Musculoskeletal disorders within the telecommunications sector: a systematic review

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CRD summary
There was little evidence to support health surveillance or preventative interventions for musculoskeletal disorders. The authors conclusions reflected the evidence presented, but the small number of included studies of limited quality and potential for publication and language biases should be borne in mind.

Authors' objectives
To identify risk factors and preventative measures for musculoskeletal disorders within the telecommunications sector.

This abstract is focused on the effectiveness of interventions reported in the review.

Searching
PubMed, Web of Knowledge, Science Citation Index, Social Science Citation Index, Ergonomic Abstracts Online, PsycINFO, SIGLE, COPAC, British Library Public Catalogue and Cochrane Database of Systematic Reviews were searched. Search terms were reported. Health and Safety Executive, European Agency for Health and Safety and National Institute for Occupational Safety and Health were searched for additional studies. UNI-Europa was contacted for industrial publications.

Study selection
Studies were screened for eligibility according to four groups of criteria. The first was that studies needed to be randomised controlled trials (RCTs), quasi-experimental, cross-sectional, observational, case report or qualitative studies. Second, studies had to be of telecommunications service technicians, call centre workers or workers who performed similar activities. Third, studies needed to address: incidence or prevalence of musculoskeletal disorders or functional activities associated with musculoskeletal disorders or psychosocial factors in development of musculoskeletal disorders or predictive factors in development of musculoskeletal disorders or preventive interventions in musculoskeletal disorders or identify best practice. Four, studies should provide information on musculoskeletal disorder-related outcomes.

Included interventions were: training in workstation adjustment and posture; muscle learning therapy; occupational health nurse-delivered education and training; and health surveillance.

Included participants were: electricity linesmen; gas distribution operatives; engineers; assembly workers; call centre workers/telemarketers; video display terminal/computer operators; office workers; telecommunications field technicians; handlers of well or manhole covers; and underground miners.

Included methods for analysis were: questionnaires; physiotherapy examinations; workplace examinations; measurements of pain/stiffness/numbness; medical records; reaction forces and moments; volunteers who performed lifting/cable hanging tasks; biomechanical analysis of posture (Nordic Musculoskeletal Questionnaire, Ovako Working-Posture Analysis System); and provision of training.

Reported outcomes were: musculoskeletal discomfort (general or specific joints or body areas); prevalence of vibration white finger; cumulative trauma disorders; physiotherapy examination results; pain, stiffness and numbness; upper limb disorders; nerve entrapment; ganglion cysts, ability to perform work-related tasks; identification of high-risk tasks or extreme/awkward postures; exposure to cold/heat/vibrations; position of workstation; and psychosocial factors.

Two reviewers independently assessed studies for inclusion. Disagreements were resolved by discussion.

Assessment of study quality
The quality of studies was assessed according to Waddell and Burton (2000). This was based on study design, numbers in the study population, use of valid data collection methodology and confidence limits within data found. Each criteria was rated zero (no evidence) to 3 (strong evidence).

Two reviewers independently assessed the validity of included studies. Disagreements were resolved by discussion or use of a third reviewer.

**Data extraction**
Data were extracted into standardised forms by two independent reviewers.

**Methods of synthesis**
The studies were combined in a narrative synthesis supported by data tables.

**Results of the review**
It appeared that 43 studies (n=unclear) were included in the review (number of studies in text and tables differed). Only four studies evaluated interventions (two RCTs and two cross-sectional studies); results are reported below. Quality of RCTs was reported as moderate and quality of cross-sectional studies was reported as limited.

Effectiveness of intervention strategies: There was no evidence to support the use of training or education techniques (two RCTs, n=167) or health surveillance (two cross-sectional studies, n=879) as preventative measures for musculoskeletal disorders.

Other results were reported in the review.

**Authors’ conclusions**
There was no evidence to support use of health surveillance or preventative interventions for musculoskeletal disorders.

**CRD commentary**
This review addressed a clear research question supported by clear inclusion criteria. Several databases were searched and attempts were made to find unpublished data. Search dates were not reported and it is unclear whether language restrictions were imposed, so relevant trials may have been missed and language bias could not be ruled out. Study quality was analysed and deemed moderate or limited. Adequate steps were taken throughout the review process to minimise errors and bias. Narrative synthesis was an appropriate method to combine the studies, given the differences between studies. Only a small number of intervention studies, some with small sample sizes, were reported in the review. Interventions, outcomes and measurement tools varied widely between studies. These limits were recognised by the authors. The authors conclusions reflected the evidence presented, but the small number of included studies and potential for language and publication biases should be borne in mind.

**Implications of the review for practice and research**
**Practice**: The authors did not state any implications for practice.

**Research**: The authors stated that research was required to evaluate interventions for musculoskeletal disorders with both service technician workers and call centre workers and address physical work-place factors and psychosocial issues. Evaluation was needed on the effectiveness of health surveillance. Future systems developed to monitor progression of musculoskeletal disorders should be accurate and consistent in data collection methods and use validated tools for self-report measures.

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Other publications of related interest

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.