CGA

Compressed Gas Association

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ERGONOMIC GUIDELINES FOR THE INDUSTRIAL AND MEDICAL GAS INDUSTRY

SECOND EDITION

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Work Item 14-013
Safety and Health Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendices A, B, C, D, E, and F (Informative) are for information only.

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1 Introduction

Ergonomics is the study of the relationship between people and machines or between people and their environment. This publication heavily references the National Institute for Occupational Safety and Health's (NIOSH) publication, *Elements of Ergonomics Programs: A Primer Based on Workplace Evaluations of Musculoskeletal Disorders* [1].[1] One expert has said, "Ergonomics is the study of how people work at their jobs." The U.S. Occupational Safety and Health Administration (OSHA) has said, "The science of ergonomics seeks to adapt the job and workplace to the worker by designing tasks and tools that are within the worker's capabilities and limitations." Poor interaction between people and the equipment they operate can result in stress and strain on the operators. This stress and strain can lead to musculoskeletal disorders (MSD) such as carpal tunnel syndrome or low back strain. On the positive side, reducing stress and strain on operators can result in more efficient work, better quality of work, and lower worker's compensation costs for MSDs.

Ergonomics attempts to develop equipment, tools, work practices, and machine technology that will improve overall employee health, comfort, and performance, as well as provide a safer working environment. Ergonomics places the emphasis on the human subject and how systems, processes, and everyday job tasks should be performed in an environment more adaptive to the worker, rather than the worker trying to adapt to the environment.

One type of injury that can be avoided by eliminating risk factors in the work environment is a work-related musculoskeletal disorder (WMSD) or cumulative trauma disorder (CTD). WMSDs refer to disorders of the soft tissues and are associated with repeated exertions or movements of the body, awkward postures, and extreme force.

WMSD risk factors can be found in activities both on and off the job and can lead to muscle fatigue. Fatigue commonly leads to discomfort and to a reduction in endurance, strength, and muscle control.

The differentiating factor between a WMSD and another type of injury is the acuteness of the injury. Acute trauma refers to injuries that occur immediately, such as cuts, bruises, and falls. Some cumulative trauma injuries appear to be sudden but can be the result of chronic exposure to WMSD risk factors over time.

2 Definitions

For the purpose of this publication, the following definitions apply.

2.1 Publication terminology

2.1.1 Shall
Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

2.1.2 Should
Indicates that a procedure is recommended.

2.1.3 May
Indicates that the procedure is optional.

2.1.4 Will
Is used only to indicate the future, not a degree of requirement.

2.1.5 Can
Indicates a possibility or ability.

[1] References are shown by bracketed numbers and are listed in order of appearance in the reference section.