

ERGONOMICS PROGRAM

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19000. DISCUSSION

1. This chapter establishes procedures and requirements to implement an ergonomics program per DoD Instruction 6055.1, Department of Defense Safety and Occupational Health Program. Ergonomics is the field of study involving the application of knowledge about physiological, psychological and biomechanical capabilities and limitations of the human body. This knowledge is applied in the planning, design, and evaluation of work environments, jobs, tools, and equipment to enhance worker performance, safety and health.

2. Musculoskeletal disorders (MSDs) affect soft tissues of the body in areas such as the back, neck, shoulder, elbow, hand, wrist, and finger. These include the nerves, tendons, cartilage, ligaments, and muscles. Work-related musculoskeletal disorders (WMSDs) are MSDs that are caused by or made worse by the work environment. WMSDs harm and reduced human performance capabilities often result from a mismatch between workers and tasks required of them. Ergonomics seeks to adapt the job and work center environment to personnel by designing tasks, workstations, and tools that are within the individual's capabilities and limitations.

3. The goal is to prevent WMSDs in Marine Corps personnel. A competent person with ergonomics training shall assess all situations where Marine Corps personnel are exposed to the risk of musculoskeletal injury or illness.

4. This program seeks to prevent injuries and illnesses by applying ergonomic principles to identify, evaluate and control ergonomic risk factors for WMSDs. WMSDs are defined as a class of disorders involving damage to muscles, tendons, tendon sheaths, and related bones, and nerves. They may also be known more specifically as Repetitive Strain Injuries (RSI), Cumulative Trauma Disorders (CTDs), and Overuse Syndrome. WMSDs

may result from the cumulative effect of repeated traumas associated with specific workplace risk factors.

a. Risk factors include but are not limited to:

(1) Force. The amount of physical effort required to maintain control of equipment or tools, or to perform a task such as heavy lifting, pushing, pulling, grasping, or carrying.

(2) Repetition. Performing the same motion or series of motions continually or frequently for an extended period of time with little variation. Examples include prolonged typing, assembling components, and repetitive hand tool usage.

(3) Awkward or static postures. Awkward posture refers to positions of the body (e.g., limbs, joints, back) that deviate significantly from the neutral position while performing job tasks (e.g., working over-head, extended reaching, twisting, squatting, or kneeling). Static postures refer to holding a fixed position or posture (e.g., gripping tools that cannot be set down, standing in one place for prolonged periods).

(4) Vibration. Localized vibration, such as vibration of the hand and arm, occurs when a specific part of the body comes into contact with vibrating objects such as powered hand tools (e.g., chain saw, electric drill, chipping hammer) or equipment (e.g., wood planer, punch press, packaging machine). Whole-body vibration occurs when standing or sitting in vibrating environments (e.g., operating a pile driver or driving a truck over bumpy roads) or when using heavy vibrating equipment that requires whole-body involvement (e.g., jackhammers).

(5) Contact stress. Results from occasional, repeated, or continuous contact between sensitive body tissues and a hard or sharp object (e.g., resting the wrist on a hard desk edge, tool handles pressing into the palms).

b. When present for sufficient duration, frequency, magnitude, or in combination, these risk factors may cause WMSDs. Personal risk factors such as physical conditioning, existing health problems, work technique, hobbies, and organizational factors (e.g., job autonomy, quotas, deadlines) may contribute to the development of WMSDs. Additionally, environmental conditions such as working in temperature extremes may contribute to the development of WMSDs.

19001. BACKGROUND

1. WMSDs represent over half of all rated military disabilities and over one-third of all reported civilian injuries and illnesses within the Marine Corps.

2. In recent years, there has been an increase in reporting of WMSDs such as strains/sprains, back injuries, and carpal tunnel syndrome for Marine Corps personnel. Some of this increase can be attributed to changes in work processes, such as automated office equipment, and associated work center risks. Through advanced information technology and training, Marine Corps personnel have an increased awareness of these disorders and more are being reported.

19002. RESPONSIBILITIES

1. The installation commanders shall:

a. Develop and implement an ergonomics program. Ensure work center evaluations are completed IAW the installation ergonomics plan. These evaluations may be included in the periodic industrial hygiene surveys.

b. Designate an ergonomics coordinator and members for an ergonomics team, with advice from local medical personnel, to administer the ergonomics program.

c. Ensure personnel exposed to work center ergonomic risk factors receive appropriate training as developed by the ergonomic team.

d. Allocate resources to ensure the development and implementation of a comprehensive ergonomic program.

e. Ensure coordination of medical aspects of the ergonomics program with responsible medical treatment facility (MTF).

2. The ISM shall:

a. Serve as a member of the ergonomics team or designate a representative from the safety office.

b. Coordinate ergonomics training for the ergonomics team members.

c. Oversee safety aspects of the ergonomics program.
d. Review injury and illness records related to WMSDs, develop trend analyses, and report results to the ergonomics team and safety council or committee. Identify jobs where WMSDs have occurred and direct efforts for reducing factors that may have contributed to or caused the injury.

e. Incorporate fundamental ergonomic principles into new or existing facilities, tasks or operations through engineering design reviews.

3. The Director, Public Works or Facilities Department shall:

a. Integrate ergonomic considerations into all work center improvements.

b. Implement ergonomics team recommendations to eliminate or reduce work center ergonomic risk factors.

c. Appoint an advisory or support representative from engineering or maintenance to the ergonomics team.

4. The Director, Human Resources Office shall:

a. Ensure all supervisors, managers, and employees receive appropriate ergonomics training as developed by the ergonomics team.

b. Appoint at least one representative to serve on the ergonomics team. This may be the Injury Compensation Program Administrator (ICPA).

c. Use MTF recommendations in the assignment of injured workers to light or restricted duty.

d. Provide the ergonomics team with information on compensation claims and costs associated with WMSDs to enable them to perform trend analysis.

5. Director, Logistics Division (contracting and purchasing) shall:

a. Ensure all equipment (e.g., furniture, tools, work stations, material handling devices) has been evaluated to ensure compliance with the ergonomic requirements or ergonomics team recommendations, prior to purchase.

b. Ensure integration of ergonomic considerations into purchase of new equipment.

c. Appoint an advisory representative from contracting or purchasing to serve on the ergonomics team.

d. Implement ergonomics team recommendations to eliminate or reduce work center ergonomic risk factors.

e. Appoint an advisory representative to serve on the ergonomics team.

7. Ergonomics coordinator shall:

a. Receive at least 40 hours of formal training in ergonomics (e.g., CIN: A-493-0085 or equivalent).

b. Chair the ergonomics team and provide interface with the OSH council or committee.

c. Serve as focal point for the installation ergonomics program.

d. Advocate upper management support, recognition of contributions, and availability of resources.

e. Develop the installation ergonomics plan with assistance of the ergonomics team and approval of the safety council or committee.

8. The ergonomics team shall:

a. Assist in developing and implementing an installation ergonomics plan. Set program goals and objectives, and develop strategies to address issues.

b. Ensure the installation ergonomics plan requires that trained personnel conduct evaluations of all work centers to assess the risk of WMSDs.

c. Prioritize existing and potential work center ergonomic risk factors identified in the evaluations and develop corrective action plans.

d. Develop methods to evaluate the effectiveness of corrective actions and document results. Share effective solutions and lessons learned.

e. Evaluate and provide supervisors with information on new

ergonomically designed equipment when it becomes available and maintain a library.

f. Maintain documentation on annual surveys, team meetings, trend analyses, investigations, ergonomic improvements, and associated costs.

9. Supervisors shall:

a. Assist the ergonomics coordinator in implementation of the ergonomics plan.

b. Ensure personnel receive ergonomics awareness training as described in paragraph 19003.6.

c. Request assistance from the ergonomics coordinator, ergonomics team, and installation or unit safety office for recognizing, assessing, and monitoring work center ergonomic risk factors.

19003. ERGONOMICS PROGRAM ELEMENTS. The following elements will be used to develop the installation ergonomics plan (additional guidance is available in NIOSH Pub 97-117, Elements of Ergonomics Programs: A primer Based on Evaluations of Musculoskeletal Disorders).

1. Management Commitment and Employee Involvement. A collaborative partnership between all working levels is essential to prevent WMSDs and reduce risk in the work centers. Command emphasis, management commitment, and demonstrated visible involvement by all personnel provide the organizational resources and motivation necessary to implement a sound ergonomics program. Personnel involvement is essential for preventing WMSDs by risk identification and developing an effective means for hazard abatement.

2. Work Center Analysis. The purpose of a work center analysis is to identify existing hazards that may cause WMSDs and other injuries. Identification of jobs with WMSDs risk factors will assist in determining where detailed job analysis and intervention priorities are needed.

a. One method of work center analysis requires a review of mishap logs, ANYMOUSE forms, personnel complaints and suggestions, safety inspections, industrial hygiene surveys, and compensation claims for WMSDs. Analysis should include the body part involved, nature of injury or illness, lost work time

(workdays and light or restricted duty days), and medical and compensation case costs. Where mishap and compensation data analysis reveals a prevalence of WMSDs, jobs may be prioritized for detailed analysis based on the incidence rate, severity of risk, and depth of engineering support needed. Detailed analysis characterizes the risk factors and enables development of appropriate recommendations and priorities for corrective actions.

b. Another method of work center analysis may include questionnaires, personnel interviews, direct observations, and videotaping the work process to provide information for detailed job analysis. Where walk through surveys (safety inspection or industrial hygiene survey) reveal potential for WMSDs and mishap and compensation data analysis is inconclusive, a symptoms or body part discomfort survey should be administered to determine if intervention is warranted. This method provides a proactive approach on collecting information prior to actual injury.

3. Hazard Prevention and Control. The goal of hazard prevention and control is to eliminate, reduce or control the presence of work center ergonomic risk factors. Risk factors commonly associated with WMSDs include: repetitive motion, force or mechanical stress, awkward or static posture, vibration, and work organizational or stress factors. Effective design or redesign of a task or workstation is the preferred method of preventing and controlling exposure. Methods of intervention include engineering controls, administrative controls, and personal protective equipment (PPE) as described in chapter 10 of this Manual. The DoD does not recognize back support belts and wrist splints as PPE, or the use of these devices in the prevention of back or wrist injuries. These devices are considered medical appliances and may be prescribed by credentialed health care providers who are responsible for medical clearance, monitoring, and proper fit. All risks identified shall be assigned a RAC and entered into the hazard abatement log as described in chapter 7.

4. Facility Modification, New Construction or Material Acquisition. Before purchasing any tool or piece of equipment, building a new facility, or modifying an existing one, ergonomic design criteria in MIL-STD-1472F, Department of Defense Design Criteria Standard - Human Engineering, shall be considered. Additional design guidance is available in DHHS (NIOSH) Publication No. 94-110, Applications Manual for the Revised NIOSH Lifting Equation; ANSI/IESNA RP-7-01, American National Standard Practice for Lighting Industrial Facilities; and

ANSI/IESNA RP-1-1992, American National Standard Practice for Office Lighting.

a. Where heavy objects must be handled, use DHHS (NIOSH) Publication No. 94-110 to calculate recommended weight and height limits.

b. Glare, contrast, and shadows influence lighting quality and can seriously diminish performance. ANSI/IESNA RP-7-01 and ANSI/IESNA RP-1-1992 provide illumination levels for industrial and office environments, respectively. Consult the local industrial hygienist for assistance.

5. A medical management program for personnel with WMSDs shall be established to meet the requirements of chapter 11.

6. Training

a. Ergonomics awareness training shall be provided to all Marine Corps personnel. Training should enable each person to recognize work center ergonomic risk factors, as well as understand procedures used to minimize these risks.

b. Ergonomics awareness training should include:

(1) Ergonomics definition and concepts.

(2) Work center physical risk factors and personal traits that may contribute to an injury.

(3) How to recognize and report early warning signs and symptoms associated with various WMSDs.

(4) How to prevent WMSDs by recognizing physical risk factors and identifying the basic elements of an effective design. Know how to report physical risk factors to their supervisors and cooperate with intervention measures.

(5) Understand the components of the ergonomics program and their role in it.

(6) Wellness or Semper Fit programs.

c. Ergonomics team members, supervisors, and facilities department engineers are required to attend ergonomics training.

d. Training shall be documented per chapter 5.

e. Refresher training will be provided annually and retraining will be conducted when personnel are assigned to a new job with different risks, or when risks are newly identified in a job.

7. Program Evaluation and Review. The ergonomics coordinator shall assess the implementation progress and effectiveness of the installation or unit ergonomic plan annually. This audit will reveal gaps in the program and may identify helpful ideas for further program development.