Workplace intervention and musculoskeletal disorders: the need to develop research on implementation strategy

Y Roquelaure

Despite the considerable amount of knowledge on the physiopathology, epidemiology and risk model of musculoskeletal disorders (MSDs) accumulated the last 20 years, they remain a major cause of work-related diseases in many countries. Multidimensional ergonomic interventions, including a participatory approach and individual, technical and organisational measures, seem to be an appropriate strategy for reducing the physical demands and the symptoms of MSDs, but evidence of their efficacy is still limited. Nevertheless, the scientific understanding of the aetiology of MSDs and their work-relatedness is sufficient to implement effective preventive interventions, as demonstrated by the study of Jensen and Friche1 published in this issue (see page 20). The study provides interesting insights into the prevention of musculoskeletal (knee) disorders and the strategy to implement interventions in a specific trade—that is, floor and carpet fitters (floor layers)—in daily practice. The authors demonstrate that implementation of new working methods requires a long-term structured approach to both implementation and prevention strategies in MSDs. Their intervention consisted of providing new working tools to allow performance of tasks in an upright posture to reduce the time spent in a kneeling position, which they hypothesised would reduce knee disorders. The implementation strategy followed a complex process including scientific research, information for employees, employers and trade unions, training, and participatory ergonomics with direct involvement of workers to develop and implement new working methods for floor layers. The results showed a positive effect of training to introduce new working methods and change workers’ behaviour during floor laying. The effects were sustained without reducing productivity or noticeably increasing strains to other body parts. This intervention study, as common in tailored interventions, suffered from several methodological flaws (for example, outcome measure based on symptoms only, possible selection bias, and the difficulty of randomising the introduction of new working methods intended to reduce MSD symptoms in a company). In view of the lack of a randomised control group, only limited conclusions could be drawn regarding the reduction in severity of knee symptoms in short and intermediate term follow-up after the intervention.

The overall preventive strategy implemented in floor layers assumes a dose-effect relation between the mechanical workload of the knees and MSD symptoms. This specific occupation provides a favourable field for research on implementation strategy of preventive intervention in MSDs since one main risk factor—that is, the specific awkward posture—probably accounts for a high proportion of the attributable risk of knee disorders. In other contexts, for example shoulder disorders in meat processing workers or low back pain in nurses, preventive approaches based on new hand tools may be less effective. The development of evidence-based practice in occupational health requires more longitudinal controlled intervention studies to assess the relations between the interventions and any decrease in musculoskeletal symptoms. Results of high quality randomised controlled intervention trials to study the efficacy of new hand tools or controls, such as keyboards with an alternative design, to reduce musculoskeletal symptoms in the workplace have recently been published, but the results are contradictory. Very few high quality randomised controlled multidimensional intervention trials are available, because their quasi-experimental design is not always feasible in the occupational setting. Often, only less rigorous interventions can be adapted to the specific socioeconomic and psychosocial contexts of a company, particularly if the implemented technical and/or organisational changes are to be sustained. Although methodological issues in current intervention studies limit the conclusions that can be drawn regarding their impact on the workload and the symptoms of MSD, they provide important information on the feasibility of interventions aimed at preventing MSDs in various settings.

Despite its limitations, this study provides wide public health perspectives by showing how the use of a participatory ergonomics approach reduced barriers to the introduction of innovative working methods in construction workers. Designing effective interventions to alter physical work demands and MSD symptoms is necessary but insufficient to prevent MSDs, since results depend not only on the effectiveness of the ergonomic intervention itself, but also on the implementation strategy. The latter involves the planning and processing of the implementation of assumed effective measures in order to incorporate them into the job, the work organisation, and the industry sector. The implementation strategy used in floor layers could probably be adapted to other contexts and offers an interesting framework to stimulate research on intervention studies in MSDs. Preventing MSDs is a complicated challenge, and there is a need to develop research on intervention studies which improve our understanding of the efficacy of different prevention strategies and different implementation strategies that are usable in the workplace.

Competing interests: None.

doi:10.1136/oem.2007.034900

REFERENCES


BMJ Clinical Evidence—Call for contributors

BMJ Clinical Evidence is a continuously updated evidence-based journal available worldwide on the internet which publishes commissioned systematic reviews. BMJ Clinical Evidence needs to recruit new contributors. Contributors are healthcare professionals or epidemiologists with experience in evidence-based medicine, with the ability to write in a concise and structured way and relevant clinical expertise.

Areas for which we are currently seeking contributors:
- Secondary prevention of ischaemic cardiac events
- Acute myocardial infarction
- MRSA (treatment)
- Bacterial conjunctivitis

However, we are always looking for contributors, so do not let this list discourage you.

Being a contributor involves:
- Selecting from a validated, screened search (performed by in-house Information Specialists) valid studies for inclusion.
- Documenting your decisions about which studies to include on an inclusion and exclusion form, which we will publish.
- Writing the text to a highly structured template (about 1500–3000 words), using evidence from the final studies chosen, within 8–10 weeks of receiving the literature search.
- Working with BMJ Clinical Evidence editors to ensure that the final text meets quality and style standards.
- Updating the text every 12 months using any new, sound evidence that becomes available. The BMJ Clinical Evidence in-house team will conduct the searches for contributors; your task is to filter out high quality studies and incorporate them into the existing text.
- To expand the review to include a new question about once every 12 months.

In return, contributors will see their work published in a highly-rewarded peer-reviewed international medical journal. They also receive a small honorarium for their efforts.

If you would like to become a contributor for BMJ Clinical Evidence or require more information about what this involves please send your contact details and a copy of your CV, clearly stating the clinical area you are interested in, to CECommissioning@bmjgroup.com.

Call for peer reviewers

BMJ Clinical Evidence also needs to recruit new peer reviewers specifically with an interest in the clinical areas stated above, and also others related to general practice. Peer reviewers are healthcare professionals or epidemiologists with experience in evidence-based medicine. As a peer reviewer you would be asked for your views on the clinical relevance, validity and accessibility of specific reviews within the journal, and their usefulness to the intended audience (international generalists and healthcare professionals, possibly with limited statistical knowledge).

Reviews are usually 1500–3000 words in length and we would ask you to review between 2–5 systematic reviews per year. The peer review process takes place throughout the year, and our turnaround time for each review is 10–14 days. In return peer reviewers receive free access to BMJ Clinical Evidence for 3 months for each review.

If you are interested in becoming a peer reviewer for BMJ Clinical Evidence, please complete the peer review questionnaire at www.clinicalevidence.com/ceweb/contribute/peerreviewer.jsp