



INTRODUCTION

The maritime work environment is very complex. Mariners work on a variety of vessels including tankers, cargo carriers, fishing vessels, military ships, barges, and offshore installations. In addition, maritime crew perform different types of work such as maintenance, production, repair, food services, manual materials handling, and drilling while working shift work. In addition, these tasks are performed in a moving environment, possibly in tight spaces, while potentially exposed to adverse environmental conditions, and living on the vessel.

Early indications of musculoskeletal disorders (MSDs) include numbness, tingling, pain, restriction of joint movement, or soft tissue swelling. Maritime employees suffer from strains and sprains of the low back muscles, and associated low back disorders, persistent or recurring general shoulder pain (related to e.g., rotator cuff tendonitis), lower extremity MSDs, and a variety of symptoms associated with vibration.

Some MSDs develop gradually over time as a result of intensive work. When the work environment requires employees to assume awkward or static body postures for a prolonged period of time, the employees may be at risk of developing MSDs. Activities outside the workplace that involve substantial physical demands may also cause or contribute to MSDs. In addition, the development of MSDs may be related to genetic causes, gender, age, and other factors. Finally, there is evidence that reports of MSDs may be linked to certain psychosocial factors such as job dissatisfaction, monotony, and limited job control. This Ergonomic Design and Safety Toolkit Module only address physical risk factors in the workplace. The ergonomics-related risk factors that maritime employees are most often exposed to include:

- Force
- Repetition
- Awkward and prolonged static body posture
- Contact stress
- Ship/installation motion
- Vibration
- Cold temperatures combined with the risk factors above
- High temperatures combined with the risk factors above

The combination of these risk factors in a job may result in a greater risk of injury. However, the presence of risk factors on a job does not necessarily mean that the employees will develop MSDs.

Providing a safer and more comfortable work environment may also result in additional benefits including reduced absenteeism, increased efficiency and productivity, decreased fatigue, and improved employee morale.

TERMS/DEFINITIONS

Ergonomics: is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance. Practitioners of ergonomics, ergonomists, contribute to the planning, design and evaluation of tasks, jobs, products, organizations, environments and systems in order to make them compatible with the needs, abilities and limitations of people. (IEA, 2000).



Musculoskeletal disorder (MSDs): can affect the body's muscles, joints, tendons, ligaments and nerves. Many work-related MSDs develop over time and can be related to the employee themselves, the work itself, or by the employees' working