

Sit-Stand Workstations – Are They Equal to the Hype?

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The rate at which sit-stand workstations are being introduced into the workplace has seen a dramatic increase. One reason for this increase in popularity has been linked to the promise of improved cardiovascular health associated with reducing sitting time reported in the media. Musculoskeletal Disorders (MSD) are also a key concern during office work and are a major cause of workers' disability and cost to workers, business and society. Sit-stand workstations have become a proposed solution to provide the ability to change postures at the workstation while still being able to work. Sit-stand workstations include a desk that allows the user to move it up and down, making it possible to transition from sitting to standing and vice versa during office work.

Recently, sitting has been associated with numerous negative media attention slogans such as “*sitting is the new smoking*,” “*the sitting disease*” and “*sitting down is slowly killing us*.” Scientific evidence supports that total daily sitting time can have negative consequences on your health, including, increased prevalence of low back pain and overall discomfort, heart diseases and type-II diabetes [1–4,25].

Long periods of standing work also pose significant heart disease risk that can be double the risk of prolonged seated work [5]. Standing also has high MSD risk, with approximately 50% of the population developing low back pain while standing for a prolonged period of time [6,7]. Currently, it is recommended that you sit for 30 minutes of time or less before taking a break [8].

As a result of the negative attention surrounding sitting, some workers have begun using a desk that allows them to stand. However, the association of prolonged standing with cardiovascular disease and MSD risk supports the mixing of sitting and standing using an adjustable height desk. These workstations offer a means to connect both sitting and standing together, while incorporating movement and changing postures throughout the office workday. A number of scientific studies have demonstrated overall decreases in pain/discomfort when using a sit-stand workstation compared to using the standard seated workstation [9–15].

Training on how to use sit-stand workstations is crucial to get the positive effects. It was found that proper training on how to use these type of desks is important to change behaviour – i.e. having the worker actually use the workstation as it is intended and decrease sitting behaviour [3,16–19, 26]. In a small study that did not offer any ergonomic training on how to use the sit-stand workstation, it was found that sit-stand workstations can increase discomfort in the upper extremities, hips and legs [16]. There is also evidence that shows that if a worker is not adequately trained on how to use a sit-stand workstation, they will simply not use it [20]. Therefore, when adopting sit-stand workstations it is critical that workers get training on how, why and when to use them.

MSD Prevention - Do Sit-Stand Workstations Work?

The evidence found in a number of scientific studies has demonstrated overall decreases in MSD pain/discomfort (e.g. low back pain and sore necks) with sit-stand workstation use in comparison to a standard seated office workstation [9–15]. In addition, one small study on twenty-two healthy females also reported decreases in visual discomfort with sit-stand workstation use [13]. A number of scientific studies have shown that sit-stand workstations offer positive benefits in reducing low back pain/discomfort [9,11,21–23]. A systematic review and meta-analysis recently confirmed that sit-stand workstations reduce low back discomfort [24].

Key Messages

- There is evidence to support that sit-stand workstations can relieve musculoskeletal discomfort such as back low back pain and sore necks.
- Currently, a ratio of 1:1 of Sit vs Stand is suggested throughout the workday. Individual factors like low back pain status need to be considered in the sit-stand rotation schedule.
- Movement and frequent changing between sitting and standing is important for the prevention of MSD.
- Not sitting or standing for longer than 30-40 minutes at a given time is recommended.

When changing between sitting and standing throughout the workday and knowing how much time you should spend sitting versus standing, the gold standard for this ratio is currently unknown. The balance of time between sitting and standing is likely different for each individual depending on their low back pain or other MSD status, tolerance to standing and/or sitting, the control over their work organization, and potentially the type of work they perform.

However, using prior research as a basis, the optimal target ratio is likely centered around a **1:1 ratio**. Using this ratio, in an 8-hour day, there would be a total of 4 hours of sitting time and a total of 4 hours of standing time. What is certain, is that movement throughout the workday is key. While sitting or standing for 30 minutes is long enough for some individuals to initiate the feeling of low back pain, individuals need to change it up, sit then stand then sit then stand again throughout the day, ideally aiming for 30 minute intervals between sitting and standing and standing and sitting. This amount of time for sitting and standing is below the Guidelines from the Occupational Health and Safety Council of Ontario (OHSCO) (2003), which classifies sitting for more than four to six hours per day as an MSD risk factor and standing for more than 4 hours on a hard work surface as a workplace hazard (Occupational Health and Safety Council of Ontario, 2003).

Conclusion

Sit-Stand workstations can be effective for some individuals in relieving musculoskeletal discomfort, in particular low back pain. This position paper sheds light on why these workstations have become more popular in recent years. Changing between sitting and standing at a ratio of 1:1 is a suggested starting target for these workstations to be effective in decreasing the risk of MSD during office related work and reducing the total daily sedentary time, a known risk factor for cardiovascular disease as pointed out by Dr. David Rempel in his CRE-MSD position paper examining the relationship to sit-stand workstations cardiovascular health [25].

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Implications for the Prevention of MSD

- Training on how to use sit-stand workstations is crucial to get the positive benefits.
- Emphasizing the importance of movement and frequent transitions between sitting and standing is important for the prevention of MSD.
- Limiting sitting or standing to 30-40 minutes at a given time is recommended.

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