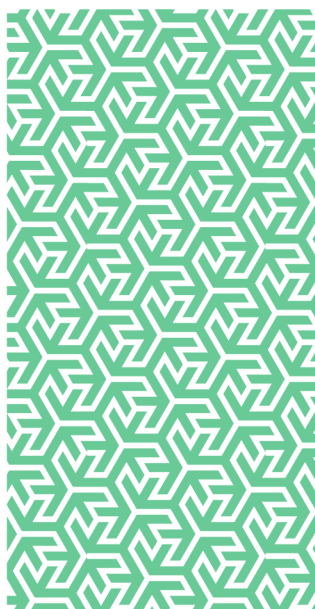




Risk control

Ergonomics and Display Screen Equipment Use



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Risk Control

Ergonomics and Display Screen Equipment Use

Whether we are in the office, home or an agile work setting, mobile and transportable technology is now an essential asset for many professionals. However, if not carefully managed its use can also increase some health risks for individual users.

The thrust of the guidance^{1&2} offered to support the Display Screen Equipment (DSE) Regulations 1992 are largely based on the application of good ergonomic principles, and despite the passage of time and developments in work equipment, they still provide a sound basis for controlling the associated risks.

Ergonomics is the application of scientific study to how people interact with their environment with the aim of designing equipment and furniture etc. to optimise wellbeing and performance. It considers human anatomy, physiology and psychology and tries to influence workplace design to match human capabilities rather than expecting people to adapt to their surroundings, which can cause pain, discomfort, and injury.

Ergonomic principles include:

- 1 Work in neutral postures
- 2 Reduce excessive force
- 3 Keep everything in reach
- 4 Work at proper height
- 5 Reduce excessive motions
- 6 Minimize fatigue and static load
- 7 Minimize pressure points
- 8 Provide clearance
- 9 Move, exercise and stretch
- 10 Maintain a comfortable environment

The prolonged use of smart phones and laptops, just like more traditional PC workstations, can lead us to adopt poor postures and become more sedentary. Over time these issues can promote work related upper limb disorders (WRULD's), eye strain and fatigue etc. When it comes to DSE use many people are aware of the associated term Repetitive Strain Injury (RSI), but this is misleading as it implies the source of harm is solely due to repetition, however, this is an over-simplification. Several other ergonomic factors affect the risk of RSI developing including the position of the hands and wrists in relation to the input device, the amount of force applied, work duration, and individual susceptibility to musculoskeletal disorders (MSD's).

To effectively manage the risks, we need to understand the basic mechanics of what is involved when we move, i.e. electrical signals from the brain trigger a contraction or relaxing of a combination of muscles, tendons and ligaments that attach to our skeletal framework. When no electrical impulse is present the muscle pairs try to return (with the attached bone) to a "neutral" position where neither are in tension. When we exceed, overload or fatigue the capabilities of our muscle systems the result is often stiffness, strains, sprains, inflammation, and pain.

However, the human body requires a level of movement to ensure good vascular circulation and to relieve muscle tension that can occur when we hold static postures for extended periods. Some studies have shown that even when we are sleeping, we naturally alter our positions, and this is why frequent changes in activity and posture are so important for anyone who is stationary (whether seated or standing) whilst at work.

Through the ongoing use of good ergonomic principles, particularly by designers, we have seen work environments such as the cabin of a modern vehicle become almost infinitely adjustable, so that almost any size of driver can see and reach all the controls without stretching and while maintaining a comfortable and safe posture.

Ergonomics³ can be applied to a variety of work tasks and equipment, but is most widely considered in manufacturing processes, manual handling, and DSE operations where people are interacting regularly with equipment by applying physical effort and movement to complete tasks.

Another important aspect of managing the risks of DSE usage is recognising those human factors that tend to influence the behaviour of people, and if these are foreseeable, we should be considering these too. For example, we are generally creatures of habit (sometimes good, sometimes not) and it is not uncommon for humans to relax into a slouching posture when seated for a period of time thus creating a C shaped curvature in the spine and losing any support to the lower lumbar region.

Another phenomenon that may have witnessed, particularly in younger men (who have not yet suffered from back pain and who will probably argue they are comfortable) is the adoption of the "Ferrari position". Where they are reclined to such an extent that only their shoulders are in contact with the seat back, their arms are at full stretch to reach the keyboard, and their chin is nearly resting on their chest. Although it may appear cool, this posture creates a huge amount of tension in the muscles to the rear of the neck and in the unsupported arms and spine.

These behaviours whilst understandable should be corrected, as current comfort (or more accurately absence of discomfort) does not necessarily constitute a good posture and is no guarantee of longer-term wellbeing. Many of the painful symptoms of MSD's are cumulative and may not surface for many years, by which time they are often irreversible. The difficulty can be in convincing people to persevere with good postures that may initially feel strange or awkward.

With this knowledge employers are expected to ensure risk assessments are performed regularly for all DSE users and acted upon accordingly. These assessments should consider:

- The nature of the work including the volume, urgency, and criticality
- The equipment used, including hardware and software systems
- The environment including lighting, space available, thermal comfort etc.
- The unique variations of individuals including physical and cognitive capabilities

For office-based staff, DSE assessments are often a formalised process performed in the first few weeks of employment by a competent member of staff, with subsequent reviews conducted by the individual employee following an E-learning programme and self-assessment checklist. The results then being passed to management to evaluate and respond to any shortcomings identified.

For DSE users who are home and agile workers (transient / peripatetic staff who may work from a variety of locations and / or workstations) it often requires a slightly different strategy to assess and manage their risks to avoid incurring disproportionate costs.

If home workers are provided with suitable workstation equipment and adequate training on the risks and control measures to prevent ill health from DSE use, most should not need a trained assessor to visit their home unless they have complex medical needs. Completing a self-assessment checklist in conjunction with guidance that illustrates what a good ergonomic posture looks like should be sufficient. See example⁴. These self-assessments can become more informative and give greater assurance to employers if supplemented by photographic evidence of the homeworker using their workstation.

It would be unreasonable to expect agile workers using hot desks and other temporary workspaces to document an assessment for every workstation they use. However, they should be instructed to conduct a dynamic assessment each time they begin DSE work. This would involve adjusting their

current setting (within reason and considering the likely duration of use in any one place) to achieve the best possible ergonomics in the circumstances.

It is also important to consider the type and design of technology provided to employees as some developments can have unexpected consequences. The move towards smaller and lighter devices like laptops, smartphones and tablets may aid convenience and reduce manual handling risk etc. but in use they inevitably lead to us tilting our heads down to see the smaller screens. It should be remembered that this kind of equipment was never intended to be used for hours on end in fixed postures.

The most effective method of combating the ill-health effects of DSE use (of all types) remains frequent changes of activity that encourage movement and the use of different muscle groups (including the eyes). This does not necessitate a tea break every hour if a variety of work tasks can be built into work patterns. Where this is not reasonably practicable employers can put into place some simple and inexpensive measures to increase the amount of movement amongst sedentary workers by employing system-based messaging that prompts users to perform a range of gentle stretches etc. while at their workstation.

Due to the remote situation of home and agile DSE workers, supervision, and monitoring of compliance with good standards becomes more challenging, so it is increasingly important to regularly emphasise to employees the need to report any changes or problems and refresh their training. Some employers choose to include formal discussions about individual's DSE assessments and training within their programme of staff performance reviews to ensure they are not overlooked.

DSE use is now an everyday occurrence for most of us and there is the risk of complacency and trivialising the potential health risks associated with it. However, if we apply a little logic and understanding of human nature to its management then we should be able to maintain a healthy and efficient workforce.

References

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contact@rmpartners.co.uk



Risk Management Partners

The Walbrook Building
25 Walbrook
London EC4N 8AW

020 7204 1800
rmpartners.co.uk

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