Exploring Measures to Protect Your Employees from Heat Stress

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- By Scott Francis

With the summer months on the horizon, warm weather tends to draw attention towards the risks of heat-related illness.

The reality is that, while special attention should be paid to heat stress in the summer months, heat stress risks can manifest at any point during the year. Resulting from extreme exposure to heat and hot environments, heat stress causes occupational illnesses such as heat stroke, heat exhaustion, heat cramps, or heat rash. The summer months naturally are a high-risk time of year, given soaring temperatures and elevated humidity; however, strenuous physical activity near radiant heat sources, in stuffy and heated interior environments, or around heated objects also poses elevated risks for heat stress.

Heat stress ailments range from heat stroke, which is the most serious of heat-related illnesses, to heat rash, a common yet painful rash needing particular attention. A host of factors can contribute to increased risk of heat stress, such as high temperature and humidity, direct sun exposure, little to no breeze, low tolerance to hot workplace conditions, low liquid intake, heavy physical labor, or waterproof or bulky work wear.

Given the propensity for heat stress illnesses and the serious health conditions associated with heat stress, both employers and employees should be aware of both the signs of and precautions against heat stress. There are a number of ways to guard against heat stress, and those can be divided into preventative measures, protective measures, and proper attire measures.

Preventative Measures

According to OSHA, an integral part of preventing heat stress can be summed up by perpetuating the "Water. Rest. Shade." safety message. These three key safety elements help to combat major occupational factors that contribute to heat stress.

For example, making water readily available and encouraging proper hydration directly addresses the low fluid consumption risk factor. Employees should be drinking a liter of water per hour, roughly one cup every 15 minutes.

Creating standardized work/rest cycles based on proper industry standards guide workers in their approach to a particular task or work environment, thus tracking physical exertion and offering essential time for the body to recuperate. It is important to note that rest takes many different forms, so it is important to outline what rest breaks should look like. Finally, a break from direct sunlight—or even a direct heat source—gives an employee time to lower his or her internal body temperature and combat the overheating risk factor.

Another important preventative measure can be acclimatization. Rarely are workers able to pick up a strenuous job in extreme conditions with no adjustment period. By promoting acclimatization, workers can gradually become acquainted with the work and with the conditions, in order to ensure the body is able to adapt to the rigors of said work. It is recommended that workers who are new to the project, or who have been away from the project, increase their workload over the course of two weeks with plenty and more frequent rest breaks initially, until they reach the typical work/rest cycle.

Protective Measures

In addition to preventative measures, employers have a multitude of resources that can help protect employees working in extreme heat environments. Many times, these measures require planning and forethought but also can have a major impact on overall safety culture.

Workplace set-up is an often-overlooked element of a heat stress program. By creating a workplace that inherently protects workers, heat stress risk factors can be diminished. Implementing shade barriers, creating easily accessible and well-stocked rest areas near workers, and scheduling work times around the intransigent nature of weather are a few ways to create the safest possible environment in an outdoor setting. In an indoor setting, which provides greater ability to regulate conditions, engineering controls play a significant role in keeping the temperature down. Using elements such as air conditioning, increased ventilation, reflective shields for radiant heat, and heating insulation for hot surfaces can all help to reduce high temperature and limited air movement occupational risk factors.

Training is another key component of protective measures. Employers carry a burden to educate their employees on heat and its effects on overall health, as well as how to protect against, recognize, and respond to heat stress. By providing this training in a language and manner that effectively reaches your employees, you are empowering them to contribute to their own safety.

In a similar vein, monitoring employees is something both employers and employees can and should do. Facilitated by training, those on a job site can not only monitor themselves for signs of heat stress, but also monitor those around them. Supervisors can even pair employees in a buddy system to increase accountability. Monitoring helps perpetuate early detection of heat stress, which is key for taking appropriate and timely action should the need arise.

Proper Attire Measures

In many cases, extreme heat conditions are coupled with necessary but potentially bulky protective attire. Even in situations that do not require specialized PPE, a worker's attire can impact his or her ability to withstand heat.

To make proper decisions about clothing, it is important to understand the basics of selecting apparel. Many times, comfort mistakenly comes into play as the driving force behind suitable attire. Comfort differs greatly from person to person, making it a poor benchmark to judge garment suitability. While comfort is an important element to consider—as workers must be able to perform their jobs without garment impairment—it should not be the sole determining factor.

Light-colored, loose-fitting, breathable clothing is best suited for those working in extreme heat or high-temperature environments. Cotton can be a go-to fabric given its characteristics, yet performance fabrics with sweat-wicking technology also are a popular selection. Color choice is frequently overlooked, but it contributes greatly to a garment's suitability. Dark colors attract and trap heat, which can increase overall body temperature, thus making light-colored garments the ideal choice. Wherever possible, garments made of synthetic, non-breathable fabrics should be avoided.

For some workers, the nature of their job requires additional protective clothing such as AR/FR PPE. While nothing can supplant the primary prevention factors of hydration, rest, and shade, advances in AR/FR fabrics can play a role in minimizing heat stress-causing factors. For example, there are lightweight blends with moisture-wicking properties and engineered cotton blends from reputable manufacturers that strike a balance between proven protection and breathability to help keep workers cool and comfortable. These fabrics can provide NFPA 2112 certification and offer NFPA 70E Category 2 protection, meaning they can serve as a base for appropriate protective garments in many hazardous situations.

There are times, too, when suitable PPE will not carry breathability hallmarks by nature of its design or functionality—firefighter uniforms or waterproof coverings, for example. In these instances, reverting to protective and preventative measures is all the more crucial. It is important to note that, regardless of whether additional PPE is needed to shield a worker from on-site hazards, preventative and protective measures are still necessary to protect workers from heat stress.

No matter the time of year, heat stress is a looming concern for both employers and employees, and it requires diligent attention to provide the best possible protection. Coming into the summer months, now is an ideal time to review your current heat stress protocols and procedures and evaluate their effectiveness in incorporating preventative, protective, and proper attire measures.