

# Heat Stroke and The Giant Breed Dog

## By Robin M. Smith, DVM

Heat stroke is unfortunately a common occurrence I see in the emergency room during the summer months. Unless very prompt and aggressive treatment is obtained, many of these dogs will die. Personally, having been a veterinarian for many years and seeing all kinds of dogs affected by heat stroke, I must say that I believe our giant breeds, i.e. mastiffs, are more prone to heat stroke due to their size. Fortunately, most of our mastiffs are in the air-conditioning (in fact, most are sitting on top of the floor outlets). But, we do have summer shows and sometimes the mastiffs are not shown until in the afternoon when it is too hot. I have been known to not show a dog or advise people not to show a dog, if the mastiffs are not shown until the afternoon due to the stress on the dog. I also advise against showing in the afternoon on hot asphalt or pavement. There is one show in particular out here on the East Coast that does have pavement and no shade. If you do enter shows and it is a hot day, please try to stay under a tent, give the dog fresh water but only in small amounts at a time, and take along a towel to wet down and put over the dog. I must stress about the not drinking large amounts of water due to the potential for bloating, which is another devastating problem in our mastiffs. I suggest a spray bottle to spray the dog in the face or to spray in the mouth, thus limiting the quantity of water ingested. Due to the fact that most of our shows are in the summer heat, I thought I would discuss the problems that occur during heat stroke and what to watch for and what to do immediately if the situation happens to you and your dog.

First off, our mastiffs (and all dogs) perspire through panting and through their nose and pads of their feet. We sometimes forget that we, as humans, perspire all over, thus creating a moist skin environment, which has a cooling effect. So, our dogs will pant heavily when hot. That is not to say that heat exhaustion is occurring, it is a normal fact. I know you know mastiffs that pick out the cool concrete or wood floor or tile floor in your house to sleep. That is because of the cooling effect of these surfaces.

Heat stroke occurs when the body temperature is 106 degrees or higher and it does not take long to literally boil the internal organs. If this should occur in your mastiff, the first thing to do is to remove the dog from the environment where they overheated. I say environment, because heat related problems are not always due to a mastiff being outdoors. Being in cars, EVEN with the windows cracked, can be a death trap, even if it is only for 5 minutes. Or being in a kennel in an unairconditioned area, or in an area not subjected to good air circulation. So, take the dog to a shaded area or area with a fan as soon as possible. You may have to get help to move the dog, since collapse is possible with severe overheating. The first thing most people do is put ice cold water on the dogs. This is wrong. You use cool water, i.e. hose water or tap water but not ice cold water. Ice cold water causes the blood vessels in the skin to constrict or get smaller and thus will decrease the amount of coolness that can get to the inner core of the body which is what you want to cool down. If possible take their rectal temperature. Begin to cool the dog by wetting with cool water poured over the body. It is best to direct the water to the auxiliary areas (armpits) and groin areas since these areas are thin skinned and will absorb the coolness faster. I use a hose if possible and I will get towels soaked with cool water and put them in the groin and auxiliary areas. **DO NOT LET THEM DRINK.** Spray water in their mouths and put a cool towel over their

heads to cover their nose, but not enough to restrict their panting. If available, apply alcohol to their pads of their feet, as the evaporation of alcohol cools even faster. Direct a fan at the dog to help with the evaporation process.

The second most important thing is to get them to a veterinarian as fast as you can. If you cannot get to the veterinarian. For example, if you are at home and your dog is outside and collapsed and you are by yourself, make a makeshift tent over the dog if possible and after wetting the dog down, use a small tube, like one you might have for your air pumps in a fish tank, or even a baster from the kitchen with the bulb taken off and put it gently (lubricated if possible) into the anus and get cool water into the rectum as soon as possible. Again, I do not suggest this unless you cannot get them into the hospital.

The most common sign of overheating is vigorous panting. I know our mastiffs pant a lot but you will see them panting much more than usual and their gums will be bright red. The dog may be lying on its side, unable to stand, although this is a late sign of overheating. Most of the time they are restless and agitated. Signs of shock will be evident, such as increased heart rate (over 120 beats per minute in a mastiff), they may have weak pulses (these are found in the groin area of your dog), they will be depressed and their eyes may appear glazed over. Again, since heat stroke is a disease that affects every organ system, the sooner you get them to a veterinarian the better.

When you arrive at the veterinary hospital, the dog **MUST** be treated aggressively because over 50% of these dogs develop a disease process called Disseminated Intravascular Coagulation or DIC. Veterinarians used to call DIC "Dead in Cage" because in the past we rarely saved any dogs that developed this because we were not able to monitor certain parameters that would allow us to diagnose the disease. Now, there are more ways we can diagnose it and the best thing is that we can now prevent it before it can get too bad. DIC is a process where the body's clotting system is messed up and will affect all organs. As soon as the dog arrives, I put in two 14-gauge IV catheters (intravenous) so I can put in fluids fast. I will give up to 6-8 liters of fluids to a mastiff very rapidly, over 30 minutes. I will also add colloids or plasma because one of the most important things is to keep the clotting factors from leaking out of the blood vessels. Also, getting so much fluid will dilute the protein level of the dog and the protein is what keeps the blood in the vessels, like a "glue". One of the easiest tests that monitors whether clotting factors are leaking out of the blood vessels, which is one of the first signs of DIC is to check the albumin, a protein. If the albumin is low, or below 2, then I give plasma, up to 4 units in a mastiff. I get bloodwork at this time also to assess kidney and liver function. I will check clotting times also. We will monitor their temperatures and monitor their hearts by doing an EKG. Many of these dogs will develop arrhythmias, or abnormal heart beats, that need to be treated also. Antibiotics are important also. These dogs are put into intensive care and their clotting factors and body organ system parameters are checked every 2-4 hours. Most veterinary hospitals do not have the ability to monitor clotting factors, so the most important thing to monitor is the hematocrit (tells about the hydration status of the animal) and the total protein (tell about whether the blood vessels are getting leaky or not. If possible, the albumin is also monitored and kept above 2. I try to keep the hematocrit (Hct) above 30% in our mastiffs and the total protein (TP) above 4 gm/dl. If the Hct drops below 15% in the mastiff, I give whole fresh blood. If the Hct maintains itself and the TP drops below 4 gm/dl, I give plasma.

Again, treated aggressively, we can save some of these dogs, but the expense of treating a giant breed dog is great. You have to be able to handle \$3000, in uncomplicated cases, to \$5-6,000 in a complicated case and even then, the prognosis is very guarded. The expense comes from the monitoring and the blood and plasma transfusions. The best chance for survival is to catch it early and to have access to a 24 hours emergency critical care facility.

I hope none of you ever have to go through this with any of your mastiffs, but if you do, I hope I have at least given you enough information to be able to help your mastiff prior to getting to the veterinarian. And given you a realistic scenario that will occur if it does happen. This weekend, June 10-12, I saw 4 dogs, two with severe heat stroke. Fortunately, because the owners were willing to go all out, I was able to save the dogs even though they presented completely unconscious and with temperatures of 106 or higher. We aggressively treated them with plasma and a lot of monitoring. All of the dogs walked out of the clinic in the morning to their regular veterinarian.

If there are any questions, please feel free to e-mail me or call.

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