

RISK ASSESSMENT OF MUSCULOSKELETAL DISORDERS AMONG WORKERS EXPOSED TO HAND-ARM-VIBRATION: DESIGN, EXPOSURE ASSESSMENT METHODS AND FIRST RESULTS OF AN EPIDEMIOLOGICAL CASE-CONTROL STUDY

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Introduction

Mechanical vibration arises from a wide variety of processes and operations performed in industry, such as mining, construction and forestry. Studies from different countries indicate an elevated risk of musculoskeletal disorders among vibration-exposed workers in compare to non-exposed workers. In Germany, there are approximately 1.5 to 2 million employees are currently exposed to hand-arm vibration which may represents a threat to their health. Although the human responses to vibration depend both on the magnitude and frequency of the vibration signal, their impacts on human health are poorly investigated. In order to quantitatively evaluate the effects of frequency dependent hand-arm-vibration on the risk of musculoskeletal disorders of the hand-arm-shoulder system, an epidemiological case-control-study was conducted among workers in the construction, mining and metal industries in Germany.

Methods

In total, 250 clinical confirmed cases and 750 controls are recruited by the German Social Accident Insurance Institutions. The individual work history, its related working activities and the use of hand-transmitted vibration equipment were collected in a standardized personal interview by trained and experienced work safety inspectors of the German Social Accident Insurance Institutions. In addition, a database on the magnitude and frequency spectrum of mechanical vibrations of commonly used hand-transmitted vibration equipment was established based on standardized industrial hygiene measurements. Information on relevant confounding factors such as sports, leisure activities and co-morbidities are also collected in the standardized personal interview.

Results and Discussions

Detailed information on study design, exposure assessment methods, quality control and first results will be presented.