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Assessment of energy expenditure in workers in the automotive industry

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Introduction: Number of musculoskeletal disorders as a consequence of inadequate working conditions is still increasing. An important indicator of physical load is energy expenditure.

Objectives: The main objective of this work was to assess the energy expenditure of the selected groups of workers during the work shift in the automotive industry. The intermediate objectives were to measure the heart frequency and energy consumption of workers and the results compared with the legal regulations of the Slovak Republic.

Aim: To find out the difference in the levels of energy expenditure between different working positions. To determine energy expenditure by using index method and the results compared with measured values.

Methods: Heart frequency and energy expenditure of observed group of workers was determined on the basis of data recorded by the measuring device Polar RS 400. The results were compared with the Ministry of Health Slovak Republic Decree Nr. 542/2001 by sex and age group. Energy expenditure was further determined based on time and values according to index method of Borsky.

Results: It was found that heart frequency was exceeded overall in 8 employees and value of energy expenditure in 4 employees. Between working positions, we did not find a significant difference in the values of energy expenditure of workers ($p>0.05$). There is no difference between the values of energy expenditure determined according to Borsky method and measured through the Polar device ($p>0.05$).

Conclusion: Although there has not been a significant overshooting of permitted standards, it is still necessary to control the workload of workers and prevent potential health complications and adverse health impacts of inadequate work performance.

Biography

Machajova M is a Doctor at the Faculty of Health Sciences and Social Work. She has completed her PhD at the age of 27 years from Trnava University, Slovakia. She is the Vice-Head of Department of Public Health and lecturer with a particular interest in Occupational Health & Safety and Environmental Health. She has international working experience from the University of Parma in Italy, where she was a member of the research team testing a non-invasive method for the diagnosis of respiratory diseases. She has worked in Occupational Health Services as a Public Health Specialist focusing on Risk assessment, planning and management of the preventive programs aimed at health promotion and protection.

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