants and personnel to the intervention, have incomplete data, have selective reporting, or have other potential threats to the validity of the findings. Studies with a lower risk of bias are considered of higher quality. Studies conducted in a naturalistic setting, such as workplaces, generally have a higher degree of bias.

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★★★☆ : Moderate Quality Studies (scored 1 to 4);
★★★★ : High Quality Studies (scored 5 to 7).

SECONDARY OUTCOMES

A variety of secondary outcomes were influenced as a result of workplace interventions aimed at increasing physical activity and reducing sedentary behaviour.

Interventions targeted at changing the workplace culture and norms increase employee involvement in workplace physical activity and enhance management support.

Additionally, interventions aimed at providing access to physical activity and changing the physical work environment were successful at:

- increasing employee life satisfaction,
- increasing positive mood states,
- increasing presenteeism,
- decreasing stress and depressive symptoms,
- lowering negative mood states, and
- reducing body fat.
SUMMARY

Given that employees spend the majority of their waking hours at the workplace, it is seen as the ideal location to implement interventions that increase health behaviours, such as increasing physical activity and reducing sedentary behaviour.

Before starting an intervention, workplaces should:

- conduct a workplace audit or needs assessment to explore employee interests,
- conduct an employee readiness for change assessment,
- identify potential barriers and actions to overcome them,
- audit the workplace environment for deterrents and supports, and
- identify the available financial, human and informational resources.

RECOMMENDATIONS

The research literature explores a variety of other workplace interventions to encourage employees to engage in healthy behaviours.

Such interventions include:

- walking challenges using pedometers and designated websites to track activity,
- hourly computer prompts reminding employees to stand up and move,
- motivational signs or posters to encourage stair climbing instead of elevator riding, and
- establishing workplace physical activity policies that encourage active group lunch breaks, such as organized sports or neighbourhood walks.

Sit-stand workstation interventions are one of the easiest, most successful and cost-effective interventions to implement. This simple change in the environment provides employees with a constant visual reminder to stand up and move. As such, sit-stand workstations actively promote more sit-stand transitions throughout the day and reduce prolonged bouts of sitting.

Regardless of the intervention method implemented, all workplace interventions should be multi-faceted. Clear and visual support from management for participation in positive health behaviours at the workplace is critical for successful implementation. Additionally, all interventions should be paired with an educational component to provide employees with the necessary skills and understanding of how to incorporate physical activity into their daily routine to combat prolonged sedentary behaviours.

Please review the four implementation summary documents for more detailed information: 1) Challenges and Competitions, 2) Information and Counselling, 3) Organizational Cultures and Norms, and 4) Access and the Physical Environment.
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REFERENCES


