Occupational Exposures and Back Disorders

YELLOW REPORT | A SYSTEMATIC REVIEW

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Executive Summary

The Swedish Council on Health Technology Assessment (SBU) conducted a systematic literature review of research on the association between occupational exposures and back disorders. In this review, we use back disorders as an umbrella term to include the more specific terms back trouble (a subjective experience of pain, ache or discomfort in the back), symptoms of sciatica, intervertebral disc changes and diseases of the back. The report is focused on disorders of the thoracic and lumbar spine.

A wide range of occupational exposures were investigated, including: physical work load, vibration, organizational and psychosocial factors, chemical and biological factors, noise, environmental factors and contagious substances.

Background

Since 2011 SBU has had a mandate from the Swedish government to systematically assess the evidence associating occupational exposures to health issues. The objective of this review was to assess the scientific basis describing the influence of occupational exposures on back disorders.

Back disorders are common. Between 60 and 70 percent of the general population world-wide suffer from back pain at least once in their life. For affected individuals, back disorders are the source of both suffering and decreased functioning. The costs to society are also considerable in terms of direct health care costs, financial support to individuals with work disability, as well as costs due to loss of production.

Method

A systematic review was undertaken following the PRISMA statement and standard methods used by SBU adapted to an occupational context. A literature search covering years 1980 to January 2014 was conducted in international medical and occupational data bases. The review assessed almost 8 000 abstracts. Studies that fulfilled strict inclusion criteria were assessed for relevance and quality, using pre-set protocols. Relevance and quality assessments were conducted by two experts, working in an evaluation pair. After conducting independent assessments, the two experts had to agree on a mutual relevance and quality classification. Some articles required that all exporters participated in discussion and made a collective assessment. A total of 109 studies were classified as moderate or high quality, representing more than 150 000 study participants. The strength of the scientific evidence was assessed with the GRADE system.

Results

There is an association between occupational exposure and back disorders. This result is based on investigations of a large variety of work environments, mainly in Europe and North America. In most studies passing the quality criteria, researchers investigated occupational exposure and back disorders in populations consisting of both women and men with at least one year of follow up.

Conclusions

- People in the following groups develop more back trouble over time than those who are not subjected to the specified exposure at work:
  - Those who work with manual handling (e.g. lift) or in a posture where the back is bent or rotated
  - Those who work in a kneeling or squatting posture, or have physically demanding work tasks
  - Those exposed to whole body vibration
  - Those who experience work as mentally stressful; or those who find their work demanding, but lack decision latitude (per

sonal control of their own working situation); or those who have insufficient opportunities for personal development

– Those who work outside standard office hours.

- In some work environments, people have less back trouble. Those who experience high influence over work-related decisions, those who get social support at work and those with high job satisfaction develop less back trouble than others.

- Women and men with similar occupational exposures develop back troubles to the same extent.

- Those who work in forward bent postures or are exposed to whole body vibration in their work develop more symptoms of sciatica than others, while those with high job satisfaction develop less such symptoms. Those whose work entails manual handling develop more intervertebral disc changes than others.

- This systematic literature review has uncovered a substantial body of knowledge concerning occupational exposures and back disorders. Future research should include intervention studies, i.e. studies that scientifically test the effect of well defined interventions on back disorders over extended periods of time in authentic work situations.

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