

## Injury Prevention Fact Sheet – Sit Stand Desks

### Introduction

There have been an increasing number of requests for sit-stand desks. This fact sheet has been produced to help guide managers in deciding whether or not to obtain a sit-stand desk for their employee. It is the recommendation of the Injury Prevention Team, Safety Services that managers **support staff getting up from their desk at least two times per hour, including a five-minute walk once per hour** and that sit-stand desks be purchased in *exceptional circumstances* only.

### Current Literature

A review the current literature for the detrimental effects of both prolonged sitting and prolonged standing are listed as follows:

Detrimental Effects of Prolonged Sitting	Detrimental Effects of Prolonged Standing
<ul style="list-style-type: none"><li>• Metabolic Dysfunction<sup>1,2</sup><ul style="list-style-type: none"><li>○ Decreased high-density lipoprotein (HDL),</li><li>○ Decreased insulin sensitivity.</li></ul></li><li>• Reduction in bone mineral density.<sup>1,2</sup></li><li>• Deleterious effects on vascular health.<sup>1</sup></li><li>• Associated increase in Type 2 Diabetes.<sup>1,2</sup></li><li>• Increased risk of cancer.<sup>1</sup></li></ul>	<ul style="list-style-type: none"><li>• Sore feet.<sup>3,4</sup></li><li>• Swelling of the legs.<sup>3,4</sup></li><li>• Varicose veins.<sup>3,4</sup></li><li>• General muscular fatigue.<sup>3,4</sup></li><li>• Low back pain.<sup>3,4</sup></li><li>• Stiffness of the neck and shoulders.<sup>3,4</sup></li><li>• Lower limb discomfort and pain.<sup>3</sup></li><li>• Cardiovascular disorders.<sup>3</sup></li><li>• Cardiovascular insufficiency.<sup>3</sup></li></ul>

Literature for both prolonged sitting and prolonged standing both agree that dynamic movement is the best solution for reducing the effects noted above.<sup>1-4</sup> The recommendation to decrease effects of prolonged sitting require having the employee stand up at least once every half hour<sup>2</sup> and to walk for five minutes once every hour.<sup>1</sup> The recommendation to decrease effects of prolonged standing requires the employee to be able to walk around and change posture.<sup>3</sup>

### Sit-Stand Workstations

One suggestion that appears on both sides of the literature is a sit-stand workstation. The entire desk surface can be moved manually via a crank system or electrically. This allows the employee to change position whenever they wish. The one problem with the sit-stand station is to ensure it is used properly. In order to reduce the effects of prolonged sitting or standing, they must change position at least once every 30-60 minutes. Without proper education, the employee may not

use the station effectively<sup>5</sup> or they may continue the behaviour of being in a prolonged position until they are sore and then change position<sup>6</sup>.

### **Increased Movement**

All the literature discussed so far have agreed that dynamic movement and postural change are best to reduce the detrimental effects of prolonged sitting or prolonged standing.<sup>1-6</sup> Another study shows that there is no loss of productivity with the supplementary breaks because the breaks help to reduce fatigue from prolonged use of computers.<sup>7</sup> Each method (dynamic movement, sit-stand workstation) have behaviours that must be addressed in order to have employees move at least twice per hour and avoid prolonged positions.<sup>6</sup>

### **Recommendation**

It is recommended that **employees should be encouraged to move out of their chairs at least two to four times per hour**. There should be at least five minutes of walking in that hour. This can include getting up to go to the printer, the water cooler or going to another desk to discuss work-related issues with other employees.

A sit-stand workstation is only recommended for those employees who are tied to their computer and phone and are unable to get away from their desk.<sup>3</sup>

### **References**

1. Tremblay MS et al. *Physiological and health implications of a sedentary lifestyle*. Appl Physiol Nutr Metab 2010 Dec; 35(6):725-40.
2. Sedentary Behaviour Research Network website ([www.sedentarybehaviour.org](http://www.sedentarybehaviour.org) viewed August 11, 2014).
3. Waters TR, Dick RB. *Evidence of Health Risks Associated with Prolonged Standing at Work and Intervention Effectiveness*. Rehabil Nurs 2014 Jul 7 (Epub ahead of print).
4. Canadian Centre for Occupational Health and Safety (CCOHS) ([http://www.ccohs.ca/oshanswers/ergonomics/standing/standing\\_basic.html](http://www.ccohs.ca/oshanswers/ergonomics/standing/standing_basic.html) viewed August 11, 2014).
5. Robertson MM et al. *Office Ergonomics training and a sit-stand workstation: effects on musculoskeletal and visual symptoms and performance of office workers*. Appl Ergon 2013 Jan; 44(1):73-85.
6. Telephone conversation Randall Tresidder (CDHA Injury Prevention Consultant) and Travis Saunders (one of the co-authors for reference 1) on August 8, 2014.
7. Galinsky T et al. *Supplementary breaks and stretching exercises for data entry operators: a follow-up field study*. Am J Ind Med 2007 Jul; 50(7):519-27.