141 - MUSCULOSKELETAL DISORDERS RELATED TO JANITORIAL SERVICE

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1. INTRODUCTION

One of the major problems affecting the health of workers in recent decades is characterized as Work-Related Musculoskeletal Disorders (WRMD). These disorders are responsible for the alteration of musculoskeletal structures, i.e. tendons, muscles, nerves and joints that present several symptoms such as neck, shoulders, arms and legs pain because of cleaning. In 1990, Brazil's WMRD was recognized as an occupational disease, and became one of the most reported work-related injuries to the National Social Security Institute (ALCÂNTARA et., 2009).

The pain can be caused by muscle strain and muscle swelling, tendons and joints, which are associated mainly for handling heavy loads, awkward postures and repetitive movements. The overload on the muscles and joints can cause rapid muscle exhaustion, soreness and injury. The human muscles have a good solid performance when they are contracted up to 15% of their capacity. Above this, it may cause cramps, followed by muscle weakness. In this situation, the muscles lose up to 50% of their normal strength (IIDA, 2005). The injuries that arise in the lumbar region may result from acute trauma or cumulative trauma due to intense muscular work to certain physical factors (PATARO, 2011).

It is evident that the transport of loads causes two types of corporal reactions. The first is that the increased-load weight causes a physiological overload on the muscles of the spine and lower limbs. The second type of reaction is that the contact between the load and the body causes postural stress. This second type is studied by ergonomics, aiming to design efficient methods for handling loads, minimizing the energy spent and musculoskeletal symptoms (IIDA, 2005).

In order to minimize muscle soreness of the janitors you need to document the incorrect postures, as well as locate the hurtful points of the body of each individual and take notice of their complaints. The data can be obtained by a practical system, such as the application of a Nordic questionnaire, which helps identify the painful areas that are pointed out by the workers themselves. The questionnaire was prepared with the proposal to measure musculoskeletal symptoms complaints to help on the analysis outcome (PINHEIRO et al., 2002).

According to Iida (2005), the Nordic questionnaire makes it easy to identify only musculoskeletal disorders, in a quick and cost-effective way, therefore, it should not be used as a reference for clinical diagnosis. It can be used for an initial survey of the situations that require a more intense analysis and corrective measures; however, the questionnaire is valid only when there is interest in making a comprehensive survey to identify Work-Related Musculoskeletal Disorders (WRMD).

According to Pinheiro et al. (2002) the Nordic questionnaire consists of multiple-choice or binary questions in relation to the incident of pain in the anatomical regions, which are more common. The interviewed employees should present their complaints related to any corporal pain considering the symptoms that appeared in the previous twelve months and seven days preceding the interview, and they should submit the incident of job duty relocation on the last year worked.

The objective of this research was to use a Nordic questionnaire for the janitors in a Federal University in order to identify the existence of Work-Related Musculoskeletal Disorders.

2. MATERIALS AND METHODS

To research musculoskeletal problems, the Nordic questionnaire was conducted individually in a way to interview the janitors of the Federal Technological University of Parana, in Curitiba. There is a drawing, which divides the human body into nine parts. The interviewed workers answered the following questions: Have you had any problems over the past seven days? Have you had any problems in the last 12 months? Did you have to interrupt your job duties in the last 12 months due to a pain?

The sample consists of ten employees working in two shifts of six hours, which are on the average of 35 years old and about 1.61 meters tall. Data analysis was quantitative.

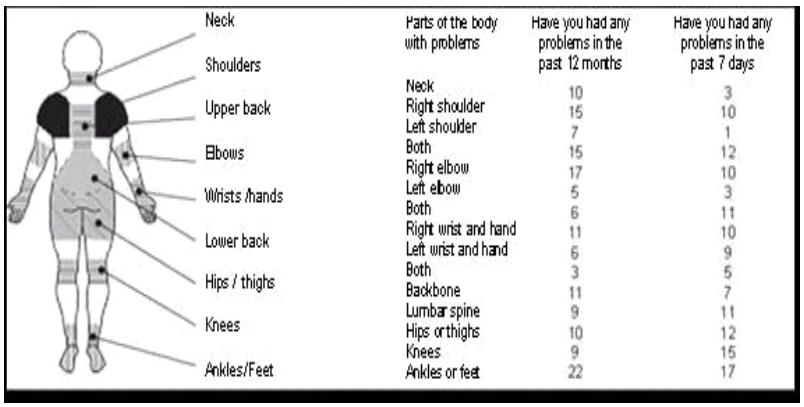
3. RESULTS

The interviewed workers answered the Nordic questionnaire. Consequently, it was possible to characterize the musculoskeletal symptoms, given the analysis of body parts with problems in the following order: (1) neck, (2) - shoulders, (3) - elbows, (4) - wrists and hands, (5) - backbone, (6) - lumbar spine, (7) - hips or thighs; (8) - knees and (9) - ankle or feet.

The employees perform tasks like cleaning tables, chairs, laboratory benches, blackboards and windows with circular repetitive wrists movements, besides cleaning bathrooms, study rooms, they used machines like industrial floor polishers.

Figure 1 presents the data collected with the application of the Nordic questionnaire for the ten interviewed employees. It is observed that workers complained about pain in more than one body region.

Analyzing the employees' answers for the last 12 months of service, there were neck pain incidents in 60% of cases, 100% had pain in both shoulders, 10% of pain in right elbow, 60% in both elbows, 10% wrist and right hand, 20% wrist and left hand, 70% in both wrists and hands, 80% complained of pain in the backbone, 70% lumbar spine, hip and thigh 20%, 100% pain incidents on their knees and 90% of pain in feet or ankles. Pain complaints from the last 7 days were 50% for neck pain, 80% in both shoulders, 10% in right elbow, 60% in both elbows, wrist and 10% right and left hand, 60% in both wrists and hands, 60% backbone, 70% lumbar spine, 100% knees and 80% ankles or feet.



Parts of the body with problems	Have you had any problems in the past 12 months	Have you had any problems in the past 7 days
Neck	10	3
Right shoulder	15	10
Left shoulder	7	1
Both	15	12
Right elbow	17	10
Left elbow	5	3
Both	6	11
Right wrist and hand	11	10
Left wrist and hand	6	9
Both	3	5
Backbone	11	7
Lumbar spine	9	11
Hips or thighs	10	12
Knees	9	15
Ankles or feet	22	17

Figure 1 - Distribution of musculoskeletal symptoms by body regions of the bricklayers
Source: Adapted from Martarello and Benatti, 2008

4. DISCUSSIONS

It was observed that the employees complained of pain in almost all the muscles explored with the Nordic questionnaire. This is because the work done has the characteristic of requiring workers in crouched positions and repetitive movements in a similar task. However, there was no leave absence from work in the last 12 months related to musculoskeletal symptoms.

The results indicated that the daily job duties of the employees, which begins without any muscle preparation and kept until the end of the day, cause discomfort and often muscle pain during their work activities.

The employees reported that they are responsible for the whole cleaning of buildings A and B, with three floors each one of them. The buildings have 10 classrooms with a 60-student capacity and five laboratories with a 30-student capacity, four restrooms, wide hallways and common areas, using the least water possible, due to the type of flooring set up throughout the internal area of the university. In one of the buildings, the elevator is not yet available for use, requiring employees to manually load the cleaning materials to the upper floors, including the industrial floor polisher, which weighs about 25kg.

The total responses of the ten interviewed employees are shown in Figure 2.

After the data collected regarding the research, it is noticed as shown in Figure 2, that the most affected parts of the body indicated by the interviewees are both shoulders, knees and ankles, backbone, lumbar spine, wrists and hands.

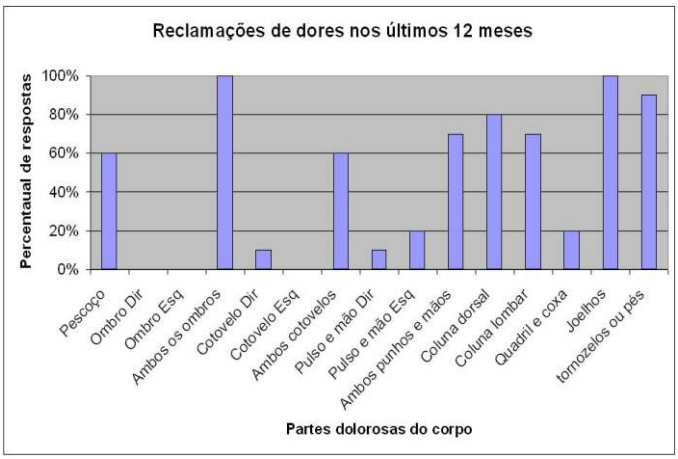


Figure 2 – Representation of the most painful regions of the body indicated by the workers in the last 12 months

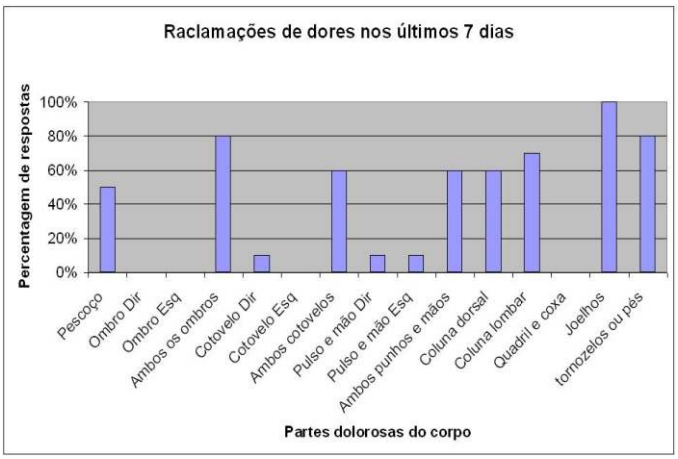


Figure 3 - Representation of the most painful regions of the body indicated by the workers in the last 7 days

Regarding the 7 days preceding the interview, Figure 3 shows the total number of complaints of the interviewed employees.

It can be seen in Figure 3 that the employees' complaints of the most affected parts of the last seven days preceding the interview are knees, ankles or feet, both shoulders and lumbar spine.

It is remarkable that the employees have also complained that the shoes provided by the university are uncomfortable, their job duties during rainy days become more difficult than on sunny days because the floor cannot remain wet for too long, it is difficult to move the industrial floor polisher to the upper floors of building B due to the non-working elevator, there is no supervision of the carried out activities and there is no guideline as to the possible execution of workplace wellness.

5. CONCLUSION

The research of the Nordic questionnaire identified that the interviewed workers feel minor pain in the lumbar spine, hips and thighs, but demonstrated severe pain in both shoulders, wrists and knees, due to repetitive movements related to cleaning with cloths and mops and also by the constant use of the industrial floor polisher and the need of going up and down the stairs several times during the work shift because of the non-working elevator in one of the buildings of the university. However, there was no work leave in the last 12 months due to musculoskeletal symptoms.

The main causes of work related pain are due to poor posture and lack of information regarding the proper execution of the task, reasons that can cause serious health problems especially in the spine and joints.

We conclude that there is a need of guidance for the staff regarding the proper execution of activities related to repetitive movements and the need of rest time during the use of industrial floor polisher.

It is recommended that the workplace wellness has a length of 5 to 10 minutes a day before starting work. The goal is to increase blood circulation, improve posture, and reduce unnecessary muscle tension, among other benefits. Thus, the staff will show motivation to perform their daily activities.

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MUSCULOSKELETAL DISORDERS RELATED TO JANITORIAL SERVICE

ABSTRACT

This study presents an ergonomic risk assessment activities undertaken by ten workers who operate in the cleaning of the Federal Technological University of Paraná, in Curitiba. Therefore, for data collection was a questionnaire Nordic as an interview, in order to identify the existence of work-related musculoskeletal disorders, reported by officials in the last 12 months preceding and the seven days preceding the survey. With the questionnaire, it is noted that the cleaning professionals indicated that the pains occur in more than one body region. The results indicated that the routine work of the employees, which begins without the muscle preparation, it is maintained until the end of the day, causing discomfort and muscle pain often during their work activities. This is due to the fact that the work done has the characteristic of requiring workers crouched positions and repetitive movements in a similar task. It is noteworthy that the employees complained that there is no monitoring activities carried out and there is no instruction as to the possible execution of gymnastics. Thus, it is concluded that the main causes of occurrences of pain coming from work are related to poor posture and lack of education regarding the proper execution of tasks, reasons that can cause serious health problems especially in the spine and joints.

KEYWORDS: Musculoskeletal Disorders, Janitorial Service, Ergonomics.

CONNEXES TRAVAIL EN TROUBLES MUSCULO-SQUELETTIQUES NETTOYAGE PROFESSIONNEL

RÉSUMÉ

Cette étude présente une évaluation des risques ergonomiques activités menées par dixouvriers qui opèrent dans le nettoyage de l'Université Fédérale Technologique du Paraná, à Curitiba. Par conséquent, pour la collecte de données était un questionnaire nordique commeune entrevue, afin d'identifier l'existence de travaux troubles musculo-squelettiques, rapportépar les fonctionnaires au cours des 12 derniers mois précédant et les sept jours précédant l'enquête. Avec le questionnaire, il est à noter que les professionnels du nettoyage ont indiqué que les douleurs surviennent dans plus d'une région du corps. Les résultats ont indiqué que letravail de routine des employés, qui commence sans la préparation musculaire, il estmaintenu jusqu'à la fin de la journée, provoquant un inconfort et des douleurs musculairessouvent au cours de leurs activités professionnelles. Cela est dû au fait que le travail effectuéa la particularité de travailleurs nécessitant accroupi positions et des mouvements répétitifsdans une tâche similaire. Il est à noter que les employés se sont plaints qu'il n'y ait pas des activités de surveillance menées et il n'existe aucune instruction quant à la possible exécutionde la gymnastique. Ainsi, il est conclu que les principales causes d'occurrences de douleur venant de travail sont liés à une mauvaise posture et le manque d'éducation concernant labonne exécution des tâches, des raisons qui peuvent causer des problèmes de santé graves, surtout dans la colonne vertébrale et les articulations.

MOTS-CLÉS: Troubles musculo-squelettiques, Nettoyage professionnel, Ergonomie.

TRASTORNOS MUSCULOESQUELÉTICOS DE ORIGEN EN LIMPIEZA PROFESIONAL

RESUMEN

Este estudio presenta una actividad de riesgo ergonómico evaluación realizada por cada diez trabajadores que trabajan en la limpieza de la Universidad Federal Tecnológica de Paraná, en Curitiba. Por lo tanto, para la recolección de datos fue un cuestionario nórdico como una entrevista, con el fin de identificar la existencia de los trastornos músculo-esqueléticos, informaron los funcionarios en los últimos 12 meses anteriores y los siete días anteriores a la encuesta. Con el cuestionario, se observa que los profesionales de la limpieza indicaron que los dolores se producen en la región del cuerpo que más de uno. Los resultados indicaron que el trabajo de rutina de los empleados, que se inicia sin la preparación muscular, que se mantiene hasta el final del día, causando malestar y dolor muscular a menudo durante sus actividades laborales. Esto se debe al hecho de que el trabajo realizado tiene la característica de los trabajadores que requieren agazapado las posiciones y movimientos repetitivos en una tarea similar. Es de destacar que los empleados se quejaron de que no hay actividades de supervisión llevadas a cabo y no hay ninguna instrucción en cuanto a la posible ejecución de la gimnasia. Por lo tanto, se concluye que las principales causas de los sucesos de dolor provenientes de trabajo están relacionados con una mala postura y la falta de educación con respecto a la correcta ejecución de las tareas, las razones que pueden causar problemas graves de salud, especialmente en la columna vertebral y las articulaciones.

PALABRAS CLAVE: Trastornos musculoesqueléticos, Limpieza Profesional, Ergonomía.

DISTÚRBIOS OSTEOMUSCULARES RELACIONADOS AO TRABALHO EM PROFISSIONAIS DA LIMPEZA

RESUMO

Este estudo apresenta uma avaliação de risco ergonômico em atividades realizadas por dez trabalhadoras que atuam no setor de limpeza da Universidade Tecnológica Federal do Paraná, na cidade de Curitiba. Portanto, para a coleta de dados foi aplicado um questionário Nórdico em forma de entrevista, com o objetivo de identificar a existência de Distúrbios Osteomusculares Relacionados ao Trabalho, relatados pelas funcionárias nos últimos 12 meses precedentes e dos sete dias precedente a pesquisa. Com a aplicação do questionário, nota-se que as profissionais de limpeza, indicaram que as dores acontecem em mais de uma região do corpo. Os resultados indicaram que a rotina de trabalho das funcionárias, que se inicia sem a preparação muscular, é mantida até o fim do expediente, provocando desconfortos e dores musculares muitas vezes durante sua atividade laboral. Isso acontece devido ao fato de que o trabalho exercido tem como característica exigir das trabalhadoras posições agachadas e movimentos repetitivos em tarefas similares. Destaca-se que as funcionárias reclamaram que não há acompanhamento nas atividades realizadas e não há instrução quanto a possível execução de ginástica laboral. Assim, conclui-se que as principais causas de ocorrências de dores advindas do trabalho realizado estão relacionadas à postura inadequada, e carência de instrução quanto à correta execução das tarefas, motivos que podem causar problemas graves de saúde principalmente na coluna e articulações.

PALAVRAS-CHAVES: Distúrbios Osteomusculares, Profissionais da Limpeza, Ergonomia.