Heatstroke 101

Leslie Sinclair, DVM explains why dogs are so susceptible to heatstroke and how you can treat the deadly condition.

Leslie Sinclair, DVM

Q. What is heatstroke, and what do I do when it happens?

Leslie Sinclair, DVM says: A dogs body functions properly only within a narrow range of temperature, usually 99.5-102.5° F. Heatstroke occurs when a dogs body either produces (through exercise) or absorbs (from the environment) more heat than it can dissipate. When a dogs body temperature reaches 109° F or more, heatstroke occurs, and the cells of the body begin to die quickly. Brain swelling causes seizures, lack of blood supply to the stomach and intestines causes ulcers, and dehydration leads to permanent kidney damage, all within a matter of minutes.Dogs are more susceptible to the effects of heat than humans are in part because their skin is different. When the human body becomes overheated, the glands produce sweat and the blood in the capillaries cools as the sweat evaporates. Dog skin is designed more for insulation against the cold than for cooling; they have neither the sweat glands nor blood-cooling capillaries. Dogs cool themselves by panting, allowing cooler air to enter the lungs and dissipate their body heat. Blood vessels supplying the tongue and the mouth are cooled as the dogs saliva evaporates. Some heat also can be eliminated from a dogs body through urination.

Dogs with small heads and short noses are poorly built for cooling by panting, so they are at greater risk for heatstroke. Older dogs, puppies, sick dogs, and dogs poorly acclimated to warm weather are especially at risk, but even healthy dogs who live outdoors may be susceptible to heatstroke during severe hot weather or as the result of excessive exercise.

When a dog enters the danger zone-the point at which he can no longer properly cool himself-he begins to show signs of heatstroke. Loud and excessive panting, profuse salivation, and restless pacing are early signs. The tongue and inside of the mouth become dry and purple or dark red. The dogs eyes become glazed, and he has trouble walking or standing. When the body temperature approaches 109° F, he begins to retch and vomit. Soon, he goes into shock as his body pools all available blood in his most necessary internal organs, the heart, liver, kidneys, brain, and lungs. Swelling in the brain ensues, causing seizures and unconsciousness. The dogs blood may also begin to clot, a condition known as disseminated intravascular coagulation (DIC). He quickly runs out of the blood factors necessary for clotting and instead begins to bleed uncontrollably. Small and large purple spots will appear all over his body as blood seeps into the tissues beneath the skin. At this point, death is imminent.