

Ergonomics for Telecommuters and Other Remote Workers

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Introduction

Telecommuting is often a centerpiece of corporate sustainability programs. While telecommuting reduces the corporate “carbon footprint” and delights employees, few companies have considered the ergonomic issues that arise as more employees work from home or other locations, and do so more often.

The ergonomic risks for computer-based employees are the same as the risks found when employees are working from the corporate office. However, many companies have not established a system to address the ergonomic concerns or are struggling with a cost-effective method to address ergonomics in remote and home offices.

This paper will discuss the rising trend in telecommuting and the policies and cost implications of telecommuting programs. It will discuss how to integrate ergonomics into the telecommuting programs and some of the questions that need to be answered in order to establish an ergonomics program for telecommuters. Finally, this paper will discuss possible solutions for providing ergonomic support to telecommuters and other remote workers.

Telecommuting Trends

Telecommuting is gaining popularity and rapidly expanding, although the concept has been around for over 35 years. The terms of Telecommuting and Telework were originally coined by Jack Nilles, a researcher at the University of Southern California, in 1973 as work done anywhere outside of the corporate office. With the increase in technology allowing individuals to communicate easily via email, web conference, and online messaging; ease of information access from locations outside the corporate office, and other technology advances, the number of jobs that can be completed outside the corporate office has increased exponentially. It has even allowed some jobs which seem like they would not be contusive to telework be possible. MSNBC reported that one employee at the Hyatt Regency in Santa Clara, CA is able to telework even

though her job is the concierge. The management team set up a 42" plasma television in the lobby of the hotel and she has a T1 line and web camera which was installed by the company. The employee is able to talk to guests virtually and print out directions and information for guests on the spot via the online connections. (MSNBC 2007).

The WorldatWork is a non-profit organization which studies the workplace and workplace trends. They found that between 2003 and 2008 the number of employees who telework at least one day per month rose from 23.5 million to 33.7 million. They note that just over 11% of the total employee population in 2008 was telecommuting at least 1 day per week (WorldatWork 2009). In 2011, WorldatWork published a new survey on flexibility in the workplace. In this survey they found that over one third of organizations surveyed offer full-time telework for at least some of their employees and that over half of the organization responded, noting that they allow telework on a monthly or weekly basis (WorldAtWork 2011). In 2010, National Public Radio (NPR) published a story on "Outsourced Call Centers Return, To U.S. Homes". They found that 60,000 people are now doing call center work from home. The reason for this shift is due to the lower overhead (20% less than traditional call centers), and employers found that when call centers are outsourced to other countries, there is a significant increase in the number of representatives a customer may speak with, but a lower rate of success with resolving inquiries (85% outside the U.S. and 94% within the U.S.) and resolving them on the first call (50% outside U.S., 67% within U.S.). (NPR 2010)

There are many reasons for the increase in telework. The primary reason is due to the increase in sustainability. Sending employees home is an ideal way for companies to decrease their overhead by moving to smaller buildings and decrease their Carbon Footprint with fewer cars commuting to the corporate office. Some companies have seen substantial cost savings. For example, Sun Microsystems has reported a savings of \$387 million in IT and real estate as well as a 28,000 reduction in their CO₂ emissions annually (MSNBC 2007). The U.S. General Services Administration (GSA) conducted a study in 2006 and found that for an investment of \$16 million, the government could realize a benefit of \$36 million or a return on investment (ROI) of 232% and that payback is achieved in the first year (USGSA 2006). AT&T is a case study that is cited in many articles. They found that they could save an average of \$3,000 per teleworker annually (reduced real estate and energy costs) and increase productivity of their employees by 15 to 20% (Tools of Change 2002).

Telecommuting Policies

There are many resources available on the Internet that establish guidelines for creating a telecommuting policy. Most guidelines do not include any information on how to insure that the home work environment is suitable from a safety perspective. This is interesting since the employer is required to provide a place of employment free from recognized hazards according to the Federal OSHA General Duty Clause. In addition, since the employee is still performing work-related activities if they are injured, then their injury will still be handled as a Workers' Compensation claim.

The guidelines provided do agree on some fundamental keys to a good telecommuting policy. It is important to establish definitions around what telework is and what the levels of telework will be. When writing the policy it is important to answer the following questions: Will telecommuting be limited to working at home or allowed at other alternative worksites? How frequently will employees be able to work from home (once per week, once per month, full time, etc.) and will they be allowed to set their own hours or do they need to be available during set hours? (HR Magazine 1993.) In addition, eligibility needs to be established and the policy should address liability, homeowners and liability insurance, security (both data and employee), telephone and data connections (what is required and how the company will support the IT needs), and how equipment and supplies will be provided or not included.

Where safety professionals need to be involved in this program development is around the equipment selection and guidelines that will be provided to the remote workers and in establishing criteria on how the home office should be set up. Companies need to understand that it is important to provide employees with good equipment or, at a minimum, guidance on what the employees must purchase in order to work remotely. It is important that they can set themselves up ergonomically and safely.

Ergonomic Risk for Telecommuters

As previously noted, the ergonomic risk for telecommuters working on computers is the same as for corporate office based employees. This is true if they are provided the same equipment and guidance. It is possible that the ergonomic risk for telecommuters is actually higher due to poor equipment. If employees are not provided proper chairs or do not purchase an ergonomic chair, then their risk could be higher due to poor fit, lack of lumbar support, hard or no armrests, or hard surface, such as a dining room chair. Also, if an employee is only provided a laptop, they may have the keyboard too high, causing risk to the shoulders; the monitor too low, causing risk to the neck and shoulders; and the laptop keyboard causing ulnar deviation and therefore risk to the wrists. Therefore, it is important to provide proper equipment such as a good chair, external keyboard and mouse, and monitor in addition to the laptop or desktop computer. Guidance must then be provided to the employee on how to properly set up their workstation to work in a safe manner.

Ergonomic Program Solutions for Telecommuters

There are many ways that companies are working to address the ergonomics of their telecommuters. A simple informal benchmarking study was conducted and found that proactive companies included an online ergonomic assessment such as commercially available systems or a program developed in-house as part of their ergonomics programs for telecommuters. A few companies used it as part of the initial qualification process to determine if an employee could enter the telecommuting program. The online assessment systems provided training and/or guidance and tips on ergonomics. In addition to the online system, companies provide remote

phone support to assist with questions or to provide further support in the event of any discomfort or early warning sign of a repetitive motion injury. The proactive companies have also established a budget (\$500-\$1500 per person average) for purchasing pre-approved equipment. Of the companies surveyed, none provided onsite ergonomic assessments in employees' homes. The reactive companies in the survey only provided equipment once a request was placed or complaint was made and did not provide any training or guidelines on how to set up the home office. The rest of this paper will review the various methods available to conduct remote assessments of home office workstations.

Digital Pictures

Digital pictures can be useful when conducting remote assessments. The advantages are that the evaluator can see the exact equipment that the employee is using and where they are working. It gives the evaluator even more information if the employee is working at the workstation in the picture, as they can then see how the employee may be interacting with their equipment. In addition, the employee can actually see how they are working and may self-correct based on what they see in the picture. The disadvantage to digital pictures is that it is only a second in time that the evaluator is seeing. Frequently when pictures are taken, employees will place themselves in what they think is the correct posture instead of allowing them to be photographed in the position that they more typically work in. This may give a false sense that the workstation is set up well for the employee.

Web Cameras

More and more computers are being automatically fit with web cameras. This can be helpful in that the evaluator could see live pictures of the employee working at their workstation. It can also allow the evaluator to demonstrate for the employee what posture is appropriate and how things should be positioned and not have to solely rely on a verbal description. The disadvantage is that not everyone may have a camera and now the trend is to build them into the front of the laptops rather than having them free standing. This is ideal for seeing the employee's face for a conversation but does not lend itself to an ergonomic assessment where the evaluator needs to see the employee's hands, keyboard, mouse, monitor height and body position in the chair.

Home Office Safety Checklists

Home office safety checklists are nice because they are quick for the employee to complete and the evaluator to review. However, they can have several drawbacks. First, the evaluations are typically yes or no questions. This does not allow for any explanation of how things are set up and easy for the employee to simply answer how they think they should be answered in order to "pass" or obtain the permission they are seeking to be able to work from home. It does not provide any visual of the workstation. Also, employees may have different interpretations of the questions and may not accurately fill out the form. Finally, the form does not provide any feedback to the employee on how to make corrections or improve their workstation setup unless the evaluator manually responds or calls the employee to discuss taking a significant amount of effort on the evaluator's part. If a home office safety checklist is to be used, it's important to make sure to include both ergonomic questions as well as general safety questions (working in a

clean and organized space, free of electrical hazards, easy egress, free from tripping hazards, emergency action plan developed, etc.).

Online Self-Evaluations

There are several robust self-evaluation systems out on the market today. These are great tools which are available because they can combine training and the safety checklists in one place and provide immediate feedback to the employee to help them adjust their own workstation. Pictures and questions can be used together to gather the right information in a way that prevents the employee from incorrectly reporting their work behaviors, workstation setup and posture. The system therefore provides a more accurate representation of the ergonomic risk. The disadvantage is that there is limited personal interaction with the employee; however, because the system is evaluating risk, it allows the evaluator to prioritize who they need to spend their time with to improve the overall risk of the organization. When selecting an online evaluation system it is important to identify a system that helps administrators efficiently analyze and gauge the impact that these risk mitigation efforts are having on injury rates, and understand how the organization's risk level is evolving over time. The system also should be able to automate communications to safety staff, to ensure the delivery of a consistent web-based program, and distribute targeted injury prevention content to each employee. With the right system, the organization can learn to reallocate resources correctly, or quickly change certain tactics if certain risk reduction efforts do not yield expected results. In this way, an organization can engineer a process that continually improves risk mitigation business processes to increase employee productivity, reduce costs and reduce time spent on safety management - all with measurable outcomes...

Phone Evaluations

The advantage of a phone assessment is that it provides direct interaction with employees. Evaluators can call the employee while they are at their workstation, ask open ended questions to gain better insight into the employee's working habits, positions and challenges, and then direct the employee how to setup their workstations. The disadvantage is that if conducted without pictures the evaluator has to rely on an employee's description of the workstation. The evaluator also has to practice and have experience with asking the right type of questions and have conducted enough in-person evaluations to understand the challenges and potential solutions for office workstations. In addition, it also takes a significant amount of the evaluator's time.

Pre-Established Vendor and Equipment Lists

Pre-established vendor and equipment lists can be keys to creating an efficient ergonomics program. Rather than having the evaluator search through catalogs to find the right products after each evaluation, the product lists provide a quick reference with ordering instructions to get the product ordered and delivered to the employee as quick as possible. Another advantage of these lists is that they can be taken to vendors or multiple vendors to achieve the best pricing and shipping terms. The disadvantage is that you can be at the mercy of the vendor if only one vendor is chosen.

Ideal Solution

While all of these methods have their advantages and disadvantages, the strongest programs utilize a combination of these methods to achieve the best results. The companies who see the best return on investment are using a combination of an online self-evaluation system with phone support when needed, and they have established a pre-approved vendor and equipment list. This allows the employees to get the assistance that they need quickly and in many cases proactively and allows the evaluators to quickly respond to employees who need more assistance. It teaches employees how to adjust their own workstations rather than relying on an evaluator to set up the workstation for them, and when assistance is needed, the employee already has a base of knowledge about the correct set-up, so evaluations are often shorter and only need to focus on refining the position or determining the correct equipment for more complex situations.

Summary

In summary, telecommuting is continuing to increase and safety is important in the home office and remote locations. Utilizing a tiered approach of online self-assessments, phone assessments with digital photographs, and preapproved solutions allow the employee to be empowered to set up their own workstation and get the assistance they need as quickly as possible while allowing the evaluator to focus on the employees with the highest need.

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