



Loss Control TIPS

Technical Information Paper Series

Innovative Safety and Health SolutionsSM

Chair Ergonomics: Selecting an Ergonomic Chair

The market is flooded with "ergonomically designed" chairs. Buyers struggle to determine what chair to buy. What exactly is an "ergonomic chair," and what criteria can be used to select the best product? This article will shed some light on the subject and provide guidelines for product selection. These guidelines apply in all environments (office, industrial and manufacturing, laboratory, etc.).

Why Are Chairs So Important?

The chair is perhaps the most critical component of the workstation, since it provides the basis of support for body posture. A stable, comfortable seated posture is necessary to support neutral positions of distal joints and to prevent injury exposures created by awkward positions. This is particularly critical in any job that requires individuals to work in a seated position for considerable lengths of time.

Selection Criteria

Many criteria should be considered in the selection of a chair. Comfort, style, appearance, and durability are common considerations. Choosing the right chair from an ergonomic perspective also depends upon several additional criteria, including size, postural support, adjustability, general fit and even personal preference and organizational culture. In addition, workstation design and job tasks must be considered to assure that the chair does its job safely and efficiently. Product selection must be guided by job function factors and principles of body mechanics.

It is critical that the chair allow the individual to assume a biomechanically sound seated posture. Guidelines for optimal posture for seated work are as follows:

1. Seated upright with ears, shoulders, and hips in vertical alignment.
2. Shoulders in symmetrical, non-elevated position.
3. Arch in back supported by back of chair or cushion insert.
4. Upper arms close to sides of body.
5. Forearms approximately parallel to the floor.
6. Wrists in neutral position (relatively straight).
7. Thighs parallel to the floor and supported evenly by the chair seat.
8. Feet positioned firmly on the floor or a foot rest.



Many Features to Evaluate

Guidelines for product selection include the following *critical chair features*:

1. Easily height adjustable
2. Smooth rolling casters
3. Five-spoke base
4. Swivel
5. Height adjustable backrest for lumbar support
6. Locking back
7. Independently adjustable seat and back angles
8. Tension adjustment for chairs that recline
9. Model available with and without arms *or* removable armrests

Other chair features to consider:

1. Seat pan tilt
2. Height adjustable armrests
3. Width adjustable armrests
4. Model available in smaller or larger size
5. Model with and without armrests

Armrests are optional. Prolonged physical contact (between body and work surface, equipment, or furniture) is an ergonomic risk factor to be avoided. Armrests, when used appropriately, may effectively provide intermittent arm support for comfort. However, elbows and forearms should not rest or pivot on chair armrests for any length of time. Armrests (if used) must not interfere with posture nor with mobility at the workstation. Armrests can be easily removed from many task chairs.

Other Factors to Consider

Other factors that influence chair selection are workstation design and specifications of other work station furniture. For example, height of the work surface is an important consideration. The product selected for an office area where the standard clerical work surface is typically 28.5-30 inches in height would not be appropriate in a laboratory area where the work surface is counter height (38-42 inches). In the latter case, a chair or stool providing an elevated range of height adjustability and some device for foot support would be appropriate. The need for a backrest would depend upon specific job functions.

Another important factor in many settings is upholstery. For example, upholstery on industrial chairs must meet cleaning and durability standards that differ from those of chairs in an office setting. Many vendors provide a selection from a variety of upholsteries. Information about upholstery must be carefully considered.

The selection of an appropriate chair is a critical decision based upon many factors. Key factors to be considered in making this decision are principles of body mechanics and job function(s). Durability and cost must be considered but should not solely dictate chair selection.

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