Preparing for the ergonomics tsunami

How to meet the biggest challenge of the millennial workforce
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We are not overplaying the seriousness of the situation we face from the misuse of modern technology. The latest data from the USA, Europe and Australia all points to a worrying rise in the occurrence of musculoskeletal symptoms in children as young as six. If we fail to deal with these early warning signs, by the time these children of the new millennium enter the workplace, the cost to industry and society will be massive.

Cardinus has recently undertaken a vitally important ergonomics project for children. They worked with a leading paediatric physiotherapist who describes the current situation of young people using digital devices for too long, with poor postures as “an ergonomics ticking time-bomb”.

But it’s not just the really young who are at risk – they are and we need to do more to help them avoid a lifetime of pain – the problem is that all of us are prone to musculoskeletal risks. We are all spending more and more hours every day using laptops, tablet devices and smartphones.

We’re looking at them during meals, we turn to them during breaks from televisions and computers and some of us even take them to bed. We lose all track of time and spend countless hours in unhealthy positions (that sofa might feel very comfortable at first but beware; it could seriously damage your shoulders, neck and arms).

The group of people who are likely to be most at risk over the next ten years are the so-called ‘generation Y’, sometimes referred to as ‘millennials’. These young people who were born during the eighties, nineties and early noughties have never experienced a world without the internet and probably had a gaming device in their hands before they started school. Remember the Game Boy?

As they enter the world of work they might have already stored up more than a decade of stresses and strains on joints through intensive use and poor posture. And now they’re bringing their iPads to work and managing projects via their smart mobile phones.

The challenge we face in educating these young people to the dangers is huge. They don’t believe they exist. How can something that they have done for years, and that they love doing so much, how can it possibly harm them?

Because it hasn’t started to hurt yet. But it will and we need to be there for them when it does. If we can change their attitudes now, maybe we will be in time to spare them the discomfort altogether. That is the purpose of this white paper. Written by Nigel Heaton and Guy Osmond, two authorities on workplace ergonomics and human applications, this report underlines the gravity of the situation and aims to change attitudes.

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About the authors

Nigel Heaton provides training, consultancy and audit services around a wide range of risk management issues. He has acted as an expert witness for claimants and defendants and works for many large organisations, advising boards and senior management on how to develop effective risk management strategies.

Nigel is a Fellow of the Institute of Ergonomics and Human Factors, a Chartered Member of the Institution of Occupational Safety, a Member of the International Institute of Safety Risk Management, and a Member of the Institute of Risk Management.

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Guy Osmond has been working in workplace ergonomics for more than 20 years. His specialities include ergonomics, reducing workplace absenteeism and presenteeism, improving productivity, addressing musculoskeletal problems and disabilities in the workplace. He blogs and speaks regularly on topics including flexible working and the changing office environment.

Guy’s team at Osmond Ergonomics has a range of specialist skills not generally found amongst mainstream office furniture suppliers and he prides himself on sourcing outstanding products from all over the world.

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Background

We make no apologies for the title of this white paper. We face an ergonomics challenge that has the potential to overwhelm. Society needs to act now to prepare to meet a tidal wave of musculoskeletal issues that threaten to engulf the current and future generations of workers.

The group of people we are worried about are the ‘millennials’, the ‘always on’ generation Y, people who were born in the last two decades of the 20th century. If we are able to rescue them we will be able to protect generation Z and, hopefully, avoid a disaster.

The problem is technology and how younger workers today are using it. Everybody is more exposed to technology than ever before and we interact with it in a variety of ways from games consoles to smartphones, via laptops and tablets.

These days, it is common for individuals to have more powerful personal IT than the devices their employers provide. As a result, the use of smartphones and tablets is widespread and the level of technology interaction both within and outside the workplace is greater than ever before.

People are spending more time interacting and the pervasive nature of the technology means that some interaction occurs in constrained environments. We are immersed in our digital experiences on public transport, in our bedrooms, in classrooms and in the evenings while also watching TV. Generation Y tend to give no thought to the potential impact of such prolonged use of technology nor the situations and postures in which they use it.
The evidence

The risk factors for the use of technology are similar to other activities that require musculoskeletal effort. The risk factors include excessive force and/or too much repetition combined with bad posture and/or lack of rest. There is individual or organisational stress and/or individual susceptibility. All of these factors might be present whenever we interact with technology no matter what age we are.

As with other activities, exposure is critical. The frequency of our interaction with technology is important. For many users this is many times a day, every day. Duration measures how long these activities are carried out without rest or movement and the pressure felt while doing it is the intensity. Frequency, duration and intensity are measures of exposure that indicate whether we are likely to be harmed.

Musculoskeletal disorders (MSDs) are caused by a combination of the presence of hazards and a person’s exposure to those hazards. For young people this can be a bad combination. They have sub-optimal ways of working, for example, on poor quality chairs, under unsuitable lighting and without keyboards. Plus they will work for long periods under pressure without breaks.

Completing a level in a game, against the clock or opponents, can take many hours during which time resting, stretching, eating and even sleeping will be forgotten.

These activities are starting at a very early age, with primary school children using tablets for study and play. US schools will purchase 3.5 million tablets in 2015, according to industry analysts, and worldwide, K-12 spending on tablets has increased 60 per cent over the last year.

Very little is being said and done about the healthy use of electronic devices by young people and so experts are predicting some deeply entrenched bad habits and widespread musculoskeletal disorders among young people by the time they leave education and join the workforce. At which point employers will have to deal with these problems.
The shortage of credible evidence is part of the problem but it is starting to emerge. In 2013 Katarzyna Stawarz and Rachel Benedyk from University College London published a study on the use of touch-screen tablets with the title *Bent necks and twisted wrists: exploring the impact of touch-screen tablets on the posture of office workers*. Their findings show that the lack of screen adjustability and the virtual keyboard encourage poor posture and tablet use could lead to discomfort in a number of body areas, especially the neck and wrists.

A Swiss study found lower back pain in children as young as six and a study in Finland found that MSD symptoms were common amongst adolescents and this was linked to computer use or gaming for more than two hours per day.

According to an American study (Manchikanti, 2000) 28 per cent of the industrial population will suffer from lower back pain and eight per cent will be "disabled" in any given year. People with back problems have, on average, more than ten days off work per episode. The average time between episodes is five years. For a 21 year-old retiring at 71 that is 100 days lost.

**References**


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http://www.biomedcentral.com/1471-2474/13/41


Changing attitudes

The desire or, as some see it, the necessity to be constantly connected conflicts with traditional attitudes to changing postures and the desirability of varying activities. Ask a millennial to take a break from their desk computer and they will almost certainly switch to Facebook or Instagram on their smartphone.

Young people may not recognise the warning signs of MSDs. As we grow up, we tend to act as if we are invincible. It is only as we get older that we start to fully realise the extent of our limitations. By this time it will probably be too late.

Young people have a limited understanding of comfort and whether being comfortable is the same as being risk-free. Many have adopted a range of poor postures from a young age and for many years will feel no adverse effects. Despite efforts from ergonomists, medical practitioners, charities, pressure groups and caring parents, poor posture and its long-term effects are seldom discussed in schools and universities. As a result, the level of knowledge is low to non-existent.

The attitude of many people is that there isn’t a problem. Their dining table and chairs feel comfortable enough and they are so engrossed in their activities they won’t notice the stiffness and pain until they finally decide to move. The lack of lumbar support from kitchen chairs and stools, armchairs or sofas will not be considered, along with the hunched and rounded position of neck and shoulders. If there is an ache or tingling at the end of a four-hour session it will be dismissed with a shrug.

These bad habits and a lack of early reporting will store up terrible problems in the future. For many of our young workers the exposure related to non-work activities will lead them to enter the workforce with MSDs.
Entering the world of work

Whilst a good employer can do much to protect workers when carrying out most work activities, the changing nature of work might exacerbate pre-existing musculoskeletal conditions. Workers will switch devices regularly and continue to use technology through their lunch breaks.

Social media such as Facebook, Twitter and Snapchat will provide constant distractions. Many organisations restrict access to these platforms but for some groups of workers they are part of their work routine.

A typical working day will not define their exposure. Most employees will be using technology as they travel to and from work. This might be on public transport or in the car. If a ‘driving for work’ policy prevents the use of mobile phones while driving, employees are likely to catch up during breaks in their journeys at service stations.

Because of the increasingly blurred line between work and personal activities, these issues are very hard to manage. Many employers struggle to understand how far they can go when managing young workers.

The advice, training and support offered by employers must extend to the extra-curricular activities of staff and needs to be designed to address the ignorance and careless attitudes that prevail among young workers. Educating them on the risks and convincing them of the benefits of good practice is essential.
**Solutions**

There are simple equipment-related solutions that can reduce problems and they deal with the traditional office environment first. The right basic equipment has to be in place before you can hope to start tackling the many variations and diverse habits.

So we should start with correct furniture in the office. Correct desks and chairs must be provided with all the necessary adjustability. If these are being used by a peripatetic workforce they must be adaptable for all the uses to which they will be put.

A fixed desktop computer available for use by different employees on a 'hot desk' basis must be adjustable to the needs of all the users. Laptop docking should be provided, where possible. This will be easier if machines are sourced to a common specification. At least the laptop user should have access to separate mouse and keyboard.

The need is for greater awareness and understanding of the dangers posed by inappropriate use of technology. We must find creative ways of explaining the risks and reducing them. As the risks are non-intuitive, insidious and cumulative we must find smart ways of engaging with our workforce to persuade them to change.

Employees need to be aware of our concerns. We must guard against excessive static posture and problems with the wrists, neck and lower back. We need to encourage regular breaks, non-sedentary breaks where people get up and move around, rather than turning to another app on a different device.

Training should be innovative and multimedia. We need to think about ‘nudge’ techniques to encourage users to change their habits so that new, better habits form. There isn’t a contradiction in using a tablet or smartphone for some of this training. What could be more convenient than a device that tells you to “Put me down for ten minutes and go and stretch your legs” especially if that device can be programmed to suspend activity for those ten minutes while you do as you’re told?
A quick assessment process needs to be introduced that is flexible. It needs to cover computers, games consoles, tablets and smartphones. And the early reporting of problems, diagnoses and recommended treatments is absolutely vital.

Employers need to address not just the pre-existing MSDs and health conditions of new, young employees but also their attitudes. We must integrate behaviour-change programmes into their well-being initiatives and, for maximum impact, ensure they use the latest technologies such as social media to convey their message.

The tone and content must use language that young people are comfortable with and can relate to. Every step will need to pass the ‘what’s in it for me?’ test; benefits will have to be obvious and rapidly achievable. This is a group with a short attention span.

A different type of ergonomics education and a different approach to it will be needed to ensure the message gets through. Physical adaptations will have to be instantly usable and ‘look cool’ to gain acceptance. For example, products such as the TabletRiser, UltraStand and Workfit-T are attractive, intuitive and effective.

Targeting the ‘cool kids’ to get their buy-in works well in schools to ensure a message hits home and spreads rapidly. In the workplace, identifying the early adopters and gaining their acceptance of new adaptations and processes can accelerate wider appeal.
Summary plan of action

In order to begin this vital initiative to protect your young people you should review your assessment processes. If your ergonomics equipment list dates back to the 1990s, which is not unusual, you should take the time to compare technology and the world of work today with the way things were more than 20 years ago.

Ask yourself ‘is our ergonomics strategy reactive or proactive?’ Most are still reactive and that’s not good enough. To respond to an issue when it appears is going to be too late. We need to be concentrating on prevention.

How much do you know about what happens to your employees outside of work? You need to know how much exposure to technology and poor posture could be bringing MSD problems into work, especially where work may be blamed for issues that it is not responsible for.

Take some time to consider the return on investment offered by an effective ergonomics risk management policy. A relatively small outlay now will deliver huge benefits in terms of staff well-being and productivity in the longer-term.

Review your training to ensure it covers all aspects of product use and posture guidance. Assessment and training must challenge the perception that there is no risk associated with using inappropriate technology.

Your product portfolio should also be reviewed. When was it last purged or added to? Speak to the IT department about current and future deployment plans. If your organisation has a ‘bring your own device’ (BYOD) policy, understand that policy and its impact on the use of devices at work.

Finally, you should consider reviewing your supply partners. Technology and our understanding of its impacts has changed drastically over the last few years and there is a new generation of experts who can help you face these vitally important tasks. Many established suppliers have kept pace and remain at the vanguard of ergonomic product development but the overall landscape looks very different. Explore new products and facilities.
How Cardinus can help you

Cardinus has been developing effective DSE programmes since 1995. Our customers include many of the world’s leading organisations, central government departments and unions.

The Cardinus approach to effective DSE management is to apply simple programmes that provide a modular, adaptable solution. Healthy Working, the innovative online DSE assessment and e-learning solution, provides award-winning solutions that are fully endorsed by the International Institute of Risk and Safety Management.

Cardinus can also support your business through our ergonomics managed service proposition, by managing your organisations global DSE assessment and training process, helping to effectively and efficiently manage your entire DSE risk.

With studies showing that the children who suffer back pain are four times more likely to experience it as an adult prevention through the formation of good healthy habits early on is essential to good back health. We need to make sure that children’s backs are fit for the future.

Cardinus has developed Healthy Working MOVE an e-learning course designed to help keep young people safe from the health risks of poor posture, careless use of electronic devices and bad manual handling activity.

The e-learning course uses engaging online activities to teach children and students about the safe use of technology. There are versions for elementary high school and college students. The e-learning is supported by online resources for teachers and parents.

The course is free to use and there is no registration process or personal data collected, simply visit www.ergonomics4kids.com.

For more information about any Cardinus DSE solutions telephone 020 7469 0200.