



## **Editorial**

Scand J Work Environ Health [2014;40\(2\):105-108](#)

doi:10.5271/sjweh.3418

### **Rest breaks - a countermeasure for work-related injuries?**

by [Sallinen M](#)

**Affiliation:** Working hours, Alertness and Professional Traffic Team, Finnish Institute of Occupational Health, Helsinki, Finland. [mikael.sallinen@ttl.fi](mailto:mikael.sallinen@ttl.fi)

**Key terms:** [countermeasure](#); [editorial](#); [rest break](#); [shift work](#); [shift worker](#); [sleep](#); [sleep duration](#); [work shift](#); [work-related injury](#)

This article in PubMed: [www.ncbi.nlm.nih.gov/pubmed/24584585](http://www.ncbi.nlm.nih.gov/pubmed/24584585)



This work is licensed under a [Creative Commons Attribution 4.0 International License](#).

## *Rest breaks – a countermeasure for work-related injuries?*

The main idea behind supplementary rest breaks within a work shift is to promote recovery from work, a process known to be important for health in the long-run (1). Supplementary rest breaks are also used to promote occupational safety. In many industries and occupations, rest breaks are viewed as so important for safety that their use is determined by legislation and regulations. This holds especially true for the transportation sector where, for example, professional drivers' work–rest cycles are determined by acts and regulations, recorded by the employer, and inspected by authorities.

For the moment, scientific knowledge suggests that the use of supplementary rest breaks during a work shift can prevent or ease musculoskeletal symptoms and disorders (2, 3) and sleepiness (4, 5) to some extent. Whether also occupational injuries can be reduced by the same intervention is largely unknown (6) even though a recent study on workers who had experienced a work-related ladder-fall suggested that rest breaks could be used as a tool to enhance occupational safety (7).

In this issue of the *Scandinavian Journal of Work, Environment & Health*, an original study examines the association between rest breaks and severe work-related injuries (8). In the study, 703 hospitalized workers from various industries with severe work-related traumatic hand injury were interviewed in three cities in the People's Republic of China. The study did not include a group of uninjured controls. The main finding of the study was that a rest break of any duration postponed the onset time of a work-related hand injury.

The study has obvious strengths. It is based on face-face interviews that were done shortly following the injuries. In addition, many potential covariates (including age, gender, work hours, work start time and duration, injury day and time, duration and quality of last sleep, sleepiness, and job control) could be evaluated when examining the relationship between time-to-injury and the prior rest break. However, like all studies, this study also has its limitations, many of which the authors raise in the paper.

A central question arising from the study is how to interpret the main finding on the effect of a rest break on the time-to-injury within a work shift. According to the authors, the results “support the use of rest breaks during a work shift, along with other proposed measures to delay the onset time of a work-related injury and potentially counteract the effects of work fatigue as a means of obtaining recuperative rest and enhancing worker safety”.

Taken literally, the first part of the interpretation sounds problematic: Does it really matter whether an injury occurs earlier or later during a work shift if it nevertheless occurs? On the other hand, the latter part of the interpretation says the main takeaway of the study is that rest breaks have potential to help workers recover significantly from fatigue that has accumulated over the preceding work session(s).

The main finding is good news albeit with some reservations. The association found between the time-to-injury and having or not having a rest break before the injury may be explained also by factors other than recuperation through a rest break. It is possible that many of the workers who had no prior rest break simply experienced their injuries before their first rest break opportunity. It is natural that a certain amount of injuries occur during the first hours of the work shift and thus before the first rest break. On the other hand, if a worker is engaged in his or her tasks for a long period of time without having a rest break there may be some particular reasons for this and the same reasons may also contribute to the occurrence of an injury. Third, it is possible that the workers without a prior rest break had, on average, fewer rest break opportunities than their counterparts. This kind of difference between the two groups of injured workers could play a role in the onset time of an injury.

Despite these reservations, which are often inherent in this type of research design, the study of Lombardi et al (8) significantly contributes to the limited body of evidence on the role of rest breaks in work-related injuries. The results can be used as evidence for justifying and introducing the use of supplementary rest breaks. It is also most likely that the results will stimulate further research.

From a practical viewpoint, there are some pertinent questions to be answered regarding the use of supplementary rest breaks. One of the questions concerns the ways in which supplementary rest breaks ought to be introduced and implemented in a workplace. In a study by Oude et al (9), a tool aimed at raising awareness about the importance of supplementary short rest breaks among construction workers did not prove successful. In a later study from the same research project (10), the rest break tool – together with training sessions on workload adjustment and possibilities for greater worker influence at a worksite – did not result in significant improvements in musculoskeletal symptoms, sick leave, work ability, or health. Another study by Sarna et al (11) found that taking rest breaks was strongly associated with smoking status among nurses: those who did not smoke were almost twice as likely to miss their rest breaks as compared to smokers. In light of these findings, it is expected that management's commitment to flexible rest break practices, regulatory measures, or both are needed to make a difference in rest break practices and policies in the workplace.

Another issue regarding the use of rest breaks is workers' activities during their breaks. One could hypothesize that workers spontaneously spend their rest break time in a way that facilitates recuperation. The study of Lombardi et al can be considered to support this hypothesis since the rest breaks were associated with a delay in the mean onset time of injuries, even though the researchers did not oversee activities during the rest breaks. However, it is not self-evident that workers would have an opportunity to engage in optimally recuperative activities during rest breaks. A good example of this is the use of nap break opportunities in shift work. Despite the large body of evidence showing that prescribed nap breaks are effective in alleviating fatigue under the soporific conditions of shift work, in many industries and countries, caffeine and even nicotine consumption is still more easily accepted as a fatigue countermeasure than taking a nap.

In the future, there is a clear need for intervention studies to examine rest break practices that would prevent work-related injuries. This need is emphasized by the association of two common phenomena of modern work life, stress and fatigue, with work-related injuries (12, 13).

## References

1. Geurts SA, Sonnentag S. Recovery as an explanatory mechanism in the relation between acute stress reactions and chronic health impairment. *Scand J Work Environ Health*. 2006;32(6):482-92. <http://dx.doi.org/10.5271/sjweh.1053>
2. Goodman G, Kovach L, Fisher A, Elsesser E, Bobinski D, Hansen J. Effective interventions for cumulative trauma disorders of the upper extremity in computer users: practice models based on systematic review. *Work*. 2012;42(1):153-172.
3. Kennedy CA, Amick BC 3rd, Dennerlein JT, Brewer S, Catli S, Williams R, Serra C, Gerr F, Irvin E, Mahood Q, Franzblau A, Van Eerd D, Evanoff B, Rempel D. Systematic review of the role of occupational health and safety interventions in the prevention of upper extremity musculoskeletal symptoms, signs, disorders, injuries, claims and lost time. *J Occup Rehabil*. 2010;20(2):127-162. <http://dx.doi.org/10.1007/s10926-009-9211-2>
4. Caldwell JA, Caldwell JL, Schmidt RM. Alertness management strategies for operational contexts. *Sleep Med Rev*. 2008;12(4):257-273. <http://dx.doi.org/10.1016/j.smr.2008.01.002>
5. Takeyama H, Kubo T, Itani T. The nighttime nap strategies for improving night shift work in workplace. *Ind Health*. 2005;43(1):24-29. <http://dx.doi.org/10.2486/indhealth.43.24>
6. Tucker P. The impact of rest breaks upon accident risk, fatigue and performance: a review. *Work and Stress*. 2003;17(2):123–37. <http://dx.doi.org/10.1080/0267837031000155949>
7. Arlinghaus A, Lombardi DA, Courtney TK, Christiani DC, Folkard S, Perry MJ. The effect of rest breaks on time to injury - a study on work-related ladder-fall injuries in the United States. *Scand J Work Environ Health*. 2012;38(6):560-567. <http://dx.doi.org/10.5271/sjweh.3292>
8. Lombardi DA, Jin K, Courtney TK, Arlinghaus A, Folkard S, Liang Y, Perry MJ. The effects of rest breaks, work shift start time, and sleep on the onset of severe injury among workers in the People's Republic of China. *Scand J Work Environ Health*. 2014;40(2):146–155. <http://dx.doi.org/10.5271/sjweh.3395>

9. Oude Hengel KM, Blatter BM, van der Molen HF, Joling CI, Proper KI, Bongers PM, van der Beek AJ. Meeting the challenges of implementing an intervention to promote work ability and health-related quality of life at construction worksites: a process evaluation. *J Occup Environ Med.* 2011;53(12):1483-1491. <http://dx.doi.org/10.1097/JOM.0b013e3182398e03>
10. Oude Hengel KM, Blatter BM, van der Molen HF, Bongers PM, van der Beek AJ. The effectiveness of a construction worksite prevention program on work ability, health, and sick leave: results from a cluster randomized controlled trial. *Scand J Work Environ Health.* 2013;39(5):456-67. <http://dx.doi.org/10.5271/sjweh.3361>
11. Sarna L, Aguinaga Bialous S, Wells MJ, Kotlerman J, Froelicher ES, Wewers ME. Do you need to smoke to get a break?: smoking status and missed work breaks among staff nurses. *Am J Prev Med.* 2009;37(2 Suppl):S165-71. <http://dx.doi.org/10.1016/j.amepre.2009.05.005>
12. Julià M, Catalina-Romero C, Calvo-Bonacho E, Benavides FG. The impact of job stress due to the lack of organisational support on occupational injury. *Occup Environ Med.* 2013;70(9):623-629. <http://dx.doi.org/10.1136/oemed-2012-101184>
13. Williamson A, Lombardi DA, Folkard S, Stutts J, Courtney TK, Connor JL. The link between fatigue and safety. *Accid Anal Prev.* 2011;43(2):498-515. <http://dx.doi.org/10.1016/j.aap.2009.11.011>

Michael Sallinen  
Working hours, Alertness and Professional Traffic Team  
Finnish Institute of Occupational Health  
Helsinki, Finland

Agora Center  
University of Jyväskylä  
PO Box 35  
FI-40014 University of Jyväskylä

[E-mail: [mikael.sallinen@ttl.fi](mailto:mikael.sallinen@ttl.fi)]

