143 - THE PREVALENCE OF PAIN IN COLUMN ON FARMERS

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INTRODUCTION

This study, seeks to identify the effects that may be presented by the farmer from work with agricultural tractor. According Morais (2003) the agricultural tractor is the main source of power in agriculture, used in conjunction with various equipment in carrying out various tasks, from the soil preparation, planting and transportation, among others, is a mobile unit consists of power engine, transmission and steering systems and locomotion. These workers who perform activities using tractors, agricultural machinery and equipment are exposed to noise, vibration, dust, heat, chemicals, environmental factors, weather and monotony exercising greater influence on income and health of the operator (FRANCHINI, 2007; FLEMING, 2003; LIDA, 1998). One of the problems related to tractors and agricultural machinery, which in general, produce low-frequency vibrations that are one of the factors that influence the performance of the operator. These often (which is measured in cycles per second or Hertz), can lead to problems of vision, irritability, digestive problems and deformities injury (Santos, 2003). Vibration can be defined as any movement that the body runs around a fixed point. This movement can be regular, kind of sine and irregular, if not follow any particular pattern, as in stir up a car walking on a road of land (LIDA, 1998). The vibration mechanics is a movement of a point or a material body, which fluctuates around a position of balance. Most vibration in machinery or structures is undesirable, because of increased tension and loss of energy that accompany them, and then worrying, since they cause changes in the position of members of the body and major organs (FLEMING, 2003; FERNANDES, 2003 ; KROEMER, 2003).

The vibrations are transmitted to the body along three axes (x, y and z) in the seat of the operator, with different characteristics, whose combined effect is equal to the sum of partial effects, also taking into account the parts of the body subjected to them. As the direction of motion, a third variable, defined by three axes triortogonais: X (from back to front), Y (from right to left) and Z (the head of the feet). Even the vibration can be defined by three variables: The frequency that is measured in cycles per second or Hertz (Hz), the intensity of displacement (in cm or mm) and the maximum acceleration suffered by the body, measured in grams (1 = 9, 81m xs -2) (GAMA, LIDA, 1998). The vibration can affect the whole body or only part of the body such as hands and arms. The excessive levels of vibration in agricultural tractors generate a feeling uncomfortable in the operator, increasing their physical and mental fatigue. The comfort of the tractor to the operator is usually found through analysis subjective or objective. The analysis is subjective and is the simplest assessment of comfort through one or more persons, who have experience in the area. The objective analysis includes determining the amplitude and direction, duration and frequency with which the vibrations occur (FERNANDES, 2003). The low-frequency vibrations, less than 1 Hz can produce enjôo. The vibrations from 1 to 100 Hz, especially between 4 and 8 Hz, can produce pain in the chest, breathing difficulties, back pain and blurred vision, among other problems (WEERDMEESTER and DUL, 2000). Regarding the time of exposure to vibration on the driver's seat, this time it is very knowledgeable from 3 to 8 hours can cause damage to the health of the operator (MARSILI, 2001). Such damage and disruption caused by exposure to vibration are recognized as professional or occupational diseases, are often incurable and irreversible, however, are avoidable, and so it is essential to the implementation of prevention programmes appropriate (MAINIER, 2005). You can check the levels of vibration that often exceed those recommended for comfort (exposure of 4 hours), which is usually the time of exposure daily average of a driver of bus. With regard to health it was found that exposure to one of 4 hours vibrations generated by motor-vehicle-floor did not exceed the recommended limits. The transmissibilidades obtained for the seats showed that the range of resonance in the region of the spine, the seats did not show appropriate behavior dynamic, suggesting thereby possibly harmful exposure to the region of the spine. There are indicative of the vibrations that are related to several factors, physical and mental health is therefore important to reduce the levels of vibration (BALBINOT, 2002).

The operation of machinery, vehicles and handling of tools produce vibrations that are transmitted to the whole body, but in a different way, as body parts, which do not have the same sensitivity to frequencies. Each part of the body can absorb as much larger vibration. The extensions occur when parts of the body start to vibrate in the same frequency, then we say that came into resonance. Vibrations severe suffered by the hands (caused by vibrating tools), can cause neurological damage, circulatory, muscular strength changes and manual dexterity. On the other hand vibrations applied throughout the body (caused by transportation vehicles, vibrant floors) can cause internal resonances in parts of the body and require mainly the muscles and skeleton (spine). The backbone of tratorist suffers the impact of vibrations and twists he often does to look back, checking the operation of the tractor implements traction. As a result, the tratorist include in the group that sets high incidence of degenerative diseases of the spine. This issue therefore deserves to be more thoroughly researched, to establish more appropriate solutions, easing the burden and suffering of tratorist (FLEMING, 2003; VERAS, 2005). The adoption of a bad attitude just forming postural defects, during the activity and engaging them in a repetitive for a long period, he will be prone to develop neuro-muscular disorders bone, and the first sign of disturbance is the pain, may move to retractions muscle, joint stiffness and postural deviations. The skeletal muscle can perform two types of work: the static and dynamic. The static work requires continuous contraction of certain muscles, to maintain a given position. His great is the risk of fatigue as the muscle, the contract itself, increases the internal pressure of capillaries (pots carriers of O2, where the muscle cut the by-product of metabolism). With this increase in pressure, the capillaries suffer a bottleneck, since its walls are thin and blood pressure of the muscle is low, resulting in a muscle without blood supply, failing to keep more work. What is quite clear that the longer the same attitude will bring greater physical tiredness, because often the work that is being carried out in sitting position does not allow change of posture causing muscle tension and fatigue.

METHODOLOGY

This study is characterized with the type of exploratory qualitative cross and direct field. The technique used for selection of sampling, probability is not intentional voluntary. The sample was composed by visitors to the Show Rural 2008, a

total of 181 individuals, that the sample was composed of 181 individuals, and they covered the criteria for inclusion in the survey that were as follows, be participating in the Show Rural 2008; Realising planted with agricultural tractor, and learn to operate farm tractors.

Data collection was conducted between January 28 days to February 01, in the city of Cascavel - PR. The application was so direct where the participants, which should respond to a questionnaire containing 24 questions with yes or no alternatives, and alternatives of multiple choice, to identify if the participant has pain in the spine during the planting. The statistical analysis of data and crossing the same graphics and assembly of the program was used, SPSSEVAL, SPSS13.0 Eval, and Microsoft Excel.

RESULTS AND DISCUSSION

In the analysis of the results obtained, in 181 respondents returned to report that 67.96% feel pain during the planting or work with the agricultural tractor, and the main complaint the discomfort and pain. The pain in the lumbar spine represents 37.85%, these percentages, there was still that the worker is exposed to work in agricultural tractor for planting an average of 11 to 15 hours, and 48.86% of respondents holding this average hours of exposure to harmful factors, was made a crossing of data relating to pain during the planting, with the hours of exposure to working with agricultural tractor, not getting answers statistically significant, but with great importance, because of a total of interviewees, 181 people, 123 reported feeling discomfort related to the total hours of exposure between 11 and 15 hours, 83 reported feeling pain during exposure of 7 to 10 hours and 24 reported feeling pain in a time less than 6 hours. It is worth emphasizing that 100% of respondents reported feeling pain, regardless of the number of hours that is exposed, read (1998), explains that this factor of many hours of exposure increases the possibility of problems appear related to use of the tractor. It is also important to the fact that 76.80% of respondents feel tired during the operation of agricultural tractor, and 63.54% have physical tiredness, and then the relationship very significant pain and physical fatigue during the operation of the tractor. Another important factor that may be cause of back pain is the wrong attitude observed in the analysis of the results, when it was discovered that 61.33% did not maintain proper posture for the realization of the task, according to Lipton, (1984) one of the most common causes of pain injury is the wrong attitude to sit down. The bad posture or posture inappropriate addition to the length of stay in the tractor that is between 11 to 15 hours seen in farmers interviewed in the study above may be the reason for dorsalgia and back pain caused by the reduction of lumbar lordosis, partly by increasing the load on the lumbar spine (CAFFIN, 2001). The position requires activity of sitting back and abdomen to main tain the position, thus requiring a consumption of around 3 to 10% more energy in relation to a horizontal position, there fore, the seat should allow changes in attitudes to delay the onset of fatigue (LIDA, 1998).

Tratoristas suffer from various countries showed a large number of problems in the intervertebral discs and arthritis in the spine. Other data of importance in the context of this research is that the vertical oscillations leading the assumption that strong vibrations and lasting cause excessive wear of intervertebral discs and the joints (KROEMER, 2005). Exposure duration and daily information are of great importance in regard to individual exposed to such attacks during their journey to work. (GOGLIAA, 2003).

Studies in by bus drivers showed that exposure to vibration may have contributed to the emergence of a number of circulatory disorders in the intestine, breathing, muscle and in column (Pereira, 2005). Regarding the time of exposure to vibration on the driver's seat if he is above time of 8 hours daily, can cause damage to the health of the operator (MARSILI, 2001). The effects of vibration depend on the frequency of movement, to which a worker is exposed, depend on the magnitude of the total value of vibration and duration of exposure. It is very important based on the estimates of total daily exposure to the appropriate duration for samples representing various operating. From the point of view ergonomic, the tractorsconditions (GOGLIAA, 2003). Generally remains at a frequency of 2 to 5 Hz, working eight hours a day. The largest peaks of vertical vibration in the seat of the operator, for the operation of disking, were found in the range between 2 and 4 Hz, given the power spectral density for the three marches evaluated (Santos, 2003). Through the results of work done with a tractor-agricultural noted that the overall weighted acceleration, effective weighted in the range of frequencies of 1 to 8 Hz and the transmissibility between the seat and its base, could be formed the following scenarios, was the value of the overall weighted average of acceleration and the values of effective weighted average of accelerations, at frequencies of 1 to 8 Hz were below the limit of 8 hours of exposure, time that is well below the 11 to 15 hours previously found in the survey with 123 people, but even then there were reports of discomfort and pain with fewer hours of exposure (FRANCHINI, 2007).

Taking into account that was established that the levels of vibration often exceed those recommended for comfort that is the exposure of 4 hours, which is usually the time of exposure daily average of a driver of bus, factors influencing directly the time of exposure that far exceeds the recommended that states Marsili (2001), with regard to the time of exposure to vibration on the driver's seat, if this time is well above 8 hours can cause damage to the health of the operator, is a factor that directly influence is that most workers with agricultural tractor expose themselves above the limit of hours, as found in the results obtained above, farmers are exposed interviewed 11 to 15 hours is given significant say exposure to vibration that can affect visual perception and psychomotor performance and muscle, indeed lower in circulatory systems, respiratory and nervous (KROEMER, 2003). The vibrations seem to generate muscle reflexes that has the function of protection, creating a muscular contraction of the muscle increased distended. Vibration of the whole body can also cause insomnia and headache after or during the exhibition. Displaying together, results of other authors that show how the vibration can cause muscle pain and physical tiredness for a long time of exposure is important to state that farmers are exposed to working with agricultural tractor above recommended, it is true that there will be fatigue and physical during the operation of agricultural tractor, because the hours of exposure will greatly affect the pain, sitting posture needs to maintain muscle, and high energy expenditure (IIDA, 1998).

The continuing contraction of certain muscles to maintain a certain position just leading to the appearance of pain and discomfort. This is because the work is highly fatigante static and remain in top position by prolonged sitting on the seat of the tractor agricultural body and skeletal muscle system has just received directly vibrations that cause changes in the body, if only in exposure time, then you can - if it finds that is the major energy expenditure of másculos lumbar spine to stay in the sitting posture, so whenever possible should be avoided or alleviated by changes in posture. Look ergonomically the suspension of these tractors and the banks are not adjusted for the comfort and improvement of working with agricultural tractor, ergonomics is applied to the ergonomic design of information, tools, machinery systems, tasks, and work environments for human use insurance, comfortable, effective, most also the worker has to adapt its exposure to agricultural tractor total hours not exceed the recommended daily in an exhibition to get a good quality of life.

CONSIDERATIONS FINAL

The results presented in this work showed that the pain during the operation of agricultural tractor, is related to the above recommended time of 8 hours and some authors describe up to 4 hours, for not being exposed to vibration, which has just become harmful after the recommended of hours for the operator and is quite clear from the results discussed farmers remain 11

to 15 hours exposed the operation of agricultural tractor, because the vibration means that any change of members, sitting, making the systems skeletal muscle, changes by oscilação.Para keep sitting posture is great energy expenditure, causing physical tiredness, the muscular fatigue, then observing whether the tractor is not appropriate to the technical standards of ergonomics adapted to work, occupational diseases.is a factor that will contribute in order to direct the emergence of pain that will become over time

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THE COLUMN PAIN PREVALENCE ON FARMERS

Abstract

The present article represents an epidemiological study about the causes of pain due to the operation of agricultural tractor. The main objective was to identify the cause of pain during the operation of agricultural tractor. This is an exploratory qualitative research in the field of direct cross-section. The population was composed of farmers in the west of Parana, the sample of 181 farmers that were visiting the Show Rural 2008. The main results were 67.96% reporting feel pain during the operation of agricultural tractor, with 37.85% of farmers feel pain in the lumbar spine, and 76.80% of respondents feel tired during the operation of agricultural tractor, 48.86% reported that the time of exposure is an average of 11 to 15 hours working on the farm tractor. The pain may be due to the time of exposure in the daily operation of the farm tractor sitting posture, vertical oscillation (vibration) can have great relationship with the pain during the operation, with statistically significant with the pain during physical tiredness, because to maintain sitting posture raises a lot of energy expenditure may cause muscular fatigue, causing physical fatigue by exposure for a long time at the agricultural tractor.

Key Words: Agricultural tractor, vibration, lumbar pain.

LA PRÉVALENCE DE DOULEUR DANS LA COLONNE DANS DES AGRICULTEURS

Résumé

Ce travail représente une étude épidémiologique des causes de douleur dans résultat de l'opération du tracteur agricole. L'objectif principal a été identifier la cause de douleur pendant l'opération du tracteur agricole. S'agit d'une recherche qualitatived'exploration de coupe transversale dans champ direct. La population s'est composée d'agriculteurs de l'Ouest du Paraná, l'échantillon a été de 181 agriculteurs, visiteurs de l'Exposition Agricole 2008. Les principaux résultats obtenus ont été de 67,96 % en disant de sentir douleur pendant l'opération du tracteur agricole, en étant que 37,85% des agriculteurs sent douleur dans la colonne lombaire, et 76,80% interviewés sent fatigue pendant l'opération du tracteur agricole, 48,86% a dit que le temps d'exposition est en moyenne de 11 à 15 heures en travaillant dans le tracteur agricole. À douleur peut être liée au temps d'exposition quotidienne dans l'opération du tracteur agricole la position de places assises, oscillation verticale (vibration) peut avoir grande relation avec la douleur pendant l'opération, en étant statistiquement significatif à douleur pendant avec la fatigue physique, donc pour maintenir la position de places assises élève beaucoup la dépense énergétique en pouvant causer fatigue musculaire, en causant fatigue physique par l'exposition par temps prolongé, dans le tracteur agricole.

Mot-clé : Tracteur agricole ; vibration ; douleur dans la colonne lombaire.

LA PREVALENCIA DE DOLOR EN LA COLUMNA LOS AGRICULTORES

Resumen

Este trabajo represienta um estudio epidemiologico de las causas del dolor em decorrencia de la operación del tractor agricola. El deso principal fue identificar la causa del dolor durante la operación del tractor agricola. Tratase de uma pesquisa cualitativa de exploración, em corte transversal em el campo directo. La población fue compuesta com agricultores del oeste del paraná, la amuestra fue de 181 agricultores, visitantes del Show Rural 2008. Los principales desarrollos fueron 67,96% relatando sentir dolor durante la operación del tractor agricola, siendo que 37,85% de los agricultores sientem dolor em la columna lumbar y 76,80% de los participantes sientem cansancio durante la operación del tractor agricola, 48,86% relataron que el tiempo de exposición és em media de 11 a 15 horas trabajando em el tractor agricola. El dolor puede ser decorriente del tiempo de exposición diaria em la operación del tractor agricola puesto que la postura sentada, oscilación vertical(vibración), pueden tener gran relación com el dolor durante el cansancio fisico, para mantener la postura sentada, si se eleva mucho el gasto de energia, pudiendo causar cansancio del musculo, causando cansancio fisico por la exposición, por tiempo prolongado em el tractor agricola.

Palabras - Llaves: tractor agricola; vibración; dolor en la columna lumbar.

A PREVALÊNCIA DE DOR NA COLUNA EM AGRICULTORES

Resumo

Esse trabalho representa um estudo epidemiológico das causas de dor em decorrência da operação do trator agrícola. O objetivo principal foi identificar a causa de dor durante a operação do trator agrícola. Trata-se de uma pesquisa qualitativa exploratória de corte transversal em campo direto. A população foi composta de agricultores do Oeste do Paraná, a amostra foi de 181 agricultores, visitantes do Show Rural 2008. Os principais resultados obtidos foram de 67,96 % relatando sentir dor durante a operação do trator agrícola, sendo que 37,85% dos agricultores sentem dor na coluna lombar, e 76,80% dos entrevistados sentem cansaço durante a operação do trator agrícola, 48,86% relataram que o tempo de exposição é em média de 11 a 15 horas trabalhando no trator agrícola. A dor pode ser decorrente do tempo de exposição diária na operação do trator agrícola a postura sentada, oscilação vertical (vibração) pode ter grande relação com a dor durante a operação, sendo estatisticamente significante a dor durante com o cansaço físico, pois para manter a postura sentada eleva muito o gasto energético podendo causar fadiga muscular, causando cansaço físico pela exposição por tempo prolongado, no trator agrícola.

Palavra-chave: Trator agrícola; vibração; dor coluna lombar.