DSE workstation assessment: The bigger picture

An introduction to biopsychosocial theory

This paper places the DSE workstation assessment and adjustment process in context.

Firstly the problem is stated with current figures from the Labour Force Survey [LFS] as well as a brief reminder of the known risk factors that contribute to musculoskeletal disorders (MSD). Secondly a bigger picture is explained using biopsychosocial theory, and its place within an individual DSE workstation assessment is considered. And thirdly, a systems approach is suggested in order to place individual assessments within the context of an ideal ergonomic and biopsychosocial approach.

Work related musculoskeletal disorders: the scale of the problem

WRMSDs, while not life threatening, impair employees' life quality and mobility. The Labour Force Survey statistics over the last 10 years demonstrate that a significant number of WRMSDs are attributed to working practices across many industries and occupations.

WRMSDs accounted for 41% (539,000) of the prevalence of all work related ill health in Great Britain in 2015/16.

WRMSDs working days lost accounted for 34% (An estimated 8.8 million) of all days lost due to work related illness in 2015/16 in Great Britain.

Musculoskeletal disorders have been the primary cause of absenteeism for the past five years, with the UK having one of the highest rates in Europe. (HSE – Work-related Musculo-Skeletal Disorder statistics Great Britain 2016)

This all places a big burden on employers, and has given rise to legislation they are obliged to comply with.

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MSDs: causative factors

Musculoskeletal disorders can affect muscles, joints and tendons in all parts of the body. Most WRMSDs develop over time, can be episodic or chronic in duration, and can also result from injury sustained in a work related accident. Additionally, they can progress from mild to severe disorders. Work related disorders can develop in an occupational setting due to the physical tasks with which individuals carry out their normal work activities.

WRMSDs are associated with work patterns that include:

- Fixed or constrained body positions
- Continual repetition of movements
- Force concentrated on small parts of the body, such as the hand or wrist
- A pace of work that does not allow sufficient recovery between movements.

The bigger picture: a biopsychosocial approach

Ergonomists conducting a DSE workstation assessment must consider the 'bigger picture', as we engage with an individual employee at their desk. Research and current health policy are all directing us to take a biopsychosocial approach to the problems and issues that we are presented with. This is not always easy or even appropriate when acting in a consultancy capacity, depending upon the nature of the clients and contracts involved. However, it is vital that as human factors professionals, we maintain our systems approach to any problem, and bring our understanding of this bigger picture into every interaction.

HSE acknowledges that there is more to MSDs, and suggests that workplace psychosocial factors such as organisational culture, the health and safety climate and human factors may create the conditions for WRMSDs to occur. HSE goes on to allude to the complexity of these causative factors and states that generally, none of them acts separately to cause WRMSDs. They more commonly occur as a result of a combination and interaction between these factors.

Why Ergonomics consultants need this broad perspective when carrying out DSE workstation assessments

To carry out effective DSE workstation assessments and give valid ergonomic advice, consultants need a full understanding of why this work matters, and the value it brings. This includes understanding how it fits in to the client's organisational structure and culture, and how it can enhance performance and productivity.

Ergonomics is the science of designing the workplace, with consideration for the capabilities and limitations of the worker. Poor worksite design leads to a lack of productivity in workers who may be fatigued, frustrated and in pain. The end result maybe a painful and costly injury, lower productivity and poor product quality.

Ergonomics practitioners must also place interventions in a psychological and social context, in order to have a positive impact on the individual concerned, and on the wider organisation. This means understanding a biopsychosocial approach, so that they can truly take a systems approach to the delivery of ergonomic advice, and to the individuals assessed for workplace adjustments.

More about the biopsychosocial model

The biopsychosocial model of health was first explained by Engel in Science Journal 1977. He suggested that health and illness are the product of a combination of factors including biological characteristics (e.g. genetic predisposition), behavioural factors (e.g. lifestyle, stress, health beliefs), and social conditions (e.g. cultural influences, family relationships, social support).

The biopsychosocial model takes into account that each individual is unique, and as a result is affected differently by each biological, psychological and social happening. This approach requires the exploration of the multiple implications that MSDs have for the workplace.

There is an increasing acceptance of the biopsychosocial model in the treatment and management of MSDs. Traditionally, disease and illness are understood as biological phenomena that can be objectively diagnosed and then treated with scientifically proven interventions (Schultz et al., 2007). The patient often assumes a passive role within this biomedical model, with healthcare professionals deciding on and leading interventions. The biomedical model is still common in acute healthcare but is rapidly declining within the context of disability and chronic conditions, as the biopsychosocial model of illness becomes increasingly influential.

A biopsychosocial model means that musculoskeletal disorders should be thought of as an interaction among physiological, psychological and social factors. This approach suggests that an MSD should be considered not only as a biological issue, but also as something that is affected by the psychological and social context in which the disorder is occurring. The ramifications of this model are that a comprehensive systems approach is required to successfully understand and treat the condition.

Our ergonomics consultants' experience:

As ergonomists regularly undertaking workstation assessments, System Concepts' consultants are uniquely placed to comment on this approach.

We routinely ask about work processes and methods that impact upon recovery, and the ability to remain in work. Where possible, we also aim to foster an exchange of information, not only with HR and management, but also with OH and the healthcare team managing the individual.

Ergonomists should not shy away from exploring factors that impact outside work. This is fairly routine for us, if we are aware that the individual works from home, has a long commute, or if they offer information about social activities that may impact on their condition.

We'll also venture further into work organisation and practices, if we consider that a problem is exacerbated by not being able to take breaks due to a particular system. And we need to consider and be aware of relationships within the workplace and the management structure and hierarchy, as well as the organisation's norms and values that impact upon the individual.

Our role and the parameters in which we work are dictated by the terms of our contracts, and our client relationships. However we aim to be mindful of these things when making our recommendations.

Ideal ergonomics process

Conducting an ergonomic risk assessment in response to an injury or discomfort is a necessary part of a total approach, but in isolation it is reactive in nature. A good ergonomics programme is proactive, and should be a strategic process of continuous improvement that makes a positive impact on the entire business.

We should be mindful that in an ideal world our involvement in an organisation would be proactive. Indeed, there are situations where we are working at both ends of this spectrum, and cross fertilisation of ideas and information will enhance both aspects of our work.

In other words, ergonomics shouldn't be an afterthought. If an ergonomics programme is in reactive mode, it will only have a marginal impact on the organisation, at best. For instance if the only intervention is individual workstation adjustment assessments.

A proactive ergonomics process (steps 1 -5 below) identifies ergonomic risk factors and then reduces them through engineering and administrative controls, before an injury occurs.

1: Information/ data gathering

A full picture of the tasks undertaken and risks inherent in those tasks should be developed based on; interviews with management, observational analysis of employees at work, sickness absence figures and/or a review of MSD history and detailed data collected by employee surveys.

2: Prioritise tasks for ergonomic analysis

This analysis will use the information gathered above and give an objective measurement of risk for each task and workspace, and develop an ergonomic opportunity list including suggestions for risk reduction.

3: Determine the best solution with a team approach

A multi-disciplinary team should be involved in developing the implementation phase. That is using the information gathered above and fitting it with organisational aims and objectives. Liaison with all stakeholders eg – HR, OH, Facilities etc.

4: Implementation phase

Putting the appropriate controls in place. These may be physical or design solutions, or systems or organisational ones. Appropriate change management strategies should be in place to assist in dissemination of information and compliance with control measures. If the improvement requires a significant capital expenditure, cost-justify the solution to gain approval.

5: Evaluate the ergonomic improvement for effectiveness

Once improvements are in place, close the loop on the project by evaluating the ergonomic improvement, and measuring its effectiveness.

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Conclusion

This paper has identified the background and context to individual DSE workstation assessments, based on the experience of our own ergonomics consultants.

We advocate a biopsychosocial approach. Whilst we cannot always report our findings directly, we should always bear them in mind and try to steer our recommendations to reflect the bigger picture. When working on more proactive projects, the information flow between work streams should be facilitated and nurtured, to ensure the best possible service experience and outcomes for clients.

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