

Effect of Environmental Changes in Working Heart Rate among Industrial Workers: An Ergonomic Interpretation

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Abstract : Occupational health hazard is a very common term in every emerging country. Along with the unorganized sector, most organized sectors including government industries are suffering from this affliction. In addition to workload, the seasonal changes also have some impacts on working environment. With this focus in mind, one hundred male industrial workers, who are directly involved to the task of Periodic Overhauling (POH) in a fabricating workshop in the public domain are selected for this research work. They have been studied during work periods throughout different seasons in a year. For each and every season, the participants working heart rate (WHR) is measured and compared with the standards given by different national and internationally recognized agencies i.e., World Health Organization (WHO) and American Conference of Governmental Industrial Hygienists (ACGIH) etc. The different environmental parameters i.e. dry bulb temperature (DBT), wet bulb temperature (WBT), globe temperature (GT), natural wet bulb temperature (NWB), relative humidity (RH), wet bulb globe temperature (WBGT), air velocity (AV), effective temperature (ET) are recorded throughout the seasons to critically observe the effect of seasonal changes on the WHR of the workers. The effect of changes in environment to the WHR of the workers is very much surprising. It is found that the percentages of workers who belong to the 'very heavy' workload category are 83.33%, 66.66% and 16.66% in the summer, rainy and winter seasons, respectively. Ongoing undertaking of this type of job profile forces the worker towards occupational disorders causing absenteeism. This occurrence results in lower production rates, and on the other hand, costs due to medical claims also weaken the industry's economic condition. In this circumstance, the authors are trying to focus on some remedial measures from the ergonomic angle by proposing a new work/rest regimen and introducing engineering controls along with management controls which may help the worker, and consequently, the management also.

Keywords : workload, working heart rate, occupational health hazard, industrial worker

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