

MUSCULOSKELETAL DISORDERS IN AGRUCULTURE

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REZUMAT. Lucrarea oferă o privire de ansamblu a ceea ce se cunoaște despre afecțiunile musculo-scheletice, o abordare prin prisma legislației și nu în ultimul rând, propune soluții pentru a reduce efectele asupra sănătății prin oferirea unor instrumente alternative care pot modifica spațiul de lucru.

Cuvinte cheie: tulburări musculo-scheletice, agricultura, soluții

ABSTRACT. This paper provides an overview of what is known about musculoskeletal disorders, an approach in terms of legislation and, last but not least, propose solutions to reduce health effects by providing alternative tools that can change the workspace.

Keywords: musculoskeletal disorders, agriculture, solution

1. INTRODUCTION

For more than a decade, farming has been rated one of the most dangerous occupations in Europe, especially Romania, and it is recognize as one of the most hazardous occupation. Agriculture is one of the most hazardous occupations in Romania.

In Romania in 2009 year, from total of 3.476 damaged persons, 375 were in agriculture and food industry, 22 deaths and 353 disabling injuries in agriculture. [1].

The agriculture sector employs about half the world's entire workforce, with an estimate of 1.3 billion workers (ILO, 2003) [2]. Unfortunately, there has been limited application of research related to ergonomics and musculoskeletal disorders, although farmers frequently report musculoskeletal signs and symptoms[3].

Farming is one of the most hazardous occupations in terms of the incidence and seriousness of accidental injury [3]. For example, the UK Health and Safety Executive (HSE) reports 2,410 non-fatal injuries per 100,000 workers in agriculture for 2003/2004 [4].

Working conditions in agriculture are hazardous.

Fatal and non-fatal injury rates are high among workers in agriculture. The type of farm (4–9) and exposure to specific agents have been associated with increased injury rates among agricultural workers [5].

This paper gives an overview of the extent of musculoskeletal disorders (MSD), in agriculture.

Musculoskeletal disorders (MSD) include a wide range of health problems.

Musculoskeletal disorders arise from normal body movements such as bending, lifting, catching, holding, twisting, stretching of the upper limb tension

and commonly known as the requests by repeated exposure. [6].

These frequent movements are not particularly harmful daily activities, but makes them dangerous work situations is their continuous repetition, often forced manner, and most, movement speed and lack of time for recovery between them. Can affect the lower limbs.

Workers typically enjoy the benefits of high strength capabilities and mobility when they assume a normal standing position. This stance permits many powerful muscle groups to work in concert when performing manual tasks. However, this muscular synergy can be seriously disrupted when unusual or restricted postures are employed [7].

This is not surprising because:

- 45% of Europe workers in painful or tiring position; 33% are required to work to handle heavy loads of European workers who report Musculoskeletal disorders (MSD) as a health problem from work:

- 30% complain of back pain;
- 17% complain of muscular pains in arms and legs.

The 30% who complain of back pain each year amounts to the figure of 44 million European workers

Health problems range from discomfort, minor aches or exacerbated by serious medical conditions requiring removal from work, medical treatment and hospitalization. In chronic cases, treatment and recovery are often dissatisfactory and may result in permanent disability, loss of service [8].

However, most problems can be prevented or reduced by following existing health and safety legislation, and the following indications of good

practice. Agriculture is the sector that musculoskeletal disorders (MSD) and exposure to risks of MSD are the most common. Most agricultural workers to repetitive motion declaring exposed hand and arm, painful or tiring positions, the movement of heavy loads or transport. The percentage of those who suffer from back pain and muscle pain in this area is two times higher than average.

In most industrialized countries, the costs of compensation for musculoskeletal disorders account for at least one half of all workers compensation costs and recent reviews have reaffirmed that a strong work-related component exists for many upper limb and low back pain cases and many work-related MSD develop over time and are caused either by the worker himself or the employee or work environment can also be caused by such fractures in an accident.

According to a survey of self-reported work-related illnesses in 1995 [8], an estimated 43000 agricultural workers from Britain ascribe musculoskeletal symptoms to their work, including 27 000 with back pain, 10 000 with upper limb or neck complaints, and 11000 with work-related musculoskeletal disorders (MSD) of the lower limb. Workers who adopted unusual or restrictive positions in the workplace often experience musculoskeletal disorders twice as large but if these positions can not be eliminated, they must be designed in accordance with the power reduced lifting capacity.

2. METHODS. TACKLING MSD THROUGH THE LEGISLATION

To effectively prevent musculoskeletal disorders it is necessary to identify risk factors for work-and to take concrete measures to prevent or reduce risks.

A attention should be paid: risk assessment, surveillance medical training, information and awareness of employees systems ergonomic workstations (an ergonomic approach includes site analysis work as a whole, ie equipment, procedures and work organization) to identify problems and solutions.

The prevalence of specific disorders and syndromes are not precisely known since many of these disorders have been difficult to classify in epidemiologic studies [10].

According to Directive 89/391 European approach to disease prevention musculoskeletal is the following [6].

Avoiding MSD risks evaluation of those risks that can not be avoided AMS Combating risks at source AMS Adapting work to people, especially the design employment, choice of work equipment and choice of working and production methods, so that

you lead to alleviate the monotony of work and work in tandem predetermined and reduce their effects on health. Adaptive technical progress is made by replacing the dangerous nature of the dangerous or less dangerous”. Developing a coherent policy of prevention technology including work organization and working conditions and social relationships influence the work environment.

3. RESULTS. SOLUTION FOR FARM WORKERS IN AGRICULTURE

The human body adapts to the physical demands placed upon it during activities of daily life.

Historically, farmers throughout the world have been implementing “ergonomic” solutions to improve productivity and increase comfort. A good example include the introduction of threshers to replace manual threshing of rice paddy, wheat and other grains in farms in India, China, Sri Lanka, Thailand, Philippines, and other countries in Southeast Asia and Africa [11,12]



Fig.1. A Rolling Dibble Marker

Another exemple (fig 1) would be the rolling dibble for transplant spacing. A rolling dibble marker is a tool that helps you to transplant seedlings faster and more accurately.

The rolls across the plant punching or scooping transplant holes into the soil at regular intervals.



Fig.2. Personal load transfer device worn by a farm worker (ErgoAg, Aptos, CA).

Another type of worker fig 2 aid that holds promise in reducing lower back disorders among agricultural workers is the “load transfer device”.The device transfers a portion of the weight and moment of the upper body from the low back tissues to the hips and or legs.

Several examples of changing the interface between worker and his/her workspace have been shown to hold promise in reducing the risk of musculoskeletal disorders (MSD) among agricultural workers. This approach is usually achieved by providing alternative tools or alters the workspace to reduce the risks of awkward postures.

Many tools have also been developed to reduce the amount of bending required from the agricultural carrying heavy boxes by hand is strenuous and very awkward.



Fig.3.Standard Carrying System



Fig.4. Narrow Pallet System

Worker rolling a stack of boxes with a hand pallet truck. As in other industries, but particularly in agriculture, effective ergonomic interventions must be developed and implemented using a team approach and as a part of comprehensive risk management approach.

The most crucial members of the team are the farm workers themselves. Worker participation in developing ergonomic interventions in agriculture is paramount in providing the crucial feedback on efficiency, comfort, and socio-cultural issues that may affect worker acceptance and understand barriers to adoption [13].

4. CONCLUSIONS

Compared to other industries, ergonomic interventions and solutions have been late coming into agriculture. Nonetheless, the past decade or so has seen an increased interest to develop and implement ergonomic interventions in agriculture worldwide.

Some of these ergonomic “simple solutions” can easily be implemented into many agricultural situations, and many are relatively inexpensive to obtain or can be self-fabricated . (NIOSH, 2011)

This paper tried to show that musculoskeletal disorders are the primary health problems facing agricultural workers and aa highlighted several approaches and solutions for reducing them.

We can also say that there is a moral imperative to ensure no problems that can affect health in agriculture, but they can replace character "dangerous" with the "dangerous or “less dangerous”.

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