

How to Minimize Repetitive Strain Injuries in Libraries through Ergonomic Interventions

Library work can be fast paced and challenging if work environments require employees to work with unnecessary movements and/or awkward postures. The frequency, duration and manner in which books are handled can lead to muscle soreness if workstations are not set up to “fit the library worker”. This article provides answers to the ten most common ergonomic issues found in libraries today.

What can libraries do to minimize employee injury?

Employers should first analyze their library for potential health, safety and ergonomic risk factors. An action plan should be developed to minimize workplace risk factors. If a new piece of equipment, desk, scanner, book cart, etc. is being purchased, it should be reviewed from an ergonomic point of view. Be sure it will accommodate your work force and not create any unnecessary strain to employees. Secondly, train and educate library employees on how to work safely.

What can library workers do to minimize their risk of musculoskeletal strain?

Employees can decrease their risk of experiencing discomfort by ensuring that they are working using good postures and work techniques. They should adjust their workstations to fit their needs and should not try to lift or handle more weight than they are capable of. Stretching before work and regularly during work can also decrease the risk of fatigue and muscle soreness.

What ergonomic parameters should be considered when designing a circulation desk?

Working heights, sitting versus standing workstations, counter width, horizontal leg room allowances, knee room requirements, side to side reaching limits, horizontal and vertical reaching limits, monitor and scanner positions and visual requirements are some of the main parameters that should be reviewed. Involve an ergonomic specialist when you are re-designing your circulation desk. They can help ensure the desk is set up in accordance with ergonomic guidelines.

How can the effects of prolonged standing and/or sitting be minimized?

Circulation desks that allow workers to **alternate sitting and standing are highly recommended**. Workers should be able to adjust their workstation height to sit or stand. This can be accomplished by setting the desk to a **standing** height and providing height adjustable chairs. Antifatigue matting could be placed under the rug to minimize the effects of standing and foot rests could be installed under counters or onto chairs to help minimize stress on the lower legs and back. Workers should also be encouraged to wear shoes with good support.

How should computer monitors be positioned on circulation desks?

Computer monitors are often set on top of circulation desk counters. This height may promote neck flexion (i.e., looking down) in some employees, especially when standing. First be sure to select a work surface height that accommodates your working population. An optimal work surface height typically range from 35-37 inches. Computer monitors can then be placed on height adjustable monitor stands so that they can be raised to eye level. These monitor arms should be easily adjustable or they may not be used.

What can be done to minimize reaching for books during check-out?

1. Scanners, keyboards, video case openers, etc. should be located in front of workers and within easy reach. There are ergonomic standards available for reaching.
2. Reducing the width of the counter may be worth investigating. Counters that are greater than 24 inches wide can promote shoulder strain due to reach demands.
3. Workers should encourage patrons to place and orient books on the desk so that they can be easily reached and handled.

What can be done to minimize handling and manipulating books?

1. Try to place bar codes on the outside of books, videos and CDs, preferably on both the front and back covers. This will reduce the need to open and flip over books.
2. A self serve scanning system is optimal to minimize material handling.
3. To eliminate the need to repetitively open book covers to date stamp them, consider handing out date markers.

4. Scanners that are built into the counter top eliminate lifting books during check-out. Build your security systems into scanners. Scanning and desensitizing will then only require one step, which will minimize material handling.

What is the best way to grip / handle books?

One of the main concerns with book handling is the way books are gripped. Many workers pick up and manipulate books using a pinch type grip. This grip involves the small muscles of the hand. A power grip uses larger muscles in the forearm and involves the palm of the hand. Larger muscles can handle more force before becoming fatigued. Therefore, books should be lifted and carried using the palms of the hands as often as possible.

What is the best design for book carts?

Book carts that are awkward to move and are unbalanced should be avoided for safety reasons. Large rubber wheels are optimal for pushing carts on carpet. Ensure wheels are maintained and lubricated regularly. Shelves on book carts should be wide enough to support books.

What is the best design for book drops?

Many book drops return books to the floor. This requires workers to crouch to pick the books off the floor. An optimal design for a book drop is to remove the physical handling of books by returning books via a conveyor system. If a book drop is to be used, employees should not have to pick books off the floor. A large enough bin could be designed to drop books into. This bin could have a spring loaded bottom that raises as books are removed, and a side that folds down for easier access.

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Marnie specializes in ergonomic risk assessments, job re-design and injury prevention training. She has assisted in the re-design of several circulation desks, analyzed the work procedures of over a dozen libraries and trained library workers on injury prevention strategies.

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