

## Emergency and Critical Care Department

### Client Information - Heat Stroke in Dogs

Heatstroke is state of extreme hyperthermia (> 41 degrees C) resulting in thermal injury to tissues - literally the body tissues 'cook'.



Heatstroke is a life-threatening condition, and does require immediate treatment. A dog's normal body temperature is around 38.5 degrees C and any time the body temperature is higher than 40.5 degrees C, a true emergency exists.

Heatstroke is often only thought to occur in hot summer weather when dogs are left with inadequate ventilation in hot vehicles.

However, heatstroke may also occur in other conditions, including:

- When an animal is left outdoors in hot/humid conditions without adequate shade.
- When animals are deprived of drinking water
- When they are exercised in hot/humid weather
- When an animal is left in a car on a relatively cool day(i.e. 20 C).
- When an animal is subjected to forced heat (hot dryers after bathing)

Other predisposing factors are obesity and/or conditions affecting a pet's airway, such as brachycephalic airway syndrome (seen in Pekingese, Pugs, Bulldogs, Boston terriers, etc.) Panting is major way that dogs dissipate heat, and these types of dogs pant ineffectually resulting in an increased body temperature that may be fatal. Even fit, athletic dogs that are exercised in hot, humid weather (especially early in the warmer season) are at risk of heat stroke.

Initially with heat stress the animal appears distressed. They will pant excessively, and become restless. As the hyperthermia progresses, the pet may drool large amounts of saliva from the nose and/or mouth. The pet may become unsteady on his feet. You

may notice the gums turning blue/purple or bright red in color, which is due to inadequate oxygen.

As the body tissues, including the brain become injured, pets become confused and lose the ability to seek cool areas, drink and even stop panting. Body parts such as the gut become damaged as well, and we can see vomiting and often bloody diarrhoea. The animal quickly goes into shock and suffers neurological damage (seen as seizures or coma). The previously elevated body temperature may decrease to subnormal.

Tissue damage occurs when core body temperatures are above 41.6C for a significant length of time. Body temperatures greater than 43.5C for just a few minutes result in death. The overall mortality rate with heatstroke is around 50%. Recovered animals may have permanent neurologic defects.

### **What to Do**

- Remove your pet from the environment where the hyperthermia occurred.
- Move your pet to shaded and cool environment, and direct a fan on him or her.
- Begin to cool the body by placing cool, wet towels over the back of the neck, in the armpits, and in the groin region. You may also wet the ear flaps and paws with cool water. Directing a fan on these wetted areas will help to speed evaporative cooling. Transport to the closest veterinary facility immediately.

### **What NOT to Do**

- Do not use cold water or ice for cooling.
- Do not overcool the pet.
- Do not attempt to force water into your pet's mouth, but you may have fresh cool water ready to offer should your pet be alert and show an interest in drinking.
- Do not leave your pet unattended for any length of time.

Rapidly cooling the pet is extremely important. While ice or cold water may seem logical, its use is not advised. Cooling the innermost structures of the body will actually be delayed, as ice or cold water will cause superficial blood vessels to shrink, effectively forming an insulating layer of tissue to hold the heat inside. Tap water is more suitable for effective cooling.

Severe hyperthermia is a disease that affects nearly every system in the body. Simply lowering the body temperature fails to address the potentially catastrophic events that often accompany this disorder. A pet suffering from hyperthermia should be seen by a veterinarian as soon as possible.