Are interventions to reduce sitting at workplace effective?

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Background

The importance of physical activity for reducing the overall burden of disease has been well recognized. Most jobs nowadays, particularly of the higher and middle income groups, are sedentary in nature requiring them to spend time sitting at a stretch. With the advancement in technology and increased peer pressure at work, people do not leave their desk even for communicating with their colleagues. Just engaging in recommended levels of physical activity during free time is not enough, there is increased risk of cardiovascular disease, obesity and diabetes if one sits for prolonged periods at work.[1‑3]

When we think of an average office, reducing sitting is a huge challenge. One has to think of changing architecture, spending a lot of money as well as changing the office routine. So it is important to find out that whether these interventions that aim to reduce sitting, such as desks at which you can work while standing does actually reduce sitting or not.

How was the study done?

Researchers in the Cochrane Collaboration conducted a systematic review[4] to find out which interventions aimed at reducing sitting at work is actually effective. They searched six databases, and two trial registers to find eight studies covering a total of 1125 participants which answered the research question. Four of them were randomized controlled trials, three control before after studies and one was a clustered randomized control trial with a total of 1125 participants.

What did the systematic review find?

• **Sit-stand desks**
  Three trials investigated the introduction of sit-stand desks to the workplace to reduce time spent sitting at work. These sit-stand desks are height adjustable and people can work in both standing and sitting posture at these desks. Sit-stand desk with or without information and counselling reduced sitting time by nearly 2 hours per 8-hour workday, but the quality of the evidence was very low.

• **Computer prompts**
  Two trials assessed the effectiveness of computer prompts to reduce sitting at work. Computer prompting software did not show a reduction of sitting time in one study, while in another study it reduced sitting time with 55 minutes.

• **Walking strategies**
  One trial assessed the effectiveness of policy changes to introduce walking strategies (for example, walking during breaks) to reduce sitting at work. There was no considerable decrease in sitting with walking during breaks.

Clinic Al Scenario

It is common for family physicians in developing nations like India to encounter patients whose profession demands sedentary lifestyle. Such patients present with back problems, obesity, cardiovascular diseases and diabetes and ask doctors for advice on how to decrease sitting. Workplaces need to address this issue by inculcating strategies to decrease sitting and improve health of their employees. Occupational physicians too need to suggest evidence-based strategies to employers. This article provides an evidence based summary about what interventions are actually effective for decreasing sitting at workplace.

Keywords: Health promotion, occupational health, posture, sedentary lifestyle, sitting, systematic review, Workplace

Evidence Based Summary

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• **Information and counselling**
  
  In one study counselling by an occupational physician compared to those who received “usual care” decreased sitting time with 28 minutes and in another study mindfulness training did not have any effect on sitting at work. The mindfulness training consisted of homework exercises and information through emails.

  • The population of included studies came from a research institution, an academic institution, a government agency, a police organisation and private organizations making the population largely representative of office workers.

**Implications for research**

Half of the studies were Australian, and the other half from Europe. There were no studies from the other continents, or from low- and middle-income countries. Further trials should be conducted in low-middle income countries because work environment vary greatly across the globe. Future studies should also assess the other interventions to reduce sitting at work like sitting diaries, treadmill desks, stepping devices, periodic breaks to interrupt sitting, or standing/walking meetings.

**Implications for practice**

There is very low-quality evidence that the use of sit-stand desks alone, or in combination with information and counselling, can reduce workplace sitting time. However, there is not enough studies for other interventions like walking strategies, counselling, computer prompts and mindfulness training to inform practice.

**Conclusion**

This Cochrane review shows that sit-stand desks can reduce sitting at work, but the quality of evidence is very low. However, the evidence for policy measures (such as walking breaks), or information and counselling is inconsistent. There is a need for high-quality research to assess the effectiveness of different types of interventions. There are many trials being conducted at present, the results of which might change the conclusions of this research in the near future.

**This summary is based on the following systematic review**

Shrestha N, Ijaz S, Kukkonen-Harjula KT, Kumar S, Nwankwo CP. Workplace interventions for reducing sitting at work. Cochrane Database of Systematic Reviews 2015, Issue 1. Art. No.: CD010912. DOI: 10.1002/14651858.CD010912.pub2.

The Indian Council of Medical Research has brought a nation-wide license such that full text of all systematic reviews in Cochrane Library is freely accessible from anywhere in India.

**What is a systematic review?**

A systematic review seeks to answer a well-formulated and specific question by identifying, critically appraising, and summarizing the results of all relevant studies, published and unpublished, according to explicit and transparent methods.

**How was quality of evidence assessed?**

The quality of evidence has been assessed using methods developed by the GRADE working group.[5] The WHO Guidelines Review Committee also uses the GRADE system.

**References**

1. Chaua JY, Grunseita A, Midthjellb K, Holmen J, Holmenabb TL, Baumana AE, et al. Cross-sectional associations of total sitting and leisure screen time with cardiometabolic risk in adults. Results from the HUNT Study, Norway. J Sci Med Sport 2014;17:78-84.

2. Craft LL, Zderic TW, Gapstur SM, Vaniterson EH, Thomas DM, Siddique J, et al. Evidence that women meeting physical activity guidelines do not sit less: An observational inclinometry study. Int J Behav Nutr Phys Act 2012;9:122.

3. Dunstan DW, Thorp AA, Healy N. Prolonged sitting: Is it a distinct coronary heart disease risk factor? Curr Opin Cardiol 2011;26:412-9.

4. Shrestha N, Ijaz S, Kukkonen-Harjula KT, Kumar S, Nwankwo CP. Workplace interventions for reducing sitting at work. Cochrane Database of Systematic Reviews 2015, Issue 1. Art. No.: CD010912. DOI: 10.1002/14651858.CD010912.pub2.

5. Guyatt GH, Oxman AD, Vist G, Kunz R, Falck-Ytter Y, Alonso-Coello P, et al. Rating quality of evidence and strength of recommendations GRADE: An emerging consensus on rating quality of evidence and strength of recommendations. BMJ 2008;336:924-6.

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