

Investigation of Disorders Related to Work Affecting the Musculoskeletal System and the Effect of Corrective Actions on Rice Creatures

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Abstract

The aim of this research is Investigation of disorders related to work affecting the musculoskeletal system and the effect of corrective actions on rice creatures. So, Nordic questionnaire was screened for studying the prevalence of work-related musculoskeletal disorders and also for risk exposure check of musculoskeletal disorders in 3 occupational tasks and Quick Exposure Check (QEC) was applied. Nordic questionnaire was distributed among 258 rice farmers 34 out of whom suffering from musculoskeletal disorders were identified and participated as samples in the selected corrective plan and ergonomic interventions for 8 weeks. The results showed that the prevalence rate of musculoskeletal disorders was tasks of rice farmers were in high or very high level. Score of QEC in different surveillance techniques showed that among the other tasks the highest score was allocated to move up (more than 75%), in other words with respect to the risk level it was on the very high level and regarding check, corrective exercises had to be enforced immediately. Having done exercises for eight weeks and ergonomic interventions, patients found a significant improvement in lumbar, shoulder, neck and wrist/hand disorders ($p < 0/05$). So, neck, lumbar, shoulder and wrist pains were relieved. According to the results the prevalence of musculoskeletal disorders in the rice farmers studied was relatively high; in addition, the highness of risk level was a symptom of traumatic work place at the farm. The corrective exercises recommended for rice farmers reduced musculoskeletal disorders so, correction of moving up and improving conditions to move up are recommended.

Keywords: Disorders; Musculoskeletal System; Corrective Actions; Rice Creatures

Introduction

Business activities is the foundation on which is based the creation of the system is that it ensures the survival of every creature. Almighty God, your creatures are good, each equipped with devices that operate with their own interests to attract and repel losses. Surprisingly, the most complex and the creation of man, the needs of other creatures is greater and therefore, more work needs to thereby removing the prop is underway myriad personal and family system that you can form naturally. Always work, part of people's lives and is considered as a valuable and believe that any professional activity can be a way to gain credibility, respect and Economic Development. Anyone for a living, who has chosen a career job, brought him to inadvertently damage. Accordingly, it is considered as one of the great problems in the occupational form [1].

Farmers are persecuted community and make up about 42% of the population [2]. Unfortunately, most of them located at a variety of musculoskeletal injuries, damage caused by the sun's rays and pesticides, the lack of minimum health facilities [3,4].

Unfortunately, we have no precise knowledge of occupational injuries in the agricultural Iran and statistics obtained from this study can assess the health status of the country's agricultural show for the first time. Farmers, on the other hand, there were no statistics of occupational injuries due to the multidimensional nature of these injuries for example, damage caused by sun exposure leads to all kinds of adversity, and diseases such as skin cancer, wrinkles and other skin problems that they need to evaluate all of a massive program. The only statistic that can be offered about the health status of farmers is their skeletal problems. Because of the high prevalence of at least 50% of the farmers involved and living with the consequences [5].

Unfortunately, in many countries, especially developing countries due to lack of standardization of the workplace and the equipment they used while exercising, Also the lack of adequate exercise and cause musculoskeletal disorders [2].

Corrective solutions - the health and reduce the possibility of damage, will follow the correct physical situation. Undesirable Physical situation is increase in blood lactate levels, increasing oxygen debt at the back of the heart and respiratory minute volume reduction. Also affect the long-term physical conditions, improper skeletal system [6].

With regard to agricultural and other heavy and hard work of farmers in the long-term continuation of this work and also its exposure to a variety of musculoskeletal disorders and abnormalities of the people and the lack of research in this area, researchers have also identified the prevalence of musculoskeletal disorders-skeletal, to study the effects of eight weeks of corrective actions on the most common disorders of the rice farmers.

Materials and Methods

This study was a quasi-experimental research technique that has been field. The study population consisted of 258 male farmers in Mazandaran province. Sample of 34 men farmers using the Nordic questionnaire was evaluated and disorders of the neck (n = 15), shoulder (n = 19), back (n = 19) and wrist (n = 19). These past twelve months have at least one musculoskeletal disorder - Musculoskeletal that led to at least one day of rest or go to a medical center and a pain in the affected areas which was considered as a statistical sample. Given that the questionnaire assesses four disorders, thus to facilitate corrective exercises were used as much as possible the subjects were infected with more than one musculoskeletal disorder. There were even some participants in all four impaired muscle - skeletal. The required data were collected for this study using the Nordic Questionnaire (prevalence of musculoskeletal disorders- skeletal. Because more than 80% are illiterate rice farmers in almost all the questionnaires have been completed by the researcher and the researcher needs to explain where the information can be uniformly available to participants.

Nordic questionnaire consists of two parts: a) a general questionnaire and b) specific questionnaires. The purpose of the questionnaire survey of the general public and its disorders in the

body arises. In general questionnaire, personal characteristics such as age, sex, weight, height, left-handedness or right-handedness is inserted. In-depth analysis of specific questions about symptoms in specific areas of the body such as the back, neck, shoulders and hands and wrists are paid. On the whole, this information useful and reliable questionnaire on musculoskeletal disorders - skeletal provides that this information can be used for deeper investigation and a decision on the Corrective Action.

The training program

Planning prescribed less than 8 weeks of 3 sessions a week, each session lasting 40 to 50 minutes 5 to 10 minutes of warm up, 20 to 25 minutes' special exercises (stretching and strengthening exercises) and 5 to 10 minutes' cold regions. Practice for each of the four groups separately and practice time was different subjects. Location and type of training exercises covered in S. Hall due to abnormality of muscle - skeletal abnormalities identified through a questionnaire which includes Nordic neck, shoulders, back, arms and wrists had been selected. According to scientific principles, practice, practice early meetings of the severity, frequency, repetition, and less time and at subsequent meetings regarding potential participants gradually increased and became more difficult. Intensity exercise in stretching exercises and strength training until the pain threshold, according to a person's ability to perform strength training repetitions were performed. Special training isometric exercises of the neck in the present study Special training workouts combined with an emphasis on the waist, abdominal muscles and back extensors and shoulder special training program on muscle strength and flexibility emphasis muscles scapula. For the region as well as resistance training and flexibility were considered. All the training was done according to the desired effect, and the principles of exercise and gradually increasing the intensity, duration, and overloads the motor patterns involved in training [7].

According to the data obtained in the present study, we used descriptive statistics to classify and arrange the data and determine the central indicator of scattering parameters and standard deviation of tables and charts drawing. Then, to analyze research data and testing hypotheses Non-parametric Kruskal-Wallis test and the Wilcoxon test was used. In all tests, the significance level of $P < 0.05$ were calculated with the software SPSS₂₂.

Results

Data from the study are analyzed and presented in two parts. The first section of the questionnaire data obtained from the

questionnaires farmers. Data for this cross section is shown by tables and graphs. In the second part, using analytical methods, the research hypotheses are tested.

| | Min-max | Standard error | Skew ± strain | Skew ± standard error |
|---------|-----------------|----------------|---------------|-----------------------|
| Age | 53 (30 - 82) | 0.83 | 0.23 ± 0.15 | -0.93 ± 0.30 |
| Stature | 171 (160 - 190) | 0.43 | 0.32 ± 0.15 | -0.19 ± 0.30 |
| Wight | 75 (55 - 110) | 0.65 | 73 ± 0.15 | -0.03 ± 0.30 |
| BMI | 25 (19 - 38) | 0.19 | 0.74 ± 0.15 | 0.97 ± 0.30 |

Table 1: Demographic data of subjects.

| Body parts | Frequency | Present | Body parts | Frequency | Present |
|----------------|-----------|---------|----------------------|-----------|---------|
| Neck | 31 | 12 | Left wrist | 24 | 9.3 |
| Right shoulder | 24 | 9.3 | Wrists of both hands | 14 | 5.4 |
| Left shoulder | 5 | 1.9 | Back | 52 | 20.2 |
| Both shoulders | 3 | 1.2 | Loin | 149 | 57.8 |
| Right elbow | 59 | 22.9 | Hip – hip | 52 | 20.2 |
| Left elbow | 16 | 6.2 | Knee | 85 | 32.9 |
| Both elbows | 2 | 0.8 | Feet ankle | 95 | 36.8 |
| Right wrist | 82 | 31.8 | | | |

Table 2: Information about muscular disorders - Skeleton in last 12 months.

The amount of muscle disorders - skeletal considered and weighted each member of the Chi-square test shows significant differences between different areas of musculoskeletal disorders - skeletal seen. $X^2 = 274.761, P = 0.001$ so that the highest prevalence of muscular-skeletal waist and wrists each respectively 57.8 and 46.5%, with 36.8%, followed by the ankle, knee, 32.9%, 29.9%, elbows, hips and thighs 20.2%, 20.2% of the back, shoulders and neck (12%) were observed in 12.4%.

Information on cervical abnormalities before and after eight weeks of breeding in figure 1.

According to the statistical data showed significant differences between cervical abnormalities before and after 8 weeks of training, improvement was noted. $z = -1.941, P = 0.05$. So that the exercises are quite effective on neck pain and reduce it. This decline is statistically significant.

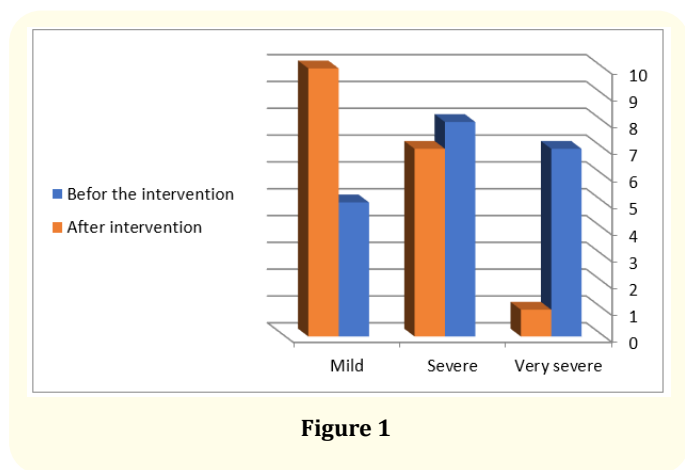


Figure 1

Information on low back disorders before and after eight weeks of breeding in figure 2.

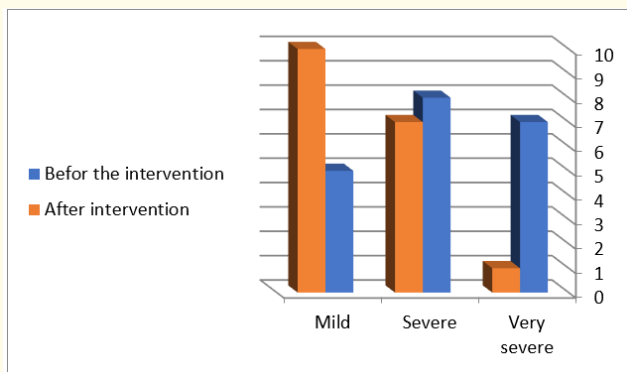


Figure 2

According to statistical data, no significant difference before and after 8 weeks of back disorders improvement was noted. $z = -3.50, P = 0.00$. So, the exercises are quite effective on back pain has been reduced.

Information about shoulder disorders before and after eight weeks of breeding in figure 3.

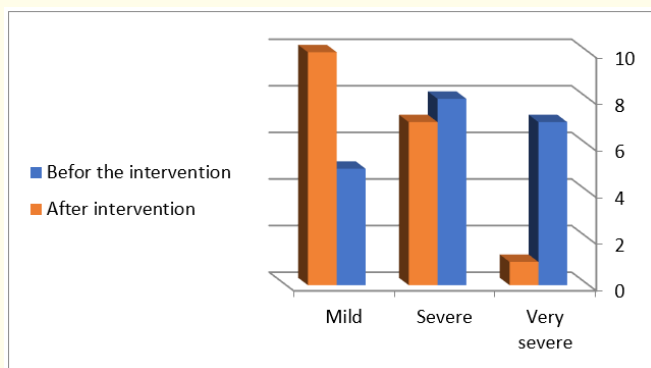


Figure 3

According to statistical data, shoulder disorders, no significant difference was observed before and after 8 weeks of breeding $z = -3.162, P = 0.02$. So that effective corrective exercises perfectly on the shoulder pain has been reduced.

Information about carpal disorders before and after eight weeks of breeding in figure 4.

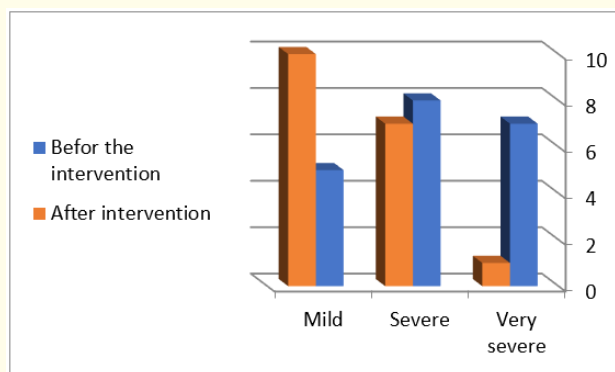


Figure 4

According to statistical data, no significant difference wrist disorders before and after 8 weeks of training, improvement was noted $z = -2.840, P = 0.05$. So, the exercise perfectly on the wrist pain that is effective and reduces.

Discussion and Conclusion

The aim of the present study was to investigate the effect of eight weeks of remedial training on muscle disorders - skeletal of farmers. All 258 people on musculoskeletal disorders-skeletal evaluated, the highest prevalence of musculoskeletal disorders in the past 12 months, lumbar, wrist, foot and ankle, respectively. In addition, it was found that eight weeks of corrective exercises to reduce musculoskeletal disorders-skeletal rice, about 13% of them participated in corrective exercise, a considerable impact in different areas of the body.

The prevalence of musculoskeletal disorders - skeletal disorders in the lumbar region most research themselves. The findings of previous studies are in agreement [8,9]. Likely to increase the incidence of musculoskeletal disorders - body skeletal farmers in the area because of the nature of their job and the wrong position when doing work for the improvement of the condition, proper training is required.

Eight weeks of corrective exercises have a positive effect on cervical abnormalities. In other words, corrective exercise program was to improve the participants' neck disorders. This was consistent with the results of other studies [7,10,11]. According to

the program of isometric exercises were practiced in the present study it seems that the training program had positive effects on participants and neck disorders are reduced. Among the reasons may be considered for treatment with the study is in agreement Verhagen., *et al.* (2007), They stated that training should be intensive enough (half an hour, three times a week for several months) to exercise reduces neck disorders [7].

Eight weeks of corrective exercises and ergonomic interventions on low back pain had a positive effect. In other words, a subject of low back pain was improved. Due to the special training of the lumbar flexion exercises with emphasis on strengthening the abdominal muscles and back extensors was performed and Due to the risk and identify risk factors in the workplace ergonomic working farmers and their familiarity with the completely destroyed disorders, approximately 50% of subjects.

This results Habibi., *et al.* (2009), Habibi., *et al.* (2007), Rahnama., *et al.* (2011) effects of PNF training on trunk muscle endurance, flexibility and execution performance in people with chronic low back pain issues and [14-16] the results found that the application of static and dynamic PNF may improve short-term trunk muscle strength and flexibility of the trunk in people with back pain are good and also Daneshmandi., *et al.* (2006) are consistent [17]. Based on the theories, principles, practices, muscular adaptation is unique to the type of practical training [12]. Although consistency of practice does not always follow these principles and is dependent on training conditions [18].

This study is consistent with research Manniche., *et al.* [19], because Manniche., *et al.* believed that exercise training program for patients with low back pain for more than two months, continue to be compressed to reduce pain significantly be achieved [19,20]. In addition to physical factors in patients with low back pain may be influenced by psychological and social factors must be individuals [21,22]. Thus, under a program of 8 weeks, but results may simply be the result of an experimental breeding program, we observed a significant reduction in musculoskeletal disorders found in the lumbar region.

Eight weeks of remedial training had a positive effect on shoulder pain. On the other hand, improving shoulder pain were the subjects. According to the study, Leroux., *et al.* (2006)

symptoms in the upper extremity and shoulder pain, and psychosocial factors are associated with job stress [23]. The nature of upper extremity exercise program on stress reduction and stress should also be emphasized strengthening and muscle flexibility. Due to this special training program in this study emphasized the need to strengthen the shoulder muscles and flexibility. It seems that in terms of duration, repetitions, intensity, and conditions are fully trained and have a positive effect on the participants and to enhance the effectiveness of exercise in reducing shoulder disorders and the shoulder muscles stated. This is in agreement with studies McClure., *et al.* (2004), Sokhangoei and Afsharmand (2013), Hokmabadi and Fallah (2013) [24-26]. Eight weeks of corrective exercises have a positive effect on pain, hand and wrist. In other words, provide corrective exercises to reduce hand and wrist disorders is effective. This is in agreement with studies Andersen., *et al.* (2007), Rahimifred., *et al.* (2011), Jepsen., *et al.* (2008), Verhagen., *et al.* (2007) and Sharifhosseini and Allahyari (2008) [7,13,27-29].

Overall, it appears to increase muscle strength and flexibility of the body followed by specific exercises, have a significant effect in reducing pain and musculoskeletal disorders has also significantly improved during the 2 months. In summary it can be concluded that the prevalence of musculoskeletal disorders - skeletal farmers studied was relatively high, a significant number of farmers in the world of muscular disorders - skeletal-related jobs are affected. In fact, no agriculture is not fully protected against the risk of injury. Corrective exercise is effective in improving and reducing musculoskeletal disorders. Standards for the prevention of occupational hazards in the construction equipment used should be considered, with particular attention to addressing the exercise of observing corrective exercise training, and correction of work-related musculoskeletal disorders posture outbreak of the could be largely be prevented by increasing productivity and reducing musculoskeletal disorders and the field provided. The basis for evaluating disorders and pathological factors were also reduced and may be a useful reference work for the community of rice in Iran and other countries.

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