Working in a Sitting Position – Overview Fact Sheet



WHY IS THERE SO MUCH FUSS BEING MADE ABOUT SITTING?

Injuries resulting from sitting for long periods are a serious occupational health and safety problem. Sitting jobs require less muscular effort, but that does not exempt people from the injury risks usually associated with more physically demanding tasks. For example, clerks, electronic assembly-line employees, and data entry operators who work in a sitting position also suffer back pain, muscle tenderness, and aches. In fact, reports of varicose veins, stiff necks, and numbness in the legs are more common among seated employees than among those doing heavier tasks.

In addition, sedentary time has been found to be associated with health effects such as metabolic syndrome (including diabetes), heart disease, and poor mental health. These effects are not related to how active a person is physically.

How does the work in a sitting position affect blood circulation?

When the employee can alternate sitting with other body positions, sitting at work may not be as large a risk for injury or discomfort.

For those who have no choice and must sit for long periods, the situation is different. Although sitting involves less muscular effort than such physically demanding jobs as gardening or floor mopping, it still causes fatigue. Sitting requires the muscles to hold the trunk, neck and shoulders in a fixed position. A fixed working position squeezes the blood vessels in the muscles, reducing the blood supply to the working muscles just when they need it the most. An insufficient blood supply accelerates fatigue and makes the muscles prone to injury.

There is also less demand on the circulatory system due to the limited mobility while sitting. As a result the heart activity and the blood flow slow down. Maintaining a steady upright body position while sitting further decreases blood circulation.

An insufficient blood flow, specifically blood that is returning to the heart from the lower legs, causes blood to pool. Pressure on the underside of the thighs from a seat that is too high can further aggravate this. The result can be swollen or numb legs and eventually varicose veins. Also, a reduced blood supply to the muscles accelerates fatigue. This lower blood supply is why an employee who sits all day long doing little physical work often feels tired at the end of a work shift.

CAN WORK IN A SITTING POSITION CAUSE INJURIES THAT AFFECT MOVEMENTS?

Limited mobility contributes to injuries in the parts of the body responsible for

movement: the muscles, bones, tendons and ligaments. Another factor is the steady, localized tension on certain regions of the body. The neck and lower back are the regions usually most affected. Why? Prolonged sitting:

- reduces body movement making muscles more likely to pull, cramp or strain when stretched suddenly,
- causes fatigue in the back and neck muscles by slowing the blood supply and puts high tension on the spine, especially in the low back or neck, and
- causes a steady compression on the spinal discs that hinders their nutrition and can contribute to their premature degeneration.

WHAT ASPECT OF WORKING IN A SITTING POSITION IS RESPONSIBLE FOR ILL EFFECTS?

A poor body position is largely responsible for the ill effects of prolonged sitting. The duration of sitting, is also a risk factor.

Poor body positions can also originate from an unsuitable job design that requires employees to sit uninterrupted for longer than one hour. An unsuitable work space that prevents employees from sitting in a balanced position can cause poor body positions. The physical arrangement of work space elements such as work surfaces, tools, and equipment may not correspond with the reaches and clearances of seated employees. The workstation may also be unsuitable because the chairs are too high or low for an employee’s body size and shape.

IS THERE A GOOD SITTING POSITION?

For each major joint such as the hips, knees, and elbows, there are ranges within which every healthy person can find comfortable positions. These positions should not impede a person’s breathing or circulation, interfere with muscular actions or hinder the normal functions of the internal organs. Varying these positions is the essence of “good sitting”. So, a good sitting position is one that allows employees to change their body positions frequently and naturally within an acceptable range, and when they want without being restricted by the work station or job design.

HOW CAN YOU REDUCE HARMFUL EFFECTS OF PROLONGED SITTING?

A “good” sitting position at work focuses on the three areas:

- workplace design (including tasks, workstation, and chair design)
- job design
- education and training

None of these areas is more important than the other, and none of them alone can bring about substantial improvement. Recommendations on how to sit are not compulsory. Sometimes, it is acceptable to deviate with outstretched or cramped positions to relieve muscle tension.

WHAT ELEMENTS OF A WORKPLACE ARE IMPORTANT FOR COMFORT OF THE SEATED EMPLOYEE?

The workplace design should enable the employees to carry out work in comfort and safety while allowing them to make voluntary changes in the working posture. To achieve this, the design should include the following elements:

- tasks
- work station
- chair

HOW CAN TASK DESIGN IMPROVE WORK IN SITTING POSITION?

Take into account that the work may require visual, manual, or foot tasks, or combinations of these. Each of these types of tasks requires different modifications in work station design.

Visual tasks place tension on the neck, trunk and pelvis so that body maintains a position where the eyes can achieve and maintain the required vision for a needed duration of time. It is important that the design of the work station reduces the strain on the neck. Where positioning the work properly is not possible, work schedules should shorten the amount of time employees spend on each task.

Both the movement and the forces involved in manual tasks affect body position. For light manipulating tasks, wrist and arm support may help. For heavier tasks, it might help to arrange the work surface below the employee's elbow height. The arrangement of the work station should allow the employee to keep the spine vertically aligned while exerting force. The employees should not have to lift and transfer loads horizontally.

Employees doing foot tasks should have pedals located directly in front of them to prevent their hips from twisting. It is important that employees are able to support their body evenly.

All workstation components, such as the chair, desk and computer, workbench or panel in a control room all affect the employee's body position. A work station should also allow for frequent changes between a variety of body positions.

HOW DO I SELECT THE PROPER CHAIR?

A basic rule of ergonomics is that there is no such thing as the "average" person; however, providing an individually designed chair for every employee is not practical. The only solution is to provide the employee with a fully adjustable chair that can accommodate the maximum range of people (typically 90 to 95 percent of the population). The chair must have controls to allow easy adjustment of the seat height and tilt, as well as the backrest height and angle. It is important that the employee can operate these controls from a sitting position. The chair's design must match the tasks.

A trial period is essential to the process of selecting a chair. Employees should try out the chair in the real work situation and ensure it meets the needs of the job before the final selection is made.

HOW CAN YOU DESIGN A JOB THAT REQUIRES PROLONGED SITTING?

No matter how well the workplace is designed, an employee who sits for long periods will suffer discomfort. The main objective of a job design in this situation is to reduce the amount of time the person spends "just" sitting. Frequent changes in the sitting position are not enough to protect against blood pooling in the employee's legs.

Five minutes of a moderate to vigorous activity, such as walking for every 40 to 50 minutes of sitting, can help protect an employee. These breaks are also beneficial because they give the heart, lungs and muscles some exercise. Where practical, jobs should incorporate "activity breaks" such as work-related tasks away from the desk or simple exercises which employees can carry out on the worksite.

Another important aspect of job design is feedback from employees. Consultation with employees can help tailor the solutions to the individual and personalize their work.

WHAT ELEMENTS OF AN EDUCATION AND TRAINING PROGRAM ARE IMPORTANT FOR EMPLOYEES WHO WORK IN A SITTING POSITION?

Individual work practices, including sitting habits, are shaped by proper education and training. Encourage employers and employees to adopt methods that reduce fatigue from too little and too much a workload.

Explain the health hazards of prolonged sitting and give recommendations on what an employee in a given workplace can do to improve the working position. Employees need

to know how to adjust the workstation to fit their individual needs for specific tasks. They also must know how to readjust the workstation throughout the day to relieve muscular tension.

Emphasize the importance of rest periods for the employees’ health and explain how active rest can do more for keeping employees healthy than passive rest. The effect of such training can reach far beyond occupational situations because the employees can apply this knowledge also in their off-job life.

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