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Abstract Title: Social responsibility and procedures on the return to work of employees on sick leave due to illness and accidents.

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Abstract: Case studies in a Brazilian company in the business of vehicular equipments. The research proposes a model to reintegrate employees on sick leave due to illness or work-related injuries using the concepts of ergonomic analysis of the activity and procedures based on functional reintegration.

1. Introduction

The professional/vocational rehabilitation is a multidisciplinary process that involves areas of knowledge such as: sociology, psychology, medicine, social services, physical therapy, occupational therapy and public health. It aims to promote the return to the labor market of the work-comp worker, whom due to an illness and/or accident of any nature or cause, is unable of partially or totally develop his professional activities (MAHAYRI, 2004).

The assistance to the injured worker involves complexes and diversified aspects, from preventive ones until the reintegration into the labor market after his full recovery by considering the type of accident, the injury, the health services, the company, the labor market, among others (MAHAYRI, 2004).

The Brazilian professional rehabilitation is characterized, as an integrant policy in the System of Social Security benefits developed exclusively within the extent of the State, as a public response to the matter of disability associated with work-related injuries and illnesses (TAKAHASHI and IGUTI, 2008).

Seyfried (1998) defines the practice of professional rehab as a program with a structured intervention to develop therapeutic activities and professionalization that covers the entire individual, and strengthens him to handle and overcome difficulties imposed by his disabilities. Its objectives intend to stabilize physically and psychosocially the workers, and enable their reintegration into social and daily life, and work relations. For the author, the goal of a vocational rehabilitation program is only achieved, when it results in the insertion of a person into a work that allows his full social integration.

Takahasi and Iguti (2008) described the changes that happened in the practices of professional rehabilitation in the Social Security (INSS) in Brazil and in the work's routine in the 90's, and analyzed those practices starting from their context with neoliberal measures from Brazilian reforms – Administrative and Social Security. According to this study in the 90's in Brazil there were two types of programs responsible for the professional rehab, the Centers of Professional Rehabilitation (CRPs) and the Nucleus in Professional Rehabilitation (NRPs). However in the 2000's decade there was a deactivation of the CRPs and NRPs, and the transformation of the model for attention of professional rehab into the "Rehabilitate Program", a subprogram from the medical expertise of agencies of Social Security benefits.

A high financial cost has been estimated with the reintegration into the labor market. However the professional rehab is not a process to be highlighted only from the economic point of view. It is necessary to recognize and disclose its social importance, mainly in the globalized economy of the present post-industrial society. The professional rehab is today a real challenge for the 21st century, due to the labor market conditions that has such a high worldwide unemployment rate (MAHAYRI, 2004).

2. Justification

The reform in the Social Security that happened in Brazil in the 90's and throughout the 2000's did not consider the main problems diagnosed by the Interministerial Commission for the Worker's Health in 1993: the work-comp workers have continued being treated as non-citizens, the working class keeps dying, being mutilated and sickened by work and public institutions that interface with the worker's health – Ministry of Health.

The Ministry of Social Security and Ministry of Labor – remain uncoordinated and with low power of intervention before the power the companies. The Brazilian inefficiency in handling work injuries and professional illnesses is a reality that updates daily, worsened by the conduct of the Social Security (INSS) of withholding the permanency of the disabled worker in programs of income support without having offered them the possibility of overcoming their handicaps through programs of professional rehab (TAKAHASI E IGUTI, 2008).

When analyzing the absenteeism rates in the companies a high number of sick leave from work for medical reasons are seen, and most of the times these absences are due to temporary disabilities. When workers go back to work they might find difficulties to perform the tasks they held prior to the sick leave.

3. Objective

The main objective of the professional rehab is to develop the functional residual capacities of the work-comp workers, which is to reintegrate them to the work force through programs of reeducation and thus provide the best conditions of physical, mental and social well-being (MAHAYRI, 2004).

Therefore the main goal of this study was to propose an experimental method using the principles of the activity's ergonomic to reintegrate the workers to workstations (posts) suitable to their new health condition.

The current study applied the proposed professional reintegration model in 40 workers from a large size company in the business of vehicular equipment', that were removed due to musculoskeletal disorders. The model was applied starting with an evaluation by the company's

medical department on the conditions of the sick leave workers, and was concluded after the assessment of the adaptation of such workers in their respective workstation.

4. Materials and Methods

The construction of the model used for professional reintegration proposed here, has sought to analyze 3 basic aspects of work: the real activity of the work based on the principles of ergonomic activities; the physical condition of the worker by means of physical evaluation involving biomechanics and kinesiology; and the functional condition of the worker with the use of the International Classification of Functioning - CIF.

The specificity of the ergonomics lies in its tension between two objectives. On one hand an objective focused in the organizations and their performance. This performance can be learned under different aspects: efficiency, productivity, quality, time of duration, etc. On the other hand, an objective centered on the people, this one also unfolding in different dimensions: safety, health, comfort, ease of use, satisfaction, work interest, enjoyment, etc (FALZON, 2007).

The work activity is the core element that organizes and structures the components of the work situation. It is a response to constrains externally determined to the worker and at the same time is able to transform them. Therefore it establishes, by its own performance, a close interdependence and interaction between these components (GUÉRIN *et al*., 2001).

Biomechanics is a discipline among the sciences derived from the natural sciences that deals with physical analysis of biological systems, consequently, physical analysis of movements of the human body. It is known that no discipline develops by itself; due to its conformation the biomechanics resorts to a composite of scientific disciplines, and particularly in biomechanics

can be observed a close relationship between the needs and demands of the practice of human motion (AMADIO *et al*., 1999).

The physical evaluation also involved postural examinations, muscle evaluations, flexibility tests, specific tests (orthopedics) and a questionnaire of the worker's family history related to a specific illness, with the purpose of identifying which are the structures of the worker's body that are affected then, determine which are his restrictions, as well as to get an overview of his health status (muscle strength, flexibility, postural problems, and family history).

To evaluate the functionality and capability of the worker before a task a part of the International Classification of Functioning, Disability and Health (CIF) in regards to the work tasks was used in order to check the easiness and difficulties that the worker can find in his daily routine and work routine.

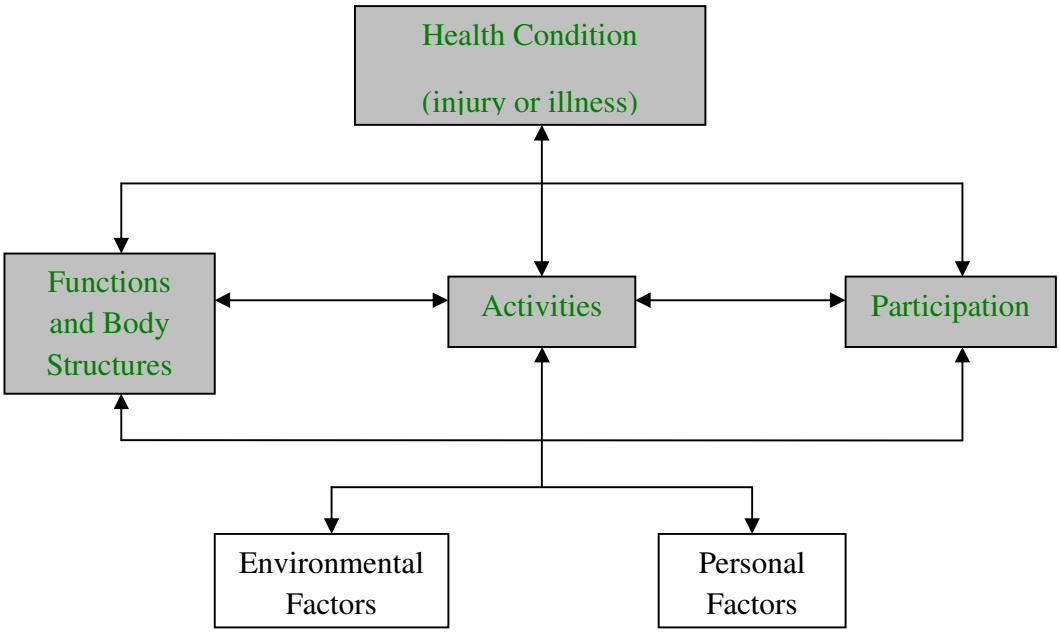


Figure 1 – Interactions between the components of the CIF (OMS, 2003)

The CIF, according to the model of figure 1, analyses the functionality and disabilities related to health conditions, identifying what a person "may or may not do in his daily life", taking into consideration the functions of the organs, or body systems and structures, as well as, the limitations of activities (work related or not) and social participation in the environment where the person lives (OMS, 2003). The main objective is to identify if the worker presents limitations or constrains facing his work activity.

The stages described below focus on the assessment of the subject in order to understand the structural characteristics of his body, its limitations, its points of pain and impaired functionality, focusing on its limitations and capabilities, in addition to checking his potential in work activities and daily life.

Stage 1 – Preliminary Diagnosis

Aims to obtain the worker's personal data, place and time of work, cause for removal, and the possible restriction of movements due to discomfort felt in order to guide the implementation of tools for physical-functional assessment.

Stage 2 - Implementation of the Physical-Functional Assessment Form

The Physical-Functional Assessment Form was designed to understand the perception of the worker on his discomfort and pain, related to his work activity and identify which are the worker's body structures that are affected, so then is possible to determine his limitations, besides obtaining a general view of his health status: muscle strength, flexibility, family history and postural problems (see figures 2 and 3).

QUESTIONNAIRE FOR WORKERS

AGE: SEX:
WORKPLACE: POSITION:
WORK TIME: input: _____ output: _____ ROUND? _____
HOW LONG WITH THIS COMPANY? ____ HOW LONG WITH THIS JOB? _____
CHANGED EVER FUNCTION? WHY?_____

Question 1: What kind of discomfort you feel today?

Question 2: How long do you feel that (s) discomfort (s)?

□ up to 6 months □ + 6 months to 1 year □ + 1 year

Question 3: Do you searched the health service started as soon as the discomfort?
□ yes □ no

Question 4: If not, then how long sought help at a health service?

Question 5: Some doctor diagnosed your discomfort? Have you taken any test?

Question 6: Did you start some kind of treatment? If yes, which?

Question 7: Do you relate to your discomfort:

Activity outside of work □ Work □

Question 8: Is your discomfort worse at the beginning, middle or end of the workday?

Question 9: Not counting lunch or coffee, do you do any breaks (take a rest during the activities)?
□ yes □ no
How many times a day? _____

For how long?
□ up to 3 minutes □ + 3 to 5 minutes □ + 5 to 10 minutes □ + 10 to 20 minutes

Question 10: In your work, there are other people with discomfort similar to yours?
□ yes □ no

Figure 2-Work and worker identification tool.

FUNCTIONAL ASSESSMENT TOOL

	Level of difficulty			
General tasks and demands	**No**	**With some**	**Very**	**Incapable to do**
1. You can perform a single task throughout your workday?	0	1	2	3
2. You can perform multiple tasks (different) during your working hours?	0	1	2	3
3. You can perform the daily routine?	0	1	2	3
4. Can you deal with stress and other psychological demands during the work activity?	0	1	2	3
Mobility	**No**	**With some**	**Very**	**Incapable to do**
5. You can change your body position?	0	1	2	3
6. You can stand for a long time?	0	1	2	3
7. You can get up in an upright manner of a straight-backed chair without arms and without?	0	1	2	3
8. You can walk small snippets?	0	1	2	3
9. You can shop nearby where you live?	0	1	2	3
10. You can walk in places plans?	0	1	2	3
11. Can you climb stairs or steps?	0	1	2	3
12. You can enter and exit a bus?	0	1	2	3
13. Can you hold on to walk on the bus or subway?	0	1	2	3
14. You can pick up objects on top?	0	1	2	3

PHYSICAL ASSESSMENT FORM

Name: Age: Sex: ( ) Male ( ) Female
Date of Birth:
Weight: Height:
Valuation Date:

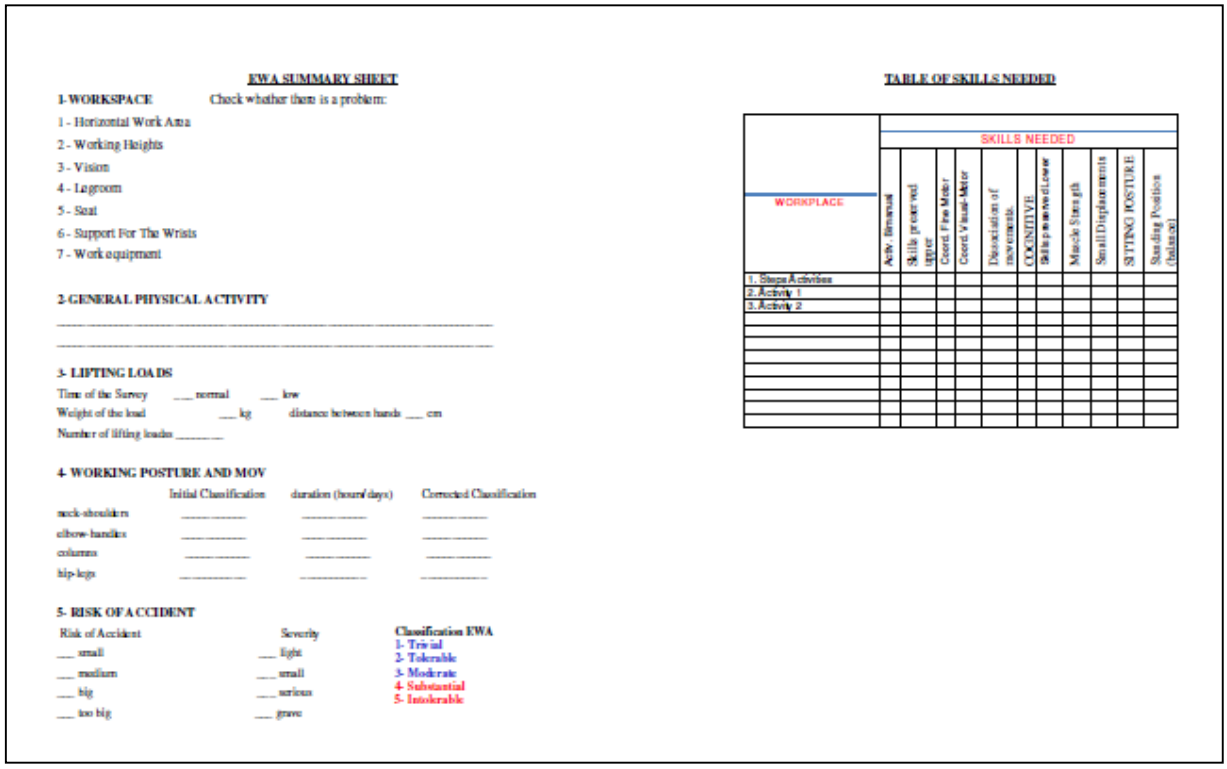
Range of Motion (ROM):

Region of Body	Motion	Right	Left
	Flexion		
	Extension		
	Lateral Rotation		
□ Head and Neck	Lateral Tilt		
	Flexion		
	Extension		
	Adduction		
□ Shoulder	Abduction		
	Flexion		
	Extension		
	Pronation		
□ Elbow	Supination		
	Flexion		
	Extension		
	Radial Deviation		
□ Handle	Ulnar Deviation		
	Flexion		
	Extension		
	Adduction		
□ Fingers	Abduction		
	Flexion		
	Extension		
	Adduction		
□ Trunk/Column	Abduction		
	pain		
	formication		
	Sciatic nerve		
	Difficult to walk		
□ Lower Limbs	flexibility		

Figure 3- Functional assessment and Physical assessment Form examples..

Stage 3 – Assessment of the Workplace

The workstations were evaluated to characterize the technical requirements for the task, its demands and necessary skills, movements and work postures. To aid the assessment process of workplaces, ergonomic instruments of risk were applied, based on the EWA-Ergonomic Workplace Analysis (AHONEN, 1989) and the Table of Required Skills from CIF (OMS, 2003), as illustrated in figure 4.



EWA SUMMARY SHEET

1-WORKSPACE Check whether there is a problem:

1 - Horizontal Work Area
2 - Working Heights
3 - Vision
4 - Legroom
5 - Seat
6 - Support For The Wrists
7 - Work equipment

2-GENERAL PHYSICAL ACTIVITY

_____
_____

3- LIFTING LOADS

Time of the Survey ___ normal ___ low
Weight of the load ___ kg distance between hands ___ cm
Number of lifting loads _____

4- WORKING POSTURE AND MOV

	Initial Classification	duration (hours/days)	Corrected Classification
neck-shoulders	_____	_____	_____
elbow-handles	_____	_____	_____
columns	_____	_____	_____
hip-legs	_____	_____	_____

5- RISK OF ACCIDENT

Risk of Accident	Severity
___ small	___ light
___ medium	___ small
___ big	___ serious
___ too big	___ grave

Classification EWA
1- Trivial
2- Tolerable
3- Moderate
4- Substantial
5- Intolerable

TABLE OF SKILLS NEEDED

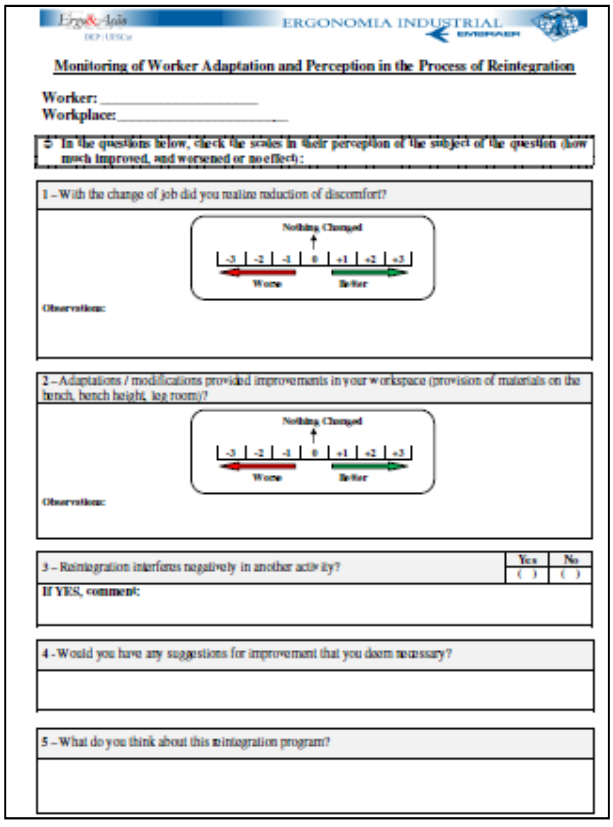
WORKPLACE	SKILLS NEEDED										
	Activ. Renewal	Skills preserved upper	Coord. Fine Motor	Coord. Visual-Motor	Dissociation of movements	COGNITIVE	Skills for Heavy/Low	Muscle Strength	Small Displacements	SITTING POSTURE	Standing Position (tolerat)
1. Steps Activities											
2. Activity 1											
3. Activity 2											

Figure 4- Part of the EWA Summary Form and Table of Special Skills

Based on this analysis, a report synthesizing the collected information within this initial process was elaborated and forwarded to the company's ergonomic team to serve as a reference for the choice and adaptation of the workstations.

5. Results

The model proposed was applied on 40 workers of the company, in search of suitable workstations for each one. After the process being completed with the reintegration of the worker to the suggested workstation, the perception questionnaire was applied (Figure 4), in which the worker was asked about his perception of the actual workstation and about the reinsertion process. Through this questionnaire it was obtained an index of suitability to work: (Number of positive evaluations/ Total number of evaluations) X 100. It is understood by positive evaluations those where the workers are reinserted and suited regarding to the suggested workstation. Of the 40 workers evaluated, 32 were reintegrated with success, giving a suitable index of 80%.


ERGONOMIA INDUSTRIAL

Monitoring of Worker Adaptation and Perception in the Process of Reintegration

Worker: _____

Workplace: _____

☞ In the questions below, check the scales in their perception of the subject of the question (how much improved, and worsened or no effect):

1 – With the change of job did you realize reduction of discomfort?

Nothing Changed

-3 | -2 | -1 | 0 | +1 | +2 | +3

Worse | Better

Observations:

2 – Adaptations / modifications provided improvements in your workspace (provision of materials on the bench, bench height, leg room)?

Nothing Changed

-3 | -2 | -1 | 0 | +1 | +2 | +3

Worse | Better

Observations:

3 – Reintegration interferes negatively in another activity?	Yes	No
	( )	( )

If YES, comment:

4 - Would you have any suggestions for improvement that you deem necessary?

5 – What do you think about this reintegration program?

Figure 4 - Questionnaire of Perception

6. Conclusion

The proposed model for the reintegration program obtained a very good approval index through the process participant workers, but this model still presents some limitations, such as, not-assessing the psychic aspects of the worker at work, which is a very important aspect in the returning to work.

Although the psychic disorders present a high prevalence among the working population, they are not recognized as disorders at the moment of the clinical evaluation. Contributing to this fact, among other reasons, are the very characteristics of the psychic disorders, regularly masked by physical symptoms, as well as the inherent complexity of the task of defining clearly the association between such disorders, and the work done by the patient (GLINA *et al*., 2001). Therefore as a proposal for future studies, it is suggested that the psychic aspects need to be taken into consideration and assessed as well.

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