



THE DANGERS OF CONCRETE BURNS

INTERVIEW WITH DR. THOMAS EISEMAN & CHRISTIAN “CRASH” NEUBAUER

June is National Safety Month, and in the latest MedCorner, Dr. Thomas Eiseman from Clinical Affairs talks with Christian “Crash” Neubauer, a Clinic Manager about the dangers of concrete burns experienced by construction workers. Read the highlights of the interview and learn how Medcor handles concrete burns at our clinics!

Dr. Eiseman: When I think of concrete injuries, I usually think of either somebody falling on it or it falling on somebody else. But today we’re going to talk about burns related to using concrete. First of all, concrete and cement. The layperson tends to use those interchangeably. Is there a difference?

Crash: Cement is an ingredient to concrete. You mix it with other things, and you get concrete from cement.

Dr. Eiseman: It causes a pretty unique burn when working with it in either its powder form or in its wet form. Have you ever seen this on the jobsite?

Crash: The past five years I have seen it twice. It’s not very commonly occurring, and most clients are aware of it. As a matter of fact, it’s common practice at a couple of sites to have their own neutralizing agent. But most people working in concrete keep the areas it would get on covered.

Dr. Eiseman: When you see a burn caused by concrete, how does it usually present?

Crash: It looks like a generic chemical burn, so you have to get ahead of it because it won’t present as something serious immediately.

Dr. Eiseman: My understanding is that it can sneak up on you. A lot of time, you really don’t think it’s a big deal you’ve been exposed to concrete and don’t worry about it. And then what happens after that? If it’s been on your skin, let’s say, an hour?

Crash: The more it meshes with your sweat or just sits there, the lime in it starts to activate which starts slowly burning. It starts off as a stinging. The longer it stays like that, it’s just corroding away tissue and burning. By the next day, it’s turned into something far more severe.



Dr. Eiseman: In some respects, acid burns are a little easier to manage because what they tend to do is -- let's say you get an acid on your skin-- it'll make a burn and then it cauterizes itself, and that's really the end of the reaction. What's unique about alkaline burns is that unlike acid burns, it kind of sits there. The alkaline burn doesn't cauterize itself, and will continue to eat through flesh as it's exposed to more water. It can burn deeper and deeper. It can cause third degree burns. It can burn down to bone, it can burn through bone-- it's quite terrible. So when someone is exposed to concrete, Christian, what are the first things you do?

Crash: One of the biggest indicators to suggest it might be concrete- related is the area. The biggest area you'll see it in is either down in the boots or in the glove area. You assess it, and generally, as with any chemical, dry brush, then start irrigation.

Dr. Eiseman: One area I've heard that gets missed a lot is their perineum, or their butt. They sit in the material, it gets into their clothing, and they won't realize it for several hours. So you really want to do a full, head-to-toe irrigation. Get undressed, get rings off, glasses, whatever you can to fully open the area. And then you mentioned irrigation, is that pretty much the gold standard?

Crash: It removes the chemical from the area and then keeps it going. Just flow for 20 minutes, irrigate, and generally that'll resolve most cases.

Dr. Eiseman: So this is a 20 minute complete irrigation of the area, making sure you remove the chemical. If they still have symptoms, you may want to keep irrigating the entire time. What's unique about concrete, is generally in medicine we don't like to neutralize acids or alkalines. When we put

a neutralizing agent on, what tends to happen is it creates a lot of heat and that heat can actually cause worsening of the burn. This is a unique situation though. So we added a new ingredient to our protocols at Medcor. Christian, what did we add?

Crash: We actually added vinegar to the process. Can you go into why vinegar is the choice here?

Dr. Eiseman: Vinegar is a weak acid. It's readily available and it's very cheap, so it is something that can easily be obtained and stored safely on the job site. For some reason, it tends to not be a very, what we call exothermic or heat creating reaction. So studies have shown-- and even OSHA encourages the use of vinegar-- we've seen better outcomes in concrete burns where vinegar was used as part of the treatment.

There isn't a standard, on how to do it, so we've come up with two different ways. We don't want you pouring vinegar directly on a burn. You can use full strength vinegar if you're simultaneously irrigating, you said that 20 minutes of irrigation with fresh water, you can add vinegar to that and that will help neutralize the burn. Or if you don't have that high pressure or running water, you can dilute the vinegar 50:50 and use it as part of your 20 minutes of irrigation.

Crash: You clearly don't want it in the eyes, you don't want it in any orifices, you want to work around protective equipment because it's not a very pleasant substance to have sprayed on your face, so use it as intelligently as you can.

Dr. Eiseman: This is standard 5% acidity, a white vinegar diluted or distilled or non-distilled, it doesn't really matter. We don't think job sites really need to keep more than a gallon of it on hand.



Crash: Would sodium chloride work as well? Or would we be concerned about using sodium chloride?

Dr. Eiseman: I wouldn't mix other agents. There are some commercial preparations that can be used to neutralize some of these burns. Our ask is that you have us look at it first before you go to widespread use. But this vinegar is a pretty big change in the way we've handled this type of injury.

Dr. Eiseman: There was something else unique in terms of the management of these cement burns that I learned, which is, at least on the job site or on the initial first aid portion, we don't want you putting any lotions or creams on top of the area of burn, which is kind of the opposite of what you would do with a heat burn. You are kind of sealing the chemicals on to the skin. And you may think you have completely neutralized and irrigated it out and that may not be the case. So we'd like you to keep it dry, you can cover it with something dry. We recommend either a physician or an advanced practice provider look at the burn.

The other thing that is important with concrete is that tell the doctor or the provider that it was a concrete injury, and not just a burn. Because the management is so different, they may want to re-irrigate it. They may want to involve a burn center. And some of these cases do end up quite serious and in burn centers. There is not a new MCP or a whole new protocol around concrete or cement. We have added it to the chemical burn.

Crash: Something is probably asked by the by anybody we work on site with, is this going to be a recordable injury? Do we know if this is going to be something that they need to report on their OSHA log if someone suffers from a concrete burn and we utilize vinegar and send them out? Does it generally result in a recordable injury?

Dr. Eiseman: Usually with the vinegar and irrigating, probably not. Like a lot of things in the job site, this is an extent of injury that leads to duration or time off. If it's something small and they're back the next day or they need 24 hours off, probably not, it will not become an OSHA recordable. More severe burns, burns that need specific burn treatment including skin grafting or time in a burn unit, unfortunately, that's probably going to make it onto the log.

Crash: And what about pain management with this?

Dr. Eiseman: Tylenol, ibuprofen, or naproxen on the job site. Then you let the provider take it from there. The other thing I recommend for our advocates is to print up the safety data sheet of what is being used there. Taking that to the provider will only help their management down the road.

Thank you for your time, Crash! I encourage people if they have questions to get ahold of us at clinicalaffairs@medcor.com.