



Editorial

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Limited evidence for conservative treatment methods for work-related neck and upper-limb disorders - should we be worried?

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Limited evidence for conservative treatment methods for work-related neck and upper-limb disorders — should we be worried?

The systematic review by Konijnenberg et al (1) in this issue of the *Scandinavian Journal of Work Environment & Health* deals with conservative treatment methods for the great problem of neck and upper-limb disorders in working populations. Fifteen randomized controlled trials (RCT) or controlled clinical trials (CCT) fulfilled the inclusion criteria of the review. Five of these scored 6/12 or higher according to their internal validity criteria and were considered high-quality studies. In the presence of a wide range of treatments, no treatment modality could be evaluated on the basis of a remarkable number of high-quality studies. There was, however, limited evidence in favor of physiotherapy, exercises, and ergonomic improvements.

Repetitive strain injury (RSI) is a loose concept used in this review broadly to encompass a range of disorders from the neck and thoracic spinal area to the fingertip. In principle, outcomes in treatment or intervention studies should be based on symptoms or findings or both independently of the etiologic factors of the disease, and we should avoid concepts that include the assumed etiologic factor. To me, "neck and upper-limb disorders in working populations" would have seemed to be a more appropriate concept, especially since the work-relatedness of the conditions is difficult to assess; in fact it was not even addressed in some of the studies reviewed. Moreover, the requirement of work-relatedness resulted in the exclusion of some potentially high-quality studies (2) that did not have "work-relatedness" as an inclusion criterion, but still probably dealt with a largely similar group of disorders. For instance, in the study of Taimela et al (2), one inclusion criterion was the possession of a permanent job.

But if we accept the concept of repetitive strain injury and assume that *repetitive movements* are one of the major causes of this *strain*, would not then modification of exposure (or engineering control) be a natural component in a treatment aimed to enhance recovery and prevent recurrence? Many of us would probably say yes, but a look at the tables in the review shows that only very few studies had workplace adjustment as a treatment or as one constituent in the treatment protocol. Another conspicuous feature of this review and also of some other related recent reviews (for an example, see reference 3) is that ergonomic intervention has usually been carried out in the office environment. While there is no doubt that office workers do have work-related musculoskeletal problems, such problems are even more frequent in the construction, transportation, and manufacturing industries and in some branches of the service sector, for example, hospital, kitchen, and cleaning work (4). Hopefully, the target workplaces for future workplace intervention studies will be determined by the size and seriousness of the problems and not only by the feasibility of carrying out an intervention study, such as stationary work in an office environment versus a changing work environment at a construction site, or the marketing of new input devices or computers.

The magnitude or the duration of the treatment effects did not deserve much attention in this review, which is understandable since high-quality studies were few in number. However, a look at the high-quality studies shows that a modest reduction in pain was typical, and this effect was no longer present in the later phases of follow-up. Cost-effectiveness aspects were not considered in any of the studies included in this review. The relatively meager results in most studies do not suggest that the treatments were cost-effective in general.

Many risk factors contribute to the occurrence of neck and upper-limb disorders among working populations (5, 6, 7). In a multifactorial condition, it is unlikely that a single measure would result in significant relief, something that is suggested by the meager results in several studies accepted for review. With regard to the etiology of most neck and upper-limb disorders, multidisciplinary approaches should have a higher potential. Unfortunately, multidisciplinary rehabilitation had been tried in only one controlled clinical trial, which received a very low score.

The authors are correct in being worried about the use of multiple outcomes in intervention studies, the result being a high likelihood that a positive result is obtained by one of the outcomes by chance. Researchers should be more critical in the design of their studies. They should select only the most relevant outcome measures and restrict the outcomes only to them.

Most studies relied solely on subjective outcome parameters, since few generally accepted objective methods exist. This is a major scientific problem, especially since blinding subjects for treatment is hardly possible.

A major question of treatment policy in relation to neck and upper-limb disorders among working populations is whether the focus should be on treating the individual or his or her environment, especially in the control of workload. Trying to get an answer from workplace intervention studies, especially randomized controlled trials, involves an inherent potential of bias. As it is much easier to randomize individuals into different physical therapies, exercise or other treatment modalities, than it is to randomize workstations to be changed or not, there will always be more randomized controlled trials with treatments directed toward the individual. Therefore, there are greater chances of obtaining positive results from such treatments at the cost of engineering controls. Moreover, the current instability at workplaces, with high turnover rates and frequent reorganizations, makes it increasingly difficult to carry out workplace intervention studies successfully.

It is easy to share the authors' worry about the absence of high-quality studies as evidence for the effect of most currently used treatment modalities. As the authors say, there is a higher possibility of bias, for example, an erroneous positive result of a treatment, in a low-quality study than in one of high-quality. This issue was systematically addressed in a review on acupuncture trials involving chronic neck and back pain (8), in which the authors were able to show that the most valid trials tended to have negative results. Konijnenberg and his collaborators' review shows convincingly that the scientific basis for current treatment practices with respect to neck and upper-limb disorders in working populations is limited and based largely on low-quality studies. More high-quality studies are definitely needed. Moreover, research priorities should not be restricted to groups of workers and treatment modalities that are easy to study. Instead, studies should be undertaken on treatment modalities that carry a potential to be efficacious. Worker groups with the highest risk of neck and upper-limb disorders should be the focus. Such studies are often laborious and should therefore be supported by sufficient funding. It is possible that new knowledge from such studies may change our understanding of the efficacy of some treatments and, therefore, create pressure to change current treatment practices.

What should the practitioner do now while we are still waiting for the results of such studies? The Panel on Musculoskeletal Disorders established by the National Research Council and the Institute of Medicine concluded in their review that the epidemiologic evidence for upper-extremity disorders supports the important role of physical load factors (7). Based on this evidence, primary and secondary intervention at the workplace, including engineering and administrative controls, was recommended. As there are still few prospective studies on incident neck and upper-limb disorders, it is difficult, on the basis of epidemiologic studies, to estimate the relative potential of these measures in primary versus secondary prevention.

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