

(NON) OCCUPATIONAL FREE-LIVING PHYSICAL ACTIVITY IN CRANE OPERATORS AND OFFICE WORKERS

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INTRODUCTION

Due to technological development, modern man is substantially less physically active than their ancestors were. According to the objective measurements, we spend on average 60 % of awake time in sedentary behavior, which presents a risk factor for several non-communicable diseases. For considerable part of active population, a great source of sedentary time comes from working hours. There are also some evidences that those who sit most at work, also sit longer outside the working hours. There is a need to identify groups of people who are at most risk, thus most in need of interventions.

The aim of our study was to investigate sedentary behavior and step counts in crane operators and office workers (Figure 1) within work and non-work context. While office workers has been studied frequently, substantially less attention has been paid to crane operators.



a.

b.

Figure 1 – Crane operator (a) and office worker (b) spent a great portion of working hours in sitting position.

METHODS

Fourteen crane operators and 15 office workers wore activPAL (Figure 2) continuously for up to five consecutive working days to obtain sitting/lying, standing and stepping time, objectively. Working time and sleep time were also documented. T-test was applied to test differences between two studied groups (Mann-Whitney U test for parameter: % of sitting at work). Statistical significance was set at $p < .05$.



Figure 2 – Participants were equipped with wearable objective physical activity monitors for five workdays: activPAL was placed on the right thigh and Garmin FORERUNNER 920XT on the left wrist.

RESULTS

Both groups spent work hours (72.9 % and 72.9 % for crane operators and office workers, respectively) and non-work hours (60.3 % and 54.1 %) mostly sedentary (Figure 3). Subjects of the two groups (crane operators and office workers, respectively) accumulated 3036 and 3177 steps at work and 6236 and 6181 steps outside work on weekdays. Cumulatively, they spent on average 701 ± 95 min and 656 ± 88 min per weekday in sitting/lying position. No significant ($p < .05$) changes were found between the two studied occupational groups.

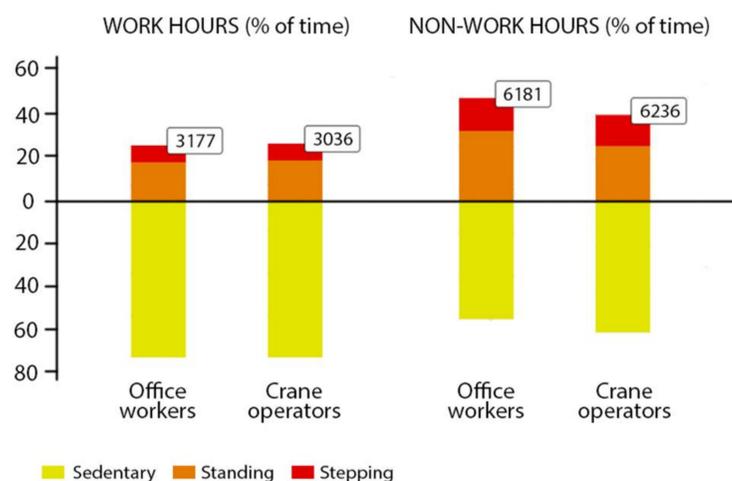


Figure 3 – A proportion of time spent sedentary, standing and stepping during work and non-work hours for office workers and crane operators are shown. The average number of steps is also presented (in rectangles).

DISCUSSION AND CONCLUSION

This is the first study to our knowledge that objectively evaluate free-living physical activity in crane operators. Our results show that crane operators are as sedentary occupational group as office workers, which has already receive much attention for reducing prolonged sitting at work.

They both spend almost three-quarters of working hours in sitting position, cumulatively 11 hours per weekday, which present a great health hazard. Simultaneously, they accumulate on average nearly 10.000 steps per weekday, which has been frequently proposed guideline for physical activity for health. However, it was reported previously, that individuals who meet the physical activity recommendations do not sit less than those who do not meet recommendations.

Health promotion activities to reduce sedentary behavior should be encouraged. We also believe that interventions for reducing occupational sitting are needed. In occupations where employees do not have freedom to stand up at will (e.g. crane operators), implementation of work tasks that require more physical labor, might be one of the possible organizational interventions.

Acknowledgements

The authors gratefully acknowledge the European Commission for funding the InnoRenew CoE project (Grant Agreement #739574) under the Horizon2020 Widespread-Teaming program.