

Ergonomic Hazards



Dr. Gary W. Helmer

Chief, Safety Division

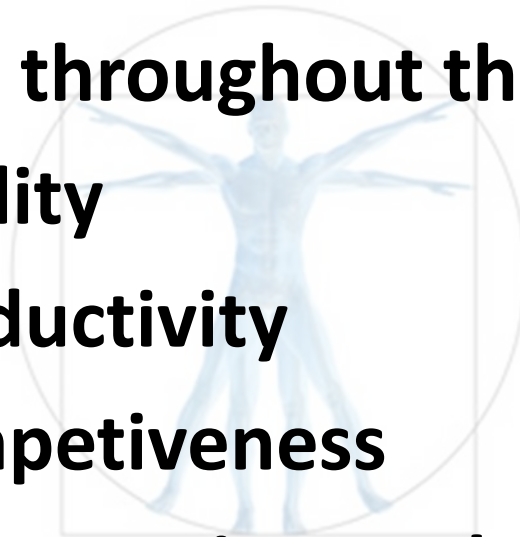
National Transportation Safety Board

Ergonomics Defined

- **Ergonomics is the multidisciplinary science that seeks to conform the workplace and all of its physiological aspects to the worker and involves the following:**
 - **Using special design and evaluation techniques to make tasks, objects, and environments more compatible with human abilities and limitations.**
 - **Seeking to improve productivity and quality by reducing workplace stressors, reducing the risk of injuries and illnesses, and increasing efficiency.**

Benefits of Ergonomics

- Improved health and safety for workers
- Higher morale throughout the workplace
- Improved quality
- Improved productivity
- Improved competitiveness
- Decreased absenteeism and turnover
- Fewer workplace injuries/health problems



Human Factors and Ergonomic Hazards



Human Factors Defined



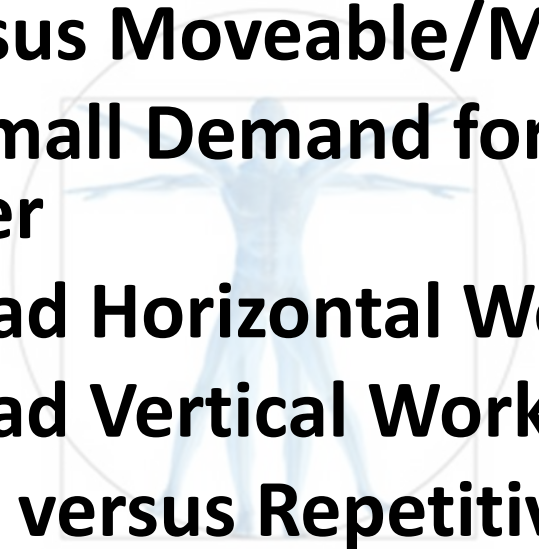
Human factors is a science that combines research with the application of human data.

Human Factors Defined



The concept can also be viewed as a science that bridges research about human beings and the application of that research in designing products and systems for human beings.

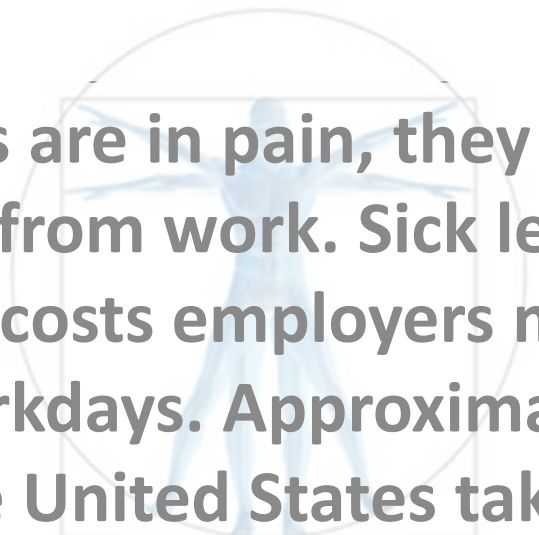
Factors Associated with Physical Stress

- **Sitting versus Standing**
 - **Stationary versus Moveable/Mobile**
 - **Large versus Small Demand for Strength/Power**
 - **Good versus Bad Horizontal Work Area**
 - **Good versus Bad Vertical Work Area**
 - **Non-repetitive versus Repetitive Motion**
 - **Low versus High Surface Contact**
 - **Absence versus Presence of Negative Environmental Factors**
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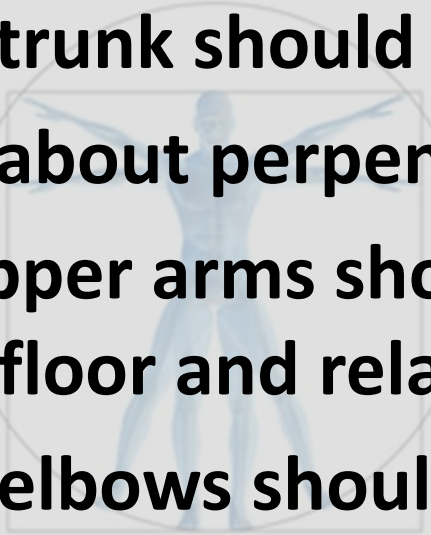
Safety Fact

High Cost of Pain

When employees are in pain, they respond by taking sick leave from work. Sick leave due to unspecified pain costs employers more than \$3 billion in lost workdays. Approximately 17 million employees in the United States take an average of three days of sick leave per year to deal with unspecified pain. Often the pain is not work related.



Workstation Checklist for Video Display Terminals

- Head and neck should be about upright.
 - Head, neck, and trunk should face forward.
 - Trunk should be about perpendicular to floor.
 - Shoulders and upper arms should be about perpendicular to floor and relaxed.
 - Upper arms and elbows should be close to the body.
 - Forearms, wrists, and hands should be straight and parallel to floor.
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Workstation Checklist for Video Display Terminals

- Wrists and hands should be straight.
- Thighs should be about parallel to floor, and lower legs should be about perpendicular to floor.
- Feet should rest flat on floor or be supported by a stable footrest.
- VDT *tasks* should be organized in a way that allows employee to vary them with other work activities or to take short breaks or recovery pauses while at the VDT workstation.

Seating (The Chair)

- Backrest should provide support for employee's lower back.
- Seat width and depth should accommodate specific employee.
- Seat front should not press against the back of employee's knees and lower legs.
- Seat should have cushioning and be rounded with a "waterfall" front.
- Armrest should support both forearms while the employee performs VDT tasks and not interfere with movement.

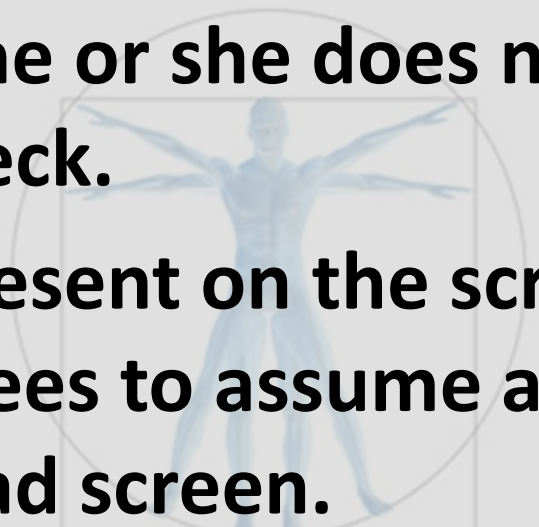
Keyboard/Input Device

- Keyboard/input device platforms are stable and large enough to hold keyboard and input device.
- Input device is located right next to keyboard so it can be operated without reaching.
- Input device is easy to activate, and shape/size fits hand of specific employee.
- Wrists and hands do not rest on sharp or hard edge.

Monitor

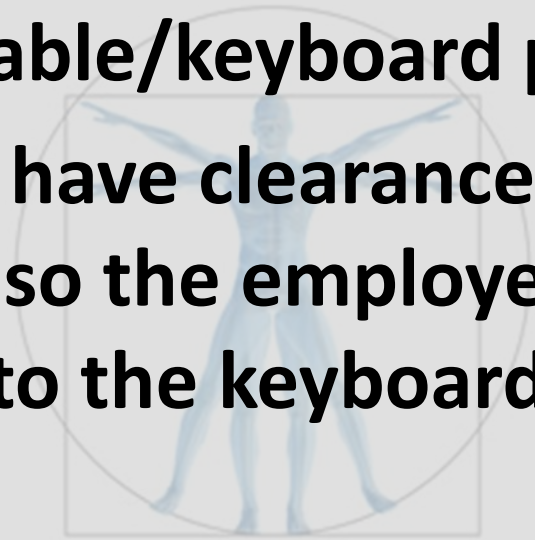
- Top line of screen is at or below eye level so the employee is able to read it without bending head or neck down/back.
- Employees with bifocals/trifocals are able to read the screen without bending their heads, necks, or trunks forward/backward.
- Monitor distance allows employees to read the screen without leaning their heads, necks, or trunks forward/backward.

Monitor

- ❑ Monitor position is directly in front of the employee so he or she does not have to twist the head or neck.
 - ❑ No glare is present on the screen that may cause employees to assume an awkward position to read screen.
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Work Area

- Thighs have clearance space between chair and the VDT table/keyboard platform.**
- Legs and feet have clearance space under the VDT table so the employee is able to get close enough to the keyboard/input device.**



Accessories

- Document holder, if provided, should be stable and large enough to hold documents that are used.
- Document holder, if provided, should be placed at about the same height and distance as the monitor screen so there is little head movement while the employee looks from document to screen.

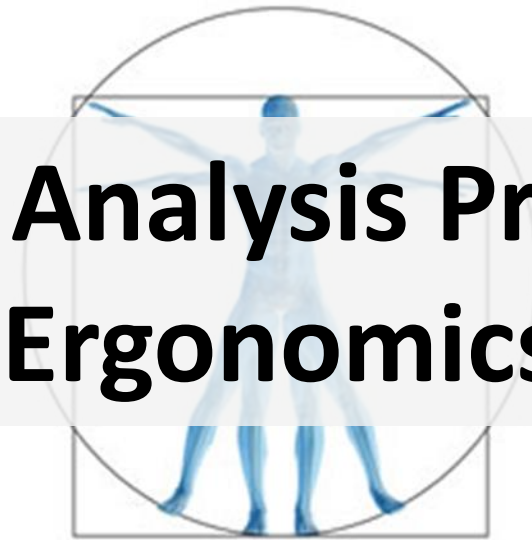
Accessories

- Wrist rest, if provided, should be padded and free of sharp and square edges.
- Wrist rest, if provided, should allow employees to keep forearms, wrists, and hands straight and parallel to ground when using the keyboard/input device.
- Telephone can be used with head upright and shoulders relaxed if the employee does VDT tasks at the same time.

General

- Workstation and equipment should have sufficient adjustability so that the employee is able to be in a safe working posture and to make occasional changes in posture while performing VDT tasks.**
- VDT workstation, equipment, and accessories should be maintained in serviceable condition and function properly.**

Worksite Analysis Program for Ergonomics



Participatory Ergonomics

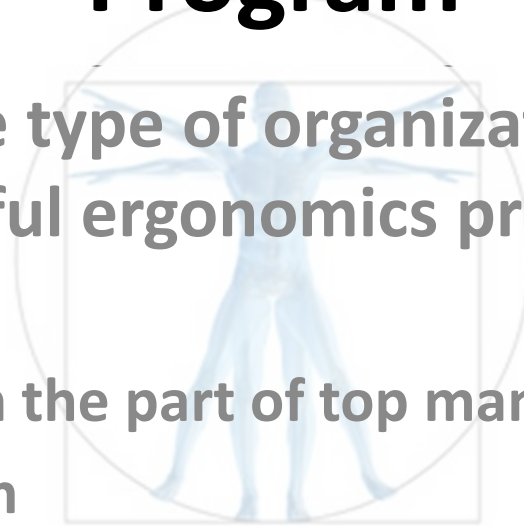


Safety Fact

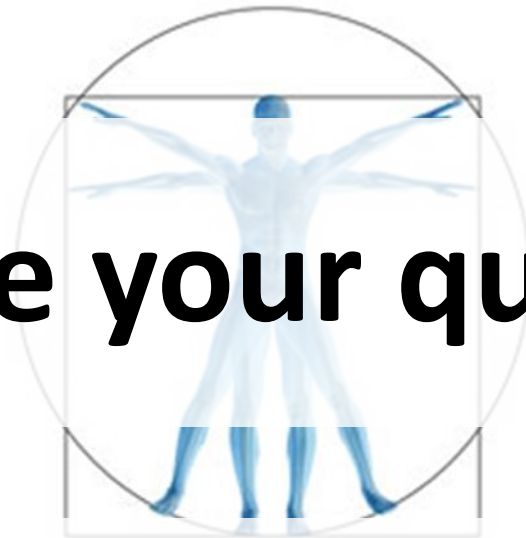
Keys to a Successful Ergonomics Program

Regardless of the type of organization, the keys to having a successful ergonomics program are as follows:

- Commitment on the part of top management
- Written program
- Employee involvement
- Continuous monitoring of the program
- Adjusting as necessary based on the results of monitoring



What are your questions?



gary.helmer@ntsb.gov

(202) 314-6290