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Loss Control TIPS

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Rest Breaks and Cumulative Trauma Disorders

Introduction

The group of work related illnesses which are referred to as cumulative trauma disorders (CTDs) is responsible for a significant number of days out of work and lost productivity in industry, particularly in hand-intensive jobs. Unlike other work related injuries or acute illnesses, these disorders take time to develop; in the early stages, they may go unnoticed. The loss potential associated with these unrecognized, developing disorders is significant. The action plan to address actual losses may be reactive but an effective loss control approach implements a proactive plan. In fact, prevention is the optimal cure.

What Causes Cumulative Trauma Disorders?

The actual cause and effect mechanisms of these disorders is not well understood. However, certain risk factors have been identified as causes of cumulative trauma disorders, including:

- static posture
- awkward posture
- repetition
- force
- vibration
- extreme temperature

We also know what is required for optimal physical performance. Some of these conditions, in rather general terms, are:

- circulation
- movement
- strength
- coordination
- recovery time

Considering both the risk factors which cause cumulative trauma disorders, and the conditions required for optimal physical performance, we logically reason that it is possible to reduce or eliminate injury by reducing or eliminating the risk factors if, at the same time, we can maintain the necessary physiological conditions for performance. We know that static and/or awkward postures impair circulation and limit movement. Static posture and highly repetitive tasks reduce recovery time. Impaired circulation and limited movement can ultimately lead to reduction in strength and coordination.

How Do Rest Breaks Help?

Where does the concept of rest breaks fit in? The goal of rest breaks is to interrupt periods of static posture and repetitive motion and to introduce recovery time periods. But rest breaks are not the only way to achieve such a goal. This goal can also be achieved through alternative work and, in some cases, through careful scheduling of workflow. A combination of rest breaks and changes in work patterns/tasks can effectively reduce exposure to risk factors and maintain physiological integrity.

This thought process raises several questions. Regarding *static* posture, how long is too long? Regarding repetition, how many times is too many? Or, how many times within what time frame is too many? How much force is too much and over what duration?

The answers to these questions remains elusive. Research on this subject is complicated by the enormous number of interactive variables involved. For example, it is not difficult to understand the increased risk associated with a task requiring high repetition as opposed to low repetition. However, the risk of the low repetition task may be increased if static posture is involved. In addition, the tables may also turn when force is factored in.

The risk associated with a high repetition, high force task is greater than that associated with a low repetition, low force task. But what about a low repetition, high force task, or a high repetition, low force task? Furthermore, individual differences among people with respect to physical conditioning, skill level, and anthropometrics, also play an important role.

Designing Effective Rest Breaks

The literature provides a range of guidelines with respect to rest break cycles. Few of these guidelines refer exclusively to rest breaks. Rather, some of these recommendations call for stretching or exercise. Others refer to alternate work. Many refer to a combination of rest, exercise and alternate work. Some examples are:

- ☐ three 30-second and one 3-minute break from computer work each hour in addition to conventional rest breaks (Henning, et. al., p. 78)
- ☐ a 5 minute break for other activities every hour in continuous and highly repetitive operations (Parker and Imbus, p. 63)
- ☐ a “Stand and Stretch Moment” every 20 or 30 minutes (Morse and Hinds, p. 727)
- ☐ one 5- to 10-minute break every 25 to 30 minutes at the keyboard (note: breaks don’t imply idleness and may incorporate productive work) (Pascarelli and Quilter, p. 184)
- ☐ 15 minute work rest break after 1 hour of continuous VDT work for operators under high visual demands, high work load, and for those engaged in repetitive work tasks. (Murray, et. al., NIOSH, p. 70)
- ☐ 15 minute work rest break after 2 hours of continuous VDT work for operators under moderate visual demands and/or moderate work load. (Murray, et. al., NIOSH, p. 70)

Theoretical models of optimal rate-rest profiles have been developed (Fisher). However, these models are very complex and the profiles are not easily applied out in the real world. The frequency and duration of rest breaks in the industrial setting is commonly established by the engineer, taking into consideration people and production factors. This may not be the case in office settings.

In both settings, labor practices and human resource issues may also influence decisions about breaks. In any case, it is not possible to recommend an optimal and/or generic rest break cycle and there are no established standards for frequency and duration of breaks.

Our attempts to prevent and to control cumulative trauma disorders and the associated losses include the application of principles of ergonomics. Ergonomic solutions include, but are not limited to analysis of workplace design factors. Certainly, a thorough analysis of the job will address workplace design, work flow/organization, work practices, and other factors. Rest breaks are one facet of work organization or work flow design. But this is only one piece in a very large complicated puzzle.

Summary

Rest breaks, alternative work, careful workflow design, and exercise can all be used effectively as part of a comprehensive ergonomics program designed to reduce or eliminate risk factors associated with cumulative trauma disorders and to reduce the incidence and associated loss costs of these disorders. The need for rest breaks will vary with aspects of the individual performing the job and with aspects of the job itself. Some of these factors are individual physiology, age, gender, intensity and duration of the task, workstation posture factors, and work station light factors. Therefore, flexibility in rest break frequency and duration is recommended.

General Recommendations

The following general recommendations apply to the establishment of effective rest break practices:

- ☐ Implement “breaks” after evaluating each job function to determine the optimal cycle. Consider intensity and duration of tasks. A general guideline for a starting point might be 5 to 10 minutes of rest or alternate work every 1 to 2 hours. An effective break schedule can incorporate any combination of rest, stretching/exercise, and alternate work.

- ☐ Design jobs to optimize task variation. Ergonomic evaluation will identify/affirm true biomechanical differences between tasks.

- ☐ Periodically reevaluate production standards and operator comfort as measures of the effectiveness of break practices.

- ☐ Utilize operator input and feedback regarding comfort levels, achievement of production standards, and break practice effectiveness.

- ☐ Allow some flexibility in break practices.

- ☐ Consider individual differences in work style in the implementation and enforcement of break practices.

- ☐ Incorporate breaks into overtime hours.

- ☐ Ongoing periodic review and evaluation of break practices is necessary to assure effectiveness.

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