

EFFECTIVENESS OF ERGONOMIC TRAINING TO REDUCE PHYSICAL DEMANDS AND MUSCULOSKELETAL DISEASES

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Abstract

Musculoskeletal diseases (MSDs) have an imperative intervention with the work of the employees therefore it is the need of the era to understand the EFFECTIVENESS OF ERGONOMIC TRAINING TO REDUCE PHYSICAL DEMANDS AND MUSCULOSKELETAL DISEASES symptoms. This research work associates ergonomic training with musculoskeletal diseases (MSDs). For this study, employees in the IT industry were recruited as respondents. It was designed to be as wide as feasible because there was not expected to be much research on workplace interventions to reduce MSD in persons with physically demanding professions.

Key Words: *Musculoskeletal diseases (MSDs), Ergonomic, Intervention.*

Introduction

Although musculoskeletal diseases (MSDs) have received a lot of attention recently, they continue to be a serious issue in many industries around the world. The number of people who have musculoskeletal discomfort several times a week has climbed. Low back and neck discomfort, in particular, is very common among employees and has been the important disability cause in countries with high incomes. MSDs are particularly prevalent among workers in physically demanding jobs. Physical workplays an important role in developing MSD. Some people work with MSDs, while others face an imbalance in the work causing poor work capacity, sick leave, and premature retirement. MSD risk factors and successful remedies differ by industry, and particularly between active and sedentary work environments. As a result, generic recommendations about decreasing MSDs at work can be difficult for Occupational Health and Safety practitioners to put into practice. (OHS). The goal of this systematic analysis is to see how successful workplace therapies are at rehabilitating musculoskeletal diseases in employees who work in physically demanding jobs. Practical messaging for stakeholders will be generated based on the evidence synthesis.

Certain stakeholders are part of this review procedure that introduces an approach that is practical in nature.

Research Objectives

1. To examine the effectiveness of ergonomic training to reduce physical demands and Musculoskeletal diseases (MSDs)
2. To understand the impact of various interventions with several facets on Musculoskeletal diseases (MSDs)

Literature Review

Various studies on the general working population have found that workplace ergonomics have a positive, neutral, or contradicting effect on MSD. Although there were few high-quality studies in these intervention categories, Hoosain et al. showed the results that are positive for controls, training of ergonomic and workstation alterations. According to, Verbeek et al., no proper evidence of the productiveness of manual material handling guidance and training to treat back pain in RCTs. More high-quality studies, they concluded, could help to eliminate the remaining ambiguity. Furthermore, Verhagen et al. discovered contradictory results about the effectiveness of ergonomic programmes versus no treatment in the treatment of work-related arm, neck, and shoulder symptoms. Because the ergonomic interventions were so diverse, it's important to remember that drawing broad conclusions regarding workplace ergonomics should be done with caution (Munguía Vega et al. 2019).

Ergonomics with participation

Despite these expectations, it was discovered that workplace participatory ergonomics had little effect on lowering MSD among physically demanding workers. This is in some ways contradictory to prior research on the overall working population. Rivilis et al., for example, discovered modest evidence that participatory ergonomic interventions improve symptoms related to MSD. However, three of six types of research (based on office workers and on garment workers) were on sedentary workers, and their database search was conducted until 2004. Furthermore, based on four investigations including the general working population, Van Eerd et al. found mixed evidence for low-intensity participatory ergonomics. Thus, the favourable impacts described in prior evaluations could have been driven by sedentary workers in the broader working population. It has been claimed that implementing

and studying treatments among non-office workers may be more difficult. The current findings on the efficacy of ergonomics, participatory in nature, may thus reflect difficulties in implementing such treatments in physically demanding workplaces. Because the participatory ergonomics interventions were so diverse, it's important to remember that drawing broad conclusions about their success should be done with caution (Galey, Judon&Garrigou, 2021). A description of this can be found in the section below titled "Methodological Considerations."

Interventions with several facets

As per the research, Multifaceted workplace treatments had no possible effect on MSD among workers in the companies with physically demanding jobs in 13 of 16 studies of high or medium quality. The lack of effectiveness seen in several of the trials in this domain, which were expected to be very helpful for lowering multifactorial outcomes such as MSD, could have been due to a lack of successful implementation. As a result, it cannot be ruled out that if done correctly, there could have been more than three effective multiple treatments. The components such as spine care for nurses or participatory ergonomics reduce MSD. (Porta, Saco-Ledo & Cabañas, 2019).

Stress Reduction

Stress management had no effect in three of three interventions based on high or medium quality research. According to, Van Hoof et al., it was found that in isolation in the stress management was not at all effective, while, according to, Van et al. , it was researched that there was moderate evidence, that the job stress management training did not affect the prevention of upper extremity MSDs and its symptoms.(Capodaglio, 2020).

Relevance in Real Life

MDS's and its place of work is considered very difficult, also, the request has been made by the practitioners explicitly to create an evidence-based approach in order to help in the clear identification and execution, with the effective interventions for employees especially for those who perform physically demanding work in the organizations. (Ottogalli et al. 2021). Certain Tools are used that are based on this review especially at the workplaces. Notably, the decisions of the practitioners should be based on what is important and relevant and also,

applicable to the workspace of the individual, and keep in mind that the findings from the research are generally based on scientific literature and which are not in practitioners' knowledge (Maldonado-Macías et al. 2021).

Considerations in terms of methodology

MSD-related outcomes are complicated metrics that can be influenced by a variety of circumstances. Furthermore, the time it takes for changes in MSD to manifest is likely to vary depending on the sort of workplace intervention used and the people investigated. In addition, some industries, such as construction, have transient workforces. As a result, observing impacts over longer periods of time is frequently hampered by the absence of workers who were exposed to the intervention (Kadir & Broberg, 2020). Only three studies found differences in MSD outcomes to measure the time-frames. One of them, is ergonomics and the other is the physical exercise in the category of training of the strength. The overall level of evidence for any of the interventional domains will not change during the interventional effects for the short period of time (Ginting, Tarigan & Panjaitan, 2019). Every company or the workplace is different and unique, so the interventions must be created based on the workplace, such as construction. In addition, different industries are likely to have varied working circumstances, thus some measures may be more effective than others in preventing MSD (Faez et al. 2021). This then results, in a lack of good implementation which further leads to the lack of effectiveness as per studied in the research. As a result, the current review's conclusion about multifactor and participative treatments should be read with caution (Beshay & Guérin, 2021).

Research Methodology

Research methodology is regarded as a separate field with its own literature, strategies, and abilities. It will provide a high-level overview of the lookup process, covering the research topic, study design, data collection, sample selection, proposal, and lookup report production. The researcher utilised a descriptive research strategy to describe the ergonomic training programme at first, but as the study advanced, the researcher employed an exploratory research design to analyse the numerous aspects that contribute to increasing ergonomics training in the Mumbai IT industry. For this study, employees in the IT industry were recruited as respondents. Respondents must be between the ages of 18 and 45 years old. The respondent should have been with the company for a long time. The respondent must be fluent

in both English and Hindi. The final sample of responders for the survey includes 330 employees from Mumbai's 10 most well-known IT firms (Tentatively). The study's primary data was gathered through a questionnaire that was developed with IT industry employees as respondents. Standard questionnaires were issued to Mumbai-based IT firms to collect the key data. Secondary data gathering methods include federal and state government publications, journals, books, newspapers, and reports. In-print and non-print business ventures and news, journals, research papers, previous studies, and other web sources were used to acquire secondary data for this study. Some government annexures and reports, as well as the findings of central government reports, are considered.

Results

In the review process, the inclusion of important stakeholders is a strength of study ensuring a high level of practical applicability. Participation of the Stakeholder leads to a more practical approach by allowing all the practitioners so they can share their expertise and experience. Further the researchers were contacted so as to confirm about the potential of the included studies were workplace-based if full-text reading raised any doubts regarding the location. In this article, the possibility of publication bias cannot be ruled out. It was made as broad as possible, as there were not expected to be many studies on workplace interventions to minimize MSD among people with physically demanding jobs. In addition, only studies with positive outcomes were considered for this review.

Previous research on the general working population has discovered that workplace ergonomics have a favourable, neutral, or contradictory influence on MSD. Although there were few high-quality studies in these intervention categories, Hoosain et al. found that the application of ergonomic controls, ergonomic training, and workstation adjustments had favourable effects.

Even though English is commonly recognised as the universal language of science—including research in the fields of work environment and health—inclusion of just these studies may have skewed current conclusions by failing to reflect all available information. As a result, the probability of a language limitation bias cannot be ruled out in the current investigation.

Conclusion

A lack of evidence for no benefit in the realm of ergonomics: there is insufficient evidence from the scientific literature to inform existing policies/practices. Ten of the fifteen interventions indicated no beneficial effect of workplace ergonomics on MSD, resulting in a restricted level of evidence for no benefit for the domain of ergonomics: insufficient evidence from the scientific literature to inform existing policies/practices. Therefore, even with a lack of evidence, it may be concluded that the association between ergonomic training and MSD still exists and even though further research must be conducted in this domain to understand these aspects in a better manner proofs that elicit the impact of ergonomic training cannot be ruled out.

Recommendations

As per the evidence, in the workplace, the introduction of strength training can reduce the MSD among workers who have jobs that demand physically activity. There was insufficient scientific evidence to guide present practices, in the case of workplace ergonomics. According to scientific evidence ,based on the lowering of the MSD among this group of workers , the participatory ergonomics and diverse workplace interventions appear to have effects that are not beneficial. Because these interventional domains were so diverse, it's important to remember that drawing broad inferences regarding their effectiveness should be done with caution.

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