



Ergonomics

MSD Risk Factors – Repetition

Risk Factors

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Filling operation presents exposures to forceful exertion (lifting 50-pound bags), repetition (2 lifts/minute) and prolonged duration (task is done for full shift).

Definition

Repetition involves performing the same motion or series of motions continually or frequently for an extended period of time. In some definitions of repetition, the motion is repeated every few seconds. Other definitions include motions that are performed twice per minute for more than two consecutive hours. Tasks that are performed with longer cycle times, but are performed for the duration of a shift, can also be considered repetitive. Continuous motions, that may be somewhat different, such as keyboarding or using a mouse, can also be considered repetitive when performed for four or more hours per shift.

Why Repetition May Lead to MSDs

If a task involves performing similar patterns of movement, and especially if the cycle time of the repeated movement is short, then the same tissues are being loaded in the same way with little opportunity for recovery. When full recovery is not possible between motions, then fatigue occurs. Eventually, more effort is needed to perform the same motions and fatigue increases. When a body part is fatigued, such repetitive tasks are likely to pose a high risk of cumulative injury especially if combined with moderate to high forces (or speeds), awkward postures, and/or long durations. The body does not have sufficient time to heal and eventually an MSD may occur, depending on individual factors.



Repetition when combined with exposure to another risk factor significantly increases the risk of an MSD.

Repetition and Mining Tasks



Operating equipment with joysticks, steering wheels and/or foot pedals



Greasing a screen motor with a manual grease gun



Removing /tightening multiple bolts



Loading bags for a filling operation



Preparing bags for sealing operation



What's Next?

The next newsletter will discuss the risk factors of contact stress and torque reaction. Contact stress may lead to MSDs when tendons, nerves or blood vessels are compressed. Torque reaction may lead to MSDs because the worker compensates for the torque reaction by shortening and tightening the affected muscles.



The content for this newsletter is from DHHS (NIOSH) Publication No. 2009-107, Information Circular 9509, Ergonomics Processes: Implementation Guide and Tools for the Mining Industry (in press), Authors: Janet Torma-Krajewski (currently Colorado School of Mines, formerly NIOSH, jtorma@mines.edu), Lisa Steiner (NIOSH, Lsteiner@cdc.gov), Robin Burgess-Limerick (University of Queensland, robin@hms.uq.edu.au).