

## Physical activity at workplace: narrative review and research agenda

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### Aim

The aim of this study was to review the state of research on the practice of physical activity in the workplace and its relationship with stress.

### Literature review

The relevance of work on health and the concept of "Burnout" described by Maslach began to be studied around 1980.

Stress-related symptoms can affect people's health (Chandola, 2010). People with good physical condition are able to better manage those symptoms since they are better suited to psychological stressors. However, the percentage of the population considered sedentary reaches 31%. All this highlights the need to include healthy lifestyles in people's routines and find out what are the best methods to do so.

Given the importance that work has on workers' life since much of their daily routines are conditioned by their job, this is a good environment in which to act to include physical activity and to prevent sedentary behaviors. The benefits of different interventions carried out in this context have been demonstrated in numerous studies (WHO, 2010). In addition to the direct benefits on the health of employees, such interventions also provide indirect benefits for employers such as cost savings, reduced absenteeism or improved performance and productivity at work. Therefore, it seems convenient that the companies and administrations promote and facilitate themselves the practice of physical activity in the workplace.

According to the "European Agency for Safety and Health at Work" (2010) after conducting a survey in the European Union countries, around 22% of employees suffer from daily stress at work and the annual economic cost of this physical and mental discomfort is estimated to be around 20 billion euros.

Taking all this into account, the purpose of this paper is to know the current state of research in this area in order to have a broader and more complete vision to support future actions.

### Méthods

This study was conducted as a literature review. The main objectives were to identify the research lines about the topic and to look for the commonalities of each of them, so that the current results and further research needed on this subject could be specified. Therefore, this study could be defined as a narrative review, including control criteria of a systematic review.

The selection of scientific studies was based on the following criteria:

- Experimental and quasi-experimental studies indexed in peer review journals, including randomized controlled designs.
- The articles were located in the two most important online databases in the field of Sports Science:
  - PubMed (<http://www.ncbi.nlm.nih.gov/pubmed>)
  - SportsDiscus (<http://www.sirc.ca/products/sportsdiscus.cfm>)

The word "exercise" was always used as a search criteria, so that term was always present in one of the search fields during the various literature explorations carried out, leaving the other fields subordinated with the preposition "and" and completed with one of the following keywords: stress, anxiety, physical activity, well-being, and workplace. The results focused on the most concrete and current literature.

### Results, discussion and implications/conclusions

A total of 8 items which met the requirements were analyzed. Only limited evidence was found due to the small number of subjects participating in studies. Lack of evidence can also be due to variations in measurement procedures, existing a lack of research with physiological measures.

A recent review (Martin, 2015) shows that, in most cases, the reliability of the way to quantify the habits of the subjects is low to moderate when using questionnaires, affirming that with these records it cannot be concluded that interventions change the lifestyle of people.

Currently there are tools able to record heart rate variability and to interpret the stress experienced by subjects. According to some authors, some of those tools can be used to objectively measure stress reactions in our body (Uusitalo et al., 2011). Even it has been shown that adding new technologies like those can increase improved results in interventions carried out in this field.

Future research would develop programs integrating these tools so that the practice of physical activity become more attractive, getting a better adherence and achieving permanent changes of habits in people's routines. Another possible utility of these tools is to measure stress in people whose work activity involves large doses of exercise.

It can be concluded that with more reliable and innovative tools we can have a more comprehensive and effective control on both the stress and the amount of physical activity experimented by subjects.

### References

- Chandola, T., Heraclides, A., & Kumari, M. (2010). Psychophysiological biomarkers of workplace stressors. *Neuroscience & Biobehavioral Reviews*, 35, 51–7.
- European agency for safety and health at work. (2010). European Survey on new and emerging risk. Available at: <https://osha.europa.eu/nl/topics/stress>.
- Martin, A., Fitzsimons, C., Jepson, R., Saunders, D., Van der Ploeg, H., Teixeira, P.J., Gray, C.M.C., & Mutrie, N. (2015). Interventions with potential to reduce sedentary time in adults: systematic review and meta-analysis. *British Journal of Sports Medicine*, 49: 1056–1063
- OMS (2010). Healthy workplaces: a model for action: for employers, workers, policy-makers and practitioners. Geneva: Public Health and the Environment Department, World Health Organisation.
- Uusitalo, A., Mets T., Martinmäki, K., Mauno, S., Kinnunen, U., & Rusko, H. (2011). Heart rate variability related to effort at work. *Applied Ergonomics*, 42, 830-838