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Literature Review on Office Ergonomics

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Office related jobs continue to rise with the advent of computers and are found in almost every industry. Office ergonomics is about making sure the office is well designed to suit the worker and not the other way around. This includes correct chair height, adequate equipment spacing, good desk posture, lighting, and proper resting periods. If proper attention is not applied to office ergonomics, workers may suffer musculoskeletal disorders, which can result in lost time from work and personal discomfort. The literature on ways to prevent office work-related injuries is mixed. However, A common theme among the literature is there is a challenge in diagnosing the injury and linking causality. This is associated to the fact that most of the research was conducted using self-reported surveys. A review of scholarly literature on office ergonomics revealed three main themes: risk factors associated with office workers, ways to prevent office work-related injuries, and benefits of an office ergonomic program.

Risk Factors Associated With Office Workers

Based on the literature review, office workers were at risk of developing two types of injuries: musculoskeletal disorders (MSDs) and Computer Vision Syndrome (CVS).

MSD relates to areas of body such as the neck, back, and hands. According to Amick III et al. (2003), every year 1 million people need to take time away from work due to MSDs. Studies show that that a key contributor, to developing MSDs, is associated with prolonged periods of sedentary work (Zemp, Taylor, Lorenzetti, Fliesser & Wippert, 2016). In many cases, office workers long hours, such as at a university, and tend to sit for long periods of time. Garnder-Harbeck and Fisher (2011) agreed with Amick III et al (2003), and found that, “Musculoskeletal disorders make up approximately 34% of all work-related injuries typically resulting in one or more days away from work” (p. 369). However, it is “the eyes [that] lead

[to] the body”; and the body tends to move in order to improve vision problems (Terek, Sajfert, Zorić, & Isakov, 2014, p. 55).

CVS relates to the eyes and are associated with burning eyes, fatigues, and headaches due to computer usage. Terek et al. (2014) states that, “ In some countries the number of people who use a computer at work climbs to more than 70 % of the population, and nearly three quarters of them have problems with vision or eyes” (p. 54). In fact, Roberston, Huang, and Larson (2016) showed that CVS significantly impacted job performance negatively, and was positively correlated to longer working hours (p. 13).

In some studies, even school children suffer from CVS. In a study on computer-use related injuries, conducted by Epstein, R., Colford, Epstein, E., Loye, and Walsh (2011), they found that 43% of sixth through eighth graders experienced pain involving their eyes (p. 74). As more people to continue to use computers, and starting out as young as school children, research agrees that a solution is needed.

Ways to Prevent Office Work-Related Injuries

The literature on ways to prevent office work-related injuries is mixed. While there are many ergonomically designed products, just having proper ergonomic equipment is not sufficient. An interesting discovery by Epstein et al. (2011) was that posture didn’t become worse based on a lack of a well-designed ergonomic environment; when comparing a Qualcomm workplace that did have a well-designed ergonomic workplace to a middle school that didn’t (p. 77).

In some cases, users do not know how to use all the features of an ergonomic device, such as an adjustable chair; and as a result often don’t use them in an “optimal ergonomic way”; and training in conjunction with device is needed (Goossens, Netten, & Van der Doelen, 2012, p.

2086). In a study by Amick III et al (2003), they agreed and found that workers that received an ergonomic chair and training had less pain and discomfort compared to those that received only training.

On the other hand, having a well-designed ergonomic workstation, and given the proper training is not enough. The literature suggests the importance of following instructions.

Garnder-Harbeck and Fisher (2011) found that those employees that didn't follow an occupational therapists' recommendations, didn't see a reduction in musculoskeletal pain and dis-comfort; compared to those that did follow the recommendations. According to Epstein et al. (2011), continuous feedback is key to preventing musculoskeletal problems. They found that although Qualcomm employees had proper ergonomic equipment and were given proper training it did not improve their posture (p. 76).

Furthermore, Goossens et al. (2102) added, "users can change their behavior on the basis of feedback" (p. 2088). Sometimes we might not be aware of our sitting behavior; and as a result Zemp et al. (2016) suggested using a feedback device to inform the user of improper posture as well as detect discomfort (p. 90).

Some studies suggest that supervisors play a key role in preventing office work-related injuries. Roberston et al. (2016) found that supervisors, when there was a good worker-supervisor relationship, reported a decrease in physical discomfort. This was even supported by research done by Eijkelhof et al. (2014), who examined the relationship of how computer use patterns are associated with workplace stressors; such as an increase in time and pressure to complete tasks. They found that "overcommitment" and low reward can result in workers taking shorter "computer breaks" causing them to work for longer periods of time to; in hope of getting a reward or to be able to finish the jobs in time, which can lead to upper extremity pain (p. 1661).

Benefits of an Office Ergonomics Program

The literature shows that by incorporating an optimal ergonomic workstation, receiving the proper training, following the recommendations, and continuously providing feedback can prevent office work-related injuries; and as a result, can bring many benefits to not only the employee but to the employer by implementing an office ergonomic program. By preventing office work-related injuries it reduces societal costs due to lack of productivity and sick leave (Eijkelhof et al., 2014, 1660). Terek et al. (2014) summed it up by stating, “good ergonomics is good economics”; and further explains, “office ergonomic interventions may improve visual health and potential productivity” (p. 55). Furthermore, Garnder-Harbeck and Fisher (2011) found that workers, which given a worksite analysis and followed an occupational therapist recommendation, led to increase comfort and productivity.

Conclusion

Literature on office ergonomics showed that office workers are at risk of developing musculoskeletal disorders and Computer Vision Syndrome as a result of prolonged periods of sedentary work. Some researchers suggested various solutions such as providing a well-designed ergonomic workstation coupled with training, and others suggest devices or supervisors should provide feedback to either inform the user of bad posture or to manage the amount of time a worker performs a task. The literature has shown that by preventing office work related injuries offered health and productivity benefits to no only employees but employers as well.

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