



Legal system and its effect for prevention of work-related musculoskeletal disorders in Korea

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ABSTRACT

This study aims to introduce the legislation of occupational safety and health regulations for prevention of WMSDs in Korea and investigate its effect by showing an ergonomic intervention effort in a major motor company. In Korea, WMSDs incidence rates had increased from 1999 to 2003, and it is noted that its increment jumped rapidly in 2002 and 2003. The Korean government established a law prescribing employers' duty of preventing WMSDs in 2002, which began effective in July, 2003. Following the legislation, all employers should execute the examination of WMSDs risk factors for the eleven designated tasks every three years. In addition to this legal obligation, some large companies voluntarily established an ergonomic intervention program by carrying out in-depth assessments for stressful tasks using OWAS, RULA, NLE, etc. We introduce a major motor company case to illustrate the industry's activities of fulfilling the legislative requirement and of performing ergonomic assessments. Thanks to Korean government and industry's effort for prevention of WMSDs, the incidence rates of WMSDs have continually decreased from the year of 2004, right after the year when the WMSDs-related regulation was enforced.

Relevance to industry: In spite of booming of information technology industries and automation of manufacturing processes in Korea, many workers are still exposed to the risk of WMSDs including awkward postures, stressful force exertions, repetitive motions in manufacturing and agriculture industries. WMSDs cases alone constitute 43.1% of occupational diseases in Korea and the industry's effort of ergonomic intervention of WMSDs becomes a major issue to both the management and the labor union.

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1. Introduction

Work-related musculoskeletal disorders (WMSDs) are a collective term for symptoms characterized by discomfort, disability impairment, or persistent pain in joints, muscles, tendons and other soft tissues, which are caused or aggravated by work (Kroemer, 1989). WMSDs have caused serious social problems such as wage compensation, medical expenses and reduced productivity, as well as worker's physical and psychological pain (Ayoub and Mital, 1989; Chaffin et al., 1999). WMSDs are a worldwide concern and distributed among both industrialized countries and industrially developing countries (Choobineh et al., 2009). About two percent of the entire American workers suffer from WMSDs

every year (Faucett et al., 2002), which account for over 1/3 of all worker compensation costs. In Nordic countries and The Netherlands, the cost of WMSDs has been estimated at between 0.5% and 2% of GNP (Buckle and Devereux, 1999). In Korea, the number of compensated workers for WMSDs including low back pain was 1954 in 2007, which amounts to about 34.3% of total occupational diseases (Korean Ministry of Labor, 2008). Economic losses due to WMSDs in Korea are estimated to be about 1.3 trillion won (\$1 billion), which approximately amount to 0.3% of GNP (Lee, 2002). For these, joint-effort of labor, industry and government for reducing occupational diseases has been focused on preventing WMSDs. Many studies have dealt with WMSDs in diverse industries including cleaning (Kumar and Kumar, 2008), automobile (Landau et al., 2008), semiconductor (Wu et al., 2009), telecommunications (Crawford et al., 2008).

The purposes of this study are to introduce the legal system for prevention of WMSDs in Korea and to investigate its effect by

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