



A singular approach

In far too many workplaces ergonomics is still not considered a serious health and safety improvement tool. Even in those where it is, reactionary modifications to tasks or equipment are often made without enough thought being given to the root cause of the problem, or the wider consequences of the change. The way forward, says **Duncan Abbott**, is to draw up an individual ergonomics plan to ensure that the right hazards are dealt with in the right way.

different blade design, as both might reduce movement of the wrist, or the force required to perform a task. The angle of attack can be altered, the position or height required to perform a certain task can be changed, or workers can be rotated more often from a difficult task. However, for an ergonomic intervention to work effectively it should be tailored to an IEP to avoid implementing inappropriate ergonomic changes.

Fact-finding first

The intention of an individual ergonomics plan is to ensure that nothing is left to chance and that all aspects of the task have been considered. It is not enough to resolve an issue of back pain on an assembly line by supplying height-adjustable chairs, for example, if the height, speed, nature of the task, the size of the object being handled, and, of course, the workers on the assembly line themselves haven't also been considered. To start off with, observation is a technique that can provide general information about the workstation layout, tools, equipment, and general environmental conditions in the workplace. Employees will be a vital source of information about hazards that exist in the workplace so tasks should be discussed with them to ensure that a complete picture of the process is obtained.

Other sources of information on where problems are arising, or have the potential to, include accident and near-miss investigation reports, employee interviews, employee surveys, and ill-health absence records. Once all of this information is obtained, it can be used to identify and evaluate elements of jobs that are associated with problems, and a list of hazards can be evaluated and prioritised, with the most serious hazards rated as '4' and the lowest as '1'.

The complexity and the nature of the problem and the hazards will deem whether an ergonomist is required to become involved but, in general, an IEP can be put together by a health and safety practitioner. Weighting the severity of the hazards in terms of urgency should help the practitioner resolve the most pressing problems and work first. The process should also help prevent an over-eager works manager from implementing a solution to reduce

One of the greatest challenges for an ergonomist is to persuade organisations that the way forward is to move beyond a basic worksite evaluation to a relative prioritisation of hazards. When a worker is hurt, companies are required to undertake an ergonomic hazard assessment to make sure that others will not be hurt the same way. If the assessment uncovers ergonomic hazards, the company must then develop a plan to address the problem. Armed with this plan the health and safety manager can develop a

system to rank ergonomic risk, which will, in turn, help them determine how and when to make ergonomic modifications to get the highest possible return on any investment outlay. This, in essence, is what an individual ergonomic plan (IEP) attempts to achieve.

Hazards should be examined in detail to determine the likely impact on the organisation, or employees. For example, workers in a poultry-processing plant who suffer from upper limb disorders as a result of carrying out trussing and eviscerating tasks may benefit from using a different knife handle, or a

A 'discomfort' survey carried out in a poultry processing plant revealed the breadth of ergonomics intervention required in that environment

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hazards which may not reflect the main cause of the ergonomic hazard and thus contribute to further problems.

For example, a large bank ordered 600 very expensive chairs that were sold as being suitable for 24-hour use. The health and safety manager duly changed all the chairs of one section to the new chairs. It soon emerged, however, that the new chairs were too large for a significant percentage of the workers. After a few months, the incidence of lower back pain among the workers in that section was found to have increased fourfold. This case highlights that not only were the chairs bought without due consideration for the anthropometrics of the workforce but staff were not given training in the use of the chair, which put that organisation in breach of the Display Screen Equipment Regulations (1992), which state that a user should be trained in the use of new workstation equipment.

A good example of how to identify and rank hazards is the 'discomfort survey'¹

workers being asked to rate their discomfort on a scale on which 0 = no pain and 10 = continuous pain) combined the number of shaded areas with intensity. The objective was to find if the task or job was affecting the same body part for all workers in a specific section. Of the 65 per cent of workers who reported discomfort, the back was the area with the highest mean maximum intensity, followed by the arm.

The results also – unexpectedly – highlighted that women at the plant who reported arm discomfort in more than one job, and who also performed manual material handling tasks, had a significant discomfort problem. This outcome revealed the breadth of ergonomics intervention required in the poultry-processing environment.

A plan for action

When problems related to ergonomics are identified, suitable options can then be selected and implemented to eliminate hazards so, once the IEP has

However, even when effective safety and health programmes are in place, injuries and illnesses can still occur. Work-related MSDs should be managed in the same manner and under the same process as any other occupational injury or illness. Early diagnosis and intervention, including alternative duty programmes, are particularly important in order to limit the severity of injury, improve the effectiveness of treatment, minimise the likelihood of disability or permanent damage, and reduce the amount of associated workers' compensation claims and costs.

Evaluation and follow-up are central to continuous improvement and long-term success so the individual ergonomics plan should allow for the effectiveness of the practitioner's ergonomics efforts to be evaluated and thus any problems to be resolved quickly. Evaluating the IEP will also help sustain the effort to reduce injuries and illnesses, track whether or not ergonomic solutions are working, identify new problems, and show areas where further improvement is needed. The practitioner should follow up by talking to employees to ensure that problems have been adequately addressed. Such interviews provide a mechanism for ensuring that the solution is not only in place but is being used properly.

Summary

An IEP can:

- assist employers in their legal responsibilities regarding risk assessment;
- help the health and safety manager document the company's response to hazards;
- demonstrate active and reactive monitoring methods;
- allow the health and safety team to plan risk assessment activities based on the prioritisation of hazards; and
- enable the team to recognise its own limitations so that it can source additional advice and guidance, when necessary.

It is not enough to just implement an ergonomic change because it is an ergonomic change. It must be applicable, and a task analysis, coupled with a user trial, will go a long way to resolving issues that may arise. **SHP**

References

- 1 Stuart-Buttle, C (1994): 'A discomfort survey in a poultry-processing plant', in *Applied Ergonomics* 25(1)/1994, pp. 47-52

About the author

Duncan Abbott has extensive experience in human factors consultancy, training and work system design and can be contacted at enricoSmog on 01747 871868 or by e-mailing da@enricosmog.com

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carried out by the aforementioned poultry-processing plant to help it prioritise areas for ergonomic intervention and to determine whether regions of discomfort were related to types of task performed. Employees were asked to rate job satisfaction and overall discomfort, to shade areas of discomfort on a body diagram, and to rate the intensity of the discomfort for each area. The jobs were coded into four mutually exclusive categories: hand tool, hand manipulation, material handling and mixed task. A discomfort index (a body map that is sectioned into parts, with the

been drawn up, the health and safety manager will be able to design, or redesign a job or process in a systematic manner. Effective solutions usually involve workplace modifications that eliminate hazards and improve the work environment. These changes usually include the use of equipment, work practices, or both. The IEP will allow the practitioner to assess ergonomic ideas by evaluating their impact on business factors such as productivity, quality, safety, reliability and employee morale. It will also ensure that the documentation of hazards is effective.