

TAKE THE HEAT OFF!

Canine hyperthermia can be a significant threat during the summer. Help your dog stay cool and comfortable by learning how to protect him.

BY BOB STALICK

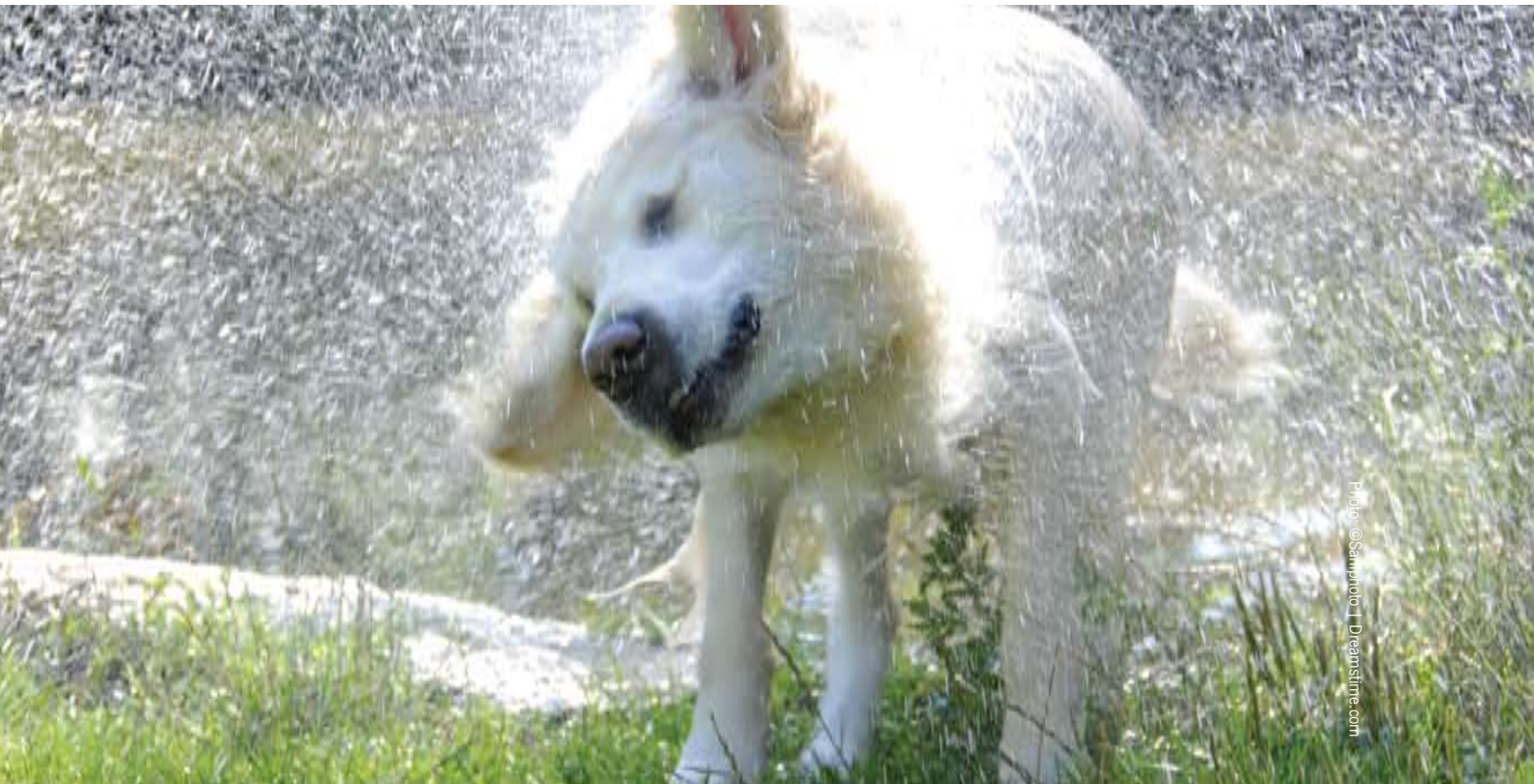


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We may love the heat, but it's hard on our canine companions. Whether you live in Arizona or Alaska, your dog is affected by rising temperatures during the summer. And with global warming driving average temperatures up, the situation won't get any easier for our four-legged friends.

In an odd twist, people's awareness and knowledge of canine heat issues seems to be inversely related to the average temperature of a particular region. We found that Canadians are generally very knowledgeable and concerned about the thermal welfare of their dogs; in some ways, though, those living in the southern United States are a bit more casual about it. You might say it's the old story of familiarity breeding contempt.

BASIC FACTS

- Dogs have defective cooling systems. They lose heat

only through respiration and their paws, and they don't perspire like we do. Like any heat producing engine, they radiate heat to the environment. This is a great system for an animal that evolved for life in the taiga and the Ice Age, or cold deserts at night. It's not so great for a sled dog living in Florida.

- The equivalent of 1,250 calories per square meter of infrared energy strikes the Earth at sea level every hour – and that number is higher at greater elevations. This is approximately the energy requirement for a reasonably active 50-pound dog per day.
- The normal temperature for a dog is 101°F to 102°F.
- A dog is considered hyperthermic when his body temperature exceeds 106°F (*The Journal of Veterinary Internal Medicine*, 2006, 20:38-46).

- The mortality rate for hyperthermic dogs treated immediately by qualified clinicians is only 50%, due to irreversible changes in blood chemistry (JVIM, Ibid).

In short, summer is hot, dogs are already hot, and there isn't a whole lot of room (4°F to 5°F) between "doing fine" and "likely to die".

DOING THE MATH

In dogs, we are dealing with a system already overloaded by the elimination of normal heat caused by burning food for energy. In a walk lasting an hour, the average dog is exposed to almost as much energy as he consumes in a day from food. Even if he absorbs only 10% of the solar influx, he is adding significantly to his thermal load.

The average fit 50-pound dog burns about 1,400 calories per day; that translates to an average of 56 calories of energy burn an hour. That rate goes up if the dog is out for a leisurely walk. Let's say there are 100 calories of energy to be eliminated. A dog doesn't occupy anything like a square meter, but is exposed to about a third of the total influx of infrared energy mentioned earlier (1,250 calories/square meter/hour), or about 400 calories per hour. Assuming the same 10% absorption referred to above (based on coat temperature measurements, this is probably a low number) the dog will absorb about 40 calories on an hour-long walk. That absorption is an additional 40% load on an already challenged heat elimination system.

COOL SOLUTIONS

- 1 Water, water, water! Your dog should always have plenty of fresh cool water available. If you're taking



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your dog for a walk, there are some very neat new devices for carrying water for your dog.

- 2 Don't overwork him. Just because he goes nuts when he sees a tennis ball doesn't mean it's a good

idea to throw it for half an hour when it's 95° outside. If you're going to work a dog in warm weather, take a good cue from the best agility and search and rescue handlers: be prepared with lots and lots of water, a good cooling jacket that works properly, and perhaps a cool pond in which to quickly dissipate heat.



- 3 Provide shade whenever possible. My dog Buddy's unwillingness to come out of the shade for a walk was what gave me a clue to develop my own cooling jacket. Shade represents reduced heat influx (though not entirely) and reduces strain on the dog's system.

- 4 Air movement is good, and more is better. A breezy, shady spot on a warm day helps a dog even though he doesn't perspire. Dogs can lose heat through radiation, helping offload some work from his primary cooling systems.

Continued on next page.

KNOWLEDGE IS POWER

Busting the myths about dogs and heat.

“My dog’s long coat protects him from the heat.”

This has to be the number one myth and it comes in a corollary version too: “My dog is double coated so isn’t bothered by heat.”

A fur coat is an insulator; two fur coats makes a better insulator. Yes, it’s true that longer hair helps reduce the heat transmitted from the surface of the coat to the skin. But the longer coat also creates a layer of air that insulates the dog. In this case, that air is heated by two sources: the dog and the outside environment. In the event that the insulating air mass exceeds the skin temperature of the dog, the heat transference will be reversed and flow back to the skin.

“My dog’s short coat protects him from the heat.”

A short coat does help a dog radiate his own heat to the environment better than a longer coat – we all see that in the cold months. But the short-coated dog is that much more likely to absorb heat from solar influx, and a black short-coated dog is most at risk.

“My dog is tough.”

Very popular among those with Dobermans, rottweilers, various American bulldog breeds, etc. A tough-minded dog has the same metabolism as any other canine, but is less likely to let you know he is suffering until he cannot carry on. Add to that the fact that many of these “tough” dogs are black and short-coated, and you have a problem since black attracts heat.

“I walk my dog at night.”

Good, that’s a start. But if it’s 105°F in Las Vegas at nine in the evening, you and the dog are still being bombarded by radiant energy. Your eyes say it’s dark, but the heat says the world is glowing with radiant thermal energy. If it’s hot, it’s hot.

5 Give him a dip in a pool or stream. Water on the body allows for evaporative cooling. But that cooling mechanism works well only if airflow is plentiful and the heat being absorbed by evaporation comes from the dog, not the environment. One of the problems with older style towel wraps and chamois is that they turn into a sauna underneath because they emphasize water at the exclusion of air. Evaporative cooling is about 80% airflow, 20% water.

6 Watch for the slightest signs of heat stress. Keep in mind, though, that a dog may already be suffering from heat stress before these symptoms of distress appear.



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- a. Intense, rapid panting
- b. Wide eyes
- c. Excessive salivation
- d. Staggering and weakness
- e. Collapse

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7 Use a good quality cooling jacket. I designed the Chillybuddy jacket for Buddy to deal with the real physics and biophysics of the dog’s circumstances. Try to find a product that addresses solar influx, provides enough airflow and/or emphasizes water over airflow. Remember this is not about what’s convenient or inexpensive for you.

Protecting dogs from hyperthermia is mostly about prevention and common sense. Take the right precautions, and you and your companion can relax and enjoy the summer in comfort. 