

OCCUPATIONAL STRESS AS A CONSEQUENCE OF EXCESSIVE NOISE EXPOSURE

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ABSTRACT

Excessive noise exposure in the workplace can cause various physiological, cognitive and emotional consequences that increase stress levels. Excessive long-term exposure in the workplace triggers the human body's stress response by raising hormone levels, such as cortisol and adrenaline, which can ultimately lead to high blood pressure and other cardiovascular problems. In addition to physiological changes, excessive long-term noise disrupts concentration, reduces the ability to focus on work tasks, and complicates communication between employees, increasing the risk of misunderstandings and mistakes

People who work in noisy environments have difficulty maintaining quality sleep, further contributing to stress and chronic fatigue. There is a significant increased risk of injury because noise distraction can reduce reaction times and the perception of danger. Therefore, it is crucial for the protection of workers' health and well-being to reduce the harmful effects of noise in the workplace by introducing and controlling it, along with the introduction of noise reduction measures, such as the use of protective equipment and technical interventions.

Keywords: occupational stress, excessive noise, physiological changes, increased risk, health protection, protective equipment

INTRODUCTION

From the point of view of occupational safety, noise is defined as any unwanted sound or a sound that can cause harmful effects on the health of workers. Noise in the workplace mainly comes from various sources, which include industrial machines, tools, means of transport, work processes, ventilation systems and the like.

Organisations that deal with occupational safety and health and recognise noise as a potential risk to the health of employees set certain prescribed standards for them in order to reduce exposure in the workplace. These standards include guidelines for measuring noise levels, assessing risks and implementing preventive measures to reduce harmful exposure to sound.

As noise can significantly increase the level of stress in the workplace from several different aspects, it consequently has serious implications for the health of workers and can significantly increase the level

of stress in the workplace through various mechanisms that affect the physical, emotional and cognitive state of workers.

PHYSIOLOGICAL ASPECT OF NOISE

Exposure to loud sounds can cause physiological reactions in the body by increasing cortisol and adrenaline levels, which is considered the body's stress response. Continuous physiological stress caused in this way can lead to problems, such as high blood pressure, heart problems and a reduced immune response. When exposed to loud sounds, such as machinery, tools or traffic noise, the body begins to produce stress hormones that stimulate the "fight or flight" response, which is the mobilisation of energy for a rapid reaction, increasing heart rate, blood pressure and the release of glucose into the bloodstream. Long-term exposure to this physiological stress can lead to problems with cardiovascular health and a general increase in the risk of developing chronic diseases.

Long-term exposure to noise can lead to an increase in blood pressure, which is often associated with the activation of the sympathetic nervous system, which plays a key role in the stress response. Elevated blood pressure can contribute to the development of cardiovascular problems in the long term.

Noise can cause an increase in heart rate. This physiological response is part of the body's readiness to respond to a potential threat from the environment. Prolonged exposure can strain the heart and contribute to the development of heart problems.

The physiological stress caused by noise can affect the endocrine system. Hormones, such as cortisol, which are involved in stress regulation, can have long-term effects on the body. Increased levels of these hormones can lead to problems with blood sugar regulation, reduced resistance to infections and other negative consequences. Increased long-term noise can also be expressed in hearing damage. Intense, long-term, and prolonged exposure to noise can cause damage to the inner ear, which can lead to hearing loss and balance problems. This physiological effect of noise is often irreversible.

Excessive noise exposure during the day can affect sleep quality. People who are exposed to noise during work hours may experience difficulty falling asleep, frequent awakenings during the night and shallow sleep with insufficient REM sleep. Lack of quality sleep has adverse physiological effects and increases stress levels.

The physiological response to noise-induced stress can also affect the digestive system, which can lead to problems, such as stomach upset, appetite disturbances or indigestion.

Understanding the physiological aspects of noise highlights the importance of reducing noise exposure in order to preserve worker health and prevent potential negative consequences for the body. This includes implementing appropriate protective measures in the workplace and promoting awareness of the importance of preserving auditory health with consequences for general health.

DIFFICULTY IN CONCENTRATION AND COMMUNICATION

Excessive, prolonged noise can interfere with the ability to concentrate and focus on tasks. Workers who experience difficulty following work instructions or completing tasks due to noise may experience increased stress. Noise can also interfere with workers' cognitive functions. High levels of noise in the workplace make it difficult to concentrate and pay attention, resulting in difficulty completing work tasks. Workers may be forced to make extra efforts to maintain concentration, leading to increased mental exhaustion and additional stress.

Concentration difficulties due to noise often result from interference with the cognitive processes responsible for focusing, following information and completing tasks.

Specific difficulties that people may experience in concentrating due to noise exposure may manifest themselves as:

Excessive, prolonged noise can create "noise" in the environment, making it difficult to separate important information from background noise. People may have trouble following conversations, instructions or key information.

Intense excessive and prolonged noise can cause distraction and decrease the ability to focus on specific tasks. People who work in noisy environments will often face challenges in maintaining concentration at work, especially on tasks that require deep attention. Excessive, prolonged noise acts as a distraction, reducing the ability to stay focused on a task. These distractions can lead to an increase in errors and reduced productivity.

Excessive, prolonged noise can slow down the speed of information processing in the brain. Workers exposed to noise may experience difficulty in quickly recognising, analysing and solving problems. Excessive, prolonged noise can interfere with the ability to multitask. Workers exposed to noise may have difficulty paying attention to multiple activities at once.

Constant exposure to noise can cause increased mental fatigue. Workers who are exposed to excessive, prolonged noise during work will often feel exhausted, which makes it even harder to maintain concentration.

Noise can interfere with the processes of memorisation and learning. Workers who try to work or study in a noisy environment may have trouble remembering information and acquiring new knowledge.

Continuous exposure to noise can cause increased levels of stress and anxiety, which makes it even harder to maintain concentration, and the body's stress reactions can further interfere with cognitive functions.

To overcome these difficulties, it is important to create a working environment that minimises noise and provides employees with optimal conditions for concentration. This may include the application of measures, such as acoustic insulation, the use of headphones or earplugs to block noise, or the proper planning of the work space to reduce exposure to noise and promote concentration.

INCREASED RISK OF INJURY

People who work in noisy environments may be more susceptible to injury because excessive, prolonged noise can interfere with perception and reaction speed, reducing attention and concentration, and increasing the risk of work accidents.

Excessive noise can increase the risk of injury in a variety of ways, especially in the workplace.

The ways in which noise can contribute to increased risk of injury are:

Intense noise can interfere with the perception of sounds in the environment, including warnings, sirens and other sounds that may indicate danger. Workers exposed to excessive noise may be less aware of their surroundings, increasing the risk of accidents and injuries.

Noise can interfere with communication between workers, which can lead to misunderstanding and errors in task performance. Difficult communication can result in imprecise instructions, increasing the risk of injury or accidents.

Noisy environments often cause increased distraction for workers. Reduced concentration and focus on work tasks can increase the risk of accidents and injuries, especially in situations that require precision and attention.

Sounds that signal danger can often be lost in excessive noise. Workers may have difficulty recognising alarm signals or other signs that warn of danger, which can result in a delay in reaction.

A noisy environment can reduce a worker's reaction time. People exposed to noise may have difficulty responding quickly to unexpected situations, increasing the risk of accidents or injuries.

Working in a noisy environment can lead to increased worker fatigue. Tired workers are more prone to errors and accidents, which increases the risk of injury.

Continuous exposure to noise can contribute to workers' psychological stress. Psychological stress can affect emotional stability and the ability to make good decisions, which can increase the risk of injury.

Intense noise can cause hearing damage, which is not only an injury, but also a long-term problem that can affect a worker's ability to work and their quality of life.

In order to reduce the risk of noise-related injuries, it is important to implement preventive measures, such as the use of ear protection equipment, technical solutions to reduce noise, proper employee training, and the creation of safe work processes in noisy environments. These measures help to preserve the health of workers and reduce the risk of work accidents.

CONCLUSION

Excessive noise in the workplace can significantly increase the risk of injury, endanger the safety of workers and negatively affect their health. In addition to causing permanent hearing damage, noise interferes with communication, reduces concentration, increases stress and fatigue, and makes it difficult to react quickly to dangerous situations. The serious consequences of excessive long-term exposure to noise at work highlight the importance of implementing preventive measures, including technical interventions, the use of protective equipment, employee training, and promoting awareness of the need to maintain a healthy working environment. Employers, legislators and workers should work together to reduce exposure to noise in the workplace and promote the safety and well-being of all employees.

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STRES NA RADU KAO POSLJEDICA PREKOMJERNE IZLOŽENOSTI BUCI**SAŽETAK**

Prekomjerna izloženost buci na radnom mjestu može uzrokovati različite fiziološke, kognitivne i emocionalne posljedice koje povećavaju nivo stresa. Prekomjerna dugotrajna izloženost na radnom mjestu aktivira stresni odgovor tijela čovjeka i to na način da povećava nivo hormona poput kortizola i adrenalina, što u konačnici može dovesti do povišenog krvnog pritiska i drugih kardiovaskularnih problema. Uz fiziološke promjene, prekomjerna dugotrajna buka ometa koncentraciju, smanjuje sposobnost fokusiranja na radne zadatke te otežava komunikaciju među zaposlenicima što može povećati i rizik od nesporazuma uz nastanak pogrešaka.

Osobe koje rade u bučnom okruženju imaju poteškoća u održavanju kvalitetnog sna, što dodatno može doprinijeti stresu i hroničnom umoru. Značajan je povećan rizik od povreda jer buka koja ometa može smanjiti brzinu reakcije i percepciju opasnosti. Prema tome od ključne važnosti za zaštitu zdravlja i dobrobiti radnika je smanjenje štetnih učinaka buke na radnom mjestu uvođenjem i kontroliranjem uz uvođenje mjera za smanjenje buke, poput korištenja zaštitne opreme i tehničkih intervencija.

Ključne riječi: stres na radu, prekomjerna buka, fiziološke promjene, povećan rizik, zaštita zdravlja, zaštitna oprema

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