

RESEARCH PAPER

Postural discomfort during loading and unloading work

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ABSTRACT

Adoption of poor working posture in order to perform tasks could lead to a postural stress, fatigue and pain, which may in turn force the operator to stop work until the muscles recover. To prevent pain and injuries, the manual material handling tasks should be designed to take into account several risk factors related to the task being handled. This paper describes the results of an experimental study aimed at evaluating the postural discomfort during loading and unloading in warehouses through standard OWAS scale and a revised Nordic musculoskeletal questionnaire validated by Kuroinka *et al.* (1987). It was found through OWAS scale that the corrective measures were required immediately and as soon as possible in most of the activities in warehouse.

Key Words : Workload, Posture, Loading, Unloading, Energy expenditure

View point paper : Bhatt, Hema and Sharma, Promila (2012). Postural discomfort during loading and unloading work. *Asian Sci.*, 7(2): 168-172.

Manual handling is a severe problem in developing and underdeveloped countries. Work related disorders has increased dramatically in these countries and workers are exposed to much worse conditions due to inadequate safety system, lack of awareness, lack of training of occupational safety, health and lack of ergonomic standards. A significant problem associated with manual handling activities involving loading and unloading tasks is the fact that they are the primary cause of overexertion injuries. Loading and unloading tasks include diverse activities such as lifting, lowering, holding, pushing, pulling, carrying and turning of weights etc. The types of back injuries most frequently reported are strains and sprains, dislocation (herniation) of the lumbar disc, fracture, joint inflammation (mostly L4/L5 and L5/S1; occasionally other joints such as the shoulder and hip), laceration of muscle tissue, contusion, and nerve (sciatic) involvement, often leading to activity limitation and workplace accidents.

Epidemiological and biomechanical studies have found that a combination of high external load and poor movement patterns cause a high internal load on the spinal structure and increases the risk of pain and injury. Poor movement patterns consist primarily of bending or twisting of the trunk, or both. Bending occurs during reaching and lifting of an object from a low to a high surface. Twisting of the trunk is mostly the result of inadequate workspace. Excessive bending and twisting of the trunk have been related to higher biomechanical and physiological costs and musculoskeletal injuries. The involvement of back and abdominal muscles in lifting activity has long been established. Several researches have shown that the application of ergonomic principles and programs in almost all workplaces result in increasing productivity and decreasing work related musculoskeletal disorders (WMSDs) (Saraji *et al.*, 2004). The moral and economic consequences that result from pain and injury made it necessary to study and, therefore, attempt to solve such a problem. Hence an

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