



How Hot is That Sidewalk?

During my afternoon walks with one of my customer's dogs, a black haired Belgian Shepherd, I noticed he would tend to skip across the pavement and concrete. Living in South Florida, I'm aware of the heat and the impact on animals, but I was surprised to see how this particular dog was extra sensitive to the temperature along his path.

Although I have found several articles on dog paw pad injuries from summer heat, I wanted to get a better understanding as to what kind of temperatures my dogs were experiencing and how to avoid these. Also, some customers may demand to have their pets walked, but we need to explain to them it may be an unsafe condition. In addition, should injuries occur, we need to know actions we can take to help the pets.

I worked with an engineer to take temperature data over several days along my walking paths. I also researched temperature impacts on animals and found some startling information. Simply stated, in the heat of the summer, we are burning many dogs' feet walking them across hot pavement and cement, and all pet sitters must rethink how and where we walk our animals on these hot days. In addition, we must also pay attention to the temperatures in a hot car when we transport animals.

Temperature Limits for Animals and People

Research is limited regarding temperature impact on animals, but what I found was alarming. Experimental tests on live animals for thermal burns had been done by several researchers in the 1940's. The data showed several key temperatures and are noted below. I have added about 10°F which the pads on dogs feet offer:

- 120°F: the initial pain threshold for direct skin contact without permanent damage.
- 140°F: burns, permanent damage, and scarring appear after one minute contact .
- 150°F: rapid burns and blistering.

Humans have similar temperature limits but they can vary substantially with age, skin condition and contact method, compared to most animals.

- 120°: burns after five to 10 seconds in hot water for small children and the elderly.
- 140°: burns after one minute of contact or hot water immersion for average adult.
- 160°: rapid burns and blistering after contact with firm surface or water immersion, with possible nerve damage.

Just like a human's callused hands, a larger dog's pads may be able to tolerate these high temperatures for several minutes, but you will eventually cause permanent damage or blistering with continuous exposure.

By Marcia Breithaupt

Temperature Measurements

The temperatures we measured often occur in Southern California, Arizona, New Mexico, Texas, Louisiana, Alabama, Georgia, Florida and often up the East Coast on summer days. In the heat of the summer it is also common for middle latitude states like Tennessee, Missouri, Oklahoma, and others to see such temperatures. These states easily touch one half of the population during the summer.

To measure this data, we held an infrared thermometer about one foot above the ground. It's highly recommend all pet sitters purchase such a device to ensure the safety of their animals.

Temperature Data

The pavement temperature data I measured on the 95° day in South Florida was simply stunning. During the peak overhead sun periods, black pavement temperatures hit 140°F in mid afternoon between 2:00 p.m. and 4:00 p.m. They exceeded 120° on blacktop between 11:00 a.m. and 6:00 p.m., which is still above the pain thresholds for most dogs. I also tested a red brick sidewalk area but it was only about five degrees cooler than the blacktop.

Most animals walk on the sidewalk, and I assumed the white concrete surface would be much cooler since light colors reflect heat more.

In the heat of the summer, we are burning many dogs' feet walking them across hot pavement and cement, and all pet sitters must rethink how and where we walk our animals on these hot days.

Surprisingly it was still dangerously hot. Between 1:00 p.m. and 4:00 p.m. the cement was over 115°, which is still a painful experience for most dogs. Even the adjacent grass was more than 105° in the sun at midday. Temperatures in the desert Southwest and south Texas can be even higher. In general, the darker the surface, the more heat it absorbs, and the more intolerant for the dog.

Other Temperature Problems

Everyone has experienced that gush of hot air when opening their car door on a hot summer day and sitting down on a hot leather seat. After measuring these temperatures on the pavement, I felt it was also a good idea to measure the seat temperatures with light gray leather seats. I was stunned when I saw the 152° reading on the seat surface. This would certainly burn any animal's paws and emphasizes the need to carry towels or blankets to cover the seats before allowing your pet to get in the car or let your bare skin touch it.

In addition, the vehicle had an air temperature over 130° sitting in the daytime sun, so this is further proof that leaving animals in closed cars is dangerous. It's also against the law in a number of states. Even temperatures in cars with windows cracked open can rise 20° to 30° above the outside air temperature. A 70° day can feel like 90 to 100° inside a locked car. Remarkably black leather seats inside a car can easily achieve this and the black dashboards in many cars can exceed 170°.

One more surprising measurement was the thermal heating of an actual dogs' coat. On these 95° days I was measuring temperatures of more than 125° on the top of the black fur of the Belgium Shepherd. Although a dog's fur keeps them warm in the winter, it also acts as an insulator in the summer. The problem with this concept is that the insulator breaks down over time. The hot temperature on the surface of their coat warms their fur, eventually reaching their skin. These high sun exposures can easily create heat stroke for a dog that has been in the sun.

Dog Paw Burn Prevention

Based on the data above, it's obvious we need to be very cautious walking a dog after noontime, and as late as 6:00 p.m. Unfortunately, these times coincide with typical lunch and after-work walks. So what can we do to prevent burns?

- Walk animals as early and as late at night as

possible to allow all the surfaces to cool.

- If dogs want to walk in the grass, let them. They are obviously in pain and you cannot force them onto a hot surface.
- Walk dogs as often as possible on cement to build up calluses on their pads. They act as an insulator, providing another few degrees of protection and helps prevent blisters.
- Moisturize their pads everyday with Vaseline or MusherSecret to keep their pads soft and pliable and less prone to cuts.

Treating Paw Pad Burn Injuries

If a dog experiences a burn or blister, take several steps to prevent injury. Dog paws are also very prone to infection, so immediate response is critical if you detect any burns or cuts.

- Wash the dog's paw with antibacterial soap such as Dial, and pat dry with a soft towel. Spray Bactine brand spray on the burns immediately. It is an excellent antiseptic and has Lidocaine which is a good anesthetic that takes away the pain. You may also use Betadine which is the same chemical but in unbranded, larger bottles. It has been around for more than 50 years and is safe for animals and people.
- Apply antibiotic ointment over the damaged area and wrap with gauze, then pull a sock up over the foot and leg to prevent the dog from chewing at the wrap.
- Immediately take the dog to a veterinarian to get checked and possibly prescribe a mild antibiotic to prevent infections.

Summary

I cannot emphasize enough how dangerous a hot, sunny day can be while walking animals or putting them in hot environments such as a closed vehicle. The animal may be trying to make adjustments to stop such burns we cannot interpret. Pet sitters must become more aware of these temperatures and be able to educate our customers about this. ■

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Heat Exhaustion Signs in Dogs

- Heavy panting – The first sign of heat exhaustion is heavy panting. Since dogs are incapable of sweating, their only way to cool their internal temperature is through panting.
- Pay close attention to certain breeds – Certain breeds with heavy coats (such as Shelties or Chow Chows) and other breeds with short snouts making it harder for them to breath (such as Boxers and Pugs) are much more susceptible to heat exhaustion and should be watched closely while in hot temperatures.
- Weakness – Dogs may experience weakness in extreme heat.
- Disorientation – You may notice that your dog is unaware of his/her surroundings while experiencing heat exhaustion.
- Vomiting – This may also occur during heat exhaustion.

Heat Stroke Signs in Dogs

- Heavy panting – This is also the first sign of heat stroke.
- Disorientation – Another characteristic of heat stroke.
- Diarrhea – This often occurs in the event of a heat stroke.
- Seizures and/or coma – Another very serious symptom of heat stroke.

Treatment

It is very important to spot the signs of heat exhaustion early before a heat stroke occurs, as heat strokes are often times fatal. Pet owners who observe serious signs of heat stroke or heat exhaustion should seek help from a veterinarian immediately. In the mean time, there are some things that can be done to cool down a dog displaying signs of heat exhaustion:

- Provide plenty of water
- Keep the pet in a cool resting place
- Place a cool, wet towel around the dog's neck
- Ice packs may be placed on the dog's arm pit area or neck area

Prevention

Some very simple steps can be taken to avoid the serious effects of heat stroke and heat exhaustion in pets.

- Avoid taking your dog out during the middle of the day in the hot summer months.
- Walk dogs only during the morning and evening hours when the temperature is cooler.
- Provide plenty of fresh water at all times.
- Never leave your pet outside, tied up, unattended, or in a vehicle during the summer months. Get more information on dogs and car heat in the Animal Welfare article on page 9 of this issue of Professional Pet Sitter.

Information courtesy of Kara Jenkins, TLC House & Pet Sitting Service. Source: Vetinfo. For more information on this topic and other topics regarding your pets, visit www.vetinfo.com.

You can contact Marcia @ LHAPS.com (for a detailed temperature chart or for use of this article for reference.