



Ergonomist **Duncan Abbott** explains how to prevent slips, trips and falls and injuries to cleaners

THERE ARE approximately 3000 accidents involving cleaners and housekeepers reported each year to the Health and Safety Executive (HSE). These injuries include back pain, sprains, strains, dislocation, broken bones, repetitive strain injuries and bruises. The main areas of concern are elbows, knees, right wrist and hand, back and neck.

In this article, we look at the ways to prevent injuries to cleaners, in particular by preventing slips, trips and falls, and discuss the recent findings on safer floors, which were presented at the Ergonomics Society Annual Conference. The HSE's new guide *Caring For Cleaners* is discussed and presented as a publication of excellence.

The guide presents a series of case studies on how to reduce musculoskeletal disorders (MSDs) and uses real life examples in which success has been achieved in reducing injury. It demonstrates how simple methods of prevention can be very effective, and gives guidance on how to prevent most types of strain injuries. It also outlines the basic steps to comply with current legal duties that all employers, cleaning contractors and suppliers of cleaning equipment should take to help avoid MSDs.

Why are cleaners at high risk for developing musculoskeletal injuries? Cleaning work is both demanding and labour intensive and many of the tasks undertaken consist of heavy manual work. This strenuous

activity can put strain on the heart, muscles and other tissues, while the adoption of awkward postures by workers can result in the increase of the risk of musculoskeletal injury. Today, many cleaners are provided with automatic cleaning machines but there are still many tasks which involve manual work, such as mopping, wiping surfaces, polishing, moving rubbish bags, furniture and equipment.

A cleaner's task can be further complicated by environmental issues, especially in buildings and layouts which have not been planned to take into account the needs of the cleaners. Cleaners are often faced with difficulty in gaining access to areas where rubbish heaps up and required to use taps that are inappropriately sited or to use storage facilities that are inadequate. (When doing a risk assessment you should always check the cleaners' storeroom because it is normally full to the brim.) In addition, the use of unsuitable floor materials can pose a number of health problems for cleaners.

Any problems

Has sickness absence suddenly increased? Is your organisation faced with a sudden increase in reported pain and discomfort? Do your cleaners lack motivation? Have members of the cleaning staff started to wear splints, bandages or support belts? If the answer is yes to any of these questions then it is safe to say that you are faced with a problem and something needs to be done quickly in order to remedy the situation. However, if your cleaning staff appear to be in good health then you are in a good position to ensure their continuing health and safety by implementing an ergonomic programme, with a company policy and management agreement to back it up. It is essential that all supervisors and managers give their full support to any new initiatives and that all successes or failures are reported when considering any workplace change.

Prior to any investigation a few questions need to be asked. What health and safety training do the cleaners receive — do they receive manual handling training? Have any of their tasks or work environments been risk assessed? What hazards do they face? What monitoring or feedback systems are in place to communicate risks to supervisors or management?

Using checklists

In the HSE's *Caring For Cleaners* guide there is a number of checklists that can be used to help an assessor or manager look at the task, the workplace and the equipment. The checklists cover equipment, maintenance, posture, workplace and environment, and work and work organisation. A copy of a cleaner's health questionnaire is provided which can be

Typical causes of injury to cleaners

Lifting heavy weights	Lack of time to work safely
Dangerous work heights	Poorly designed equipment
Restricted workspaces	Poor equipment maintenance
Poor access	Lack of equipment
Heavy physical work	Walking on slippery floors
Uneven surfaces	Cluttered workspaces
Forceful movements	Carrying equipment on stairs

Source: HSE

used for both monitoring and early hazard detection and avoidance. It would be easy to compile a risk assessment form from the illustrative checklists.

When assessing manual handling in the cleaner's work, it is important to check for lifting and lowering equipment and objects (monitors, heavy files, piles of rubbish, materials), and pushing and pulling tasks (when moving items out of the way during cleaning, loading or unloading).

During the assessment it is important that you do not overlook the cleaning equipment itself. If equipment is vibrating, for example, there might be fouling or blockage. Equipment should be regularly serviced and maintained; otherwise poor equipment may lead to an increase in the need of force required when operating it. The amount of force required to operate the cleaning and ancillary equipment should be noted in the assessment.

The risk assessment should also examine how the cleaners' work is organised and the type of working practices and then evaluate them to determine whether they are acceptable. For example, is one person carrying out a 2-person task? Is there a risk acceptance culture amongst cleaning staff? It should help you identify what problems and hazards face the cleaners; armed with this information you can determine who in the organisation should do what. At the least, a basic health and safety policy should be implemented that allows for concerns or problems to be communicated to the management.

The training programme

The following issues should be included in a training programme for cleaners:

- general health and safety training making cleaners aware of the risks, trips and falls (They should be aware that they can contribute to accidents as easily as suffer from them.)
- postural awareness, eg changing hands, alternating loads, avoid bending
- using work equipment safely, training in the safe use of lifting aids — not just telling users how to use them
- a monitoring system, enabling supervisors to determine which cleaners may need extra training or further advice
- ensuring that there is a feedback system from the cleaners so that problems can be fast tracked to an early solution.

Details of how to design training programmes for the cleaners and how to introduce different working techniques are given in the training section of the HSE's guide *Caring For Cleaners*. It also makes a number of suggestions for workplace changes.

Importantly, supervisors — who often carry out the training — and managers should recognise that, regardless of how much training is given to workers, training will not compensate for flaws in the machine or equipment design.

HSE's *Caring For Cleaners* offers 12 case studies which are divided into: equipment changes (alternative equipment to reduce forces required to operate it); manual handling devices; provision of equipment to accommodate all workers; adaptations to improve suitability for work environment; and the provision of sufficient equipment for cleaners.

An important aspect, which is often overlooked, concerns organisational change, such as better training. The HSE's guide includes examples about how the job can be enlarged, how to make effective use of teamwork and how to make daytime cleaning effective. Job rotation, if it is to work properly, must place workers in less ergonomically stressful tasks. (It should not be used to fill job vacancies in the same high exposure area.)

Proper job rotation will allow the muscles used by the worker in carrying out one type of task to recuperate as he or she does another task, which demands the use of a different set of muscles. Job rotation can also be used to stimulate the worker's interest and reduce the boredom and fatigue that can arise from undertaking one type of task continuously. Some employers have found that job rotation helps their injured employees return to work and leads to improvements in quality and productivity.

Four other sections in the guide are oc-

cupational health management, introducing robotic equipment (for dangerous or difficult cleaning areas), how to design with the needs of the cleaner in mind, and reporting ill health.

A useful handy hints section offers some interesting points on workplace changes, cleaning agents and materials, work organisation changes, protective clothing and equipment, see the useful tips panel on page 16.

Why bother

One of the goals of ergonomics is to design or modify people's work and other activities so that they fall within their capabilities and limitations. The relationship of musculoskeletal pain and discomfort due to awkward work postures, forces, static loading and overuse is widely accepted as an indicator of poor job design².

If you are to design a successful ergonomic programme then it must be based on an adequate risk assessment. For example, look at manual handling tasks to determine why awkward postures are being adopted by the cleaners; try to organise work where high workload, speed and intensity is avoided.

According to the US Department of Labor's Occupational Safety and Health Administration, the success of an ergonomic programme depends on³:

- management leadership — assign responsibility for ergonomics to designated managers who must communicate policies and practices to employees
- employee participation — so they are aware of ergonomics requirements and have ways to report musculoskeletal disorder (MSD) symptoms and hazards
- MSD management — observe and talk to employees carrying out tasks suspected of causing MSDs in order to uncover risk factors

Cleaner, safer floors

In a session at the Ergonomics Society Annual Conference, which was held in Swansea during April, researchers presented findings of *Improving Slip Resistance With Optimal Floor Cleaning — A Preliminary Field Study*. The research found that many accidents occur on floors exposed to food contaminants. Cleaning efficiency was found to depend on many parameters, whether the tool was dirty or clean, the type of flooring (vinyl, quarry tile etc), the finish (acrylic, glaze), the condition (new, worn, fouled, acid etched), fat (oil, grease) concentration, and whether the method used was damp or immersion mopping.

The researchers defined 6 categories of floor cleaner and measured the cleaning efficiency based on the amount of fat left on the floor after the cleaning process. The research found immersion mopping gives more time for the floor cleaner to act; it is always more effective. They also found that there is little difference between the floor cleaners when they are not used properly, and the accumulation of fat reduces the effectiveness of all the floor cleaners. To avoid fat accumulation both in the mop and solution, the researchers recommend that the tools should be cleaned frequently during use and the cleaning solution should be changed when it becomes dirty.

In relation to the temperature of the cleaning solution, it was found that hot water does not always improve the efficiency of cleaning; in some cases hot water was found to reduce the cleaning efficiency.

From the study it was concluded that not all floor cleaners are equal, immersion mopping is more efficient, and fat accumulation reduces the cleaning efficiency thus it is necessary to use a clean mop⁴.

- job-hazard reduction measures — if a task is found to cause MSDs, employers must control or reduce the risk
- a management monitoring and review process, which can take the form of regular self-report questionnaires.

The Health and Safety Executive's recommendations, cited in the Caring For Cleaners publication, mirror these points in place to look after the health and safety of their employees. The system should include the assessment of the work tasks, environment and equipment used, the organisation of work, the provision of training and information and the setting up of reporting systems. The employer also has a duty to consult safety representatives on these issues.

designed with cleaning in mind by listening to, and acting on, their in-depth knowledge of the hazards, risks and work practices.

Caring for cleaners — 8 useful tips

1. Members of staff complaining of back pain were found to bend over to wedge open doors. A solution was to design a tall wedge that could be inserted from a standing position.
2. Prolonged bending by staff who made beds using blankets and sheets was avoided by introducing duvet covers.
3. Lack of space in a cleaning cupboard, owing to limited storage facilities, was resolved by purchasing cleaning materials on demand.
4. To cut down manual handling, deliver cleaning materials to the point where they will be used.
5. Manual handling of large rubbish sacks can be reduced by using smaller bags for rubbish collection.
6. Avoid cleaners slipping on wet floors by providing cleaners with nonslip shoes.
7. Reduce vibrating and shaking by placing padding on the handles of equipment to avoid vibration transference.
8. Avoid unnecessary equipment by talking to the end users.

Source: Caring For Cleaners, HSG234, HSE

Final thoughts

Providing health and safety training is paramount and should not be skimped. Work should be scheduled to avoid over use and fatigue. Two-way communication means that you should receive feedback as well as give it. Human resources (HR) staff should be involved so that they can provide more ways to give credibility to the cleaner's role. (In the US janitors are often referred to as Vice Presidents of Cleaning and Janitorial Duties!)

One final point, if you are moving to another building you should consult with the cleaners about the risks before you occupy your new premises. You and your organisation will avoid many of the problems often encountered in buildings that have not been

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