

Some timely and interesting information from a Heat Injury seminar presented online by Major Janice L. Baker, DVM, US Army Veterinary Corps (who works with military working dogs). Heat Injury is number 1 cause of death in non-combat Military working dogs and number 2 non-hostile line of duty cause of death for police dogs (traumatic injury is number 1).

Leaving a dog in a car on a warm day is by no means the only way a dog can suffer from over heating. The seminar was talking mostly about working dogs (fit, athletic dogs such as those used by the military, police, search/rescue, etc). But the information is equally applicable to any sport (agility, flyball & obedience etc) dogs as well.

The dog's temperature is not a reliable indicator of risk for heat injury. Fit, athletic dogs can be fine with short periods of very high internal temperatures and a 'normal' working temperature for such a dog might be as high as 104 to 107 degrees. It was discovered that some working dogs' temperatures went up to that level simply by taking them out of the kennel and putting on their gear (due to their muscles quivering with excitement). Long periods of time at really high temperatures are still dangerous even if the dog is fit and conditioned or the air is hot, making cooling difficult.

Risks for heat injury: Rapid change in air temp (spring time where one day can be 10- 15 degrees warmer for example), travel to warmer climates, long periods in AC to high outdoor temps, etc.)

Muzzle work (even basket muzzles restrict the dog's ability to pant effectively) and muzzles that prevent the dog from opening its mouth can be dangerous if the dog is warm or hot. If dog is injured, assess whether it's more important for the dog to get oxygen & cool off versus a bite risk to care givers.

Long periods off work (dog loses conditioning/acclimatization). The handler over estimates the dog's fitness and/or condition level; over weight or weight gain. Medical or Structural issues ie airway obstruction, short face or nose, thyroid issues, etc.

Some warning signs before heat injury: Shade seeking behaviour (dog wants to be in the human's shadow or other shade); Calming down (in a normally active or hyper dog). Wanting to sit or lie down; refusing to go on or disregarding known cues in order to just sit or lie down, is getting to serious levels.

Delaying return to handler; on recall or during fetch, dog doesn't return directly to the handler or returns more slowly than previously in order to increase time spent moving more slowly. Dropping reward objects; dog lies down and spits out the toy- to increase effectiveness of panting. 'Panting Smile'; lips pulled back to expose more of the gums, increase surface area of the mouth.

Prevention: Know the warning signs above. Know the risks above and avoid them whenever possible. Increase conditioning and acclimatization time and slowly increase exercise and activity demands in high risk situations. Keep dog fit and healthy (lean & skinny side of an ideal weight is better for highly athletic dogs). Remove muzzle whenever possible. Cool dog down DURING work, don't wait for dog to over heat first. Allow frequent access to water as risk of heat injury is much greater than an unproven risk of bloat. Monitor and know your dog's normal working temperature.

Look for potential cooling sources in your area; streams, water troughs, AC in vehicles & buildings, fans, wind sources, wind tunnel effects, etc. so you know where to go if your dog starts showing signs. Dogs don't drink because they like to drink; they drink because they need it. So let a dog drink until he chooses to stop; unless it's a compulsive or resource guarding issue. He might need short breaks from drinking to prevent vomiting, but keep returning to the water until dog doesn't want it.

Radiation of body heat to cooler air or cooler surface is much more effective than panting, so getting the dog to a cooler location or a cool surface or to a water source they can get into is best. The higher the air temperature, the less time it takes for the dog to over heat because they can't radiate the heat.

The science behind the effectiveness of cooling coats and mats is lacking. Studies show that dogs get just as hot (core temperature) while working and wearing a cooling vest, as they do with body armour or nothing at all. But, as a method for cooling the dog after exercise and during resting, mats works well - if the dog will lie down on the mat.

Dogs don't need electrolytes because they don't sweat and their loss during exercise is minimal. A balanced diet and lean body is most effective at preventing heat injury. Special diets and supplements have little effects on prevention. Sub Q fluids have no effect on enhancing the dog's performance or preventing heat injury, except to prevent dehydration if the dog will be working for an extended time without water; as may happen on some military missions.

#### Treatment:

Cool the dog as fast as possible to approximately 103 degrees. The longer the dog is dangerously hot, the greater the damage. Use any reasonable cooling method available. Ice packs, ice water and ice water soaked towels are the best methods (contrary to internet rumours and popular opinion) and have no side effects; whereas a dog remaining hot CAN cause significant damage/death. You want the dog wet and you want to increase cool air flow over the dog if possible to use evaporation cooling.

Cool the dog first, then transport unless you can cool during transport to the vet. Always transport to the vet for blood work because effects can last several days due to damage to the body's cells and the GI tract that can let bacteria into the blood stream. The dog's temperature may be unstable for several days and should be closely monitored.

Does heat injury increase future risk? The bottom line is that it's not known. The risk factors are often still present (over weight, under condition, short face, need for muzzle, etc.). It's unknown if there could be damage to the brain or the thermoregulation system of the dog. Unknown if medications are a factor. So it's recommended that the risks be assessed on a case by case basis using known and suspected risk factors as the basis.