Office Ergonomics: An Intervention Study With an Oil Refinery Company

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Abstract

Office Ergonomics is the science of fitting the workspace environment to the worker. Also called biotechnology, human engineering or human factor engineering, office ergonomics is the applied science of equipment design for the office that is intended to maximize the productivity by reducing office worker fatigue and discomfort. In recent years, workers, employers and regulators have come to recognize the importance of making offices ergonomic. An ergonomic office is essential to help prevent injuries and maximize employee production. This project investigated and evaluated the existing office setup in an Oil Refinery Company in the Sultanate of Oman with respect to computer furniture, work habit, and working environments based on ergonomic principles, data, and guidelines. The existing workstations setups were studied to identify ergonomics problems related to human behavior, health condition, and equipment supplied. The company has supplied ergonomically designed tools and equipment which were used for the study, 20 ergonomically designed chairs and tables, 20 ergonomically designed computers, 20 keyboards and mouse pad, 20 footrest, 20 wrists rest, 20 glare reflectors, 20 cushion chair lumber, and 20 cushion seats, computer filters. Also a user guide was prepared and distributed to the required users in English and Arabic. A year long study was conducted on a sample group of 40 employees representing the whole company in term of workstation, work, and environment in relation with proper use of ergonomics facilities and methods. Four identified groups were involved which each has 10 randomly selected employees were studied as follow: group (1) the control group, which was not provided with ergonomics training nor ergonomics tools and equipment, group (2) employees were provided with ergonomics training, group (3) employees were provided with ergonomics facilities, and finally group (4) employees were provided with both ergonomics facilities and training as per the training guide given. The result showed a reduction in the health complaints such as back complaints dropped from 70% at the start to 30% after 6 months of intervention in the whole sample. The drop in the group 2 from 90% at the start, 70% after 3 months, and 20% after 6 months. In group 3 the back pain was dropped from 100% at the start to 60% after 3 months and 10% after 6 months. In group 4 the drop was from 90% to 40% to 10% after 6 months. The
stress level has dropped from 70% at the start to 30% in group 2, and 90% to 30% in group 3, from 70% to 10% in group 4 respectively. Also the headache complaints has dropped from 60% to 30% in group 2, 80% to 20% in group 3, and 60% to 10% in group 4. Worker satisfaction has been improved from 10% to 40% in group 2 after 6 months, 20% to 80% in group 3 after 6 months, and finally in group 4 after 6 months from 30% to 90% improvement was recorded. The investigation showed that improvement in the work environment is possible through the application of ergonomics principles and data. The enhanced worker performance and satisfaction along with ergonomically designed computer workstation with proper arrangement and the right work environment and training can also improve occupational health and safety problems. This type of research will have immense implications for managers who are interested in improving worker productivity, health, safety and satisfaction in working environment where computers are used in the work for many applications.