



# Increasing Physical Activity and Decreasing Sedentary Behaviour in the Workplace

## Summary 4: Access and the Physical Environment

September 2015

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ALBERTA CENTRE FOR  
**Active Living**



## ACCESS AND THE PHYSICAL ENVIRONMENT

The articles from the systematic review (refer to the Executive Summary) were summarized into four distinct, yet interrelated, groups based on common themes. The fourth of four summaries explores Access and the Physical Environment.

**On average, Albertans sit 9 hours per day.** Small changes to the physical workplace environment can provide employees with more opportunities to engage in both purposeful and incidental physical activity. Some examples include:

- Changing the workplace layout, such as moving printers farther away from desks.
- Updating employee workstations to styles that encourage daily movement, such as sit-stand desks, treadmill workstations, cycling desks and stepping workstations.
- Improving access to physical activity while at work, such as installing or providing access to an exercise facility, change rooms with showers or adding secure bike racks.

Sit-stand workstations easily allow employees to alternate between sitting and standing postures at their desk. They have been shown to be the most effective change to the workplace environment in reducing daily minutes of sedentary behaviour, as well as interrupting prolonged bouts of sitting with more sit-to-stand transitions.

Effectiveness and Quality of Access and the Physical Environment		
Outcome	Effectiveness of Intervention	Quality of Studies
<b>Increased Physical Activity</b>	<p><b>44%</b> of the studies reported an increase in physical activity (4/9 studies found significance)</p>	<p>★☆☆ (Mean: 0.44; Range: -4 to 6)*</p>
<b>Decreased Sedentary Behaviour</b>	<p><b>86%</b> of the studies reported a decrease in sedentary behaviour (6/7 studies found significance)</p>	<p>★★★☆☆ (Mean: 1.71; Range: 1 to 6)*</p>

\*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).

# DESCRIPTION OF ACCESS AND THE PHYSICAL ENVIRONMENT

Effective Recommendations from the Literature

## INSTALL SIT-STAND WORKSTATIONS

### Length

Four weeks to allow for behaviour change to be implemented, tested, and accepted.

Modification: 8 weeks or longer.



### Activity Duration

Transitions to standing should be made after 20 minutes of continuous sitting.

Employees may stand for as long as they feel comfortable and maintain good posture.



### Frequency

Employees should use their sit-stand workstation 5 days per week.

Modification: 3-7 days per week depending on part-time/full-time employee or shift-work schedule.



### Benefits

- Sit-stand workstations are easy to use, enjoyable and comfortable.
- After installation, no additional support is necessary and employees will naturally decrease their sitting time.

### Challenges

- The initial purchasing cost can be expensive and require careful planning and consideration.
- Standing while at work may not be possible for those with existing physical pain, injuries or mobility constraints.

## ADD SELF-MONITORING DEVICES AND EDUCATION

Interventions providing access to physical activity or changing the physical work environment should be accompanied with daily physical activity self-monitoring devices and education.

- **Pedometer, Logging App or Physical Activity Monitor:** Allows individuals to obtain feedback and self-monitor their daily physical activity and sitting time.
- **Education:** Employees should receive a brief training session on how to use their sit-stand workstation, including how to adjust the workstation to an ergonomically correct height and the associated health benefits of standing while at work.



# TOOLS FOR IMPLEMENTING ACCESS AND THE PHYSICAL ENVIRONMENT INTERVENTIONS

## SIT-STAND WORKSTATIONS

**High Cost:** [Ergotron® 24-216-085 WorkFit-C Single LD Sit-Stand Workstation](#) ~ \$1310

**Medium Cost:** [WorkFit-S, Dual Sit-Stand Workstation](#) ~ \$550

**Low Cost/Do It Yourself:** [IKEA side table placed on top of an existing desk. \(LACK collection side table\)](#) ~ \$13

**Padded Floor Mats:** The mat aids in reducing foot soreness from standing for extended periods of time. ([Genuine Joe Air Step Anti-Fatigue Mat](#)) ~ \$25

## PEDAL WORKSTATIONS

For those who are unable to stand for extended periods of time, a portable pedal machine ([Stamina 15-0120 InStride Cycle XL](#) ~ \$60 U.S.) provides employees with an alternative method to engage in “active sitting” as a form of reducing sedentary behaviour at work.



## PEDOMETERS AND ACTIVITY MONITORS

Pedometers or activity monitors help employees to be mindful of their daily physical activity levels and serve as a motivational tool to increase workplace physical activity. For more information on recommended pedometers or activity monitor brands and prices, please refer to the Challenges and Competitions summary document.

## DESKTOP AND DEVICE APPS

Numerous apps are available that remind employees when to sit and stand throughout the workday, such as [StandApp](#) and [StretchClock Break Reminder](#).

## EDUCATION

**[Workplace Ergonomic Planner:](#)** This tool uses individual measurements to aid employees in setting up an ergonomically correct sit-stand workstation.

**[Standing at Work:](#)** The Canadian Centre for Occupational Health and Safety provides detailed information about standing at work, the health risks associated with prolonged sitting, and how to accurately stand at work.

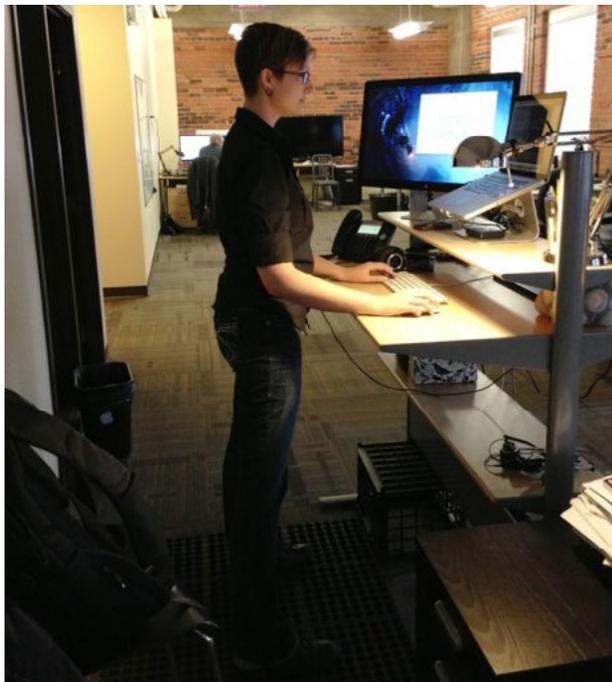
# IMPLEMENTATION RECOMMENDATIONS

- 1.** Obtain management support and commitment to changing the physical work environment (e.g., the intervention occurring during paid work time).
- 2.** Introduce the idea of sit-stand workstations to employees and conduct a workplace needs assessment. Possibly purchase one desk that can be used as a standing station.
- 3.** Obtain employee buy-in towards the intervention and changes to the workplace environment.
- 4.** Provide education about the new workstations and its associated benefits.
- 5.** Develop collaborative workplace or department and individual physical activity or sedentary behaviour goals and objectives.
- 6.** Establish an action plan and budget.
- 7.** Research and purchase the appropriate sit-stand workstations for the office.
- 8.** Install sit-stand workstations in an obstacle-free space.
- 9.** Provide continued support and encouragement.
- 10.** Evaluate the sit-stand workstation implementation and make improvements.

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*Remember: Organizational change will take longer than the four-week intervention time frame for it to become institutionalized and part of the workplace culture.*

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# BACKGROUND

## Characteristics of Studies Included in the Review

### POPULATION

Healthy adults, 18 years of age or older, working in a full-time or part-time capacity:

Average # of participants = 31

Range in # of study participants = 11 to 410



### INTERVENTIONS

Average duration = 16.7 weeks

Range in duration =  
2 weeks to 1 year



### COMPARISONS

Measured in a pre-test/  
post-test format, with or  
without a control group.



### OUTCOMES

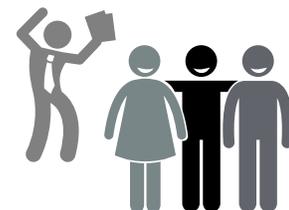
#### Primary Outcomes

- For **Physical Activity**, the number of sit-stand transitions increased.
- For **Sedentary Behaviour**, daily minutes of sitting time were significantly reduced.



#### Secondary Outcomes

- An increase in life satisfaction, positive mood states, and presenteeism at work among employees.
- Decreases in stress, depressive symptoms, negative mood states, and body fat were reported.
- The reception and utilization of educational materials was high.



The following studies with access and the physical environment interventions were included in the systematic review:

Alkhajah, Reeves, Eakin, Winkler, Owen, & Healy (2012); Carr, Walaska, & Marcu (2013); Chau, Daley, Dunn, Srinivasan, Do, Bauman, & van der Ploeg (2014); Edmunds, Stephenson, & Clow (2013); Flannery, Resnick, Galik, Lipscomb, Mcphaul, & Shaughnessy (2012); Gazmararian, Elon, Newsome, Schild, & Jacobson (2013); Gilson, Suppini, Ryde, Brown, & Brown (2012); Grunseit, Yuk-Yin Chau, van der Ploeg, & Bauman (2013); Healy, Eakin, Lamontagne, Owen, Winkler, Wiesner, Gunning, Neuhaus, Lawler, Fjeldsoe, & Dunstan (2013); Koepp, Manohar, McCrady-Spitzer, Ben-Ner, Hamann, Runge, & Levine (2013); Tucker, Lanningham-Foster, Murphy, Thompson, Weymiller, Lohse, & Levine (2011).

# RESOURCES

Ergotron® 24-216-085  
WorkFit-C Single LD Sit-Stand  
Workstation

<http://bit.ly/1Cz1h22>

IKEA LACK side Table

[www.ikea.com/ca/en/catalog/products/40104270/](http://www.ikea.com/ca/en/catalog/products/40104270/)

Padded Anti-fatigue Floor  
Mats

[www.bestbuy.ca/en-CA/product/genuine-joe-genuine-joe-air-step-anti-fatigue-mat-36-x-24-gjo53231-black-gjo53231/10303179.aspx](http://www.bestbuy.ca/en-CA/product/genuine-joe-genuine-joe-air-step-anti-fatigue-mat-36-x-24-gjo53231-black-gjo53231/10303179.aspx)

Stamina 15-0120 InStride  
Cycle XL

[staminaproducts.com/?s=instride+cycle](http://staminaproducts.com/?s=instride+cycle)

StandApp

[standapp.biz/](http://standapp.biz/). (Also it is free to download from App Store)

Standing at Work: The  
Canadian Centre for  
Occupational Health and  
Safety

[www.mayoclinic.org/healthy-lifestyle/adult-health/multimedia/stretching/sls-20076525](http://www.mayoclinic.org/healthy-lifestyle/adult-health/multimedia/stretching/sls-20076525)

StretchClock App

[www.stretchclock.com/download/](http://www.stretchclock.com/download/)

WorkFit-S, Dual Sit-Stand  
Workstation

<http://bit.ly/1HlhD3K>

Workplace Ergonomic Planner

[www.ergotron.com/tabid/305/default.aspx](http://www.ergotron.com/tabid/305/default.aspx)



Example of a secure bike lockup.

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