IHSA SAFETY Podcast

transcription

Episode 60:

Heat Stress

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Guest: Jasmine Kalsi

Announcer:

It's time for the *IHSA Safety Podcast*.

Ken Rayner:

Welcome to the *IHSA Safety Podcast*. I'm your host, Ken Rayner. On this episode of the podcast, we're joined by Jasmine Kalsi, IHSA's occupational hygienist. Welcome to the *IHSA Safety Podcast*, Jasmine.

Jasmine Kalsi:

Hey, Ken. Good to be back.

Ken Rayner:

Good to have you back. In Ontario during our winter months, Jasmine, we're routinely subjected to freezing temperatures that can be a significant risk to those working outside unless an employer has controls well-established and implemented. Once the spring and summer arrives, we typically, at least I know I do, relish the hot weather and the sunshine. I'm a happy camper. But depending on the situation, working in the heat can be just as dangerous as working in the freezing temperatures if we don't understand how our bodies react under hot temperatures. So Jasmine, my first question to you is, what is the risk for Ontarians if they're conducting work when we experience really hot temperatures?

Jasmine Kalsi:

So in Ontario, our summers are typically hot and dry, and we typically see our temperatures go in the high 20s, we get them in the 30s. So for those workers who are working outdoors, and especially with the ones that are carrying a lot of physical work for long periods of time, workers can face some sort of heat-related illness or heat stress. So heat stress is a response of the human body where the body's core temperature rises. So when we look at our core normal temperature, it usually ranges between 36-38°C. And heat risk can occur when the body doesn't have enough water to cool itself down. And this could be due to the lack of water, not replenishing our fluids, as well as the loss of sweat. And this can result in dehydration as well as resulting in our rising core temperature.

Ken Rayner:

Okay. Are there different types of heat stress disorders that somebody who's working in hot temperatures could experience? And if so, what do some of those symptoms look like?

Jasmine Kalsi:

Yeah, so for heat stress, there are different types, and I'll just go through them one by one. We'll start with a heat rash, and this is also known as prickly heat. Symptoms include red blotches on your skin or you get extreme itchiness in areas that are persistently damp with sweat. The other type of heat disorder is heat cramps. This is when you get spasms in the larger muscles in our body. So this can be like our back, legs, and even our arms. So cramping would typically create hard, painful lumps within the muscles itself.

Next we have heat exhaustion. So this occurs when the body begins to send blood to the skin to reduce body temperature, rather than supplying it to the vital organs. So symptoms for someone that would be experiencing heat exhaustion, this would include weakness. You would get headaches, breathlessness, as well as nausea. If you leave it untreated, heat exhaustion can lead to a heat stroke.

And the last step we have is a heat stroke. So this type of disorder can be fatal, and immediate medical attention is needed. So heat stroke occurs when the body can no longer regulate its own temperature and it cannot keep itself cool. So major signs of heat stroke, this includes confusion. You won't be sweating, irrational behavior, as well as the loss of consciousness.

Ken Rayner:

Wow. Okay. So heat rash, heat cramps, heat exhaustion, heat stroke. Okay. So would a worker ever experience heat cramps before heat exhaustion or heat stroke? Do you have to progress through the disorders as your condition worsens, Jasmine, or can you jump straight to a heat stroke before experiencing the symptoms of the other disorders?

Jasmine Kalsi:

Yeah, so that can happen. So if a worker is experiencing, for example, heat cramps and if they continue working in those type of work conditions and the worker's not able to identify these signs or symptoms, this can lead on into heat exhaustion. So this more so depends on the environment where it can even lead into heat stroke itself. So this pretty much highlights the importance to realize and just to be aware of the signs and symptoms of the various heat stress disorders we just discussed.

Ken Rayner:

Okay, so these are serious, especially when we get into heat exhaustion and heat stroke. So if something occurs and a worker is suffering from a heat stroke or heat exhaustion, in addition to calling 911 and getting emergency responders there as fast as possible, what first aid should immediately be applied if a worker is experiencing either heat exhaustion or heat stroke, Jasmine?

Jasmine Kalsi:

So we'll start off with the heat exhaustion. So for a worker that experiences this, after medical attention is called for, by the time they get there, in the interim, you should move the individual who's experiencing heat exhaustion to a cooler area. If they're wearing any tight clothing, you want to loosen them up or honestly just remove it and you want to encourage the worker to drink cool water. You can also spray or sponge cool water onto the worker itself. For a worker that is experiencing a heat stroke

after 911 is called, again the main first aid would be to remove again, any tight or excessive clothing they have on. And again, we want the worker to drink cool water. Similarly, you want to make sure you're spraying cool water or using wet cool sheets, so then you could cool down the worker. So this would be something that will be helpful in the interim, before the medical professionals are on site.

Ken Rayner:

Okay, so in both cases we're looking to get that individual that's being affected to a cool area, loosen up the clothing, remove the clothing if necessary, and get them cooled down. Within the sector supported by IHSA, are there any tasks where you would consider it to be at risk or high risk tasks where workers could experience heat stress?

Jasmine Kalsi:

Yeah, so there are a few where heat stress can occur, and it's also important to realize and understand that heat stress can occur indoors as well as outdoors. We tend to usually focus on the outdoor aspect, but again, we want to consider the indoor as well. So in regards to outdoor tasks, exposures can occur for any work that's related to road building, excavations, roofing, anything in residential or commercial home building, and any outdoor utility work, for example. And in regards to indoor tasks, again, exposure can occur for any work that's related to foundries. If you're doing interior renovations, boiler rooms, working in the mills, anything along the lines of that.

Ken Rayner:

Yeah, thanks for that, Jasmine, because I had my mind completely focused on outdoor tasks as opposed to indoor tasks, but working in close proximity to some of that equipment that generates a lot of heat, can appreciate, could cause the same sort of scenario, right?

Jasmine Kalsi:

Yeah.

Ken Rayner:

Okay. Let's move on to maybe some tools for employers. So what are some tools you could recommend for employers to determine heat stress?

Jasmine Kalsi:

So there are a number of tools that are available that employers can use to look into the risk of heat stress in the workplace. One of the recommended methods for measuring heat stress is using the wet bulb globe temperature. In short, we just say WBGT. It's a method that closely relates the human's body's response to heat itself. So this measurement process, it takes it into account air temperature, you're looking into the air movement, the radiant heat, as well as humidity. We can get on-the-market, direct-reading WBGT metres. If we're ever looking, they are commercially available or they're also known as heat stress indicators.

So when you carry out these WBGT measurements, these can be related to the physical demands of the job. So it's recommended that any qualified professionals perform these types of measurements. So when I say qualified, this means individuals who have some experience, they understand and know how to carry out these measurements as well as interpret results. So this can be anybody in-house if they're trained and how to use this type of equipment. You can get private consultants that do this. You can reach out to consultants from the local occupational health and safety associations as well.

Ken Rayner:

Okay. So that, again, is called the wet bulb globe temperature, and you referred to it as WBGT, which is I guess the acronym WBGT for anybody that wants to look it up, WBGT, wet bulb globe temperature. Okay, we get into July and August in Ontario. Jasmine, we keep hearing about humidex, right? So are there other tools an employer can utilize to measure things like humidex that we're told over the news or in terms of, hey, watch out, it's going to be really humid today. The humidex is “x”. So they’re turning our attention to that. What can an employer do in this regard?

Jasmine Kalsi:

In simple terms, humidex is a measure of how hot we feel. So it expresses the combined effects of temperature as well as humidity and how this is perceived to us. So pretty much the outcome when you're doing a humidex measurement, it provides a number and describes how hot we feel. So I want to give you an example, that's we probably hear a little bit more in Ontario is how we use wind chill or the wind chill factor, that would describe how cold people would feel. So humidex ratings range from 25 and it goes upwards to 45, with 45 being extreme risk. But this number needs to be calculated. So there is a useful tool. The Occupational Health Clinics for Ontario Workers, and in short we call them OHCOW, they have a humidex-based Heat Stress Calculator. So all you need to do is, if you know the temperature and you know the humidity, you input that into the calculator itself and it would tell you what the humidex is.

So on that same website, there is a chart which will tell you this is what the humidex is and this is what the risk is, as well as the recommended controls. So the reason why humidex is not recommended for all scenarios, again, because it only factors in humidity, whereas WBGT, we get the factor of radiant heat, we look into the air movement itself. So it's a good tool for indoor places, but again, we have to factor in again, when there's no wind speed or there's no radiant heat, it's a good tool to use as well.

Ken Rayner:

All right, so thanks and gratitude to our good friends at the Occupational Health Clinics for Ontario Workers, as you said, the acronym being OHCOW, who as our listeners may know, is one of six designated health and safety associations in the province of Ontario. So we'll make sure we post those tools that Jasmine referred to that OHCOW has on their website. We'll post that on the podcast site. Jasmine, what are some controls employers can put into place to protect their workers from experiencing heat stress? So why don't we walk through the control piece because we've talked about measurement, we've talked about why people should be tuned into this in terms of what the risks are. Now let's look at control. So what do you recommend in that regard?

Jasmine Kalsi:

So there are a number of controls workplaces can consider implementing to protect workers from experiencing heat stress. And I'll just go over some examples. So one of the bigger things is educating workers about the signs and symptoms of the different types of heat stress disorders. And this is what we discussed earlier on. Workers should be trained on how to know what to do if they're experiencing a heat stress event or just identify the symptoms. They should be able to identify in themselves, but also just realize if their co-worker is experiencing this type of event as well. We also want to give workers time to acclimate to high temperatures. So in simple terms, acclimatization is a gradual process of how our bodies get used to heat. So it's like a heat tolerance. So this is something that doesn't happen in a few minutes. We need to give our bodies some time to adjust to working in the heat.

And this can happen when we gradually increase our intensity or even the amount of time we spend working in the heat slowly. And this occurs over the course of few days. As we do this gradually, it allows our bodies to adjust to working in the heat. And this process itself can take six to seven days. Aside from that, some other controls are introducing work-rest schedules, providing workers with water stations and breaks, encouraging workers to drink at least one cup of water every half hour. We don't want to eat any hot, heavy meals. If there is any work that requires a lot of physical effort, maybe scheduling that a little earlier in the day when it's not so hot. Reduce time in the sun pretty much during peak temperatures as well as provide any PPE that allows sweat to evaporate. So sometimes we see employers providing cooling vest or even reflective clothing. And lastly, creating a heat stress plan. So employers should know what controls they can implement to protect their workers from high temperatures.

Ken Rayner:

Okay, Jasmine, all of those things make sense to me, but I'm curious about one, what you said, and I'm someone that doesn't like to miss meals, so I'm curious on avoiding eating heavy meals. Why would we provide that recommendation to employers and workers?

Jasmine Kalsi:

Yeah, so when someone's eating hot and heavy meals itself, again, it puts our body to work. We want to avoid putting all that energy and focus into digesting that type of meal itself. So again, we want to reduce the effort that is required to our body. So if you're eating heavy meals itself and working outside, carrying out physical work during high temperatures, it doesn't contribute to the cause itself. So we want to get away from that.

Ken Rayner:

The body's engine has to work harder to digest all the heavy food that somebody ingested, and that in itself can potentially raise the body's temperature while contributing to the problem. Is that fair?

Jasmine Kalsi:

Yes. Yep, that's fair.

Ken Rayner:

Okay. All right, good stuff. Thank you for that. All right, are you able to comment on heat stress in terms of, are we going to be dealing with this every year at best? I mean, this is something every summer in Ontario for the most part, employers should be tuned into.

Jasmine Kalsi:

Yeah, so we're seeing it in Canada as well as across the world. There's been increase in heat waves and we're getting the rising temperatures as well. So it's good for employers to be aware as well as to be prepared in protecting workers for any potentially deadly consequences of heat stress.

Ken Rayner:

All right, and I know IHSA has a wealth of information that employers and workers can leverage on the IHSA website. Can you just go through some of that for us, Jasmine?

Jasmine Kalsi:

Yeah, for sure. So we do have a variety of resources for heat stress. You can always visit our heat stress topic page on IHSA.ca and it does have a FAQ section. Some examples that we do have for resources: We have a safety talk on heat stress. We have a chapter in the *Construction Health and Safety Manual* (M029) discussing this topic. We have posters, if you want to put them up in the workplace, highlighting the hazards of heat stress, a brochure targeted at roofers, as well as a health and safety advisory, talking about heat stress and type three asbestos removal, for example. But if there are any specific questions to heat stress, you're always more than welcome to reach out to me directly at jkalsi@ihsa.ca.

Ken Rayner:

Okay, can you say that email address one more time and maybe just spell it out if you would?

Jasmine Kalsi:

Sure, yeah. So it's jkalsi@ihsa.ca. It's j-k-a-l-s-i at i-h-s-a dot c-a.

Ken Rayner:

All right, amazing. Thank you so much. And thank you so much for all this information, Jasmine. This is important, right? So we as Canadians, we as Ontarians, love to celebrate the summer. We go through a harsh winter and we look forward to those warm, hot, sunny days. But we also have to be mindful that they can be detrimental to health and safety and we need to be guarded against it and make sure that we're identifying the symptoms, so you're aware, the workers are aware, that this is happening and then making sure that we're addressing it. And most importantly, putting controls in place so we don't get to that situation in the first place, right?

Jasmine Kalsi:

Yes. Yeah.

Ken Rayner:

Perfect. All right, thank you so much, Jasmine, as always, it's a pleasure to have you on the podcast. And thank you very much to the listeners to listening to the *IHSA Safety Podcast*. Be sure to subscribe and "like" us on your podcast channel, and visit us at IHSA.ca for a wealth of health and safety resources and information.

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