

Texas Department of
Criminal Justice

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Risk Management

Ergonomics and Musculoskeletal Disorders



Webster Dictionary defines ergonomics as an applied science with designing and arranging things people use, so that people and things interact most efficiently and safely.

Work stations that are designed with poor ergonomics can contribute to injuries and musculoskeletal disorders (MSDs) over time. The term MSDs refers to conditions that involve the nerves, tendons, muscles, and supporting structures of the body. These disorders often involve the back, wrist, elbow, and shoulder. MSDS risk factors include awkward postures, forceful exertions (improper lifting, bending, or stooping), and repetitive movements. (National Institute of Occupational Safety and Health N.I.O.S.H.)

Computer workstations should be safe and comfortable in order to reduce MSDs. An ergonomically correct computer work station should be setup with:

- The top of the computer monitor at or just below eye level. The employee should be able to read the screen without bending the head backward. The monitor should be directly in front of the employee to alleviate twisting of the head and neck. Glare from windows and lights should be minimal. Glare can cause a person to assume an awkward position to clearly see the information on the screen.
- As the employee sits, the head and neck should be in-line with the torso. The head, neck, and trunk should be facing forward and not twisted. The torso should be perpendicular to the floor, not leaning forward or backward.
- The shoulders should be relaxed and the elbows close to the body and supported.
- Wrists and hands should be in-line with the forearms.
- The chair should be adjusted to a height which allows the employee's feet to rest flat on the floor. The thighs should be parallel to the floor and lower legs perpendicular to the floor. The backrest should provide lower lumbar support. The seat front should not press against the back of the knees and lower legs.
- The keyboard platform should be stable and large enough to hold a keyboard and input device (mouse or trackball). The input device should be located next to the keyboard so that it can be operated without reaching.
- The hands and wrists should not rest on edges that are hard or sharp.

Workstations should be adjusted to minimize stress on the muscles, tendons, and nerves. A properly positioned workstation will not only reduce injuries and MSDs, but will also reduce fatigue. (OSHA Computer Workstations.)

