HEAT STROKE

Heat stroke (hyperthermia) is a quick killer. Even "well cared-for" dogs die every year as a result of overexposure to heat and humidity or too much activity on a fairly mild day.

Large dogs, brachycephalic dogs, heavily coated dogs and dogs that are not accustomed to warm climates are most likely to succumb to the deleterious effects of summer heat, but any dog, under the right circumstances, can become a victim.

When a dog is exposed to elevated atmospheric temperature, such as that inside a closed vehicle, his body first responds by dilating blood vessels in the skin and peripheral tissues in an effort to cool the body by convection and radiation. The dog begins to pant, causing an increased loss of water from the body and a decrease in effective circulatory volume.

This establishes an inadequate return of blood to the heart. If the atmospheric temperature is not reduced, a vicious cycle develops in which inadequate circulation prevents effective cooling of the dog's body. The body temperature rises, noticed first in the animal's extremities, increasing metabolism and oxygen needs. Very quickly, this results in fatigue and failure of central control mechanisms and a rise in trunk body temperature.

The problem is compounded by panic, as the animal struggles harder and harder to breathe.

Shock ensues as the dog's body temperature reaches 107 to 109 degrees Fahrenheit (a dog's normal body temperature is around 101 degrees). *Temperatures of this degree can only be tolerated for a few minutes before severe and irreversible central nervous system and cardiac damage occur.* By this point, circulatory and body fluid levels have become so decreased that inadequate oxygen reaches the dog's brain, and he loses consciousness. Death follows rapidly.

Treatment for hyperthermia must be rapid in order to save a dog's life and prevent brain damage. According to Susan Moore, D.V.M., an emergency clinic veterinarian, the following steps must be taken as soon as an animal begins to show signs of distress:

- Ensure that the dog's airway is unobstructed. Check his mouth to see if he has swallowed his tongue or any other foreign object.
- Reduce the animal's temperature rapidly by immersing him in cool water or rubbing alcohol (because alcohol evaporates more rapidly than water, it is more effective than water in reducing body temperature in some instances). Spray the dog with water from a hose if no bath is available. Apply ice packs to the animal's head and neck, and place them between his rear legs.
- Massage the dog's skin vigorously and flex his limbs to encourage venous return and stimulate circulation.
- If the animal has stopped breathing, apply mouth-to-muzzle resuscitation until respiration returns. *Do not attempt cardiopulmonary resuscitation unless you have been professionally trained in the procedure.*
- *Get the dog to a veterinarian as soon as possible,* even if your first aid ministrations seem to be all he needs.

"During treatment for hyperthermia, body temperatures frequently decrease to 103 degrees and stop," said Moore. "Monitor the dog's temperature with a rectal thermometer constantly during treatment, as it can begin to rise again, or it may drop below normal."

If the dog's temperature has not reached 103 degrees within 15 minutes after treatment has been initiated, cold water enemas and ice baths are last-ditch efforts. Moore cautioned that these should be attempted *only* by a veterinarian in cases of unresponsive hyperthermia, however, as they can cause tissue damage.

"The owner should start the initial cooling, resuscitate if necessary and transport the animal to a veterinarian *quickly,*" Moore said. "Time is of the essence. Don't waste a moment of it." **—K B & J L**